

RĒZEKNES TEHNOLOĢIJU AKADEMIJA
Izglītības, valodu un dizaina fakultāte

REZEKNE ACADEMY OF TECHNOLOGIES
Faculty of Education, Language and Design

ISSN 1691-5887

SABIEDRĪBA. INTEGRĀCIJA. IZGLĪTĪBA

Starptautiskās zinātniskās konferences materiāli
2020.gada 22.-23.maijs

VI daļa

**SABIEDRĪBAS VESELĪBA UN SPORTS
PĒTĪJUMI EKONOMIKAS UN VADĪBAS JOMĀ
ILGTSPĒJĪGAI IZGLĪTĪBAI**

SOCIETY. INTEGRATION. EDUCATION

Proceedings of the International Scientific Conference
May 22th - 23th, 2020

Volume VI

**PUBLIC HEALTH AND SPORT
RESEARCHES IN ECONOMICS AND MANAGEMENT FOR
SUSTAINABLE EDUCATION**

Rēzekne
2020

SABIEDRĪBA. INTEGRĀCIJA. IZGLĪTĪBA. Starptautiskās zinātniskās konferences materiāli. VI daļa. Sabiedrības veselība un sports. Pētījumi ekonomikas un vadības jomā ilgtspējīgai izglītībai. 2020.gada 22.-23.maijs. Rēzekne, Rēzeknes Tehnoloģiju akadēmija, 2020, 780 lpp.

SOCIETY. INTEGRATION. EDUCATION. Proceedings of the International Scientific Conference. Volume VI. Public Health and Sport. Researches in Economics and Management for Sustainable Education. May 22th - 23th, 2020. Rezekne, Rezekne Academy of Technologies, 2020, p. 780.

Rekomendējusi publicēšanai Rēzeknes Tehnoloģiju akadēmijas Zinātnes padome, 2020.gada 24.martā.

Recommended for publication by the Scientific Council of Rezekne Academy of Technologies on March, 24, 2020.

Redaktori/Edited by Velta Lubkina, Aivars Kaupužs, Daina Znotiņa

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ISSN 1691-5887

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SABIEDRĪBAS VESELĪBA
UN SPORTS
Public Health and Sport

LATVIJAS JAUNO SPORTISTU MOTIVĀCIJA VEIDOT DUĀLO KARJERU

Motivation of Latvian Young Athletes to Build a Dual Career

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Abstract. *The study explores factors that motivate high-performance athletes to manage their dual career while studying in secondary school. The dual career experience of Latvian youth is obtained. The paper analyses the results from young high-performance athletes' questionnaire, focusing on the support young athletes receive and would need to receive in their education and sports training process.*

A survey, based on an individual approach, was carried out in training camps and schools; 125 high-performance athletes of the secondary school age completed the questionnaire (19 questionnaires were filled in electronically). The gained data were processed with the statistics methods using SPSS Statistics and Excel programmes.

The young people in the age range from 15-19 years study in secondary school, vocational school or in Year 1 of a higher education institution; this is a young athletes' transitional period from youth leagues to junior or adult sports leagues. In the education process, 77 young athletes were supported by their parents (M-3)(according to the average value of the 4-point Likert Scale), and 70 respondents indicated teachers' support (M-3); while in sports the support was received from trainers (M-3,70) and friends (M-3,42). The study analysed the contributing factors that motivated young athletes to gain education and achieve sports mastery.

Young athletes up to 19 years sought more for their friends' approval. Student-athletes chose to study in schools that offered opportunities to combine studies with high-performance sports. However, young student-athletes lacked motivation for studies.

Keywords: *dual career, education, high-performance athletes, sports.*

Ievads

Introduction

Šis pētījums sniedz ieskatu skolēnu – sportistu viedokļos un uzskatos par viņu motivāciju iegūt gan izglītību, gan sasniegt augstus rezultātus sportā.

Pētījuma mērķa grupa ir jaunieši – augstu sasniegumu sportisti. Pamatojoties uz Latvijas Sporta politikas pamatnostādņēm, par augstu sasniegumu sportistiem uzskata jauniešus no 15-16 gadu vecumā, kuri sporta

skolās vai klubos mērķtiecīgi nodarbojas ar sportu, ir iekļuvuši Latvijas jauniešu vai junioru izlasēs, kā arī piedalās Latvijas un starptautiskās sacensībās ar mērķi sasniegt augstus rezultātus (Ministru kabinets, 2013).

Katrs jaunais sportists sapņo kļūt par zvaigzni sportā, uzvarēt pasaules mēroga sacensībās. Tomēr, sportistiem sasniedzot 16-18 gadu vecumu, tikai daži no viņiem turpina ceļu uz augstāko mērķu sasniegšanu. Saskaņā ar starptautiskajiem pētījumiem, viena trešdaļa no visiem jaunajiem, talantīgajiem sportistiem vecumā no 15 līdz 17 gadiem katru gadu pārtrauc sporta treniņus, jo dzīvē parādās viņuprāt svarīgākas nodarbes (European Commission, 2012). Šo problemātiku savos pētījumos analizējuši pētnieki (Stambulova, 2009; Capranica & Millard-Stafford, 2011), norādot, ka sportistiem vecumā no 14 līdz 18 gadiem trūkst motivācijas turpināt mācīties un nodarboties ar sportu, kas nākotnē apdraud viņu profesionālo darbību. Jauniešiem šajā vecumposmā izglītība var palīdzēt nezaudēt motivāciju turpināt treniņus.

Vairāki pētnieki jaunību definē kā dzīves posmu, kurā notiek pāreja no bērna uz pieauguša cilvēka statusu, kas nozīmē patstāvīgas dzīves uzsākšanu, iekļaušanos sabiedrībā (Rungule & Kārklīņa, 2009; Krona, 2011). Savukārt (Ābelkalns, 2013) uzsvēris, ka sportā šis vecumposms saistās ar pāreju no jauniešu/junioru sporta uz pieaugušo sportu. Sportistiem rodas papildus stress un slodze, zūd motivācija mācībām un treniņiem.

Šie ir daži no faktoriem, kādēļ jāpievērš jauniešu - augstu sasniegumu sportistu uzmanība duālās karjeras veidošanai.

Ar terminu „duālā karjera” saprot: saskaņotu darbību procesu, kurā sportists attīsta savu sportisko un akadēmisko kompetenci, sekmē psihosociālo un psiholoģisko attīstību (Stambulova, 2009).

Pētot un analizējot Eiropas valstu duālās karjeras būtību, darba autori norāda, ka vērojama korelācija starp dzīves līmeni konkrētajā valstī un sporta sistēmas sakārtotību saistībā ar izglītību. Piemēram, Zviedrijā ir izveidota attīstīta un funkcionāla sistēma, kas ļauj jaunajiem sportistiem savienot profesionālu vai daļēji profesionālu sportu ar mācību procesu. Attīstot duālo karjeru, iespējams pilnveidot jauniešu izpratni par veselīgu dzīves stilu, izglītības nozīmi vienlaicīgi pilnveidojot savu garīgo pasauli (Swedish National Guidelines for elite athletes' dual careers 2018). Tas nozīmē, ka augstu sasniegumu sportistiem jāatrod motivācija un iedvesma, lai varētu veidot savu duālo karjeru.

Šajā vecumposmā jauniešiem formējas arī viņu priekšstati par turpmāko dzīvi un statusu sociālajā kultūrā. Bieži jaunieši cenšas paaugstināt cieņu draugu acīs, kas izpaužas kā labs izskats un panākumi sportā. Tas liecina, ka pozitīvā motivēšana jauniešu vidū šobrīd dominē pār negatīvo, destruktīvo motivēšanu (Koroļeva et al., 2007; Akishin, 2013).

Pētījuma mērķis, pētīt un analizēt faktoros, kas motivē skolēnus - augstu sasniegumu sportistus veidot duālo karjeru vidējās izglītības posmā.

Metodes. Aptaujas anketās iegūtie dati tika apkopoti un apstrādāti, izmantojot datu statistiskās apstrādes programmu SPSS un Excel. Aptaujā iegūto datu apstrādei tika izmantotas datu statistiskās apstrādes metodes – faktoru analīze, aprakstošā un secinošā statistika.

Metodoloģija *Methodology*

Aptaujas anketas kā mērinstruments tika veidots, pamatojoties uz līdzīgiem pētījumiem, kas balstīti uz augstu sasniegumu sportistu duālās karjeras veidošanu (Aquilina, 2009; Ābelkalns, 2013). Aptaujā piedalījās 125 vidusskolas vecuma augstu sasniegumu sportisti. Respondentu anketēšana tika organizēta jauniešu treniņu vidē vai mācību vidē, jāpiebilst, ka deviņpadsmit gadījumos anketēšanas tika veikta elektroniski. Aptaujas anketās jauniešiem vajadzēja sniegt atbildes uz 17 slēgtajiem jautājumiem un 3 atvērtajiem jautājumiem par duālo karjeru, lai noskaidrotu kādi faktori motivē sportistus uz sasniegumiem sportā un mācībās. Slēgtie jautājumi ievērojami samazina neatbildēto jautājumu skaitu, kas pētniekiem ļauj saņemt pilnvērtīgas atbildes uz interesējošiem jautājumiem (Kristapsone, 2008). Savukārt atvērtie jautājumi ļauj respondentiem paust padziļinātu informāciju par pētāmo tēmu. Aptaujā iegūto datu apstrādei tika izmantotas datu statistiskās apstrādes metodes – faktoru analīze, aprakstošā un secinošā statistika.

Rezultāti *Results*

Pētījuma autori veica faktoru analīzi (SPSS programmā), lai atrastu mainīgo savstarpējās saistības un starp tām pastāvošās likumsakarības (Geske & Grīnfelds, 2006).

Pēc faktoru analīzes visi respondenti tika iedalīti trijos klāsteros. Pirmajā klāsterī iekļaujot skolēnus – sportistus, kam primārais šķiet sports, otrajā klāsterī – sportistus, kam vienlīdz svarīgs ir gan sports, gan izglītība, bet trešajā klāsterī iekļaujot respondentus, kam prioritāte šķiet mācības. Šeit jāpiebilst, ka sportistiem no otrā klāstera ir būtiski saņemt augstākus vērtējumus mācībās. Savukārt sportistiem, kas iekļauti trešajā klāsterī mācības ir svarīgas, bet vērtējumi nav tik nozīmīgi.

Datu analīzes rezultātā autori secina, ka augstāka līmeņa sacensībās piedalās jaunieši no 2. klāstera, kuriem svarīga ir gan izglītība, gan sports. No

grupas kopējo atbilžu skaita (n-13, 45%) piedalās sava vecuma Eiropas un pasaules līmeņa sacensībās.

Savukārt 1. klāsterā respondenti, kuriem galvenā prioritāte ir sports, Eiropas līmeņa sacensībās piedalās (n-14, 50%) no kopējās grupas respondentu skaita. Trešā klāsterā respondentiem ir nosacīti zemāki sportiskie sasniegumi, piemēram izcīnītās vietas sava vecuma grupas Latvijas čempionātos (n-6, 10%) un dažāda līmeņa starptautiskajās sacensībās (n-17, 30%). Autori to skaidro ar to, ka šajā grupā sportisti ir salīdzinoši jaunāki (16,6 gadi) un šiem sportistiem galvenie sasniegumi vēl priekšā.

Autori uzskata, ka svarīgi noskaidrot sakarības starp to, kā atbalstu saņem augstu sasniegumu sportisti izglītībā un kā atbalstu sportā. Datu analīzes rezultātā tika konstatēts, ka atbalstu izglītībā jaunieši saņem no vecākiem (Mi-3,77) (turpmāk tekstā - izglītībā vidējā vērtība - Mi, un Ms - vidējā vērtība sportā) (Ms - 3,70), skolotājiem (Mi-3,70; Ms-3,11), bet sportā lielāks atbalsts ir no treneriem (Ms-3,70; Mi-3,29), draugiem (Ms-3,42; Mi-3,20), sporta klubiem (Ms-2,84; Mi-2,40). Saskaņā ar pētījumiem (O'Neil, Calder, Allen, & Cowan, 2015) vecāki velta daudz laika tam, kas saistās ar loģistiku, vedot jauniešus uz skolu, sacensībām. Turklāt tie ir arī ekonomiskie aspekti, jo vecāki tērē līdzekļus iegādājoties sporta inventāru, mācību materiālus, algojot privātskolotājus, bez kā nebūtu iedomājama duālā karjera.

Anketēšanas ietvaros tika noskaidrots, kā padomus dažādās dzīves situācijās jaunie sportisti uzklausa vispirms. Datu analīzes rezultātā noskaidrojās, ka (n-58, 47%) vispirms uzklausa vecāku padomu, kam seko treneri (n-29, 23 %). Tas nozīmē, ka treneris ir persona, kas lielā mērā var ietekmēt jauniešu - augstu sasniegumu sportistu tālāko karjeras izvēli pēc augstu sasniegumu sporta, tādējādi sekmēt vai arī kavēt augstu sasniegumu sportistu duālās karjeras veidošanu. Ko apliecina Daniels Goulds – kinezioloģijas profesors un Mičiganas Jauniešu Sporta Institūta direktors savā rakstā „*Quality coaching counts*” uzsverot, ka tieši trenerim (neatkarīgi no sporta veida, hokejs vai skriešana) ir svarīgākā loma bērnu un jauniešu karjeras attīstībā. Treneris ne tikai māca sporta veida pamatus, bet arī ietekmē sportista motivāciju, vēlmi attīstīties profesionāli (Gould, 2016). Viņiem rūp, ka var ietekmēt jauniešu rakstura veidošanos, spējas pārvarēt dažādas grūtības un šķēršļus. Ne mazāk svarīgi trenerim ir panākt, lai sportists izjūt motivējošo un atbalstošo vidi, ne tikai uzsākot nodarbības, bet arī tajos brīžos, kad nekas nesanāk un zūd motivācija. Respondentiem tika uzdoti identiski jautājumi par to, kādu personu/organizāciju atbalstu viņi saņem augstu sasniegumu sporta pilnveidei. Apskatot 1. tabulu redzam, ka sportā sportisti līdz 16 gadu vecumam saņem lielāku atbalstu no sava trenera ($p=0,014$), kas vēlreiz apstiprina trenera lielo nozīmi augstu sasniegumu sportistu duālajā karjerā. Arī sporta vadības teorijā tiek uzsvērtā trenera, sporta organizāciju ietekme, kas kopumā motivē un

iedvesmo jaunus sportistus panākumiem, respektējot pašu sportistu vēlmes un vajadzības personības izaugsmē (Masteralexis, Barr, & Hums, 2005; European Commission, 2012).

Kā jau iepriekš noskaidrojām, izglītībā un sportā lielāko atbalstu sportisti saņem no treneriem, vecākiem un skolotājiem. Ar t-testa palīdzību autori analizēja atšķirības šajā atbalsta jomā, kādas vērojamas dažādās vecuma grupās (skatīt 1.tabulā).

1.tabula. Augstas klases sportistu viedoklis atbalstam augstu sasniegumu sportistiem dažādos vecumos (autoru veidota)

Table 1 Elite athletes' viewpoint on support for high-performance athletes at different age groups (created by the authors)

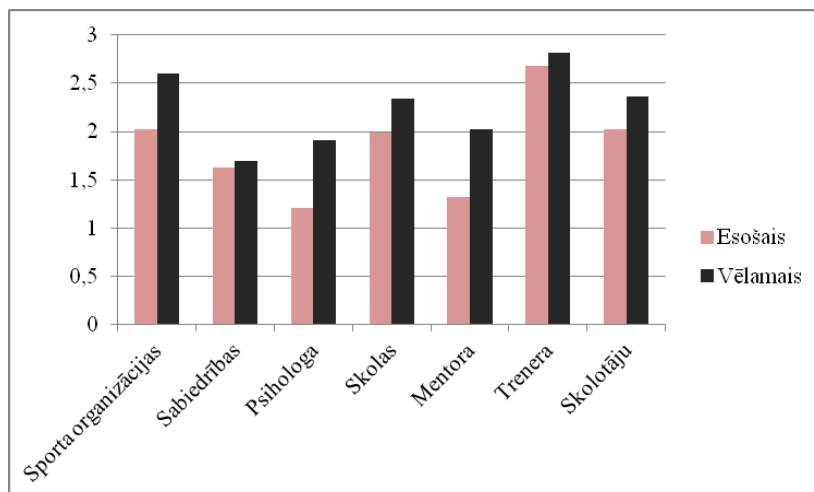
<i>Mainīgie</i>	<i>Sportisti līdz 16 gadiem (M)*</i>	<i>Sportisti 17-19 gadi (M)*</i>	<i>p vērtība</i>
Treneris	3,78	3,65	0,014
Vecāki	3,78	3,65	0,014
Skolotāji	2,77	2,61	0,04
Klubs	2,08	2,48	0,001

*Četrus punktu Likerta skalas vidējās vērtības

Var redzēt atšķirību respondentu atbildēs par atbalstu ko sniedz vecāki ($p=0,0014$) un ko - skolotāji ($p=0,04$). To var izskaidrot ar to, ka jaunieši līdz 16 gadiem galvenokārt mācās vidusskolas 10. klasē un dzīvo pie vecākiem, tādējādi jūt atbalstu no vecākiem, kuri vairāk vai mazāk seko līdzī arī jauniešu sekmēm mācībās.

Pētījuma gaitā autori noskaidroja jauniešu – augstu sasniegumu sportistu viedokļus par to, kas sniedz atbalstu gan mācību, gan sporta procesā un, kā atbalsts nākotnē būtu vairāk nepieciešams, lai varētu pilnveidoties abos virzienos. Respondenti sniedza atbildes pēc Likerta skalas divās daļās: A - kā atbalstu sportisti saņem, B - vai tas būtu vajadzīgs.

Balstoties uz iepriekš teikto, autori vispirms noskaidroja, kādu atbalstu pašreiz saņem jaunie sportisti un kādu viņi vēlētos saņemt. Kā redzams 1. attēlā sportisti no visām personām/organizācijām saņem nepietiekošu atbalstu, jo atbalsts, ko vēlētos, ir lielāks. Šajā attēlā var redzēt, ka augstu sasniegumu sportisti lielāko atbalstu (M-2,68) saņem no treneriem. Kā nākošais svarīgākais atbalstītājs tiek minēts sporta organizācijas (M-2,06) (sporta klubi, komandas, sporta veidu federācijas u.c.), skolas (M-1,99) un skolotāji (M-2,01). Analizējot otro atbilžu klāstu, kā atbalsts būtu vajadzīgs vairāk, respondenti atbildēja salīdzinoši līdzīgi. Vairāk nepieciešams atbalsts no treneriem (M-2,82), sporta organizācijām (M-2,60), skolotājiem (M-2,36) un skolas (M-2,34). Jāatzīmē, ka vecuma grupā 17-19 gadi, jauniešiem nepieciešams sporta organizāciju (M-2,69) un treneru atbalsts (M-3,0).

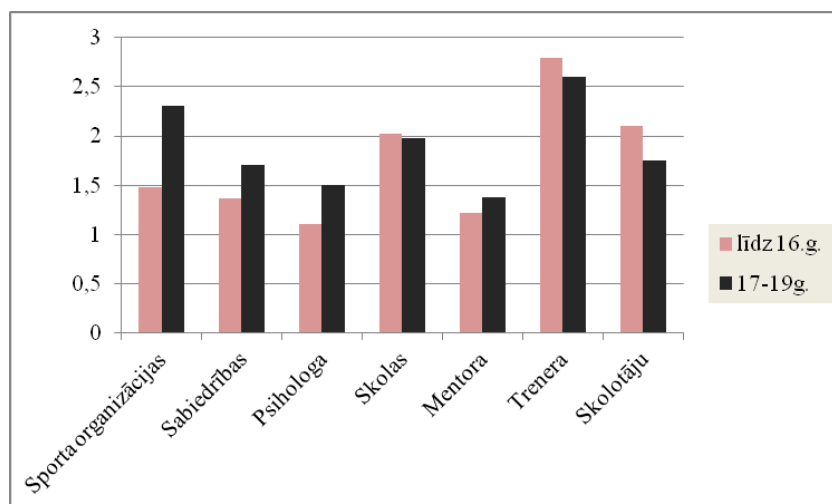


1.attēls. Augstu sasniegumu sportistu viedoklis par esošo un vēlamo atbalstu no personām/organizācijām (autoru veidots)

Figure 1 High-performance athletes' viewpoint on the existing and desirable support from individuals / organisations (created by the authors)

Analizējot, kādu atbalstu veidojot savu duālo karjeru augstas klases sportisti saņem un kādu vēlētos saņemt proporcionāli vairāk, iezīmējas divi faktori: saņem atbalstu no mentora (M-1,32) un psihologa (M-1,21), bet vēlētos saņemt lielāku atbalstu arī no mentora (M-2,00) un psihologa (M-1,87).

Lai varētu izvērtēt jauno sportistu esošā un vēlamā atbalsta sniedzēju nozīmi duālās karjeras pilnveides procesā, autori iegūtos datus salīdzina divās vecuma grupās. 2. attēlā var redzēt, ka statistiski būtisku atšķirību nav starp jauniešu viedokļiem līdz 16 gadiem un 17-19 gadiem, tomēr autori saskata tendenci, kas iezīmējās atsevišķos gadījumos.



2.attēls. Jauno sportistu viedokļi par esošo atbalstu no personām/organizācijām, dažādās vecuma grupās (autoru veidots)

Figure 2 Young athletes' viewpoint on the existing support from individuals / organisations at different age groups (created by the authors)

Jaunieši līdz 16 gadu vecumam saņem lielāku atbalstu no treneriem (M-2,8; M-2,6) un skolotājiem (M2,1; M-1,75), savukārt sportisti 17-19 gadu grupā sajūt lielāku atbalstu no sporta organizācijām un sabiedrības, bet jāatzīmē, ka šīs vecuma grupas respondentiem pietrūkst sporta organizāciju atbalsta duālās karjeras īstenošanas procesā. Tas nozīmē, ka sporta organizācijām jāsekmē jauno sportistu motivācija duālajā karjerā.

Secinājumi **Conclusions**

Autori analizēja un vērtēja jauniešu - augstu sasniegumu sportistu sniegtās atbildes uz aptaujas anketas slēgtajiem un atvērtajiem jautājumiem par izglītību, sportu un atbalsta iespējām izglītībā un sportā, lai to analīze sniegtu pilnīgāku izpratni par jauno sportistu duālās karjeras veidošanu.

Apkopojot veikto datu analīzi, pētījuma autori secina:

- Jaunie sportisti vecumā līdz 16 gadiem sevi vairāk cenšas pierādīt draugiem, šajā vecumā ir svarīgāk mācīties skolā, kurā var savienot mācības ar augstu sasniegumu sportu, bet jaunieši nav pārliecināti, ka mācībās var sasniegt augstākus rezultātus, viņiem biežāk trūkst motivācijas un kādas personas, kura spētu motivētu darbam.
- Izglītībā jaunieši - augstu sasniegumu sportisti līdz 16 gadiem lielāku atbalstu saņem no vecākiem, skolotājiem un treneriem, bet sportā no treneriem, skolotājiem un vecākiem.
- Anketu datu izvērtēšanas gaitā pierādījās, ka jaunajiem sportistiem sports ir primārais, bet izglītība – sekundārais. Jaunieši no 17-19 gadiem izjūt atbalsta trūkumu no sporta klubiem, federācijām.

Summary

The article provides analysis of the research results on the topic of young people's, high-performance athletes, motivation and possibilities to make their dual career. Moreover, there is analysis of young people's, high-performance athletes, survey results on what kind of support they receive and what kind of support would be necessary for young athletes in the development of their education and sport paths. To become adults for youngsters mean to start living independently, represent particular social positions and social roles, respectively, it is about their inclusion in the society. Meanwhile in sport the actual period of time is about leaving secondary school and enrolling higher education establishments, about changes in their personal lives (different environment, transfer from junior to adult sport), which is often a reason for additional stress and their lack of motivation to successfully organise their dual career.

The survey was conducted as a personal approach at a sports complex or school (in nineteen cases questionnaires were completed electronically) handing out questionnaires to 125 upper-secondary school age high-performance athletes. The gathered data was processed

using statistical data processing programmes SPSS and Excel, and statistical data processing methods – descriptive and inferential statistics, factor analysis, were applied.

The authors of the research consider finding out a link between the way young athletes get support in education and how it is done in sport to be significant. Data analysis show that in education young people are mainly supported by parents (Mi - 3.77) (further on in the text referred to as mean value in education - Mi, and Ms - mean value in sport) (Ms - 3.70), teachers (Mi - 3.70; Ms - 3.11), whereas in sport greater support is provided by trainers (Ms - 3.70; Mi - 3.29), friends (Ms - 3.42; Mi - 3.20), sport clubs (Ms - 2.84; Mi - 2.40).

The analysed data reveal that (n-58.47%) of the surveyed young people first of all listen to their parents' advice, which is followed by the trainers' advice (n-29.23%). It lets the researchers assume that trainers are the people who can considerably influence youngsters – high-performance athletes' choice of their further career besides the participation in the high-performance sport thus either enhancing or hindering development of high-performance athletes' dual career. Analysing a second set of the answers on whose support would be necessary the most, the respondents had answered rather similarly – from trainers (M-2.82), sport organisations (M-2.60), teachers (M-2.36) and school (M-2.34).

Based on the analysis of the gathered data, the authors conclude that in the field of education high-performance athletes are supported by parents, teachers, trainers, whereas in sport the main support comes from trainers, friends, parents and teachers. That means until the age of 16 parents, trainers and teachers' motivation, understanding and their cooperation is of utmost importance.

The results of the analysed questionnaires prove that sport for young athletes is of primary importance, education playing a secondary role. Young people (17-19 years of age) feel a lack of support from sport clubs, federations.

To be able to successfully organise their dual career, high-performance athletes (17-19 years old) need advisory, moral and financial support which they want to receive from consultants, psychologists, trainers and sport organisations (sport clubs, federations).

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DUAL CAREER MODEL FOR LATVIA'S ENVIRONMENT

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Abstract. *Combining the systems of high-performance sport and the general education on the high school level is a research object in sports science since the 1980s (Teubert, 2009). While a large number of scientists have studied the dual overload of athletes/students in school and high-performance sport, only a few have focused on the coordination or collaboration of these two structures - school and high-performance sport (Teubert, 2009). Therefore, in this study will be research the Murjani Sports Gymnasium (MSG) as the only specialized sports education institution in Latvia which provides high school education and simultaneously the realisation of high-performance sports career. Furthermore, the aim of this study is to develop a dual career model for Latvia's socio-economic environment. Additional to the literature research and review of national and European regulations, an online survey was carried out. MSG teachers and coaches were invited to complete voluntary an online survey, a questionnaire related to theoretical issues. Overall, 32 persons completed the questionnaire. MSG teachers and coaches were asked to evaluate the dual career system in MSG and to give suggestions for development which has significant meaning in dual career system improvement and development in the Latvian sports industry. The data were analysed with the statistical analysis by using IBM SPSS 21.0 software: a) quantitative descriptive statistics; b) correlation analysis. Furthermore, the induction or cognition method as qualitative research method were used to draw conclusions and establish a dual career model for Latvia's socio-economic environment.*
Keywords: *education, dual career, high-performance sports, model, successful transition.*

Introduction

Dual career focuses on linking and interaction between sports career and education process (Alfermann & Stambulova, 2007; Stambulova & Wylleman, 2014) to ensure successful and simultaneous transitions in both athletes' careers.

Currently, the interest in dual career has grown strongly by producing recommendations, models and guidelines on the dual career realisation and improvement in its structures. However, initially it is necessary to develop a comprehensive understanding of dual career.

The successful development of national standards and environments for dual careers requires the design and development of a holistic life span perspective

focusing on dual career development and successful transition (Wylleman & Lavallee, 2004). Dual career transitions take place simultaneously in several spheres of life: (a) sport, (b) education, (c) psychological and (d) psychosocial contexts (Wylleman & Lavallee, 2004). Likewise, in sport psychology the dual career models (Stambulova, 1994; Wylleman & Lavallee, 2004) describe the characteristics of a dual career sequences and transitions. Dual careers also depend on athletes' age, gender, the sport they represent, their individual characteristics, the sport system in the sport they represent and the country, their social environment and culture (Stambulova & Wylleman, 2014). This great variety of traits, factors, circumstances and contexts can stimulate or hinder the successful transition of dual career paths.

Furthermore, these scientific models and recommendations should attain all involved stakeholders and their consciousness in this dual career system. The most important stakeholders or drivers of dual career development and promotion are the athletes themselves, coaches, teachers, sports and education systems, sports federations, government, society et al. Moreover, based on data from the European Union conducted research study "Study on Minimum Quality Requirements for Dual Career Services" (2016), the importance of qualitative dual career maintenance or realisation persist in the interaction between all stakeholders. Therefore, qualitative dual career structures offer potential and opportunities for positive development. According to this EU study there are real operational steps:

- a) the participating organizations evaluate their willingness and support for dual career development and support;
- b) new opportunities for international cooperation;
- c) encouragement of existing dual career cooperation;
- d) establishment and enhancement of the dual career monitoring and/or evaluation system(s).

In this context, to develop a dual career model for Latvia's socio-economic environment were selected factors as age, academic level of the athletes and all involved stakeholders as well as the affectual environments which foster the dual career realisation and development in Latvia. Additionally, MSG teachers and coaches as relevant micro-environment stakeholders in the dual career realisation were asked for their professional opinion about the dual career maintenance in the MSG and the future perspective of the MSG and development opportunities.

Theoretical background

According to the model of dual career transition phases (Wylleman & Lavallee, 2004), only one age range - adolescence and early maturity, which is mostly in the developmental phase of the high-performance sport career. Also, it

contains only a small number of first steps in the professional sports career. Therefore, the focus will be set on the first transition phase of the high-performance sports career, the preparatory phase according to the work of Stambulova et al. (2012). This empirical study is based on the dual career transition model developed by Stambulova (2003). Besides, very little research has been done into this transition from junior sports to adult high/performance sports career (Stambulova et al., 2017). Vanden, Auweele et al. (2004) found that only 17 percent of athletes successfully completed the transition from junior sports to adult high-performance sports career.

Successful transition is defined as the process of finding solutions for a positive and successful transition from one career phase to next one. In the process of developing solutions and strategies (planning, work of the training process, professional support from sports experts, etc.) are looked for answers and solutions (Stambulova, 2003). In particular, for a positive and effective strategy-making process a balance needs to be found between available resources and existing obstacles. Stambulova (2003) divides available resources and existing obstacles or barriers into internal (personal experience, low self-esteem, etc.) and external (social and professional support, lack of financial resources, etc.) factors.

This model provides two outcomes for the transition of a sports career: (a) positive transition to the next phase of sports career i.e. successful development of a sports career; (b) negative outcome or crisis in sports career, when inappropriate strategy is chosen within given resources and existing obstacles. There are two ways in which this can happen: the transition to a subsequent career is delayed or the sports career is interrupted.

In the preparation phase of high-performance sports career, the first step is to define the requirements for successful completion of this phase. Psychological preparedness plays an important role in the development of adult high-performance sports. One of the requirements is to increase the volume of training and mental endurance (Stambulova et al., 2012). Subsequently, the available resources needed to achieve the goal and the existing or potential obstacles should be identified. The focus of this phase should be on external resources such as family support and a supportive environment for professional sport (Stambulova et al., 2012). In addition, internal resources, such as commitment and professional attitude, also play an important role in developing a successful sports career. Therefore, a coordination of external and internal resources plays a crucial role to achieve a successful sport career transition in the next phase.

Organizational leadership should lead this coordination process on the institutional level, where time is structured to provide athletes with the necessary training units and to connect the more intense phases of competition calendars to less intensive phases in the school, when are carried out less tests, exams, scientific research, etc. The better you coordinate and meet the demands of school

and high performance sports, the more resources available for high performance sport education, and the more planning and quantifiable development of achievements, the less you will have to deal with unwanted dropouts (Kreisel & Pfeiffer, 2002). In other words, success is based on a solid organizational structure between educational system (i.e. school) and high-performance in defining and applying the necessary tools and measures, independently of the work of each individual (Teubert, 2009).

In addition, the question arises about the drop out situation or the early conclusion of a sports career. As there is no research about the drop-out situation in Latvia, the statistics about the drop-out situation in the neighbourhood region Scandinavia will be analyzed. Enoksen (2011) in his study indicate that within five years of starting training 90% of girls and 75% of boys in Sweden have interrupt their high-performance sports career in youth age. Continuing to look at this issue in the Scandinavian countries, only one of 90 young Finnish athletes specializing in ages 11 to 13 continues his/her high-performance sports career ten years later (Wörz, 2012). To conclude, there is a great need for concepts or guidelines to support young high-performance sports talents, by individually assessing their workload and mental readiness.

Furthermore, on the daily basis the high-performance sports athletes not only face high levels of workload through a combination of school, continuing education in the universities and high-performance sport, they also face limited social resources and lack of time for leisure activities, communication with friends and to build new social contacts. To sum up, requirements and norms at school and in the training process, as well as social commitments and other constantly competing interests could lead young people to burn out or drop out. Consequently, one of the major challenges in reducing these issues is the development of an interdisciplinary and interinstitutional dual career model to prevent early school and sports career interruptions and to strengthen cooperation between the athlete, his/her family, school, teachers, coaches, sports federations, governing bodies etc.

Sequential, the involvement of all engaged stakeholder in the dual career is crucial for a successful sports career. Thus, these scientific models and recommendations should attain all involved stakeholders and their consciousness in this dual career system. The realisation of the dual career can be successful if clear and open communication and information on the rules and decision-making process is provided. Besides, if the clear communication and transparency is required then the analyse of the environment plays a crucial role as well. When studying the influence of the environmental factor on the dual career, it is necessary to distinguish between external or macro-environmental and internal or micro-environmental effects. Macro-environment as an essential factor in the process of personalization includes:

- a. society - economic, political, cultural, climatic, ecological, geographical, hygienic environment and its factors that directly interact with personality throughout one's life;
- b. social conditions - social, material and mental - that in one way or another influence personality and its development. Additionally, particular importance has the daily life, well-being, traditions and customs of a certain part of the society (Masteralexis, Barr, & Hums, 2011; Abele, 2009; Korna, 2011).

The microenvironment is related to the social environment surrounding the athlete's daily activities. Family, childhood experiences, peers, friends, school or study environment as well as media have traditionally provided the greatest impact on the micro-environment (Abelkalns, 2013). Likewise, the scholars Henriksen et al. (2010) divided the micro- and macro environment in his athletic talent development environment model - ATDE. The ATDE model consists of micro and macro levels in sports career and in other non-sports fields, which comprises education and private life. The main purpose of the ATDE model is to help create the necessary conditions and support for young athletes to make the transition from junior to high-performance sports career in adulthood (Henriksen et al., 2010). Contributing factors to dual career development are traditionally recognized drivers / stakeholders at the micro level, such as coaches, coaching staff, family, and more. (Cote, 1999; Cote, Baker, & Abernethy, 2007). In contrast, Alfermann, Stambulova and Zemaityte (2004), as well as, from a comprehensive perspective discovered new factors at the macro-environmental level: national culture and national sport system. Macro-environment describes the social environment that influences but not forcibly interact with young athletes.

Hence, the coordination of these two dual career structures – sport and education – is less scrutinised in the students' / athletes' school age. In this particular research the MSG teachers and coaches as stakeholders from the microenvironment were examined and their evaluation about the dual career's systems development in Latvia were compiled.

Methodology

Both qualitative and quantitative research methods were chosen in order to carry out the research tasks and to achieve the aim of this study. On the one hand, quantitative analysis is based on statistics, the main purpose of which is to find out some quantitative variable or other statistical measure. On the other hand, in qualitative research analysis is based on the essence or meaning of things, that is, the purpose of the analysis is to determine what the research problem means and how the respondent evaluates the research problem (Kristapsone, 2015).

Research data were collected via online questionnaire. The selected respondents of this online questionnaire were MSG teachers and coaches as the experts about the dual career maintenance in Latvia. Expert judgment is a qualitative research method and gives an objective and reliable insight into the phenomenon being studied, as experts impart the knowledge in this field (Albrehta, 1998). According to this definition, the expert's selection was based on their academic and work experience. Concretely, all selected experts have obtained an academic degree and they have at least 5 years' experience in the sports / education sector.

The questionnaire consists of questions the respondents had to answer without the assistance of the interviewer. It contains 25 questions reflecting the dual career quality and maintenance in the only dual career educational institution in Latvia – Murjani Sports Gymnasium. Moreover, the collected data were analyzed performing statistical analysis (using IBM SPSS 21.0 software): a) quantitative descriptive statistics; b) correlation analysis. Furthermore, the questionnaire's results of the open questions were analyzed with induction or cognition method to draw the conclusions. While letter help conducting a dual career model for Latvia's socio-economic environment.

In particular, 59,4 percent or 19 persons of respondents were women and 40,6 percent or 13 persons were man. Also, 65.6 percent are older than 55 years and only two of the respondents are in the age group of 25 to 30 years. Regarding the working experience only eight respondents have working experience less than 25 years and the rest 24 persons work in this field more than 25 years. In average, respondents have a postgraduate education (Master's degree) with a standard deviation of 0.504. Thus, 56.3 percent or 18 persons have a master's degree but 44 percent persons have obtained a bachelor's degree.

Research results

The results show how the coordination of the two dual career structures – sport and education – is carried out for students / athletes in school age, especially, in the MSG. The importance' evaluation of dual career components for MSG students reveals that 56 percent see "trainings and competitions" as the most important component in dual career, while 34.4 percent or eleven respondents believe that education is more important. Only three educators consider family, friends and personal life to be the most important in athletes' lives. There should be more balance of all components in dual career. However, respondents regard sport and education as two central aspects of dual career and it is important for athletes to receive qualitative education to achieve their life goals.

In this matter, MSG teachers and coaches see professional qualification as one of the solutions for individual life-long development. The vast majority or 50

percent agreed to this necessity, but 28 percent see professional qualification as one of possibilities for professional development of students / athletes.

The correlation analysis positively stressed the importance about the two central components in dual career. The collected data is not normally distributed. Referring to the theory of statistics, the authors considered correlation coefficients according to Spearman's methodology in the framework of cognition or inductive method. A less strong positive correlation ($\rho = 0.419$) was observed, depending on the age of the respondents and on the importance of the education in the lives of young athletes. This shows that senior teachers and coaches attach greater importance to education in the lives of MSG students. Moreover, it indicates that coaches and teachers are aware that they need to prepare not only professional athletes, but also knowledgeable students and professionals. This is certainly a good result for dual career understanding and maintenance in this institution.

Likewise, correlation result was positive between questions about the significance level of sport and the importance of personal life in an athletes'/students' lives. Thus, the teachers and coaches who responded that sport is the most important component in athletes'/students' lives as well assess the personal life as negligible with a 95% probability. A similar situation was reflected in the answers regarding the level of relevance of education and personal life in the athletes'/students' lives. The Spearman's correlation coefficient showed a negative correlation ($\rho = -0.55$), indicating that teachers who believe that education is important for the MSG students think that personal life is not important.

The open structured questions about the quality of the coordination of the two central components in dual career, especially in the MSG, indicate a strongly positive assessment. Answers on the questions about the students preference to learn in the MSG, positive environment and given support to successfully realize a dual career underlines benefits like: qualified coaches and teachers, organized environment for learning and training, support system (engagement of all stakeholders), individual approach, logistics, infrastructure, time savings and prestige / image. Besides the benefits the respondents were asked about the obstacles and solutions for these obstacles in dual career. The most identified obstacles were lack of time, lack of discipline and self-sufficiency of the students, miscommunication between the stakeholders and lack of financial resources. The most esteemed solution for the previous mentioned obstacles is a well organized and balanced dual career system and environment. Furthermore, there should prevail an individual approach with an elastic timeframe and well-established communication canals to identify immediately occurred problems and develop the necessary solutions. To conclude, according to the literature the MSG coaches and teachers identified multiple relevant resources and conditions for successful

transition in the final dual career level – professional high-performance sports career combined with the academic career or working life.

Following, the next step i.e. result is the established dual career model adapted to Latvia's sport and education systems. In the focus of this model is the national youth team candidates aiming for a successful transition from high-performance sports' youth career to high-performance sports adult's career. Based on Wylleman and Lavellee's (2004) athlete's transition phase model in sport, it can be specified that the selected research sample is young people aged 15 and over. The dual career model is represented by terms of interconnected and chronologically hierarchical units of two main components – education and high-performance sports career (see figure 1). For example, after graduating elementary school follows the studying in the high school, and entering the U16 national youth team, the next step in a sports career would be to be selected for the U18 national team position.

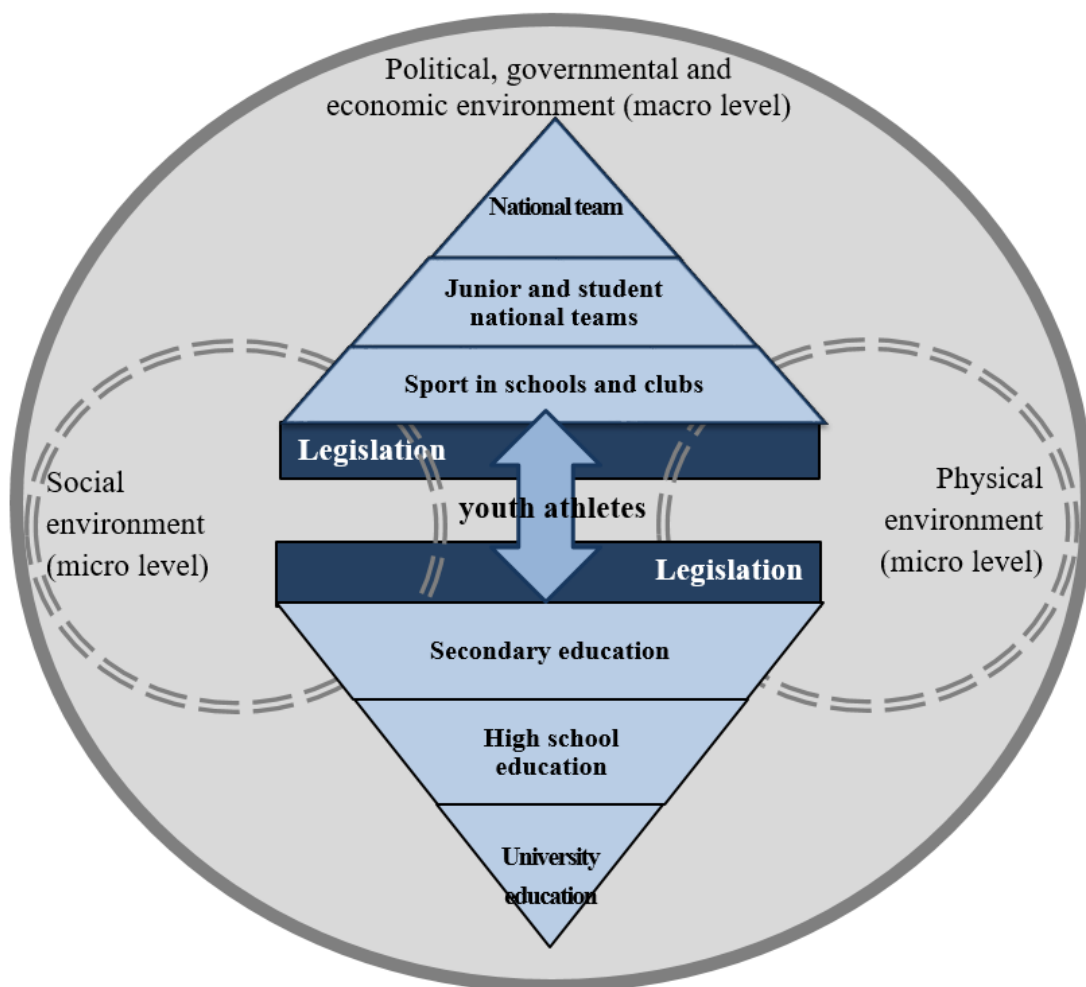


Figure 1 Dual career model in Latvia's environment (developed by authors)

These career transitions give the established dual career model a holistic and dynamic perspective to look back on past experiences and advance to the next level of dual careers, as well as constructively evaluate the level of achievements so far. Furthermore, the microenvironment is represented by the social and physical environment, where the middle-aged athletes lead their daily lives, communicate and interact with dual-career drivers such as coaches, teachers, family, teammates, peers and more.

In this model these drivers are not specifically identified or included in the final list because the dual career environment must be flexible and capable of adapting to rapidly changing requirements and environmental conditions. On the other hand, the macro environment is represented by a socio-political and economic environment that directly influences young athletes but does not involve them in the process of interacting with dual career drivers, such as communication with federation presidents, mayors and deputies or ministry professionals.

Conclusion

Qualitative education and successes in the high-performance sports are two of the most important components for athlete's overall growth and achievement of his or her life's goals. Applying a holistic and complementary counterattack approach, a dual career model was developed based on previous analyzed empirical research in sports science (Stambulova et al., 2012; Henriksen, Stambulova, & Roessler, 2010) and on the qualitative theoretical findings and qualitative and quantitative results of the MSG teachers' and coaches' questionnaire.

The develop model offers structurally organized and balanced dual career system and environment. Furthermore, as the students/athletes play the central role of this model where is applicable the individual approach with an elastic timeframe and well-established communication canals. Thus, this would a be an optimal way to identify immediately occurred problems and develop the necessary solutions for successful transitions in the dual career. So, dual career includes requirements for successful entry into, pursuit of, and completion of high-performance sports careers, academic career, lifelong learning and other career opportunities like social integration, well-being and fortunate private life.

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COMPETENCIES OF PUBLIC HEALTH CARE PROFESSIONALS AND COMPETENCY DEVELOPMENT NEEDS IN PROVIDING QUALITY SERVICES TO ADOLESCENTS

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Abstract. *This article presents findings of the study of public health care professionals' attitude toward the specific competencies in adolescent health care and competency development needs. The study is based on the assumption that adolescents are specific receivers of services provided by public health care professionals; the services, therefore, should be provided with due regard to age, developmental, interpersonal, community, organisational, structural, and other intrinsic factors in terms of adolescents. When counselling adolescents, public health care professionals should be proficient in the following domains: communication style, consultation structure, policies and procedures, involvement of parents/guardians in an adolescent health care process, etc. Proficiency in the above domains requires specific competencies in adolescent health care. An analysis of public health care professionals' attitude, in view of their existing competencies in adolescent health care, might help to respond more comprehensively the following problematic questions: Why are adolescents to be considered unique clients of services provided by public health care professionals? What do competencies in adolescent health care consist of? What are the needs for competencies of public health care professionals in adolescent health care and development thereof? Thus, this article is aimed to reflect an attitude of public health care professionals toward the specific competencies in adolescent health care and competency development needs. The article consists of an introduction and two parts: the first part provides theoretical assumptions; the second part is dedicated to an empirical analysis of an attitude of public health care professionals toward the specific competencies in adolescent health care, a content thereof, and competency development needs in view of existing competencies in adolescent health care. The article ends with a discussion and conclusions, followed by references.*

Keywords: *competencies in adolescent health care, public health care professionals.*

Introduction

WHO (World Health Organisation) and the United Nations (UN) pay special attention to the health and development of adolescents. Under the youth

health projects, the UN began to develop a health care policy for adolescents as a unique age group with specific problems and needs.

Since 1996, WHO has been investing in developing resources and tools to support the competencies of health care providers in adolescent health.

There have been insufficient studies on public health care professionals' competences in adolescent health and competency educational needs conducted so far (and no studies recorded in Lithuania to this day). It is worth mentioning the contribution made by V. Baltag and S.M. Sawyer (2017) in highlighting the ecological perspective of adolescent health care.

Though, a certain paradox is observed: A paradox persists, however: the WHO, the United Nations, and health professionals report high interest in developing skills to work better with adolescents, and yet their education needs remain unmet (Sawyer, 2013).

All the above listed factors bring forth a *scientific problem*: what are the competencies of public health care professionals and competency educational needs in providing quality services to adolescents? The pilot empirical study seeks to answer the following *problematic questions*: Why are adolescents to be considered unique clients of services provided by public health care professionals? What do public health care professionals' competencies in adolescent health care consist of? How do professionals themselves assess their existing competencies in adolescent health care? What are their educational needs?

In order to analyse the above problematic issues, purpose of the research is hereby set: to reflect an attitude of public health care professionals to the competencies in adolescent health care and the needs for development thereof. The purpose of the research is limited to an analysis of attitudes of officials (specialists and managers, n = 287) from Lithuanian municipal public health bureaus. The study excludes employees from specialised public health facilities and the National Public Health Centre.

The following methodological approaches have been applied in analysing the competencies of public health care professionals and their needs in providing quality services to adolescents:

- Adolescents are unique clients of services provided by public health care professionals (WHO, 2014, p. 2);
- Professionals, providing quality public health services to adolescents, need multi-level competencies in adolescent health that go far beyond just biomedical knowledge and skills (WHO, 2015, p. 5);

The practical relevance of the study is demonstrated by the following findings: (a) Self-assessment of adolescent health care competencies by professionals working in public health bureaus is subject to their level of education and, therefore, competency development needs vary; b) A number of

core structural elements of competencies to be developed by public health care professionals can be identified in primary care settings: *effective interaction with an adolescent client; management of common health conditions during adolescence; delivery of services for adolescents in line with new quality standards and health policies; management of chronic health conditions including disability; assessment of mental health and management of mental health problems; detection and management of endemic diseases.* This should be taken into account in developing professional education programmes and in promoting inter-disciplinary cooperation between officials, institutions, curriculum coordinators and educators.

Particularities of Services Provided to Adolescents by Public Health Care Professionals and Domains of Competencies

In answering the question of why public health care providers should develop competencies in adolescent health, it is worth emphasising that Adolescents are not simply older children or younger adults. Individual, interpersonal, community, organisational, environmental, and structural factors make adolescent clients unique in the ways that they understand information, in what information (individual one rather than group) and which channels of information influence their behaviours, and in how they think about the future and make decisions in the present. The above is reflected in the ecological model of adolescent health care (Baltag et al., 2017).

The ecological model of adolescent health care consists of various factors:

- *Individual-level factors related to the age and stage of development:* rapid growth and maturation with puberty (e.g. physical growth, sexual maturation, neuro-cognitive functioning, emotional maturation); onset of health-related behaviours and states which signal a wider scope of health risks than in younger children; limited capacity to modify behaviour to override risks in the context of intense activities involving peers (“hot cognitions”); limited capacity to perceive long-term health risks that might otherwise influence current behaviours; increasing desire for confidentiality and autonomy in health consultations when compared to younger children; lower health literacy in comparison to adults; greater capacity than children to seek health care independent of parents, yet less experience than adults about when to seek health care; less empowered than adults to claim rights in health care;
- *Interpersonal-level factors:* often reliant on adults to transport them to health consultations; often accompanied by parents or other adults, who generally expect to remain present in health consultations;

distancing from parents or other adults reduces parents' capacity to understand the inner world of their child and the risks the adolescent may be experiencing (e.g. self harm); embarrassment, shame and fear of consequences can reduce adolescents' preparedness to share important information with parents and health-care providers; health-care providers function as "gatekeepers" to health resources; their beliefs about the appropriateness or legality of resources for adolescents can reduce access to health-promoting resources (e.g. provision of contraception to unmarried sexually active girls);

- *Community-level factors:* Many health issues that particularly affect adolescents are highly stigmatised within communities, which may deter adolescents from care seeking; adolescents have a lower ability to resist community values and norms which oppose or stigmatise care seeking (e.g. HIV testing for unmarried girls); community values and norms reflect adults' views, which may not appreciate the prevalence of adolescent behaviours nor the challenges of behaviour change.
- *Organisational and structural factors:* lack of privacy within health services can be more challenging for adolescents than adults due to adolescents' sensitivity about what others think; Lack of or insufficient training in adolescent health makes health-care providers less acquainted with the health and social needs of adolescents and their rights; Limited rights to consent to services; limited access to practical resources (e.g. finances, transportation).

As a consequence of these factors, health consultations with adolescents will have to be carried out with special attention to the provider's *communication style, the structure of the consultation and adolescents' involvement in decisions that affect their health* (WHO, 2017).

When emphasising *communication style*, there should be considered such aspects as adaptation of language to an adolescent's age and stage of development; building rapport, promoting engagement and empowerment; normalisation of confidential assessment of health-related behaviours; involving an adolescent in decision-making.

Health consultations with adolescents integrate treatment of the presenting complaint with broader assessment; provide time alone with the adolescent that is confidential; undertake psychosocial assessment; assess capacity for autonomous decision-making.

Policies and procedures of consultations are intended to ensure privacy; support confidential health care; promote adolescent assent and consent; reduce the financial burden of health care for the adolescent; link to community services and agencies.

Parent/guardian involvement in the process of care supports parents' (or guardians') involvement as appropriate and builds parents' (or guardians') understanding of appropriate health consultations with adolescents.

Responding to adolescents' uniqueness requires providers to develop competencies – knowledge, skills and attitudes – in better understanding adolescent development and in adopting a different communication style tailored to an adolescent's age and stage of development.

Equally important, providers need to be competent in applying in clinical practice the laws and policies that promote, protect, and fulfil adolescents' rights in health care, for example, in assessing adolescents' capacity for autonomous decision-making. Finally, the particularities of management of adolescents with specific conditions need to be known to ensure effective care:

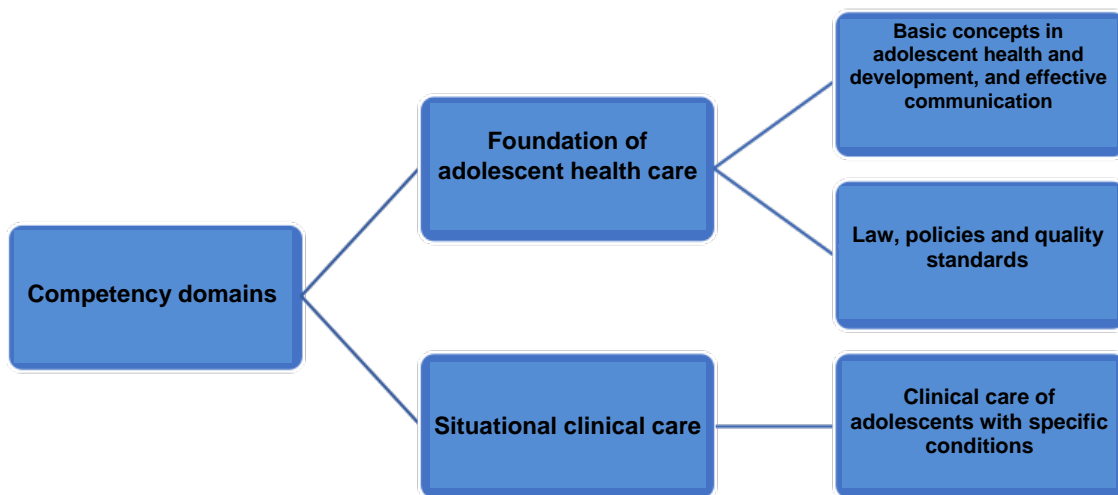


Figure 1 Key domains, in which health-care providers working with adolescents need competencies (source: WHO, 2011; 2014)

Every provider of health care services for adolescents should have core competencies in adolescent health and development; the core competencies can be taught in both pre-service and in-service education (various courses, seminars, etc.). According to the WHO (WHO, 2014), curricula for health care professionals should include relevant disciplines to develop future health care professionals' competencies in the above areas. As part of the study, a questionnaire was developed. It, as mentioned above, outlined the competencies required for a public health care professional, with their content in terms of knowledge and skills defined according to WHO recommendations (WHO, 2011; 2014; 2015).

Research results

Research methodology. On the initiative of Klaipėda University, a pilot study was conducted in 2019, with the aim – to find out respondents' attitude toward existing competencies in adolescent health care and competency development needs, in view of each individual competency domain and content thereof. A quantitative approach of the empirical study was selected. The scientific literature was analysed and an empirical study designed. It consists of several stages: 1) preparation for research; 2) survey; 3) data analysis; 4) discussion of findings.

At the first stage, an empirical research tool – closed-ended questions – was developed, on the basis of the competencies and scope of application thereof as provided by the World Health Organisation (WHO, 2011; 2014). The questionnaire was designed with the research objectives in mind. The questions, stated in the questionnaire, seek to find out what competencies public health care professionals have, their self-assessment, what is lacking in professional practice to make the services provided more effective. The first part of questionnaire was intended to analyse demographic data; the second part – to self-assessment of competencies by public health care professionals; and the third part – to analyse development of competencies. In assessing the existing competencies, each competency was named and accompanied by the content in terms of knowledge and skills, as specified in WHO documents (WHO, 2015). The validity (internal reliability) of the research questionnaire was pursued by means of the expert evaluation method. The purpose of the research and general information on filling the questionnaire was presented to respondents. Respondents' anonymity was ensured, without the need to specify their full name. Statements and questions of the questionnaire were not offensive or degrading.

The second stage involved a survey of public health care professionals from various municipal public health bureaus of Lithuania. According to the Register of Public Health Specialist (2019), Lithuanian public health bureaus employs 1,128 specialists. The study sample, with a 5 percent error, consisted of 287 respondents. The research used a questionnaire survey method and a target criterion selection, i.e., population sample units are selected by the set criteria (only specialists employed with the Lithuanian public health bureaus were selected). This method of selection is justified by the assumption that public health practitioners in public health bureaus have a closer contact with adolescents in their services than professionals in specialised public health services or the National Public Health Centre. In designing the sample, the survey respondents were intended to represent the general population of public health care professionals. In order to estimate a sample size and to summarise

results of the study in terms of the general population with a 5% error, the calculations provided by B. Bitinas (1998, p. 145) were used. Therefore, 287 respondents are considered to be a sufficient and representative sample of the study. The study involved persons working in Lithuanian public health bureaus. Very few male (1.3%) participated in the survey; therefore, this demographic index is ignored. By age, 30-34 years old (16.84%), 55-59 years old (12.41%), and 50-54 years old (12.23%) respondents dominated. By education level, public health care specialists were classified into groups I to IV as follows: group I - 44.14% of graduates of public health studies; group II - 30.2% of graduates in the field of medical studies; group III - graduates of social sciences - 22.36%, and group IV - other education, 3.3%.

At the third stage, the data obtained were analysed using the statistical database approaches: descriptive statistics, correlation analysis, etc. Analysis of data was carried out using the statistical analysis software for social sciences, SPSS 17. Results of the questionnaire were processed using methods of mathematical descriptive statistics: multi-scale averaging, non-parametric tests (independent sample), Kruskal-Wallis test, factor analysis, principal components analysis (direct oblimin, Kaiser normalization), factor correlation analysis (Spearman rho correlations).

Descriptive statistics were used to summarise data from all the survey questions. Distribution of means was made (answers of rank scales were analysed). Frequency analysis was applied (percentage of respondents' demographic data; means of statement rating (M), standard deviations of answers (SD), statistical significance criterion (p) of differences (p value). The relevance of data for factor analysis was verified using Bartlett's criterion (χ^2 , statistics, df and p values), KMO criterion and MSA measure. The Scree test data were taken into account when deciding on the number of factors to be excluded.

In order to identify how the respondents' self-assess existing competencies in adolescent health care, the distribution of differences between the mean of the statements' diagnostic rank scale and the mean of self-assessment (groups I to IV by the level of education) was estimated. The questionnaire provides a 5-point diagnostic rank scale of statements: Excellent (5), Good (4), Can't answer (3), Moderate (2), Low (1). The closer the value is to 1, the lower the respondent's self-assessment of competencies is; the closer the answer is to 5, the higher the respondent's self-assessment of competencies is. Values close to 3 mean that self-assessment is neutral (in cases the respondent was unable to differentiate between competences for various reasons). The respondents were aware of the content of each competency, expressed in knowledge and skills. Only competency titles are provided in this article.

Table 1 Domain: Basic Concepts in Adolescent Health and Development, and Effective Communication

Competency	Non-parametric tests		Kruskal-Wallis test		
	Values	SD	χ^2	df	p
Competency 1.1. Demonstrate an understanding of normal adolescent development, its impact on health and its implications for health care and health promotion.	3.74	1.21	5.32	3	0,150
Competency 1.2. Effectively interact with an adolescent client.	2.60	1.12	17.24	3	0.000

Most of the respondents gave a very positive self-assessment (M: 3.62 to 3.74) to the Competency 1.1. *Demonstrate an understanding of normal adolescent development, its impact on health and its implications for health care and health promotion* (differences in self-assessment between all groups were not statistically significant) under the Domain “Basic concepts in adolescent health and development, and effective communication.” However, self-assessments of the Competency 1.2. *Effectively interact with an adolescent client* had a statistically significant ($p = 0.001$) difference (M = 2.60; $=\chi^2$ 1.12, df = 3). These competences were best assessed only by the respondents under the group III, with a degree in social sciences (M = 3.92; $\chi^2 = 18.05$, df = 3). Differences in self-assessment between age groups were not statistically significant.

Table 2 Domain: Laws, Policies and Quality Standards

Competency	Non-parametric tests		Kruskal-Wallis test		
	Values	SD	χ^2	df	p
Competency 2.1. Apply in clinical practice the laws and policies that affect adolescent health-care provision.	3.01	1.26	15.16	3	0.000
Competency 2.2. Deliver services for adolescents in line with new quality standards and health policies.	2.76	1.08	11.91	3	0.000

Competencies in the field of laws, policies and quality standards were assessed as relatively moderate. The Competency 2.1. *Apply in clinical practice*

the laws and policies that affect adolescent health-care provision was high-assessed by the respondents who had a degree in public health studies (group I) (M = 3.30; $\chi^2 = 21.16$, df = 3) and medical studies (group II) (M = 3.32; $\chi^2 = 37.99$, df = 3). Meanwhile, statistically significant estimates were found to be lower in the respondent group III (graduates in social and other studies) (M = 2.58; $\chi^2 = 21.12$, df = 3). Similar analysis results were obtained for the Competency 2.2. *Deliver services for adolescents in line with quality standards* (M = 2.76; $\chi^2 = 17.45$; df = 3). Differences in self-assessment between age groups were not statistically significant.

The table 3 shows that the respondents top-rated the following competences: Competency 3.7. *Promote physical activity* (M = 4.09; $\chi^2 = 7.13$; df = 3); Competency 3.8. *Assess nutritional status and manage nutrition-related disorders* (M = 3.94; $\chi^2 = 11.27$, df = 3) and Competency 3.10. *Assess and manage substance use and substance use disorders* (M = 3.92; $\chi^2 = 18.05$; df=3). Differences in self-assessment between various groups of respondents were not significant.

Table 3 Domain: *Clinical Care of Adolescents with Specific Conditions*

Competency	Non-parametric tests		Kruskal-Wallis test		
	Values	SD	χ^2	df	p
Competency 3.1. Assess normal growth and pubertal development and manage disorders of growth and puberty.	3.76	1.20	5.32	3	0.150
Competency 3.2. Provide immunizations.	3.24	1.43	17.32	3	0.118
Competency 3.3. Manage common health conditions during adolescence.	2.73	1.14	21.05	3	0.000
Competency 3.4. Assess mental health and manage mental health problems.	2.83	1.42	16.45	3	0.000
Competency 3.5. Provide sexual and reproductive health care.	3.56	1.34	17.06	3	0.008
Competency 3.6. Provide HIV prevention, detection, management and care services.	3.62	1.07	5.88	3	0.000
Competency 3.7. Promote physical activity.	4.09	1.00	7.13	3	0.068
Competency 3.8. Assess nutritional status and manage nutrition-related disorders.	3.94	0.97	11.27	3	0.010

Competency 3.9. Manage chronic health conditions including disability.	2.80	1.21	15.16	3	0.000
Competency 3.10. Assess and manage substance use and substance use disorders.	3.92	1.16	18.05	3	0.010
Competency 3.11. Detect violence and provide first-line support to the victim.	3.70	1.26	36.6	3	0.000
Competency 3.12. Prevent and manage unintended injuries.	4.62	0.84	4.66	3	0.198
Competency 3.13. Detect and manage endemic diseases.	2.94	1.42	3.93	3	0.009

Differences emerged in the self-assessment of other competencies: *Competency 3.3. Manage common health conditions during adolescence* was rated low by the group III ($M = 1.00$; $\chi^2 = 18.07$; $df = 2$); *Competency 3.9. Manage chronic health conditions including disability* ($M = 0.98$; $\chi^2 = 32.21$; $df = 3$); *Competency 3.13. Detect and manage endemic diseases* ($M = 1.01$; $\chi^2 = 15.07$; $df = 3$). Apparently, the latter three competencies received the lowest self-assessment points after the data were entered. Differences in self-assessment between age groups were not statistically significant.

Factor analysis of statements allowed to identify several core structural elements of competencies to be developed by public health care professionals in primary care settings:

Table 4 Results of Factor Analysis

Statement	L	%
Effectively interact with an adolescent client	0.823	32.26
Manage common health conditions during adolescence	0.804	30.21
Deliver services for adolescents in line with new quality standards and health policies	0.627	23.31
Manage chronic health conditions including disability	0.528	17.43
Assess mental health and manage mental health problems	0.506	16.82
Detect and manage endemic diseases	0.478	14.46

Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization.

As can be seen in the table above, the statement *Effectively interact with an adolescent client* ($L = 0.823$) has the highest factor weight. This means that the self-assessment of competencies by the respondents demonstrates the core factor of competency development.

Another significant element of competency development, *Manage common health conditions during adolescence* ($L = 0.804$), is closely related to curricula in biomedicine (public health and medical studies) and becomes relevant to those with a different (social or other) degree.

Significant and integral elements of respondents' competency development are as well: *Deliver services for adolescents in line with new quality standards and health policies* ($L = 0.627$); *Manage chronic health conditions including disability* ($L = 0.528$); *Assess mental health and manage mental health problems* ($L = 0.506$); *Detect and manage endemic diseases* ($L = 0.478$).

The correlation analysis of the variables revealed that the respondents' self-assessments of one domain (*Clinical care of adolescents with specific conditions*) were associated with stronger, statistically significant correlation, compared to other domains of competencies. Moderate correlation in self-assessments prevailed under the Competency 3.3. *Manage common health conditions during adolescence* ($\rho = 0.623$), Competency 3.9. *Manage chronic health conditions including disability* ($\rho = 0.628$), and Competency 3.10. *Assess and manage substance use and substance use disorders* ($\rho = 0.626$). Correlation relationship in self-assessment of all the above competencies were statistically significant ($p < 0.000$). Moderate correlation in self-assessments was established under the Competency 1.2. *Effectively interact with an adolescent client* ($\rho = 0.598$) and Competency 2.2. *Deliver services for adolescents in line with new quality standards and health policies*.

Since the survey has involved public health care professionals of all ages and educational backgrounds, the correlation analysis data may be explained by the fact that self-assessment of competencies was influenced by their different preparation. As stated before, respondents with a biomedical degree gave a greater rating to the competencies under the Domain *Clinical care of adolescents with specific conditions*.

Discussion

According to the World Health Organisation (WHO), "adolescence" is clearly a phase rather than a fixed time period in an individual's life. It is an phase of development on many fronts: from the appearance of secondary sex characteristics (puberty) to sexual and reproductive maturity; the development of mental processes and adult identity; and the transition from total socio-economic and emotional dependence to relative independence (Health 21 –

Health for All in the 21st Century: An Introduction to the Health for All Policy Framework for the WHO European Region, 2017, p. 27). Therefore, health care professionals play a vital role in providing timely consultations to adolescents by acceptable means and duly informing them about health promotion and maintenance, prevention of health disorders, and development of harmful habits.

Economic and social change have brought great opportunities and threats to adolescent health. The transition to a holistic vision of health, together with changes in adolescent social roles, has shifted the burden towards adolescent health care, i.e., how to increase the use of efficacious policies and programmes worldwide, while recognising that communities and nations differ and need to make local decisions, both in the context of adolescent health and competencies of service providers. There is a need to understand that adolescent health contributes to adult health and can deliver economic dividends to nations that invest wisely in adolescent health (Resnick, Catalano, Sawyer et al., 2012, p. 1564). A similar dividend might become the development of public health care professionals' competencies in adolescent health care.

WHO studies show that about 70% of premature death in adults is because of the lifestyle risk behaviours established during the adolescence period. However, not every country, institution, or a health care professional is properly prepared to provide quality services to adolescents.

An important point is institutions that would provide adolescent health care most effectively, because United Nations statistics show that somewhere in the world, every five seconds, a child under 15 dies (UN Inter-agency Group for Child Mortality Estimation, 2018). Currently, responsibility for adolescent health and wellbeing at a global level is currently dispersed across many agencies. For example, within the UN, these include WHO, UNICEF, UNFPA, UNAIDS, UNESCO, and UNODC. Each agency has its own emphasis and particular age mandate. Greater coordination and stronger inter-agency partnerships, supported by funding partners, will be essential for progress. Whether this can be achieved without the creation of a global focal point for adolescent health and wellbeing within the UN system is an important question. The establishment of networks that bring together the global constituents for adolescent health and wellbeing will also be essential in galvanising and reviewing action, mobilising and growing global resources including funding, technical and research capacity, processes for youth advocacy, and frameworks for inter-sectoral action. (Patton, Sawyer, Santelli et al., 2016, p.51).

However, there are still many misconceptions about adolescents that hinder to enhance a progress in adolescent health care: the opinion that they are healthy enough and, therefore, do not need much attention is wrong. It is wrong to believe that the only problems that adolescents actually face are sexual or

reproductive health. The scientific evidence base is inadequate and we definitely cannot claim it to be true (WHO, 2015).

The number of deaths among adolescents is high and no adolescent should die from a preventable or treatable causes (UN Inter-Agency Group for Child Mortality Estimation, 2018). However, when it comes to public health in general, more emphasis should be placed on harmful behaviours (such as tobacco, alcohol, drug use, or unsafe sex) and diseases (such as depression or obesity) that occur during adolescence and have long-term health consequences throughout life.

Separate interventions targeting various adolescent health problems are not enough to reduce adolescent mortality. Health care services, knowledge and skills of adolescents are important but, yet, are not enough. Structural, environmental and social changes are necessary. The greater portion of reducing adolescent mortality requires, among other changes, a stronger support from parents and schools, a strategy and educational programmes for professionals to protect adolescent health. This means that we must find more effective ways not just to think of some of adolescent health issues but to focus more on interventions addressing the determinants of multiple risk behaviours. There are many unexploited resources, including technology and interactive media, for improving and maintaining adolescent health. Adolescents are concentrated at the centre of these innovations, though, are professionals of services for adolescents actually ready for this?

Lithuanian public health bureaus employ public health care professionals of all ages and educational backgrounds. Regardless of their age or level of education, they must obtain and develop specific competencies in providing services to the unique population – adolescents who make up a significant part of our society.

It is now time to build upon the experience gained over the last few decades and to maintain a positive dynamics in adolescent health care. Today, nonetheless, it can be said that the foundation of quality action is the collaboration of all professionals working with adolescents, while engaging adolescents themselves in active work, as well as the response to the needs of service providers' specific competencies in adolescent health. Health care is a complex process, the end result of which is good quality of life and, together, wellbeing.

Conclusions

The analysis of theoretical assumptions suggests that adolescents are to be considered unique clients of services provided by public health care professionals because of individual age, developmental, interpersonal,

community, organisational, structural, and other factors that make the ecological model of adolescent health care.

The World Health Organization suggests several domains for public health care professionals in adolescent health care: (a) Basic concepts in adolescent health and development, and effective communication; (b) Law, policies and quality standards; and (c) Clinical care of adolescents with specific conditions. Based on the above domains, specific competencies and their content are identified. The content of the competences varies and requires interdisciplinary knowledge, skills, and attitudes in biomedicine, social, and other sciences.

Public health care professionals positively self-assess their existing competences in adolescent health care, yet, several trends prevailed during the study:

- Subject to their educational background, respondents self-assessed their existing competences in adolescent health care differently;
- Public health care professionals with a degree in social sciences underestimated the competencies under the domain *Clinical care of adolescents with specific conditions*;
- Public health care professionals with a degree in biomedical sciences underestimated the Competency 1.2. *Effectively interact with an adolescent client* and the Competency 2.2. *Deliver services for adolescents in line with new quality standards and health policies*.

Factor analysis of the statements allowed identifying several core structural elements of competencies to be developed by public health care professionals in primary care settings. The following competency development needs have been identified: effective interaction with an adolescent client; management of common health conditions during adolescence; delivery of services for adolescents in line with new quality standards and health policies; management of chronic health conditions including disability; assessment of mental health and management of mental health problems; detection and management of endemic diseases. The above structural elements of competency development should become a guideline for public health care professionals in educational programmes. This should be taken into account in developing professional education programmes and in promoting inter-disciplinary cooperation between officials, institutions, curriculum coordinators and educators.

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REASONS TO DEVELOPMENT OF ASSISTANT PHARMACISTS' COMPETENCES FOR QUALITY PATIENT CONSULTING IN POLYPHARMACY CASES

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Abstract. *Over fifteen years, polypharmacy has increased by 4.9% across all age groups. Consequently, the responsibility of professionals for advising patients in such cases has increased as well. The research aims at studying patients' habits when purchasing and using medicinal products to enhance the theoretical and practical training of assistant pharmacists at the RSU Red Cross Medical College. The research is based on the patient questionnaires and further analysis of results within a focus group. 404 respondents were interviewed between December 2017 and November 2019. Under the conventions of social studies, this ensured a 3% margin of error at a confidence level of 5%. According to the results of the questionnaire, 44% of the surveyed women and 66% of men were rarely or very rarely interested in the possible side effects of a new medicinal products, food supplement or herbal product. Patients could obtain such information by reading the package leaflet, however, 24% of women and 40% of men read it very rarely or rarely. 30% of respondents used four or more prescription and over-the-counter medical substances on a daily basis. The information-gaining habits of the population regarding side effects and interactions of medicinal products, food supplements and herbal remedies suggest patients must receive oral and more detailed information from a pharmacist. Based on the obtained results, the focus group outlined opportunities for raising pharmacy students' competences.*

Keywords: *irrational use of medicinal products, polypharmacy, risks of medication use.*

Introduction

The study deals with the prevalence of polypharmacy in Latvia and searches for the ways to reduce the various risks facing such patients. One of the ways how to achieve the goal is by partly changing the content of the study programmes thus

providing higher quality training of professionals who will work under the conditions of increasing polypharmacy.

In the study of the National Center for Biotechnology Information (NCBI) it was found that polypharmacy had increased by 4.9% in all age groups over the last fifteen years (Oktora et al., 2019).

Nowadays, the rise of polypharmacy is attributable also to the increased human life expectancy and, consequently, to the presence of more comorbidities in a person. Such illnesses can be better treated by administering several medicinal products simultaneously, which increases the risk of adverse drug reactions and other hazards related to the use of medicinal products.

The study conducted by Marshall University School of Pharmacy (USA, 2015) examined the possible consequences of polypharmacy, which represent the following:

1. High healthcare costs to patients, insurance providers and public.
2. Lack of knowledge about the medicinal products in patients and their noncompliance to the use of the medicinal products.
3. Drug-drug interactions.
4. Risk of possible adverse reactions.
5. Risk of falling.
6. Poor quality of life (functional condition).
7. Increased risk of medication errors (Gillette et al., 2015).

The global experience in cases of polypharmacy suggested that it is necessary to study the situation among the pharmacy customers in Latvia.

Thus, the aim established for the study was to explore the patients' habits in acquiring and using medicinal products and relate them to the opportunities for theoretical and practical training of assistant pharmacists at the RSU Red Cross Medical College.

Materials and Methods

The authors analysed the statistics for years 2013 to 2018 derived from the data of the State Agency of Medicines on the trade of medicinal products and the average price of a package. The data were related to the size of population in Latvia in the same period.

During the research the survey of the pharmacy visitors was conducted with the participation of 404 respondents above 20 years of age. The survey comprised the respondents who voluntarily agreed to complete the questionnaire. The participants could ask for consultations on the questions included in the questionnaire, if they needed any. The study was performed from December, 2017 to November, 2019 in various cultural and historic regions of Latvia. The survey was conducted in the framework of the RSU Red Cross Medical College research

project, and a questionnaire was designed for it in Latvian and comprised 18 questions. Besides, there also were two questions to summarize the results, which were completed by the researchers themselves. In this article we only used only part of data collected to analyse and describe.

The scientific articles used in the study were found in PubMed and Google Scholar data bases and account for period 2009 to 2019.

After completion of the survey, 8 members of the focus group were introduced to the statistical data analysis and the results acquired by analysing the survey. After that there was time allocated and 6 questions posed, which the focus group had to answer in writing. This was followed by a discussion of the questions in the group, which led to the opinion expressed by the majority of the participants on how to improve the acquisition of competences at the RSU Red Cross Medical College under the given conditions. Among the participants of the focus group there were 2 representatives of employers, pharmacists by education, as well as 6 faculty members of Rīga Stradiņš University and RSU Red Cross Medical College.

Results

Analysis of changes in the size of population and consumption of medicinal products over six years

The authors examined the dynamics of changes in the size of population and costs of medicinal products in the country in the period between 2013 and 2018. The size of population has been steadily decreasing from 2,001,468 people in 2013 to 1,919,968 people in 2018. At the same time, the average consumption of medicinal products has increased from 432.81 MM EUR to 568.58 MM EUR in the respective period. The absolute basic growth of the consumption of medicinal products in 2018 compared to 2013 accounted for 79.89 EUR per person. The average expenses per person had increased from 216.25 EUR in 2013 to 296.14 EUR in 2018. In Figure 1, it is shown as the growth rate base compared to 2013. It can be seen that the consumption of medicinal products has been rising rapidly.

Besides the medicinal products, residents also use food supplements and other pharmaceutical goods, which are not provided under a separate section in statistics. Their turnover has increased from 41.89 MM EUR to 61.61 MM EUR and the growth accounts for 19.72 MM EUR. (Oktora et al., 2019; Centrālā statistikas pārvalde (2013, 2015, 2016, 2019) Zāļu valsts aģentūra (2017, 2018, 2019a, 2019b)) This shows amounts of information necessary to provide high quality consultation in pharmacies.

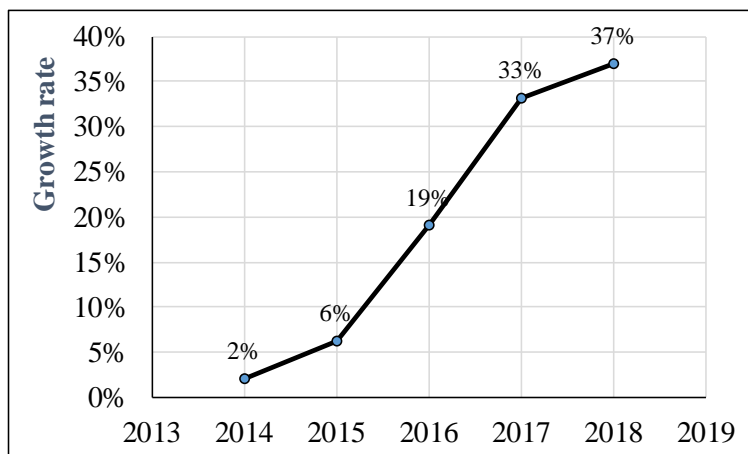


Figure 1 Growth rate of drug base compared to 2013

Besides the medicinal products and food supplements purchased in pharmacies, the residents also use herbal teas they have acquired elsewhere or collected themselves. The authors could not analyse the turnover data on food supplements as they are not distinguished from other pharmaceutical goods in the annual reports of the State Agency of Medicines.

Patients' habits regarding purchasing medicinal products in pharmacies

31% of the surveyed respondents simultaneously used 4 to 10 prescription and over-the-counter active substances, which corresponds to the approved polypharmacy definitions (see table 1). Globally, the term “polypharmacy” has several explanations, however mostly it accounts for simultaneous use of 4 to 5 or more medicinal products.

Table 1 Concomitant use of prescription and non-prescription drug active substances (number of active substances and proportion of users)

Number of active substances used	None	1	2	3	4	5	6	7	>8
Proportion of users	10.1%	16.8%	26.2%	16.8%	14.1%	6.7%	2.5%	4.2%	2.4%

A meta-analysis has been performed in the world and information collected by “Medline”, “Embase” and “Cochrane” to find the articles mentioning the definition of polypharmacy. The publications were selected in the period from January, 2000 to May, 2016. Polypharmacy was defined in 138 articles out of 1156 selected studies. In a part of the definitions (46.4% of the selected publications), the polypharmacy was mentioned as a simultaneous use of five or more medicinal products per day. In some polypharmacy definitions the number accounted for the simultaneous use of two to eleven medicinal products. 6.4% of

the definitions mentioned therapeutic and problematic polypharmacy (Masnoon et al., 2017).

Therapeutic polypharmacy implies the cases when several medicinal products are simultaneously used for the treatment of several diseases. Problematic polypharmacy, however, describes the cases when medicinal products are prescribed inappropriately and the desired effect is absent (Duerden & Payne, 2014).

Along with the prescription and over-the-counter medicinal products people also use food supplements, in which the manufacturers have combined various vitamins, minerals and herbal extracts in smaller dosages, however larger number. In the study, 48% of the 404 respondents periodically used the active substances of 5-10 food supplements (see Figure 3). The courses of food supplements may be taken twice a year once for 2 to 3 months. People also use food supplements seasonally, for example, vitamin D3 is more often used in autumn, winter and spring. There were cases when as many as 38 active substances were used simultaneously. Apart from the term “polypharmacy”, there is another globally known term describing the ingestion of herbal products or “polyherbacy”. They are not registered as medicinal products, but rather as food products, which relieves their distribution. In Latvia, we call them food supplements and they are available both in pharmacies and supermarkets, as well as online, consequently, the availability of such products is considerably big. The information on food supplements can be acquired in different ways, however it is not always reliable. As it was found, 55% of women and 32% of men read the necessary information about the products. These products may have therapeutic potential, however, they should be used under a health care professional’s supervision. In the study hereby, it was found that 48% of the respondents face a substantial risk as they tend to follow their own initiative when starting to use these products. These patients are under the risk of drug-drug interaction. The risk is higher in people who simultaneously use both prescription and over-the-counter medicinal products. The risk is particularly high in elderly people whose body has undergone physiological changes, e.g. kidney and liver detoxication and clearance, which usually decreases with age (Gonzalez-Stuart, 2011).

The use of various herbal products is taken up both following a doctor’s recommendation (27% of cases), when a professional already partly sees the complete picture regarding the medicinal products used by the patient. However, in 18% of cases the products have been recommended to the patient by a pharmacist or assistant pharmacist, which means that the respective professionals have to be more involved in a proper consulting of the patient. In 48% of cases patients start using herbal products following their own initiative, which can represent the highest risk (see Figure 2). Study shows that reasons to use herbal medicine are lack of effectiveness and side effects of conventional drugs,

disappointment in therapy. Mostly people search for information in books and journals, consult with family more often than with healthcare providers. People rarely seek information about medicinal plant side effects. Reason is belief that herbal medicine is less harmful, because they have been used for generations and are known by names and even grown in their own gardens (Welz et al., 2018). Lynch & Berry (2007) note that people consider herbal medicine safer than OTC and are less likely to consult doctor prior using them. Self - prescribing of medicinal plants is very common among cancer patients, and is not monitored by their oncologist. After consulting with health care provider (HCP) 15.3% of herbal medicine users had to stop taking them due to safety concerns (Samuels et al., 2017). This raises concerns about safe herbal medicine use and shows that similar problems are discovered in many studies.

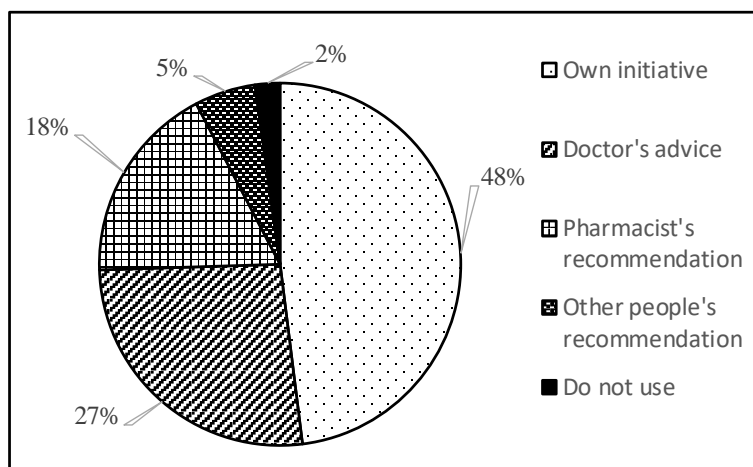


Figure 2 Initiators for the beginning of using herbal preparations

Figure 3 shows how often women and men get acquainted with the side effects and possible allergic reactions to a new food supplement or herbal product. 169 women or 55% of all female respondents searched such information rather often, often, very often or always. From the 95 men who were surveyed 30 respondents had searched for it, which accounts for 32%. As the figure shows, women do both – they use such products more often and also search information on them more often. Similar findings were described by Leemans et al. (2011).

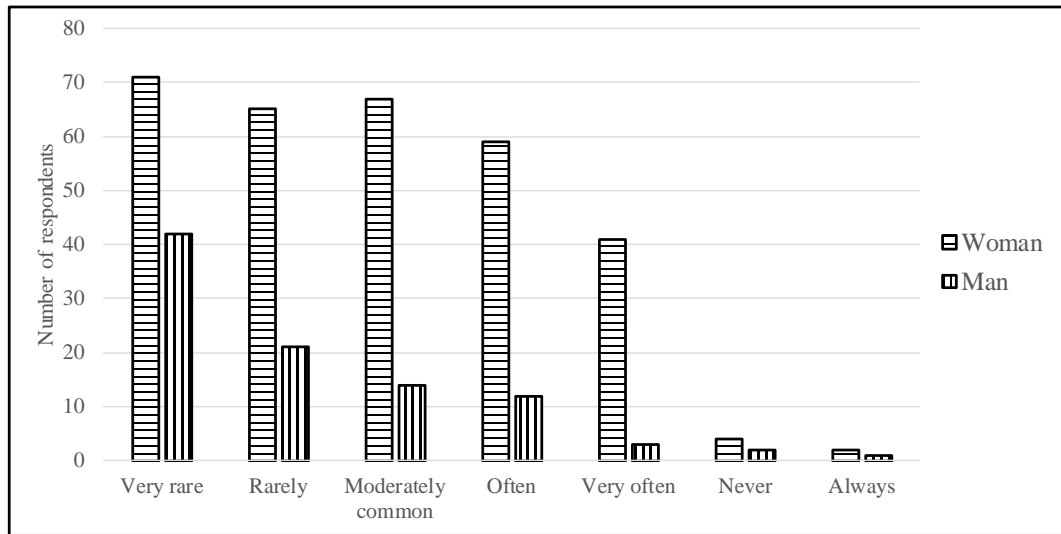


Figure 3 Familiarization of possible side effects and allergic reactions

Although, herbal medicine side effects were reported by 25% of herbal medicine user. Most of respondents did not inform practitioner about use of herbal medicine and HCP did not ask, as they lack knowledge about medicinal plants (Fathy et al., 2019). On the account of men being less inclined to search for information HCP should be more proactive in consulting them about safe use of medicine.

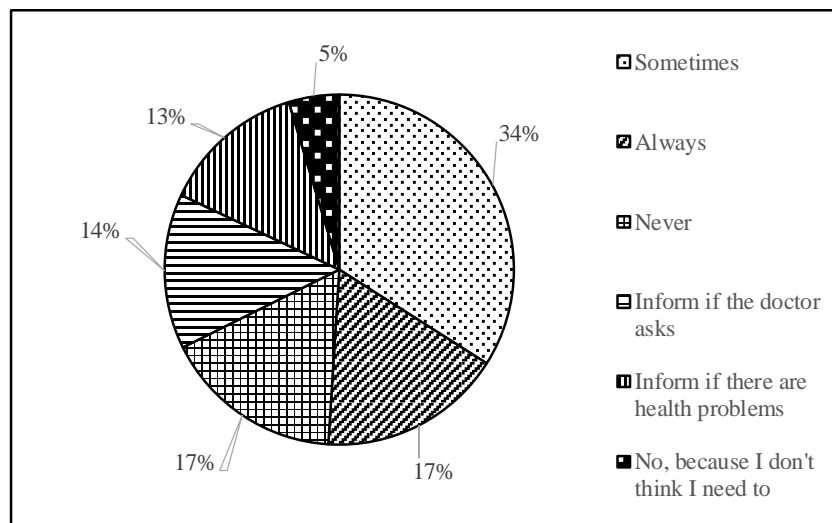


Figure 4 Informing physicians of all prescription medications and over-the-counter medications, supplements, and herbs used

To provide for the safety of using simultaneously prescription and over-the-counter medicinal products together with food supplements the primary care physician or a specialist must be informed about it. As we see in Figure 4, 34%

of the respondents always provide a specialist with such information. The ones who sometimes inform a specialist account for 17% and the same number of respondents never inform a doctor, 14% answer, if the doctor asks. 5%, however, consider it unnecessary.

Review about patient consultations about herbal medicine with healthcare providers showed that about one third disclosed to practitioner herbs used. Additionally, doctors were not active in asking questions about alternative medicines used during consultation (Enioutina et al., 2016). Our study suggests that 14% of the respondents have experienced problems in using medicinal products and informed the doctor afterwards. However, to obtain more reliable information on simultaneous consumption of food supplements together with medicinal products, not only doctors, but also pharmacists and assistant pharmacists can be asked.

Analysis of the study results in the focus group

The experts, after acquainting themselves with the analysis of the statistical data and the results of the survey data analysis, saw that the use of many medicinal products is also characteristic to the inhabitants of Latvia. In 49% of cases, patients do not inform their doctor about the use of over-the-counter medicinal products, food supplements and herbal products along with prescription medicinal products or inform the doctor about it only when they are asked. Under such a situation much more responsibility should be assumed by pharmacists and assistant pharmacists, who are the ones who issue medicinal products to the patients. Studies show that HCP education should include topics about herbal medicine and other complementary and alternative therapies use and safety concerns. Although pharmacists have good knowledge about medicinal plants, continuous education should provide more information about herbal medicine interactions with OTC and prescription medicine and patient consultation (Alsayari et al., 2018; Boesl & Saarinen, 2016; Enioutina et al., 2016; Taing et al., 2016) Consequently, the future assistant pharmacists should develop their competences at higher level in the following areas:

- 1) To find out more specifically the patient's situation in using over-the-counter medicinal products, food supplements and herbal products during the purchase as they can be used simultaneously with prescription medicinal products.
- 2) Based on the acquired information, to provide further information on drug-drug interactions.
- 3) To provide information on the most common adverse drug reactions as their risk increases if more active substances are used concomitantly.

- 4) To provide information on the possibilities to reduce the expressions of adverse drug reactions, if any.
- 5) To inform the patients about the possible contraindications or caution in simultaneous use of prescription and over-the-counter medicinal products, if it can decrease the effect of the patient's prescription medicinal products.

The focus group suggested creating a new study course "Adverse drug reactions and interactions" for higher quality training of the students for such consultations.

Conclusions

The analysis of the statistical data shows the steadily rising consumption of medicinal products per capita in Latvia. The research proves that the usage of medicinal products, food supplements and herbal products is widespread among the Latvian population. One-third of the respondents visiting pharmacies use 4 to 10 medical substances, which corresponds to the globally accepted polypharmacy definition. This increases the risk of drug-drug interaction and increases the likelihood of adverse drug reactions. In order to raise the customer awareness about the possible risks of using medicinal products and food supplements it is also necessary to improve the training of pharmacy professionals. It could be facilitated by the suggestions put forward by the focus group participants: to acquire more detailed information from the patients on their usage of medicinal products and provide them with more detailed instructions on the use of medicinal products, food supplements and herbal products.

Acknowledgements

Survey was done within the RSU Red Cross Medicine college research project "*Medicine, food supplements and herbal medicine use in Latvia and associated risks for patients*" Nr.2-30/2017/069

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KALORIJU PATĒRIŅA NOTEIKŠANAS ATŠKIRĪBAS UZ VELOERGOMETRA UN MOBILAJĀS LIETOTNĒS

Differences about Calorie Intake Measurement Across Fitness Device and Mobile Apps

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Abstract. Various technologies are increasingly used in sports and fitness classes. Portable fitness devices are the fastest growing fitness trend worldwide in the recent years (Thompson, 2019). More and more people are using fitness bracelets, smart watches, GPS tracking devices and fitness apps on mobile phones. One of the most commonly used functions in both portable fitness devices and stationary technology is the measurement of calories intake. The simplest, most convenient, and cheapest way to measure calorie intake (CI) is smart devices and custom mobile apps (Ramirez, 2018) that store and process data. However, not all of these devices are accurate and objective enough. Aim of the study: to find out and evaluate the calorie intake of a bicycle ergometer and various mobile apps under different physical loads. CI at various physical loads was determined using the MONARK ERGOMEDIC 839E cycling and applications. Comparing the measurement difference between the apps and the ergometer, it was found that the lowest load difference was for all apps, the least difference was for the POLAR app and the highest was for the SAMSUNG app, and the mid to higher load for the SAMSUNG app. App calorie intake figures are closer to those of the ergometer at peak load.
Keywords: calorie intake, ergometer, mobile app.

Ievads

Introduction

Vispasaules fitnesa tendenču aptaujas rezultāti liecina, ka viedierīču pielietošana nodarbību laikā ir visstraujāk augoša tendence pēdējos gados

(Thompson, 2018; Thompson, 2019). Šī tendence tiek novērota kopš 2016. gada. Mūsdienās ir pieejams plašs viedierīču klāsts kā fitnesa aprocess, viedpulksteņi, sirdsdarbības monitori un GPS izsekošanas ierīces. Ierīces tiek aprīkotas ar sensoriem, tādiem kā akselerometru, pulsa oksimetru un pedometru. Sensori ļauj ierīcēm iegūt un uzraudzīt informāciju par fizioloģiskiem parametriem, piemēram, soļu skaitu, sirdsdarbības frekvenci, enerģijas patēriņu un maksimālo skābekļa patēriņu (VO_{2max}). Šos parametrus izmanto treniņu kontrolei un aptaukošanās ārstēšanai un profilaksei. Tomēr šo ierīču precizitāte, lielākoties nav zināma. Spēja novērtēt enerģijas patēriņu dažādās fiziskās aktivitātēs ir ārkārtīgi svarīga neinfekcijas slimību, tostarp nepietiekama uztura, pārmērīga uztura (aptaukošanās) un diabēta, kontekstā (Andrew, Najat, & Nuala, 2014).

Viens no parametriem, kas interesē ierīces lietotāju, ir kaloriju patēriņš (KP) gan ikdienā, gan fizisku aktivitāšu laikā. Precīzi to noteikt ir iespējams tikai speciālās laboratorijās ar tam paredzētām ierīcēm (kalorimetriem), vai gāzu analizatoriem. Tomēr vienkāršākais, ērtākais un lētākais KP noteikšanas veids ir viedierīces un tam pielāgotas mobilās lietotnes (Ramirez et al., 2018), kas saglabā un apstrādā datus. Šīs ierīces nosaka KP pēc lietotāja sirdsdarbības frekvences un ievadītajiem datiem par lietotāju.

Pētījumos, kuros tika pārbaudīta ierīču precizitāte, galvenokārt rezultāti tiek salīdzināti ar netiešu kalorimetriju, izmantojot gāzu analizatorus. Dalībniekiem tika izmantotas dažādas ierīces, tika veiktas dažāda veida fiziskās aktivitātes, kuru laikā tika noteikts patērēto kaloriju daudzums (Bhammar et al., 2016; Brown et al., 2010; Chowdhury et al., 2017).

Pētījumos (Beekley et al., 2004; Garatachea et al., 2007) tika parādīts, ka KP noteikšana uz precīza veloergometra pie dažām slodzēm ir relatīvi līdzīga netiešai kalorimetrijai, jo aprēķinātais skābekļa patēriņš gandrīz neatšķiras no izmērītā, kas ļauj uzskatīt, ka šāda metode ir efektīva KP noteikšanai.

Pētījuma mērķis: noskaidrot un novērtēt veloergometra un dažādu mobilo lietotņu kaloriju patēriņa noteikšanu dažādu fizisku slodžu apstākļos.

Literatūras apskats *Literature review*

Enerģijas patēriņš attiecas uz kaloriju daudzumu, ko cilvēks patērē, lai nodrošinātu: elpošanu, asins cirkulēšanu, vielmaiņas procesu un būtu fiziski aktīvs. Lai novērstu ķermeņa svara palielināšanos un aptaukošanos, uzņemto kaloriju daudzumam jābūt sabalansētam ar patērēto (McArdle, Katch, & Katch, 2016).

Miera vielmaiņas, dienas kopējo un fiziskās aktivitātes enerģijas patēriņa (EP) noteikšanai pielieto dažādas metodes (Andrew, Najat, & Nuala, 2014, Aparicio-Ugarriza et al., 2015; Rousset et al., 2015), precīzākās no tām ir

laboratoriskie izmeklējumi ar dārgām ierīcēm, tādām kā tiešu kalorimetru un netiešu kalorimetru (pētījumos tika salīdzināti tādi kalorimetri, kā Cosmed K4b2 (Cosmed, Rome, Italy), Cortex Metamax II (Cortex, Leipzig, Germany), Cortex Metamax 3B (Cortex Pty Ltd, Leipzig, Germany), and Jaeger Oxycon Mobile (Erich Jaeger, Viasys Healthcare, Germany)). EP noteikšanai lieto papildus pārnēsājamas ierīces, bet to precizitāte un uzticamība mainās no pētījuma līdz pētījumam, un vairums ierīču EP noteikšanai balstās uz tādiem rādītājiem, kā akselerometrs un sirds darbības frekvences josta.

Netiešā kalorimetrija pamatojas uz gāzu apmaiņas noteikšanu, jeb patērētās enerģijas aprēķināšanu pēc gāzu tilpumu mērījumiem. Pēc šīs metodes nosaka laika vienībā patērētā skābekļa un izdalītās ogļskābās gāzes daudzumu. Skābeklis tiek izmantots uzturvielu oksidēšanai, bet ogļskābā gāze rodas kā oksidēšanas galaprodukts. Jo vairāk organisms patērē skābekli un izdala ogļskābo gāzi, jo vairāk enerģijas atbrīvojas. Tā pēc gāzu apmaiņas var netieši spriest par enerģijas maiņu.

Jāatzīmē, ka šādi enerģijas patēriņa noteikšanas veidi notiek laboratoriskajos apstākļos un ir ļoti dārgi.

Viens no būtiskiem jebkuras KP noteikšanas pieejas trūkumiem neatkarīgi no sarežģītības līmeņa ir ierīces integritāte. Tas iekļauj katras ierīces drošumu un to, vai ierīce ir kalibrēta individuāli katram lietotājam, lai iegūtu maksimālu precizitāti (Klass, Faoro, & Carpentier, 2019).

Lai noteiktu KP treniņos, praksē plašu pielietojamību ieguvuši veloergometri un skrejceļi, ar kuru palīdzību var iestatīt standartizētas darba slodzes. Pie ergometriem pieskaitāmi arī steperi, un airēšanas trenāžieris. Pētījumos tika salīdzināts KP starp trenāžieriem pie dažādām slodzēm, lietojot netiešās kolorimetrijas metodi (Barfield, Sherman, & Michael, 2003; Brown et al., 2006; Garatachea et al., 2007; Gaesser et al., 2017).

Pētījumos (Beekley et al., 2004 un Garatachea et al., 2007) pierādīts, ka pie dažām slodzēm uz veloergometra aprēķinātais skābekļa patēriņš gandrīz neatšķiras no izmērītā, kas ļauj uzskatīt, ka šāda metode ir efektīva KP noteikšanai.

Situācijās, kad ir iespējama precīza darba novērtēšana, enerģijas patēriņu, kas izteikts skābekļa patēriņa apjomā VO_2 (ml/kg/min), var noteikt pēc aprēķinu sērijas. Vienādojumi, kas izmantoti aprēķiniem, pamatojas uz zināmo skābekļa patēriņu pie vienmērīgas slodzes (ACSM, 2014).

Pētījumos, kuros ir salīdzināts KP, kas noteikts ar netiešo kalorimetriju, jeb gāzu analizatoriem un dažādām citām ierīcēm ir konstatēta lielāka vai mazāka atšķirība (Johnson et al., 2016; Lee, 2013; Roos et al., 2017; Rousset et al., 2015; Yvonne et al., 2017). Mūsdienā populārās plaukstas locītavas tehnoloģijas rāda tikai vāju vai vidēju enerģijas patēriņa precizitāti (Gilgen-Ammann, Schweizer, & Wyss, 2019). Salīdzinot trīs jaunāko viedierīču Apple Series 1 Watch, LifeTrak

Core C200 un Fitbit Charge HR noteikto kaloriju patēriņu ar netiešo kalorimetriju pie sešiem dažādiem skriešanas ātrumiem tika noskaidrots, ka pie maza skriešanas ātruma (53,6 m/min) kļūda ir no 39% līdz 130%, bet pie liela skriešanas ātruma (virs 160 m/min) kļūda ir zem 10% (Zhang et al., 2019). Arī pēdējo gadu komerciāli pieejamās uz plaukstas locītavu valkājāmās viedierīces nav pietiekami precīzas un to kļūda kaloriju patēriņa noteikšanā salīdzinot ar netiešo kalorimetriju pārsniedz 10% (Passler, Bohrer, Blöchinger, & Senner, 2019).

Pētījumos (Shcherbina et al., 2017; Wallen et al., 2016) tika salīdzināti vairāku viedpulksteņu sirdsdarbības frekvences (SF) un KP mērījumi pie dažādām aktivitātēm, t.sk. uz velotrenažiera, ar netiešās kalorimetrijas palīdzību. Tika noskaidrots, ka KP noteikšanā bija kļūda, un šī kļūda bija ievērojami lielāka nekā SF noteikšanā. Pētījuma autori norādīja, ka pie zemākām slodzēm kļūdas bija lielākas, nekā pie augstākām. Tā kā KP noteikšana viedierīcēs un lietotnēs balstās uz algoritmiem, kas iekļauj ne tikai pulsometra mērījumus, bet arī citu iebūvēto rīku mērījumus, viens no iemesliem rezultātu atšķirībā varētu būt daļēja algoritmu pielietošana, piemēram, akselerometra izmantošana. Pētījumos (Erdogan, Cetin, Karatosun, & Baydar, 2010; Brugniaux et al., 2010) tika salīdzināti gan pulsometra, gan akselerometra/pedometra rezultāti, un secināts, ka tos var pielietot KP noteikšanā.

Metodoloģija *Methodology*

Pētījumā piedalījās 12 brīvprātīgie (6 vīrieši, 6 sievietes). Iekļaušanas kritēriji: vecums 20–40 gadi; veseli, fiziski aktīvi cilvēki, kuri trenējas vismaz 3 stundas nedēļā; sirdsdarbības frekvence miera stāvoklī 50-70 reizes minūtē; ķermeņa masas indekss 20-25. Izslēgšanas kritēriji: akūtas un hroniskas saslimšanas; kaitīgie ieradumi; paaugstināta sirdsdarbības frekvence miera stāvoklī; sirdsdarbības ritma traucējumi.

Darba gaitā KP noteikšanai tika izmantotas sekojošas ierīces: viedpulksteņi SAMSUNG GEAR SPORT 063F (Samsung Electronics Co., Ltd., Suwon, South Korea), no kuriem tika nolasīti dati eksperimenta laikā; divas pulsa jostas POLAR H7 (Polar Electro OY, Finland). No vienas jostas dati tika pārraidīti lietotnei POLAR BEAT (Polar Electro OY, Finland), kas uzstādīta planšetdatorā LENOVO (Lenovo Group Ltd., China), no otras – lietotnei ENDOMONDO (Under Armour, USA), kas uzstādīta mobilajā tālrunī IPHONE S5 (Apple Inc, USA). Testēšana notika uz veloergometra MONARK ERGOMEDIC 839E (Monark AB, Varberg, Sweden) un dati tika pārraidīti lietojumprogrammatūrai ERGOMEDIC ANALYSIS SOFTWARE (Monark AB, Varberg, Sweden).

Mobilo lietotņu un viedierīces kalibrēšanas pamatā bija to personalizēšana, ievadot personas datus, kā arī bija nepieciešams norādīt fizisko aktivitāšu

biežumu un fiziskās aktivitātes veidu (velotrenažieris). Viedpulkstenis SAMSUNG tika personalizēts ar SAMSUNG HEALTH lietotnes palīdzību, tāpat kā iepriekšējās lietotnes. Pēc saglabāšanas, dati tika automātiski atjaunoti viedierīcē. SF tika noteikts ar sirds ritma sensoru pulksteņu mugurpusi.

Dalībniekam pie krūškurvja tika piestiprinātās 2 pulsa jostas POLAR H7, viedpulksteņi SAMSUNG uzlikti uz kreisās rokas. Ierīču darbība pārbaudīta ar mobilu lietotņu palīdzību, tika pārbaudīta sirdsdarbības frekvence. Noregulēts sēdeklis ergometram. Uzsākot darbu uz ergometra, vienlaicīgi, tika ieslēgtas visas lietotnes un viedpulkstenis.

Dalībniekam bija jāmin pedāļi, uz veloergometra MONARK (frekvence 60 apgriezieni minūtē) pie dažādām slodzēm: vīriešiem 50W, 100W un 150W jauda; sievietēm 50W, 75W un 100W jauda. Slodze palielinājās ik pēc 10 minūtēm bez pārtraukuma un atpūtas. Katrai slodzei noteikti divi režīmi: iesildīšanās un testēšanas. Iesildīšanās režīma ilgums ir 5 minūtes, kad iestājas plato fāze un muskuļu prasība pēc skābekļa tiek pilnība apmierināta, un SF paliek gandrīz nemainīga. Tad sākas testēšanas režīms. Testēšanas protokolā tika pierakstīti dati par KP ik pēc katra režīma (pēc 5 minūtēm) un tika kontrolēta SF ar POLAR jostu palīdzību.

Pētījuma dati tika apstrādāti ar programmu Microsoft Excel 2016 (Microsoft, Redmond, WA, ASV) un IBM SPSS Statistics (IBM Corp., Armonk, NY, ASV).

Datu analīzei tika lietotas šādas aprakstošās un analītiskās statistikas metodes:

- Datu normālsadalījums tika pārbaudīts ar Šapiro-Vilka testu (kad dalībnieku skaits <50). Tika pārbaudīts lietotņu un ergometra starpības normālsadalījums (Analyze->Descriptive Statistics->Expole). Ja izpildījās nosacījums, ka p-vērtība >0,05, tad dati tika attēloti kā vidējā vērtība (Mean) un standartnovirze (SD, St.Dev)
- Datu salīdzināšanai pa grupām, tika izvirzīta hipotēze H_0 , ka lietotņu mērījumi pa jaudām ir vienlīdzīgi un atšķirību nav. Hipotēzes pārbaudei izmantots viens no faktora dispersijas analīzes rīkiem, t.i., ANOVA tests;
- Parametriem, kuru vērtības neatbilda normālsadalījumam (p-vērtība<0,05), datu salīdzināšanai pielietots Post Hoc Tukey HSD tests. Tests parāda, kuru grupu dati ievērojami atšķiras vieni no otras.

Pētījuma rezultāti

Results

Tika noskaidrots KP pie dažādām fiziskajām slodzēm uz ergometra, viedpulksteņiem un mobilajās lietotnēs. Tika izrēķināts kaloriju patēriņš minūtē

(kcal/min) testēšanas režīmā. Ierīču vidējas vērtības un standartnovirze atspoguļota 1.tabulā.

1.tabula Kaloriju patēriņš pie jaudas 50W, 75-100W, 100-150W
Table 1 Calorie consumption at power 50W, 75-100W, 100-150W

Ierīce/jauda Vidēji (±SD)	MONARK	POLAR	ENDOMONDO	SAMSUNG
50W	3.68 (±0.28)	4.6 (±1.99)	5.62 (±2.06)	6.63 (±1.47)
75-100W	6.58 (±0.95)	8.16 (±2.40)	8.73 (±2.94)	6.96 (±1.57)
100-150W	9.36 (±1.88)	11.16 (±3.08)	11.56 (±3.18)	8.76 (±1.71)

Pēc Šapiro-Vilka testa (ja dalībnieku skaits <50) tika pārbaudīts lietotņu un ergometra starpības normālsadalījums (sk.2.tab.). Kā redzams, p-vērtība (Sig.) ir lielāka par 0,05, tātad atšķirību starp lietotni un ergometru nav, un kļūdas ir līdzīgas.

Salīdzināšanai starp mērījumiem un to kļūdām pa jaudām tika izvirzīta hipotēze H_0 , ka lietotņu mērījumi pa jaudām ir vienlīdzīgi un atšķirību nav. Hipotēzes pārbaudei izmantots ANOVA tests, Levena tests izlašu homogenitātes noteikšanai un Post Hoc Tukey tests atšķirību noteikšanai starp lietotnēm grupā (pie noteiktas jaudas).

2.tabula Tests par normalitāti
Table 2 The test of normality

Grupa		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Jauda 50W	Polar	,211	11	,183	,931	11	,420
	Endomondo	,202	11	,200*	,939	11	,510
	Samsung	,170	7	,200*	,931	7	,561
Jauda 75-100W	Polar	,154	11	,200*	,968	11	,862
	Endomondo	,194	11	,200*	,911	11	,253
	Samsung	,191	7	,200*	,878	7	,218
Jauda 100-150W	Polar	,180	11	,200*	,933	11	,438
	Endomondo	,197	11	,200*	,928	11	,390
	Samsung	,253	7	,197	,850	7	,122

Lavena tests nosaka grupu dispersijas atšķirības nozīmīguma līmeni. Rezultāti parāda vai pastāv nozīmīga atšķirība starp lietotnēm pie konkrētas jaudas, pamatojoties uz lietotņu vidējo vērtību. Kā redzams tabulā (sk.3.tab.) atšķirības starp lietotņu mērījumiem nav nozīmīgas, tātad tie ir homogēni (p-vērtība >0,05)

3.tabula *Dispersijas homogenitāte*
Table 3 *Test of Homogeneity of Variances*

	Levene Statistic	df1	df2	Sig.
Jauda_1	,189	2	26	,829
Jauda_2	,633	2	29	,538
Jauda_3	,067	2	29	,935

ANOVA testa dispersijas analīze parādā vai atšķirība starp lietotņu mērījumiem pie konkrētās jaudas ir vai nav nozīmīga. Nozīmīga atšķirība pastāv starp lietotnēm pie trešās jaudas (p-vērtība=0,01) (sk.4.tab).

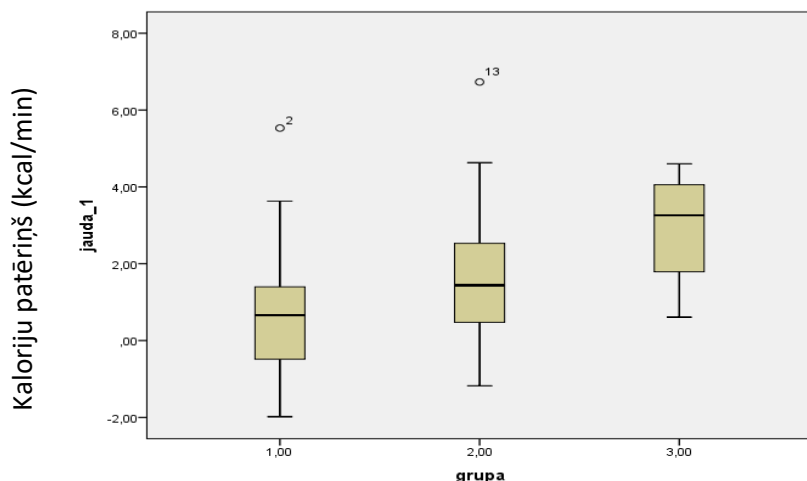
4.tabula *ANOVA (Dispersijas analīze)*
Table 4 *ANOVA (Analysis of variance)*

		Sum of Squares	df	Mean Square	F	Sig.
jauda_1	Between Groups	16,811	2	8,405	1,990	,157
	Within Groups	109,820	26	4,224		
	Total	126,631	28			
jauda_2	Between Groups	18,928	2	9,464	2,067	,145
	Within Groups	132,805	29	4,579		
	Total	151,733	31			
Jauda_3	Between Groups	54,647	2	27,324	5,418	,010
	Within Groups	146,246	29	5,043		
	Total	200,893	31			

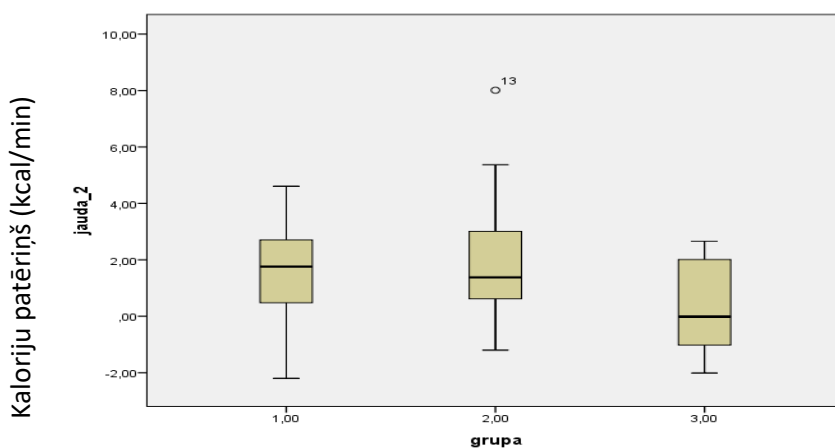
Lai noteiktu starp kurām lietotnēm pastāv atšķirība, tika pielietots Post Hoc tests, un tika iegūta statistiski ticama atšķirība starp SAMSUNG un POLAR grupu (p-vērtība=0,034), un starp SAMSUNG un ENDOMONDO grupu (p-vērtība=0,013). Starp POLAR un ENDOMONDO nav nozīmīgas atšķirības. Tas nozīmē, kā pie jaudas 100-150W SAMSUNG dati nozīmīgi atšķiras.

Kaloriju patēriņa novērtējums lietotnēm pret ergometru attēlots grafiski, kur 1 – POLAR lietotne, 2 – ENDOMONDO lietotne, 3 – SAMSUNG lietotne (sk.1.,2.,3.att.):

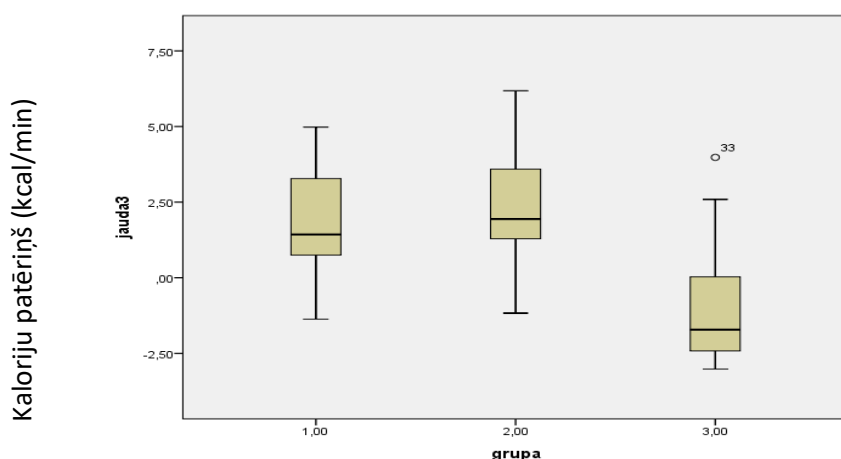
Pēc rezultātiem redzams, ka starp kopas datiem, apskatot visas jaudas, mērījumi bija līdzīgi vai tuvi ergometra mērījumiem. Pie jaudas 50W tuvākais rezultāts bija POLAR lietotnei, pie jaudām 75-100W un 100-150W – viedpulksteņiem SAMSUNG.



1.attēls. Kaloriju patēriņš attiecībā pret ergometru pie jaudas 50W
Figure 1 Calorie consumption relative to ergometer at capacity 50W



2.attēls. Kaloriju patēriņš attiecībā pret ergometru pie jaudas 75-100W
Figure 2 Calorie consumption relative to ergometer at capacity 75-100W



3.attēls. Kaloriju patēriņš attiecībā pret ergometru pie jaudas 100-150W
Figure 3 Calorie consumption relative to ergometer at capacity 100-150W

Datu salīdzināšanai tika aprēķināta starpība starp lietotni un ergometru. Pie jaudas 50W starpība starp POLAR un MONARK vidēji sastāda 0,92 kalorijas, starp ENDOMONDO un MONARK - 1,94 kalorijas, starp SAMSUNG un MONARK – 2,88 kalorijas. Pie jaudas 75-100W starp POLAR un MONARK vidēji sastāda 1,58 kalorijas, starp ENDOMONDO un MONARK - 2,14 kalorijas, starp SAMSUNG un MONARK – 0,28 kalorijas. Pie jaudas 100-150W starpība starp POLAR un MONARK vidēji sastāda 1,80 kalorijas, starp ENDOMONDO un MONARK - 2,20 kalorijas, starp SAMSUNG un MONARK – -0,79 kalorijas, t.i., lietotnes mērījums zemāks par ergometra).

Pie augstākās slodzes lietotņu mērījumi ir līdzīgi ergometra rezultātiem. Tomēr visas izmantotās ierīces parādīja mērījumu kļūdu salīdzinājumā ar ergometru: POLAR - 19% (1,80 kcal), ENDOMONDO - 24% (2,20 kcal) un mazākā kļūda un līdzīgāks rezultāts SAMSUNG – -8% (-0,79 kcal), kurai bija nozīmīga atšķirība no citām lietotnēm ($p=0,01$).

Diskusija *Discussion*

Darba gaitā tika noskaidrots un novērtēts ergometra un dažādu mobilo lietotņu kaloriju patēriņš dažādu fizisku slodžu apstākļos.

No ergometra pielietošanas pieredzes var secināt, ka pēc aprēķiniem iegūtie rezultāti ir relatīvi līdzīgi netiešās kalorimetrijas rezultātiem (Beekley et al., 2004; Garatachea et al., 2007), tātad ievērojami precīzāki salīdzinājumā ar mobilo lietotņu un viedpulksteņu mērījumiem.

Vislielākā kaloriju patēriņa atšķirība starp lietotnēm bija pie zemākās slodzes. Arī citos pētījumos (Shcherbina et al., 2017; Wallen et al., 2016) tika salīdzināti vairāku viedpulksteņu SF un KP mērījumi pie dažādām aktivitātēm, t.sk. uz velotrenažiera, ar netiešās kalorimetrijas palīdzību. Tika noskaidrots, ka bija kļūda KP noteikšanā, un kļūda bija krietni lielāka nekā SF noteikšanā. Pētījuma autori norādīja, ka pie zemākām slodzēm kļūdas bija lielākas, nekā pie augstākām, kas bija novērots arī šī darba ietvaros. Arī citā pētījumā ir noskaidrots, ka pie lielākām slodzēm pārnēsājamo viedierīču kaloriju patēriņa mērījumi ir tuvāki netiešās kalorimetrijas mērījumiem gan skriešanas, gan riteņbraukšanas laikā (Klass, Faoro, & Carpentier 2019). Salīdzinot trīs jaunāko viedierīču Apple Series 1 Watch, LifeTrak Core C200 un Fitbit Charge HR noteikto kaloriju patēriņu ar netiešo kalorimetriju pie sešiem dažādiem skriešanas ātrumiem tika noskaidrots, ka jo lielāks skriešanas ātrums, jo mazāka kaloriju patēriņa noteikšanas kļūda (Zhang et al., 2019).

Pētījumu dati ir pretrunīgi un daļā pētījumos noskaidrots, ka vismazākā kaloriju patēriņa noteikšanas procentuālā kļūda, salīdzinot viedpulksteņa Polar Vantage noteikto kaloriju patēriņu ar netiešo kalorimetriju bija sēžot un lasot

(9,1%), bet vislielākā kļūda (31,4%) vidējas intensitātes mājsaimniecības darbu laikā (Gilgen-Ammann, Schweizer, & Wyss, 2019). Mūsu pētījumā tika konstatēts, ka pie augstākās slodzes lietotņu kaloriju patēriņa rādītāji ir tuvāki ergometra kaloriju patēriņa rādītājiem, tomēr visas izmantotas ierīces parādīja mērījumu kļūdu salīdzinājumā ar ergometru: POLAR - 19% (1,80 kcal), ENDOMONDO - 24% (2,20 kcal) un mazākā kļūda un līdzīgāks rezultāts SAMSUNG – -8% (-0,79 kcal), kurai bija nozīmīga atšķirība no citām lietotnēm ($p=0,01$).

Tā kā KP noteikšana viedierīcēs un lietotnēs balstās uz algoritmiem, kas iekļauj ne tikai pulsometra mērījumus, bet arī citu iebūvēto rīku mērījumus, viens no iemesliem rezultātu atšķirībā varētu būt daļēja algoritmu pielietošana. Būtu nepieciešama akselerometra izmantošana. Pētījumos (Erdogan, Cetin, Karatosun, & Baydar, 2010; Brugniaux et al., 2010) tika salīdzināti gan pulsometra, gan akselerometra/pedometra rezultāti un secināts, ka tos var pielietot KP noteikšanā.

Salīdzinot kaloriju patēriņu, kas noteikts ar piecām uz plaukstas locītavām valkājām tehnoloģijām un netiešo kalorimetriju, tika noskaidrots, ka arī pēdējo gadu komerciāli pieejamās uz plaukstas locītavu valkājāmās viedierīces nav pietiekami precīzas un to kļūda kaloriju patēriņa noteikšanā salīdzinot ar “zelta standartu”, jeb netiešo kalorimetriju pārsniedz 10% (Passler, Bohrer, Blöching, & Senner, 2019).

Secinājumi **Conclusion**

1. Noskaidrojot kaloriju patēriņu pie dažādām fiziskajām slodzēm, starp mobilajām lietotnēm tika secināts, ka pie zemākās slodzes rezultāti ir atšķirīgi visām lietotnēm. Zemākais rādītājs bija POLAR lietotnei un augstākais – SAMSUNG lietotnei. Pie vidējās un augstākās slodzes zemākais rādītājs bija SAMSUNG lietotnei, POLAR un ENDOMONDO rādītāji bija gandrīz līdzīgi.
2. Salīdzinot mērījumu atšķirību starp lietotnēm un ergometru, noskaidrots, ka pie zemākās slodzes atšķirība bija visām lietotnēm, vismazākā atšķirība bija POLAR lietotnei un vislielākā - SAMSUNG lietotnei, pie vidējās un augstākās slodzes SAMSUNG lietotnei bija vismazākā atšķirība.
3. Lietotņu kaloriju patēriņa rādītāji ir tuvāki ergometra rādītājiem pie augstākās slodzes.

Summary

Various technologies are increasingly used in sports and fitness classes. Portable fitness devices are the fastest growing fitness trend worldwide in the recent years (Thompson, 2019). More and more people are using fitness bracelets, smart watches, GPS tracking devices and fitness apps on mobile phones. One of the most commonly used functions in both portable fitness devices and stacon technology is the measurement of calories intake. The simplest, most convenient, and cheapest way to measure calorie intake (CI) is smart devices and custom mobile apps (Ramirez, 2018) that store and process data. However, not all of these devices are accurate and objective enough.

Aim of the study: to find out and evaluate the calorie intake of a bicycle ergometer and various mobile apps under different physical loads.

CI at various physical loads was determined using the MONARK ERGOMEDIC 839E cycling and applications.

Conclusions

1. Finding out the calorie intake at different physical loads between mobile apps, it was concluded that the lower load results are different for all apps. The lowest score was for the POLAR app and the highest for the SAMSUNG app. At mid to high loads, the lowest score was for the SAMSUNG app, POLAR and ENDOMONDO were almost similar.
2. Comparing the measurement difference between the applications and the ergometer, it was found that the lowest load difference was for all apps, the least difference was for the POLAR app and the highest was for the SAMSUNG app, and the middle and higher loads for the SAMSUNG app.
3. App calorie intake figures are closer to those of the ergometer at peak load.

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PATIENTS' SATISFICATION AS THE QUALITY INDICATOR OF NURSING

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Abstract. *Patients, during their stay at hospital, have the right to receive qualitative care and patients' wellbeing depends on it. Patients' wellbeing is based on satisfaction with care, which is influenced by, made by several conditions: communication of nurses, professionalism, education and timely provision thereof. Research aim: analyse the satisfaction of patients with the care provided by nurses. Research methods: Quantitative research method – original questionnaire “Newcastle Satisfaction with Nursing Scale” (NSNS). The results of the research: Patient who gives the assessment on nursing quality, with his sense of health condition of the specific period, general and individual requirements, personalized wishes and expectations can influence the satisfaction assessment, because he always is the source subjective variations. Even though the level of patients' satisfaction is important and considerable indicator for nursing quality, by means of which it is possible to determine the efficiency of the provided care. This is a real means to identify the implemented fields of nursing aims, and improve the process if required, to ensure the quality. Nursing quality is based on patient-centred approach to achieve the common preferable health-care results.*

Keywords: *nursing, nursing quality, patient's satisfaction.*

Introduction

Assessment of nursing quality and provision thereof became the health-care concern already in 1970s and 1980s (Ozga, Gutysz-Wojnicka, Wojtaszek, & Lewandowski, 2014). "Nursing" is a very important aspect on which patients' satisfaction depends, because nurses are involved in almost all aspects of care in a hospital (Ahmed, Assefa, Demisie, & Kenay, 2014).

According to the health-care data from the Centre for Disease Prevention and Control, the number of hospitalized patients increases over the last years, but the

number of practising nurses shrinks, that's why it is important that the health-care quality wouldn't deteriorate (SPKC, 2017).

Patients' satisfaction is used more and more in many hospitals as the quality indicator, because patients who are satisfied with the care are of importance for the hospital – they observe more the instructions and suggestions of health-care experts and most likely they will continue using the health-care services and will suggest the hospital to others (Piredda et al., 2015). Whereas, an unsatisfied patient prematurely interrupts the treatment, doesn't cooperate in the care and treatment process, and look for the help elsewhere (Gutysz – Wojnicka, Dyk, Cudak, & Ozga, 2013). Assessment of patient care is a real means to provide the care improvement possibilities.

The factors determining the patients' satisfaction in nursing can be related with assessment of diverse competences or entrustable professional skills (Ten Cate et al., 2015) or practicing nurses in clinical environment the preference whereof must be assessed in three fields: amount of nurse's communication with the patient, education of patients and professional action in the context of situation. The definition of the entrustable professional skills is not yet acquired in the health-care education in Latvia and in the professional practice, but it includes activities recognizable in the standard of nurse profession and in the patient-care (interpersonal contact and communication, education of patients) which form the patients' satisfaction. Integration thereof causes trust to nursing and these are important elements of safe patient-care.

Characterization of patients' satisfaction

Patients expect individualized, professional nursing and non-missing wish to help that can explain the differences in patients' satisfaction if the provided nursing can differ from the expectation of patients.

And most of the patients want to receive information about their health condition, participate actively in its planning, managing and decision-making in relation with the treatment options and care (Milutinovic, Simin, Brkić, & Brkić, 2012).

One of the most common problems for doctors and nurses is that the action is disease-centred, the work is mainly oriented to hospital or task not to the person (Gustafson, 2015; Oflaz & Vural, 2010). In this case the patient can feel impersonal which in turns can influence his/her perception of nursing principles.

Nurses interact with patients more frequently than any other health-care staff in a hospital. A nurse is mainly the one who explains the information provided by doctors to patients in a more comprehensible form (Ahmed et al., 2014; Negarandeh, Abbas, & Mamaghani, 2014).

There is no agreed definition on what patients' satisfaction is. Definitions from different authors can be found (Gutysz – Wojnicka et al., 2013; Findik, Unsar, & Sut, 2010; Ahemd et al., 2014). The most accurately it is defined by Eriksen: "Patients' satisfaction is the assessment of patients' subjective, cognitive and emotional response that results from interaction between expectations about nursing and actual attitude of nurses." (Maqsood, Oweis, & Hasna, 2012). Considering the different definitions of patients' satisfaction assessment of patients' satisfaction is a complicated task, it is multidimensional and subjective.

A group of authors Kvist et al. (Kvist, Voutilainen, Mäntynen, & Vehviläinen-Julkunen, 2014) carried out a research the aim whereof was to analyse how the satisfaction of nurses with their work and organizational characteristics (of hospital and unit) influence the perception of patients about the quality of care. It was concluded that patients' perception of overall quality of care is positively related with overall satisfaction of nurses with their work.

A similar study was carried out by a group of researchers Papastavrou et al. (Papastavrou, Andreou, Tsangari, & Merkouris, 2014). Also, in this research it was discovered that patients' satisfaction is influenced by how nurses perceive their work, working environment and organizational issues. It points to the fact that the quality of care can be improved adapting the factors that influence the satisfaction with work (Kvist et al., 2014).

Methodology

Aim of the research: analyse the satisfaction of patients with the care provided by nurses.

Research participants: 100 patients from internal medicine units in equal proportions which are selected by means of non-probability sample. The inclusion criteria for respondents: older than 18 years, they are in the units for 48 hours or more and they agree to participate in the research.

Tools: Quantitative research method – questionnaire was used to carry out the research applying the original questionnaire "Newcastle Satisfaction with Nursing Scale" (NSNS). The levels of satisfaction create continuity and they can be assessed "from – to" (complete lack of satisfaction – completely satisfied, by means of Likert scale).

Research results

50 patients were questioned in each of the internal diseased units, in total they were 100 respondents at the age from 18- 87 years. The average age of respondents 55.8 years, from which 39 were male, but 61 – female patients. The average stay in the hospital 5.21 days (Min 2, Max 24).

The total *patients' satisfaction result* in unit A is 73.0 %, but in unit B – 75.1%, which gives the total satisfaction results – 74.1%. In patients' satisfaction with the nursing care the highest evaluation was given in the questions: “How quickly nurses came when you called for them”, “How capable nurses were at their job” and “Availability of nurses in cases of need”, but the lowest evaluation was given in the questions: “How much information nurses gave to you about your conditions and treatment” and “The type of information nurses gave to you about your condition and treatment” (see Table 1).

Table 1 Satisfaction with nursing care

	Mean	SD	%
1. How much time nurses devoted to you	3,05	0,821	76,3
2. How capable nurses were at their job	3,36	0,718	84,0
3. Availability of nurses in cases of need	3,30	0,870	82,5
4. The amount nurses knew about your care	2,85	0,968	71,3
5. How quickly nurses came when you called for them	3,39	0,909	84,8
6. The way the nurses made you feel at home	2,55	1,132	63,8
7. How much information nurses gave to you about your conditions and treatment	2,12	1,113	53,0
8. How often nurses checked to see if you are okay	2,79	1,104	69,8
9. Nurses' helpfulness	3,23	0,874	80,8
10. The way nurses explained things to you	2,99	0,969	74,8
11. How nurses helped put your relative's or friends' minds at rest	2,73	1,043	68,3
12. Nurses' mannered when performing their duties	3,28	0,766	82,0
13. The type of information nurses gave to you about your condition and treatment	2,46	1,077	61,5
14. Nurses' treatment of you as an individual	2,79	1,028	69,8
15. How nurses listened to your worries and concerns	2,88	0,977	72,0
16. The amount of freedom you were given on the ward	3,30	0,870	82,5
17. How willing nurses were to respond to your requests	3,29	0,832	82,3
18. The amount of privacy nurses gave you	2,90	0,980	72,5
19. Nurses' awareness of your needs	3,02	0,899	75,5

The total *statistical assessment of patients' impressions* in unit A is 67%, but in unit B – 67.7%, which gives the total result – 67.4%. In patients' impressions about the provided nursing care, the highest assessment was given to the statement “Nurses were too easy going and laid back”, meaning that 80% of respondents answered that they don't agree to this. Also, the questions “Nurses used to go away and forget what patients had asked for”, “Doctors and nurses worked well

together as a team” and “Nurses made me do things before I was ready” got high results meaning that 73.9% of the questioned patients recognized that they don’t agree to it. The question “Nurses explained me my health condition” got the lowest evaluation where only a bit less than half of respondents (47.55) answered that they don’t agree to is (see Table 2). The questions “Nurses had time to sit and talk to me”, “Nurses knew what to do not relying on the doctors” and “Nurses did not tell me enough about my treatment” also got low evaluation.

Table 2 Impressions about nursing care

	Mean	SD	%
1. It was easy to have a laugh with the nurses	4,48	1,193	74,8
*2. Nurses favoured some patients over others	4,19	1,587	69,8
*3. Nurses did not tell me enough about my treatment	2,98	1,723	49,8
*4. Nurses were too easy going and laid back	4,80	1,255	80,0
5. Nurses took a long time to come when they were called	4,46	1,642	74,3
6. Nurses gave me information just when I needed it	4,29	1,452	71,5
*7. Nurses did not seem to know what I was going through	3,99	1,345	66,5
*8. Nurses turned the light off too late at night	4,67	1,198	77,8
9. Nurses made me do things before I was ready	4,76	1,156	79,3
10. No matter how busy nurses were, they made time for me	4,61	1,118	76,8
11. I saw nurses as friends	3,23	1,588	53,8
12. Nurses spent time comforting patients who were upset	3,60	1,356	60,0
*13. Nurses checked regularly to make sure I was okey	4,12	1,486	68,7
*14. Nurses let things get on top of them	4,28	1,248	71,3
*15. Nurses took no interest in me as a person	3,42	1,615	57,0
16. Nurses explained me my health condition	2,85	1,872	47,5
17. Nurses explained what they were going to do to me before they did it	4,34	1,616	72,3
18. Nurses told the next shift what was happening with my care	4,15	1,250	69,2
*19. Nurses knew what to do without relying on doctors	2,99	1,573	49,8
*20. Nurses used to go away and forget what patients had asked for	4,77	1,136	79,5
21. Nurses made sure that patients had privacy when they needed it	3,93	1,358	65,5
*22. Nurses had time to sit and talk to me	2,92	1,574	48,7
23. Doctors and nurses worked well together as a team	4,76	1,016	79,3
*24. Nurses did not seem to know what each other was doing	4,11	1,180	68,5
25. Nurses knew what to do for the best results	4,41	1,111	73,5
26. There was a happy atmosphere in the ward, thanks to the nurses	4,07	1,225	67,8

* all negative questions were reversed during the data processing to be positive

On the questions “How do you evaluate the nursing care received in the ward”, using a 7-point Likert scale, where 1=awful, but 7=great, answers lower

than 4 (average) were not obtained (see Figure 1). The average evaluation was 5.87 (see Table 3) which correspond to the evaluation 'good'.

Table 3 How do you evaluate the nursing care received in the ward

	N	Min	Max	Mean	SD
How do you evaluate the nursing care received in the ward?	100	4	7	5,87	0,917
Total (N)	100				

When comparing the satisfaction of patients with the length of stay (see Table 4), several patients were satisfied that the length of stay is 10 days or less – 74.2%, but this indicator is statistically insignificant $\chi^2 = 4,234$, $df = 2$, $p = 0,120$. When comparing the patients who stayed in the unit for 11-20 days, one half was satisfied, but the other half – unsatisfied.

Table 4 Cross-line tables of time spent in the unit and overall patients' satisfaction

		Overall patients' satisfaction			
		Satisfied	Unsatisfied	Total	
How many days, including yesterday, did you spend in this ward in this specific case?	1-10	Number	69	24	93
		%	74,2%	25,8%	100,0%
	11-20	Number	3	3	6
		%	50,0%	50,0%	100,0%
	21 and more	Number	0	1	1
		%	0,0%	100,0%	100,0%
Total	Number	72	28	100	
	%	72,0%	28,0%	100,0%	

When analysing the sex of respondents and overall patients' satisfaction, it can be seen (see Table 5) that 77.4% of women and 66.7% of men are satisfied with nursing care. So, women are more satisfied than men – but this coherence is statistically insignificant $\chi^2 = 0,902$, $df = 1$, $p = 0,342$.

Table 5 Cross-line tables of sex and overall patients' satisfaction

		Overall patients' satisfaction			
		Satisfied	Unsatisfied	Total	
Sex	male	Number	26	13	39
		%	66,7%	33,3%	100,0%
	female	Number	46	15	61
		%	75,4%	24,6%	100,0%
		Number	72	28	100
		%	72,0%	28,0%	100,0%

When analysing the age of respondents and overall patients' satisfaction (see Table 7) coherence can be seen that the greatest patients' satisfaction (86.1%) can be seen in the age group '65 and above', when compared with 50% in the age group '18 – 35' and 69.6% in the age group '36 – 65', however this indicator is statistically insignificant $\chi^2 = 8,012$, $df = 2$, $p = 0,18$.

Table 6 Cross-line tables of age and overall patients' satisfaction

			Overall patients' satisfaction		Total
			Satisfied	Unsatisfied	
Age	18-35	Number	9	9	18
		%	50,0%	50,0%	100,0%
	36-64	Number	32	14	46
		%	69,6%	30,4%	100,0%
	65 and above	Number	31	5	36
		%	86,1%	13,9%	100,0%
Total		Number	72	28	100
		%	72,0%	28,0%	100,0%

The common connection of level of patient care between sex, age, length of stay and satisfaction didn't show any statistically important results.

Conclusions and discussion

The obtained results show that the overall *satisfaction of patients with the care provided by nurses* is at comparatively high level (73.0% and 75.1%). Similar results were obtained in the research carried out in Turkey (Akin & Erdogan, 2007) where 70% of patients were satisfied, and in the research carried out in Italy (Palese et al., 2017), where satisfaction was detected in 77.6% of patients. In the research carried out in Poland (Ozga et al., 2014), 78% of patients were satisfied which is only a bit better indicator. A larger number of respondents is needed to obtain convincing results on the connection of satisfaction with demographical data.

Total impressions about patient-care are lower (67% and 67.7%). These results are almost identical with the results obtained by the group of researchers Ozga et al (Ozga et al., 2014) where patient's impressions reach 68.05%, but the results obtained in the research performed by the group of researchers Gutysz-Wojnicka etc. (Gutysz-Wojnicka et al., 2013) are a bit higher – 73.22%.

The question "Nurses explained me my health condition" that got the worst results, in a patient's opinion, is not a duty of nurse at all, and a negative evaluation means not that nurses didn't fulfil their duties, but that such task doesn't correspond to their profession.

The research results show a very significant lack in the performance of nursing care, which is the field of provision of information, education. So, the statements "Nurses explained me my health condition" and "Nurses did not tell me enough about my treatment" got very low results. This field requires improvements, thus potentially improving also patients' satisfaction.

Almost only half of respondents recognized that nurses knew themselves what to do without relying on doctors. In the society, also among the patients, there is a stereotype that a nurse only implements doctor's ordinations and is not able to educate patients about their health conditions or with treatment-related issues.

Similarly like in the research carried out by Akin et al (Akin et al., 2007), the statement "Doctors and nurses worked well together as a team" and "How capable nurses were at their job" got good results. However, unlike the research of the group of researchers Alasad et al., (Alasad, Abu Tabar, & AbuRuz, 2015) where the question "How quickly nurses came when you called for them" got the lowest result, in this research this question got the best results. Also other questions related with technical skills, got high results ("How quickly nurses came when you called for them", "Availability of nurses in cases of need", "How capable nurses were at their job"), which correlates with the research carried out by the group of researchers Maqsood et al., (Maqsood et al., 2012) where it was concluded that the technical abilities of nurses got the highest evaluation when compared with other dimensions, and it shows that nurses in Latvia are also technically well prepared, but the field of interpersonal skills needs improvements.

The results obtained in the cross-tables of the research are similar to the results of researches carried out by foreign authors (Ozga et al., 2014; Tang, Soong, & Lim, 2013; Gutysz- Wojnicka et al., 2013) where no connection between individual demographical values (sex, age, education) and satisfactions is discovered. Here it is worth noting that connection with sex was detected in the researches of authors (Ozga et al., 2014; Akin et al., 2007; Oflaz et al., 2010; Liepaja Academy of Pedagogy, 2010; Alasad et al., 2015), drawing a conclusion that women are more satisfied with the nursing care, but in some researches, it was concluded (Palese et al., 2017; Milutinovic et al., 2012; Findik et al., 2010) that men are more satisfied with care.

When comparing the age of respondents with the total patients' satisfaction, results were obtained that the largest patients' satisfaction is in the age group "65 and above" which is similar to the conclusions drawn in the researches of foreign authors (Milutinovic et al., 2012; Akin et al., 2007; Gutysz- Wojnicka et al., 2013; Oflaz et al., 2010; Findik et al., 2010) that elderly patients are more satisfied with nursing care.

It must be noted that NSNS questionnaire is developed in the United Kingdom, where, if compared with Latvia, nurses' duties are a bit different. There were some questions, which in the opinion of patients, were inappropriate to the nursing process in health-care institutions. For example, as to the question "Nurses had time to sit and talk to me" many respondents asserted that they understand that nurses have much to do and, although they would like to sit and talk to patients, they don't have time for this.

Conclusions

Determination of patients' satisfaction with nursing care experience in secondary health-care institutions is complicated and influenced by many factors. Important are also patients' relations with healthcare personnel, physical environment where nurses have crucial role when forming patients' experience about the stay in the hospital.

The obtained research results attest that nursing care must be efficiently improved to increase patients' satisfaction with it. It's necessary to improve the entrustable professional skills in communication and interpersonal relations. Each patient must be perceived as a person with his/her wishes and expectations about ideal nurses' communication, education and professional field where the best possible nursing must be ensured. The opinion that nurses need cooperate more actively with patients in their education is topical to change the stereotype that a nurse only implements doctor's ordinations and is not a health-care professional.

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CASE STUDY OF PRIMITIVE REFLEXES IMPACT ON SWIMMING SKILL ACQUISITION BY HEALTHY CHILDREN

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Abstract. *Primitive reflexes is an automatic muscle reactions which are only present in the first few months, but can remain active in healthy children, thus, impacting on motor proficiency. There is little evidence how primitive reflexes influence on swimming skills acquisition by healthy children. The aim of the study is to examine how primitive reflexes influence swimming skills acquisition by healthy children. Subjects: two 7-year-old girls. Methods: Checklists by Oh et al., (2011) were used to evaluate swimming skill proficiency at swimming lesson 8 and 16. The results were represented as a percentage of the possible maximal score. The testing of the asymmetrical tonic neck reflex, the symmetrical tonic neck reflex, and the tonic labyrinthine reflex was done using Blythe's, 5-point rating scale. The analysis was carried out using descriptive method. The first girl showed two reflexes at level 1, while the second girl demonstrated all tested reflexes at level 1, 2 and 3. The girl with less total score of reflexes (8%) achieved a better level of swimming proficiency (from 73% to 77%) than the girl with higher (25%) severity of these reflex (from 21% to 33%). The obtained data evidence about influence of primitive reflexes on swimming skill acquisition by healthy children.*

Keywords: *primitive reflexes, swimming skill acquisition.*

Introduction

Primitive reflexes are stereotypical, unconscious muscle reactions in response to a specific stimulus (Sohn, Ahn, & Lee, 2011). They are developing in the womb (Zoia et al., 2006), are represented at birth in the full-term neonate, and gradually get inhibited as the central nervous system when an infant matures (Schott & Rossor, 2003; Zafeiriou, 2004; Sharma, Ford, & Calvert, 2014). The primitive reflexes should not remain active in the general population beyond one year old. The tonic labyrinthine reflex (TLR), asymmetrical tonic neck reflex (ATNR) and symmetrical tonic neck reflex (STNR), along with the other primitive reflexes, if retained in children above this age can therefore disrupt maturation processes and provide indication of neuro-motor immaturity (Blythe, 2009, 2011). In this case

residual presence of primitive reflexes reduce children's ability to process sensory information effectively (Blythe, 2011).

The researches in this area are usually linked with a medical diagnosis such as cerebral palsy (Zafeiriou, 2004; Pavão, Neves dos Santos, Woollacott, & Cicuto Ferreira Rocha, 2013), delirium (Nicolson et al., 2011), neuropsychiatric disorders as Attention – Deficit/Hyperactivity Disorder (Konicarova & Bob, 2013) and psychological disabilities both Asperger's syndromes (Teitelbaum et al., 2004) as well as autism spectrum disorders (Chinelloa, Gangib, & Valenzab, 2018). However, the evidence suggests that primitive reflexes, as residual reflexes can remain active in children in the absence of a medical diagnosis (Gieysztor, Choińska, & Paprocka-Borowicz, 2018).

Residual reflexes can affect the child's educational outcomes. In this case children can learn, but it takes more effort (Montgomery et al., 2015; Grzywniak, 2016). For example, both reading (McPhillips & Jordan-Black, 2007) as well as writing, paying attention, and movement coordination, may be difficult for these children (Blythe, 2009, 2011; Vaculíková, Skotáková, & Sebera, 2017). Each reflex has been identified as playing a part in specific aspects of learning (Montgomery et al., 2015) and behaviour (Bilbilaj, Gjipali, & Shkurti, 2017), but when neuro-motor immaturity is present in a school-aged child a cluster reflexes are usually involved and could be considered as factors related to learning difficulties (Bilbilaj et al., 2017; Vaculíková et al., 2017). These residual primitive reflexes can affect an individual in many different ways. The research in this area, associated with swimming skill learning, is limited and needs extending. Blythe, (2009) confirmed that residual STNR affects the poor upper-and lower-body integration during learning breaststroke. She stated, "Breaststroke is affected because each time the head is lifted up to keep it above water, the feet start to sink, making it very difficult to keep the body on the top of water. Some children with STNR learn to swim under water more easily because when the head goes down, the feet starts to come up, and the weight of water helps to keep the body level" (Blythe, 2009, p.100).

Swimming stroke technique is learnt during swimming classes with the expectation that it would provide individual water safety and will be useful during a lifetime (Revesz, Bognar, Salvara, Gita, & Biro, 2007; Franklin et al., 2015). Rational swimming technique consumes the less energy (Pyne & Sharp, 2014) and allows to extend the length of the swimming distance (Morouzo, Keskinen, Vilas-Boas, & Fernandes, 2011), what is very significant for prevention of accident in water. Thus, it becomes crucial that such motor skills are learned effectively. Motor skill learning refers to the cognitive process by which movements are executed more quickly and accurately with practice (Taubert et al., 2010; Landi, Baguear, & Della-Maggiore, 2011). Front crawl and backstroke technique consists of many components including both balance control in

horizontal body position and limb coordination (Donaldson, Blanksby, & Heard, 2010; Oh, Licari, Lay, & Blanksby, 2011). Due to complexity, its usually are learned in parts (Blanksby, Parker, Bradley, & Ong, 1995; Oh et al., 2011) in order to reduce cognitive load on the early stage in learning (Wulf & Shea, 2002; Magill & Anderson, 2016). Swimming coaches teach their pupils to perform different components of a stroke separately (e.g., leg kicks, arm pulls, and breathing) before combining them all together to produce the whole pattern of coordination at a later stage of practice. Few studies evidence that the fact thought as structured swimming lessons which are being applied for teaching swimming proficiency in healthy children did not reach a maximum point value (Donaldson et al., 2010; Oh et al., 2011). Researchers suggest that successful swimming skills acquisition in healthy children only depends on age and water experience (Blanksby et al., 1995; Langendorfer et al., 2009). There is no evidence how primitive reflexes influence on swimming skills acquisition during swimming lesson by healthy children. Using descriptive method, the aim of the study is to examine how residual primitive reflexes influence on swimming skill acquisition by healthy children.

Methodology

Participants and Procedure

The two 7-year-old girls, with similar height and weight, health condition were defined by their General Practitioner as “practically healthy”, none of them used to have preliminary physical activity, neither they attended any other trainings except for swimming; both of the girls were diligent pupils without learning difficulties at school and demonstrated good cognitive behaviour forms of self-regulation. At the beginning of study their water competence was the same level including submerging, floating, breathing, and self-propulsion through the water on the front and back without a flotation device. They also could swim rudimentary crawl, but not proficient at front crawl and backstroke. The subjects got down to learning swimming at the same time, having two classes a week with the duration of 40 minutes. A part practice learning method has been applied and only kick-boards were used to enhance the learning process, but no other flotation devices. Lessons were held in a 25 x12 m heated (28–29 C), covered pool, in which pupils could not stand on the bottom. Both girls were conscientious and attentive at swimming lessons, though with different motorics of swimming skill performance. Therefore, it was suggested to analyse the process in view of primitive reflexes. Progress of Swimming Proficiency was evaluated at swimming lesson 8 and 16. The results have been gained while researching the children during swimming lessons. Front crawl and backstroke were put into practice together with other tasks, so the children were unaware of being checked.

Primitive Reflex Tests (ATNR, STNR, TLR) were measured before the lesson. Each girl was assessed individually.

Measures

The Primitive Reflex Tests of ATNR and STNR were carried out with the child in a quadruped position with hips flexed to 90, elbows extended, hands flat, fingers extended, and head in a neutral position. In the asymmetrical tonic neck reflex (ATNR) test, the examiner gently and slowly rotated the child's head to both sides. The procedure was carried out passively with a stop point at the midline. This sequence was repeated 4 times. The ATNR was measured on both the left side (ATNR L) and the right side (ATNR R). The symmetrical tonic neck reflex (STNR) was tested by the examiner with the child's head passively bent and extended. The STNR was measured for flexion (STNR FLX) and extension (STNR EXT). The tonic labyrinthine reflex (TLR) was tested in standing position, feet pushed together, hands along the trunk. The child was asked to tilt the head back "as if looking at the ceiling" and close the eyes. The child was supported by the examiner. After 10 s the child was asked to bend the head slowly "as if looking at the toes" and stand in the position for 10 s. The movement was repeated four times. The TLR was measured for flexion (TLR FLX) and extension (TLR EXT). The classification of the reflexes was done using Blythe's 5-point rating scale (0-4) (Gieysztor, Choińska, & Paprocka-Borowicz, 2018). The higher the children scored on the primitive reflex test, the lower the degree of primitive reflex integration they presented. The maximal total score for primitive reflexes were the summation of the scores of each reflexes (24 points) and were represented as a percentage of the possible maximal score.

To evaluate the progress of swimming skill levels objectively, Swimming Proficiency Assessments checklists by Oh et al., (2011) were used. Certain components of the body position, head position and, use of upper limbs, use of lower limbs were evaluated.

Front crawl components included: horizontal alignment of the trunk in water, minimal body rotation; head remains horizontal in water with the chin on the chest, head turning to either side to inhale with ear in water, bubbles are blown out slowly into water, regular breathing patterns linked to arm action; upper limbs fingers are closed together, slow, straight arm freestyle, long pull with back on the hand catching raindrops, hand enters the water near to the top catching the imaginary board; kick initiated at the hips, knees extended with straight legs kicking action, relaxed feet with ankles pointed, kicking feet just break surface. Backstroke components were following: horizontal alignment of the trunk in water, tummy pushed up, minimal body rotation; head remains horizontal in water, with eyes looking up to the top; fingers are closed together, slow, straight arm backstroke, little finger leads and enters water first, hand pull through and exits

water at upper thigh level; kick initiated at the hips, knees extended with straight legs kicking action, relaxed feet with ankles pointed down, kicking feet just break surface.

Each individual component in the checklist was rated on a four-point scale: 0 = Not at all; 1 = Sometimes; 2 = Most of the time; 3 = All the time. The maximal total score for Swimming Proficiency were the summation of the scores of each stroke individual component and were represented as a percentage of the possible maximal score (78 point) (Oh et al., 2011).

Results

The present study has been focused on the three primitive reflexes due to its impact on coordination and balance (Blythe, 2009), which is crucial in swimming stroke acquisition. The occurrence of residual primitive reflexes and the associated swimming stroke progress were analysed between cases. The case analysis was carried out using descriptive method. A comparison of the data from the study is shown in Table 1.

Table 1 Occurrence of primitive reflexes in relation to swimming proficiency

Measures	Primitive reflexes						Swimming proficiency	
	ATNR R	ATNR L	STNR FLX	STNR EXT	TLR FLX	TLR EXT	Lesson 8	Lesson 16
Case 1	0	1	0	1	0	0	73%	77%
Case 2	0	2	1	0	3	0	21%	33%

The participants of present study were healthy children without learning difficulties. However, they showed persistence of primitive reflexes. The first girl showed two marginally persistent ATNR L and STNR EXT, both at level 1 with the total scores of each reflexes 8% of the possible maximal score (24 point). The second girl demonstrated all tested primitive reflexes: STNR FLX, ATNR L and TLR FLX at level 1, 2 and 3 subsequently. The total score of each reflex was 25% of the possible maximal score. The level of retained primitive reflexes in both cases during testing remained without changes. The studies in this area are limited, but they all evidence about persistence of primitive reflexes in healthy children. Gieysztor, Choińska, & Paprocka-Borowicz (2018) suggested that over 60% of 35 tested healthy 4–6 years old children with no reported special needs demonstrated at least one primitive reflex at level 1–2 and 25% of them at levels 3 and 4. According to the study of Gieysztor et al. (2017) with one hundred thirty-five healthy preschool and early school age children (64 boys and 71 girls), where their primitive reflexes were tested by Blythe’s tests, the more conserved

reflexes among the surveyed healthy 4–9 year-old children were ATNR, STNR and TLR (Gieysztor, Sadowska, & Choińska, 2017).

During swimming skill acquisition the first girl best results in swimming proficiency was 60 points that indicate 77% of the possible maximal score, while the second girl showed 26 points that indicate 33% of the possible maximal score. Having non - integrated primitive reflexes, none of the girls received a 78 maximum point value for the swimming proficiency nor at the 8-th one neither at the 16-th lesson. Our study could be confirmed by Gieysztor, Choińska, & Paprocka-Borowicz (2018) analysis of primitive reflexes and associated motor problems in healthy preschool children. They concluded that even marginally persistent reflexes, affect the motor proficiency. Authors suggested that, none of the tested children in their research with non – integrated primitive reflexes received a maximum point value for motor proficiency test.

Case study demonstrate individual integration of primitive reflexes by children at the same age. The first girl showed full integration of TLR and non-integrated ATNR L and STNR EXT, while the second girl demonstrated all non – integrated primitive reflexes. Gieysztor, Sadowska & Choińska (2017) also highlight individual characters of integrated reflexes with age. They found that the least integrated reflexes among the school 7–9 age children and preschool 4–6 years children are ATNR and TLR. TLR and STNR FLX were the best-integrated reflexes in the study group. Between these two groups, the biggest difference existed in the integration of TLR FLX where the full integration was reached by 95% of children in the school age group and 65% of children in the preschool group. Individual integration of primitive reflexes with age was also suggested by Skotáková, Vaculíková, & Sebera (2016). They studied 175 children at the age of 6 to 11 and find the persistent of TLR in 47 % of the tested children. Concerning ATNR the data showed almost the same level of persisted reflex in right (33%) and left (34%) side of the body. The highest number of TLR was found in children in the 1st class – 55%, while the number of persisted reflexes lowers to 40% in the 2nd class, and, consequently, decreases to 31% in the 3rd year (Skotáková, Vaculíková, & Sebera, 2016).

The data of present study demonstrated links between integration of primitive reflexes and swimming proficiency. Being of the same age, possessing the same level of competence before learning to swim and having attended the same number of lessons, nevertheless, the girl without persistent TLR and less residual reflexes (8%) achieved a better level of swimming proficiency (77%), than the girl with persisting TLR and higher severity of all tested reflexes (25%) who achieved only 33% of possible maximum score. Swimming proficiency consists of many components, including both balance control in horizontal body position and limb coordination (Donaldson et al., 2010; Oh et al., 2011). Those the children ability to coordinate all parts of the body in many different

combinations (use of upper limbs, use of lower limbs) or carry out movement independently of each body part (for example turning the head in front crawl) play a crucial role. Blyth, (2009) confirms that non – integrated primitive reflexes evidence about poor balance and coordination problems. There is no evidence about non-integrated reflexes and swimming skill acquisition in healthy children, but the study of Blanksby et al., (1995) has shown the relationship between age and numbers of swimming lessons. Authors confirmed that the same level of swimming proficiency (swim 10 m in front crawl with regular uni-lateral breathing and 5 m backstroke with basic displaying good kick) to be achieved for 5 year old child requires 39 lessons, for 7 years old -18 and 8 years old -15. While our study demonstrated that primitive reflexes also could impact on swimming proficiency during swimming skill acquisition. This confirms that age is not only a indicator for successful swimming skill acquisition in healthy children, but individual characters of non-integrated reflexes as well could impact on swimming skill learning.

During swimming skill acquisition the first girl showed progress in swimming skill acquisition for 4% from 57 to 60 points, that indicate 73% and 77% of the possible maximal score consequently. The second girl swimming proficiency became higher for 12% i.e. 16 to 26 points what made 21% and 33% of the possible maximal score consequently. The improvement in swimming proficiency in both cases can be grounded, as multiplied repetition of the same performance usually results in the skill mastering (Taubert et al., 2010; Landi, Baguear, & Della-Maggiore, 2011).

Conclusions

The case study confirms that primitive reflexes can remain active in healthy children without learning difficulties. Although individual character of the residual reflexes has been identified, the problem of acquiring effective swimming skills hasn't been solved within the given study.

Presence of higher level of retained stereotypical primitive muscles reaction with the children of the same age may take more time to make progress or requires to practise tasks longer than others to achieve similar outcomes during swimming skill acquisition.

A part practice learning method has been applied during swimming skill acquisition. The study suggest that part practice methods where sequences of movements are practiced separately as in the swimming example, what allows to acquire swimming skills, but can be complicated by residual impact of primitive reflexes, that influences the value of this common practical strategy.

The study demonstrated importance of the noticed individual reflexes integration in each child to help him to prevent many difficulties which children

might encounter during swimming learning, especially in group swimming classes. So, swimming coaches have been advised to seek strategies that reduce this impact. Due to the case study the data only reflect of residual primitive reflexes and common level of swimming skill acquisition individually, thus, some cautions should be taken during the results' interpretation. Results of the present study need further confirmation on a larger sample size. Testing of both the technique problems for each skill component and the individual nature of the retained reflex could bring additional useful information.

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RIDING AS A SPORT OF TERAPEUTIC NATURE NARRATIVE STUDY

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Abstract. *The healing effects of horse riding have been known for a long time. These qualities were already recognized in ancient times - Hippocrates believed that riding a horse stimulates the functioning of the body, while Socrates noticed its impact on the exercise of the body and senses. In turn, Avicenna considered horse riding to be an excellent exercise for the body. In the sixteenth century, doctors confirmed the beneficial effects of horse riding, considering it useful for health. In 1750, Francisco Fuller mentioned horse riding in the first study of sports medicine, noticing its impact on the state of mind and human body (Bednarczyk 2015). The horse played a huge role in human life, and the nature of this relationship has changed over the years. The subject of the article focuses on the equestrian sport, which therapeutic effect takes place through the constant dialogue between the rider and the horse. This relationship is manifested in a special relationship of man and animal, which has an emotional character. The phenomenon of this interaction was presented in the Amazon narrative, which through riding and communing with these animals, has found a new dimension of life. The research was embedded in qualitative orientation, which allowed to understand a fragment of the narrator's reality and her experience of everyday life.*

Keywords: horse, horsemanship, therapy.

Introduction

The encounter of man and horse and their common history began many years ago and continues to this day. Paleontologists, who studied wall drawings in the Pech Merle French caves, noticed the silhouettes of horses presented there, which personified the magical power that gave man life energy (Forman & Niederwser, 2002). The evolution of both species is strongly connected with each other, and the significance of this diverse relationship between a horse and a human is evident in many areas of human life (Łojek & Łojek, 2015).

The horse played a huge role in human life and the nature of this relationship has changed over the years. Through cooperation, physical and mental closeness, people began to discover new dimension of this relationship.

Currently, equestrianism can take various forms, from sport at the highest level, through recreation, tourism, para-equestrianism and rehabilitation and therapy (hippotherapy), as one of the types of animal therapy. However, in each of these forms one can notice the unique dialogue that is created between man and

animal. This communication takes place through movement and because of the movement. (Strauß, 2012).

So what is the therapeutic peculiarity of equestrianism? This relationship is manifested in the special communication between man and animal, which is emotional. *The nature of a horse's relationship with a human being lies in the constant state of "tuning." Every interaction, every aspect and nuance of communication between a horse and a man is an element of constant learning and teaching. Human-animal (horse) relationships serve as conscious exercises that help to develop feelings and behaviours that improve quality of life* (Sawaryn, 2008).

It is the cooperation of two entities that, as a result of harmonious synergy, generates the presence of added value (Walulik, 2017), which is the new dimension of human life.

The therapeutic dimension of horse riding

The healing effects of horse riding have been known since antiquity, when Hippocrates noticed the positive impact of horse riding and its universal significance in the treatment of some human diseases. In turn, Socrates wrote about the impact of horse riding on both the body and the senses (Bednarczyk, 2015).

When talking about the therapeutic dimension of horse riding, hippotherapy, i.e. activities aimed at restoring fitness and health, with the participation of a horse, is most often thought of (Strumińska, 2003). This form of therapy has many possibilities, which is why, thanks to diversity, it can be a proposition not only for people with disabilities, but also for all those struggling with difficulties. Due to the versatility of hippotherapy, various activities are distinguished within this therapeutic form. Among the hippotherapy activities are:

- physiotherapy on a horse - therapeutic gymnastics on a horse moving in walk, where properly selected exercises have an impact on improving coordination, balance, orientation in the body schema and space,
- psycho-pedagogical horse riding - individual classes with an emphasized psychodidactic dimension of therapy,
- therapy with a horse - activities based on contact and relationship with the animal during the therapeutic situation,
- horse riding for disabled people - recreation and sport, learning the basics of horse riding and preparation for equestrian competitions (Strumińska, 2003).
- In view of the presented hippotherapeutic procedures, there is talk of the impact of horse riding on various spheres of human functioning.

The first of them - and the most obvious - is the physical sphere, where through the multidimensional rhythm of vibration of a horse walking, it affects the improvement of overall fitness, normalizes muscle tone, improves balance and general condition and reflects the correct gait pattern. But riding a horse affects not only this area.

An important role is played by the horse and riding on it in the functioning of the emotional and motivational sphere (by increasing motivation, increasing self-esteem, emotional changes), the cognitive sphere (by stimulating the reception of sensual sensations, stimulating the development of visual and auditory perception, developing concentration of attention, memory, logical thinking and speech development), and the social sphere (by increasing social activation, establishing and developing positive relationships) (PTHip, 2018).

The therapeutic role of horse riding and communing with a horse is manifested in the search for and creating a bond between man and animal. In addition to the health dimension, equestrianism creates many situations that result in improved functioning and its consequences are positive mental, social and aesthetic changes (Jeczeń, 2009). Contact with an animal affects the development of emotional intelligence, teaches discipline, has an impact on the sense of responsibility and patience.

Equestrianism as a relation of horse and rider

Horse riding is one of the most difficult and demanding forms of activity, because its success is determined by the relationship, communication and harmony between the rider and the horse who become one when working together. According to Waław Pruchniewicz, *horse riding is an unusual and very complicated sport, because it depends on the close cooperation of two living beings - man and horse* (Pruchniewicz, 2003). Communication between them consists in transmitting subtle signals that are least noticeable from the outside. This sublime dialogue and agreement between the partners: horse and man, constitute the essence of horse riding. It is said that it is in some sense an elite discipline, which refers to people practicing this discipline who belong to the characterological and personality elite. *Riding a horse, regardless of age, the rider should behave properly towards both the animal and other riders. People riding horses should stand out above all in their determination, responsibility, duty, common sense and good physical fitness* (Balinska & Kowalska, 2011).

Horse and human relations include situations related to ordinary horse-human contact, up to the relationship in which the horse accepts man as his guide, voluntarily surrenders to him, and despite his physical advantage he can serve man faithfully. Such interdependence manifests itself on many levels and enriches the world of sensations that open to a new quality of human life (Strauß, 2012).

There is a reason why equestrian talks about the relationship between a rider and a horse, calling its subjects a "pair", because the success is a partnership of both.

The uniqueness of horse riding is also evidenced by the fact that it can be practiced and competed by people regardless of gender and age. Both a small child and an elderly person can successfully mount a horse. Horse riding is a unique form of sport and recreation that you can do throughout your life. When riding a horse, the rider's age or gender is not important, but his emotional development. Communicating with horses and horse riding is not only doing sports, but also a form of active leisure in close contact with nature. Horse riding connects generations, gathers people who practice amateur riding with sports players, and all those who treat them in an emotional way (Grobelny, 1997).

Despite its elitism, equestrianism is now becoming more and more available and popular. Numerous equestrian centers are created, equipped with a rich infrastructure, equipped with indoor horse riding halls, enabling training in all weather conditions. Guest houses are also being built that have space for private horses. More and more people decide to buy their own horse, because horse riding with time ceases to be just a passion and becomes a lifestyle.

There are two types of motivations that guide people when riding a horse. The first is external motivation, associated with involvement in connection with external pressure, encouragement of other people, or even pressure from parents, which is often associated with the probability of giving up riding. The second type is internal motivation, which stimulates to take action to meet their own needs. People with internal motives are more persistent in pursuing their goals. Among the factors affecting the formation of internal motivation, we can mention:

- the ability to have dreams and turning dreams into goals,
- high self-esteem and sense of self value,
- various interests and passions,
- optimism and emotionality,
- freedom of choice,
- support from the environment (Herzig, 2009; Aronson, 1997).

In order to practice horse riding and achieve results in it, one must thoroughly learn the principles that form the basis for agreement and cooperation between the rider and the horse. This cognition can take place through systematic riding and communing with these animals. Thanks to the process of man-horse bond making man can discover a new dimension of his own life.

Methodological basis of the study

The advantages of contact with animals and their impact on various spheres of human development have been known for a long time. The relationship

between man and horse is manifested in the relationship between them, which is emotional. This interaction was demonstrated in this article by analyzing and interpreting the narrative of the amazon woman who tied her life to these animals. Through regular contact with horses, horse riding and communing with these animals, she found - despite the difficulties she struggled with - a new dimension of life. The research was embedded in qualitative orientation. Thanks to this, it was possible to examine and try to understand a fragment of the narrator's reality and her experience of everyday life.

The study was conducted by using the narrative interview technique, which involved a *free story telling based on recreating the experiences of the respondent's life* (Rubacha, 2008). It was associated with the participation of the research author in the world of the examined person, with understanding and interpretation of his reality in the natural environment, as well as an attempt to give meaning to concepts and terms she used (Flick, 2010).

The essence of the narrative interview is a free, spontaneous story of a life or specific event, which is not disturbed by the intervention of the researcher. While conducting the study, the author focused on specific elements of the interlocutor's life, while the person telling their own story had the opportunity to present it in a preferred way (Gudkowa, 2012).

Research issues were located on the time axis, where three time areas are clearly outlined - past, present and future, which influenced the interpretation of individual components. The continuum data allowed us to look at the changes that took place in the examined person's life.

A child with complexes

She describes her childhood as the most difficult period in her life. Her experience of losing her father, growing up in a housing estate, which was full of all sorts of pathologies, living at home with her mother, who was struggling with loss and regret herself, influenced the feeling of loneliness, otherness and diminishing her own value.

... when I was 5 years old, my father died tragically. I stayed alone with my mother in an empty apartment in the estate. Mom was depressed after losing her husband. I didn't understand it at the time, but now I know it ...

I was afraid to go out into the yard, because a neighbor lived next door, who drank a lot, and made huge quarrels at night. He was chasing after the cage with an ax, and three daughters running away from him and his wife was screaming terribly (...) I was afraid of him, I was even afraid of passing by their door.

These events caused the child's suffering. On the one hand, the traumatic experience in the form of the death of her father, on the other, the experience of

violence and alcoholism in the immediate vicinity, influenced her sense of fear. In addition, the lack of adequate support from the mother, who was struggling with her own difficulties, Childhood experiences and traumas often have an impact on human formation and further development. This situation affected the narrator's life and affected the process of shaping of her self-esteem, brought insecurity and a sense of otherness into her life.

In elementary school I was plump and wore glasses. Typical ugly. I was a kid with complexes. It didn't overflow, so I never had designer clothes. I was the only person in the class who didn't have a father. I felt terrible because I felt different. I was rather introverted and did not believe in myself ... I had only one friend, although some time later our paths diverged. Somehow I couldn't find friends ...

Through her childhood experiences, the subject felt isolated. Difficulties in establishing and maintaining relationships with peers resulted in loneliness and secrecy, the appearance of complexes of external appearance and those associated with low material status, and comparison with others. This was not conducive to the development of a young person. The respondent does not mention relations with the environment, rather focuses on her own unpleasant experiences.

The turning point in the narrator's life was her mother enrolling her in her riding lessons. The narrator describes this event as a significant turn in her life.

When I was 9 years old, my mother enrolled me in a small stable in my town. And I caught the bug. I started coming there more and more often, all the time I was thinking about going to the stable. And I didn't even have to ride. Just being with these animals, helping them prepare for riding, and even cleaning their cages and cleaning them was an amazing experience for me. I don't know how and when it happened, but I got into the life of the stable, helped trainers and met my peers. We had common themes, shared passions and we wanted to be together and talk about horses all the time.

The narrator pointed out the relationship between the emergence of passion and the improvement of social relations. Thanks to new interests, she became more open to contacts with other children, she found a common understanding with them. The horses with whom the relationship and bond she made had an impact on improving the girl's functioning in the social, cognitive and emotional-motivational sphere.

Being with them (horses) gave me a sense of peace, I forgot about everything. Looking into the eyes of the horse, I saw my dreams come true. He made everything I believed and worked on real and good. This stable, horses and these people - this was my place on earth.

When analyzing the narrative, two stages of childhood should be captured. The first filled with loneliness and loss, the second - a turning point - the time to discover passion, create bonds and relationships with animals, which translated into improving relationships with people.

Horses teach human feelings

One of the most important human needs is the need for closeness, belonging, experiencing love and lasting interpersonal relationships. They result from permanent satisfaction of emotional needs, and result in a sense of happiness, fulfillment and success (Firkowska - Mankiewicz, 2002). Interpreting the subject's narrative, it can be seen that the implementation of these needs began in parallel with the formation of bonds with horses. The relationship with animals, in turn, took place in an emotional dimension. Passion turned into a lifestyle where horses play a major role.

I rode and I rode. I trained, there were competitions, competitions, badges. It wasn't a day for me not to be in the stable. I couldn't live without it anymore. In time, I became an instructor and taught others how to work with horses. I learned a lot, a lot has changed in my approach to life. But everything really got even stronger when I bought my first horse.

The development of equestrian passions influenced the further shaping of the narrator's life, which was focused on relations with horses. As she notes, owning a horse has strengthened changes in approach to life.

I have a great horse that proves to me at every turn that what I do is good. Medals and successes are forgotten with time, but a new, better person appears. Relationships remain forever, if we nurture them and try to make them good, no one will be able to take them away from us.

The relationship between the narrator and her horse is emotional. The subject talks about the formation of this relationship, difficult beginnings and about her experiences related to the appearance of this particular animal in her life. This relationship required proper commitment, because it is cooperation with a living being. The subject also mentions meeting with the person who directed this cooperation between the horse and the human being. However, it does not specify who this person is. However, it can be concluded that this meeting was an important moment for the narrator. This is another turning point, this time in the perspective of horse riding and communing with horses, as well as the beginning of building a new dimension of this bond.

When we met, I was very afraid of him. He was unpredictable. Each ride was a struggle for survival and a nightmare. I thought at the time that he was malicious and uncomplicated, that he had no authority, he didn't respect people. You have to break such a horse with a bit and a whip - thinking was very common at that time, but unfortunately it didn't work. Fortunately, a person appeared in our life who showed us the right way. The whole story is incredibly long and multi-threaded, it lasts up to 5 years. It led us to the moment we are now because I know that buying this horse was one of the best decisions I have ever made. There is no more forgiving and patient

animal in this world, it is my greatest success and at the same time the beginning and motivation to fight for dreams.

Creating a relationship between man and horse requires mutual understanding. During its establishment, a person can learn patience, cooperation, perseverance and diligence. He can also learn a lot about himself, which has therapeutic significance in this relationship. Through the connection that developed between her and her horse, the subject could look inside herself, and the lack of faith in her abilities, concealment, loneliness and fear she experienced in her childhood gave way to openness, trust in herself, inner strength. It helped her to understand the world better and gave her more confidence.

I love this horse, I can see how great it is and how old it is. This is amazing, because in his eyes I see myself. I wish everyone could see in my horse's eyes what I see: devotion and understanding. It may sound funny and banal, but it was he who taught me human feelings. Horses are sincere; if they like you they show it, if something doesn't suit them, they manifest it too. There is no pretend, like in some people ...

I am 20 years old and I am grateful to fate and all the people who supported me and helped me to be where I am now. My mother once said that we either win or learn. In retrospect, I can see how much truth there is. I won a new life for myself, I made my dreams come true, I gave myself a chance. I won awareness, awareness of who I really am and what I should do in my life. I won because I changed my whole life thanks to horses.

Analyzing her experience in retrospect, the narrator sees the huge role that horses and equestrian play in her life. The horse, which is a much bigger and stronger partner than a human, thanks to subtle communication and agreement, wants to cooperate with the rider. He cannot be forced to this cooperation but only persuaded. Therefore, horses teach the art of communication. The emotional changes, development and maturity of the narrator were associated with her life path, in which horses appeared and she managed to create a strong relationship with them.

Changes are needed

It is said that variation is the most constant in life. Changes are an integral part of everyone's life. They are associated with leaving the so-called comfort zone, cause stress and fears. However, they are necessary because they affect the formation and development of man. The narrator sees this need for change, which is often associated with incurring costs.

... one should not be afraid of changes, they are needed in life, they can be hard, but in my case the change in the environment allowed me to free myself from many stresses and I understood that sometimes it is worth doing something for myself ...

Analyzing the narrative, it can be seen that one change in the subject's life entails another. The only constant element is the presence of horses in her life. It is the relationship with them that drives her to actions and changes. The narrator also associates her future with horses and equestrianism. As you can see, this is a very important bond for her.

As for the rest of things that have changed, I am starting my studies at the University of Agriculture, majoring in Zootechnics. Public policy turned out to be not for me. This is quite a big step and I hope that I will learn many interesting and useful things. The change of studies is directly related to the fact that from February I plan to start a course of horse physiotherapy. In a word, change in full swing.

Making significant changes in everyone's life is possible when you want to make your dreams come true and you believe in your own abilities. The narrator develops her interests, achieves goals and accomplishes her goals. The drive and motivation for this is the unique relationship that has been established between her and the horses. A special desire to contact them encourages the respondent to act on her own development. Difficult childhood, overload with negative emotions, fears and anxiety, complexes did not prevent her from achieving success in life.

Conclusions

Riding is a special sport because it involves the relationship between a horse and a man who become a cooperative couple. This cooperation manifests itself in subtle communication between entities, which is expressed through movement. The resulting bond between man and animal is emotional.

The healing and therapeutic effects of horse riding have been known since ancient times. Currently, the horse is appreciated as the subject of hippotherapy, where thanks to riding on it and interacting with it, it is possible to improve the functioning of people in terms of physical, emotional - motivational, cognitive and social way.

The emotional dimension of horse riding means that ordinary passion becomes a lifestyle. The relationship between man and animal requires mutual understanding, and during its development a person can learn a lot about themselves, which plays a huge therapeutic role. Communing with an animal helps us to better understand ourselves and the surrounding world. Teaches sensitivity, patience and diligence. It gives a new meaning to life and allows you to believe in yourself and helps you deal with your own weaknesses and complexes.

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EFFECT OF LOCAL VIBRATION ON ROAD CYCLISTS

Kalvis Ciekurs

Latvian Academy of Sport Education, Latvia

Viesturs Krauksts

Latvian Academy of Sport Education, Latvia

Daina Krauksta

Latvian Academy of Sport Education, Latvia

Juris Grants

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Abstract. *In sprint distance probably the most important factor for a good result is the athletes achievements in power of cycling, because the athletes, who ride with a very high frequency, but cannot put in a cycle solid force in competitions. Consequently is need for new resources or means to increase the strength expressions, to be able to compete successfully with high-level athletes. One of such is the local vibration. In our study we use the local vibration in development of cyclists strength expressions and power the aim of study is to determine influence of local vibration on cyclists peak anaerobic power. The subject of study is 15years old 2 cyclists. To carry out experiment, we arranged both cyclists, was made an anaerobic power test, when the athletes were given an unlimited time to warm up and achieve the highest possible power. Maximum power test results before the local vibration showed that the average power of the test group was 906 W, after application of local vibration peak power was 975W. A study has confirmed our allegation that application of local vibration can significantly improve the results of sprint cycling. Local vibration as an innovative training mean has proved its reliability in training process, as the random-level athletes improve their anaerobic power.*
Keywords: anaerobic power, local vibration, cyclers.

Introduction

Many scientists like been interested in the possibilities of increasing cyclists' movement speed. Most of researches are based on oxygen maximal consumption and other physiological characteristics during load. Cadence frequency in different tracks having various terrain is stated (Nilsson, 1977). It is proved in many researches that movement speed depends on cadence frequency and the chosen gear at the definite stage of the track. Cyclists show the most speed in individual races where movement speed is determined by the body core, as well as the leg muscle strength. Therefore, the back, abdomen and leg muscle strength

plays especially great role in cycling. Taking J. Nilsson's and other research as the basis, it can be concluded that according to different biomechanical structural changes in cyclists' technique exactly cadence frequency is one of the determining factors to increase movement speed. It is considered that having different asphalt surface, air temperature, air humidity and the peculiarities of tire rubber composition speed can be different. Local vibration is used in the world as one of the parts of innovative training means, it helps athletes renew and prepare for a new training faster. The aim of the pilot study is to find out the acute impact of local vibration on cyclists' improvement of strength and cadence frequency.

Literature review

In sport mechanical vibrations are applied as a means of massage, and as a type of training as well. For many years vibration trainings are used as a training means, and earlier vibration had two objectives: vibration stimulation were applied to increase strength, and separate bio-motor ability using all body vibration platforms was increased quite successfully. If vibration as a kind of massage and rehabilitation means has been already known for many thousand years, then vibration as a training means is a quite new thing. Researchers have stated that vibration in sports has two forms of impact: the first is linked with acute or immediate effect, but the second with long term or chronic effect variant, which today is called as vibration trainings, carried out with the same conditions like all other means realized in sports (Siegmund, Barklty, Knapp, & Peer, 2014). The attempts to combine vibration loads with traditional strength trainings with the purpose to achieve greater increase of the work capacity of the neuro-muscular system than only using classical strength trainings have already been carried out comparatively long ago (Souron, Besson, Lapole, & Millet, 2018).

Recent research gives notion about the fact that vibration trainings both in acute or chronic form have explicitly positive effect on strength and power expressions in athlete whole preparation process. If it is considered that vibration is a constant component of a training means, then vibration effectiveness in strength and power expressions, and not only, depends on vibration load characteristics, and they are as follows: a kind of vibration realisation or application, the frequency of oscillation waves and amplitude. The classical load formation regularities – a kind of training, intensity and amount have an essential role, too. Vibration frequency and amplitude are load effect values with what vibration affects the neuro-muscular system with the purpose to improve an athlete's body ability to increase the total work capacity. It is already proved in many scientific conclusions that as a result of the vibration training not only strength and power expressions increase, but also flexibility or movement amplitude, movement coordination, balance successfully improve, movement and

moving speed increases, athletes' ability to focus attention on training loads and competition activity increases.

However, at the present stage of the research process scientists have made the main conclusion that for the present the vibration trainings give the best effect in the field of strength and power expressions. It is pointed out in the scientific publications that the vibration frequencies of 30-50 Hz range have the greatest effectiveness on the neuro-muscular system (to optimise strength and power expressions). Only vibration platforms, where only the whole body vibration which is considered as the vibration of indirect effect is provided, can give the frequencies of such a range. It has smaller effectiveness than the direct or local vibration, where vibration is applied to definite muscle or its tendon, and it has essentially bigger effectiveness (Curt, 2015). In the case of the direct or local vibration the vibration frequency is significantly bigger (>100 Hz), but the amplitude is smaller (1-4 mm).

So, each of these various vibration forms affect muscles in different way, and wherewith vibration has different effect on training effectiveness (Souron, Besson, Millet, & Lapole, 2017). To get greater effect in strength and power development, it is not enough to increase the intensity and amount of vibration loads used in trainings or to increase vibration frequency and amplitude (Krauksts & Nemčenko 2011). Firstly, excellent general and special physical condition should be provided then in the training process vibration should be included as a means of training. To state every athlete's individual methodology of vibration trainings during the application of vibration it is necessary to observe the athlete and communicate with him/her. Although the methodology of vibration trainings is worked out the same for all athletes, the strength of vibration application is different.

Methodology

Two Riga cyclist school (RCS) trainees' anaerobic power were stated experimentally applying test exercises on the cycling-ergometer Watt Bike. Test exercises were filmed in movement laterally using the digital camera GoPro 7 (200Hz). The obtained video material was processed using video analysis program Swing It. Then followed mathematical procession and analytical analysis of the obtained data. Local vibration trainings were carried out applying Vibromassager WM-1, S/N09/01 (see Figure 1), with frequency 100 Hz, amplitude 2 mm and variative pressure on the muscles *m. Erector spinae*, *m. Quadriceps femoris*, *m. Biceps femoris*, *m. Semitendonosus*, *m. Semimebranosus*, *m. Triceps surae*. The time of local vibration was 10 min followed by 30 min long passive rest. The experiment was held on December 2, 2019 and December 6, 2019 in Latvian Academy of Sport Education (LASE) laboratory. The air

temperature was 17 C, the air humidity 62%. The test exercises were performed on the cycling-ergometer Watt Bike and pushing from lying position with feet in the training machine.



Figure 1 Local vibration device Vibromassager WM-1, S/N09/01

Research results

Athletes' speed and movement frequency – pace – is limited by their technical proficiency. High quality technical condition is characterized by the body lever, condition easiness and economy, a good neuro-muscular coordination, what impacts effective energy realization and a bigger movement speed. Speed is determined not only by mobility and well-synchronized neuro-muscular possibilities, but also movement frequency– pace, realized by precise nerve impulses and strong contractions. Therefore, fast and explosive movements should be guaranteed by high level power expressions. Strong concentration is a very important factor to achieve big speed.

Cyclists' cadence frequency average per 1 minute is from 120 - 180 rotations. For both of RCS trainees after local vibration application to muscles result increase was observed. In anaerobic power test where muscle power when riding the cycle ergometer Watt Bike was stated, both participant result before local vibration was determined. The first participant's result was 834 W, but the second one's was 978 W. After the application of local vibration, the first participant's result was 881 W and the second one's was 1069 W. So, the result increase of both was significant: for the first participant it was 47 W, and for the second 91 W. But in 10 second test cadence frequency increased a little. The first participant's result before local vibration was 35 rotations, but after local vibration 37 rotations. But the second participant's result was 33 rotations, and after local vibration 34 rotations. So, the result differences are small: for the first participant 2 rotations and for the second participant 1 rotation. When stating result differences in pushing with feet from the lying position the results of the first and

second participant before local vibration were 190 kg and 260 kg, but after local vibration they increased for the first participant 220 kg, and 300 kg for the second participant. For both participants the result increase was correspondingly 30 kg and 40 kg. When stating the result increase percentage, we can conclude that in the anaerobic power test the results of the participant is 9.3%, but of the second it is 5.6%. In 10 second cadence test the result of the first participant was 3%, and for the second 5.7%. But in pushing from the lying position the first participant's result was 15.4% and the second participant's result was 15.8%.

Discussion

Scientists when researching the role of the local vibration (LV), total body and regional vibration on athletes work anaerobic power have obtained different results which reveal both the increase and also decrease of athlete work power. Analysing the research literature about the effect of the local vibration on athletes' work anaerobic power similar research was not observed, however, the total body vibration and how it affects cyclists' work anaerobic power has been researched. Scientists in their research have developed different methodologies of vibration trainings including vibration characterizing parameters: frequency, amplitude and the vibration application time in the training (Rhim, 2005; Luo, 2005; Kurt, 2015). Researching the trainees of RCS: 100 Hz frequency, 2 mm amplitude and 10 minutes training was applied what is accepted as optimal for LV trainings (Bongiovanni, 1990; Rittweger, 2000), and the most optimal amplitude is 4-6 mm (Abercromby, 2007; Cardinale, 2003; Fontana, 2005), but the vibration application time varies from 5 s to 30 min (Jackson & Turner, 2003), as well as the applied vibration pressure which is still not described, so it cannot be used for precise analysis of this value. Analysing different researches the methodology has been stated which was approximate, but researching RCS cyclers, a precise and thorough information about the applied methodology. The obtained research results confirm the improvement of LV effect in the anaerobic power test have significantly improved after the LV trainings. It has a positive effect on the strength expressions of well-trained athletes (Issurin, 1994; Issurin & Tenenbaum, 1999). After the local vibration sessions for both cyclists, the anaerobic test results and cadence test results prove considerable increase on the stationary Watt Bike ergometer.

Conclusions

The obtained data for both RCS trainees show that after the application of local vibration cadence frequency and anaerobic power have improved. The result increase of both was significant: for the first participant it was 47 W, and for the

second 91 W. 10 second test cadence frequency increased a little. The results testify an essential improvement of anaerobic power results, which is confirmed by the difference of the mean results.

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LOCAL VIBRATION INFLUENCE OF ELECTROMYOGRAPHY PARAMETERS ON ANAEROBIC CAPACITY TEST IN ROWERS

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Abstract. Whole body vibration is a worldwide innovation as a part of training method that helps athletes to regain the power and get ready for next training faster. However less attention is paid to local vibration where an isolated muscle or muscle group is stimulated by the use of a vibration device. For the reason to determine the effect of local vibration on anaerobic capacity of rowers, two research groups were assembled from the students of Murjāņi Sport Gymnasium (MSG). The following methods were used in the study: tests – Concept-2, local vibration (LV) manipulations, electromyography and mathematical statistics. The electromyography was made with Biometric LTD. LV manipulations were done to the muscles erector spinae, latissimus dorsi, teres major, teres minor, trapezius, infraspinaeus, deltoideus, slenius capitis, triceps brachii, gluteus maximus, semitendinosus, biceps femoris, semimembranosus, gastrocnemius, tendo calcaneus, rectus femoris, vastus lateralis, tensor fascia latae, vastus medialis, sartorius, ligamentum patellae, tibialis anterior, rectus abdominis, pectoralis major un biceps brachii. We using 100 Hz frequency, 2 – 4 mm amplitude and different pressure on the muscles. The total LV application time was 5 to 20 min. The obtained data were processed using mathematical statistics. The results: having stated the result difference before LV and after it. The results testify significant improvement of Concept-2 tests results and electromyography results, what is showed by the difference of the mean results. Comparing the results of the rowers of experimental group (EG) and control group (CG) they have differences in the left side muscle latissimus dorsi after the t-test where $p > 0.05$, but stating the percentage of the mean result difference of this muscle it was found out that $p > 0.05$ what also shows significant changes in the muscle biopotential (mV).

Keywords: anaerobic capacity, rowers, local vibration, electromyography.

Introduction

In rowing, as in any sport, dominant physical abilities, necessary for the definite sport, are emphasized. In rowing the basic physical abilities are endurance and strength. It is much spoken about and researched how to increase the speed of moving in rowing. As one of the ways how to solve the problem local vibration application before and after competitions, as well as during training sessions, is offered (Siegmond, Barklty, Knapp, & Peer, 2014). Many scientists as Hofmijster (2010), Hawkins (2000) and others have researched the possibilities of increasing the speed of moving in rowing. Most part of researches is based on oxygen maximal consumption and other physiological changes during a load. Although there are various researches, stating the technical nuances of leg and arm work, comparatively little attention is paid to the role of the arm work.

The cycle length in different distances and having different water flow – before the wind, against the wind and with the side wind is stated. The attempts to combine vibration loads with traditional strength trainings with the purpose to achieve greater increase of the work capacity of the neuro-muscular system than only using classical strength trainings have already been carried out comparatively long ago (Souron et al., 2019; Souron, Besson, Lapole, & Millet, 2018; de Paula, Moreira, & Szmuchrowski, 2016). Recent research gives notion about the fact that vibration trainings both in acute or chronic form have explicitly positive effect on strength and power expressions in athlete whole preparation process. It is considered that it is possible to excellently observe muscle biopotential (mV) at different loads by the electromyograph, as well as to observe muscle fatigue after loads (Knipše, 2009). To state the training process and its usefulness for top rowers it is necessary to state muscle biopotential (mV) and frequency (Hz) during a stroke and relaxation what is essential precondition for renewal between the strokes (Schaar & Mattes, 2010; Nowicky, Burdett, & Horne, 2005). The epidermal electrodes were used in the research which registered muscle biopotential (mV) and frequency (Hz).

Methodology

To state the effectiveness of the local vibration on rowers' muscles biopotentials the experimental group (EG) and the control group (CG) were form including the students of Murjani Sport Gymnasium (MSG). MSG students were chosen because they all train according to the similar system, as well as their daily routine is similar, too. 15 MSG students were chosen in the experimental group and 12 MSG students in the control group, their age was 18 – 24, on average 19.6 ± 1.45 years (EG) and 19.3 ± 1.72 years (CG), having different experience in rowing. The height of the participants of EG was on average 190.7 ± 3.4 cm,

but of CG 189.0 ± 2.7 cm, but the weight of the participants of EG was on average 88.0 ± 5.0 kg and of CG it was 88.3 ± 3.4 kg. The average age of the groups was 19.5 ± 1.6 , the average height 190.0 ± 3.2 cm, but the average weight 88.1 ± 4.3 kg. Performing of the first test on the stationary ergometer Concept-2 and additionally stating of electromyography (EMG) before and after LV (figure 1).

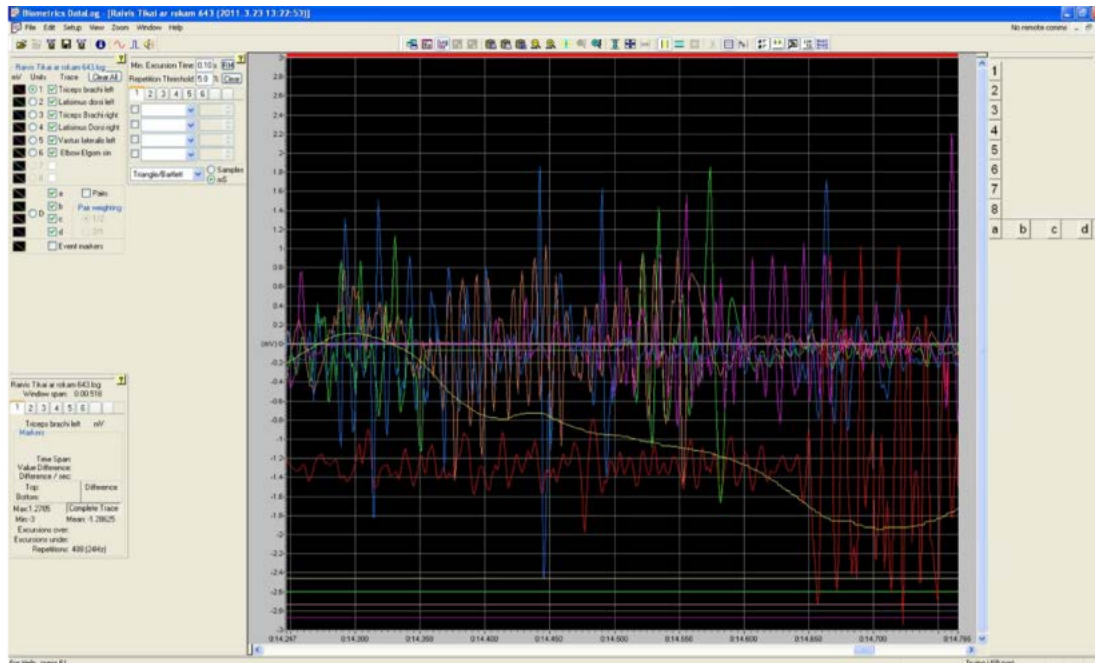


Figure 1 Electromyography in anaerobic power capacity test – one stroke



Figure 2 Local vibration training for the muscle erector spinae (vibro-equipment – VIBROMED)

The methodology of local vibration trainings (figure 2) was developed for the following muscles: *erector spinae, latissimus dorsi, teres major, teres minor, trapezius, infraspinatus, deltoideus, splenius capitis, triceps brachii, gluteus maximus, semitendinosus, biceps femoris, semimembranosus, gastrocnemius, tendo calcaneus, rectus femoris, vastus lateralis, tensor fascia latae, vastus medialis, sartorius, ligamentum patellae, tibialis anterior, rectus abdominis, pectoralis major un biceps brachii.*

The trainings of local vibration to the whole body applied on the experimental group participants were held. The sessions of local vibration (Table 1) were held according to the methodology developed together with Prof. V. Krauksts.

Table 1 Scheme of local vibration for Murjani Gymnasium athletes

Week	Vibration frequency	Vibration amplitude	Vibration length in minutes	Vibration times a week
Week 1	100Hz	2mm	5min	2
Week 2	100Hz	2mm	5min	3
Week 3	100Hz	2mm	10min	2
Week 4	100Hz	2mm	10min	3
Week 5	100Hz	4mm	12min	2
Week 6	100Hz	4mm	12min	3
Week 7	100Hz	4mm	15min	2
Week 8	100Hz	4mm	15min	3
Week 9	100Hz	4mm	20min	2
Week 10	100Hz	4mm	20min	3
Week 11	100Hz	4mm	15min	3
Week 12	100Hz	4mm	15min	4

Results of research

Anaerobic power was stated in watts (W) according to the indicators of the digital monitor of Concept-2. Anaerobic power capacity test lasted for 30 seconds what actually is modified Vingait test especially for the rowers of Murjani Sport Gymnasium. The test results were processed by the *t-test Independent Samples test*, as a result all values were similar ($p < 0.05$), although a tendency towards different result was shown by the muscles *latissimus dorsii* (Hz) left side $p = 0.065$, but the muscle *triceps brachii* (mV) in the right side had $p = 0.056$ before the movement, but for the muscle *latissimus dorsii* during movement (mV) it was $p = 0.086$. Other results had from $p = 0.123$ up to $p = 0.809$ (Table 2).

Table 2 T-test Independent Samples test p-values in the 1st anaerobic power capacity test

Muscle	Frequency Hz before beginning of movement	Frequency Hz during movement execution	Biopotential mV before beginning of movement	Biopotential mV during movement execution
<i>Musculus Triceps Brachii</i> (LSB)	0.763	0.809	0.714	0.688
			0.107*	0.103*
<i>Musculus Latisimus Dorsii</i> (RSB)	0.065	0.622	0.555	0.751
			0.796*	0.091*
<i>Musculus Triceps brachii</i> (LSB)	0.298	0.361	0.056	0.194
			0.078*	0.262*
<i>Musculus Latisimus Dorsi</i> (RSB)	0.256	0.123	0.608	0.086
			0.344*	0.630*

(*) – percentage average p – value

(LSB – left side of body, RSB – right side of body)

The means were stated for the rowers' results in each group which were processed with SPSS-17 t-test. The results of anaerobic power capacity test of EG and CG prove that the groups are homogeneous, what is testified with t-test $p = 0,706$. When stating EMG in all cases both the muscle impulse frequency Hz and mV and biopotential percentage relation (mV) were identical. Also in this test the results prove that both groups have shown equal results where $p < 0.05$. When stating the variation coefficient of EG and comparing the means, it was found out that the variation coefficient is 22.0%, but the variation coefficient of CG is 18.1% what shows that the groups are not homogeneous.

To state muscle biopotential (mV) and frequency (Hz) of CG the first and the second test were analyzed, thus stating differences between the test results. Only in two cases *t-test Paired* differences were significant: for the muscle *triceps brachii* of the right side of the body before the beginning of the movement in frequency (Hz) field $p = 0.039$ and also in amplitude (mV) field during the execution of the movement 0.018. However, taking a look at the percentage relation result differences it is concluded that the results of the muscles of the right side of the body are different, but the results of the muscles of the left side of the body are similar what is similar to the anaerobic power test of CG. But in the ANOVA test the differences were not recorded in none of the cases. Comparing to EG it is concluded that the muscle *triceps brachii* has improved the result, frequency (Hz) and amplitude (mV) have increased.

Table 3 The comparison of T-test Independent Samples Test p-values in anaerobic capacity 2nd test

Muscle	Frequency Hz before beginning of movement	Frequency Hz during movement execution	Biopotential mV before beginning of movement	Biopotential mV during movement execution
<i>Musculus triceps brachii</i> (LSB)	0.015	0.040	0.044	0.099
			0.861*	0.763*
<i>Musculus latissimus dorsii</i> (LSB)	0.570	0.042	0.536	0.008
			0.878*	0.000*
<i>Musculus triceps brachii</i> (RSB)	0.041	0.166	0.204	0.426
			0.851*	0.125*
<i>Musculus latissimus dorsi</i> (RSB)	0.210	0.559	0.672	0.039
			0.109*	0.194*

(*) – ANOVA test; (**) – percentage average p – value
(LSB – left side of body, RSB – right side of body)

Comparing the results of RG and CG with the *t-test Independent* (Table 3) it is concluded that $p = 0.006$ what shows difference in group results, as before the test $p = 0.706$ what shows the group homogeneity. Stating the results between the groups it was found out that the result differences of the muscle *triceps brachii* in the left side of the body are observed before the beginning of the movement in the muscle innervations amplitude (mV) $p = 0.015$ and in amplitude (mV) $p = 0.044$ but during the execution of the movement frequency (Hz) $p = 0.099$ what shows a tendency for the muscle innervation amplitude (mV) to differ. Taking a look at the muscle *latissimus dorsii* in the left side of the body it was concluded that the result is different during the execution of the movement where frequency (Hz) $p = 0.042$ and amplitude (mV) $p = 0.008$. Taking a look at the muscle *triceps brachii* in the right side of the body differences are observed only before the beginning of the movement in frequency (Hz) field where $p = 0.041$, but for the muscle *latissimus dorsi* in the right side of the body during the execution of the movement the amplitude (mV) $p = 0.039$, but in other cases the results are similar. Stating the differences of percentage relation of the mean results it was observed that only for the muscles *latissimus dorsii* of the left side of the body during the execution of the movement $p = 0.000$ what shows differences, but in other cases the results were stated similar.

Stating the results of EG second test of anaerobic power capacity it was necessary to analyze the dynamics of every test participant between the first and

second test, thus stating in which second the highest result was reached and how long the highest result in watts (W) was maintained and in which second the result started to drop. Stating the participants' results in the anaerobic power capacity test there is the tendency for the result to increase and maintain longer than it was in the first test, respectively, the rowers work capacity to realize a greater load for longer time on the static rowing ergometer CONCEPT-2 has improved what confirms the positive effect of local vibration on anaerobic power.

Discussion

The obtained results unambiguously testify the positive effect of LV on anaerobic power capacity, as well as the increase of electric activity (mV) in the *m. triceps brachii* is proved what testifies the hypothesis, and the developed methodology allows further researchers to choose it as a basis for further research. A possibility to apply LV in practice according to the developed methodology which has been proved as an effective training means in rowers' preparation process in winter is offered to present and future coaches. During the development process of the Thesis sources of research literature are taken a look at and analysed what is essential in Sport Science in Latvia and for sport coaches who with the help of LV would like to improve their trainees' work capacity.

Many scientists in their researches have used different vibration frequencies, amplitude and time of vibration to determine the immediate and short term effect (Souron, Besson, Millet, & Lapole, 2017). The result analysis of the carried out research shows that the hypothesis forwarded for this research has proved to be true as stating the MSG rowers' results in anaerobic power test it is concluded that for the EG rowers the ability of maximal anaerobic power have significantly improved, proved by the results of the *t-test* and ANOVA analysis. The results of the CG rowers have also improved, however, having processed the obtained data using the *t-test* and ANOVA analysis it was stated that the results are similar, but significantly different (lower) in comparison with the dynamics of the EG rowers' results. Thus the positive effect of the local vibration on athletes' anaerobic power ability is proved. LV is effective and applicable in the training process in the strength development stage in winter – preparation period.

Conclusions

In the anaerobic power capacity test of EG rowers and CG rowers using the one factor dispersion analysis ANOVA the credibility of EG rowers' results is significant ($p = 0.000$), the credibility of CG rowers' results is not proved ($p = 0.473$). the obtained data in the second test testify that the result of EG rowers has increased significantly. Stating the muscle biopotential (mV) and innervation

frequency (Hz) it is concluded that the muscles *triceps brachii* in the right and left side show the result differences in the *t-tests*, as well as in ANOVA. Comparing EG and CG some result differences of the muscles *triceps brachii* un *latissimus dorsi* $p > 0.05$ were observed.

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PARKOUR AND RECREATIONAL ACTIVITIES

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Abstract. *Recreation philosophy is human ability to relax applying various games and activities, where a game or activity has some purpose, which we should know and understand how to achieve it. Parkour is a movement, form of training, a way of getting it, the art of moving from point A to point B with your own body as a means in as fast, efficient and controlled manner as possible based on your own circumstances. It is completely free from competitions, competitions or other forms of rivalry. Recreation is for people to restore from everyday work routine and stress. Practically people perceive this essence of recreation which gives us a possibility to relax and creates emotions of happiness. Parkour is an art that helps you pass any obstacle to go from point A to point B using only the abilities of the human body. One of recreation and parkour kinds is outdoor activities, which means different open-air activities in nature. Outdoor activities have a physical, mental, emotional and even educational effect on a participant. Recreation and parkour activities are not organized like competitions, to participate in them there are no rules made. People who go in for recreation outdoors need only space on the land, water or in the air. It is an activity which allows an individual to renew interacting with the nature in cities and villages, as well as in virgin nature territories. What separates them from parkour is that they contain more acrobatic and spectacular movements and where there may be an assessment in the performance. Recreational activities and parkour activities have many symbioses, sometimes we can sayed recreational parkour (parkour of basics) for everyone. We are getting great emotions and physical well-being.*

Keywords: *parkour, recreation, outdoor activities.*

Introduction

Recreation philosophy is human ability to relax applying various games and activities, where a game or activity has some purpose, which we should know and understand how to achieve it. Recreation is for people to restore from everyday

work routine and stress. Practically people perceive this essence of recreation which gives us a possibility to relax and creates emotions of happiness. However, if any activity or game does not seem exciting or seems dangerous, the aim of the activity is not achieved, and happiness is not gained when the activity is over. In such a case recreation activity should be chosen in the way they correspond both individual and group interests.

Parkour is a movement, form of training, a way of getting it, the art of moving from point A to point B with your own body as a means in as fast, efficient and controlled manner as possible based on your own circumstances. It is completely free from competitions, competitions or other forms of rivalry. The aim is that the practitioner learns to get past all kinds of obstacles - physical as mental. The aim of this study was to find out common features of recreation activities and parkour.

Theoretical background

The notion *recreation* has come from the Latin language and means *restoration*, although it is understood as the renewal of physical and mental work capacity (Getin, 2011). Nowadays there are various explanations of the notion *recreation*:

- recreation is restoration after work and everyday duties achieved by different entertainment, games and activities;
- recreation is any means of body and mind renewal;
- recreation is any activity performed by human in his/her leisure time.

One of recreation kinds is outdoor activities, which means different open air activities in nature. Outdoor activities have a physical, mental, emotional and even educational effect on a participant. Recreation activities are not organised like competitions, to participate in them there are no rules made. People who go in for recreation outdoors need only space on the land, water or in the air (Kari, Michael, & Duane, 2013). It is an activity which allows an individual to renew interacting with the nature in cities and villages, as well as in virgin nature territories. Outdoor recreation can be divided into:

- On resources-oriented recreation, where nature is the most essential and integral part of recreation experience. Recreation activities mostly are held in open air near rivers, lakes, sea, in marshes, woods, meadows, special nature places (national parks, reserves, restricted areas, etc.), etc.
- Inter-stage recreation is held in natural environment, but with people's effect. Usually inter-stage recreation is held in national and regional recreation territories, national parks, in comparatively easily reachable nature places.

- To user-oriented recreation, what takes place mostly in cities – in urban environment, where nature is like a scene giving background effect rather than real use of nature.

Outdoor activities are available both in summer and winter and include various kinds of sport and activities, encompassing several sports or none of sports. People like being outside because their work is mostly inside, thus recreation outside can keep human's emotional, psychological and physical body in balance and harmony. Participating in different recreation activities having physical character, human's self-image and self-confidence is developed. Recreation activities can be divided into cyclic (skiing, Nordic walking, cycling, skating, running, walking, swimming, etc.) and acyclic movements (sport games, gymnastics, martial arts, parkour, wakeboard, Alpine skiing, etc.) (Bell, 1997).

When choosing different recreation activities unconscious "model" forms which direction each of us chooses to go. It makes a total individual's image or lifestyle in all its expressions. Each of us wants to relax from everyday routine, applying active physical activities (walk), passive activities (going to the theatre), and remedial activities (spa) where not only mental and physical body harmony is renewed, but also health is improved (Forsberg, 2014). All recreational activities outside work and everyday stress develop an individual such as we see him/her in leisure time, and it also determines lifestyle guidelines which one chooses to follow in his/her free time.

Lifestyle determines the way of thinking both at work and recreation activities, and it is a direct reflection of one's lifestyle in order to achieve the pinnacles of happiness, and each of them has different directions and wishes. Lifestyle develops under the influence of other people around, it develops already from childhood when one's parents and siblings played inside or outside, and developed movement skills and abilities, when various recreation activities and aims were given, thus also acquiring further life skills for work and leisure. Parents and the closest family members determine one's thinking direction both in childhood and later, however, later friends play an essential role in choosing recreational activities. School provides children and adolescents with a possibility to develop and affects them both positively and negatively what determines in which way children and adolescents will choose recreational activities, where they will feel well and enjoy them.

Parents, relatives, friends and other people around affect one's self-confidence which starts developing already in childhood and to a great extent also determines one's further life perception, style and the way of thinking. Self-confidence also determines one's choice to do a definite recreational activity. The higher the self-confidence is, the bigger the possibility that active and even dangerous activities are chosen, the lower the self-confidence is, activities not

linked with high physical activity which do not require great physical, emotional and mental contribution are chosen.

Self-confidence gives us the possibility to prove ourselves and be happy about the chance to do what we like, thus we become more tolerant and kinder in communication with others and ourselves. It develops a harmonious environment around us, creating a positive energy which in its turn affects positively more and more people who also do physical recreational activities. Recreational activities affect positively our physical, mental and social aspect.

Depending on the intensity and dynamism of a recreational activity people search for the most suitable sport, activity or game for themselves. What an individual chooses is his/her basic motivation need for comfort, involving spiritual, physical, mental, intellectual and social satisfaction. Thus, not only an easily enjoyable entertainment is obtained as a result of motivation, but sometimes it requires a great effort where the chosen activity is difficult, complex, even painful and causing adrenalin. Recreation activities are of different character, and each of us chooses such an activity which attracts more and more people, because it does not require a definite end result opposite to different competitions. Competitions include definite regulations and rules which should be observed by everyone, however, recreation activities can contain or not contain definite regulations, as well as rules which are characteristic to competitions are not strictly stated and observed.

Nowadays extreme adventures take an essential role in the area of recreation activities, causing challenge both individually and in group. Thus experience of different level is achieved causing adrenalin during recreation activities. Experiencing something new and extreme sense of fear might be overcome, and one can see oneself from a new side. By increasing recreational activity amount and making them different, we can test ourselves what we are able to do, and it gives us joy and happiness. Learning something new, we prove ourselves that we are able to do that, thus increasing self-confidence and motivation to continue and try something new, challenging ourselves to new achievements.

In recreational activities nature resources are regularly used as the activity venue, however, not always people respect resources given by nature. People's effect on nature can be direct and indirect but being aware of what we leave behind us it is possible to take care of, learn and respect nature more, which is the purpose of sustainable interaction basis. Thus, balance is provided in nature and harmony among people, as well as respect towards all around us. We could characterize the essence of recreation activities in the following way – to have a joy to be happy, but to listen to others and oneself by taking care of everything what is around us for our descendants could enjoy the beauty of what is given by nature like us.

“Parkour is an art that helps you pass any obstacle to go from point A to point B using only the abilities of the human body” David Belle. Parkour can also be described as the art of escape and the art of reaching (Angel, 2011).

Today we can talk about different forms of parkour with names like; Free running, tricking, street movement, etc. What separates them from parkour is that they contain more acrobatic and spectacular movements and where there may be an assessment in the performance. This means that it becomes a more ineffective mode of movement. All of these types of training are still gathered today under the parkour concept. The important is not the names, but one finds their individual way of moving. Although parkour is a free exercise form, there are some basic techniques that are important where the movement is adapted to a certain type of obstacle. It is about being able to reduce and utilize forces in a functional manner, such as being able to dampen the forces in a downfall / fall or to be able to use forces in different directional changes to get along or pass different obstacles.

To start with parkour, there is no special prerequisite but to get well in parkour it takes a long time. A lot of basic and basic training is required to build up a versatile operating competence. On the organized parkour exercises, a lot of time is spent on this basic training in terms of mobility, strength and all-round exercise for the whole body. Strictly, it is about building a good relative strength, is strength in relation to its body weight, in order to carry up its body. This exercise is important in order to achieve the purpose of being able to move fluently and make all maneuvers flow into a smooth motion. Training is therefore based on speed, stamina, strength, mobility, balance and precision. What largely characterizes a good technique / agility and control as well as mastery of their body in motion is when the move is done almost silently - “smooth as a cat”. Achieving this also means that the move is energy-efficient / economically viable. The movement takes place with well-balanced power effort and you do not consume unnecessary power and energy. Although this movement takes place without spectacular acrobatic moments, the movements can be perceived as aesthetically beautiful.

Summary benefits that we want to mention are (Edwardes, 2009);

- Requires no expensive equipment.
- Fits all because there is no right or wrong. You are free to do what you want within your own limits. Everyone has an intrinsic willingness to move.
- No form of competition and there are also no governing rules. Slips others' assessment. In such a case, the driving force is to compete against itself. Support each other instead of defeating each other.
- The training is versatile and builds a versatile operating competence and basic strength. Developed body control can also enhance self-esteem

and grow as an individual. The versatile operating competence also means that it can be easier to participate in social games and games as well as enter into other social contexts.

- Never get tired because there are always new challenges and new skills to learn. Exit only from yourself and create your own challenges and your own training methods.
- It involves many different learning processes in which the practitioner sees and teaches (positive idols / role models), self-seeking knowledge, companionship, fader roles, etc. It may, for example, be about behavior and approach. Practitioners are also included in creative discussions about new ideas, including security, and which result in an experimentation where they find new moves / challenges. They also seek inspiration online.
- Controls and develops by themselves / youth culture without the involvement of adults.
- When young people meet to exercise parkour exciting things will arise in the meeting. It will be an exciting meeting place both socially and in exchange for experiences. They often look up each other and create contacts through social networking on the internet. The communication also takes place over generational boundaries. From the internet, information is also gathered or agreed upon for acupuncture / “jam”.
- Parkour can also be available and create challenges for people with disabilities.

For the practice of Parkour, nothing really requires more than most people wear every day. It's even preferable since everyday clothes are the most likely clothes you will wear when you need parkour. However, when you know that you are going to work out, you can simplify the clothes you are wearing. However, the most important thing is the shoes. Given the running and landings that the training usually means, grime-friendly shoes with some dampening effect are recommended. Grip-friendly shoes are of course also linked to increased safety / not to slip. Helmets, shelters and the like are not recommended as it limits both mobility and the fact that it goes too fast. Control and safety in the exercises are gradually being built up to completion. The limited equipment requirement makes parkour available to all, since no expensive special equipment is required (Thibault, 2012).

In terms of safety, many people ask whether it is dangerous to practice parkour. Within parkour, the basic philosophy of safety is that every person is based on himself and his own skills. It is therefore important to not be too peppered or pushing each other / someone else to do things that are not ready for. A good quote, from Martin Svenselius founder of the Stockholm Parkour

Academy, describing this is; “We do not train our movements just to be able to do them, we train them to make it impossible for us to fail.” There are no shortcuts in terms of safety. The goal is to be able to exercise all life without long-term unnecessary wear and tear and short-term damage. Today, children and adolescents see very extreme parkour with heartbreaking and life-threatening stunt in action films, and they seek and tip each other about “cool” movie clips on the internet, for example, jumping between high rooftops. This may cause them to be affected and may be misrepresented by parkour. In connection with this we also want to pick up the choice of “arena / training area” for their exercise and training. All practitioners, like anybody, must respect private areas or areas where the surrounding area is disturbed. Today, parkour facilities are being built, both indoors and outdoors, which of course is a safer place to start practicing parkour than it is in urban environments. The facilities have subdued falls under high barriers and are therefore a perfect meeting place for beginners and suits all ages. Here we see that the teachers in sports and health around Sweden's schools become important “ambassadors” to spread this safety philosophy as well as what consideration should be given to the choice of “arena” and advocated in the parkour movement.

Methodology

This study is of theoretical character, summarizing theoretical features of the recreation activity area and parkour area. In the study opinion by different authors about what is recreation and parkour, and what are their activities is looked at. According to the found out materials which reveal the essence of recreation and parkour, as well as personal experience, the map of recreation and parkour activities was made, that affects participants doing these activities. Cognitive, social and physical features and sensations are fixed in this map.

Results

As we see in the text above there are many similarities between Parkour and recreational outdoor activities. Both have the purpose to develop the individual and social personality.

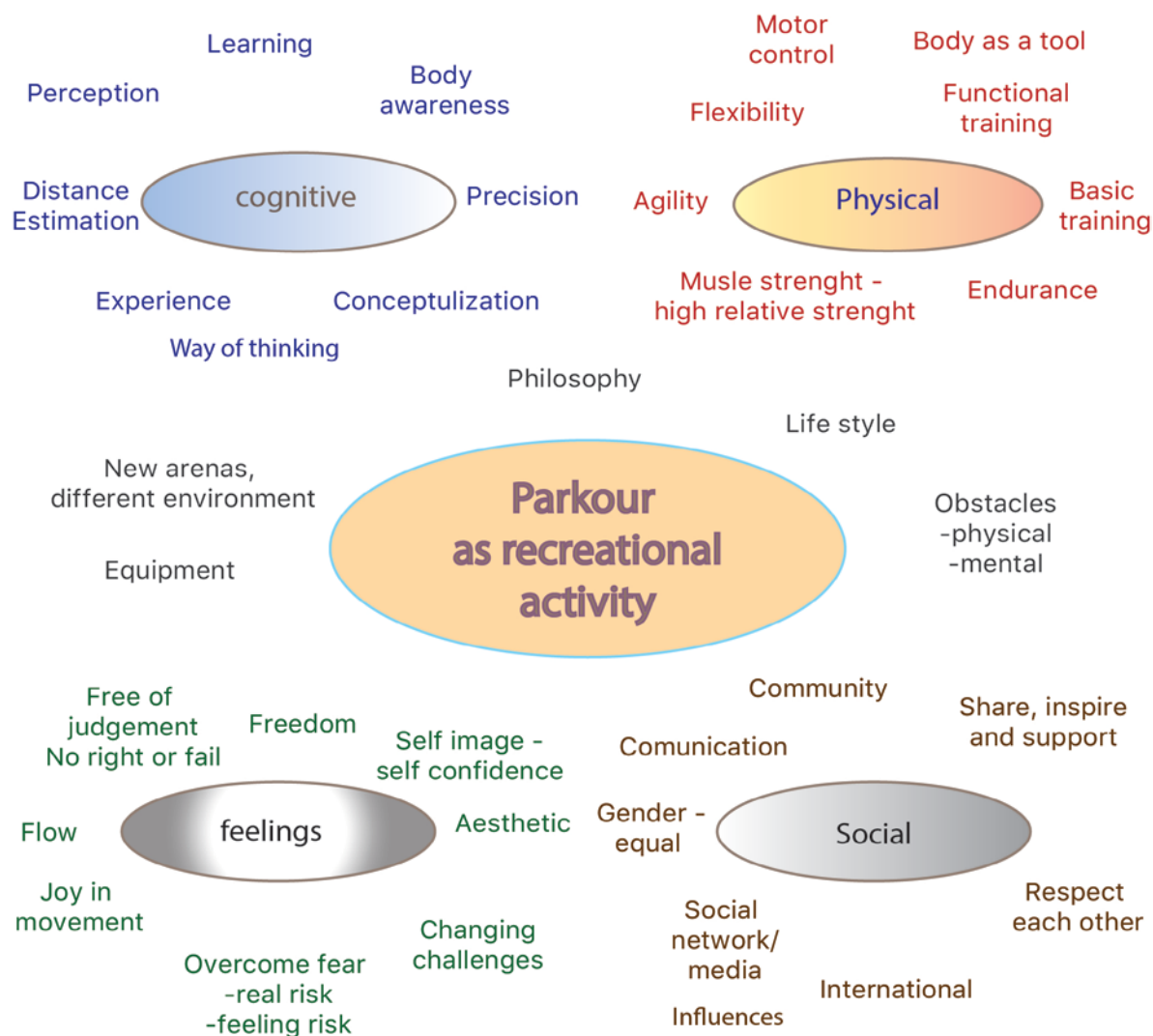


Figure 1 Parkour as recreational activity

We can look at that in a didactic way and with different perspectives (Figure1):

Physical perspective:

Body as a tool – you own your body and develop it by training, be kind to your body;

Basic training – means that you train the basic qualities as endurance, balance, flexibility, muscle strength mostly in relation to your body weight and agility;

Functional training – to train movements you use in your daily life;

Motor control – to develop and increase your coordination between muscle groups.

Cognitive perspective:

Learning processes – through experiencing;

Body awareness, perception, distance estimation and precision are mental qualities which getting trained during exercise;

Conceptualization – means to know right terms, understand cause and effect and categorize.

Affective perspective – feelings:

Self-image and self-confidence – if its high and positive you feel good;

Joy in movement – the most important motivator;

Overcome fear – face your fears which prevent you from trying and training new movements and situations, the real risk (risk for injuries) shall be low while the experienced risk should be high; this in relation to finding new challenges;

Freedom – feeling to be free, to go your own way, not to be controlled or judged by others;

Flow – feeling that every movement is easy, you are moving quietly and with full body control and experiencing the aesthetic part of the moving body in the environment.

Social perspective:

Gender equal – there are the same possibilities and conditions for man and women to do recreational parkour;

Social network – in the beginning of parkour in the early 2000 the internet was exploding, and practitioners met each other and communicated via Facebook and nowadays Instagram, twitter, snapchat etc., they organized meetings/jams by contacting via internet;

Community – in a group of people with the same goals and purposes it is easier for individuals to develop physical and social skills, to feel confident especially if the atmosphere is secure and the policy is to take care of and respect each other.

Discussion

When is parkour getting / becoming recreational? More often and often scientists today do research that is directly linked to spending our free time outside working hours. But less attention is paid to parkour activities in leisure time, although parkour plays more and more significant role in teenagers and adolescents' free time. However, there are scientists like (Mclean & Hurd, 2015) who have studied the relation between recreation and parkour, how parkour can be used in the offer of recreation activities (Turner & Carnicelli, 2017) have taken a look at parkour as a new kind of recreation, perceiving parkour as a non-traditional physical activity, although nowadays it could be understood as self-evident (Robert, Wells, & Banning, 2016) have studied recreation, sports activities, including parkour. Having studied the authors' research, we can assume that parkour which is not directed towards competitions and observing of the rules

and recreation which gives a possibility to get rid of everyday routine can be a great means to facilitate mental and physical relaxation. It should be emphasized that recreative parkour is done by teenagers and adolescents, and nowadays it is pointed out that sports activities of various degree of difficulty should be chosen without any limits.

Conclusions

Recreation involves improvement of physical and mental work capacity by doing different activities which improve participants' emotional, mental and physical condition.

Parkour includes movement freedom, the effectivity of movement execution that allows participants to express themselves creatively and gives positive emotions improving also one's physical condition

Recreational activities and parkour activities have many symbioses, sometimes we can Sayed recreational parkour (parkour of basics) for everyone. We are getting great emotions and physical well-being.

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IMPACT OF FOLK DANCE ON PHYSICAL CONDITIONING OF YOUNGER SCHOOL-AGE CHILDREN

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Abstract. *Children develop a variety of skills and knowledge from childhood, including physical activity habits that persist throughout their lives. Insufficient physical activity rates around the world are high and continue to increase (Latvian ministry of health, 2017). Dancing is one of the kinds of physical activity that can deliver benefits to health throughout life, even at the amateur level. Yet, it isn't quite clear yet whether dance intervention is as effective to health as other physical activities. (Yan, Cogley, & Chan, 2018). The research question is – is it possible to increase general conditioning with folk dance classes besides a school activities? The aim of the study: explore the impact of folk dances on the children's body mass index and physical conditioning at a younger school age, compared with children engaged in other out of school physical activities and children not engaged in out of school physical activities. The study involved 117 children in age 9 -11 divided into three groups - going for folk dances after school, some kind of sport after school and without regular physical activity after school. The assessment of children's physical conditioning by the Eurofit tests showed a tendency that in average children's physical conditioning rates were “low“ or “below average” no matter in which group they are. For children who do afterschool activity as folk dance, BMI is statistically equivalent to those children who are going for other physical activities and children who are not engaged in any afterschool physical activity. The physical conditioning rates for all three groups are statistically equivalent in the tests: standing broad jump, bent arm hang, shuttle run 5x10m, while the test sit-ups the children lack of afterschool physical activity, average the result was one level lower than in the other groups. The main conclusion is, that volume of folk dance as afterschool physical activities is not enough to make significant difference of average physical conditioning level of children.*

Keywords: *children, conditioning, Eurofit tests, folk dance.*

Introduction

Physical activity has a positive impact on the normal growth, mental development and well-being of the child. Dancing is one of the kinds of physical activity that can deliver benefits to health throughout life, even at the amateur level. Yet, it isn't quite clear yet whether dance intervention is as effective to

health as other physical activities. (Yan, Cobley, & Chan, 2018). Insufficient physical activity rates around the world are high and continue to grow. To maintain health, children should be physically active every day for at least 60 minutes. Physical activities longer than 60 minutes each day will bring additional health benefits (Latvian ministry of health, 2017).

According to data from the Ministry of Education and Science, in Riga in summer 2020, a festival of XII Latvian schools' youth songs and dances will take place, which is an acknowledgment that the ancient Latvian traditions of singing, dancing and music are continued and held in honor (National Education Content Centre, 2019). This event requires increased attention and endurance from children as physical load, so children should be generally physically well developed and in good health. As part of the study, we chose to study BMI and fitness rates for children of the youngest school age who are engaged in folk dances, and we would also like to see if these children body mass index (BMI) and physical fitness rates are equivalent to those of children engaged in other structured out-of-school physical activities and for children not engaged in structured out-of-school physical activities. It is therefore important to determine the children BMI and physical fitness indicators in this age, by measuring the anthropomorphic parameters of children and testing the physical fitness with Eurofit tests.

The purpose of the study: Explore the impact of folk dances on the BMI and physical conditioning of children of the youngest school age, comparing these indicators to children engaged in other structured afterschool physical activities and those who do not engage in afterschool physical activities.

Methods: Information questionnaires on general physical activity habits for children of the youngest school age of the educational institution; measurements of children anthropometric parameters and the calculation of the body mass index; four Eurofit tests for the physical conditioning.

The research was carried out at the one of Riga Elementary School. According to the research tasks, children were given questionnaires about general physical activity habits, the anthropometric parameters were measured for body mass index, and four Eurofit physical conditioning tests were performed in the gym with the help of physical education teachers.

Microsoft Excel and SPSS (Statistical Package for the Social Science) software were used for processing and analyzing the obtained data, which determined descriptive statistical elements - modality, median, means, standard deviation, and analyzed the obtained data with Chi-square or Fisher test, according to conditions.

Literature review

Dance is a form of art, a form of human self-expression, communication and cognition of the world, which uses rhythmic, structured or improvised body movements within a given time and space frame (Bāliņa, 2019). Dance is based on the ancient lifestyle and traditions of the nation. Folk dance events are inherited from previous generations. The construction of these dances is simple and accessible to a large population, therefore sometimes the author of the dance is unknown. Folk dance is the creator of every nation's identity. Until the middle of 20th century, the term “folk dance” was used without any scientific discussion of its content. The study of folk dance began with the arrival of diverse dance styles and genres in European culture in middle of the 20th century (Spalva, 2019). To be able to dance requires a variety of movements, so dance can be considered as one of the forms of physical activity that promotes:

- health;
- development of general conditioning;
- increases bone density;
- develops muscles, flexibility, and balance;
- improves cognitive function and spatial awareness;
- reduces stress;
- reduces psychosomatic symptoms in children.

Dance interventions have the potential to reduce children's body mass index (BMI), body fat, blood pressure, thereby improving quality of life. (Schroeder, Ratcliffe, Perez, Earley, Bowman, & Lipman, 2017; Kelli et al., 2015).

One of the most important factors of the overall health of children and adolescents that improves children's health and fitness is regular moderate or high intensity physical activity (Priedīte, Sauka, Kalniņa, & Lāriņš, 2015).

Participating in physical activity provides children with immediate social, mental and physical benefits, such as reducing symptoms of depression, improving academic and cognitive performance, promoting healthy bone structure, muscle growth and the development of important systems of the body, especially cardiovascular and pulmonary system by improving physical conditioning, muscle strength and preventing childhood obesity (Adams, Veitch, & Barnett 2018).

It is necessary to include structured specific physical activities in the overall plan to promote comprehensive physical and mental development (Kalniņa, 2011). In order for physical activity to help in maintaining or improvement of health, it is necessary for it to become a daily habit. There is guidelines of the minimum physical activity recommended. In Latvia, for children and adolescents aged 5-17 have been accepted to use the minimum physical activity recommended

by the World Health Organization (WHO, 2011) - 60 minutes of average to high intensity physical activity every day. Predominantly aerobic physical activities, supplemented by high-intensity activities for the strengthening of bone and muscle at least 3 times a week; in order to ensure optimal health for children, a daily level of physical activity is required for which is required approximately 6-8 kcal/kg/day (Jansone, Fernāte, & Bula-Biteniece, 2016).

Recently, children have been replacing their physical activity with activities related to modern technology - television, computer, smartphone, tablet and the like. Therefore, it is important to reduce the daily amount of time children spend sedentary (Priedīte, Sauka, Kalniņa, & Lāriņš, 2015).

A study of Latvian schoolchildren's health habits found that only 22% of boys and 15.3% of girls had sufficient physical activity (at least 60 minutes daily). Compared to study of 2005/2006 school year, there was a trend towards a decrease in overall physical activity. Since 2006, the number of boys who have sufficient physical activity has fallen by 5.6%, while that of girls by 4.4% (Pudule, Velika, Grīnberga, Gobiņa, & Villeruša, 2015).

As children spend more and more time sedentary, the number of overweight and obese children increases. Over the past decades, childhood obesity has grown rapidly worldwide and is described as a global epidemic (Priedīte, Sauka, Kalniņa, & Lāriņš, 2015; Cunningham, Datar, Narayan, & Kramer, 2017).

In order to prevent obesity, the body must strike a balance between the nutrients taken and the energy consumed. Adjustment of nutrient intake is helped by a balanced diet, while consumption – by a physical load (Rožkalne, 2009). Physical exercise is used as an important instrument for preventing and treating obesity by developing motor abilities that contribute positively to body composition, metabolic activity and reduce balance disorders associated with overweight (Paes, Marins, & Andreazzi, 2015).

Methodology

The study involved children of the youngest school age who have received parental consent to participate in the study; from classes 3-4, aged 9-11; children were divided into three groups - regularly folk dance activities and children engaged in other structured afterschool physical activities and children not engaged in structured afterschool physical activities. The children measured for anthropometric data and calculated the body mass index, they were required to pass four Eurofit motor abilities tests.

Body weight and height were determined in the medical staff office of the school, using the Wunder unit (max 150 kg, e = 100 g) and the stadiometer-height measuring tape attached to them. The body weight index was determined, calculated by the formula = body weight (kg) ÷ height (m²).

During sports classes, with the help of sports teachers, children have to complete 4 Eurofit fitness tests – standing broad jump, bent arm hang, sit-ups, shuttle run 5x10m. Microsoft Excel and SPSS spreadsheet applications have been used for data processing, using descriptive statistics packet: an arithmetic mean, mode, median and standard deviation, and a comparison of two qualitative indicators (group membership and character membership) using the Chi-Square Test or Fisher's test according to the conditions.

Research results

The study involved 117 children, of whom 53 (45%) were girls, 13 girls aged 9, 26 girls at age of 10, 14 girls at age of 11. From all the children 64 (55%) were boys, 17 boys at age of 9, 30 boys at age of 10, 17 boys was 11 years old. During the study, children of the youngest school age had to fill out questionnaires about general physical activity habits. One of the questions was whether a child is engaged in any afterschool physical activity, 100 children noted “yes” that they were doing, 17 children noted “no”. The next question was to find out what physical activity the child was doing afterschool. From all children 36 (31%) was going for folk dance afterschool activities, but remaining 64 (55%) children were going for other afterschool activities, but 17 (14%) of all the children was not going for any afterschool physical activity. Also, we included a question of daily duration of activities. For children attending folk dance the duration of one physical activity is on average $61,42 \pm SD39,66$ minutes, ranging from 40 to 150 minutes; for children who are going for other structured physical activities, the duration of one activity is on average $61,98 \pm SD39,80$ minutes, between 40 and 180 minutes. A body weight index was calculated for all the children, comparing these data between groups with the Fisher test (cross-population comparison test), resulted in $p = 0.102$ ($p > 0.05$), so it can be concluded that in all 3 groups BMI scores are equivalent and there are no statistically significant differences between groups (table 1).

Table 1 Assessment of children's BMI, number in each group

Classification of children in groups	Underweight 2	Underweight	Normal weight	Pre-obesity	Obesity
Folk dance	1	1	26	5	3
Afterschool physical activities	0	0	39	8	17
Without afterschool activities	0	0	13	0	4

P value – 0.102 if $p \geq 0.05$, the difference between the groups is not statistically significant. Fisher's direct test has been used. $n=117$

In the Eurofit test “standing broad jump” analyzing the results between the groups using the Fisher direct test, we obtained $p = 0.103$, which shows that there are no statistically significant differences between the groups. Thus, in this test, 63% of children tend to get “low”, “below average”, “average” results, but only 37% “above average” and “high” results. The results can be seen in Table 2.

Table 2 Standing broad jump, number at each level

Classification of children in groups	High	Above average	Average	Below average	Low
Folk dance	5	3	13	10	5
Afterschool physical activities	17	12	8	13	14
Without afterschool activities	3	3	2	3	6

P value – 0.103 if $p \geq 0.05$, the difference between the groups is not statistically significant. Fisher's direct test has been used. $n=117$

The results of the “bent arm hang” test were also analyzed, the Fisher direct test shows $p = 0,373$, so it can be concluded that there are no statistically significant differences between the groups. Of all children, 63% tend to get “low,” “below average,” “average” but 37% “above average” and “high” results. Test results in Table 3.

Table 3 Bent arm hang, number at each level

Classification of children in groups	High	Above average	Average	Below average	Low
Folk dance	7	9	6	7	7
Afterschool physical activities	13	6	12	19	14
Without afterschool activities	2	6	2	3	4

P value – 0.373, if $p \geq 0.05$, the difference between the groups is not statistically significant. Fisher's direct test has been used. $n=117$

Analyzing the results of the “shuttle run” test, we see that folk dance participants tend to get “below average” and “low” results for 100% of children (table 4).

Table 4 Shuttle run 5x10m, number at each level

Classification of children in groups	High	Above average	Average	Below average	Low
Folk dance	0	0	0	1	35
Afterschool physical activities	1	0	1	3	59
Without afterschool activities	0	0	0	0	17

P value – 0.684 if $p \geq 0.05$, the difference between the groups is not statistically significant. Fisher's direct test has been used $n=117$

Referring to the interview of the head of the Sports Laboratory and sports doctor Sandra Rozenštoka (Latvian social media, 2019), the tendency of children to obtain more “average”, “below average” and “low” results in all three groups could be explained by the fact that children have excessive early specialization for certain physical activities, and insufficient time is devoted to general physical conditioning.

In the test, “sit-ups” folk dancers tend to get more “above average” and “high” results in 56% of children, but “low,” “below average” and “average” results in 44% of all children (table 5).

Table 5 Sit-ups, number in each group

Classification of children in groups	High	Above average	Average	Below average	Low
Folk dance	14	6	8	4	4
Corrected balance	1,1	-0,8	-0,7	-0,5	1,2
Afterschool physical activities	23	15	15	8	3
Corrected balance	1,1	0,6	-0,8	-0,4	-1,0
Without afterschool activities	0	4	8	4	1
Corrected balance	-3	0,2	2,1	1,3	-0,2

P value – 0.041, if $p \leq 0,05$, the difference between the groups is statistically significant. Fisher's direct test has been used. Corrected balance $\geq \pm 2$ (significant deviation from the population as a whole) $n=117$

The differences in this test between children engaged in physical activity and children not engaged in afterschool physical activity could be explained by the fact that the various movements during physical activity requires involving of core muscles.

Conclusions and discussion

Analyzing the results of children's BMI and Eurofit tests, we observed increasing tendency for children body weight mismatch to height, and most motor tests tended to "average", "below average" or "low" results for all children. Based on the WHO Guidelines for Minimum Recommended Physical Activity (World Health Organization, 2011), where children should be active for 420 minutes (60 minutes a day) per week, both for children engaged in folk dancing and engaged in other afterschool activities a total amount of physical activity averages 179.55 minutes per week. Consequently, the weekly minimum recommended physical activity, is not achieved even with folk dance and other afterschool activities children are attending.

For children engaged in folk dance outside the school, BMI and Eurofit scores are largely equivalent to those for children engaged in other afterschool activities and also equivalent to children who do not engage in any physical activity. The only statistically significant difference is observed in the motor test "sit-ups", where children who do not engage in any activity tend to get "average", "below average" or "low" scores, whereas folk dancers and children engaged in afterschool activity tends to get "above average" and "high" results. Our research shows also, that 111 out of 117 subjects had a low level in shuttle run test. This drill requires many motor skills, not just one – speed in run between points; quickness to accelerate; strength, power and dexterity to stop, change running direction and make a first step. Low result in this test shows, that schoolchildren lack these motor skills no matter, they participate in any afterschool activity or not. This also can indicate on lack of physical activities in general that specific afterschool activities can not compensate. Children can master sport specific skills and develop specific functional body capabilities to execute special movements and achieve result in folk dance or other sport, but in general they lack overall fitness and their activities is not sufficient for healthy lifestyle.

The study shows that all of the child's out-of-school physical activity plays an important role in achieving the required amount of physical activity, in this case attending folk dance classes is not sufficient to achieve the required number of activities.

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PHYSICAL CONDITIONING OF TEENAGERS IN DIFFERENT KIND OF SPORTS

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Abstract. *Physical conditioning is crucial in building motion skills if the coach wants to ensure long-term athletic development. The essence is that physical conditioning needs to be developed before the development of technical skills of sports movements at a much higher intensity at each stage of the multi-annual training process. The adult competition system and training programs are being imposed on young athletes, so the essential motion skills are not being learned (Grāvītis & Luika, 2015). The lack of physical conditioning in teenage years is very often reflected in the most inappropriate moments of an athlete's career, at the elite level. Insufficient physical conditioning is a reason for the instability of motion skills and injuries in extreme physical and psychological loads. The amount of physical activity can be measured as a step count. The aim of the research is to assess physical fitness rate for children practicing basketball, football or ice hockey with EUROFIT test battery. The study included boys, 100 basketball players, 100 soccer players and 100 ice hockey players from Latvia who were born in 2002 and started training in their sport during at the ages from 7 to 9, collected data of their conditioning for five years, divided into three age groups. According to EUROFIT tests, it was concluded that the ice hockey players have the highest physical conditioning rates according to EUROFIT standard from the athletes analyzed, and the basketball players have the lowest physical conditioning rates in EUROFIT tests from the athletes analyzed. We can conclude that the results of hockey players are higher than the scores of basketball and soccer players because ice hockey players practice more frequently, and dryland training is strictly organized, they develop all motor abilities that is needed for successive training in basic drills on ice.*

Keywords: *Eurofit tests, physical conditioning, schoolchildren.*

Introduction

The adult competition system and training programs are imposed on young athletes, so that the essential movement skills are not learned (Grāvītis & Luika, 2015).

A similar opinion is voiced by sports doctor Sandra Rozenštoka, writing about the young basketball players playing in U18 or U20 teams, saying those players have low physical fitness. The doctor believes that these basketball players have not had enough time to develop physical conditioning in their daily

lives, because they have a disproportionately large number of games to play. The number of games is also the reason why athletes are not able to recover from games and thus the consequences of overloading the body. The doctor is also considering the early competitions from the age of eight, which for many suppress the pleasure of playing (Rozenštoka, 2016).

The lack of physical conditioning in the teenage and young adult's age is very often reflected in the most inappropriate moments of an athlete's career, at the elite level. Insufficient physical conditioning is a reason for the instability of motion skills and injuries in extreme physical and psychological loads. For athletes in late puberty and young age, if there is insufficient physical fitness, it negatively impacts future growth as a professional athlete. General conditioning is the basis for optimal development of the athlete in sport (Grāvītis & Luika, 2015).

The aim of the study: to assess physical conditioning rates for children practicing basketball, football and hockey.

Study methods: as methods we used a data collection of EUROFIT test results and descriptive statistics with SPSS Statistics.

Literature review

Physical conditioning is the development and maintenance of a person's physical abilities - speed, endurance, strength, agility and flexibility.

Nowadays, sports scientists are increasingly emphasizing the specifics of sport in physical training. This means in practice that there is a significant dominance of special physical training over general conditioning. However, the basis of any special training is general or physical conditioning. During the first two years, the child should develop general physical conditioning and learn a variety of movement and exercise skills. Specialization in a sport can be started from the third year of sport activities (Rozenštoka, 2016).

There are three basic principles to be followed in training of youth athletes: regularity, graduality and suitability. This means that a physical conditioning exercises should be included in each workout. It is about building strength for all the major muscle groups in the body. The leg muscles are most suitable for speed (explosive strength) or jumping exercises, which are useful for all sports. These are all sorts of jumps on the subject, across the subject, sideways jumps, leg to leg jumps, and so on. Considering the principle of graduality, initially, the duration, speed, and workload of these and other strength exercises should not be high - according with the level of preparedness, to avoid significant fatigue and used as a transition from one exercise mode to another. Following the third basic principle of suitability, one should spend with a little more training time initially. Each athlete should be individually assessed for the workload and intensity of training.

At least five core muscle group exercises must be applied per workout for athletes of all ages, not only in conditioning but also in competition period, which will ensure their long-term sports career (Kravalis, 2008).

Training in a variety of sports enhances physical condition according to the specifics of the sport. Basketball is defined as a sport that requires one to be physically strong - requiring players to frequently repeat intense movements such as sprints, jumping, including short recovery breaks. Sports include both aerobic and anaerobic energy processes. A basketball player must be well-prepared to be a high level athlete - with optimally developed explosive strength, agility, coordination, good anaerobic ability and good aerobic endurance (Pojskić, Haris, Šeparović, Vlatko, & Muratović, 2014).

For a basketball player, it is important to develop all types of strength - maximum strength - the greatest strength a player can develop in dynamic or static form to overcome resistance, an explosive speed - ability to give movement to body or body parts as quickly as possible, strength endurance - to resist muscle fatigue for sustained loads that require both strength and endurance (Pojskić, Haris, Šeparović, Vlatko, & Muratović, 2014).

Factors determining the physical characteristics of a football player include agility and coordination - accuracy of movement, versatility of technical - tactical actions; neuromuscular properties - speed and agility during a movement; metabolic properties - aerobic and anaerobic endurance; muscle properties - muscle strength and explosive strength; plastic properties - flexibility, muscle elasticity and mobility. A football player needs both good aerobic and good anaerobic endurance. Aerobic endurance is expressed in moderate intensity loads at the expense of a biological oxidation reaction. Anaerobic endurance is manifested at peak and submaximal loads at the expense of a biological ATP synthesis reaction that does not involve oxygen. Due to the fact that the maximum speed running distance in football is 10-40 meters, the main source of energy is the anaerobic alactic path - phosphogene ATP synthesis.

The main motor abilities that ice hockey players must develop are strength, speed, endurance and coordination. Strength is an important component in ice skating because the strength of the core muscles keeps the athlete's body in the correct position, while strong leg muscles promote strong thrust during skating. Speed is a key factor in hockey, which determines the overall level of play. Very often during a game, a hockey player must be able to make quick movements, react quickly, or change directions rapidly. Therefore, it is also important to develop speed. Also, endurance is a very important part of a hockey player's physical conditioning so that the hockey player can maintain a steady pace of skating and perform various technical and tactical tasks throughout the game. Without well-developed coordination, it is impossible to play high-level hockey.

Coordination needed to coordinate hands and feet, perform various skating tasks, skating direction changes (Latvijas hokeja federācija, 2013).

Almost all the physical characteristics of the sports games can be tested with the EUROFIT tests, in order to avoid the specifics of the sport and to assess the physical fitness of the young people (Priedīte, Sauka, Kalniņa, & Lāriņš, 2015). Physical conditioning is the foundation of good health and athletic achievements. The EUROFIT test system assesses physical conditioning, which may not coincide with the level of sport specific conditioning (Priedīte, Sauka, Kalniņa, & Lāriņš, 2015).

The analysis of standardized, uniform EUROFIT test results will provide an opportunity to regularly obtain up-to-date data on the physical conditioning, work capacity and development trends of children, adolescents and adults, as well as to compare data with other European countries (Tomkinson, Carver & Atkinson, 2017).

Methodology

The data collection took place from 1st September to 1st November of 2019. Our study involved 300 male athletes from Latvia – 100 basketball players, 100 soccer players, 100 ice hockey players born in 2002, started training in their sport at the age of 7-9 and performed EUROFIT test tests three times in the age from 12 to 17, tests included - absolute hand grip, relative hand grip, flamingo balance, plate tapping, sit-and-reach, standing broad jump, sit-ups in 30 seconds, bent arm hang and PWC170. Also we used overall level in all tests, extended to score in balls, where 1 – “low level” and 5 – “high level”. Data were collected from children's medical books at the Sports Medical Centre.

The research methodology was approved by the Ethics Committee of Riga Stradiņš University on 04.07.2019, as well as the permission for data analysis was obtained from Sports Medicine Center.

Data is published anonymously at work, considering to the principle of confidentiality.

Research results

Anthropometric results show that basketball players in age group of 12-13 years are tallest and heaviest, and therefore have the highest BMI. In the age group of 14-15, basketball players are also the tallest, heaviest and with the highest BMI. In the age group of 16-17, ice hockey players have similar results to basketball players.

Table 1 Anthropometrics of sportsmen in different sports and age groups

	Age group	Height, cm	Weight, kg	BMI
Basketball	12 - 13	165.4±11.22	52.13±9.46	20.62±2.68
	14 - 15	173.26±10.02	60.51±11.49	20.3±2.31
	16 - 17	180±9.22	68.9±11.39	21±2.31
Football	12 - 13	157.3±10.21	46.5±9.57	18.12±0.21
	14 - 15	166.67±11.02	56.16±10.52	19.1±2.20
	16 - 17	175.4±8.42	65±8.98	20±2.20
Ice hockey	12 - 13	158.6±8.87	49.83±9.94	19.46±2.51
	14 - 15	165.6±9.50	56.7±10.83	20±2.39
	16 - 17	173.06±7.47	64.8±9.67	20.9±2.21

n=300 (in each age group)

All results in levels where shown in radar charts to see overall physical conditioning level in selected sports.

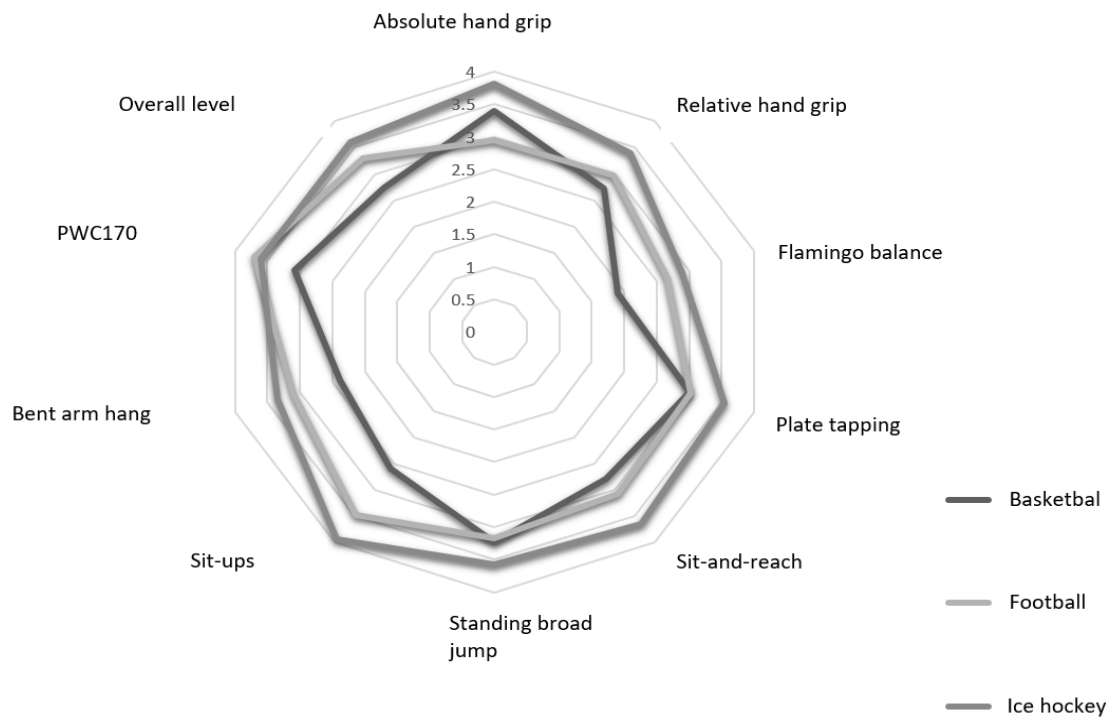


Figure 1 EUROFIT results in age group 12-13 years, n=300

In Figure 1 radar diagram we can see that ice hockey players shows the broadest and smoother trend of results that their physical conditioning is better than other kind of sports. We payed attention to low balance test results are low for all subjects – basketball players had in average 1.9 level points, football

players 2.6 and ice hockey players 2.9 level points – good balance is essential in sport games, especially ice hockey, but children lack it. We can explain this with beginning of puberty, changing body composition in this age that leads to decreasing balance. Although basketball players also had lower results in sit-ups test – 2.59 level points and bent arm hang – 2.30 level points. We can describe this with insufficient general conditioning in basketball training process.

As we can see in Figure 2, ice hockey players dominates in this age group also, but profile of basketball players gets wider and they got more of conditioning in every side. In this age group we also observe low results for all players in balance test (basketball 2.13, football 2.6 and ice hockey 2.9 level points), and for ice hockey test results even decrease in this age group. We can explain this with continuous puberty, which can affect balance and agility as well.



Figure 2 *EUROFIT results in age group 14-15 years, n=300*

In Figure 3 we can observe, that football players start to dominate in relative hand grip strength. This factor cannot be explained because football specifics does not require hand grip strength, but in ice hockey players must hold a hockey stick.

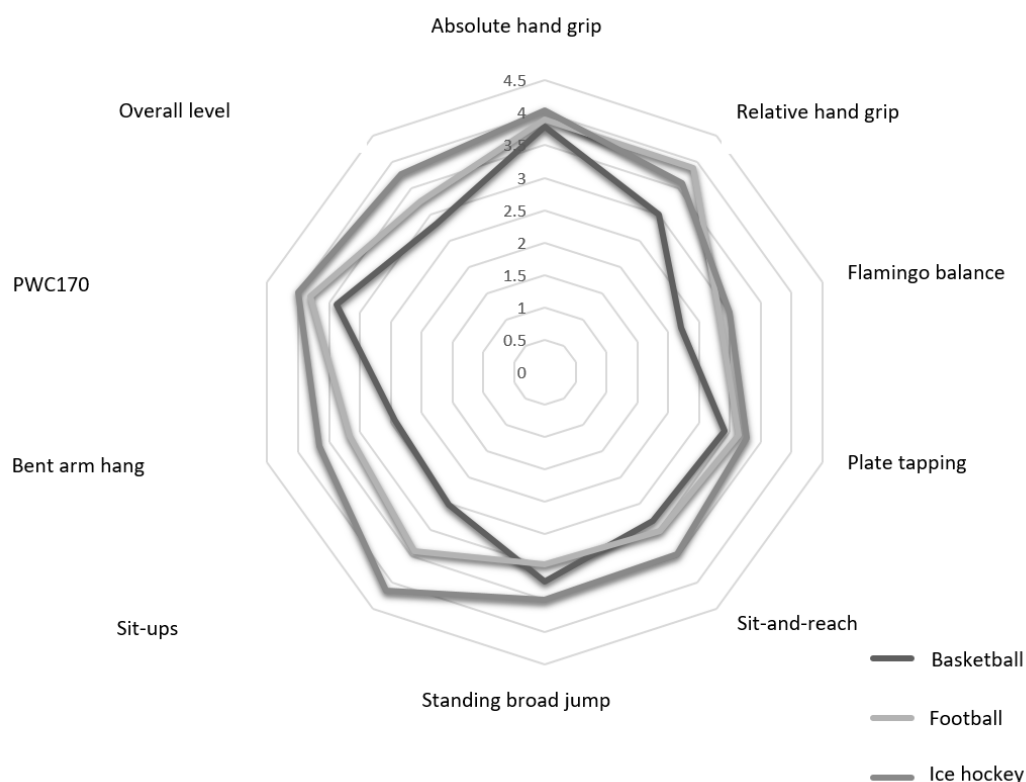


Figure 3 EUROFIT results in age group 16-17 years, n=300

Balance in this age group must be in high level as sportsmen must be ready to participate with adult teams in national championships, in this competition level all physical qualities must be in high level, as static or dynamic balance condition affect gameplay directly.

Conclusions

Ice hockey players have the highest physical conditioning scores of the analyzed athletes, expressed in EUROFIT test level (3.6 in the 12 - 13 age group, 3.6 in the 14-15 age group, 3.78 for 16-17 age group), basketball players have the lowest physical fitness scores in EUROFIT tests from the athletes analyzed (2.75 in the 12-13 age group, 2.84 in the 14-15 age group, 2.83 in the 16-17 age group).

The highest scores for all observed athletes are in the “absolute hand grip” test (average for basketball players - 3.56, footballer - 3.37, ice hockey player - 3.9), lowest results in Flamingo balance (average for basketball players - 2.06, footballers 2.68, ice hockey players - 2.86). We can explain ice hockey players have higher results than basketball players and footballers: ice hockey players have dryland trainings for developing motor abilities as well as trainings-on-ice for specific hockey drills and special conditioning, so ice hockey players may

have five to six trainings per week (Latvijas Hokeja federācija, 2019). As a result of the study, we can make the following suggestions:

- According to athletes having a low result in the flamingo balance test, basketball, football and ice hockey sports schools should include extra balance exercises in their training plans;
- It is important to focus on developing abdominal muscles for basketball players and football players, considering the average abdominal muscle test results (sit-ups test);
- Basketball and football sports schools should provide regular five-week training sessions, including both technical training directly on the field and physical conditioning development.

Schoolchildren lack of general physical conditioning (Rozenstoka, 2016), even with attending sports classes at school and sports specific training. This research show, that with two required sport classes a week and additional three times of sports specific training in football and basketball is not enough to show good or high results in EUROFIT test battery, so it seems that they lack everyday physical activities, that cannot be compensated with sport specific training. Moreover, if they cannot show acceptable results in balance test, then possibility of injury significantly raises and can be a reason of youth to decrease physical activities and quit a sport classes.

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EFFECT OF FOAM ROLLER AND STATIC STRETCHING ON BIOMECHANICAL PARAMETERS OF MUSCLE

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Abstract. *After training, it is needed to perform flexibility exercises for muscle stretching, but many choose to use the foam roller. With a foam roller, you can both exercise and perform a myofascial release that affects the deep tissues of extremities. Myofascial release improves blood circulation in muscle, develops elasticity, flexibility and minimizes the risk of an unwanted injury (Myers & Frederick, 2012). Many studies are being carried out to determine the effects of the various types of stretching on balance, speed and reaction (Apostolopoulos, Metisos, Flouris, & Koutedakis, 2015). Training programs are designed so that after applying different workloads at the end there is cool-down through stretching exercises, but these training plans rarely recommends foam rollers as stretching means, even though they are popular every day. Aim of study: Find out the most effective method for reducing muscle tension in lower extremities. The study identifies changes in the biomechanical parameters of the hamstring muscle group after general stretching exercises and foam roller, after GRIP fitness concept class, using the Myoton PRO biomechanical parameters measurement. The study do not show any significant differences that may be in favour of one or the other method. Literature sources indicate that foam rollers exercises helps to relieve and restore the strained muscles more quickly, increases flexibility (Barrett, 2017). Our study did not confirm any of such findings. Foam roller exercises for myofascial release is as effective as static stretching exercises.*

Keywords: *foam roller, muscle biomechanical parameters, stretching.*

Introduction

Sufficient range of motion in the joints is needed for people to perform various physical exercises in their daily lives, doing everyday things. Nowadays, many different technologies are helping to do physical work, which causes people to move less and less, which also reduces flexibility, reduces range of motion. Stevens also points to a decrease in flexibility - people's lack of mobility contributes to a variety of health problems. Also, muscle tension can cause pain and discomfort (Stevens, 2013). Fitness training focuses on warm-up and cooldown stretching exercises. Many studies are being carried out to determine

the effects of different applications of stretching on balance, speed and reaction (Apostolopoulos, Metisos, Flouris, & Koutedakis, 2015). Training programs are designed so that after applying different loads at the end of the workout there is cooldown through stretch exercises, but foam rollers as muscle tension removers are rarely recommended. After training, it is needed to perform stretching exercises, but many athletes choose to use the foam roller (Barret, 2017). Benefits of foam roller:

- popular and easy to use;
- available in almost all sports clubs, fitness and physiotherapy studios;
- doesn't take a lot of space, lightweight.

With a foam roller it is possible to both exercise and perform a myofascial release, which affects the deep tissue of human body part. Myofascial release improves blood circulation in muscle, promotes mobility, flexibility, decreases stiffness caused risk of injury or trauma (Myers & Frederick, 2012). However, the effectiveness of the application of foam roller after strength training for reducing the muscle strain of the lower limb remain uncertain.

The aim of the study: Possibility of static stretch exercise replacement with foam roller exercises with personal bodyweight.

Methods: The study included 20 female subjects aged 17 to 48 years (divided into two groups of 10 participants each) and 16 male subjects aged 19 to 48 years (divided into two groups with 8 participants in each). Each group performed a standard workout (a GRIP concept fitness class), after which one group performed static stretching, the other group was applying foam roller. Target area for stretching was upper part of lower extremities. Flexibility was determined by the Eurofit sit-and-reach test and muscle biomechanical parameters (muscle tone, elasticity, hardness and relaxation time) with a device for measuring muscle function MyotonPRO. Collected data was processed with descriptive statistics of MS Excel and IMB SPSS statistics v22.0.

Literature review

Flexibility is one of the motor abilities needed in daily life and sport. It is the ability to execute movements at full range of motion, by definition of American College of Sports Medicine (Parrott & Xihe, 2013). Range of motion (ROM) shows the distance and direction in which the joint can be extended. This amplitude depends on the length of the muscle, the firmness of the connective tissue and the type of joint (Melzer, Schutz, Boulvain, & Kayser, 2010). Flexibility can also be considered as the angle of motion in the human joint. The movements should not cause any pain, so it is important to stretch and provide flexibility in the joints to prevent unnecessary risk of injury (Schroeder, 2010).

Flexibility can be divided into several types, which depend on how the muscles are stretched: static flexibility, ballistic flexibility, dynamic or functional flexibility, active and passive flexibility (Grasis & Łubinska, 2015). Flexibility also helps the muscles recover faster, which provides future good performance, skills and good exercise techniques (Liguori, Dwyer, Fitts, & Lewis, 2014). The joints are overloaded if the muscles are not stretched and the joints are numb. Overloading the joints can cause pain, which can create posture disorders. By stretching the tense muscles, the joints have the ability to regain mobility, which will prevent pain and incorrect posture. Increasing flexibility makes daily work and fitness tasks much easier and performance techniques are improved in any kind of sport (Thüls, 2006).

Benefits from flexibility and sufficient mobility: improving motor skills, movements, reducing the possibility of injuries, reducing back pain, reducing muscle pain, reducing muscle tension, reducing muscle tightness, stiffness, helps to relax, scar tissues (if any) regain their elasticity, improving metabolism, posture improvement, increasing concentration, decreasing obsolescence, reducing joint cartilage wear-down (Grasis & Łubinska, 2015; Krauksts, 2006).

A study determined that static stretching proves as effective mean in treating hamstring strain than dynamic stretching. Comparing these two methods, static stretching is much more intensive, which also turns out to be better (Page, 2012). After stretching it would be possible to make increased movements with the target joint, as well as myofibrils retain their flexibility (Thüls, 2006).

Flexibility decreases with age as lifestyle tends to be calmer, more sedentary, and the amount of fluid in the tissues decreases. Flexibility is influenced by both the temperature of the external environment and the internal body temperature of the individual. It is possible to increase body temperature by warming up, thus increasing mobility and flexibility. Also, it is not recommended to stretch without warm up (Thüls, 2006).

Almost all soft tissues can be stretched - skin, fascia, tendon and ligament. The fascia will be stretched in any case, regardless of the stretching method used. Stretching the fascia has its benefits - it is possible to gain muscle lengthening, tissue is hydrated, connective tissue is stimulation (Myers, 2012). Myofascial stretching can stretch tendons, aponeuroses, and other dense fibrous connective tissues (Schleip, Duerselen, Vleeming, & Naylor, 2012). Connective tissue responds differently because it depends on the type of stretching, density of connective tissue, location of tissue (Myers & Frederick, 2012). Regularly and actively exercising, it would be advisable to do stretching exercises every day for several minutes each time to develop more flexibility and also maintain it at a good level (Grasis & Łubinska, 2015).

Foam rollers are popular among coaches and athletes in fitness all over the world as an exercising mean. The immediate effect is noticeable - the tense

muscles are released, they recover much faster, and their elasticity increases (Barrett, 2017). The foam roller can be likened to a sports massage, but only an athlete can massage himself with the help of a roll - own body weight with the foam roller is used to massage problematic muscles and fascia, which at the same time increases mobility and helps the muscles to recover after exercise.

Miller did a study investigating whether the use of foam rollers increases elasticity in hamstrings compared to a control group who did not use them. In this study, it was found that using a foam roller for one minute on hamstrings for eight weeks significantly increased the elasticity of the hamstring (Miller & Rockey, 2006).

The myotonometry method examines the principles of physiology and biomechanics in muscle. Physiological processes provide the required amount of blood in the tissues during activities, optimal blood plasma salts, and ions and provide the correct, appropriate protein content. From the biomechanical parameters of the muscle depends how these substances reach each biological tissue (Vain, 2002).

Methodology

The study included 36 participants, 20 female aged 17 to 48 years ($M = 29.7$; $SD = 6.2$) and 16 male aged 19 to 48 years ($M = 30.5$; $SD = 7.3$). The females were divided into two groups - 10 women used a foam roller at the end of the workout, other 10 women applied a static stretching. Correspondingly, in the male group - 8 men applied foam roller and 8 men applied static stretching. Flexibility was determined by the Eurofit sit-and-reach motor ability test. The test can effectively determine the flexibility of the hamstring of the thigh. The results of the Eurofit test will be taken into account when comparing measurements, as indicator to compare which method (foam roller or static stretching) is more effective in relieving tension in the hamstrings.

We used a MyotonPRO device to measure the functional state of the muscles (muscle tone (expressed as frequency), elasticity (expressed as decrement coefficient), stiffness and relaxation time (shows a time a muscle takes to relax after mechanical stress)). The myotonometry method examines the principles of physiology and biomechanics in muscle. Physiological processes provide the required amount of blood in the tissues during activities, optimal blood plasma salts, and ions and provide the correct, appropriate protein content. From the biomechanical parameters of the muscle depends how these substances reach each biological tissue (Vain, 2002). The concept class named GRIP was used as a standardized physical activity. The measurement process consisted of three parts per session: part 1 - The measurement was made before the concept lesson GRIP, with the respondent lying on the chest on fitness mat, trying to completely relax,

then a biomechanical parameters of hamstring muscle was measured with a MYOTON PRO. Part 2 - reassessment after a GRIP lesson. Part 3 - each of the respondents applied one of the stretching methods that will remain the same throughout the study – myofascial release with foam roller or static stretching with holding a position. Each method included three exercises. These exercises was executed for three minutes in total, after which a hamstring muscle biomechanical parameters were measured again. At the beginning and end of the study, flexibility with the “sit and reach” test was determined.

Research results

During the study, in the first and last experimental class, each respondent was subjected to a Eurofit “sit-and-reach” test. Before a study mean measurement for the Eurofit test was 12.8 cm (+/-4.05) in females who had a foam roller method, while in the static stretching method 10cm (+/-3.16). For male groups: with a foam roller method of 8.6 cm (+/- 3.05), with a static stretching method of 0.4 cm (+/- 0.13). At the end of the study, a Eurofit test was repeated when three GRIP concept classes were visited, and three times applied a stretching with foam roller and static stretching, accordingly. Results in “sit-and-reach” obtained for women: with a foam roller method - 16.5 cm (+/-5.22), with a static stretching method of 15 cm (+/-4.75), male results: with a foam roller method of 15.8 cm (+/-5.57), with a static stretching method of 7.9 cm (+/-2.8). Analyzing an obtained results, both female and male subjects have improved flexibility of the back of the body. For women performing foam roller exercises an improvement was in average 3.7cm, after static stretching exercises by 5cm. In the male group with a foam roller by 7.2cm and with the application of the static stretching method by 7.5 cm (see table 1).

Table 1 Results in “sit-and-reach” test after applying stretching methods

Gender	Stretching method	n	Before stretching (cm±SD)	After stretching (cm±SD)	P value	t-test
Female	Foam roller	10	12.8±4.05	16.50±5.22	0.279	-1.116
	Static stretching	10	10.00±3.16	15.00±4.75		
Male	Foam roller	8	8.60±3.05	15.80±5.57	0.807	-0.249
	Static stretching	8	0.40±0.13	7.90±2.8		

The MyotonPRO was used to measure changes in muscle biomechanical parameters during the study.

By studying the average frequency (tension) of all female, hamstring tension for left extremity before GRIP exercise was 12.84 Hz (foam roller group), for right extremity foam roller group before GRIP lessons was 12.88 Hz; with static stretching group - left extremity 13.00 Hz, right extremity 13.15 Hz, which shows both legs have a normal muscle tone. Immediately after the GRIP exercise, the measurements of the hamstring tension are slightly lower than before the exercise: foam roller group - 12.78 Hz left, and 12.64 Hz for right extremity; static stretching group - left extremity 12.66 Hz, right extremity 12.78 Hz. The stress values during operation should be in the frequency range of 18 to 40 Hz. This could only indicate that the GRIP class does not involve enough exercises for hamstring muscles. In the third measurement, after applying different stretching methods, the results did not differ significantly from those previously measured. Foam roller group - left extremity 12.75 Hz, right extremity 12.65 Hz, static stretching group – left extremity 12.85 Hz, right extremity 12.55 Hz. If there is no change in muscle frequencies during relaxation (resting state) and tension, then muscle function is considered impaired.

By studying the average muscle tone measurement of all male and comparing static stretching with foam roller, respondents who used static stretching had the higher muscle tone remaining after stretch method. Before GRIP concept class, the frequency values of muscle tone for a group using the foam roller method were 14.96 Hz for the left extremity and for right extremity 14.88 Hz (it indicates a normal muscle tone), after the GRIP concept class the tension in the left extremity for foam roller group was 14.82 Hz, right extremity showed 15.26 Hz, for static stretching group left extremity 15.40 Hz, right extremity 15.37 Hz, which is also still within normal range of muscle tone. Here are muscle tone results after two different stretching methods was applied – foam roller group left extremity 14.85 Hz, right extremity 15.19 Hz, static stretching group left extremity 15.81 Hz, right extremity 15.51 Hz. The results obtained did not show any significant difference between these three measurements.

Conclusions and discussion

Analyzing an outcome, the differences in the results obtained (sit-and-reach) in both groups (foam roller and static stretching) for both female ($p=0.279$, t-test -1.116 between foam roller and static stretch) and male ($p=0.807$, t-test -0.249 between foam roller and static stretch) groups are not significant and cannot demonstrate which method is better – foam roller or static stretching. There are several points how it can be explained:

- A larger number of participants may be needed to compare and better

evaluate the study's measurements;

- In both gender groups, the minimum number of classes attended was 3, which may be too few times to make conclusions about the effectiveness of the stretching techniques used, be it myofascial release or static stretching. Several studies have shown the effect of a foam roller and myofascial release. There was study investigating whether the use of foam rollers increases elasticity in hamstrings compared to a control group who did not use them. This study found that applying a foam roller to hamstrings for one minute during eight weeks significantly increased the elasticity of the hamstrings (Miller & Rockey, 2006);
- As one of the factors affecting results of study can be roll and stretch duration. There was three minutes given for each method and three exercises within this time. It is possible that using both methods would require a longer workout or more exercises, although the literature suggests that the exercise must be executed for at least 30 to 60 seconds (Krauksts, 2006). Miller also refers in his study to one minute of hamstring roll with foam roller (Miller & Rockey, 2006);
- The concept of a GRIP concept class may not imply significant hypertension, so the roll and stretch effect is not significant.

During the study, at the first and last class, each respondent passed the Eurofit sit-and-reach test. Summarizing the results obtained, both female and male have improved test results after both stretching methods used. This may indicate that both methods are equally good for developing flexibility.

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CHARACTERIZATION OF THE ESSENCE OF THE HUMAN PHYSICAL CAPITAL CONCEPT IN RELATION TO THE FITNESS INDUSTRY

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Abstract. *A large part of the society perceives the body as a fundamental tool to advance in social life, as a capital in labour relations and in sexual relations as well. The possibility to transform one's own physical capital into economic, social or cultural capital, which is an opportunity a person receives through carrying out physical activity, is also a value in the field of fitness which is an industry that is worth billions. That is why the aim of this study was to investigate in-depth characterization of the nature of the physical capital concept, linking it to the field of fitness. The study is based on 48 literature sources and scientific articles, 2 of which are in Latvian, 5 in Russian and 41 – in English. The essence of the content of the physical capital concept has been investigated and the connections of notions in different theoretical contexts has been evaluated, starting from the beginning of the physical capital concept. The definitions were grouped in a broader and narrower scope. In the narrower sense, physical capital is a person's skills and abilities – innate or acquired over time –, which help to perform a specific physical work, move, strengthen or improve physical health and capacity for work. In the broader sense – as values and investments in the body, building of a body in society. In the broader sense of physical capital, the main goal is its transformation into other forms of capital in order to obtain additional benefits or a new status in the society.*

Keywords: *fitness, human capital, physical capital.*

Introduction

Usually people associate the word *capital* with richness, wealth and property. Capital is a beneficial asset that includes material and physical resources. Not only can capital be accumulated, converted into cash and reproduced, but it can also be created as new added value (Meņšikovs, 2009; Samuelson & Nordhaus, 2004).

For most people, capital is associated only with a bank account, real estate, number of cars and other means that affect their lives. These assets are easy to count, measure, compare – they create differences between people; they can be

exchanged, sold, invested for additional benefits; they can be controlled. However, there are other, sometimes invisible forms of capital which affect a person's life and its quality. For example, nowadays the body is like an active and capital in the society, perceived as a symbol of difference, an emblem, as evidence of control, work and struggle to achieve a good form; a fashion icon, a brand that favours those who have it; a reward for those who put in effort and are able to achieve a more „civilized” physique (Bourdieu, 1988).

A large part of the society perceives the body as a fundamental tool to advance in social life, as a capital in labour relations and in sexual relations as well. Physical capital is the attitude towards the body, the value of body change, ways of interpreting the body and investments in it (Hutson, 2012), which differentiates people in different social environments.

Belonging to a particular social group influences the opportunities and desires a person has to create or transform his or her capital. The possibility to transform one's own physical capital into economic, social or cultural capital, which is an opportunity a person receives through carrying out physical activity, is also a value in the field of fitness which is an industry that is worth billions. By investing in one's body, a person is able to contribute to the growth of physical capital, which, in turn, enables one to increase the sense of belonging to a particular social group and further improve the process of promoting physical capital as a result of increasing social belonging.

That is why the aim of this study was to investigate in-depth characterization of the nature of the physical capital concept, linking it to the field of fitness.

The study is based on 48 literature sources and scientific articles, two of which are in Latvia, 5 in Russian and 41 – in English. The essence of the content of the physical capital concept has been investigated and the connections of notions in different theoretical contexts has been evaluated, starting from the beginning of the physical capital concept. The definitions were grouped in a broader and narrower scope.

Review of Literature and Discussion

When evaluating forms of capital and the processes of their accumulation from a societal point of view, one can say that a person is formed in a society and accumulates capital through direct interaction with other individuals (Bourdieu, 1986; Shilling, 1991; Hutson, 2012). Due to the fact that a person belongs to a specific part of society, it is possible to improve, use, change, transform one type of capital into another (Radaev, 2010), also influencing the development of society.

In the transformation of capital, French sociologist Pierre Bourdieu distinguishes between three forms of capital – economic, cultural and social.

Economic capital is the form of capital that affects other capitals and its source is investment. Economic capital is automatically converted to cash value and invested in property. People differ not only by economic capital, but also as a result of the impact of social and cultural capital.

Cultural capital can take three forms:

- 1) in the form of corporeity, as an indicator of physical capital, which Pierre Bourdieu does not distinguish as a separate form of capital, but adds to the cultural capital as values of body, appearance, style changes and the process of self-improvement, which are obtained as a result from the interaction between mind and the body;
- 2) in the form of cultural goods, such as books, paintings, dictionaries, diplomas, awards, instruments, etc.;
- 3) in an institutional way, such as educational institutions, workplaces, places of residence, etc. (Bourdieu, 1986).

Cultural capital focuses on the abilities, skills and knowledge that a person has acquired through belonging to a specific group, which facilitates communication with people who do not know each other but belong to this group; which allows one to recognize a person from a similar social class, status; which automatically brings people together. Cultural capital can, under certain circumstances, be converted into economic capital and invested in the value of education.

Social capital is an element of human relationships that enables more productive action. This capital has the significant benefits that are given to an individual, a family or a group by better contacts (Ziverte, Austers, & Zilinska, 2003). Social capital is formed through social relationships (connections) and can be converted into economic capital and, under certain circumstances, invested in obtaining a new status (Bourdieu, 1986) (see fig.1).

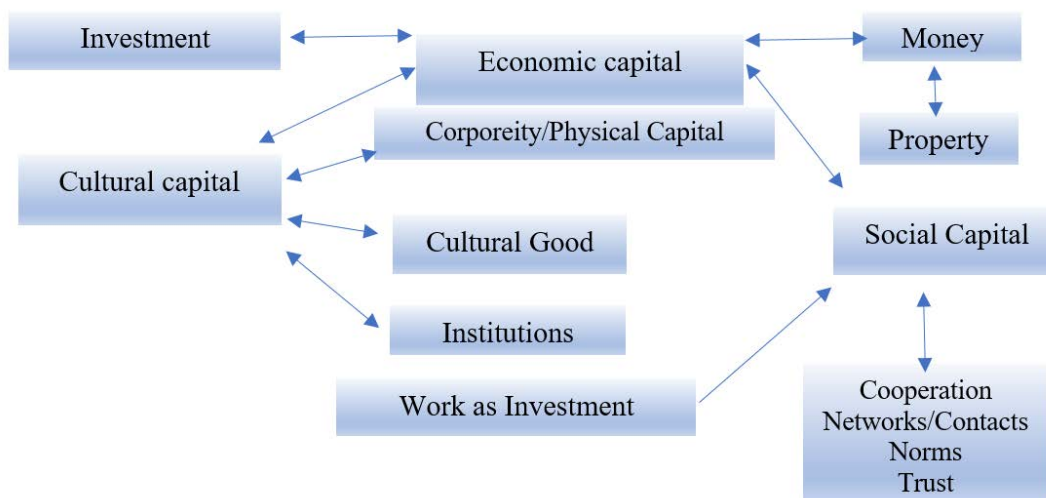


Figure 1 Transformation of Capitals (source: Bourdieu, 1986)

The abovementioned capital is the ability of people to work together in groups and organizations to achieve common goals (Fukuyama, 1996); it refers to features of social organizations such as trust, norms and cooperation networks (Bourdieu, 1986), which can improve the productivity of the society, facilitating coordinated action (Putnam, 1993). This capital is friends, colleagues and more general contacts, which provide an opportunity to use the economic, cultural and physical capital (Burt, 1992), and which are able to provide individual benefit through involvement in social networks and other social structures (Portes, 1998). Social capital arises through the interaction of individuals, as well as groups or organizations. Like other forms of capital, social capital too grows and accumulates by investing work (creating relationships, paying attention, etc.). This capital can generate public good, it helps to accumulate other forms of capital, which is its social function and value (Coleman, 1988). James S. Coleman states that one of the problems in building social capital is that the individual has to invest work to create it, but the fruits of this type of capital are primarily enjoyed by a group, a community, so the individual has little motivation to invest in it (Coleman, 1988).

Based on the theory of capital transformation by Pierre Bourdieu, it can be concluded that economic capital is the capital that influences other forms of capital. Economic capital depends on investments, and vice versa: the higher the economic capital, the higher the investment that is automatically converted into money, which is invested in property or elsewhere. Economic capital affects cultural capital, which is made up of corporeity, cultural goods and institutions, but cultural capital also affects economic capital, which can be transformed and thus funds can be acquired. The greater the economic capital, the more opportunities to invest it in cultural capital, and vice versa: by investing work in increasing cultural capital, the individual is able to influence their own economic capital.

Economic capital also affects social capital, and vice versa. Under the influence of social capital, networks, contacts, norms in the society and trust is formed, which, using social capital, can be transformed into economic capital and converted into cash.

Cultural capital and social capital are also interlinked. Using the components of social capital, it is possible to transform cultural capital into economic, and vice versa: through cultural capital, it is possible to obtain components of social capital such as networks, contacts, etc. Based on the above, it can be concluded that capitals are interdependent: by increasing one of them, it is possible to increase the others, but all of it is based on work as an investment. When analysing Pierre Bourdieu's theory of capitals, one can see that capital transformation requires a society which brings additional benefits.

When evaluating capital in context with a person, it can be concluded that, by developing in a society, a person also benefits the society, organization, family, culture and other groups the person interacts with when the person has the opportunity and the desire to. A person's education, health improvement procedures, developing qualification, purchase of stylist and hairdresser services are also investments in capital, which improve and develop the person. A person cannot be separated from his or her capital, because it is impossible to deprive a person of their knowledge, health or appearance, it cannot be lost, so it also forms the capital of the particular person. By investing in human capital, organizations can also lose their investment in an employee if the employee leaves (Radaev, 2010), not gaining any public benefit from the particular individual. However, if a person wants to exchange human capital for money and invest for profit, society is needed (Becker, 1975).

Some researchers believe that human capital encompasses several forms of capital, which affects the particular person and investment in them, for example, physical capital (physical health and healthy behaviour), emotional capital (psychological and mental health), individual capital (the person's character, value system, etc.), social capital (benefits of communication in a group obtained by the person), intellectual capital (level of knowledge, cognitive abilities), financial capital (ability to earn money, etc.) (see fig.2) (Bailey, Shawn, & Albert, 2013).

All these forms of capital are interlinked. By investing in one of them, it is possible to raise another one, and vice versa: reducing one can worsen a component of the human capital.

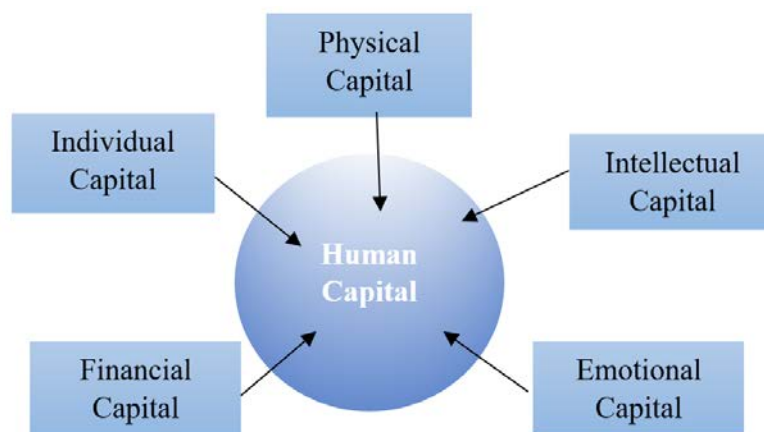


Figure 2 Components of Human Capital (source: Bailey et al., 2013)

This study focuses on a person who is developing in a society, based on Pierre Bourdieu's theory of capitals, analysing physical capital and its promotion as a form of a separate capital. The term *physical capital* refers to the economy;

it refers to the physical assets that are in a company or organization. It is not easy to understand its significance in relation to phenomena related to a person and their body.

In sociological theories, for many years the body has been the main subject of scientific interest. The essence of body development has begun from improving physical form and shaping to a socializing agent that can provide multiple benefits to the owner in the process of capital accumulation and transformation.

The inclusion of physical capital in cultural capital has created several limitations in the study of the body in the field of sociology, and several researchers, including those analysed in this study, have distinguished it in their works as a separate form of capital (Shilling, 2003; 2005; Hutson, 2012; Čuprika, Fernāte, & Čupriks, 2015), thus enabling a better understanding of physical capital promotion and transformation into other capitals.

A number of researchers have studied physical capital based on Pierre Bourdieu's theory of capitals, naming it differently, for example, body capital (Black, 2004; Mears & Finlay, 2005), sexuality capital (Martin & Matt, 2006), erotic capital (Green, 2008), gender capital (Bridges, 2009). Based on the above, the question arises as to why there are so many interpretations of Pierre Bourdieu's theory and why the body has become such an important structure. This study is based on the idea that physical capital is a broader concept, which serves as an umbrella term and includes other forms of capital related to the body. Based on Pierre Bourdieu's theory, David Hutson distinguishes physical capital as a separate form of capital, which includes such components as eroticism, sexuality, beauty and power.

The body and the capitals associated with it play an important role in everyday life – they help to include or exclude a person in social groups, as well as enable the formation of new social contacts.

Since 1970, understanding of the status of the body has evolved from the assumption that the body is simply there to a great deal of excitement and interest in it. One of the first researchers to start talking about the body as a social concept is Marcel Mauss. He writes about how such body movements as walking and sitting are mastered and how they differ in various social groups (Mauss, 1979). Mary Douglas has studied the relationship between body and society, describing how the body is interpreted and understood in society (Douglas, 1966; 1970). Based on works by M. Douglas, it can be concluded that the physical experience of the body, its appearance and public opinion about it strengthens the group differences (Douglas, 1970).

Further understanding of the body in the social sciences has been influenced by three important researches. The main interest of Michel Foucault has been to historically determine the connection between the body and knowledge and power (Foucault, 1978; 1979). M. Foucault has shown how, through knowledge and

power, the body is manipulated, taught and created by various technologies to transform it into an „obedient body” (Foucault, 1978).

The main idea of Maurice Merleau-Ponty was that with our body we understand the whole world and what is going on in it and every individual is a psychologically historical structure (Merleau-Ponty, 1962).

In turn, Pierre Bourdieu (Bourdieu, 1978; 1984) sees the body and the process of its development as a form of existence and expression of power. In other words, he believes that actions, diets, taste, aesthetic desires depend on habits that differ in various social classes. Different classes develop different bodies.

Pierre Bourdieu writes that physical capital is the capital that a person accumulates through active participation in the particular society, while being in a set social class, which develops through the interaction between the individual, society, the person’s habits and taste (Bourdieu, 1986). This capital is never fully accumulated, it is constantly influenced by the economic, cultural and social processes, in which the body is located (Bourdieu, 1986). Pierre Bourdieu understands a social class as an objective system of classification, where the relation should not be with an individual or class as a part of society or a group of individuals, but with the habits of the particular class (Bourdieu, 1977). Pierre Bourdieu see a habit as an activity, or more precisely, as practice – not what is regularly repeated, taught, but what the person can do spontaneously, invent, improvise, based on the experience acquired, strategically and independently making a decision in order to gain benefit (Bourdieu, 1990a; 1990b; Bourdieu & Wacquant, 1992). This also sorts people into different social classes. A class is a group of social agents, which has the same conditions of social existence, interests, social experience, value system and who think of themselves as belonging to a particular group of agents (Laberge & Kay, 2002). Using conceptions of a specific class, incl. habits, Pierre Bourdieu describes how belonging to a class affects imagination (Bourdieu, 1978; 1996; Light, 2005). Attitude towards one’s body, acquisition of habits and lifestyle distinguishes the lower social class from the upper one. Since childhood, representatives of the upper social class pay more attention to beauty, diet, health, they form their bodies for others – the society, becoming similar to the norms and models of behaviour accepted in their class (Bourdieu, 1978; Laberge & Kay, 2002).

The relationship between social class and attitude towards the body can be seen in the results of Pierre Bourdieu’s work in 1976, where he reveals the importance of body value, beauty and beauty treatment in the lives of French women: how much attention women from various social classes pay to their self-image and what do they expect to receive back from it; what are they willing to invest to make a symbolic return on it (Bourdieu, 1996).

Some researchers, such as Chris Shilling, criticize Pierre Bourdieu's theory, saying that it focuses too much on the environment in which a person is born. However, a closer analysis of Pierre Bourdieu's work (1996) suggests that he describes people's habits as structures that may depend on belonging to a group of agents and that can be changed over the course of life.

A number of scientists have found that a healthy lifestyle movement is a movement of the middle class of society, where through engagement (in physical activity and health prophylactic events) people are able to use their bodies as a means of achieving success (Bourdieu, 1996; Featherstone, 1982; Shilling, 2003; 2004).

An individual's body represents their social and cultural capital. Thus, it can be concluded that the growth of physical capital gives a person the opportunity to change the class of society or to become a member of the desired social group.

Sport and physical activity provide an opportunity to build one's own body, while thinking about others, about the society, and this is called integrating the body into social relationships (Laberge & Kay, 2002). Hence, the amount of physical activity is a person's visible expression of creating additional social values (physical capital) in order to gain moral virtue and recognition.

The body and its capital are capable of giving more than just appearance. Pierre Bourdieu's work is based on the social-cultural approach, which is based on the link between social inequality, components of capital and attitude towards health and the body. In his understanding, the body is what is called physical capital. The main concept of Pierre Bourdieu's theory is the symbolic value of the body (1978) and the role of the body in gender diversity, society and the reproduction of social inequality (Light, 2005).

In the analysis of Pierre Bourdieu's theory, David Hutson (2012) emphasizes that nowadays fitness coaches represent the overlap between different social classes, using the body as a source of values and earning money with it. Fitness coaches come from a variety of social classes, but most of them have trained, slender, muscular bodies that many people from higher social classes dream of. The boundary between Pierre Bourdieu's depicted „muscular body of a male from the lowest social class”, „beautiful body of a female from the upper class” and „healthy ideal body of the middle class” is currently blurred. Fitness combines the wishes of people from different social classes. Fitness coaches, even those from lower social classes, create and dictate the body ideals that they sell to people from upper social classes in the form of their knowledge. In essence, coaches work not only with the human body, creating it, but also with people's needs, interests and values, demonstrating their body as a value, as the desirable result – thus, they dictate to the higher social classes what an ideal body is.

Nowadays, in the age of plastic surgery, when it is possible to change the body shape, gender, height, skin colour, etc., Pierre Bourdieu's theory of

corporeality in the reproduction of class inequality is limited. However, given that the taste for the ideal body is synthesizing nowadays, it is important that the way of promoting physical capital, opportunities and aim to engage in physical activity and create the ideal body, is also very different to the representatives of the same social class, which is why social class should not be taken into account. David Hutson (2012) takes into account the environment and social group in which the individual is located when defining physical capital as „the value of body change in a given social environment, the use of the body as an investment in the body, ways of body interpretation, which can be changed, used, reinvested to obtain additional benefits, opportunities or status in a social group”.

The term *physical capital* is used to refer to the external and internal components of the body, which in the social-cultural approach help to transform physical capital into other capitals. Shape, size, use of the body (walking, sitting, participating in social life) is highly dependent on the components of the social culture (Bourdieu, 1986).

When selecting definitions for the study, it was taken into account that the nature of physical capital is explained in a broader and narrower sense. In the narrower sense, physical capital is like skills and abilities – innate or acquired over time –, which help a person to perform a particular physical job, move, strengthen or improve physical health and capacity for work. In the broader sense – as values and investments in the body, the formation of the body in a society with the aim of transforming them into other forms of capital.

The term *physical capital* is described by the essence of a person, physical ability and appearance as an attitude towards one's health, which shows the knowledge and morals of each person (Hutson, 2013; Jutel & Buetow, 2007; Hamermesh, 2011). Physical capital – investments aimed at building, maintaining and improving a person's health and work capacity (Ilinskij, 1996). P. Bourdieu (1986) believes that the role of physical capital is a strong and healthy body that can be transformed from physical capital into economic, social and cultural capital. K. Shilling defines physical capital as building the body through sport, leisure physical activity, entertainment and other social activities (1991). The body, by its very nature, makes up the concept of *absent presence*, which can be explained by the fact that the body is visible to all but it cannot be fully analysed (Shilling, 1991); it provides a person with additional uncontrollable advantages or opportunities in the society.

Some authors describe physical capital as a person's skills and abilities, for example, they believe that every person at a certain point in their lives has a set of psychophysiological skills and abilities that make up the person's physical capital (Semenov, 2006, 2009), or that physical capital is a level of physical ability that helps to carry out a particular job and the creator of the state of health of the population (Vinogradov, 1958); physical capital is a person's attribute that can be

enhanced through the process of physical education and body care (Radaev, 2010).

According to researchers, it can be concluded that physical capital consists of innate and capital acquired over time (Vinogradov, 1958), it is genetically determined and biologically innate (Radaev, 2010). When a person is born, physical capital varies, but over time it can be changed, acquired, improved or also reduced, in other words – influenced.

Considering physical capital in the broader sense, the main goal is its transformation into other forms of capital in order to obtain additional benefits or a new status in society. This can be done in the social group to which the individual belongs.

To better understand the broader meaning of the term *physical capital*, it is necessary to understand why and how people, for example, professional athletes or models, use their bodies to gain material value and participate in the economic chain. Physical capital is used on a daily basis through the use of one's body. The transformation of physical capital into economic, social or cultural capital can also be viewed as a process whereby the individual gains some sort of benefit due to their body and its external and internal components, for example, finds a life partner (McIrvin Abu-Laban & McDaniel, 1995). However, the transformation of physical capital depends on the social environment in which a person is situated (Bourdieu, 1985). For instance, a person may have the potential to become a model or a professional athlete, but unless the person knows the right people and is in the right place, the person is unable to transform their physical capital into other capitals and obtain any benefit from it.

Based on the definition developed by David Hutson (2012), physical capital accumulates through interactions in the society and is transformed into other forms of capital, gaining additional benefits or a new status in a society that has its own needs, interests and values. Society partly determines how a person develops his or her physical capital and what the person wants or can gain from it.

Nowadays, most people are constantly transforming their body through exercise, diets, plastic surgery, pharmacy, cosmetics and other means in order to bring themselves closer to the ideals set in the society and to belong in the particular social environment, in order to obtain an additional change value for their body. Over the centuries people thought that their bodies did not belong to them, but now people believe that the body is the central object of existence and attachment.

Conclusions

When selecting definitions for the study, it can be concluded that the essence of physical capital in a human related context is interpreted in a broader and narrower sense. In the narrower sense, physical capital is a person's skills and abilities – innate or acquired over time –, which help to perform a specific physical work, move, strengthen or improve physical health and capacity for work. In the broader sense – as values and investments in the body, building of a body in society.

In the broader sense of physical capital, the main goal is its transformation into other forms of capital in order to obtain additional benefits or a new status in the society. This can be done in the social group to which the individual belongs.

By investing in our body, making the decision on the correct interpretation of the body in various social groups, according to the needs and norms of the group, we are able to change, use and reinvest our physical capital to gain additional benefits and opportunities from society and to transform it into other forms of capital.

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POSSIBILITIES OF ACQUIRING COMPETENCIES IN DISEASE MANAGEMENT OF CHILDREN WITH DIABETES MELLITUS

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Abstract. *Diabetes Mellitus is a chronic disease that occurs as a metabolic disorder. Children often have type 1 diabetes, which occurs when pancreas produces very little or no insulin. Type 1 diabetes may negatively affect the normal lifestyle of a child, as well as his/her development, learning results and growth. It is emphasised that it is important for a child to adjust insulin doses based on the consumed food, physical workload and mental strain; therefore, in this case, the child must be aware of diabetes in order to achieve the most optimal health. The subject-matter of research is the opportunities of children with Diabetes Mellitus to acquire competences for the management of their disease. The aim of research is to disclose how children with diabetes acquire competences for the management of their disease and what opportunities they have for such acquisition. The objectives of research are as follows: 1) to discuss what kind of trainings are being provided to children with diabetes in Europe and Lithuania; 2) to disclose which competences help children with diabetes to manage their disease the most based on their experience. Methods of research – theoretical, such as analysis, generalisation and structuring of scientific literature; empirical, such as semi-structured interview used to collect data; and content analysis method used to analyse the obtained research data. 6 children with Diabetes Mellitus participated in this research. The age of the research participants ranged from 10 to 13 years. During the empirical research, it was disclosed that the most important competences of children with diabetes, allowing/enabling them to manage their disease consist of the correct injection of insulin, proper consumption of food and their abilities to manage hypoglycaemia and hyperglycaemia.*

Keywords: *children, competences, Diabetes Mellitus (diabetes), disease management.*

Introduction

Type 1 diabetes is one of the most relevant chronic diseases in the 21st century, which requires special supervision and control in order to avoid such acute or chronic complications as cardiovascular diseases, visual impairment, kidney failure, diabetic coma or even death (Goethals et al., 2017; Goldberg et al., 2017; Melvin, Redahan, Hatunic, & McQuaid, 2019; Sudhanshu, Nair, Godbole, & Reddy, 2019). During the course of diabetes, there is a high blood

sugar level, which negatively affects the entire metabolism of the body (Batulevičienė, Gaidimauskaitė, & Batulevičius, 2013; Ceriello, Monnier, & Owens, 2019). Diabetes is one of the most prevalent chronic diseases in children; however, children are often diagnosed with it too late, when blood sugar level reaches almost fatal level (Lambrinou, Hansen, & Beulens, 2019).

Data of the International Diabetes Federation (2019) shows that there are 98,200 children under 15 years of age around the world, who were diagnosed with diabetes. For example, in 2019, there were 14,700 new cases of children with diabetes in the USA; 3,500 in Great Britain and 2,600 in Germany (IDF Diabetes atlas, 2019). According to the data obtained by the Institute of Hygiene in Lithuania, 811 cases were registered in Lithuania in 2017, related to type 1 diabetes in children and adolescents, among which less than 400 patients were between 12 and 17 years of age.

Training of children with diabetes was recognised as the primary component necessary for the management of diabetes; meanwhile, the purpose of training is to teach them how to control this disease and to encourage self-monitoring when a person with diabetes is aware of and understands the effects of food, physical activity, tension, medication, etc., as well as knows how to control blood sugar level properly (Bulikaitė & Šeškevičius, 2004; Hawkes, Willi, & Murphy, 2019; Geremia, Fornari, & Tshiedel, 2019). The authors (Beran & Golay, 2017; Mauri et al., 2017) emphasise that teaching must be clear, consistent, professional, high quality and corresponding to the needs of people with diabetes for training because treatment and control depends on it.

The subject-matter of research is the opportunities of children with Diabetes Mellitus to acquire competences for the management of their disease.

The aim of research is to disclose how children with diabetes acquire competences for the management of their disease and what opportunities they have for such acquisition.

The objectives of research are as follows:

1. To discuss what kind of trainings are being provided to children with diabetes in Europe and Lithuania;
2. To disclose which competences help children with diabetes to control this disease the most based on their experience.

Methods of research: theoretical, such as analysis, its comparison and generalisation; empirical, such as semi-structured interview used to collect data; and content analysis method used to analyse the obtained research data.

Questions of survey:

1. What kind of health-related competences do help children to manage their disease?

2. What are the opportunities to acquire competences for the management of this disease in Lithuania? Where do children with diabetes get information about their disease and its management from?

Research methodology

Research methods. Qualitative research type was chosen for the study. According to Žydžiūnaitė & Sabaliauskas (2017), the purpose of a qualitative study is to disclose experiences of children with diabetes, related to the acquisition of competences for the management of their disease, as well as the available opportunities to acquire competences for the management of this disease. The method of a semi-structured interview was used in the study. This article overviews problematic question of the study: “How do you manage or control your disease? Where did you get the necessary information about this disease and its management from?” The obtained data were analysed by using the content analysis method. The qualitative content analysis was performed in the following sequence: the repeated reading of the content of transcribed interview texts, the distinction of meaningful elements in the text analysed, the grouping of the distinguished meaningful elements into categories and sub-categories, integration of the categories/sub-categories into the context of the phenomenon analysed and the description of their analysis (Žydžiūnaitė et al., 2017). P. Mayring (2000) emphasises that content analysis is a valid method for making specific inferences from the analysed text.

The sample of research. A criteria-based sample was used in the study. The respondents were chosen according to the following criteria: 1) children with Diabetes Mellitus; 2) children who suffer from diabetes from the age of 7 to the age of 15; 3) children who found out about the disease at least one year ago. The study was conducted between February and May 2019. The duration of an interview was from 35 to 60 minutes. 6 children with Diabetes Mellitus participated in the qualitative research. The age of research participants ranged from 10 to 13 years. The research was attended by 4 girls and 2 boys.

Ethics of the research. Parents of children who participated in the research, as well as children themselves familiarised with the goal of the research, the interview questions, and the importance of a reasoned reflection on their experience. A parental consent of all research participants was obtained, allowing their children to participate in the research, including the agreement of parents and children to record the interview into a voice recorder. During the research, the following essential principles of research ethics were complied with (Žydžiūnaitė et al., 2017): **a right not to be vulnerable**, i.e. not making any negative impact on their physical, mental and social health; **a right not to be abused** by ensuring that participation of research participants and information provided to them will

not be used against them; **usefulness of the research** – the research participants wilfully agreed to participate in the research because their participation in a specific research makes a positive impact on the development of society and knowledge, as well as the research of new opportunities in Lithuania; **respect for personal dignity** – the research participants were interpreted as independent persons, who were able to control their personal behaviour; every research participant had **a right to make a personal decision whether to participate in the research or not**; **justice** – such factors as the benefit, credulity or compromise was not used in order to involve the “necessary” persons in the research; the participants had an opportunity to ask about the research and receive comprehensive information; the research participants were treated in a respectful and helpful manner; **confidentiality** – the research participants were assured that information provided during the research (the collected qualitative data) will not be disseminated; the unprocessed information will not be available to any person, who is not related to the thesis and, specifically, to the exploratory part of the thesis; **anonymity** – the research participants were assured that their provided accurate personal data will not be published without coordinating such possibility in advance. In order to maintain confidentiality, respondents were encoded in letters A, B, C, D, E and F.

Literature review

Training of children with Diabetes Mellitus in Lithuania and Europe

Training of children with diabetes is important both for the prevention of disease and health economics. Moreover, training of children with diabetes is an important step in the disease management process because the more ill child becomes aware of the disease consequences and acquires the necessary health-related skills, the lower are the consequences of this disease (Swift, Cullen, & Knowles, 2009). The well-prepared training programmes for children with diabetes help them to improve the disease management, which in turn reduce late development and progression of complications (LaManna et al., 2019). For example, the authors Dorresteijn, Kriegsman, and Assendelft (2012) disclosed that, in Holland, the number of such complications of diabetes as foot ulcers and amputations, has reduced by conducting training programmes; meanwhile, in Lithuania, patients with diabetes are able to manage their disease; thus, experiencing fewer symptoms of disease and other ailments after acquiring the necessary health-related skills (Bartkevičiūtė, Venskaitytė, Samėnienė, & Blaževičienė, 2015).

Such European countries as England, Ireland and Spain organise training programmes for children and adolescents about Diabetes Mellitus, which provide

the necessary health-related skills (Dinneen et al., 2009; Lovell, 2012; Conde-Barreiro et al., 2014).

The primary training programmes in England for children and adolescents with diabetes are *the SKIP course (supporting kids with diabetes in physical activity)* and *X-PERT diabetes education course*. The aforementioned programmes are designed to develop competences of children with diabetes, i.e. to introduce Diabetes Mellitus to them, to provide health-related skills, to promote children and adolescents with diabetes to take care of themselves better (to manage insulin injections, blood sugar level and maintain healthy lifestyle) (Lovell, 2012).

The number of patients with type 1 diabetes in Ireland is increasing the same way it increases in the entire Europe. This trend is visible since 1997. Meanwhile, the number of children and adolescents with diabetes increased by 25%; therefore, such changes encouraged to implement certain strategies and develop various training programmes (Dinneen et al., 2009; Diabetes Ireland, 2017). There is a training programme in Ireland, consisting of three training courses for all people with diabetes, including public concerned. The first one is *a dietitian led X-PERT course*, the second one is *CODE: Community Oriented Diabetes Education* and the third one is *DESMOND: Diabetes Education and Self-Management for Ongoing and Newly Diagnosed*.

The incidence of diabetes also increases in Spain, as well as in Ireland and England; however, the incidence of children and young people under the age of 15 is more visible in Spain (Bareiro et al., 2014; Rica et al., 2017). Therefore, the training programmes about Diabetes Mellitus are oriented to children, young people and adults with diabetes. The main diabetes programmes in Spain are *Diabetes Action, Diabetes Education* and *X-PERT programme*. (Conde-Barreiro et al., 2014). Hence, there are many training programmes in Spain, which may be categorised into the following groups: preventive programmes for general public, training programmes to improve health skills and purposeful training programmes, which are performed only in certain areas of Spain (Bareiro et al., 2014; Rica et al., 2017).

Meanwhile, in Lithuania, training of patients with diabetes is emphasised in the scientific literature. V. Bulikaitė and A. Šeškevičius (2004) highlight the relevance of training related to the skills of children with type 1 diabetes because, having learned to monitor blood sugar level, they may prevent hypoglycaemia and hyperglycaemia. V. Bulikaitė and A. Šeškevičius (2004) indicate that it is necessary to involve psychological preparation of family members into training programmes in order to develop independence of children by developing their health-related skills. The training programmes for children with diabetes must be active and inclusive, so that children could develop their awareness (understand the severity of their disease and know how to manage it) (Dobrovolskienė, 2008),

as well as motivated because motivation helps to achieve higher independence level (Bartkevičiūtė et al., 2015).

It should be noted that there were two regulated training programmes in Lithuania: Lithuanian Diabetes Association implemented a project *Management of Diabetes – Training of People With Diabetes Mellitus* between 2006 and 2007, as well as organised a continuing training programme – *Programme for the Management of Diabetes* between 2009 and 2011. The common goal of both programmes were to develop a unified system, which would be responsible for the initial prevention of risk related to carbohydrate metabolism disorders, prophylaxis of diabetes, improvement and practical implementation of the system diagnosing Diabetes Mellitus, improvement of control of people with diabetes in order to postpone the occurrence of complications, as well as improvement of treatment of complications experienced by people with diabetes in order to maintain their working capacities and high quality of life.

In summary of the above-mentioned training programmes, which are being performed in England, Ireland and Spain, it can be stated that the purpose of such programmes for children with diabetes is to provide health-related knowledge and skills, enabling them to manage this disease, helping them live a high quality life and to be independent and responsible for the condition of their health.

Analysis of research results

Competences of children with Diabetes Mellitus used to manage their disease

Diabetes is a tiring disease, involving not only a child, but his/her entire family. After falling ill, a child with diabetes has to change his daily activities and habits, to plan daily agenda and to manage the disease (American diabetes association, 2018). The parents and their child with diabetes require knowledge and skills, which would help them to manage the disease (Beran & Golay, 2017). The disease management is one of the primary aspects in order to avoid complications and to ensure much better health (Forlenza, Pinhas-Hamiel, & Liljenquist, 2019).

In order to disclose competences of children with diabetes, helping them to manage this disease, the respondents have been asked the following questions: “How do you manage or control your disease?” Having analysed responses of children, it was noted that the correct injection of insulin helps to manage the disease – *“Hm...well, how should I call it? An insulin... The injection of insulin... It is scary... And it’s very painful... But it is necessary. My mother says that I have to inject it and that I have to learn how to inject it correctly, so I’m trying to learn...”* (A), *“I think that it is important to inject insulin correctly... That’s true...”* (C). The foreign authors (Forlenza et al., 2019) emphasise that if a child

doesn't have an insulin pump, then it is necessary to learn how to inject insulin correctly and calculate its necessary amount because it helps to avoid both hypoglycaemia and hyperglycaemia. The respondents also emphasised that proper consumption of food also helps them to manage their disease better – *“Hm, I think that healthy nutrition helps a lot... I can't eat sweets... I eat everything sugar-free, although I really want it sometimes... Especially, during birthdays of my friends and mine... But when sugar level drops, I may eat a candy...”* (B), *“I eat vegetables... and certain porridges... In fact, my mother helps me... She observes what I should eat and what I should not... But I know that food is important...”* (D). The scientists (Thomson et al., 2019) note that proper and balanced nutrition helps a child with diabetes to feel good and it improves his/her health condition; therefore, it is very important to adhere to the assigned diet. Children, who participated in the research, emphasised that management of acute conditions (hypoglycaemia and hyperglycaemia) had an impact on the disease management – *“I feel weak when blood sugar level is very low... Then I feel dizzy and sick... I would prefer not to experience it. Therefore, I'm trying to prevent it...”* (E), *“Sometimes, there are.... Such conditions... How should I call them? Mom, how should I call them? Hypoglycaemia and hyperglycaemia... Yes, those ones... They are very nasty; therefore, I put all my efforts to prevent them...”*. According to the foreign authors (Hendrieckx, Gonder – Frederick, Heller, Snoek, & Speigth, 2019) both parents and their children must receive medical and psychological help to prevent hypoglycaemia and hyperglycaemia conditions or, at least, to reduce their fear of them. The respondents indicated that self-knowledge, a timely recognition of changes in the bodily senses and immediate response to any changes are very important for the management of disease: *“You feel changes and reactions in your body... Eventually, you recognise those changes and know what to do”* (D), *“When I feel weak, I immediately take glucose tablets... That's how I manage it”* (C). Hence, awareness, self-knowledge, tracking of personal reactions and changes in the body enable children to manage hypoglycaemia and hyperglycaemia.

A child with diabetes has to develop self-reliance to live a complete and high quality life by taking care of oneself.

The scientists (Forlenza et al., 2019; Thomson et al., 2019; Hendrieckx et al., 2019) who analysed competences of children with diabetes to manage their disease, emphasised that injection of insulin, a balanced nutrition and management of acute conditions are the primary components for the management of diabetes.

Having concluded responses of research participants, we may see that children with diabetes distinguish the following four primary competences of disease management: the correct injection of insulin, proper consumption of food, a timely recognition of changes in the bodily senses and immediate response to

any changes, which enables respondents to manage hypoglycaemia and hyperglycaemia.

Conclusions

The purpose of the training programmes for children with diabetes, organised in such European countries as England, Ireland and Spain, is to provide the necessary health-related knowledge and skills, helping them to manage their disease.

There were two regulated training programmes in Lithuania: *Management of Diabetes – Training of People With Diabetes Mellitus*, organised between 2006 and 2007, as well as a continuing training programme – *Programme for the Management of Diabetes*, arranged between 2009 and 2011, which common goal was to achieve that people with diabetes would learn to manage their disease, receive the necessary health-related knowledge and skills, and strengthen the entire health system. During the training programmes it was observed that patients with diabetes mastered knowledge how to eat properly and how to take care of one's health status.

Based on the experience of children with diabetes, who participated in the research, it was found out that the following competences help them to manage their disease best: the correct injection of insulin, proper consumption of food, self-knowledge, a timely recognition of changes in the bodily senses and immediate response to any changes, which enables them to manage such acute conditions as hypoglycaemia and hyperglycaemia.

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NEEDS AND SOURCES OF INFORMATION ON DISEASE MANAGEMENT FOR PARENTS OF CHILDREN WITH DIABETES MELLITUS

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Abstract. *Type 1 diabetes mellitus in children alters the rhythm and daily routines of children and parents, as there appears a need to treat and control this disease. Parents need to learn how to optimally care for the health of their children: monitor levels of blood glucose, follow a diet plan, inject insulin and organize the child's schedule. Research object: needs and sources of information for parents of children with diabetes mellitus on the management of their child's disease. Research aim is to reveal the needs and sources of information on the disease and its management for parents of children with diabetes mellitus. Research tasks: 1) to identify the needs of parents of children with diabetes mellitus for information on the disease management; 2) to reveal how and in what ways parents search for information on the child's disease and its management. Research methods: theoretical – analysis, generalization and systematization of scientific literature; empirical – a semi-structured method of interview has been used for the collection of data; method of content analysis has been applied to the study of research data. There were 6 women of children with diabetes mellitus, who agreed to participate in the research. Participants of the research raise children who have diabetes mellitus up to 3 years after diagnosis; children's age ranges from 3 to 11 years old. All women had higher education. The empirical study revealed that mothers of children with diabetes mellitus require information on the child's disease and its control. Participants of the research mentioned that they try to obtain information from various sources: medical institutions, relatives, the Internet, social networks, etc.*

Keywords: *disease management, needs and sources of information. parents, type 1 diabetes.*

Introduction

Diabetes mellitus in children is a chronic disease that radically changes the life of the child and one's family (Schiaffini, Carducci, Cianfarani, Mauti, & Nicolais, 2019). It has been noted that type 1 diabetes is a disease when pancreas stops producing insulin; in a child insulin is usually stopped being produced because of a defect in the immune system, and the immune system begins to destroy the pancreas (International Diabetes Federation, 2019).

One of the main tendencies of diabetes mellitus in children is the complications of the disease that can occur immediately after the onset or sometime after the diagnosis (Coppola, Luzi, Montalcini, Giustina, & Gazzaruso, 2018; Weng, Zachariae, Christensen, Svensson, & Berg, 2019; Yilmaz et al., 2019). Not only does diabetes mellitus damage the endocrine system and various organs, but also causes failures in the organism (Žilinskienė, Šinkariova, & Perminas, 2007; Kadhim, Al-farari, & Mafer, 2019). When type 1 diabetes mellitus occurs in a child, one feels debilitated and apathetic; still, the Society for Paediatric Endocrinology (2017) emphasizes key symptoms that are characteristic at the onset of the disease: excessive thirst, increased urination, weight loss, increased appetite, drowsiness, lack of energy, loss of focus, vomiting and stomach pains, as well as impaired vision. Thus it is important that a child with diabetes mellitus and one's parents would receive necessary information about this disease, its symptoms and management, control, and possible complications.

Parents need to be well aware of diabetes mellitus in order to achieve the optimal health for their child and help one accept and control this disease (Povey & Clark – Carter, 2007; Prikken et al., 2019; Čergelytė – Podgrušienė & Gudžinskienė, 2019). K. Lange, P. Swift, E. Pankowska, T. Danne (2014) highlight that parents and children require health knowledge and skills: how to properly check blood glucose levels, how to properly inject insulin, what food products to choose, how to control the disease at home and at school, as well as learn to organize one's schedule. It is noted that parents of children with diabetes mellitus also require psychological preparation: parents' acceptance of the disease, coping with stress and ability to adapt to changes; thus, it is important to develop the child's sense of responsibility and skills of self-control (Phelan et al., 2018; Schiaffini, Carducci, Cianfarani, & Mauti, 2019; Law, Fisher, Eccleston, & Palermo, 2019).

Research object: needs and sources of information for parents of children with diabetes mellitus on the management of the child's disease.

Research aim is to reveal the needs for information on the management of diabetes and sources of information on this disease and its management for parents of children with this diabetes mellitus.

Research tasks:

1. To identify the needs of parents of children with diabetes mellitus for information on the disease management;
2. To reveal how and in what ways parents search for information on the child's disease and its management.

Research methods: theoretical – analysis, comparison, generalization and systematization of scientific literature and documents; empirical – a semi-structured method of interview has been used for the collection of data; method of content analysis has been applied to the study of research data.

Research questions:

1. What health knowledge and skills were necessary at the onset of the disease?
2. What health knowledge did they acquire?
3. What were the sources of information?

Research methodology

Research methods. Qualitative research was chosen for the study. According to Žydžiūnaitė & Sabaliauskas (2017), the purpose of a qualitative study is to research how parents of children with diabetes mellitus adapt to the their child's disease, what encourages them to acquire new knowledge and skills, and what are the main sources of information about the disease. In the study, the method of a semi-structured interview was used. The following article overviews problematic questions of the study: What health knowledge and skills were necessary at the onset of the disease? What health knowledge did they acquire? What were the sources of information? The obtained data were analysed by using the content analysis method. The qualitative content analysis was performed in the following sequence: the repeated reading of the content of transcribed interview texts, the distinction of meaningful elements in the text analysed, the grouping of the distinguished meaningful elements into categories and sub-categories, integration of the categories/sub-categories into the context of the phenomenon analysed and the description of their analysis (Žydžiūnaitė et al., 2017). P. Mayring (2000) points out that content analysis is a valid method that allows to draw specific conclusions based on the analysed text.

The sample of the research. A criteria-based sample was used in the study. The informants were chosen according to the following criteria: 1) parents of children with diabetes mellitus under 17 years of age; 2) parents of children with diabetes mellitus duration of up to 3 years. The study was conducted in the period of January – May of 2019 in primary schools. The interview lasted from 40 to 70 minutes. There were 6 mothers of children with diabetes mellitus who participated in the qualitative study. Participants of the research have children with diabetes mellitus up to 3 years after diagnosis, the age of children ranges from 3 to 13 years old. All women had higher education.

Ethics of the research. Personal permission of the informants to take part in the research was sought. The researchers obliged themselves to the research participants not to divulge the information related to the organisation and the informant. The principles of anonymity, volunteerism and benevolence were followed. Parents of children with diabetes mellitus were acquainted with the goal of the research, the interview questions, and the importance of a reasoned reflection on their experience. All participants of the research agreed for the

interview to be recorded. For confidentiality and anonymity reasons, Roman numerals – I, II, III, IV, V, VI were used to denote informants.

Analysis of research results

Needs of parents of children with diabetes mellitus for information on the disease management

Diabetes mellitus is a chronic disease that changes the life of a child and one's family, they have to give up daily habits and change them (Rawdon, Gallagher, Glacken, Swallow, & Lambert, 2019). When diabetes mellitus occurs in a child, parents experience a variety of feelings (fear, confusion, anxiety) and have to learn themselves, help the child acquire knowledge how to control and manage this disease (Van Gampelaere et al., 2018; Grossoehme et al., 2019). It should be noted that at the onset of diabetes, parents do not have necessary knowledge about this disease, do not know how to manage it and avoid complications.

In order to reveal the needs of parents of children with diabetes mellitus for information on the management of the disease, informants were asked: “What health knowledge and skills did/do you require?”.

According to the experiences of parents of children with diabetes mellitus, the following needs for information on the disease management were identified: general information on diabetes mellitus (kind of a disease, its consequences and treatment plan), information on how to manage and control the disease, how to avoid imminent complications, information on a healthy diet and injection of insulin (Figure 1).



Figure 1 Needs of parents of children with diabetes mellitus for information on the disease management

The analysis of the informants' responses revealed that at the onset of the disease parents of children with diabetes mellitus required general information on diabetes mellitus (what kind of a disease it is, its consequences and treatment plan – “...we had to know everything... everything... because you can't imagine what kind of a disease it is... nor how that sugar changes, what influences it, what insulin in general is, how much to inject... we didn't know anything...” (II), “...oh, we knew nothing at the beginning of the disease... what is diabetes? ... what happens next... we needed that information and much of it... different information...” (V). Study participants also emphasized that when their child was diagnosed with diabetes mellitus, they required information on how to manage and control the disease in order to avoid imminent complications – “... I absorb information as much as I can... I need information about how to manage the disease... how to control it, I need to pass information to my daughter... for her to understand in future what diabetes mellitus is... how to control it...” (VI), “...basically it is the control and management of the disease, as they determine how the child will live...” (I). Scientists (Rawdon et al., 2019) point out that the management of the disease is primarily the responsibility of parents, which is gradually passed on to the growing child; thus, it is very important to provide the parents with skills of the disease management at its onset.

Informants also stressed that at the onset of the disease they required information on the healthy diet – “...you had to know some things... about carbs... I just can't get to the bottom of them...” (IV), “I think that healthy diet... is the most important thing, as it's somewhat viscous...” (I). In addition, informants emphasized the need for information on insulin dosage: “I don't know how much insulin a child requires, as how much insulin is needed and how to calculate it is very important...” (VI), “mmm, maybe about the same determination of insulin... in terms of carbs and the like... if you eat food – carbs with fats... you should count differently...” (III). Scientists (Albanyan, Albanyan, Adel, & Zaiton, 2018) note that at the onset of the disease parents suffer from ignorance and lack of information (there is a lot they do not know and understand); thus, it is important to give trainings and provide necessary health knowledge and skills. At the onset of the disease, when the child is diagnosed with diabetes mellitus, parents must adapt to the disease and get accustomed to it. Therefore, it is very important to convey the necessary information in a targeted and clear manner: “At the very beginning, it is simply a chaos, when you don't understand anything...” (II). Information should be provided to parents of children with diabetes mellitus about the management and control of the disease.

Having summarized the responses of informants who participated in the research, it is possible to claim that parents, whose children were diagnosed with diabetes mellitus, required information about the disease and how to control it. The research revealed that parents were surrounded by obscurity, as they did not

know what kind of a disease diabetes mellitus is, how it can be treated, and how it would affect the child and one's life.

Sources of information on the disease management for parents of children with diabetes mellitus

Diabetes mellitus is a disease that requires a constant search for information on its treatment and control and a constant learning and renewal of existing knowledge (Bechara et al., 2018). Scientists (Lee & Dubovi, 2019) emphasize that parents of children with diabetes mellitus tend to search for information. In order to reveal sources of information for parents of children with diabetes mellitus on the disease management (where necessary information is acquired from), informants were asked: “Where did you get necessary information about the DM?”. Data analysis allowed to divide sources of information into 3 groups (Figure 2).

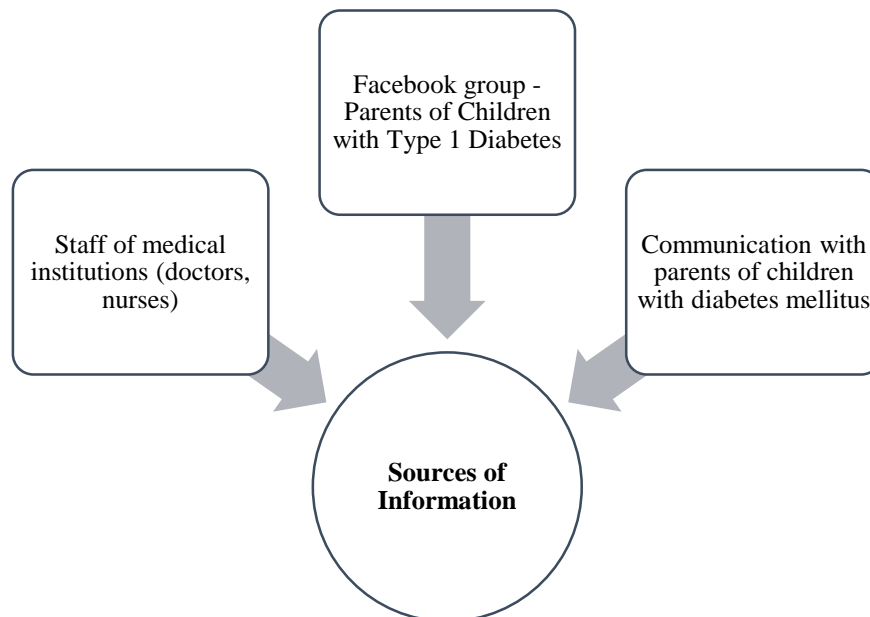


Figure 2 Sources of information on the disease management

Most of participants of the research mentioned that they received information about the disease management from the staff of medical institutions (doctors and nurses) – “...we were admitted to Kaunas hospital... we were there for 2 weeks... there were trainings what insulin does... so most of information we received from the nurse... and the doctor” (II), “...the hospital, the doctor were great... there was a lot of information, there were books and lessons... anyway, there was sufficient information... but you still need it...” (V), “...we receive much information from the doctor, as I have mentioned that we live in Germany...” (III). Researchers (Goethals et al., 2017) point out that medical staff should be

attentive to parents of children with diabetes mellitus, because the more information parents acquire, the better is the control of the disease. Other participants of the research mentioned that they searched for information in the Facebook group (“Vaikų su I tipo diabetu tėvai”, English: *Parents of Children with Type I diabetes*) – “...It’s really the Internet... all of those groups...” (I), “... first of all, it’s Facebook...ehm... Facebook groups, most of information is there...” (II), “... there is a group in Facebook, it’s like a family... if you have a question, you write there and you get an answer...” (IV), “Facebook, I didn’t have one, but because of the child’s disease, I have created an account because of that group, to get the information I needed...” (V). Participants of the research also stated that their main sources of information about the management of the disease are other parents of children with diabetes mellitus – “...parents, as we learned from them that there are pumps and they told us to put them as fast as we can in order not to torture the child...” (I), “... I talked to my friends and she recommended a woman, whose child has diabetes mellitus for 7 years, so I talked to her...” (III), “...parents, because you share experiences and learn a lot...” (VI). One of the key aspects of acquiring information is social support and social communication, when parents comfort and interact with other parents, who raise children with diabetes mellitus, so there is mutual learning (Boman, 2018). Information about the child’s disease and its management helps parents feel safer and more confident: “When you have information, you feel stronger and safer, you feel braver and don’t panic...” (V), not only does knowledge help parents to feel safer, but also enables them to reassure their children: “when I see that the child is worried, concerned, knowledge helps me encourage the child, give advice on the basis of advice I received from other parents” (II). Therefore, sufficient amount of information received from doctors, nurses, as well as cooperation and exchange of information with other parents, help both parents of children with diabetes mellitus and the children to live a qualitative life to the full.

Having summarized the experiences of the research informants, it can be seen that parents of children with diabetes mellitus receive information on the management of the disease from the staff of medical institutions (doctors, nurses), Facebook group (Parents of Children with Type 1 Diabetes) and share experiences with other parents of children with the same disease. The research revealed that parents willingly search for information on the child’s disease from a variety of sources, because they want to learn as much as possible about the child’s disease and want to learn to control it and ensure the quality of life of their children.

Conclusions

Parents of children with diabetes mellitus, who participated in the research, emphasized that at the onset of the disease, when they became aware of the child’s

disease, they lacked information on diabetes mellitus, its control, healthy diet and use of insulin.

The research revealed that parents of children with diabetes mellitus receive information on the management of the disease from the staff of medical institutions (doctors, nurses), Facebook group – Parents of Children with Type 1 Diabetes, and share experiences with other parents of children with the same disease. Parents want to have as much knowledge and skills as possible about how to properly manage the disease, in order to maintain the child's optimal health and ensure one's quality of life.

Limitations

The research is, first of all, limited to subjectivity; it does not seek to present objective truth, but to reveal subjective experiences of research participants that are expected to universally reflect the experiences of other parents of children with diabetes mellitus. The participation of mothers only, without fathers (men), can be also seen as a limitation, as the research reflects the experiences of mothers, their insights and feelings. It may follow that the experiences of the participants do not reveal the experiences of a family that consists of two parents. Another limitation of the research is defined in the sample of participants: experiences of participants may reflect only that of parents, whose children were diagnosed not more than three years ago (that was the benchmark – not earlier, not more than three years ago for the parents to remember the adaptive period). The results of the research may reflect the experiences of parents, whose children were affected by diabetes mellitus earlier, but do not seek to develop the aim by comparing the availability of sources by information technologies and recognize it as a limitation. Due to the chosen methodology (research data saturation principle) the size of the sample is quite small (6 participants) and accordingly, the depth of experiences and reoccurrence seek universal insights, possibly reflecting the experiences of other parents living in the same area (Lithuania), during the same period of time and raising children with diabetes mellitus.

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DARBA DZĪVES KVALITĀTE UN TĀS SAISTĪBA AR SUBJEKTĪVO NOGURUMU LATGALES REĢIONA STACIONĀROS STRĀDĀJOŠĀM MĀSĀM

*Relationship between Work Life Quality and Subjective Fatigue
among Nurses Employed in Latgale Region Hospitals*

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Abstract. *Quality of health care, safe working environments, sufficient care staff and adequate remuneration in our rapidly changing world are one of the biggest health care challenges. Quality of working life is a reciprocal process between hospital management and nurses in order to simultaneously improve the staff's holistic well - being, working conditions and the effectiveness of hospital work and care. The impact of internal and external factors in the quality of working life can be directly or indirectly related to subjective fatigue for working nurses. The aim of the study is to find out the connection between the quality of working life of nurses working in Latgale region and subjective fatigue. 219 nurses in the Latgale region participated in the study. There were used two research tools: Job quality assessment questionnaire and Individual strength/fatigue questionnaire. In the study descriptive statistical method is used. Using the non-parametric method and the correlation of Spirmen's rank, the relationship between quality of work and subjective fatigue of nurses is determined. The study concluded that there is a link between quality of work life and subjective fatigue ($r = -0.375$; $p < 0.001$). The result is theoretically and practically applicable in the hospital to improve the quality of work life for nurses.*

Keywords: *care, nurse, quality of work, subjective fatigue.*

Ievads ***Introduction***

Viens no Latvijas veselības aprūpes nozares svarīgākajiem jautājumiem ir cilvēkresursi. Tas iezīmējas ar veselības aprūpes nepilnībām, personāla novecošanu, lielu darba slodzi, zemu atalgojumu, jauno speciālistu aizbraukšanu no valsts, vai pārkvalificēšanos citās specialitātēs.

Nodaļas specifika, darba intensitāte, darba stundas, un daudzi citi faktori var tieši vai netieši izraisīt nogurumu un ietekmēt aprūpes kvalitāti, kā arī ietekmēt gan pacientu, gan personāla drošību. Māsām ikdienas dzīves realitāte ir nogurums (Dorrian, Lamond, & Dawson, 2000).

Pēdējo desmitgadu laikā stacionāros strādājošām māsām ir palielinājusies aprūpes darba intensitāte, mainījies aprūpes modelis, palielinājusies darba slodze, stress, bet savukārt minimāls sociālais atbalsts un finansiālais atbalsts ir palicis iepriekšējā līmenī.

Veiktie pētījumi pierāda, ka pastāv cieša saistība starp labu vadību un darba organizāciju no administrācijas puses un māsu apmierinātību ar darbu, zemiem izdegšanas rādītājiem un mazāku māsu kadru mainību (Cox, Teasley, Lacey, Carroll, & Sexton, 2007; Hanrahan et al., 2010).

Latvijā veiktie pētījumu rezultāti liecina, ka vieni no māsu profesionālās dzīves svarīgāko psihosociālo aspektu ietekmējošie faktori ir darbam neadekvāts atalgojums un emocionāli intensīvs darbs ar cilvēkiem (Cirenis, 2013).

Pētījuma mērķis ir noskaidrot Latgales reģionā strādājošo māsu darba dzīves kvalitāti un tās saistību ar subjektīvo nogurumu. Mērķa sasniegšanai tika izmantota kvantitatīvās pētniecības metode - anketēšana, pielietojot divus instrumentus: Darba dzīves kvalitātes novērtēšanas aptauja (Quality of Nursing Worklife Survey, Brooks & Anderson, 2001) un Individuālā spēka/noguruma aptauja (Cheklist Individual Strength, Vercoulen, Swanink, Fennis, Galama, Van der Meer, & Bleijenbergh, 1994).

Literatūras apskats ***Literature Review***

Darba dzīves kvalitātes jēdziens mūsdienās iegūst arvien lielāku popularitāti, līdz ar to tiek vairāk runāts par darbībām, ar kurām organizācijā var nodrošināt darbinieku vispārēju, visaptverošu labklājību, nevis tikai koncentrēties uz veicamā darba aspektiem (Daubermann & Tonete, 2012).

Darba dzīves kvalitāte ir pētīta daudzās jomās – socioloģijā, psiholoģijā, izglītībā un veselības aprūpē. To definē kā profesijā strādājošas personas izjūtas saistībā ar savu darbu. Profesionālās dzīves kvalitāti ietekmē kā pozitīvie, tā negatīvie ar darbu saistītie aspekti (Stamm, 2010).

Kaut arī darba dzīves kvalitātei nav vienotas definīcijas, tomēr tiek uzskatīts, ka tā ietver perspektīvu hierarhiju, kas sevī apvieno ne tik vien tādus faktorus kā apmierinātību ar darbu, apmierinātību ar algām, attiecības ar darba kolēģiem, bet arī faktorus, kas kopumā atspoguļo apmierinātību ar dzīvi un vispārējo labsajūtu (Danna & Griffin, 1999). Darba dzīves kvalitāte tiek aprakstīta kā daudzdimensiju koncepcija, atzīmējot, ka tas ir veids kā saglabāt līdzsvaru starp cilvēkiem, darbu un organizāciju (Brooks & Anderson, 2005).

Šī koncepcija ietver tādus faktorus kā darbinieku sajūtas par darba saturu, fizisko darba vidi, darba samaksu, autonomiju darba vietā, dalību komandas darbā, līdzdalību lēmumu pieņemšanas procesā, garantētu darba drošību, komunikāciju, kolēģu un vadības atbalstu un darba dzīves balansu. Galvenais vadmotīvs kvalitatīvas veselības aprūpes sniegšanai ir kompetents, izdarīgs un motivēts darbinieks. Pievilcīgai darba videi un augstas kvalitātes darba dzīvei ir izšķirošana nozīme, lai organizācija piesaistītu un noturētu kvalificētus veselības aprūpes speciālistus. Darba dzīves kvalitāte būtiski atsaucas uz darbinieka apmierinātību ar darbu. Literatūrā tiek uzsvēta saistība starp darba ņēmēju un darba vidi (Raduan et al., 2013). Tiek minēti faktori, kas veicina neapmierinātību ar darba apstākļiem un darba dzīves kvalitāti māsām – slikta darba vide, agresija, darba slodze, nespēja nodrošināt vēlamu aprūpes kvalitāti, darba un ģimenes līdzsvars, neiesaistīšanās lēmumu pieņemšanā, atzīšanas trūkums, sliktas attiecības ar priekšniecību un kolēģiem u.t.t. (Ellis & Pompli, 2002). Citi pētnieki kā tipiskus darba dzīves kvalitātes rādītājus, nosauc: apmierinātību ar darbu, nodarbinātību, darba konfliktus, darba pārslodzi, darba stresu un organizatoriskos jautājumus (Baba & Jamal, 1991).

Māsu darbs veselības aprūpē ar katru gadu kļūsts sarežģītāks un grūtāks, tam par iemeslu ir gan, pacientu populācijas novecošana, gan pacientu hospitalizācijas ilgums, tas viss, veicina māsu darba slodzes palielināšanos. Turklāt, palielinoties gan darba laikam, gan darba slodzei, palielinās arī māsu subjektīvie simptomi, tostarp vispārējs nogurums un fiziskas sāpes. Nogurums ietver piecas subjektīvo simptomu grupas: miegainību, nestabilitāti, satraukumu, lokālas sāpes, redzes problēmas (Kagamiyama & Yano, 2018). Nogurums ir universāls simptoms, kas rodas ikdienas dzīvē. Tā definīcija attiecas uz subjektīviem un daudzdimensionāliem simptomiem, tostarp vitalitātes trūkumu un noguruma sajūtu (Aaronson et al., 1999). Nav vispārpieņemtas noguruma definīcijas, bet konceptuālie priekšstati uzsver atšķirību starp subjektīviem un objektīviem noguruma novērtējumiem. Izšķir divus noguruma izpausmes veidus – objektīvais un subjektīvais. Objektīvais nogurums ir nespēja turpināt darbu ar iepriekšējo intensitāti, pat ar vislielāko piespēšanos, subjektīvo nogurumu savukārt nosaka mūsu sajūtas – miegainība, diskomforta sajūta un nespēja koncentrēties. Abi noguruma veidi reti atbilst vien otram, bet tie spēj viens otru ietekmēt. Parasti tiek uzskatīts, ka objektīvais nogurums rada subjektīvo (Kluger, Krupp, & Enoka,

2013). Darba dzīves kvalitātes iekšējo (individuālie, sociālie, vides, administratīvie) un ārējo faktoru (veselības aprūpes politika, darba tirgus) ietekme var tieši vai netieši būt saistīta ar subjektīvo nogurumu strādājošām māsām. Novērojumi liecina, ka ilgstošs noguruma līmenis ir galvenais faktors, kas izraisa depresiju, darbinieku apmierinātības samazināšanos, sniegto pakalpojumu kvalitātes pasliktināšanos. Nogurums ir arī galvenais faktors, kas ietekmē medicīnisko kļūdu un nelaimes gadījumu skaitu darbā (Van Dijk & Swaen, 2003). Šie fakti norāda, cik būtiski rūpēties par darbinieku darba dzīves kvalitāti, fokusējoties uz tās būtiskajiem ietekmējošiem faktoriem un izstrādājot darbības plānu darba dzīves kvalitātes uzlabošanai.

Metodoloģija *Methodology*

Pētījumā piedalījās 219 praktizējošas māsas no trīs lielākajiem Latgales stacionāriem. Lai sasniegtu izvirzīto pētījuma mērķi, tika izmantota kvantitatīvā pētniecības metode, veicot respondentu anketēšanu ar divām aptaujām. Viena no tām bija Darba dzīves kvalitātes novērtēšanas anketa (Brooks' Quality of Nursing Worklife Survey, Brooks, & Anderson, 2001), ar kuras palīdzību tika novērtēts māsu darba dzīves kvalitātes līmenis. Šī instrumenta adaptāciju latviešu valodā veica pētniece S. Rituma 2017. gadā (Rituma, 2017). Darba dzīves kvalitāte tika novērtēta 4 apakšskalās: Darba dzīve/mājas, Darba dizains, Darba saturs un Darba dzīve. Subjektīvā noguruma noteikšanai tika izmantota Individuālā spēka/noguruma anketa (Checklist Individual Strength, Vercoulen, Swanink, Fennis, Galama, Van der Meer, & Bleijenbergh, 1994, kuras adaptāciju Latvijā veica K. Kacare (Kacare, 2015). Anketa ietver 20 apgalvojumus, kuri raksturo noguruma dažādas dimensijas – subjektīvā noguruma sajūta, koncentrēšanās, motivācija un fiziskās aktivitātes.

Anketēšana tika realizēta trīs Latgales lielākajos stacionāros, izdalot 294 aptaujas anketas, no kurām tika saņemtas atpakaļ un atzītas par derīgām 219 aptaujas anketas. Datu ievākšanas procedūra notika, ievērojot ētikas principus (saskaņā ar Helsinku deklarāciju), garantējot respondentiem anonimitāti un konfidencialitāti. Šim pētījumam tika saņemta RSU Ētikas komitejas atļauja. Iegūtie rezultāti tika apkopoti un analizēti izmantojot SPSS Statistics 22 versiju.

Pētījuma datu analīzei tika izmantota aprakstošās statistikas metode, aprēķināti centrālās tendences aritmētiskie rādītāji, variācijas rādītāji, korelācijas tika noteiktas, izmantojot Spīrmena korelācijas koeficientu.

Pētījuma rezultāti Research Results

Pētījumā piedalījās 219 praktizējošās māsas vecumā no 22 līdz 69 gadiem, vidējais vecums 45.05 (SD=10.33) gadi. Māsas ar dažāda līmeņa augstāko izglītību sastāda 60.3% no izlases, bet ar vidējo profesionālo 39.7%. Izlases lielāko daļu 43.4% veido māsas ar darba stāžu virs 26 gadiem.

Iegūtie Darba dzīves kvalitātes rādītāji (1.tab.) liecina, ka darba dzīves kopējā kvalitāte ir vidējā līmenī (M=175.05, SD=28.41). Savukārt apakšskalu rādītāji uzrāda vidēju līmeni Darba dzīve/ģimenes dzīve (M=25.97, SD=5.29) un Darba dizains (M=41.67, SD=6.82), kā arī augstu līmeni Darba saturs (M=87.82, SD=16.71) un Darba dzīve (M=23.28, SD=4.91).

1.tabula. Darba dzīves kvalitātes aprakstošās statistikas rādītāji
 Table 1 Descriptive Statistics Values of Quality of Nursing Worklife

Skala	Minimālā vērtība	Maksimālā vērtība	M	SD
Darba dzīves kvalitāte	46	228	175.05	28.41
Darba dzīve/ģimenes dzīve	8	38	25.97	5.29
Darba dizains	12	54	41.67	6.82
Darba saturs	20	120	87.82	16.71
Darba dzīve	7	36	23.28	4.91

n=219

Visi iegūtie Individuālā spēka/ noguruma aptaujas skalu un apakšskalu rezultāti liecina par vidēju noguruma līmeni (2.tab).

2.tabula. Subjektīvā noguruma aprakstošās statistikas rādītāji
 Table 2 Descriptive Statistics Values of Individual Strength/Fatigue

Skala	Minimālā vērtība	Maksimālā vērtība	M	SD
Individuālā spēka/noguruma skala	32	122	70.27	17.09
Subjektīvais nogurums	7	56	27.51	7.04
Koncentrēšanās	5	35	15.56	7.04
Motivācija	4	28	19.21	5.50
Fiziskās aktivitātes	2	21	8.00	4.39

n=219

Lai noteiktu sakarību starp darba dzīves kvalitāti un subjektīvo nogurumu, tika aprēķināti Spīrmena korelācijas koeficienti. Iegūtie rezultāti liecina, ka pastāv

statistiski nozīmīga negatīva korelācija starp abu skalu kopīgajiem rādītājiem un visiem Darba dzīves kvalitātes un Individuālā spēka/noguruma apakšskalu rādītājiem. Pieaugot Darba dzīves kvalitātes rādītājiem statistiski nozīmīgi samazinās gan Subjektīvā spēka/noguruma kopējais rādītājs ($r = -0.375$; $p < 0.001$), gan subjektīvā noguruma ($r = -0.314$; $p < 0.001$), gan koncentrēšanās ($r = -0.338$; $p < 0.001$), gan motivācijas ($r = -0.309$; $p < 0.001$), kā arī fizisko aktivitāšu rādītāji ($r = -0.364$; $p < 0.001$). Subjektīvā noguruma apakšskalas rādītāji statistiski nozīmīgi negatīvi korelē ar visām Darba dzīves kvalitātes apakšskalām, tomēr augstāki Spīrmena korelācijas koeficienta rādītāji ir ar Darba dzīve/ģimenes dzīve ($r = -0.213$; $p < 0.002$), Darba saturs ($r = -0.330$; $p < 0.001$) un kopējo Darba dzīves kvalitātes rādītāju ($r = -0.314$; $p < 0.001$).

Diskusija *Discussion*

Analizējot pētījumā iegūtos rezultātus par māsu darba dzīves kvalitāti un subjektīvo nogurumu tika noskaidrots, ka tadi darba dzīves aspekti kā darba saturs un darba dzīve māsū vidū tiek novērtēti ar augstu līmeni, savukārt līdzsvars starp darba un ģimenes dzīvi, kā arī darba dizains ar vidēju līmeni. Tas norāda uz to, ka lai veicinātu darba dzīves kvalitātes attīstību, ir nepieciešams pievērst lielāku uzmanību tieši šiem aspektiem. Vidējs darba dzīves kvalitātes līmenis tika noteikts arī citā pētījumā (Boonrod, 2009), māsū apmierinātības rādītāji bija augsti un darba dzīves kvalite pozitīvi korelēja ar darba organizāciju, darba raksturojumu un klimatu.

Labs darba dzīves kvalitātes līdzsvars ir tāds, kas motivē māsū labi veikt aprūpes procesu, kā arī pilnvērtīgi pavadīt laiku kopā ar ģimeni. Būtiski, ka slimnīcas vadības darba organizācijas virzība ir vērsta uz darbinieku motivāciju, darba apstākļu uzlabošanu un stresa līmeņa samazināšanu. Stress darbā ir viens no svarīgākajiem faktoriem, kas samazina organizāciju produktivitāti un būtiski ietekmē māsū fizisko un garīgo līdzsvaru. Pētījuma rezultāti, kurā piedalījās 200 māsas, norādīja uz darba dzīves kvalitātes saistību ar ģimenes stāvokli un negatīvu korelāciju ar darba stresu un darba stundu ilgumu nedēļā (Khaghanizadeh, Ebadi, Cirati, & Rahmani, 2008).

Pētījumā iegūtie dati liecina par vidēju noguruma līmeni, tas attiecas gan uz subjektīvo noguruma sajūtu, gan koncentrēšanos, motivāciju un fiziskajām aktivitātēm. Fiziskais un psiholoģiskais slogs, kas bieži ir māsū darba ikdiena izraisa hronisku nogurumu. Novērojumi liecina, ka ilgstošs noguruma līmenis ir galvenais faktors, kas izraisa depresiju, darbinieku apmierinātības samazināšanos, sniegto pakalpojumu kvalitātes pasliktināšanos. Nogurums ir arī galvenais faktors, kas ietekmē medicīnisko kļūdu un nelaiemes gadījumu skaitu darbā (Dijk & Swaen, 2003).

Veselības aprūpes resursu saglabāšanai ir vajadzīgas ar savu darba dzīves kvalitāti apmierinātas māsas. Subjektīvais nogurums, pēc pētījuma rezultātiem, negatīvi ietekmē māsas gan fiziski, gan garīgi, tas var būt kā nogurums, kurš noved līdz pilnīgam spēku izsīkumam, radot stāvokli, kas traucē māsām nodrošināt kvalitatīvu pacientu aprūpi. Veicot darba dzīves kvalitātes un to tiekmējošo faktoru izvērtējumu, var iegūt nozīmīgu informāciju veselības aprūpes kvalitātes un darba organizācijas efektivitātes paaugstināšanai.

Summary

The aim of the study was to find out the connection between the quality of work life of nurses working in Latgale region and subjective fatigue. In order to achieve the aim of the study, quantitative research methods were used applying two research instruments - Job Quality Assessment Questionnaire (Brooks' Quality of Nursing Worklife Survey, Brooks & Anderson, 2001) and Individual strength/fatigue questionnaire (Cheklist Individual Strength, Vercoulen, Swanink, Fennis, Galama, Van der Meer, & Bleijenbergh, 1994).

The study sample consists of 219 nurses from health care institutions in Latgale region of Latvia in the age range from 22 to 69 years, the average age in the sample was 45.05 (SD=10.33) years. The prevailing work experience in the sample are more than 26 years. Descriptive statistics indicators indicate that the mean values quality of nursing worklife are average for two subscales – work life/home life (this dimension is defined as interface between the nurses work and home life) M=25.97, SD=5.29 and work design (the composition of nursing work and describes the actual work nurses perform) M=41.67, SD=6.82. The following subscales have the highest values: work context (includes the practice settings which nurses work and explores the impact of the work environment on both nurse and patient systems) M=87.82, SD=16.71 and work world (the effects of broad societal influences and change on the practice of nursing) M=23.28, SD=4.91.

Assessment of the data regarding individual Strength/Fatigue indicates that the level of the all subscales (fatigue severity, concentration problems, reduced motivation, reduced activity) are average.

In order to find out relationship of quality of nursing worklife Spearman's correlation coefficients were calculated. The acquired data indicate that there are the statistically significant relationship among the quality of nursing worklife and fatigue severity ($r = -0.314$; $p < 0.001$), concentration problems ($r = -0.338$; $p < 0.001$), motivation ($r = -0.309$; $p < 0.001$) and reduced activity ($r = -0.364$; $p < 0.001$).

This research provides the data in understanding of the quality of nursing work life. Further research is needed to understand the work life concerns of nurses which will help to develop organizational productivity and quality of health care.

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MALNUTRĪCIJA GADOS VECO CILVĒKU VIDŪ UN TĀS SAISTĪBA AR TRAUKSMI UN DEPRESIJU

Malnutrition in Older Adults and Its Correlates with Anxiety and Depression

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Abstract. *Elderly research suggests inappropriate food intake as a one of the health issue. Malnutrition may have an undesirable effect on the health of the body. Elderly people are most at risk because they are often the result of loss of appetite, difficulties with daily shopping, meal preparation, somatic disorders and mental disorders such as depression. The purpose of the study was to investigate malnutrition among the elderly who are staying in social care institutions and to assess its association with anxiety and depression. The data from the study were obtained using the Universal Malnutrition Screening, Geriatric Alert Scale and the Geriatric Depression Scale as tools. Overall, 102 respondents from two social care institutions participated in the study. The majority were women 64.7% (35.3% were male). Respondents ranged in age from 65 to 91 years. There were 27.44% of participants with malnutrition risk and 45.10% with signs of anxiety. Depression symptoms were detected 60.78% of respondents. Within the research sample, a statistically significant relationship between malnutrition and depression was found ($r = 0.302$, $p < 0.01$). Prevention of malnutrition and the early detection of depression among seniors will contribute to the improvement of the quality of their life and quality of health care.*

Keywords: *ageing, anxiety, depression, malnutrition, senior, undernutrition.*

Ievads

Introduction

Mūsdienās vecāka gadagājuma cilvēku skaits strauji pieaug visā pasaulē un tieši šī vecumposma cilvēku vidū veiktie pētījumi liecina par neatbilstošu pārtikas uzņemšanu kā galveno veselības problēmu (Dale et al., 2015). Sabalansēts un

cilvēka veselības stāvoklim atbilstošs uzturs ir labas veselības pamats, savukārt malnutrīcija ir riska faktors daudzām slimībām. Malnutrīcija izriet no neadekvātas (pārāk zemas, pārāk augstas vai nepareizas) uzturvielu uzņemšanas un ietver sevī dažādus klīniskos stāvokļus (nepietiekams uzturs, vitamīnu un minerālvielu trūkums vai aptaukošanās). Tas var būt saistīts ar ilgstošu uzturēšanos slimnīcā, biežām, atkārtotām hospitalizācijām, infekciju slimību biežuma un smaguma palielināšanos, sliktu brūču dzīšanu, pārvietošanas traucējumiem, kritieniem un lūzumiem (Demir et al., 2015). Visbiežāk malnutrīciju izraisa nepietiekama uzturvielu uzņemšana, pārtikas trūkums, ēstgribas zudums vai psiholoģiskas pārmaiņas (Dale & Söderhamn, 2015).

Pētījuma mērķis bija izpētīt malnutrīciju gados veco cilvēku vidū, kas uzturas sociālās aprūpes iestādēs, un izvērtēt tās saistību ar trauksmi un depresiju. Šī mērķa sasniegšanai tika izmantota kvantitatīvā pētniecības metode ar vairākām aptaujām: malnutrīcijas skrīninga (Universālā mālnutrīcijas skrīninga aptauja, British Association for Parenteral and Enteral Nutrition, 2011), trauksmes novērtēšanas skala (Geriatrījas trauksmes skala, Daniel L., Segal, 2007) un depresijas (Geriatrījas depresijas skala, Sherry A., Greenberg, 1982) novērtēšanas skala.

Literatūras apskats *Literature Review*

Malnutrīciju definē kā uztura stāvokli, kurā enerģijas, olbaltumvielu un citu barības vielu trūkums ietekme cilvēka ķermeņa formu, uzbūvi un funkcijas un var izraisīt klīnisku saslimšanu (Vafaei et al., 2013). Izteikta malnutrīcija ir novērojama klīniski, bet mazāk izteiktas malnutrīcijas formas ir grūti pamanāmas. Ārpus stacionāra, hronisku proteīnu un enerģijas deficītu raksturošanai izmanto metodes (piemēram, KMI, svara zudums %), kuras ir vienkāršas un reizē ir labi malnutrīcijas indikatori (Gündüz et al., 2015).

Malnutrīcija var rasties tādu iemeslu dēļ, kā uztura nepilnības, košļāšanas un rīšanas traucējumi, kuņģa-zarnu trakta vai endokrīnās sistēmas traucējumi, garšas vai smaržas zudums, apetītes samazināšanās, dažādu zāļu lietošanas dēļ, kustību traucējumu, sociālas izolācijas, iekaisumu slimību, hronisku slimību, alkoholisma, ļaundabīgu audzēju un kognitīvu traucējumu dēļ, īpaši depresijas (Vafaei et al., 2013). Veikto pētījumu rezultāti parāda, ka vecāka gadagājuma cilvēku vidū nepietiekama uztura stāvokļa cēlonis ir nepietiekama uzturvielu uzņemšana, kuras visbiežākie rašanās iemesli ir sociāldemogrāfiskie faktori (pārtikas trūkums vai citi dzīves apstākļi), ēstgribas zudums fizioloģisko pārmaiņu dēļ, kā arī psiholoģiskas pārmaiņas (Dale & Söderhamn, 2015; Moiras et al., 2013). Gados vecākiem cilvēkiem, kuriem ir dzīves apstākļu pārmaiņas, piemēram, partnera zaudējums, var samazināties viņu uzņemto uzturvielu

daudzums depresijas vai ikdienas darbību plānošanas grūtību dēļ, tādējādi palielinās uztura nepietiekamības risks. Finanšu trūkums, pārtikas uzglabāšanas iekārtu trūkums, pārtikas veikalu nepieejamība un ēdienu gatavošanas iespēju samazināšanās tiek uzskatīti par noteicošajiem faktoriem pārtikas izvēlei un uztura uzņemšanai gados vecu cilvēku vidū (Moiras et al., 2013). Pētījumu rezultāti par fizioloģisko pārmaiņu nozīmi malnutrīcijas attīstībā parāda, ka pieaugot vecumam, samazinās garšas un smaržas uztvere, ko novēro līdz pat 60% personām vecumā virs 65 gadiem. Viena, vai kopā ar garšas zudumu, ožas disfunkcija tiek uzskatīta par vienu no malnutrīcijas attīstības riska faktoriem (Smoliner et al., 2013). Citos pētījumos kā malnutrīcijas riski tiek minētas košļāšanas grūtības, kuru dēļ tiek ietekmēta vecāka gadagājuma cilvēku ēdienu izvēle, kā arī rīšanas funkciju samazināšanās (Kim & Joo, 2015; Moiras et al., 2013).

Tāpat kā malnutrīcija, arī depresija ir bieži sastopama geriatrijā. Tā ir šīs grupas mirstības un saslimstības veicinošais faktors. Ķermenim un garīgajam stāvoklim ir nozīmīga saistība. Attīstoties garīgās elastības trūkumam, var attīstīties funkcionālie ierobežojumi, anoreksija, svara zudums un malnutrīcija (Vafaei et al., 2013). Augstāks malnutrīcijas risks ir saistīts ar zemāku pašefektivitāti, grūtībām ēdienu gatavošanā un depresiju gados vecāku cilvēku vidū (Moiras et al., 2013). Francijā veiktajā pētījumā par veco cilvēku uztura stāvokli tika noskaidrots, ka malnutrīcija vairāk raksturīga sievietēm, to ietekmē tādi faktori kā atraitņa statuss, zems izglītības līmenis, zemi ienākumi, ĶMI, demence, depresijas simptomi, autonomijas zudums un vairāk kā 3 medikamentu lietošana (Torres et al., 2014).

Trauksme ir plašāk izplatīta par depresiju gados vecākiem cilvēkiem un tās izplatības rādītāji svārstās no 3% līdz 14% . Gados vecu cilvēku vidū, kas uzturas ārstniecības iestādēs, šis rādītājs ir lielāks, sākot no 15% līdz 56%. Trauksme ir saistīta ar daudzām problēmām, tostarp samazinātu fizisko aktivitāti, sliktu veselības uztveri, samazinātu apmierinātību ar dzīvi, vientulību un sliktāku, ar veselību saistītu, dzīves kvalitāti (Segal et al., 2010). Pieaugot gados vecāku pieaugušo skaitam iedzīvotāju vidū, trauksme kļūst par plaši izplatītu problēmu vēlinā dzīves laikā (Balsamo et al., 2018). Vēlinā dzīves trauksme ir nozīmīgs sabiedrības veselības slogs. Epidemioloģiskie dati liecina par to, ka aptuveni vienam no desmit gados veciem cilvēkiem ir trauksme, kas var izraisīt ilgstošas ciešanas. Vēlās dzīves trauksme ir saistīta ar samazinātu labsajūtu un var veicināt nevarību, mirstību un depresiju (Thomas et al., 2017).

Garīgās veselības traucējumi ir cieši saistīti ar malnutrīciju un tās rašanās riskiem starp sabiedrībā dzīvojošiem vecākā gadagājuma vīriešiem un sievietēm. Novērtējot gados vecus cilvēkus, kuriem ir malnutrīcija, vai tās risks, ir obligāti jāizvērtē arī garīgās veselības rādītāji (Kvamme et al., 2011).

Metodoloģija *Methodology*

Pētījuma izlasi veido sociālās aprūpes iestādēs dzīvojošie gados veci cilvēki, kuru vecums ir virs 65 gadiem, kopumā 102 respondenti.

Pētniecības mērķa sasniegšanai tika izmantoti vairāki pētniecības instrumenti. Trauksmes līmenis tika noteikts ar Geriatrijas Trauksmes skalu (Geriatric Anxiety Scale, GAS, Segal, 2014). Šis instruments ir veidots no 30 jautājumiem un satur 3 apakšskalas: „Kognitīvā” (nosaka trauksmes kognitīvos simptomus), „Somatiskā” (nosaka trauksmes somatiskos simptomus) un „Afektīvā” (nosaka trauksmes afektīvos simptomus) apakšskalas. Individīdiem tiek lūgts norādīt cik bieži pēdējo nedēļu laikā viņi ir piedzīvojuši katru simptomu, atbildot uz 4 punktu Likerta skalas atbilžu variantiem no "Nemaz" (0) līdz "Visu laiku" (3).

Skalas 5 jautājumi ļauj novērtēt sekojošas trauksmes jomas - bažas par finansēm, veselību, saviem bērniem, bailēm no nāves un bailēm kļūt par apgrūtinājumu savas ģimenes locekļiem. Šie punkti nav daļa no GAS kopvērtējuma, bet tos var izmantot, lai palīdzētu ārstniecības personām noteikt pacientu konkrētas trauksmes jomas.

Respondentu depresijas līmenis tika noteikts ar Geriatrijas Depresijas skalu (Geriatric Depression Scale, GDS, Greenberg, 2010). Depresijas skala iekļauj 30 jautājumus ar atbilžu variantiem “Jā” vai “Nē” un tās līmeni nosaka kopējais iegūto punktu skaits – depresijas nav (0-9), zems depresijas līmenis, jeb viegla depresija (10-19), augsts depresijas līmenis, jeb smaga depresija (20-30).

Malnutrīcija tika noteikta izmantojot Universālo Malnutrīcijas Skrīninga instrumentu (Malnutrition Universal Screening Tool, British Association for Parenteral and Enteral Nutrition (BAPEN), 2011). Izvērtējot iegūto punktu skaitu, var noteikt vai malnutrīcijas nav, pastāv tās risks, ir malnutrīcija.

Pētījums tika veikts Rīgas pilsētas sociālās aprūpes iestādēs, kuras ir ilgstošas sociālās aprūpes un sociālās rehabilitācijas institūcijas, kas nodrošina mājokli, sociālo aprūpi un sociālo rehabilitāciju pensijas vecuma personām un pilngadīgām personām ar invaliditāti. Datu ievākšanas procedūra notika, ievērojot ētikas principus (saskaņā ar Helsinku deklarāciju), garantējot respondentiem anonimitāti un konfidencialitāti. Šim pētījumam tika saņemta RSU Ētikas komitejas atļauja. Iegūtie rezultāti tika apkopoti un analizēti izmantojot Microsoft Excel un SPSS programmas.

Pētījuma datu analīzei tika izmantota aprakstošās statistikas metode, aprēķināti centrālās tendences aritmētiskie rādītāji, korelācijas tika noteiktas, izmantojot Spīrmena korelācijas koeficientu.

Pētījuma rezultāti **Research Results**

Izlasses lielāko daļu veidoja sievietes 64.7%, vīrieši sastādīja 35.3% no izlasses kopēja skaita. Respondentu vecuma diapazons bija no 65 līdz 91 gadam, un vidējais respondentu vecums bija 74.5 gadi (SD =8.3). Pētījumā iegūtie dati par malnutrīciju liecina, ka malnutrīcija ir (13.7%) un tās risks pastāv 27.44% izlasses respondentiem.

Rumānijā veiktajā pētījumā par malnutrīcijas izplatību gados vecu cilvēku vidū, kas uzturas sociālas aprūpes iestādēs, kurā piedalījās 156 respondenti, rezultātos parādās, ka 6.4% pacientiem tika konstatēta malnutrīcija (Mihalache et al., 2015). Francijā veiktā pētījuma mērķis bija aprakstīt uztura stāvokli gados vecākiem cilvēkiem, kas dzīvo mājās valsts pilsētas un lauku apvidos. Lauku apvidū malnutrīcija tika noteikta 7.4%, bet pilsētās 18.5%. (Torres et al., 2014).

Iegūtie trauksmes rādītāji norāda, ka gandrīz pusei respondentu 45.1% novēro dažādu līmeņu trauksmi (31.4% viegla trauksme, 7.8% mērena un 5.9% izteikta trauksme). Trauksmes izplatības rādītāji gados vecu cilvēku vidū ir 1.2% -15% sabiedrībā un 1% - 28% gados vecu cilvēku vidū, kas atrodas ārstniecības iestādēs (Balsamo et al., 2018).

ASV veiktajā pētījumā par trauksmi gados vecu cilvēku vidū, kurā piedalījās 378 respondenti, 27% bija noteikta klīniski nozīmīga līmeņa trauksme (Richardson et al., 2011). Savukārt citā ASV veiktajā pētījumā, kurā tika iekļauti 626 respondenti, trauksme tika noteikta 28% respondentu, kas bija gados veci cilvēki (Thomas et al., 2017).

Pētījumā somatiskās, kognitīvās un afektīvās apakšskalu rādītāji liecina, ka lielākai daļai respondentu 52.9% pastāv trauksmes somatiskie simptomi. Mērena un izteikta somatiskā trauksme tiek novērota 23.5% respondentu, bet viegla – 29.4%. Tas norāda uz to, ka respondentiem trauksme izpaužas ar fiziskiem simptomiem, tādiem kā sirdsklauves vai palēnināta sirdzdarbība, dažāda veida sāpes, slikta dūša, enerģijas trūkums, apetītes traucējumi, miega traucējumi, ķermeņa masas izmaiņas u.c. Kognitīvas apakšskalas rezultāti parāda, ka mazāk nekā pusei 43.1% no respondentiem ir sastopami trauksmes kognitīvie simptomi - 33.3% respondentiem tika noteikts viegls trauksmes kognitīvo simptomu līmenis un 9.8% augsts. Trauksmes afektīvie simptomi tika novēroti mazāk nekā pusei respondentu 35.28%, 19.6% respondentiem tika noteikts viegls trauksmes afektīvo simptomu līmenis, 7.84% mērens un 7.84% augsts. Tas nozīmē, ka šiem respondentiem trauksme izpaužas ar skumjām, tukšuma sajūtu, bezcerīgumu, iracionālo vainas sajūtu, intereses zudumu par aktivitātēm, nespēju koncentrēties, motivācijas trūkumu u.c. Iegūtie rezultāti par respondentu trauksmes jomām norāda, ka sava veselība uztrauc lielāko daļu 86.25% respondentu. Uztraukums par

bērniem arī ir aktuāls lielākai daļai respondentu (72.58%). Trešais nozīmīgākais trauksmes iemesls ir finanses, par kurām uztraucas 56.95% respondentu.

Depresijas pazīmes tika noteiktas 60.78%. Lielākai respondentu daļai (50.98%) tika noteiktas vieglas depresijas pazīmes un 9.8% smagas depresijas pazīmes. Pētījumā iegūtie Spīrmena korelāciju koeficientu rādītāji parāda arī depresijas statistiski nozīmīgu saistību ar malnutrīciju ($r = 0.302$; $p < 0.01$). Pētījuma izlases ietvaros tika noteikta statistiski nozīmīga saistība starp depresiju un trauksmi ($r = 0.272$; $p < 0.01$), ciešāka tā ir ar trauksmes somatiskās skalas rādītājiem ($r = 0.289$; $p < 0.01$). Pētījumā netika atrastas statistiski nozīmīgas korelācijas starp malnutrīciju un trauksmi.

Secinājumi **Conclusion**

Malnutrīcija un tās riski ir izplatīta parādība gados vecu cilvēku vidū, kas uzturas sociālās aprūpes iestādēs. Šajā pētījumā malnutrīcija vai tās risks pastāv katram trešajam sociālās aprūpes iestādē esošajam vecākā gada gājuma (virs 65 gadiem) iemītniekam. Gandrīz pusei respondentu novēro dažādu līmeņu trauksmi, kura vairāk izpaužās ar somatiskiem simptomiem un tās nozīmīgākie iemesli ir veselība, bērni, finanses un bailes būt par agrūtinājumu saviem bērniem. Pētījuma nozīmīgākie dati ir saistīti ar depresijas izplatību respondentu vidū (60.78%), kurai ir statistiski nozīmīga saistība ar malnutrīciju un trauksmi. Iegūtie dati norāda uz nepieciešamību izvērtēt tos profesionāļu vidū un aktualizēt preventīvo pasākumu izstrādi, sniedzot pakalpojumus sociālās aprūpes iestādēs.

Summary

Aging induces physiological changes and affects all systems of organs. Mental health problems as depression and anxiety are among the most prevalent conditions in elderly people. Nutritional status and mental health deteriorate with aging. This study was performed to assess the association between malnutrition and mental health problems as depression and anxiety among elderly who are staying in social care institutions. One hundred and two elderly aged over 65 years were examined in the study by using several research instruments: the Universal Malnutrition Screening, Malnutrition Universal Screening Tool, British Association for Parenteral and Enteral Nutrition (BAPEN), 2011), Geriatric Alert Scale (Geriatric Anxiety Scale, GAS, Segal, 2014) and the Geriatric Depression Scale (Geriatric Depression Scale, GDS, Greenberg, 2010). Overall, 102 respondents from two social care institutions participated in the study. The majority were women 64.7% (35.3% were male). Respondents ranged in age from 65 to 91 years, the average age in the sample was 74.5 (SD =8.3) years. The acquired data indicate, that prevalence of malnutrition is 13.7% of respondents, 13.7% were at risk of malnutrition. The results of anxiety in the sample show that prevalence of anxiety is 45.1% (31.4% low anxiety, 7.8% mild anxiety and 5.9% severe anxiety). The obtained data of the anxiety subscales suggest, that there are a prevalence of somatic symptoms and more commonly areas of anxiety for older adults are concern about one's health, concern about children and fear

of becoming a burden to others. In order to find out relationship of malnutrition Sperman's correlation coefficients were calculated. The acquire data indicate that there is statistically significant relationship among the malnutrition and depression ($r = 0.302$; $p < 0.01$).

According to our study data, malnutrition and depression is common among elderly and may lead to deleterious effects on health and well-being. Further investigations are necessary to show the need for a multidisciplinary teamwork in the care of elderly in order to prevent the elderly's malnutrition or decrease its risk.

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PRE-SERVICE SPORT SPECIALISTS' PERCEPTIONS OF ACADEMIC INTEGRITY

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Abstract. *Academic integrity is fundamental value of pre-service sport specialists' professional competence developing, which promote public confidence in coaching and teaching as a process for professional and personal development. There is an ethical dissonance that the distribution of all dishonesty types was significantly higher than the perception of their legitimacy and that students conduct academic dishonesty despite its perception as unethical (Blau & Eshet-Alkalai, 2017). The research aim is to reveal the pre-service sport specialists' perceptions of academic integrity and to find out the ways for promotion of academic integrity. The methods: a theoretical analysis of scientific literature, an interpretative phenomenological semi-structured interview, open and axial coding. The research sample 135 pre-service sport specialist, voluntary participants, 47% – female, 53% – male. The main research results: academic integrity perception is important for the development of pre-service sport specialists' professional competence. Pre-service sport specialists' main opinion about benefit of being academically dishonest is time saving and personal gain. The main causes of academic dishonesty are laziness, lack of knowledge and competence, searching for an easy way.*

Keywords: *academic integrity, pre-service sport specialists.*

Introduction

Education and research are important values in modern society. Higher education is essential for the growth and development of the country's economy worldwide. Therefore, students, lecturers, higher education institutions and society as a whole are promoting academic integrity. It is very important to respond consistently to student plagiarism in any higher education institution, as the purpose of studies is to preserve the values of integrity and justice and to maintain academic integrity (Maio et al., 2019). Higher education institutions across Europe are responding in different ways to the challenge of plagiarism among students in the internet age (Glendinning, 2014).

Manifestations of academic dishonesty point to a lack of positive effort and indicate the need for penalties (Bieliauskaitė, 2014). Studies show that plagiarism and academic dishonesty in higher education institutions in Europe is considered

to be problematic. Research confirm that academic integrity policy and systems to ensure academic integrity are poorly defined in higher education institutions in many parts of Europe (Glendinning, 2014).

The most important task of education is to develop the integrity of an individual by providing knowledge that enables one to assess the conformity or discrepancy of a person's will and behaviour to values recognized in the society. Integrity is the human conscience that reflects social ethics (Bieliauskaitė, 2014). Clear terminology of academic integrity has not been developed in Latvia (Upleja, 2012). The most important value of higher education institutions is academic integrity. A value-based approach to studies promotes the development of professional values of pre-service professionals, if it is provided by education processes and transparency (Bieliauskaitė, 2014). Lithuanian universities communicate the message on academic integrity from an educative perspective, but the Latvian universities follow principally a punitive approach (Anohina-Naumeca et al., 2018).

The major obstacles to the progress of academic integrity across the European Union are the lack of consensus on what causes plagiarism, differing academic standards, expectations of the teaching staff and educational priorities (Glendinning, 2014), as well as the shift of existing research towards student academic dishonesty rather than administrative aspects (Brown, 2015). Despite the research already performed on academic integrity issues, plagiarism among students still remains a concern, and further research is needed in this area. Only when we have a deeper understanding of a person who responds to academically dishonest behaviour can we know better how to consistently and effectively address student plagiarism (Maio et al., 2019).

That is why the research aim of this study is to reveal the pre-service sport specialists' perceptions of academic integrity and to find out the ways for promotion of academic integrity. In order to achieve the said aim, the following research methods will be used: a theoretical – analysis of scientific literature, an interpretative phenomenological semi-structured interview, open and axial coding.

Theoretical Framework

This subchapter will discuss the understanding of the essence of “academic integrity” and “perception of academic integrity” and its characteristic indicators.

Academic integrity is academic honesty (Macfarlane et al., 2014). The meaning of the term is very broad, including the ethical use of information and resources (Anohina-Naumeca et al., 2018), while recognizing the original source of information (Blau & Eshet-Alkalai, 2017). The International Center for Academic Integrity defines academic integrity as a commitment to five

fundamental values: honesty, trust, fairness, respect, and responsibility (Fishman, 2014). It embodies originality and creativity which underlies the academic culture (Adyasha & Duraipandian, 2016). Students, on the one hand, have very different views on the concept of academic integrity: honesty is synonymous with responsibility, the need for knowledge and learning, honesty is a moral category, a model of intellectual behaviour (Langa, 2013).

But on the other hand, there is also academic dishonesty as part of academically unethical behaviour: cheating, plagiarism, falsifying data or information, copying without reference to the original source, submitting work done by others, submitting something someone else has said, others' ideas or other original work material without reference to the original source, bribery, extortion, fraudulent agreements, impersonation, political interference, nepotism, favouritism, racketeering magazines and conferences (Bretag et al., 2019; Bachore, 2016; Glendinning, 2014; Correa, 2011). The main reasons why students cheat are lack of leadership support from institutions, inadequate remuneration for teaching staff, sympathy and laziness of teaching staff, difficulties in detecting and proving cheating, weak academic dishonesty prevention policy, procedures, sanctions, lack of support for disclosure and collection of evidence, non-detection of academic misdemeanours, teaching staff have not set a good example (Bretag et al., 2019; Bachore, 2016; Macfarlane et al., 2014, Correa, 2011; Wilkinson, 2009; Roberts, 2007; Miller et al., 2007). The use of technology per se does not significantly affect academic dishonesty (Blau & Eshet-Alkalai, 2017). Moreover, agreements on cheating are concluded because of dissatisfaction with the teaching and learning environment, the belief that there are "many opportunities to cheat" and speaking a language other than English at home (Bretag et al., 2019). Reasons related to asking for contract work were divided into five categories, which include: academic abilities, perseverance, personal problems, competing goals and self-discipline (Amigud & Lancaster, 2019). In a study conducted in Latvia in 2014, students mentioned three choices from the offered list of reasons for plagiarism: "They think they won't get caught", "It's easy to copy and paste from the internet" and "They don't want to learn anything but just pass the task" (Stabingis et al., 2014).

Most research concludes that students with lower abilities are more likely to admit to being involved in cheating, but there are findings that show that students with higher abilities also cheat (Miller et al., 2007). Almost 40 percent of all students occasionally give their notes to their friends to help with preparing their written tasks for assessment, and about 30 percent of students occasionally help their friends with writing their assignments for assessment, while 20 percent borrow friends' notes which they used to prepare their own assessment assignments. Almost a quarter of students reveal that they have worked together with others to complete assessment tasks that were supposed to be done

individually. Overall, the majority (80 percent) of all students felt that these collegial acts were not dishonesty or plagiarism (Roberts, 2007). Studies show that lecturers and students have a general lack of understanding of plagiarism and a wide range of values and attitudes on this issue (Pickard, 2006).

In many cases, existing academic integrity education programmes lack comprehensive information on values, potential integrity risks and shortcomings in assessment, as study programmes mainly focus on plagiarism, student responsibilities and references (Sefcik et al., 2020). In order to reduce cheating through the use of outsourcing agreements, it is necessary to support the development of such a teaching and learning environment that promotes strong interaction between students and teaching staff and an appropriate evaluation structure (Bretag et al., 2019).

The findings of the research clearly show that the academic integrity policy of the largest Latvian and Lithuanian public universities cannot fully satisfy the components of an exemplary academic integrity policy (Anohina-Naumeca et al., 2018). In order to implement changes in education institution policy, research is necessary to determine staff and student attitudes towards plagiarism and to develop a joint system, gathering evidence, raising awareness of these issues and raising a discussion on related pedagogical issues (Pikard, 2006). Such an approach could facilitate changes in the culture of an education institution. Therefore, this research is an opportunity to gain evidence by exploring the understanding of academic integrity of students in a higher education institution in order to promote the selection of optimal ways to promote academic integrity.

Methodology

In order to determine the pre-service sport specialists' perceptions of academic integrity and to find out the ways for promotion of academic integrity was used a theoretical analysis of scientific literature, an interpretative phenomenological semi-structured interview and open and axial coding. Research participants – 135 pre-service sport specialists (students), voluntary participants, 47% – female, 53% – male. Information was collected from Bachelor students. By using an interpretative phenomenological semi-structured e-interview (Smith et al., 2009), the pre-service sport specialists' perceptions of academic integrity were determined. The interpretative phenomenological semi-structured e-interview was conducted from the beginning of March 2019 until the end of November. The e-interview items were based on the following themes:

- understanding and awareness of academic integrity (Macfarlane, et al., 2014; Bieliauskaitė, 2014; Fishman, 2014; Glendinning, 2014; Langa, 2013);

- understanding of plagiarism and self-plagiarism (Amigud & Lancaster, 2019; Bretag et al., 2019; Bachore, 2016; Correa, 2011; Roberts, 2007; Miller et al., 2007);
- educators' role in promoting academic integrity (Sefcik et al., 2020; Bretag et al., 2019; Pikard, 2006).

Qualitative data processing – coding (open and axial (Strauss & Corbin, 1998)) and interpretation – was carried out with MAXQDA2020 programme. Statements about understanding of academic integrity of students in a higher education institution were coded in relation with the values, behaviour and conduct of students in all aspects of their practice (Macfarlane et al., 2014). Axial coding was carried out with the aim to construct linkages between data.

Research results

When responding to a question about what academic integrity (honesty) is in their opinion, students mostly describe it as an action (Fig. 1). Students believe that it is non-violation of moral norms (39.7%). Honesty manifests itself in behaviours, for example, “ability to do the job honestly”, “if the student and the educator are honest with each other and fulfil the given requirements on time”, “as well as honest assessment”, “use of references to materials used in their work”, “not falsifying data for implementation of research results”, “provision of true information on the research conducted, using well-established research methods”, “appropriate conduct in accordance with the norms and rules of conducting particular work”. However, 12.9% of students believe that academic integrity is one’s own work, for instance, “when one’s own work is done independently, without the mediation of others”, “one does their own independent works assigned in study courses, homework, reports, term papers, etc.”, “self-designed research work for which the student is given assessment”, “when the student analyses and studies materials on his/her own”. Meanwhile 21.6% of students said that they did not have an opinion on this issue.

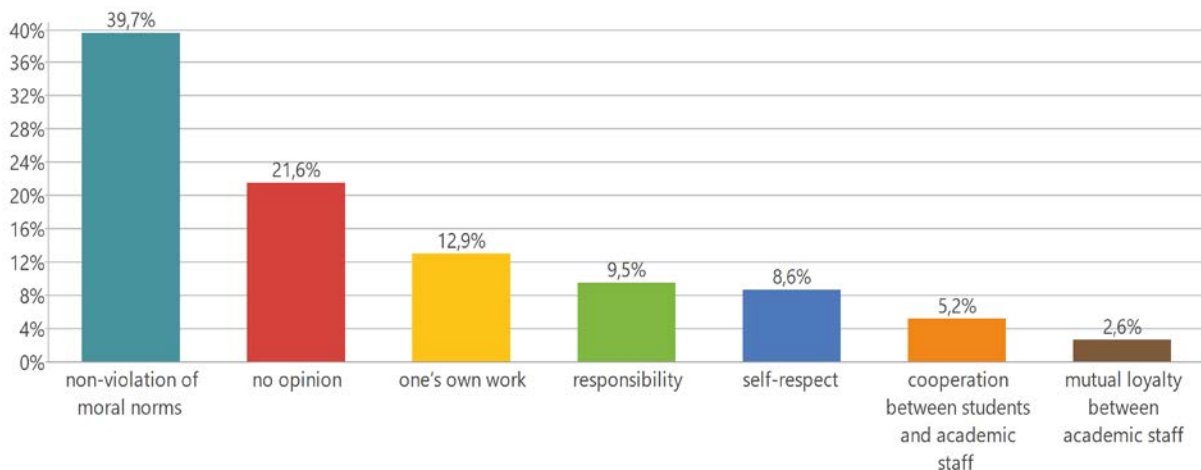


Figure 1 Students' Understanding of Academic Integrity (n=135)

However, 9.5% of students believe that academic integrity is responsibility, for example, “being responsible towards the work to be done”, “being responsible for one’s own studies – not submitting work done by others”, “being able to accept one’s own mistakes and answer questions in the best of one’s conscience, whatever the answer may be”, “not to plagiarize and be responsible for one’s own work”. Furthermore, 8.6% of students think that academic integrity is self-respect because it is “respect for oneself first”, “not lying to yourself”, “respect for one’s own work”, “being honest with oneself”, “acting honestly towards oneself”.

Cooperation between students and academic staff is seen as an expression of academic integrity by 5.2% of respondents, for example, “it is the cooperation between students and lecturers in both studies and research to ensure the study process, its quality and compliance with general and internal norms, as well as compliance with guidelines of developing an academic paper, etc.” Furthermore, 2.6% of students see academic integrity in the mutual loyalty between academic staff. Through axial coding, a linkage was determined between beliefs about non-violation of morally ethical norms and cooperation between students and lecturers and self-conducted work, as well as a linkage between the mutual loyalty between lecturers and self-respect.

When responding to a question about what they think plagiarism is (Fig. 2), students mention that it is dishonest conduct because it is theft of foreign information without reference to the source (55.5%), for instance, “using the thoughts of others without their consent”, “selfishly using the work of another author, claiming it as one’s own”, “copying a work”, “appropriation of someone’s work and its presentation as one’s own”, “plagiarism is the direct use of information (articles, research, papers) in one’s own work without using references in the mentioned text”, “stealing someone’s answer word by word for one’s own needs”, “stolen work without investing virtually no time of one’s own

in the creation/execution of the work”, “material one presents as their own but which in fact belongs to someone else”, “plagiarism is someone’s work used in one’s own work without indicating the name of the author of the original work”, “using another author’s opinion or results as one’s own without references”, “using some or all of another person’s work with similar content, naming it as one’s own”.

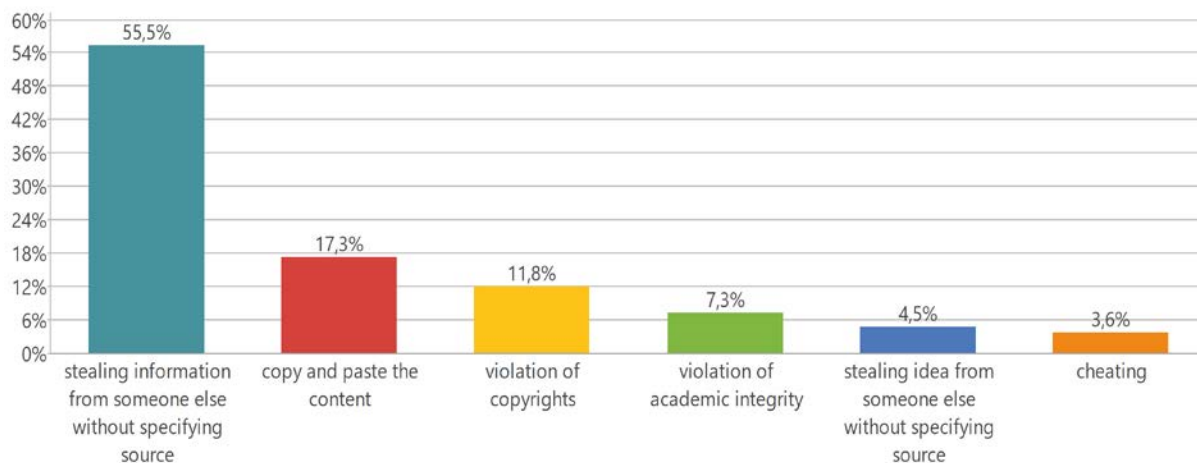


Figure 2 Students’ Understanding of Plagiarism (n=135)

Students also consider plagiarism to be the act of copy-pasting the content (17.3%), for example, “copying the work of others”, “when some information is copied”, “information copied from someone else’s work into one’s own work without reference to author’s opinion”, “copying someone else’s work and submitting it as one’s own”, “creating a paper by copying someone else’s work”, “identical papers”, “copied, not self-developed”, “plagiarism is work identical to that of another student”, “copied work or copied information from the internet”. Furthermore, 11.8% of pre-service sport specialists believe that plagiarism is a violation of copyrights, for instance, “counterfeiting, not one’s own work”, “personalization of someone else’s work”, “work done by another person which someone else assumes as their own”, “work which one has not done by themselves but claims that it is theirs”, “information used without reference to the author” “works used without copyright permission”. However, 7.3% of students consider plagiarism to be a violation of academic integrity because “academic honesty has been violated”, “severe academic violation”, “violation of rights”, “unfair fulfilment of work”, “work done unfairly”. Next, 4.5% of pre-service sport specialists describe plagiarism as stealing someone else’s ideas without reference to the source: “a person’s idea is taken without reference”, “it is someone else’s idea”, “it is theft of ideas”, “when a person steals another person’s idea”. Still, 3.6% of students think that plagiarism is cheating: “misleading work” or “work written off of someone else”.

When responding to a question about what they think self-plagiarism means (Fig. 3), students believed that it is dishonest behaviour. Respondents mostly consider self-plagiarism to be reusing any amount of one's own information or work (50%), for example, "multiple use of the same information", "when one's own already developed work is used in another work that is not developed yet without reference to this work", "use of one's own works in future works", "when one uses their own work in several projects, they are not creating a new work but several copies", "submitting the same paper in different study courses", "when the same information is taken from one's previous work for their next work". Furthermore, 17.3% of students consider self-plagiarism to be theft of one's own thoughts, for example, "when you give your work to others", "stealing of one's own thoughts", "when you copy from yourself", "slightly modified paper", "sale of one's own paper".

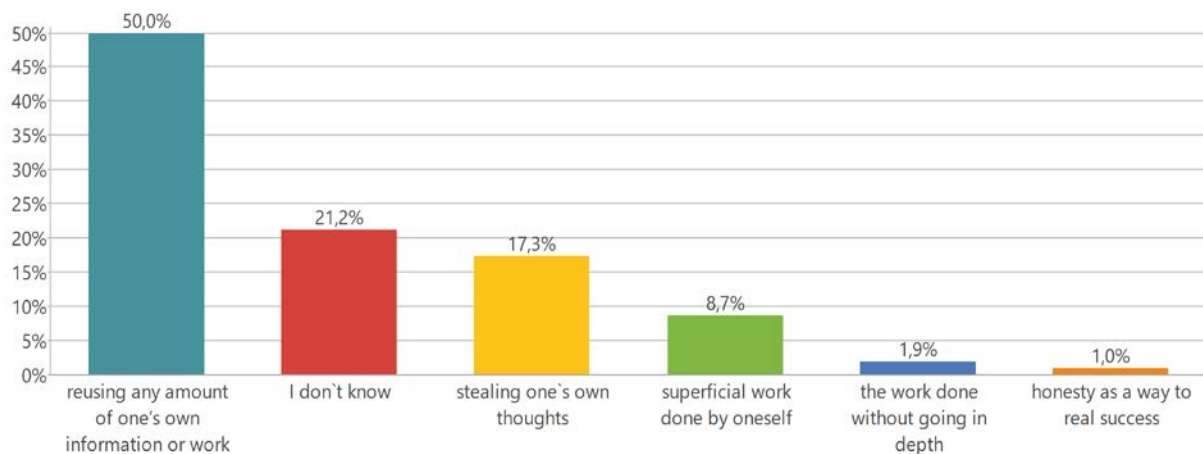


Figure 3 Students' Understanding of Self-Plagiarism (n=135)

However, 21.2% of students do not know what self-plagiarism is. Students describe self-plagiarism as plagiarism because they think that self-plagiarism is superficial work done by oneself (8.7%), for example, "the author of the papers does not use references", "mixing up information", "when I copy someone", "internet-based information which has been submitted as one's own thoughts and insights". Self-plagiarism is a work done without fully understanding its essence, at least 1.9% of respondents believe so, while 1% believe that it is an honest way to real success.

When describing the causes of academic dishonesty, students most often mention laziness (25%), lack of time (21.9%), lack of knowledge and competence (13.8%), searching for the easiest way (10%) and gaining personal benefit (7.5%). Causes of academic dishonesty also include frivolous attitude (4.4%), lack of conscience (4.4%), personal ambitions (3.1%), indifference from academic staff (2.5%) and lack of creativity (1.9 %). Those students who consider lack of

knowledge and competence to be the cause of academic dishonesty also cite lack of time. In turn, students who think that plagiarism is theft of someone else's information without references also mention gaining personal benefit as a reason for dishonest behaviour.

When describing the role of lecturers in academic dishonesty, students believe that lecturers should be responsible for academic integrity (19.6%), control information (14.3 %), explain how to refer to someone else's thoughts (8.9%), carefully look into students' works (5.4%), know the most popular sources of reference (1.8%), punish (3.6%) and motivate students to be themselves (0.9%). Academic dishonesty is facilitated by biased assessment (8%), indifference (8%) and personal gain (1,8%). Furthermore, 9.8% of students believe that lecturers cannot influence academic dishonesty, while 8.9% believe that they can and another 8.9% think that lecturers play a very important role.

Discussion

As with other studies on academic integrity (Macfarlane et al., 2014; Bieliauskaitė, 2014; Fishman, 2014; Glendinning, 2014; Langa, 2013), pre-service sport specialists who are currently studying also believe that academic integrity is honesty, which is manifested through non-violation of morally ethical norms, independent study work, responsibility, self-respect, cooperation between students and lecturers and mutual loyalty between lecturers. The conducted studies prove that students have a general lack of understanding of plagiarism and a wide range of values and attitudes on this issue (Pickard, 2006), and also in this study 21.2% of students do not know what self-plagiarism is, while 11.6% do not understand its essence.

People are willing to sacrifice their long-term well-being in favour of gaining benefits short-term, which also explains such behaviours as drug use, unsafe sex and risky driving. This may also apply to violations of academic integrity (Rettinger, 2007). In this study too, 7.5% of students see personal gain as a reason for academically dishonest behaviour. The main reasons found in this study are laziness, lack of time, lack of knowledge and competence, looking for an easy way and personal gain, but other studies found that reasons (Macfarlane et al., 2014; etc.) why students cheat are sympathy and laziness of teaching staff, weak academic dishonesty prevention policy, procedures, sanctions, teaching staff have not set a good example.

In order to help students understand the essence of academic integrity and to act academically honestly, students need help with internalizing the value of academic integrity through education, disciplinary measures, socially empowering corresponding behaviour, providing positive role models and ensuring a positive academic environment.

Conclusions

Currently studying pre-service sport specialists consider academic integrity to be honesty, which is manifested through non-violation of morally ethical norms, independent study work, responsibility, self-respect, cooperation between students and lecturers and mutual loyalty between lecturers.

Students understand plagiarism as stealing foreign information without reference to the source, copying content, copyright infringement, violation of academic integrity, stealing someone else's ideas without reference to the source and cheating. Self-plagiarism is described as a repeated use of one's own information or work on theft of one's own thoughts. 21.2% of students do not know what self-plagiarism is, while 11.6% do not understand its essence.

The main causes of academic dishonesty most often are laziness (25%), lack of time (21.9%), lack of knowledge and competence (13.8%), searching for an easy way (10%) and personal gain (7.5%). Students believe that lecturers play a very important role and can influence academic dishonesty. The lecturer should be responsible for academic integrity (19.6%), control the information (14.3%), explain how to reference someone else's thoughts (8.9%). In order to promote academic integrity, an appropriate academic culture should be developed within a higher education institution, fostering the internalization of the values of academic integrity in students.

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ĒŠANAS TRAUCĒJUMU RISKI 12. KLAŠU SKOLĒNIEM

Detection of Eating Disorders Risks among 12th Grade Students

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Abstract. *The attitude to the healthy eating and eating habits takes its roots in the family. When becoming a grown-up, a person prefers eating the favorite and habitual food. It depends only on a person's own choice to observe the basic laws of the healthy eating and keeping to them and in this way to support own health. As opposed to healthy, balanced, diversified, regular and sufficient amount of food there are the strategies that can cause eating disorders if to follow them. Among such disorders might be neurotic anorexia, neurotic bulimia, compulsive overeating and other unspecified eating disorders. The prevalence of eating disorders nowadays is connected with the influence of increased stress, an enlarged information load, an awareness of modern beauty standards as a result, eating disorders risks are increasing. Prompt information and provision of knowledge for teachers, parents and students on eating disorders prevalence, manifestation and the importance of timely recognition for successful treatment is the most important element of preventive measures. The topicality of the research on eating disorders among students is justified by the fact that the early detection of students' eating disorders can promote timely recognition of the problem and the beginning of treatment reducing serious physical and psychological complications and even fatal cases. The primary goal of this research was to find out eating disorders risks among the 12th grade students. The second goal was to determine eating disorders risks among the 12th grade students due to the gender differences of students. To gain the results of the research the quantitative research method with the research tool – EAT-26 test (Garner et al., 1982) was used. Two hundreds of the 12th grade students were involved into the research as respondents. The results of the survey show that the 5th part of the respondents have got eating disorders risks indicators. There are statistically significant differences between men and women ($p < 0.001$).*

Keywords: *eating disorders, gender differences, anorexia, bulimia, binge-eating disorder.*

Ievads *Introduction*

Veselīgs uzturs ir veselību noteicošs faktors un viens no svarīgākajiem veselības veicināšanas aktivitāšu mērķiem (WHO, 2003).

Pētniece Karena Glansa (Glanz, 2001) uzskata, ka cilvēkiem ir nepieciešama informācija par to, kā izvēlēties uzturvielām bagātu pārtiku, lai viņi ievērotu veselīgas ēšanas ieteikumus. Šī informācija bieži vien ir sarežģīta un nesaprotama, kā arī tā tiek pasniegta, izmantojot pārāk komplicētus jēdzienus un to formulējumus.

Pasaules Veselības organizācijas vadlīnijās noteikts, ka daudzveidīga, sabalansēta un veselīga uztura precīzs sastāvs var atšķirties atbilstīgi individuālajām īpašībām (piemēram, vecumam, dzimumam, dzīvesveidam un fiziskām aktivitātēm), kultūras kontekstam, pieejamiem vietējiem pārtikas produktiem un uztura lietošanas ieradumiem. Tomēr veselīgu uzturu veidojošie pamatprincipi paliek nemainīgi (WHO, 2018).

Ēšanas traucējumu izplatība mūsdienās ir saistīta gan ar pastiprinātu stresa ietekmi un palielinātu informācijas slodzi, gan ar skaistuma izpratnes stereotipiem, kā rezultātā palielinās ēšanas traucējumu iespējamība (Klein & Walsh, 2003).

Pēc Latvijas Slimību profilakses un kontroles centra apkopotajiem datiem, ēšanas traucējumi tiek klasificēti kā uzvedības sindromi. Tie saistīti ar fizioloģiskiem traucējumiem un somatiskiem faktoriem (to skaitā – *anorexia nervosa*). 2017. gadā reģistra uzskaitē tika ietverti 64 pacienti, bet kopā 2017. gadā uzskaitē bija 550 pacientu (Iedzīvotāju psihiskā veselība, 2017).

ASV un vairākās Eiropas valstīs veiktie pētījumi par pusaudžu un jauniešu ēšanas traucējumiem liecina, ka šī tēma ar katru gadu kļūst aizvien aktuālāka (Hudson et al., 2007).

Skolotājiem, vecākiem un skolēniem laikus sniegta informācija un zināšanas par ēšanas traucējumu sastopamības biežumu, izpausmēm un to laikus atpazīšanas nozīmīgumu sekmīgā ārstēšanā ir būtiskākais preventīvo pasākumu elements, kas ir šī pētījuma novitāte. Ēšanas traucējumu skolēniem izpētes aktualitāte ir pamatojama ar to, ka ēšanas traucējumu agrīna noteikšana var veicināt gan savlaicīgu problēmas atpazīšanu, gan ārstēšanas uzsākšanu, samazinot nopietnu fizisku un psiholoģisku sarežģījumu iespējamību vai pat nāvi.

Lai noteiktu skolēnu ēšanas potenciālo traucējumu attīstības iespējas, tika izmantots EAT-26 tests (Garner et al., 1982). Šo instrumentu bieži lieto, lai izvērtētu ēšanas paradumu risku, ņemot vērā cilvēku attieksmi, sajūtas un uzvedību saistībā ar ēšanu un ēšanas traucējumu pazīmēm. Tests EAT-26 ir izmantots vairākos pētījumos, lai novērtētu risku, kas saistīts ar ēšanas traucējumiem audzēkņiem vidusskolās, augstskolās un citās īpašās riska grupās, piemēram, sportistiem (Garner et al., 1982). Latvijā šo instrumentu savā pētījumā "Potenciālo

ēšanas traucējumu noteikšana jauniešiem” (2018. gadā) pirmo reizi izmantoja J. Viskunte.

Šim testam ir trīs apakšskalās: Diēta, Bulīmija un pārmērīgas raizes par ēdienu, un Mutes kontrole. Apakšskalās rezultāti tika iegūti, summējot visus punktus, kuri tika piešķirti konkrētajā skalā. Gadījumā, ja iegūtie rezultāti sasniedza 20 punktus vai vairāk, šis rādītājs atspoguļoja augstas bažas par diētu, ķermeņa svaru vai sarežģījumus ēšanas uzvedībā. Pētījumā, lai noteiktu instrumenta validitāti, tika aprēķināts testa Kronbaha alfa koeficients ($\alpha = 0,79$).

Pētījuma mērķi. Primārais mērķis – noskaidrot ēšanas traucējumu risku 12. klašu skolēniem. Sekundārais mērķis – noteikt ēšanas traucējumu risku 12. klašu skolēniem atbilstīgi viņu dzimumam.

Datu apstrāde un grafisks atainojums tika veikts, lietojot programmu *Microsoft Office Excel, 2010* un *IBM SPSS Statistics 23.00*. Datu apstrādei tika izmantots Stjudenta t tests un ANOVA.

Potenciālie ēšanas traucējumi jauniešiem ***Potencial Eating Disorders Among Young People***

Uzturu par veselīgu uzskata tad, ja cilvēka ēšanas paradumi ietver adekvātu barības vielu uzņemšanu un pietiekamu, bet ne pārmērīgu, uzņemtās enerģijas apjomu, lai apmierinātu indivīda enerģijas patēriņa vajadzības (Haines et al., 2019).

Emija Brauna un citi zinātnieki (Brown et al., 2018) secina, ka ēšanas traucējumi visbiežāk sākas pusaudžu un agrīnā brieduma gados, attīstības ziņā jūtīgā laikā, kad smadzenes vēl joprojām attīstās. Tādējādi šie traucējumi var nopietni ietekmēt kognitīvās, sociāli emocionālās un izglītības attīstības virzību (Brown et al., 2018).

Ēšanas traucējumiem ir sarežģīta etioloģija: iemesli var būt saistīti gan ar ģenētiskiem, gan vides, gan iedzīvotāju skaita un labklājības līmeņa faktoriem (Cho et al., 2017).

Jauniešiem ēšanas traucējumi ir trešā izplatītākā hroniskā slimība (pēc aptaukošanās un bronhiālās astmas). Kritiskais vecums, kad tie visbiežāk parādās un attīstās, ir 14 līdz 19 gadu (Gonzalez, Kohn, & Clarke, 2007). Zinātnieki Ena Hermonta un Zauls Peivs (Hermont & Paiva, 2013) savā pētījumā secina, ka no ēšanas traucējumiem ir augstāka saslimstība un mirstība nekā no jebkura cita garīga traucējuma.

Pretstatā veselīgam, sabalansētam, daudzveidīgam, regulāram un pietiekamam uztura daudzumam, pastāv arī ēšanas stratēģijas, kuras piekopjot, var attīstīties ēšanas traucējumi. Zinātnieces Ketlīna un Elisone Merikangas ēšanas traucējumus definē šādi: ēšanas traucējumi ir tādu traucējumu grupa, kas saistīta ar sagrozītu vai izkropļotu uzskatu par savu ķermeni, ko pavada ēšanas un / vai

svara zaudēšanas uzvedība. Tie ietver neirootisko anoreksiju, neirootisko bulīmiju, kompulsīvo pārēšanos un citus nekonkretizētus ēšanas traucējumus (Merikangas & Merikangas, 2016).

Ēšanas traucējumu veidi

Saskaņā ar Starptautisko slimību klasifikāciju (SSK-10) anoreksiju kā ēšanas traucējumu veidu iedala divās grupās: neirootiskā anoreksija un atipiskā neirootiskā anoreksija (Slimību profilakses un kontroles centrs, 2013–2016).

Neirootiskā anoreksija ir nopietna psihiska slimība, kurai raksturīga nespēja uzturēt normālu ķermeņa svaru (vismaz 15% zem ideālā ķermeņa svara) vai panākt svara pieaugumu bērniem un pusaudžiem (Bulik, Trace, & Mazzeo, 2013). No neirootiskās anoreksijas biežāk cieš meitenes pusaudžu vecumā un jaunas sievietes (1–2%), taču no tās nav pasargāti arī zēni pusaudžu vecumā un jauni vīrieši (0,1–1,2%) (Slimību profilakses un kontroles centrs, 2013–2016). Visbiežāk ar neirootisko anoreksiju sirgst meitenes un sievietes vecuma grupā no 15 līdz 24 gadiem (Zuboviča, 2014).

Indivīdiem ar neirootisko anoreksiju ir raksturīga apsēstība ar šķietami pārāk lielu svaru, lai gan faktiski notiek ekstremāls svara zudums. Viņi arvien cenšas panākt lielāku svara zudumu un var piekopt neveselīgu svara zuduma uzvedību (piemēram, badošanos, attīrīšanos, caureju izraisošu un diurētisku medikamentu pārmērīgu lietošanu, pārmērīgu nodošanos fiziskām aktivitātēm). Šo indivīdu pašnovērtējumā par svarīgākajiem rādītājiem kļūst ķermeņa forma (figūra) un svars (Bulik, Trace, & Mazzeo, 2013).

Vīrieši dažreiz cieš no reversās neirootiskās anoreksijas sindroma, kas rodas arī kultūristiem un svarcēlājiem, kuri baidās, ka viņi nekad nekļūs pietiekami lieli un / vai viņiem nekad nebūs pietiekami maz ķermeņa tauku, lai atklātu labi attīstītos muskuļus. Bieži vien viņu mērķis ir sasniegt ķermeņa tauku masu, kuras īpatsvars ir mazāks nekā 5%. Jaunāks termins, ko reizēm izmanto, runājot par šo sindromu, ir “muskuļu dismorfija”. Taču reversā neirootiskā anoreksija nav pilnīgi tas pats, kas muskuļu dismorfija vai ķermeņa dismorfija. Vīrieši ar reverso neirootisko anoreksiju cieš no psihopatoloģijas, kas ietver makromuskulofiliju (vēlmi iegūt lielus, labi attīstītus muskuļus) un mikrosomatofobiju (bailes būt pārāk maza ķermeņa īpašniekam) (Mehler & Andersen, 2017).

Atipisko neirootisko anoreksiju noteic visu neirootiskās anoreksijas kritēriju klātesamība, izņemot nozīmīgu svara zudumu. Tā norādīts “Psihisko traucējumu diagnostikas un statistikas rokasgrāmatas” piektajā izdevumā (DSM-5) (American Psychiatric Association, 2013). Kritēriji ietver ģenētisku risku, vecumu, kad sākas slimība, psihopatoloģiju un rezultātu prognozi (Olivo et al., 2018). Pirmajā vizītē atipiskās neirootiskās anoreksijas pacientu svars bieži vien ir normāla ķermeņa svara diapazonā (Sawyer et al., 2016). Taču bieži sastopamas bada un medicīniskas

nestabilitātes pazīmes, un slimības sekas var būt tikpat smagas kā neirotikās anoreksijas gadījumā (Moskowitz & Weiselberg, 2017).

50–80% pacientu, kas cieš no anoreksijas, pilnīgi vai daļēji izveseļojas pēc sešu mēnešu līdz sešu gadu ilgās terapijas. Apmēram 40–50% pacientu izveseļojas pilnībā, bet 30–40% gadījumu pacientu stāvoklis uzlabojas tik daudz, ka viņi spēj dzīvot pilnvērtīgu dzīvi, lai gan reizēm tomēr var atkārtoties ar ēšanas traucējumiem saistīta domāšana vai uzvedība. Taču 15–25% pacientu nespēj izveseļoties, un viņiem neirotikās anoreksijas terapija ilgst daudzus gadus (Zuboviča, 2014).

Pēc Starptautiskas slimību klasifikācijas (SSK-10) bulīmija kā ēšanas traucējumu veids tiek iedalīta divās grupās: neirotikā bulīmija un atipiskā neirotikā bulīmija (Slimību profilakses un kontroles centrs, 2013–2016).

Neirotikā bulīmiju kā hronisku neirotikās anoreksijas fāzi pirmo reizi 1979. gadā aprakstīja britu psihiatrs Džeralds Rasels (*Gerald Russel*) (Castillo & Weiselberg, 2017). Neirotikajai bulīmijai raksturīgas atkārtotas pārēšanās epizodes, kam seko nepareiza kompensējoša uzvedība (ieskaitot pašizraisītu vemšanu, caureju izraisošu un diurētisku medikamentu nepareizu lietošanu, badošanos un pārmērīgas fiziskās aktivitātes), kuras mērķis ir nepieļaut svara pieaugumu. Taču parasti pacientu ķermeņa svars ir normas robežās (Spuleniece-Aišpure, 2014).

Atipiskai neirotikajai bulīmijai raksturīgs ir tas, ka nav vienas vai vairāku galveno pazīmju, kas fiksētas pacientiem, kuri cieš no neirotikās bulīmijas un kuriem citādi ir diezgan tipiska klīniskā aina (ar vai bez kompensējošām metodēm). Visbiežāk tas attiecināms uz cilvēkiem ar normālu vai pat lieko svaru, kuriem raksturīgi pārmērīgas ēšanas periodi, kam seko vemšana vai attīrīšanās (Fontenelle et al., 2005).

Balstoties uz kompensējošās uzvedības raksturu, tiek izšķirtas divas neirotikās bulīmijas izpausmes formas: attīrīšanās (vemšana un caureju izraisošu medikamentu, diurētisko līdzekļu, diētisko medikamentu vai klizmas nepareiza izmantošana) un neattīrīšanās (ierobežota ēšana un pārmērīgas fiziskās aktivitātes) (Bulik, Trace, & Mazzeo, 2013).

Parasti ēšanas traucējumu veidi nomaina viens otru: visbiežāk no anoreksijas uz bulīmijas simptomiem, kompulsīvas pārēšanās epizodēm kļūstot biežākām, turklāt saglabājot nelielu svaru (neirotikā anoreksija, “pārēšanās–attīrīšanās” izpausmes forma) vai atgūstot pietiekami daudz svara, lai vairs neciestu no medicīniskām bada pazīmēm (neirotikā bulīmija). Apmēram 50% pacientu ar neirotikā bulīmiju pagātnē ir pieredzējuši neirotikā anoreksiju, kā pilnīgu vai daļēju sindromu. Daži nopietnas svara zaudēšanas mēģinājumi ātri pāraug neirotikā bulīmijā, bet citi vispirms attīstās un kļūst par neirotikās anoreksijas kompulsīvās pārēšanās apakštipu, un tikai vēlāk (var paiet pāris nedēļas vai vairāki gadi) pāraug neirotikā bulīmijā (Mehler & Andersen, 2017).

Medicīniskās komplikācijas bulīmijas gadījumā ietver pašizraisītu vemšanu un pārmērīgu laksatīvo līdzekļu izmantošanu. Lai gan ar bulīmiju saistītās mirstības koeficients ir zemāks nekā neirotiskās anoreksijas gadījumā, tomēr arī tas ir pārāk augsts sakarā ar smagām elektrolītu līmeņa un skābju–sārņu izmaiņām, kuru cēlonis var būt attīrīšanās uzvedība. Bulīmijas pacientiem konstatēto attīrīšanās darbību veids 90% gadījumu ir pašizraisīta vemšana vai pārmērīga caureju izraisošu līdzekļu lietošana (Denholm & Jankowski, 2011).

Kompulsīvo pārēšanos diagnosticē, ja pacientam ir hroniski pārēšanās paradumi bez pārēšanās kompensēšanas – bez attīrīšanās un ar minimāliem uztura ierobežojumiem. To raksturo epizodisks liela pārtikas daudzuma patēriņš, kas netiek kontrolēts un atkārtojas vismaz reizi nedēļā trīs mēnešus. Šis ēšanas traucējums nav saistīts ar pašizraisītu vemšanu vai citu kompensējošu uzvedību, tādēļ pacientiem var būt liekais svars (Latner & Clyne, 2008).

Indivīdiem ar kompulsīvo pārēšanos pastāv aptaukošanās risks un ar to saistītie citi riska faktori (t. i., hipertensija, ortopēdiskas problēmas, diabēts) (McCuen-Wurst et al., 2018).

Kompulsīvās pārēšanās ārstēšana pamatojas uz pacientu baiļu no badošanās pārveidošanas. Pacienti saprot, ka badošanās izraisa pārēšanos, tādēļ viņi parasti sāk ēst regulāri, pat gadījumos, ja no viņiem to tieši nepieprasa (Nardone & Brook, 2010).

Tikai nesen kompulsīvā pārēšanās tika atzīta par atsevišķu ēšanas traucējumu un slimībai tika piešķirts atsevišķs statuss citu ēšanas traucējumu veidu vidū. Šī statusa atzīšana ļauj novērst to, ka šādi cilvēki tiek apsūdzēti vājībā un slinkumā, un tādēļ tiem, kas cieš no kompulsīvās pārēšanās traucējuma, būs iespēja laikus saņemt profesionālu palīdzību un pārvarēt slimību.

Pētījuma rezultāti ***Results of research***

Pētījumā piedalījās divi simti (n = 200) respondentu, no kuriem 52% (n = 104) bija sievietes un 48% (n = 96) vīrieši 18 gadu vecumā. Tika izvēlēti respondenti, kuri mācās pilsētas skolās, 12. klasē, un kuri ir sasnieguši 18 gadu vecumu pēc nejaušības principa. Tika izslēgti 12. klašu skolēni, kuri ir jaunāki par 18 gadiem. Respondentu aptauja tika veikta piecās vidusskolās Latgales reģionā.

Respondentu piedalīšanās bija brīvprātīga. Šī pētījuma ietvaros respondentu aptauja (kvantitatīvā pētījuma metode), izmantojot EAT - 26 testu, tika veikta ar mērķi izvērtēt ēšanas traucējumu risku 12. klašu skolēniem, balstoties uz emocijām, sajūtām un uzvedību sakarā ar iespējamām ēšanas traucējumu pazīmēm.

Darbā tika izmantots šķērsgriezuma pētījums, un iegūtie dati tika salīdzināti starp vīriešu un sieviešu aptaujas rezultātiem.

Iegūtie dati liecina, ka lielākā daļa respondentu 43,72% (n = 87) nekad nav jutuši, ka, daudz ēdot, nevar apstāties. Tomēr gandrīz piektā daļa aptaujāto 18,09% 2–3 reizes mēnesī daudz ēdot, nevar apstāties. Līdzīgs skaits (16,58%) ir respondentu, kuri vienu reizi mēnesī nevar apturēt sevi, daudz ēdot. Savukārt vienreiz nedēļā šādas sajūtas ir 9,55% 12. klašu skolēniem. 8,54% respondentu atzinās, ka 2–6 reizes nedēļā viņi nevar apstāties, daudz ēdot (sk.1. tab.). Saskaņā ar hī kvadrāta kritēriju statistiski nozīmīgas atšķirības atkarībā no respondentu dzimuma netika novērotas ($p = 0,659$).

1.tabula. *Ēdiena kontrole (pēc EAT-26 testa)*
Table 1 *Monitoring of eating frequency (test EAT-26)*

Daudz ēdāt un jutāt, ka nevarat apstāties?	%	n
Nekad	43,72	87
Vienreiz mēnesī	16,58	33
2-3 reizes mēnesī	18,09	36
Vienreiz nedēļā	9,55	19
2-6 reizes nedēļā	8,54	18
Vienreiz dienā vai vairāk	3,52	7

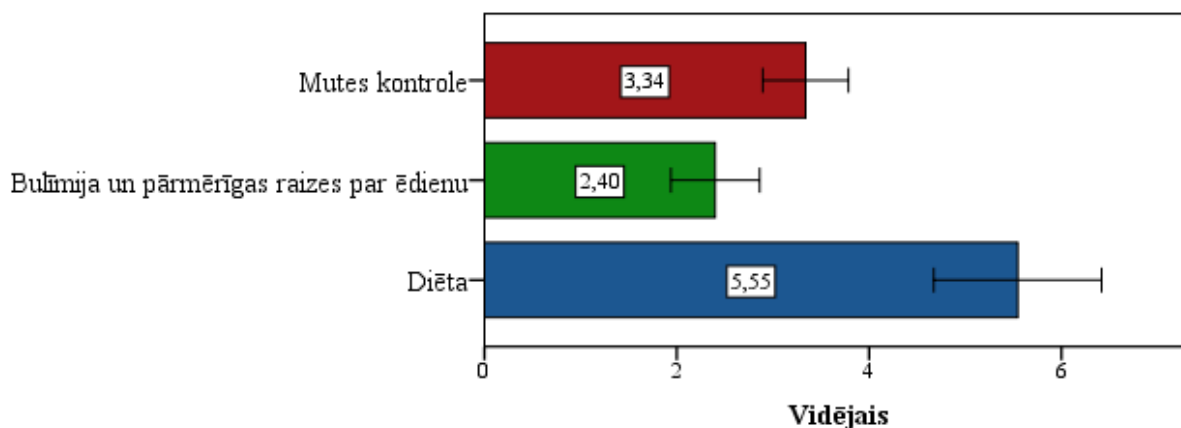
%- respondentu atbilžu skaits procentos

n- respondentu atbilžu skaits ciparos

Atbilstīgi pētījuma rezultātiem var konstatēt, ka lielākā daļa respondentu (76,50%) nenovēro sev ēšanas traucējumus. Neliels respondentu skaits tomēr domā, ka viņiem ir ēšanas traucējumi. Mazāk respondentu (16%) nezina, vai ēšanas traucējumi viņiem ir vai nav. Šāda atbilde, domājams, ir tāpēc, ka respondenti neizprot ēšanas traucējumu būtību un klīniskās pazīmes.

Apkopojot iegūtos datus atbilstīgi aptaujāto dzimumam, tika noskaidrots, ka 8,65% sieviešu un 6,25% vīriešu uzskata, ka viņiem ir ēšanas traucējumi. Piektā daļa (20,19%) sieviešu un 11,46% vīriešu nav pārliecināti, vai viņiem ir vai arī nav ar ēšanu saistītie traucējumi. Šāda atbilde varētu būt gadījumā, ja respondenti neizprot ēšanas traucējumu būtību un klīniskās pazīmes. Vairākums respondentu (71,15%) sieviešu un 82,29% vīriešu atzīmē, ka viņiem nav ēšanas traucējumu. Saskaņā ar hī kvadrāta kritēriju statistiski nozīmīgas atšķirības atkarībā no respondentu dzimuma netika novērotas ($p = 0,147$).

1. attēlā redzams, ka Diētas skalai ir visaugstākie vidējie rādītāji (5,55). Otrajā vietā tiek ierindota Mutes kontroles skala ar vidējo rādītāju (3,34). Mazākie vidējie rādītāji pieder Bulīmijas un pārmērīgu raižu par ēdienu testa skalai.



1. attēls. Ēšanas paradumu vidējie rādītāji (pēc EAT-26 testa)
Figure 1 The average indicators of eating habits (test EAT-26)

EAT-26 testa vidējo rādītāju analīzei sievietēm un vīriešiem tiek izmantots t-tests (Stjudenta). Pamatojoties uz rezultātiem, Diētas skalā un Bulīmijas un pārmērīgu raižu par ēdienu skalā ir statistiski nozīmīgas atšķirības sievietēm un vīriešiem ($p = 0,000$ un $p = 0,028$ attiecīgi).

Diētas skalas vidējais rādītājs sievietēm ir 7,63, bet vīriešiem – 3,15. Tas izskaidrojams ar to, ka sievietes biežāk seko diētām, vairāk ierobežo noteiktu pārtikas produktu lietošanu, vēlas būt slaidākas, biežāk baidās iegūt lieko svaru, regulāri uzskaita uzņemtās un iztērētās kalorijas. Vīriešiem vidējais rādītājs ir divas reizes mazāks nekā sievietēm.

Bulīmijas un pārmērīgu raižu par ēdienu skalas vidējais rādītājs sievietēm ir 2,86, kas pārsniedz vidējo rādītāju vīriešiem (1,87). Tas liek domāt par to, viņas jūt vajadzību atbrīvoties no pārtikas nedabiskā veidā.

Saskaņā ar t testa (Stjudenta kritērija) rezultātiem Mutes kontroles skalas rādītāji sievietēm un vīriešiem nav statistiski nozīmīgi, jo $p > 0,05$. Iegūtie dati liecina, ka respondentu lielākajai daļai (81%) nav nopietna ēšanas traucējumu riska. Taču 19% pētījuma dalībniekiem tika konstatēts nopietns ēšanas traucējumu risks.

Analizējot pētījuma rezultātus pēc dzimuma, tika konstatēts, ka lielākajai daļai sieviešu (71,15%; $n = 74$) un vīriešu (91,67%; $n = 88$) nav nopietnu ēšanas traucējumu riska. Savukārt gandrīz vienai trešdaļai sieviešu, t. i., 28,85% ($n = 30$) pastāv nopietns ēšanas traucējumu risks. To var izskaidrot ar sieviešu attieksmi pret pētāmo jautājumu – viņas vairāk rūpējas par savu svaru un ķermeņa formām, viņas biežāk seko diētām (pēc EAT-26 skalas rezultātiem, visaugstākie vidējie rādītāji attiecas uz Diētas skalu).

Arī starp vīriešiem ir respondenti ar ēšanas traucējumu risku (8,33%; $n = 8$), jo visaugstākie vidējie rādītāji attiecas gan uz Mutes kontroles, gan uz Bulīmijas un pārmērīgu raižu par ēdienu skalu.

Saskaņā ar hī kvadrāta kritēriju sieviešu un vīriešu respondentu sadalījums atkarībā no ēšanas traucējumu riska statistiski būtiski atšķiras ($p < 0,001$).

Secinājumi **Conclusions**

Kopumā gandrīz piektajai daļai (19%) aptaujāto (28,85% sieviešu un 8,33% vīriešu) ir konstatēts nopietns ēšanas traucējumu riska rādītājs. Sievietes biežāk ir pakļautas ēšanas traucējumu riskam un saskaņā ar hī kvadrāta kritēriju ir statistiski nozīmīgas atšķirības sievietēm un vīriešiem ($p < 0,001$). Var secināt, ka veselīga uztura principu neievērošana daudziem 12. klases skolēniem var izraisīt ēšanas traucējumus.

18,09% pētījuma dalībnieku (21,33% sieviešu un 14,59% vīriešu) no vienas līdz sešām reizēm nedēļā un 4% abu dzimumu aptaujāto vienreiz dienā daudz ēd un jūt, ka nevar apstāties. Tas ļauj secināt, ka sievietes vairāk nekā vīrieši cieš no kompulsīvās pārēšanās, viņas domā par pārtiku un jūt, ka ēdiens kontrolē viņu dzīvi. Vīriešiem ēšanas traucējumu riska, mutes kontroles skalā vidējais rādītājs ir augstāks nekā sievietēm (attiecīgi 4,41: 2,81). Var secināt, ka viņi biežāk badojas un vairāk kontrolē savu uzturu.

Summary

In general, the attitude to the healthy diet and healthy eating habits is developed in the family.

When growing up a person prefers favorite and the most habitual food. It depends only on a person's own choice to observe the basic laws of the healthy eating and keeping to them and in this way to support own health. As opposed to healthy, balanced, diversified, regular and sufficient amount of food there are the strategies that can cause eating disorders if to follow them. Among such disorders might be neurotic anorexia, neurotic bulimia, compulsive overeating and other unspecified eating disorders. The prevalence of eating disorders nowadays is connected with the influence of increased stress, an enlarged information load, an awareness of modern beauty standards as a result, eating disorders risks are increasing.

Prompt information and provision of knowledge for teachers, parents and students on eating disorders prevalence, manifestation and the importance of timely recognition for successful treatment is the most important element of preventive measures. The topicality of the research on eating disorders among students is justified by the fact that the early detection of students' eating disorders can promote timely recognition of the problem and the beginning of treatment reducing serious physical and psychological complications and even fatal cases.

The primary goal of this research was to find out eating disorders risks among the 12th grade students. The second goal was to determine eating disorders risks among the 12th grade students due to the gender differences of students. To gain the results of the research the quantitative research method with the research tool – EAT-26 test (Garner et al., 1982) was used.

The respondents of the research were two hundreds of the 12th grade students.

Microsoft, Microsoft Office Excel, 2010 program and IBM SPSS Statistics 23.00 version were used in data and chart processing. For data processing were used Student *t* tests and ANOVA.

As a result, almost the 5th part of the respondents (19%) - (28.85% female and 8.33% male) have got serious eating disorders risks indicators. Females are more exposed to eating disorders risks and according to the criterion, chi-square, there are statistically significant differences between men and women ($p < 0.001$).

On this basis it can be concluded that if the 12th grade students do not keep to the healthy diet they can get eating disorders.

The respondents of the research (18.09%) - (21.33% female and 14.59% male) eat from one to six times a week and 4% of both genders respondents eat one more meal a day and feel that can't stop eating. These results induce to draw a conclusion that female persons more than men suffer from compulsive overeating, think about food and feel that eating controls their lives. Male persons have the average indicators on the scale of eating disorders risks and mouth control bigger (4.41: 2.81). Thus, it is possible to conclude that men more often use fasting and they have a bigger control over their eating.

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PEDAGOGIC DIAGNOSTIC METHODS OF JUVENILE CONVICTS SOCIAL HEALTH: EXPERIMENTAL STUDY

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Abstract. *Convicts social health is regarded by the authors of the article as the state of social welfare including the ability to support the socially healthy relationships in the society. To diagnose this state of ability among the juvenile convicts serving sentences in the correctional colonies is of special importance. According to the experimental study there is not enough work done to develop social health among juvenile convicts in the places where the imprisoned are stayed. The hypothesis of the investigation is the assumption that to form the social health among convicted male minors in the juvenile correctional facility will be more successful if they participate in the project “Book is the source of new life and the way to rehabilitation.” To diagnose the state of social health of juvenile convicts the following methods and techniques have been used, they are watching, talking, summative assessment, formative assessment, testing, The Test of Viability by D.A. Leontyev, The Questionnaire: Health, Activity, Mood (by V.A. Doskin, N.A. Lavrentyeva, V.B. Sharay, M.P. Miroshnikov); Success Stimuli and Failure Fear methods by A.A. Rean. The summative assessment procedure was held in March 2019, the formative assessment experiment had been conducted for 3 months (from April till June 2019). The summative assessment has shown that juvenile convicts have weak viability, reduced level of well-being, and activity, and mood as well; there is a low level of success stimuli and high*

level of failure fear. The results of formative assessment have shown that the participation in the Project helps to form viability, activity, cheering up, decreasing of failure fear, increasing of success motivation; and it assists conforming social health of juvenile convicts as a whole.

Keywords: *formative assessment, juvenile convicts, pedagogic diagnostic methods, summative assessment, social health.*

Introduction

Nowadays there is a steady trend to deterioration of the health of the population especially of juveniles. Unfavourable micro-social conditions of living and upbringing, negative dynamics of moral values of the society are considered to be the main reasons affecting the health conditions of the juveniles.

The weakening of the educational function of the family, child abuse, stress expansion and conflict situation increase, the media propaganda of violence, cruelty, obscenity, greed, the falsity, betrayal and other factors lead to the fact that the juveniles having made crimes and serving a sentence in prisons constitute crime prone part of the population. That's why at present a current demand arises among the members of the modern society to maintain social health of juvenile convicts, serving a sentence in educational colonies.

Theoretical basis of investigating of juvenile convicts' social health

One of the approaches to studying the phenomenon of healthy individual, underlying the social health notion is the understanding of it as the form of social interaction of the individual and regarding it as a social structure unit of a society.

The works by A. Adler (Adler, 1997), A. Maslow (Maslov, 1999) are devoted to the study of health of the individuals. The problems of social health were studied by B.C. Bratus (Bratus, 2004), O.S. Vasilyeva (Vasilieva, 2005), G.S. Nikiforova (Nikiforov, 2003), I.V. Dubrovina (Dubrovina, 1991), O.V. Huhlaeva (Huhlaeva, 2005), L.A. Baikova (Baykova, 2006), E.I. Podnebesnaya (Podnebesnaja, 2010) and others.

Social health is regarded by the scientists as a complicated social phenomenon, originated in the process of interaction between the individual and social environment, reflecting the level of this interaction. The analysis of the foreign literature allows assuming that social health implies the ability of an individual to form satisfied interpersonal relations with others. Every healthy relation should include strong communicative skills, sympathy for other people and a sense of responsibility (Rogers, 1994; Huhlaeva, 2005).

In the light of our research we are of the view of M. Yen, who regards social health as 'an aspect of human wellbeing, which deals with his/her capacity to get along with other people, how other people respond to him/her activity and how

an individual interact with social institutions and follow with moral norms of society' (Kasser & Ryan, 1996). This definition includes the elements of the psychological structure of an individual and his/her social skills, reflects social norms and is close to such notions as wellbeing, adaptation, social functioning, harmony (Sheldon & Kasser, 1995). In the light of our research social health may be regarded as the reflection of the attitude of the society to the individual and is implemented through his/her participation in various social communities.

According to the ideas of humanistic psychology and axiological approach (Maslow, 1999), (Rogers, 1994); the ideas of metasystematic approach to social health study (Petrovsky, 1982), (Baykova, 2006; Kolpina, 2017), a healthy type of relations of an individual and environment is that kind of interaction when a person is included in the social communities harmonically, and has an opportunity meet his/her demands, not violating and not destroying dramatically the society.

Globalization of the modern society caused the new negative tendencies of transformation and degradation of a developing personality of an individual and juvenile as well and it has influenced their social life negatively (Hanishina & Usatkov, 2006). Social health is an integrative quality of an individual characterized by harmonious relationships with coevals, and other social groups, the relation with the social medium, with the society. Social health stimulates effective development of an individual and positive influence on the society (Petrovsky, 1982; Ter-Gevorkova, 2019).

According to some investigations social health of the juveniles may be regarded as pathological (Podnebesnaja, 2010), because they have below level of motivation of success, of social activity and vitality.

So we regard social health of juvenile convicts as the state of social wellbeing, including the ability to maintain social-healthy relations in the society.

The Analysis of Empiric Research of the Social Health Indicators of Juvenile Convicts and Their Experimental Formation

According to the Conception of Criminal-Punishment System Development of the Russian Federation to 2020, signed by the Russian Federation Government Resolution from Oct.14, 2020 No 1772-p, one of the important condition of correction and successful adaptation to the society after release is to ensure social, psychological and educational work with the convicts.

Social adaptation of the convicts is very important, to rehabilitate them to be adjusted to a new way of living after release. To rehabilitate the juvenile convicts is not less important, to develop their personality and form social health. Thus in the system of prison a specific closed socio-cultural community is formed, where socialization of the juvenile convicts is made.

Experimental work was carried out in 2019 in the educational colony for convicted male minors in several stages: I stage is preparatory; II stage is ascertaining experiment; III stage is forming experiment; IV stage is analytical and generalizing.

At the preparatory stage the following tasks were solved:

- 1) selection of methods and techniques of diagnostics of social health level of juvenile convicts;
- 2) development of pedagogical conditions of the organization of educational process within the project "Book is the source of new life and a way to correction and rehabilitation" to strengthen juvenile convicts' social health.

In the conditions of an educational colony, a book for a juvenile convict is the only guide on the path of correction, which involves not only changing the worldview to the socially demanded, but also obtaining knowledge and skills of effective interaction with other people in a free society. The project "Book is the source of new life and a way to correction and rehabilitation" is aimed at forming a socio-cultural environment changing the worldview of those who serve sentences staying in prison according to the penitentiary system of the Federal System of Inspection and Punishment of Russia.

According to the rules of pedagogical experiment we selected control group (35 people) and experimental group (35 people). During the pedagogical experiment, the control group was not influenced, the experimental group had been influenced for three months (the juvenile convicts of this group took part in the project "Book is the source of new life and a way to correction and rehabilitation").

We selected the following methods of pedagogical diagnostics: The Test of Viability by D.A. Leontyev (Golovey & Rybalko, 2002); Success Stimuli and Failure Fear Test by A.A. Rean (Golovey & Rybalko, 2002); The Questionnaire: Health, Activity, Mood by V.A. Doskin, N.A. Lavrentyeva, V.B. Sharay, M.P. Miroshniko (Golovey & Rybalko, 2002).

In accordance with the developed plan of the experimental work, the second stage (March 2019) provided for carrying out the ascertaining experiment. Its purpose was with the help of selected methods and techniques to identify the severity of vitality, the level of motivation for success and fear of failure, the activity, as the components of juvenile convicts social health indicators.

The ascertaining experiment, in which 70 male juvenile convicts participated, showed a low level in the respondents on the scales of "Well-Being", "Activity" and "Mood", which indicates that they have a state of discomfort, passivity, inertia and a predominance of feelings of longing and boredom.

70 % of respondents expressed fear of failure, which indicates anxiety and uncertainty in their abilities. Juvenile convicts do not assume the possibility of success (Fig.1).



Figure 1 Motivation for success and fear of failure among juvenile convicts

It was revealed that the majority of juvenile convicts (60 %) have a low level of resilience (Fig.2), which constitutes certain difficulties for minors in the process of serving a criminal sentence in prison.

Resilience is a system of beliefs that promotes an individual to manage extreme situations, perceive negative events as experiences and successfully cope with them. Resilience is an important psychological quality necessary for survival in difficult living conditions, including in the conditions of an educational colony.

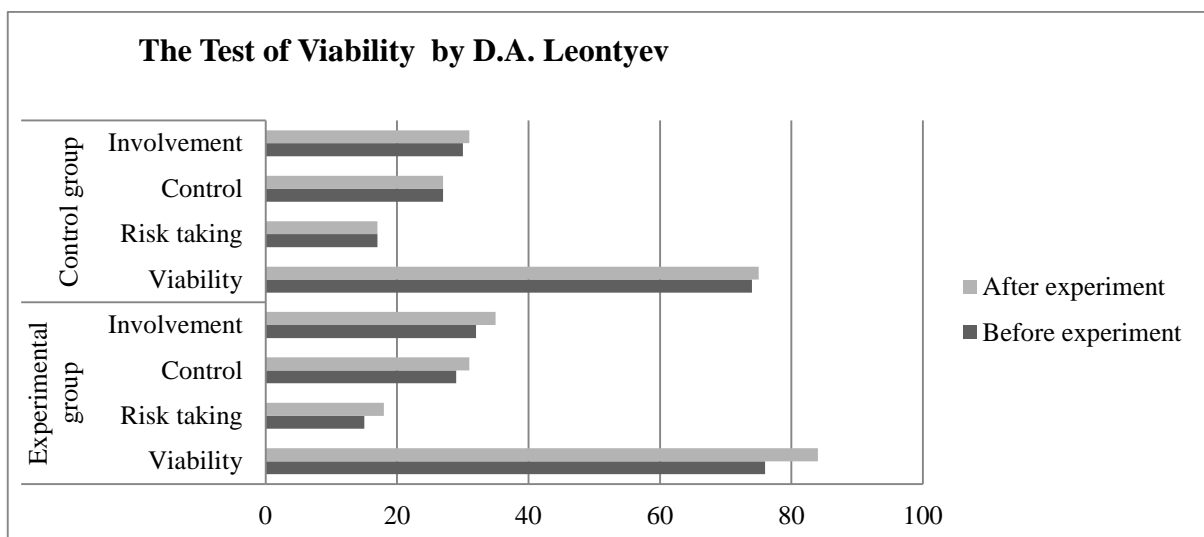


Figure 2 The rate of viability for juvenile offenders

At the third stage of the experimental work (April-June 2019) we conducted a formative pedagogical experiment. The educational purpose of the formative experiment was to develop and strengthen the social health of juvenile convicts in the framework of the project "the Book is a source for a new life and a path to correction". With the help of a formative experiment, we implemented the following areas of work with the book: book exhibitions "The whole world is a library", "Reading Land"; literary and musical evenings "Yesenin Motherland", "Visiting Pushkin"; loud readings followed by analysis of the reading materials; poetic hours; literary brain-rings "Among the Favourite Books", "Writers of our Childhood"; round table "To Read or not To Read?", "Reading Youth".

Special attention was paid to dialogue forms and creative works (writing essays). Juvenile convicts expressed their opinion on various issues and defended it, thought, gave reasons, listened, learned to communicate, used interpersonal communication. Thus, a single collective opinion, a collective mood on the studied event, phenomenon was formed. Within the framework of an essay writing, reflection was very often used.

The analysis of the results of the diagnosis by the method of Health, Activity, Mood " SAN "showed a fairly high level of respondents on the scales of "Health", "Activity" and "Mood", which indicates their impetuosity, initiative, enthusiasm. The juvenile convicts show an emotional response to various influences and it is actively manifested.

The formative experiment showed that the majority of juvenile convicts (40 %) increased the level of resilience (Fig. 2). They showed self-confidence, the presence of goals for the future, involvement in the life activity, openness, willingness to act in the absence of guarantees of success, based on their own experience, the idea of themselves as a strong person, able to control their lives. The convicts became convinced of the possibility to influence the results of their activities with success.

The majority of respondents of respondents, the fear of failure is expressed weakly and the desire to achieve success is manifested, which indicates a decrease in anxiety, uncertainty in their abilities (Fig. 1).

Thus, in the course of an empirical study and a formative experiment, we were able to diagnose and improve the social health of juvenile convicts serving sentences in prison.

Conclusions

Within the framework of the project "Book is a source for a new life and a way to correction", being in isolation, experiencing psychological discomfort, juvenile convicts under the leadership of the heads of units, educators and psychologists find positive emotions, the possibility of self-development,

knowledge, skills formation, assimilation of norms, values, attitudes of society, they learn to build social ties. The conducted pedagogical experiment plays an important role in the formation of such qualities of juvenile convicts in the educational colony as: adaptation to the social environment (internal and external); social orientation, manifested in the willingness to solve socially significant problems; social activity; awareness of the social significance of their actions; readiness for self-development; creativity. The experiment revealed the severity of vitality, the level of motivation for success and fear of failure, activity as components of social health of juvenile convicts.

In the course of the pedagogical experiment within the socio – cultural environment of the educational colony, during the implementation of the project "Book is the source of new life and the way to correction", we carried out pedagogical activities aimed at the formation and development of social health of male juvenile convicts. The conducted experiment allowed to state that for juvenile convicts work with a book is a link between what is read and what is read for; between how to adapt to the educational colony, and how to change their consciousness and behaviour in the new society after release.

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FIZISKĀ SAGATAVOŠANA HOKEJĀ AR NETRADICIONĀLAJIEM LĪDZEKĻIEM

Physical Preparation for Ice Hockey with Untraditional Means

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Abstract. *The data from empirical researches in sport training methodology show that leading factors, which define hockey player's special physical preparation is a strength and aerobic capacity of muscles groups that realize movement on ice. Aim of the research: improvement of physical preparation training process in ice hockey, using "Slide board" equipment. Subjects of the research: youth age group (U17) of the ice hockey team who were implemented eight modified "Slide board" exercises in the training process during 8 weeks. The results of experimental group show significant improvement ($\alpha < 0.05$) in "Acceleration and breaking skating 5x54m" test. Using routine of exercises with "Slide Board" equipment and applying repetition method during overall physical preparation period time, experimental group participants had been achieved an effective increase in special strength endurance than control group, which used training program based on previous season exercises and applied circle training after interval extensive method.*

Keywords: *ice hockey, physical preparation, "Slide board", strength and strength endurance.*

Ievads

Introduction

Visos komandu sporta veidos treniņu process vispārējās sagatavošanas periodā ir pamats turpmāko sportisko rezultātu sasniegšanā. Katrā sporta veidā šis treniņu process pamatā tiek virzīts uz vispārējās fiziskās sagatavotības paaugstināšanu, taču daudzos sporta veidos, atkarībā no sporta veida specifikas, tas var būt atšķirīgs.

Hokejistu treniņu procesu empīrisko pētījumu analīze norāda, ka vadošie faktori, kas nosaka spēlētāju speciālo fizisko sagatavotību ir spēks (miofibrillu masa) un aerobās spējas (mitohondriju masa) kāju un ķermeņa muskuļu grupām,

kas nodrošina pārvietošanos pa ledu (Cox et al., 1995; Matthews, Comfort, & Crebin, 2010). Tika noteiktas likumsakarības, kas ļauj spriest par šo muskuļu grupu speciālajām aerobajām spējām un to spēka iespējām. Treneri attīstot fizisko īpašību izpausmes formas bieži vien gadu no gadiem pielieto vienus un tos pašus līdzekļus, kas padara treniņu procesu vienmuļu un apnicīgu (Manners, 2004). Tas mūsdienu jauniešiem liekas garlaicīgi un neinteresanti, tādējādi samazina viņu interesi nodarboties ar sportu, samazinās audzēkņu pašatdeve, kas bremzē fizisko īpašību attīstīšanu.

Viens no plaši izmantotajiem treniņu līdzekļiem hokejā ir “*Slide Board*”. Izpildot vingrinājumus uz “*Slide Board*” ir jābūt labai līdzsvara izjūtai ar ķermeņa pozu precīzu noturēšanu, kas veicina dziļo muskuļu attīstīšanu, kā arī paaugstina kopējo spēka izturību. Papildus pielietojot dažādu inventāru (apsmagojumus) vingrinājumos uz “*Slide Board*” iespējams būtiski paaugstināt arī spēka īpašības. Izmantojot “*Slide Board*” aprīkojumu ar papildus inventāru, tiek samazināta treniņu procesa vienveidība un veicināta to variativitāte, kas ir ļoti svarīga fiziskās sagatavošanas treniņu procesā, jauno sportistu motivācijas un pašatdeves paaugstināšanai.

Materiāli un metodes *Materials and methods*

Pētījuma ietvaros vispārējās fiziskās sagatavotības treniņu process kopumā ilga 8 nedēļas. Pētījumā brīvprātīgi piedalījās 25 Hokeja kluba “Rīga 2000” audzēkņi (13 – uzbrucēji, 10 – aizsargi un 2 – vārtsargi). Pirms treniņu procesa uzsākšanas tika iegūti sākuma rezultāti speciālās fiziskās sagatavotības testēšanas kontrolvingrinājumos. Balstoties uz pētījumā iesaistīto audzēkņu sākuma rādītājiem viņi tika sadalīti divās vienlīdzīgajās grupās (13 – eksperimentālajā grupā, 12 – kontroles grupā). Eksperimentālajā grupā ietilpa 7 – uzbrucēji, 5 – aizsargi un 1 – vārtsargs, bet kontroles grupā 6 – uzbrucēji, 5 – aizsargi un 1 – vārtsargs. Pētījumā iekļauto dalībnieku vidējais vecums (pilni gadi) uzsākot eksperimentu bija 14 – 15 gadi, augums $171,8 \pm 2,4$ cm, un ķermeņa masa $61,7 \pm 3,1$ kg. Pedagoģiskā eksperimenta grupas neatšķīrās pēc galvenajiem tipiskajiem raksturojumiem – vecuma, veselības stāvokļa, fiziskās sagatavotības līmeņa.

Pētījuma laikā, pielietojot izstrādātos “*Slide Board*” vingrinājumu kopumus, galvenā uzmanība tika akcentēta spēka izturības un dziļās muskulatūras attīstīšanai. Eksperimentālā un kontroles grupa, realizējot izstrādātos vingrinājumus treniņu procesā 3 reizes nedēļā, pielietojot atšķirīgus vingrinājuma izpildes nosacījumus.

Treniņu process kontroles grupai tika organizēts pēc apļa treniņa, pielietojot intervālo metodi: 3 apļi, kur katrā aplī ir 12 vingrinājumi (Naimo et al., 2015).

Intervālās metodes nosacījumi:

1. 20 sek. slodze un 20 sek. atpūta;
2. starp apliem atpūta 5 min.;
3. slodzes intensitāte 60% no maksimālās, kur katrā stacijā tiek veikti 10 atkārtojumi (aptuvenais vingrinājuma vienas kustības ilgums ir 2 sek.).

Treniņu process eksperimentālai grupai tika organizēts pēc atkārtojuma metodes. Ar atkārtojuma metodes palīdzību var trenēt spēku un spēka izturību. Lai veicinātu izturības attīstīšanu, ir nepieciešams izmantot lielu atkārtojumu skaitu (Hedrick, 2002).

Abos vispārējās fiziskās sagatavošanas posmos treniņu process notika pielietojot atkārtojuma metodi ar šādiem nosacījumiem:

1. vingrinājuma izpildes ilgums vingrinājumam 30 sek.;
2. slodzes intensitāte – aptuvenais vingrinājuma vienas kustības ilgums ir 2 sekundes (katrā piegājienā pa 15 atkārtojumiem);
3. katram vingrinājumam izpilda 3 piegājenus;
4. atpūtas pauze starp piegājieniem 60 sek., starp vingrinājumiem 3 min.;
5. svaru bumbas svars katram audzēknim tika noteikts pirms katra fiziskās sagatavošanas posma (atkarībā no personīgās ķermeņa masas). Tā kā standartā svaru bumbas svars ir 4 kg un nākamais svars ir 6 kg, tad slodzes intensitāte tika izvēlēta šādi: ja hokejista personīgā masa ir mazāka par 60 kg, tad tiek izmantota 4 kg svaru bumba, bet ja hokejista personīgā masa ir 60 kg un lielāka, tad svaru bumbas svars ir 6 kg.

Izanalizējot visu iegūto informāciju par vingrinājumiem uz “Slide Board” (Ebben, Carroll, & Simenz, 2004; Faught, 2012; Finnish Ice Hockey Association, b.g.), eksperimentālajai grupai vingrinājumu kopumam tika atlasīti un modificēti (pārveidoti, pievienojot papildus inventāru - svaru bumbu) 8 vingrinājumi (Matthews & Cohen, 2013).

1.vingrinājums – no sākuma stāvokļa pamatstāja pārmaiņus izklupieni ar kājas slidināšanu un svaru bumbas pārtveršanu no vienas rokas otrā (skatīt 1.att.).



Sākuma stāvoklis



Beigu stāvoklis

1.attēls. Pārmaiņus izklupiens sānis no pilna pietupiena ar svaru bumbas pārtveršanu no vienas rokas otrā

Figure 1 Shifting lunge sideways from a full stump with a weight ball intercepted from one hand to the other

2.vingrinājums – no pilna pietupiena pārmaiņus izklupieni atpakaļ ar kājas slidināšanu un svar bumbas pārtveršanu no vienas rokas otrā.

3.vingrinājums – pārmaiņus izklupiens sānis no pilna pietupiena ar svar bumbas pārtveršanu no vienas rokas otrā.

4.vingrinājums – pārmaiņus izklupieni sānis ar roku vēzieniem no pilna pietupiena.

5.vingrinājums – pārmaiņus izklupieni uz priekšu un atpakaļ ar roku vēzieniem.

6.vingrinājums – no pilna pietupiena izklupieni sānis ar sekojošu kājas pārvietošanu uz pretējo pusi.

7.vingrinājums – no pilna pietupiena atgrūsties ar kāju un pārmaiņus pārvietoties (slīdot) uz labo un kreiso pusi.

8.vingrinājums – no izklupiena soļa pārejot uz pilnu pietupieni, atgrūsties ar kāju un pārmaiņus pārvietoties (slīdot) uz labo un kreiso pusi.

Tika noteiktas likumsakarības, kas ļauj spriest par šo muskuļu grupu speciālajām aerobajām spējām un spēka parametriem. Tests „Atspoles slidošana 5 x 54 m” tika izstrādāts, lai novērtētu spēlētāju speciālo fizisko sagatavotību. Speciālās darbaspējas, tiek noteiktas maksimāli pietuvināti treniņu videi uz ledus, kas raksturo hokejista konkrētu muskuļu grupu gatavību nodrošināt pārvietošanos uz slidām ar paātrinājumu un bremzēšanu (Urjupin, 2014).

„Atspoles slidošana 5 x 54 m”, tests – ātruma izturības noteikšanai un spēka izturības noteikšanai ar papildus smagumu (smaguma veste 5 – 8 kg). Hokejisti, kuru personīgā ķermeņa masa nepārsniedza 60 kg, testā izmantoja smaguma vesti līdz 6 kg, bet hokejisti, kuru personīgā ķermeņa masa pārsniedza 60 kg, testā izmantoja smaguma vesti 7 – 8 kg. Piemērs: ja hokejista personīgā masa ir mazāka par 55 kg, tad tiek izmantota 5 kg smaguma veste, bet ja hokejista personīgā masa ir 55 kg un lielāka (līdz 64,9 kg), tad smaguma vestes svars tiek palielināts par 1kg un hokejists izmanto 6kg smaguma vesti. Tādējādi uz katriem 10 kg hokejista personīgās ķermeņa masas smaguma vestes svars pieaug par 1 kg.

Testu bez papildus smaguma un ar papildus smagumu veic tikai vienu reizi atsevišķās dienās.

1.tabula. Testa „Atspoles slidošana 5x54m” novērtējuma skalas 16 gadīgajiem zēniem (Kīsis, 2012)

Table 1 Rating scales for 16 years old boys at “5x5”shuttle skating test (Kīsis, 2012)

Mērvienības	Zems līmenis	Zem vidējā līmeņa	Vidējs līmenis	Virs vidējā līmeņa	Augsts līmenis
Balles	1	2	3	4	5
Sekundes	49,0 – 48,7	48,6 – 47,6	47,5 – 46,5	46,4 – 45,4	45,3

Rezultāti

Results

Sākotnējais kontroles grupas vidējais rezultāts speciālajā fiziskās sagatavošanas testā “Atspoles slidošana 5 x 54 m” (bez smaguma vestes) bija $47,6 \pm 2,7$ sekundes, kas atbilst vērtējumam – zem vidējā līmeņa (sk.1.tab), bet noslēguma testēšanā vidējais rezultāts bija $46,7 \pm 2,3$ sek., kas atbilst vērtējumam – vidējs līmenis (Kīsis, 2012). Sākuma un beigu rezultātu starpība testā “Atspoles slidošana 5 x 54 m” (bez smaguma vestes) ir 0,9 sek. Neskatoties uz to ka vidējais rezultāts ir uzlabojies atšķirība statistiski nav ticama ($\alpha > 0,05$).

Sākotnējais kontroles grupas vidējais rezultāts speciālajā fiziskās sagatavošanas testā “Atspoles slidošana 5 x 54 m” (ar smaguma vesti) bija $63,9 \pm 3,3$ sek., bet noslēguma testēšanā vidējais rezultāts bija $61,3 \pm 2,3$ sek. Sākuma un beigu rezultātu starpība testā “Atspoles slidošana 5x54m” (ar smaguma vesti) ir 2,6 sek. Arī šajā testā neskatoties uz to ka vidējais rezultāts ir uzlabojies atšķirība statistiski nav ticama ($\alpha > 0,05$).

Tas nozīmē to, ka vispārējās fiziskās sagatavošanas posmā, pielietojot iepriekšējās sezonas vingrinājumu kopumu, netika panākta ne ātruma izturības, ne spēka izturības rādītāju statistiski ticama pozitīva dinamika.

Sākotnējais eksperimentālās grupas vidējais rezultāts speciālajā fiziskās sagatavošanas testā “Atspoles slidošana 5 x 54 m” (bez smaguma vestes) bija $47,8 \pm 2,8$ sek., bet noslēguma vidējais rezultāts bija $46,8 \pm 2,5$ sek. Sākuma un beigu rezultātu starpība testā “Atspoles slidošana 5 x 54 m” (bez smaguma vestes) ir 1,0 sek. Neskatoties uz to ka vidējais rezultāts ir uzlabojies atšķirība statistiski nav ticama ($\alpha > 0,05$).

Sākotnējais eksperimentālās grupas vidējais rezultāts speciālajā fiziskās sagatavošanas testā “Atspoles slidošana 5 x 54 m” (ar smaguma vesti) bija $63,7 \pm 3,2$ sek., bet noslēgumā vidējais rezultāts bija $56,9 \pm 2,4$ sek. Testā “Atspoles slidošana 5 x 54 m” (ar smaguma vesti) rezultāts ir uzlabojies par 6,8 sekundēm un atšķirība statistiski ir ticama ($\alpha < 0,05$) (sk. 2.tab.).

2.tabula. Eksperimentālās grupas testa “Atspoles slidošana 5x54m” sākuma un beigu rezultāti (n=13)

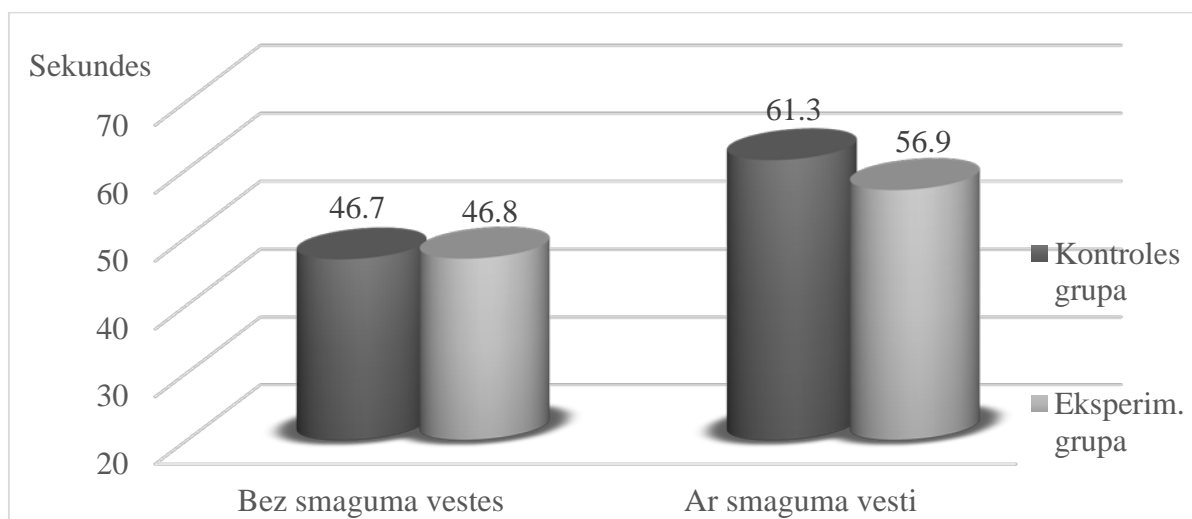
Table 2 Start and end results of the experimental group “5x54m shuttle skating test” (n=13)

Tests	Rezultāts (sek.) \pm (SD)		Pieaugums (sek.)	Atšķirību ticamība
	Sākotnējā testēšana	Noslēguma testēšana		
„Atspoles slidošana 5x54m”	$47,8 \pm (2,8)$	$46,8 \pm (2,5)$	-1,0	nav ticama ($\alpha > 0,05$)
„Atspoles slidošana 5x54m” ar smaguma vesti	$63,7 \pm (3,2)$	$56,9 \pm (2,4)$	-6,8	ir ticama ($\alpha < 0,05$)

Novērtējot eksperimentālās grupas testa „Atspoles slidošana 5 x 54 m” (bez smaguma vestes) vidējos rezultātus pēc novērtējuma skalas (1.tabula) var secināt, ka eksperimentālās grupas vidējais rezultāts (47,8 sek.) no vērtējuma – zem vidējā, paaugstinājās līdz 46,8 sekundēm, kas atbilst – vidēja līmeņa vērtējumam.

Vienā testā “Atspoles slidošana 5 x 54 m” (bez smaguma vestes) rezultātos nav novērojamas statistiski ticamas atšķirības ($\alpha > 0,05$). Tas nozīmē to, ka vispārējās fiziskās sagatavošanas posmā, pielietojot vingrinājumu kopumu uz “Slide Board”, netika panākta ātruma izturības, rādītāju statistiski ticama pozitīva dinamika. Taču testā “Atspoles slidošana 5 x 54 m” (ar smaguma vesti) rezultātos ir novērojamas statistiski ticamas atšķirības ($\alpha < ,05$). Tas nozīmē to, ka vispārējās fiziskās sagatavošanas posmā, pielietojot vingrinājumu kopumu uz “Slide Board”, tika panākta spēka izturības, rādītāju statistiski ticama pozitīva dinamika.

Pēc eksperimenta kontroles grupas vidējais rezultāts speciālajā fiziskās sagatavošanas testā “Atspoles slidošana 5 x 54 m” (ar smaguma vesti) bija $61,3 \pm 2,3$ sek., bet eksperimentālās grupas vidējais rezultāts šajā testā ir $56,9 \pm 2,4$ sek. Kontroles un eksperimentālās grupas beigu rezultātu starpība testā “Atspoles slidošana 5 x 54 m” (ar smaguma vesti) ir 4,4 sek., un atšķirība starp grupām statistiski ir ticama ($\alpha < 0,05$). Pēc testēšanas beigu rezultātu apstrādes var secināt, ka kontroles un eksperimentālā grupa pēc testēšanas datiem vairs nav līdzvērtīgas spēka izturības rādītājos (sk.2.att.).



2.attēls. *Kontroles un eksperimentālās grupas testa “Atspoles slidošana 5x54 m” vidējo rādītāju salīdzinājums pēc noslēguma testēšanas*

Figure 2 *Comparison of control and Experimental group averages at “5x54” shuttle skating test after final testing*

Statistiski ticamas atšķirības testā “Atspoles slidošana 5 x 54 m” (ar smaguma vesti) apliecina to, ka eksperimentālās grupas audzēkņiem, pielietojot

izstrādāto vingrinājumu kopumu ar 8 modificētiem vingrinājumiem uz “*Slide Board*” inventāra apvienojot tos ar papildus līdzekli – svarbumba un izmantojot atkārtojumu metodi, vispārējās fiziskās sagatavošanas perioda laikā izdevās efektīvāk palielināt speciālās spēka izturības rādītājus, salīdzinot ar kontroles grupu, kas izmantoja treniņu programmu ar vingrinājumiem, kas balstījās uz iepriekšējās sezonas vingrinājumiem, un pielietoja intervāli ekstensīvās apļa treniņu metodes.

Ātruma izturības testa “Atspoles slidošana 5 x 54 m” (bez smaguma vestes) rezultātos būtiskas izmaiņas starp pētījuma grupām netika konstatētas.

Secinājumi **Conclusions**

“*Slide Board*” inventāra izmantošana, apvienojot to ar papildus līdzekļiem ir efektīva metode speciālās spēka izturības rādītāju uzlabošanai. Iegūtie rezultāti apliecina jaunu tehnoloģiju izmantošanas potenciālu, ieviešot tos ikdienas treniņa procesā ārpus ledus laukuma. Ir nepieciešami turpmākie pētījumi ar modificētiem “*Slide Board*” vingrinājumiem, kas varētu palielināt hokeja treniņu efektivitāti un jauniešu motivāciju, veicot nogurdinošos vingrinājumus vispārējās fiziskās sagatavošanās periodā.

Summary

In all sports training process during overall preparation period is a foundation of future result achievement. In each sport this process is based on overall physical preparation increase, but in many sports, depending on its specifics, it can be different (Cox et al., 1995; Matthews, Comfort, & Crebin, 2010).

Theoretical analysis of empirical researches show that leading factors, which define player's special physical preparation is a strength (mass of myofibrils) and aerobic abilities (mass of mitochondria) for muscles groups of leg and body, which ensures movement on ice. Test “Acceleration and breaking skating 5x54m” has been developed for evaluating player's special physical preparedness. If overall efficiency is settled with stepwise load test on cycle ergometer, then special efficiency, taking into account test results on ice, is a foundation and characterizes hockey player appropriate muscles groups preparedness to ensure movement on skates with acceleration and braking (Urjupin, 2014).

Hockey coaches are often apply the same means which makes training process monotonous and tiresome. For young players this seems to be boring and uninteresting, in results, decreasing its interest playing sports, its dedication that hampers physical development.

One from training means in hockey is “Slide board”. It is imperative to have good sense of balance with the precise body pose retention doing exercises on “Slide board”, which fulfils deep muscles development, thereby increasing overall strength endurance. Using additional equipment with weights during exercises on “Slide board” will give a possibility to augment strength quality. Aim of this research is to improve physical preparation training process using “Slide board” inventory combining it with additional various means.

This will help to decrease process monotony and will promote new idea diversity usage, which is very important in physical preparation process for young athletes' motivation and dedication increase.

Subjects of the research: youth age group (U17) of the ice hockey team „SK Riga 2000”

Tasks of the research: to study of “Slide board” equipment applied in physical preparation; develop and approve the routine of experimental exercises for development of strength and strength endurance.

Routine of exercises were included in experimental group which by its performance characteristics were simple and easy executed just as others by its performance characteristics were complicated and requested for an accurate movement preciseness, its mutual consent, activity description and direction change during orientation and in premises.

Eight modified exercises were included on “Slide board” equipment, additionally combining those with extra means – kettlebell.

Exercise 1 – starting from basic stand doing lunge by turns with sliding leg backwards and weight rotation from one hand to another.

Exercise 2 – from full squat doing lunge in turns with sliding leg backwards and weight rotation from one hand to another.

Exercise 3 – side lunge from full squat and weight rotation from one hand to another.

Exercise 4 – side lunge in turns with a hand waves from full squat.

Exercise 5 – lunge in turns towards and backwards with hand waves.

Exercise 6 – from full squat, side lunge with alternate leg movement to opposite side.

Exercise 7 – push off with legs from full squat sliding in turns from right to the left side.

Exercise 8 – from lunge step getting across to full squat, pushing off with the leg and by turns sliding from right to the left side).

This routine of exercise was executed for experimental group (n = 13) using repetition method.

Control group (n = 12) used training program based on previous season exercises and applied circle training after interval extensive method.

Comparing special physical preparation final test results of control and experimental groups after an experiment (8 weeks) show statistically significant ($\alpha < 0.05$) improving of results in “Acceleration and breaking skating 5x54m” (with weight vest) test.

The results differences in test “Acceleration and breaking skating 5x54m” (without weight vest) for both groups were statistically insignificant.

Using “Slide Board” equipment in combination with additional tools is an effective method for improving strength and endurance performance. The results confirm the potential of using new technologies in the daily training process outside the ice rink. Further research is needed with modified "Slide Board" exercises that can increase the efficiency of hockey training and increase the motivation of young people to perform fatiguing exercises during physical training.

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ACTUAL MENTAL STATE OF STUDENTS IN PROCESS OF PHYSICAL EDUCATION CLASSES

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Abstract. *The transformation of the education system is taking place in modern Russia. There is a transition to a flexible learning system, adapted to the educational needs of every person with any age, cultural, linguistic affiliation. Practical training disciplines are becoming increasingly important. Academic disciplines that form universal competencies are transferred to online learning. Physical Education is such disciplines. All theoretical training is translated online, and the share of classes in the gym is minimized. The purpose of this pilot study is to identify the actual mental state of students in the gym in the conditions of using game and competitive methods. In addition, an important task is to compare the well-being, activity and mood of students studying physical education in the gym and online. An adapted version of the Dembo-Rubinstein technique was used to diagnose such indicators of the current mental state as well-being, activity and mood. The dynamics of these indicators in the conditions of employment in the gym using game and competitive methods was studied using a formative experiment. It was established that real classes in the gym have a positive effect on the actual mental state of students. Most students have improved health, mood, and increased activity. At the same time, classes using the game method, in contrast to classes using the competitive method, are much more effective for activating students and improving their mood. Comparison of indicators of the actual mental state of students in real classes in the gym and online showed that classes in the gym are able to more effectively influence the mood and activity of students.*
Keywords: *activity, classes in the gym, current mental state, interactive teaching methods, mood, online training, well-being.*

Introduction

The progressive development of science and technology stimulate intensive changes in modern society, especially in the socio-economic sphere. Technological progress, greening, digitalization, expanding the network space, complicating the structure of society itself are becoming conditions for changing the world of professions and educational needs of a person. Specialized professional skills lose their relevance. Universal flexible skills (Soft Skills)

become necessary in vocational education. Flexible skills include systemic thinking, the ability to work in a team, entrepreneurial thinking, the ability to manage projects, creativity, communication skills, knowledge of modern information technologies, ecological thinking, the ability to work effectively in conditions of uncertainty, customer focus, etc. These skills are an important condition for the effective functioning of the subject of labor in an ever-changing world. In this regard, an innovative model of education is being actively introduced in Russia. This model has the following features:

- Flexibility and variability (the need for sustainable educational programs that have been implemented for many years is decreasing, while the importance of new long-term and short-term educational programs oriented to the constantly changing labor market needs increases);
- Continuous monitoring of the situation of the labor market and the educational needs of the population;
- Rejection of the standard lecture and seminar form of training in favor of the project form of work; project method and practical training are methods that contribute to the more effective development of Soft Skills;
- The increasing role of business and work experience (business and employers are both customers of educational programs and teachers, since training in practice communities is also very effective);
- The active introduction of online learning due to the intensive development of information systems;
- Expansion of the geography of the educational space (training should leave the walls of universities and schools, move to cities, parks, libraries, shopping centers, etc.);
- Educational programs are creative;
- Educational programs have a narrow focus (programs should be aimed at the formation of certain skills and competencies. For example, universities should train not just managers in the broad sense, but managers for a specific current field of the economy, for example, managers for managing online sales).

In this regard, a significant number of academic disciplines that are focused on the development of cultural, universal competencies are transferred to online learning. Physical Education (PE) is such a discipline. All theoretical training is transferred to online courses, and classes in the gym are reduced to a minimum.

The purpose of this pilot study is to determine the actual mental state of students in the gym, since the effectiveness of the educational process largely

depends on the activity of the students, their positive attitude and interest in the work. In addition, we formulate the following research questions:

- Are there any significant differences in the actual mental state of students in real physical education classes in the gym and online?
- Are there any significant differences in the actual mental state of students in physical education classes in the gym using various methods of interactive training?

This study examines two interactive learning methods — the game method and the competitive method.

Literature review

The problem of the influence of physical education classes on the mental and physical condition of students is relevant for modern science. It is studied by (Borkovits, 2013; Cherkashin, Platonov, & Migalkin, 2015; Dirlwanger, Di Vetta, Giusti, Schneider, Jéquier, & Tappy 1999; Oleynik & Annenko, 2018) and others. Most researchers consider the formation of certain skills, physical and physiological characteristics in physical education classes in the gym. Scientists do not study the problem of the influence of physical education on a mental state practically.

Actual mental state is an integral characteristic of mental activity for a certain period of time. It reflects the uniqueness of the functioning of mental processes depending on the reflected objects and phenomena of reality, the previous state and personality traits (Levitov, 1964).

V.F. Sopov believes that the current mental state has an effect on a person in the process of physical activity as follows (Sopov, 2005):

- The structure of individual consciousness is transformed;
- The subjective significance of certain events in training and competition changes;
- The meaning of events is being transformed.

A.A. Derkach indicates that the mental state is determined, like all mental phenomena, primarily environmental influences. Physical condition also affects him. Mental states depend on the individual characteristics of a person, as well as on his previous conditions of his functioning. Mental states are determined by internal and external factors, in this way (Derkach, 2012).

Well-being, activity and mood are the main indicators of the current mental state.

Thus, the current mental state is a characteristic of the student's mental activity in physical education classes. It reflects the features of the functioning of the individual in these specific conditions, depending on the mental representation of reality.

Methodology

The formative experiment method was used in this study.

The following methodological positions were taken into account when organizing the experiment and choosing diagnostic methods:

- The need to establish the initial severity of the mental state (Levitov, 1964);
- It is possible to apply subjective methods of data collection in the study of mental conditions; This position is based on the idea that the subjective is a reflection in the human mind of objective manifestations (Zinchenko, 2010; Ganzen & Yurchenko, 1981).

The experiment was conducted on the basis of Pskov State University in the framework of "Elective disciplines in physical education and sports."

58 first-year students of different educational fields took part in the experiment. The age of the group members is 17–19 years.

The experiment consisted of two stages:

The first stage is practical exercises in the gym. 8 practical exercises (16 hours) were conducted during the experiment: 4 lessons using the game method and 4 lessons using the competitive method. All tasks in the gym were based on the use of only a specific teaching method, including introductory and final exercises.

The second stage is the study of the theoretical foundations of physical education in the framework of the online distance course "Physical Education" (24 hours), developed at the Baltic State University named after I. Kant.

Diagnosis of well-being, activity and mood was carried out at the beginning and at the end of each lesson using the method of studying self-assessment T.V. Dembo - S.Ya. Rubinstein. Evaluation criteria and procedure were changed in accordance with the goals of the study. The use of this technique was due to the fact that it is possible to evaluate the necessary indicators quickly using it. The procedure for using the Dembo-Rubinstein technique to diagnose the health, activity and mood of high school students was as follows:

- Students received an answer form that presented three scales with criteria for well-being, activity and mood for self-assessment at the beginning of the lesson and the same three scales for self-assessment at the end of the lesson. Students received the task: "Here are three scales that reflect your well-being, activity and mood at the moment. The upper pole of these scales corresponds to good health, mood, high activity, the lower pole to poor. Remember the moment, the situation from your life, when you felt very good, absolutely healthy, happy, active, when you were just overwhelmed with energy, your soul was

joyful and pleasant. This state corresponds to the upper pole of the scale. And now remember the moment when you felt very bad, you had a bad mood and you did not want anything. This state corresponds to the lower pole of the scales. Your task is to evaluate your state at the moment, compare it with these extreme options and put a point on the scale in the place that, in your opinion, corresponds to your well-being, activity and mood at the moment". Students were given a second instruction at the end of the lesson: "Here are three scales that reflect your well-being, mood and activity. Your task is to compare how your state has changed after the lesson and the exercises that you performed. Try not to take into account other factors that could change your well-being, activity and mood (for example, thoughts about homework, control work, etc.), and put a point in the place on the scale where you consider it necessary".

The control of additional variables was carried out as follows:

- Comfortable physical conditions for classes were created (the same spacious room was always used - a gym with good lighting);
- The effects of the experimenter's influence were reduced (uniform appearance, rejection of value judgments and criticism, which could ruin the mood of the group members);
- The influence of external factors was minimized (group members left all personal items, including mobile phones, in the locker room);
- The effect of intra-group pressure was reduced (the introduction of rules of conduct and work in the gym).

The processing of empirical data was carried out using methods of mathematical statistics.

Thus, well-being, activity and mood, as well as their dynamics are measured indicators of the actual mental state of students in the classroom in the gym.

Research results

The first research task is to determine the actual mental state of students in physical education classes in the gym.

The dynamics of well-being, activity, and mood before and after each lesson were the focus of attention in this study. Data on the dynamics of "well-being" in the classroom using the game and competitive methods are presented in table 1.

Table 1 Dynamics of well-being (in %) at physical education classes using game and competitive methods in the gym

Number of lesson	1	2	3	4	5	6	7	8
Method	G	C	G	C	G	C	G	C
Positive dynamics of well-being	71	51	62	60	72	69	78	59
Negative dynamics of well-being	12	28	19	26	17	26	19	28
Well-being has not changed	17	21	19	14	12	5	3	13
W	4.513	2.450	3.556	2.851	4.220	2.990	4.950	2.955
p	0.000	0.014	0.000	0.004	0.000	0.003	0.000	0.003

Legend: «G» is a game method; «C» is a competitive method; «W» is the value of the Wilcoxon test; «p» is the significance level.

The results show that there was a positive dynamics of well-being in all classes in general, that is, students had a subjective feeling of improvement. If we consider students who have deterioration in well-being, then the results show that the well-being worsened in a large number of students in the classroom using the competitive method.

Data on the dynamics of the “mood” of students in physical education classes using game and competitive methods are presented in table 2.

The nature of the changes in mood shows that mood improved in the vast majority of students in all classes, regardless of the method used.

Table 2 Dynamics of mood (in %) at physical education classes using game and competitive methods in the gym

Number of lesson	1	2	3	4	5	6	7	8
Method	G	C	G	C	G	C	G	C
Positive dynamics of mood	81	66	83	82	81	71	91	88
Negative dynamics of mood	5	17	10	9	10	17	2	5
Mood has not changed	14	17	7	9	9	12	7	7
W	5.570	3.136	5.648	5.372	5.917	4.777	6.000	6.160
p	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000

Legend: «G» is a game method; «C» is a competitive method; «W» is the value of the Wilcoxon test; «p» is the significance level.

Data on the dynamics of "activity" among students in physical education classes in the gym using game and competitive methods are presented in table 3.

Table 3 Dynamics of activity (in %) at physical education classes using game and competitive methods in the gym

Number of lesson	1	2	3	4	5	6	7	8
Method	G	C	G	C	G	C	G	C
Positive dynamics of activity	79	74	81	76	86	71	82	72
Negative dynamics of activity	12	17	14	14	8	24	9	16
Activity has not changed	9	9	5	10	6	5	9	12
W	5.771	4.220	5.218	4.952	5.980	4.384	5.372	4.994
p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Legend: «G» is a game method; «C» is a competitive method; «W» is the value of the Wilcoxon test; «p» is the significance level.

The results show that most students had an increase in the level of activity in all classes. If we consider the data on the decrease in activity, then the results show that the percentage of students with negative dynamics of activity in the classroom using the competitive method is slightly higher.

Thus, the results of the study show that classes in the gym affect the current mental state of students favorably, namely: contribute to improving well-being, mood and increase activity.

The second goal of this study is to determine whether there are significant differences in the actual mental state of students in physical education classes using game and competitive methods.

The data analysis procedure included three stages:

1. The coefficient of the dynamics of well-being, activity and mood is calculated by subtracting from the assessment after the lesson and the assessment before the lesson (calculations were carried out relative to each lesson);
2. The arithmetic average of the coefficients of the dynamics of well-being, activity and mood for all classes using one and the second method was calculated;
3. The comparison of the average dynamics coefficients for classes using the game and competitive methods was carried out using the Mann-Whitney criterion.

Significant differences were identified by two indicators: (figure 1):

1. In the mood dynamics (U=846; p=0.000).
2. In the dynamics of activity (U=1141; p=0.003).

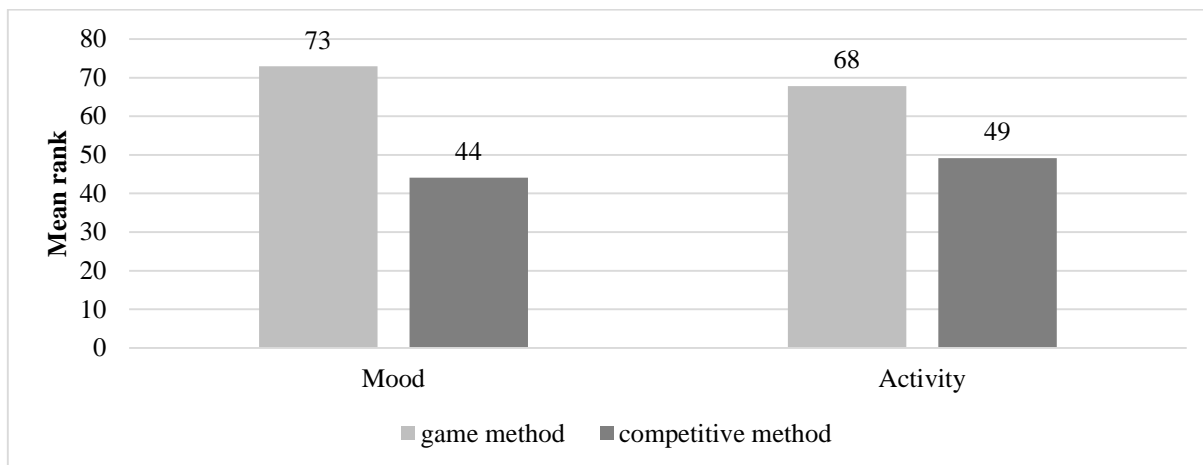


Figure 1 Significant differences in the dynamics of mood and activity of students in physical education classes in the gym using the game and competitive method

Analysis of these differences allows us to conclude that classes using the game method are more effective in terms of influencing the mood and activity of students. Perhaps this is due to the fact that this method does not limit students in their actions, and inclusion in the game is always associated with some element of emotionality and excitement. The competitive method makes more demands on the accuracy of the exercises, and also imposes greater responsibility on the participants. Such conditions create a situation of psychological tension, the actualization of internal conflicts related to competition, level of claims, group responsibility.

Thus, the use of the game method allows you to relieve the student's inner tension, improve his mood and increase his activity level.

The third objective of this study is to identify significant differences in the actual mental state of students in physical education in the gym, and to study the course on an online platform.

Students in online mode were asked to answer the questionnaire before and after studying the course to solve this research problem. The duration of the online course was two weeks. Students had to remember how they felt, mood and activity throughout all online classes, in the process of self-assessment. Significant dynamics of well-being, activity and mood were identified using the Wilcoxon test (table 4).

The results show that most students had a negative dynamics of well-being, mood and activity. This means that the well-being worsens, the mood deteriorates and the activity of students decreases when learning physical education online. Perhaps this is due to the fact that self-study online occurs most often in the evening, designed for students to relax. In addition, it reduced functional state at that time according to the daily dynamics of the individual's performance.

Table 4 Dynamics of well-being, activity and mood (in %) among students on the online course "Physical Education"

Number of lesson	Well-being	Mood	Activity
Positive dynamics of indicator	25	24	25
Negative dynamics of indicator	60	62	64
Indicator has not changed	15	14	11
W	-3.289	-3.547	-3.037
p	0.001	0.000	0.002

Thus, the results of the experiment showed that a positive dynamics of well-being, activity and mood is observed when learning physical education in the gym. Indicators of the current mental state decrease when studying this course online. Therefore, it is important to maintain the physical activity of students in the gym in a sufficient amount. Real classes should be regular. Online classes should only complement classes in the gym. Such training conditions are the key to maintaining satisfactory health, activity and good mood among students. The online load should be minimized, as it is implemented at a time intended for rest and relaxation. These conditions create a pronounced stress and deplete the nervous system of the individual.

Conclusions and discussion

The following conclusions were obtained as a result of the study:

1. Physical education in the gym are affected the current mental state of students favorably. They help to improve well-being, mood and increase activity.
2. The game method is more effective in class in the gym for activating students and improving their mood and emotional background compared to the competitive method.
3. Classes in the gym are more effective than classes on the online platform. Classes in the gym cause an improvement in well-being, increased activity and a mood boost. The negative dynamics of these indicators is observed when studying online.

The results obtained show the importance of physical education for maintaining the health and activity of students. Therefore, it is necessary to include physical education in the curriculum of undergraduate and specialty. Online learning can only complement the PE process.

Of course, online education has many advantages, namely: removes the spatial and temporal boundaries of training, expands the possibilities of individual choice, and offers a wide range of content. This is good when studying a significant number of academic disciplines, but not physical education. Physical

education is aimed at managing the development of physical qualities, abilities and training in motor actions. All classes should be conducted with the participation of a trainer, whose task is to monitor the correct implementation of the exercises by students.

In addition, it is necessary to remember the importance of joint activity of students, which contributes not only to physical development, but also improves the condition of students, increases their mood and the level of their general activity. Students receive a boost of energy, positive emotions, which improve the mood for the whole day. At the same time, interactive teaching methods are effective in organizing physical education classes, especially game and competitive methods. Students note that performing exercises in a team contributes to a sense of self-confidence, and also unites the group, improving the psychological climate in the student team.

Thus, a pilot study established the importance of physical activity to improve the current mental state of students. The data obtained will be supplemented by subsequent studies on a larger sample. But now we can state the fact that physical education classes, conducted only under the supervision of a trainer, are an important condition for ensuring their health as a resource for achieving high working capacity and productivity.

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AUGSTSKOLĀS STUDĒJOŠIE AUGSTU SASNIEGUMU SPORTISTI PAR DUĀLO KARJERU

Students - Top Athletes about Dual Career

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Abstract. *This article aims to give an overview of students – top athlete experience, how to combine studies at university with a sports career. For the data, the acquisition was used as an individual, written survey with mixed-type questions by form. Applicants of the survey were students who are in the national team or master players. The data from the survey was processed by AQUAD Seven, was used descriptive and inferring statistics analysis of factors using the data statistical processing programs SPSS and Excel. Talented athletes have to make an important choice about their future after graduating high school: to start studies at university, focus on sports careers or combine these two goals. Combining studies to the high-achievement sport is the goal of dual career, it is a serious step for every young talent. In this article, we summarise top athlete opinions, who are studying in Latvian universities, about dual-career. Their recommendations for improving the situation, expanding opportunities and engaging mentors in certain study programs they are studying in. Conclusions are drawn, that there is possible development in a dual career, based on the results of this and previous author`s researches. Different universities and programs have different possibilities and experiences in creating the study process for the top athletes, which should be taken into consideration when making a united dual-career model for universities.*

Keywords: *dual career, education, sports, top athletes.*

Ievads

Introduction

Duālā karjera ir definēta gan dažādās valstīs atsevišķi, gan sadarbojoties dažādu valstu sporta zinātniekiem. Lai arī definējumi ir ar dažādām variācijām, pamatdoma ir izkristalizējusies. To apliecina arī 2019. gada pavasarī pabeigtā ES projekta noslēguma ziņojumā paustas, ka “Duālā karjera ir veiksmīga izglītības un treniņu apvienošana, kas dod iespēju viņam/viņai individuāli sasniegt augstākos mērķus dzīvē”. Projekta laikā veikto pētījumu rezultāti autoriem deva pamatu izteikt viedokli, ka Eiropas savienībā kopumā ir vismaz

120000 studējošo sportistu, kuri atrodas “duālās karjeras situācijā” (Badosa, Vervoorn, Pesce, Lusetti, & Slivnik, 2019).

Duālās karjeras nozīmīgumu jauno sportistu dzīvē apliecina pētījums, ka tikai 30% no perspektīvajiem jaunajiem atlētiem turpina sporta treniņus augstu sasniegumu jeb elites sporta līmenī. Pētījums parāda, ka vairāk kā 50% no augstu sasniegumu sporta karjeru beigušajiem saskarās ar būtiskiem sarežģījumiem uzsākot darba karjeru. (Badosa et al., 2019). Jaunajiem un talantīgajiem sportistiem, kuri vēlas studēt un turpināt sportisko karjeru, ir svarīgi zināt turpmākās iespējas, kā arī apzināties iespējamās sarežģījumus. Šī pētījuma mērķis ir noskaidrot augstas klases sportistu – studentu viedokli par duālo karjeru, viņu personīgo pieredzi un ieteikumus, kuri būtu jāņem vērā, gatavojot duālās karjeras vadlīnijas Latvijas augstskolām.

Metodoloģija *Methodology*

Aptaujas anketas kā mērinstruments tika veidots, pamatojoties uz līdzīgiem publicētiem pētījumiem par augstu sasniegumu sportistu duālās karjeras veidošanu (Engström, 2011; Abelkalns, 2013). Aptauja – anketēšana tika organizēta elektroniski nosūtot jautājumus un saņemot atbildes uz tiem. Slēgtie jautājumi tika veidoti, lai samazinātu anketu aizpildīšanas un arī apstrādes laiku. Šāda jautājumu forma ļauj strukturēt respondentu atbildes, taču ierobežo respondentu papildus informācijas atklāšanā (Kristapsone, 2008). Atvērtie jautājumi ļauj studējošajam sportistam plašāk izpaust savas domas, pētnieki var iegūt paplašinātu informāciju par pētāmo situāciju (Creswell, 1998). Šajā pētījumā piedalījās studenti – nacionālo izlašu dalībnieki vai kandidāti, meistarkomandu spēlētāji vai līdzīgi augstā sportisko rezultātu līmenī startējošie individuālo sporta veidu pārstāvji.

Aptaujā piedalījās 22 LSPA un 68 četrās Latvijas universitātēs (LU, LLU, RSU un RTU) studējošie augstu sasniegumu sportisti.

Rezultāti *Results*

Tika veikta iegūto rezultātu faktoru analīze SPSS programmā, lai atrastu mainīgo savstarpējās saistības un starp tām pastāvošās likumsakarības (Geske & Grīnfelds, 2006).

Galvenais pētījuma mērķis ir meklēt ieteikumus Latvijas augstskolām un sporta veidu federācijām, kā studējošajiem sportistiem palīdzēt sekmīgi veidot katram savu duālo karjeru, sniedzot viņiem atbalstu, vienlaicīgu nezaudējot kvalitāti ne studijās, ne sportiskajos rezultātos. Bieži sportisti nonāk situācijā,

kad nav iespējams ievērot valsts izlases trenera prasības vienlaicīgi ar mācību iestādes studiju programmas plānu (lekciju apmeklējums, praktisko vai laboratorijas darbu izpilde u.c.) (Ābelkalns & Kravalis, 2019). Šajā situācijā svarīgs ir sporta funkcionāru un augstskolas vadības viedoklis, kā arī viņu spēja sadarboties, palīdzot sportistam – studentam īstenot abus izvirzītos uzdevumus. Svarīgākais lēmums ir jāpieņem pašam sportistam. Lai šādu lēmumu būtu vieglāk pieņemt, jaunajam atlētam ir jāredz skaidra nākotnes perspektīva. Tas nozīmē skaidri un saprotami definētas prasības, noteikumi un pieļaujamās atkāpes gan studijās, gan sportā. Līdzīga situācija ir arī citās Eiropas valstīs. Tāpēc tiek veikti pētījumi un īstenoti Duālās karjeras (DK) projekti. Viens no pēdējiem projektiem ir *Innovative Clubs for Dual Career (ICDC)*. Projekts tika realizēts 12 ES valstīs, 68 dažādos klubos. Projektā iesaistījās Nīderlande, Vācija, Austrija, Beļģija, Francija, Spānija, Skotija, Anglija, Īrija, Slovēnija, Dānija, Zviedrija. Pētījuma rezultātā tapušais duālās karjeras modelis tiek balstīts uz četriem pīlāriem.

1.tabula. *Duālās karjeras inovatīvo klubu četri pīlāri*
 Table 1 *Four pillars of innovative clubs for Dual Career*

Optimāla gatavība DK	Augstu sasniegumu sporta un skolas savstarpēja koordinācija	Duālās karjeras komanda	Atbalsts Duālajai karjerai
Reāla vīzija par DK	Programmas akreditācija	Sadarbība DK komandā	Mentālā gatavība DK
Līgumi ar partneriem			Studētprasmes pilnveide
Uzlabojot savstarpējo sapratni izveidotas optimālas DK iespējas. DK būtības izpratne.	Praktiska sadarbība	DK speciālistu – mentoru piesaiste	DK prasmju pilnveide
	Individuālo plānu saskaņošana		
	Izglītības turpināšana nākotnē		

Pirmo pīlāru, optimālu gatavību duālajai karjerai, veido skaidra un noteikta vīzija par to, līgums starp partneriem un optimālas duālās karjeras iespējas izveide, uzlabojot savstarpējo sapratni. Tāpat nozīmīga loma ir izpratnei par duālās karjeras būtību. Otrā pīlāra komponentes vērsta uz to, ka nepieciešama sadarbības koordinēšana starp augstu sasniegumu sportistu un viņa izglītības iestādi. Šeit ietilpst arī praktiskā palīdzība treniņu plāna realizēšanai un studiju prasību izpildei. Trešais pīlārs ietver sevī sadarbību starp duālo karjeru nodrošinošās komandas dalībniekiem, DK speciālistiem, kā arī rūpes par šīs komandas darba pilnveidi. Ceturtajā pīlārā ietilpst DK atbalsta nodrošināšana.

Ar atbalstu šajā gadījumā jāsaprot jaunā cilvēka iepazīstināšana ar mentālajām, studiju un vispārējām sadzīves prasmēm. Šis modelis ir plānots realizēt sadarbojoties skolām un sporta klubiem. Vai to ir iespējams pielīdzināt augstskolām, vai daļēji realizēt augstskolu un sporta veidu federāciju sadarbībā Latvijā? Lai meklētu atbildi uz šo un citiem jautājumiem saistībā ar Duālo karjeru, tika aptaujāti Latvijas universitāšu un Latvijas Sporta pedagoģijas akadēmijas (LSPA) studenti – augstu sasniegumu sportisti.

Pašlaik, 2020. gadā, LSPA 38 studenti – augstu sasniegumu sportisti studē pēc individuālā plāna. Lai studējošais iegūtu iespēju izmantot šādu studiju formu, viņam jāizpilda vairāki kritēriji, starp kuriem ir gan studiju rezultāti, gan sasniegumi sportā. Savu nozīmi duālās karjeras īstenošanā nezaudē treneris. To apliecina publicētie pētījumu rezultāti (Gould, 2016), kā arī pašu studējošo sportistu atbildes un sporta funkcionāru atbildes (Ābeļkalns & Kravalis, 2019).

Jautājumā par augstu sasniegumu sportu, LSPA studējošo atbildes nepārprotami norādīja, ka augstu sasniegumu sports var būt daļība valsts izlasē starptautiskās sacensībās, vai starptautiskos turnīros spēlējoša kluba komandas pamatsastāvā:

... ar augstu atbildības un disciplīnas sajūtu par sevi, savu darāmo uzdevumu un to izpildi. Paraugš, piemērs apkārtējiem, ka ar smagu darbu viss ir iespējams.

... ir mērķtiecīgs, disciplinēts, motivēts, atbildīgs pret savu pienākumu veikšanu, tas ir sagatavošanos sacensībām, uzrādot pašus labākos rezultātus sacensībās pārstāvēt Latvijas izlasi, kā arī atbildīgs pret studijām.

... ir cilvēks, kurš liek sporta sasniegumus 1. vietā izmantojot savu visu potenciālu un izmantojot striktu režīmu lai sasniegt savus sporta mērķus!

Svarīgi ir zināt, kāpēc sportisti izvēlās vienlaicīgi savai sportiskajai karjerai studēt. Viņi visi lieliski apzinās, ka studiju darbs būs jāveic paralēli treniņiem, līdz ar to var rasties sarežģījumi gan sportā, gan studijās. Uz šo jautājumu atbildes bija:

... jo vēlos iegūt zināšanas papildus treniņiem, kas spētu palīdzēt uzlabot man savu sniegumu, kā arī smadzeņu darbības attīstīšanai.

... mana kaislība ir basketbols, taču domāju arī par nākotnes iespējām.

... lai papildinātu savas zināšanas un uzlabotu sporta sniegumu.

... ticu, ka tas ir iespējams, un pateicoties LSPA, to tiešām var realizēt.

Jautājumā par to, vai augstus sportiskos sasniegumus uzrādot ir arī jāstudē, atbildes 100% bija – jā, jāstudē. Pamatojums gan studējošajiem sportistiem dažāds:

... noteikti ir jāstudē augstskolā, jo sportists iegūst lieliskas zināšanas, kuras var noderēt turpmākajā karjerā un dzīvē, kā arī beidzot sportošanu ir iegūta augstākā izglītība, lai varētu strādāt...

... jāstudē, jo domāšana un prāta trenēšana palīdz sasniegt sportā daudz vairāk ...

... sports ir ļoti viltīga profesija, kas var apstāties vienas dienas laikā, piemēram, dabūjot traumu, kas liedz trenēties tālāk! Bet, ja uz to brīdi Tev ir izglītība, tev ir iespēja pielietot savas zināšanas un sākt strādāt sava jomā!

Lai varētu veidot vadlīnijas duālajai karjerai, svarīgi ir noskaidrot studējošo sportistu domas, kā un vai viena izvēle – studijas, traucē sportam, samazinot iespējamo sasniegto rezultātu. Tāpat aktuāli ir noskaidrot studējošo sportistu domas, kā un vai sports traucē studiju procesam un ietekmē studiju kvalitāti. Par studiju rezultātus visvairāk ietekmējošiem tika atzīti šādi ar sportu saistītie faktori:

- *Atbildīgāko (svarīgāko) sacensību sakrišana ar saspringtu laiku augstskolā*
- *Nepietiek laika atpūtai starp treniņiem*
- *Garie izbraukumi uz ārzemēm*
- *Neprasmē plānot laiku*
- *Treniņu bāze tālu no akadēmijas*
- *Treniņnometnes un ilgie (garie) treniņi*

Kā atzina paši studējošie sportisti, tad viņu mērķi gan sportā, gan studijās ir vienlīdz augsti. Neviens no viņiem nevēlās saņemt zemāko vērtējumu kādā studiju kursā, jo to nepieļauj sportiskais raksturs un vēlme uzrādīt labāko rezultātu. Arī sportisko rezultātu kritums nav studējošo sportistu plānos. Pēc viņu vērtējuma lielākās problēmas sporta rezultātu sasniegšanai studējot ir:

- *Dažu pasniedzēju neizpratne vai nevēlēšanās situāciju plašāk izvērtēt (kas rada papildus stresu)*
- *... nevarētu sūdzēties, ka kaut kas ir neiespējams, bet reizēm neizpratni rada dažu pasniedzēju "iesīkstējušie" uzskati, ka kursu sekmīgi nevar nokārot, ja neapmeklē teorētiskās nodarbības klātienē*
- *... augstskola atrodās tālu no treniņu un arī no dzīves vietas.*

No aptaujātajiem studentiem – augstu sasniegumu sportistiem 74,6% kā lielāko trūkumu labu studiju rezultātu sasniegšanai uzrādīja laika trūkumu. Studiju grafiku kā sev neizdevīgu norādīja 55,2% no aptaujātajiem. Neveiksmīga komunikācija ar treneri un/vai ar treniņu biedriem 31,3% gadījumu tiek atzīts kā viens no būtiskākajiem studijām traucējošajiem faktoriem.

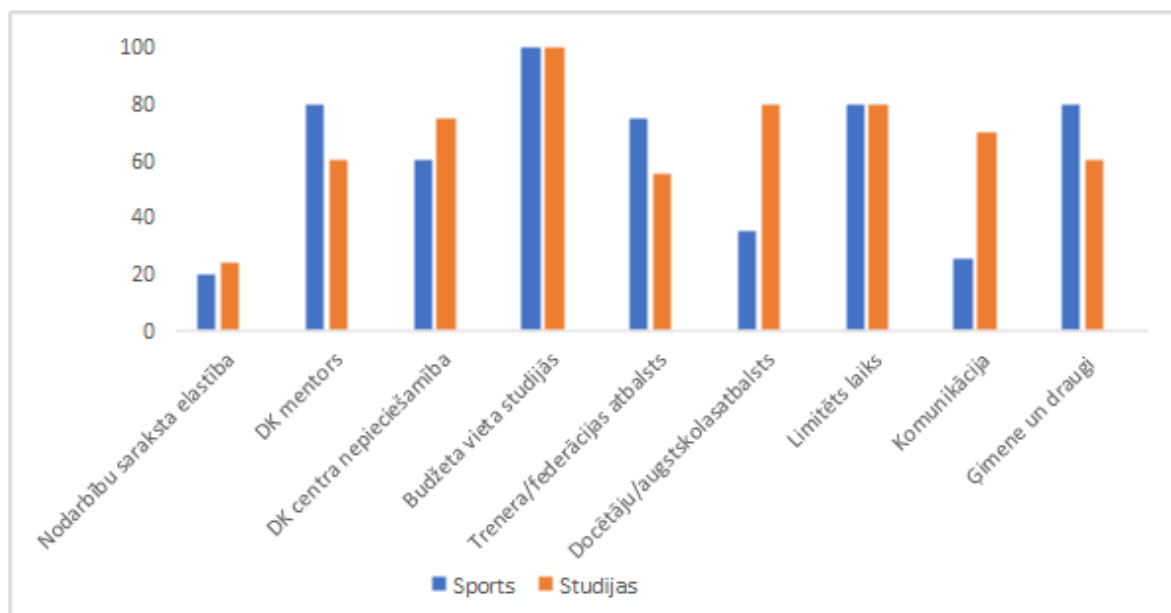
Studējošie sportisti ar konkrētiem priekšlikumiem izsaka savu viedokli, kas būtu jādara augstskolu vadītājiem, lai veiksmīgi varētu īstenot dzīvē duālo karjeru. Lūk dažās no atbildēm:

... piedāvāt tiešraides no lekcijām, iespēju noskatīties ierakstā, sagatavot vairāk materiālus, radīt vidi un vēlmi profesionāliem sportistiem izvēlēties tieši šo izglītības iestādi.

... docētājiem būtu jāspēj pieņemt to, ka katram no mums ir savs sporta veids, un mēs visi cenšamies cik spēka...

... varbūt docētājiem pietrūkst komunikācijas ar sportistiem, lai vairāk sekotu līdzī gan sporta sasniegumiem, gan akadēmisko studiju rezultātiem...

Lai veiksmīgi varētu virzīties uz mērķi sasniegt maksimāli labus rezultātus gan sportā gan studijās, būtu nepieciešams duālās karjeras konsultants, kā tas ir valstīs ar pieredzi šādas karjeras veidošanā (Somijā, Nīderlandē, Vācijā u.c.). Taču nebūt ne visi studenti piekrīt šādam viedoklim, raizējoties par to, ka augstskolā būs vēl viens cilvēks, kurš “jāinformē gan par treniņu, gan studiju darbiem, tādējādi tērējot jau tā niecīgo brīvā laika resursu”. Tas varētu būt saistīts ar neizpratni, ko dara un kā var palīdzēt karjeras konsultants.



1.attēls. Faktoru ietekme uz karjeru sportā un karjeru studijās studentu – augstu sasniegumu sportistu vērtējumā.

Figure 1 Student - top athlete evaluation of factor impact on their sports and study career

Kā redzam 1.attēlā, studentiem – augstu sasniegumu sportistiem duālās karjeras veiksmīgai veidošanai visās augstskolās būtu nepieciešams DK atbalsta centrs, kurā strādātu mentors, kurš izprot studiju, gan treniņu un sacensību procesu. Viņš varētu veidot visu iesaistīto personu veiksmīgu komunikāciju. Kā nozīmīgākais faktors abu karjeru veidošanā 100% tiek atzīts nodrošinātā budžeta studiju vieta izvēlētajā programmā. Ģimenes un draugu, tāpat kā treneru un sporta veida federācijas atbalsts nozīmīgāks ir sportisko rezultātu izaugsmei. Augstskolas un docētāju atbalsts vairāk ietekmē studiju rezultātus.

Apkopojot visu aptaujāto augstskolās studējošo augstas klases sportistu domas, kādi būtu svarīgākie priekšnoteikumi, lai veiksmīgi varētu veidot sporta un izglītības karjeras, 64,2% atbildēja, ka nozīmīgākais ir kopumā apzināties duālās karjeras iespēju un saprast, ko tas nozīmē. Jēdziena “duālā karjera” būtība jāzina un jāizprot visām iesaistītajām pusēm: studentiem - sportistiem, treneriem, sporta un augstskolu funkcionāriem, augstskolu docētājiem, kā arī

ģimenei un draugiem. Kā otra nozīmīgākā nepieciešamība (56,7% atbilžu) tika minēta duālās karjeras centra veidošana un tā sadarbības ar visām augstskolas fakultātēm nodrošināšana. Visās šajās atbildēs tika atzīmēta arī katra studenta – sportista personīgā mentora nepieciešamība.

Kā svarīga (44,8% atbilžu) tika minēta arī studentu sportisko sasniegumu reklamēšana augstskolā, docētāju un studiju biedru informēšana par uzrādītajiem rezultātiem, šo rezultātu analīze un novērtējums. Vēl 42,3% atbilžu tika norādīta savstarpējās komunikācijas uzlabošanas nepieciešamība starp studentu un augstskolu, studentu un treneri, augstskolu un treneri. Studējošajiem augstas klases sportistiem svarīga ir attieksme attiecībā uz to, ko viņi dara. Šeit citāti no saņemtajām anketām:

- ... *ticēt tam, ko dari un patiesi mīlēt savu nodarbošanos, lai tas nebūtu darbs, bet gan dzīvesveids!*
- ... *izvirzīt mērķi, tad to sasniegt būs vienkāršāk. Vai tās ir studijas, vai medaļa pasaules čempionātā...*
- ... *liela nozīme ir respektam. Ne tikai augstskolai jācieņa augsta līmeņa sportists, bet arī sportistam jārespektē studijas, pasniedzēji*

Secinājumi **Conclusions**

Duālā karjera – veiksmīga studiju un augstu sasnieguma sporta apvienošana ir nozīmīga gan Latvijā, gan Eiropas un pasaules valstīs. To apliecina daudzi sporta zinātnē strādājošo pētījumi, kā arī dažādu projektu ietvaros veiktās aptaujas un talantīgo jauno sportistu studiju un sporta karjeras. Latvijā nav izveidota duālās karjeras sistēma valstiskā līmenī. Dažādos sporta klubos, sporta skolās un augstskolās tiek realizētas dažādas pieejas talantīgo sportistu atbalstam. Augstskolas to dara atbilstoši savām iespējām un iepriekšējai pieredzei darbā ar studentiem – augstu sasniegumu sportistiem. Apkopojot augstskolu studentu – augstu sasniegumu sportistu domas par duālās karjeras patreizējo un viņuprāt vēlamu situāciju, varam secināt, ka sportistiem svarīgi ir zināt noteikumus studiju un sporta apvienošanai. Būtiska ir stabilitāte prasībās un augstskolas administrācijas elastība nodarbību grafika veidošanā, pēc iespējas saskaņojot to ar sporta veida specifiku. Ģimenes un draugu atbalsts ir būtisks faktors abu karjeru veidošanā, taču bez treneru, sporta veida federācijas atbalsta un augstskolas, studenta/sportista un trenera/federācijas savstarpējās sadarbības un specifiskas izpratnes augstvērtīga rezultāta sasniegšanā abās karjerās ir ļoti apgrūtināta.

Lai izveidotu vienotu, mūsdienu prasībām atbilstošu duālās karjeras sistēmu augstskolās, nepieciešama sakārtotība un skaidrība gan izglītībā, gan sporta nozarē. Taču pašlaik tas Latvijā nav, tāpēc arī katra augstskola un katrs

studējošais augstu sasniegumu sportists veido savu duālo karjeru pēc savas, trenera un augstskolas izpratnes vai neizpratnes par to. Diemžēl tādējādi tiek zaudēti gan potenciāli labi speciālisti kādā nozarē, gan iespējamie augstu sasniegumu sportisti. Daudzu sportistu darba karjera pēc karjeras sportā veidojas ar grūtībām un sarežģījumiem. Tādēļ atbalstāma ir tēze, ka studējošajiem sportistiem regulāri jāorganizē izglītojošie semināri par duālo karjeru, tās iespējām un nozīmi nākotnē pēc sporta karjeras noslēgšanas.

Summary

Dual career for higher education institution (university) students means successful combination of studies and participation in top sports. For young and talented athletes who wish to study and continue their sports career it is important to know future perspectives, as well as to be aware of possible complications. The aim of the research is to find out student – top athletes' opinion on dual career, their individual experience and recommendations to be taken into account when developing suggestions of dual career guidelines for universities in Latvia. To get to know student – top athletes', studying at different universities, opinion on dual career an inquiry was carried out in the Latvian Academy of Sport Education, as well as in four other universities.

In total ninety students – top athletes participated in the inquiry. The inquiry showed that quite often there are problems between sports federation and national team coach requirement observation in training and competition regimen on the one hand and the accomplishment of the study programme of the definite university (study class attendance, fulfilment of practical or laboratory assessments, a.o.) on the other hand. The opinion of sports officials and university administration is important in this situation, as well as their ability to cooperate when helping a student – athlete to accomplish both advanced objectives. Each studying athlete having evaluated all conditions should make the most important decision about his/her choice individually.

Combining studies with top sport brings different problems both in fulfilment of study requirements and when observing the training – competition schedule. However, students are sure about the need and necessity of making such a choice. Hindering factors in the acquisition of study programme are that the schedule of the most important competitions coincides with examination session at university, sports competitions held abroad, frequent trips to training camps and competitions, as well as bad time management, a.o. Accomplishing of the training and competition programme is made more complicated by nonflexible study plan, misunderstanding by some tutors about the individual study plans and sports specifics, far distance of university from the training center and living place, as well as some other factors.

Both study and sports results are essentially affected by lack of time to do the given assessments qualitatively. Unsuccessful mutual communication also impacts results unfavorably in both career directions. The individual study plan and the possibility to fulfil requirements to maintain the budget place improves not only a student – athlete's emotional condition, but also his/her financial situation, thus giving the possibility to show higher results both in studies and sport. The studying athletes express their opinion giving definite suggestions for university administration what should be done to successfully carry out dual career. In order to successfully move forward to the goal to achieve maximally good results

both in studies and sport, a dual career consultant would be necessary, similar as it is in the countries having experience in making such career (Finland, France, Netherlands, a.o.). Such a consultant could work in the university dual career support center.

The provided budget place in the chosen programme is mentioned as the most important factor in making both careers. The support of the family, friends, also coaches and the sports federation is more vital for sports result growth. The support of a university and tutors affects more study results. In Latvia the dual career system is not made on the state level. Different approaches to support talented athletes are applied in various sports clubs, sports schools and universities. Universities support athletes according to their possibilities and previous experience in work with students - top athletes. To make a uniform, adequate to today's requirements dual career system at universities, order and clarity is needed both in education and sports field.

However, the situation in Latvia is far from it, therefore each university and student - top athlete makes dual career according to one's own, coach or university understanding or misunderstanding about it. Job career of many athletes after their sports career involves many complications and hardships. Therefore, the statement that education seminars about dual career, its possibilities and future significance when athletes retire should be held for the studying athletes should be endorsed.

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VALUE OF SPEED CAPABILITIES IN YOUTH SPEED CLIMBING AT HIGH SPORTS LEVEL

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Abstract. *Current research on speed climbing at the senior level shows that speed capabilities are a significant factor determining climbing time. The main purpose of our research was to evaluate the level of speed capabilities among young speed climbers and to examine the relationship between the level of speed capabilities and the results achieved during an international competition. The subjects of the research were girls and boys in the following age categories: Female Youth A (age=16.6), Female Youth B (age=14.5 years), Male Youth A (age=16.87 years) and Male Youth B (age=14.8 years). Measurements of somatic features were included: body height, body weight, percentage of fat tissue and BMI. Speed capabilities were measured with Wingate Test. The significance test of differences showed no significant differentiation within climbing times between the groups of girls and the groups of boys. A strong correlation between climbing time and relative peak power was noticed in the Female Youth B group. The correlation between peak power and climbing time was lower in the other groups. Research showed that in speed climbing, as career progresses, it is importance of other factors rather than speed capabilities that may increase. It can be assumed that with an increase in training experience, motor skills become more essential.*

Keywords: *speed capabilities, speed climbing, youth categories, Wingate Test.*

Introduction

Sport climbing can be considered in three forms: speed climbing, bouldering and difficulty climbing. Each of these disciplines involves different types of effort and a different role for the upper and lower limbs. Speed climbing consists in covering the competition distance in the shortest possible time. Current research indicates that in speed climbing the important motor factors determining sports

success are: a high level of explosive strength and a high level of lower limb muscle power (Krawczyk, Ozimek, & Rokowski, 2015; Krawczyk, Ozimek, Rokowski, Pociecha, & Draga, 2017; Krawczyk & Ozimek, 2014; Krawczyk, Ozimek, Rokowski, Pociecha, & Draga, 2018). Some studies have shown that body proportions can be of considerable importance in sport climbing (Ozimek et al., 2017; Tomaszewski, Gajewski, & Lewandowska, 2011). Most of the research has been conducted among competitors at the senior level. Compared to the number of studies among senior climbers, there are much fewer of them pertaining to youth (or child) groups. These, in turn, mainly concerned bouldering and difficulty climbing, and mainly addressed the following issues: the impact of the level of somatic features of young climbers (Watts, Joubert, Lish, Mast, & Wilkins, 2003) determination of the profile of specific motor skills in children practising sport climbing (Nichols et al., 2018), oxygen uptake during climbing in children (Watts & Ostrowski, 2014), factors determining the effectiveness of climbing in bouldering (Votava, Matej, Otahal, & Kutilek, 2018), the impact of climbing training on the body composition and level of strength of the upper limbs (Baláš, Strejcová, Malý, Malá, & Martin, 2009) and specific reactions to climbing training in children (Morrison & Schoffl, 2007).

In groups of young climbers specializing in speed climbing, it is the Shulga's study that deserves attention, as it assessed the relationship between fitness preparation and the results obtained in speed climbing competitions in children aged 14-15 years (Shulga, 2010). Analysis of the literature shows that there is little scientific research in groups of young sports climbers. In this context, it seems reasonable to measure the physical fitness of young speed climbers. The results of these tests can be a valuable tool for the work of coaches.

The main purpose of this research was to assess and analyse the level of strength and speed capabilities of young competitors, participants of the European Junior Cup in speed climbing. In our own analyses, an attempt was made to estimate the impact of strength and speed potential on the results achieved. Based on the available state of scientific knowledge and in the context of achieving the objectives of this study, the following research questions were posed:

1. What is the level of strength and speed potential of young competitors participating in speed climbing at an international level?
2. What is the relationship between the results of fitness test and the best climbing time achieved?
3. What is the relationship between motor potential and climbing time depending on the age category or sex of the competitors?

Material and methods

The research included 26 competitors participating in the speed climbing competition during the European Junior Cup, held in Tarnów, in May 2017. The competition was conducted in accordance with the regulations of the International Federation of Sport Climbing (IFSC). The competitors surveyed competed in the categories: Female Youth A (group F1, calendar age = 16.6 years, n = 5), Female Youth B (group F2, calendar age = 14.5 years, n = 8), Male Youth A (group M1, calendar age = 16.9 years, n = 8) and Male Youth B (group M2, calendar age = 14.8 years, n = 5). All the surveyed competitors and their guardians had been informed about the aims and course of the voluntary research. All measurements were taken after the competition.

Somatic measurements included: body height (BH), body weight (BW), body fat percentage (% FM), and Body Mass Index (BMI). For this purpose, an anthropometer and the TANITA scale model BF-350 were used. The measurements were based on ISAK standards (Stewart, Marfell-Jones, & International Society for Advancement of Kinanthropometry, 2011). Motor efficiency was evaluated with the use of the Wingate test. For this purpose, a Monark 874E cycloergometer with MCE v 5.2 software was used. The test protocol presented by Nikolaidis et al. (Nikolaidis, Afonso, Buško, & Ingebrigtsen, 2015) was used. In the tests conducted, the external load in the F1 and F2 groups amounted to 7.5% of body weight whereas in the M1 and M2 groups – to 8% of body weight. The test time was 30 seconds and started from the "0" position, i.e. from freeze position. The following basic parameters were recorded in the test: relative work total W_{tot} [J and J/kg], which enables anaerobic capacity assessment, i.e. the ability to develop maximum anaerobic lactic acid capacity; PP power peak [W and W / kg], which informs about the maximum mechanical muscle power, i.e. the ability to develop maximum non-acid lactic anaerobic capacity. In addition, the following supplementary indicators were recorded: time to reach the power peak (Time to PP [s]), indicator of power decrease (WS% P [%]), capacity indicator of the ATP-PCr system [s], which was calculated as the sum of the time needed to reach and maintain the maximum pedalling frequency. In the statistical processing of data the following were used: descriptive statistics, Shapiro-Wilk test; Student's t-test and Mann-Whitney U test, and the Pearson and Spearman correlations.

Results

Table 1 shows the average values of the measurements conducted during the research. It should be noted that the average climbing time did not differentiate between the female and the male groups. The values of p indicators in the

significance tests were: 0.10 in female groups, and 0.70 in male groups, respectively. Statistically significant differences were noted in the female groups with respect to LBM, W_{tot} [J], and PP [W]. The male groups were statistically significantly different in terms of body weight, LBM ($p < 0.01$), W_{tot} [J], and PP [W]. Other variables did not differentiate the groups under examination.

Table 1 Descriptive characteristics and analysis of intergroup differences in the examined indicators of somatic structure and motor efficiency

variable/group	F1		F2		M1		M2	
	x	sd	x	sd	x	sd	x	sd
best time [s]	10.12	1.12	11.31	1.56	8.07	1.05	9.36	1.91
BM [kg] ¹	52.94	5.04	51.03	9.66	69.38	5.23	62.35	6.40
BH [cm]	159.62	3.37	159.11	7.40	176.62	8.22	169.68	3.03
FM%	19.14	6.09	21.49	6.80	11.54	2.11	11.56	2.41
LBM [kg] ^{2,3}	42.56	1.18	39.59	4.64	61.34	4.30	55.06	4.89
BMI	20.79	1.98	20.00	2.08	22.29	1.87	21.61	1.59
W _{tot} [J] ^{1,2}	12009.76	1334.07	10413.08	2797.72	19661.38	1220.98	16716.91	2121.51
W _{tot} [J/kg]	226.98	15.60	203.19	25.96	283.76	10.51	267.89	17.33
PP [W] ^{1,2}	519.94	63.54	446.11	109.75	850.70	58.40	719.21	94.43
PP [W/kg]	9.81	0.45	8.73	0.98	12.29	0.75	11.52	0.79
time to PP [s]	8.91	2.24	8.82	2.38	5.74	0.43	5.96	1.28
WS%_P [%]	20.09	6.78	20.55	4.99	22.18	2.62	21.53	3.40
ATP-PCr system [s]	9.82	2.37	10.30	2.59	7.79	0.51	7.65	1.99

Explanatory note: ¹ – statistically significant difference of $p < 0.05$ between groups M1 and M2; ² – statistically significant difference of $p < 0.05$ between F1 and F2; ³ – statistically significant difference of $p < 0.01$ between groups M1 and M2

Table 2 shows the correlation coefficients between the best climbing time and the other variables. In group F2, a significant correlation was noted between climbing time and PP power peak [W / kg]. Other correlations were insignificant. Analysing the correlation results, it can be observed that in group F1 the correlation of climbing time and PP [W / kg] is lower when compared to group F2. It may indicate that in the upper age category the maximum anaerobic power is not the most important factor determining climbing time. A similar regularity occurred in groups M1 and M2, where the strength of the relationship of this indicator (PP [W / kg] with climbing time was weak, which may indicate that among boys, at this level of competition, the level of maximum anaerobic power is not the most important and the only determinant of the climbing time achieved.

Regularities in the correlations between climbing time and efficiency indicators in Wingate tests were also observed. In both groups of higher age categories, especially among girls, the W_{tot} coefficients [J / kg] are higher, which indicates an important role of anaerobic acid-lactic power in achieving high

results. In addition, in group M2 strong but statistically insignificant correlations between climbing time and the level of somatic features were observed.

Table 2 Values of correlation coefficients between climbing time and the level of measured somatic features and motor efficiency indicators

Variable/group	F1	F2	M1	M2
best time [s]	1.00	1.00	1.00	1.00
BM [kg]	0.42	0.14	-0.01	-0.68
BH [cm]	-0.26	-0.07	0.02	-0.54
FM%	0.49	-0.02	-0.32	-0.46
LBM [kg]	0.14	0.19	0.09	-0.70
BMI	0.55	0.17	-0.05	-0.71
W _{tot} [J]	-0.18	-0.17	-0.32	-0.66
W _{tot} [J/kg]	-0.84	-0.62	-0.49	-0.24
PP [W]	0.15	-0.60	-0.18	-0.66
PP [W/kg]	-0.44	-0.71¹	-0.26	-0.30
time to PP [s]	-0.56	0.40	-0.09	0.46
WS%_P [%]	0.62	0.10	0.42	-0.47
ATP-PCr system [s]	-0.65	0.50	-0.11	0.45

Explanatory note: ¹ – statistically significant correlation at $p < 0.05$

Discussion

In the light of the analysis of scientific reports, the present study, conducted on the basis of a series of observations of participants of the European Junior Cup competition, is the first attempt to assess the motor potential of the leading young speed climbers in the European ranking. The Wingate test was used to assess and analyze the motor potential of the climbers under examination. To date, the Wingate test has rarely been used in groups of climbers (Magiera et al., 2013; Mermier, Janot, Parker, & Swan, 2000). This may be due to the fact that these tests are not specific to climbing, and therefore the assessment of climbers' fitness and efficiency should be conducted with the use of more specific tests (Michailov, Morrison, Ketenliev, & Pentcheva, 2015). Nevertheless, cycloergometric tests provide reliable information on anaerobic performance (strength and speed efficiency) and are still widely used in high-level youth sport (Bozic & Berjan Bacvarevic, 2018; Carvalho et al., 2011; Nikolaïdis, 2012). Research conducted among sport climbers has enabled the development of their motor profile. In lead climbing or bouldering, the most important predispositions and abilities conducive to achieving good results are similar (Levernier, Pierre, & Laffaye, 2020; Michailov, Mladenov, & Schoeffl, 2009; Ozimek et al., 2017; Watts, 2004). In speed climbing, the motor profile is different. It is determined by a high level of the power of the lower limbs, which perform the basic driving function; body

height, on which the technique of covering the road may depend, and a different function of the upper limbs. These factors are the basic determinants predisposing competitors to this type of climbing (Guo, Wang, Liu, & Hanson, 2019; Krawczyk, Ozimek, & Pocięcha, 2015; Krawczyk et al., 2017; Krawczyk & Ozimek, 2014; Shulga, 2014). The assessment of the level of the anaerobic performance of the lower limbs of young speed climbers of both sexes in our own research demonstrated its higher level in older age categories and its high correlation with the results in younger age categories. In the light of the available literature, it can be concluded that attempts to assess the motor efficiency of young speed climbers were rarely made. As has already been mentioned, the exception was Shulga (Shulga, 2010), where, among others, attempts were made to assess the explosive strength of the lower limbs, 2-cm hang board training and clamping the dynamometer. In these studies, high correlations between motor efficiency and climbing time were also noted in the following areas: dynamometer clamping force ($r_{xy} = -0.53$); long jump ($r_x, y = -0.53$); vertical jump ($r_x, y = -0.9$) and the hang board pull-up test ($r_x, y = -0.69$). These results indicate the importance of speed and strength capabilities in achieving good climbing times in speed climbing and confirm the results of our own research. In addition, the results of our own research are consistent with the results of other authors' research on the importance of the lower limbs and the level of anaerobic potential in achieving high sports results in speed climbing (Krawczyk, Ozimek, & Pocięcha, 2015; Krawczyk et al., 2017). In view of the small amount of data in the world literature regarding the anaerobic potential of the lower limbs of young speed climbers as measured by means of the Wingate test, a suggestion can be made that the results of this study may constitute reference values and should be reviewed in the future.

In own research, an attempt was made to answer the question about the nature of the correlations between the results of the Wingate test and the best time of the climbing race. The results of the evaluation of these correlations are presented in Table 2. These results indicate that in the groups of boys the power peak (PP [W / kg]), i.e. the level of speed ability, is not the most important factor determining climbing time and that the strength of the correlation of this factor decreases with an increase in training experience. A significant correlation of the power peak index (PP [W / kg]) was observed in the F2 group (younger age category), with a similar decrease in the strength of this factor in the higher age category as in boys. Note should also be made of the correlation of the relative indicator W_{tot} [J / kg], which informs about the level of development of maximum lactic acid power. In the groups of girls, the strength of the correlation of this indicator with climbing time was significant, with a higher correlation found in the F1 group. In the boys' groups, the strength of W_{tot} and climbing time correlation was lower, but similarly to girls, the strength of the correlations was higher in the older age group M1. The assessment and analysis of our own results

indicate that in speed climbing, along with an increase in traineeship or sports level, the hierarchy of factors determining the achievement of high results in the race undergoes a change. It seems that in the groups of younger girls the speed potential is the basic factor that significantly determines the result of a race. However, in the older category of girls, the result of the race is determined by a larger set of individual predispositions, and in addition to the speed potential (ability to develop maximum acidic strength), it seems that the level of coordination of predispositions and motor skills (movement technique) will be important. The other factor is associated with greater sports traineeship and experience. In the boys' groups, similar, and even larger in scope, regularities were observed indicating that, in addition to speed and strength factors, high sporting performance is also influenced by other important factors of motor potential.

In the light of the above considerations, it should be stated that the above-mentioned generalizations, indicating that along with the passage of time and the increase of training period, a change occurs in the impact of factors determining the final effect of speed climbing. This statement is consistent with previous reports of other authors (Rokowski & Tokarz, 2007) who pointed out that the higher the level of climbers' training practice, the less important the level of strength preparation is, and the result can be determined by a number of other (mental, tactical, technical etc.) factors. Moreover, the aforementioned authors asserted that at different levels of training the outcome and efficiency of climbing may be determined by a different set of motor factors.

Based on the results of our own research and analysis of the literature, the following conclusions were drawn:

1. Factors determining the result of speed climbing race are: power motor potential, coordination motor potential and movement technique, somatic predispositions, including body length dimensions and psychological predispositions.
2. Depending on the sporting experience, the set of factors determining the result of a climbing race is subject to change. The decreasing influence of the speed-force factor is accompanied by an increase in the importance of other factors, probably coordination motor factors, in achieving high sports results. The range of variability of the impact of these factors depends on the sex of the sportspeople under examination.
3. The result of a speed climbing race in various age categories is conditioned by a different set of motor factors.
4. Despite its non-specificity, the Wingate test can be used in recruitment and selection for speed climbing. The results of this test are the basis for assessing the level of the development of speed and strength capabilities and can be a reliable source of information for coaches.

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VECĀKU KOMPETENCES VEICINĀŠANA ZĪDAIŅU PELDINĀŠANĀ

Promotion of Parent's Competence in Infant Floating

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Abstract. *Currently, there are conflicting views around the world regarding infant floating. There is no consensus on the most effective techniques for facilitating infant swimming skills. Infant floating is dominated by a therapeutic and pedagogical approach that ensures parents' involvement in the process. There is no unified methodology for infant floating in Latvia. Furthermore, the number of infant swimming specialists, as well as adequate infrastructure, is insufficient and limited. In the existing situation, it is important to increase parents' competence in infant floating so that parents are able to carry out infant bathing independently. The aim of the study is to develop a model for improving parental competence in infant floating. The main research methods comprised of studying and analysing scientific literature and modelling. The paper is based on 27 scientific literature sources, 22 of them in English, 2 in Latvian and 3 in Russian. The developed model of parental competence improvement in infant floating includes parents' theoretical knowledge of infant floating; independent research on infant floating; water safety; the application of infant floating skills under a specialist's guidance and the ability to independently use acquired skills without guidance. In the future it will be possible to test the developed model to evaluate its usefulness in promoting parental competence in infant floating, thus ensuring parents' ability to float the infant independently.*

Keywords: *development models of parental competence in infant floating, infant floating, parental competence in infant floating.*

Ievads

Introduction

Statistika liecina, ka visbiežāk noslīkst gados jauni un pārgalvīgi vīrieši, kā arī bērni. Noslīkušo skaits Latvijā ir vairāk nekā 6 cilvēki uz 100 tūkstošiem iedzīvotāju, kas ir visaugstākais Eiropas Savienībā, pārsniedzot vidējo radītāju teju sešas reizes. Pēc aprēķiniem, kas balstīti uz Pasaules Veselības organizācijas datiem, Latvijā 2017.gadā uz 100 000 iedzīvotāju ir reģistrēti 6.83 noslīkušo, tikmēr 33 valstīs noslīkušo skaits nepārsniedz pat vienu, bet teju pusē (96) valstīs noslīkušo skaits ir vidējā līmenī – zem 4.20 noslīkušajiem uz 100 tūkstošiem

iedzīvotāju (LPF, 2018). Tas ļauj secināt, ka Latvija ne vien Eiropas, bet arī visas pasaules kontekstā ir starp līderēm statistikā par noslīkušo cilvēku skaitu. Ņemot vērā statistikas datus, ļoti svarīgi ir pievērst uzmanību bērnu agrīnai peldināšanai un bērnu turpmākajai peldēšanas prasmju apguvei.

Peldēšana ir viena no vispopulārākajām ieteicamām praktiskām aerobām fiziskajām aktivitātēm. Peldēšanas vingrinājumi ir atzīti kā veselības veicināšanas un slimību profilakses līdzeklis (Tanaka, 2009). Peldēšana īpaši pozitīvi ietekmē bērnus, jo ne tikai palīdz novērst noslīkšanas gadījumus, bet arī uzlabo emocionālo veselību, līdzsvara izjūtu, lokanību un spēka īpašības (Protano et al., 2016).

Šobrīd pasaulē ir pretrunīgi uzskati par zīdaiņu peldināšanu. Nav noskaidrota optimālākā metode un vingrinājumu pielietošanas secība, lai pilnvērtīgi nodrošinātu zīdaiņu peldināšanu. Zīdaiņu peldināšanā ir divas galvenās pieejas: ārstnieciskā un pedagoģiskā. Pedagoģiskā pieeja ietver vecāku mācīšanu kā peldināt zīdaiņi (Ahrendt, 2002; Zhao et al., 2005; Fedulova, 2011).

Vecāku zināšanas, prasmes un attieksme zīdaiņu peldināšanas laikā raksturo vecāku kompetences zīdaiņu peldināšanā (Stallman, 2014). Vecāku mācīšanas procesā kā peldināt zīdaiņi ir svarīgi palīdzēt vecākiem apgūt atbilstošas zīdaiņa peldināšanas prasmes, lai turpmāk vecāki droši un ar pārliecību var tās pielietot patstāvīgi turpmākajā bērna attīstības periodā (Meredith, Hicks, & Stephens, 2001; Jovanovich, 2002). Tas liecina, ka ir nepieciešams nodrošināt optimālu vecāku kompetences pilnveidi zīdaiņu peldināšanā, kas atbilst vecāku spējām un interesēm, kā arī zīdaiņu peldināšanas mācīšanas posmiem. Līdz ar to pētījuma mērķis ir izstrādāt vecāku kompetences pilnveides modeli zīdaiņu peldināšanā.

Metodoloģija *Methodology*

Pētījums balstīts uz 27 zinātniskās literatūras avotu izpēti, no kuriem 22 ir angļu valodā, 2 – latviešu un 3 – krievu valodā. Modelēšana šajā pētījumā tika izmantota, lai izpētītu vecāku kompetences zīdaiņu peldināšanā būtību un tās pilnveides iespējas.

Vecāku zīdaiņu peldināšanas kompetences pilnveides modeļa izveidē tika ņemti vērā zinātnieku ieteikumi un zinātniskie pētījumi par zīdaiņu peldināšanas komponentiem, kuri var sekmēt vecāku kompetences paaugstināšanu. Pētījuma pirmajā posmā tika identificēta un noformulēta problēma, kas var traucēt zīdaiņu peldēšanas prasmju apguvē un vecāku kompetences zīdaiņu peldināšanā pilnveidošanai (Geske & Grīnfelds, 2006). Pētījuma otrajā posmā tika noskaidroti nepieciešamie fakti un tika veikta situācijas analīze, kas ir saistīta ar zīdaiņu peldēšanas prasmju apguvi un vecāku kompetences zīdaiņu peldināšanā

pilnveidošanu. Zīdaiņu peldināšanas teorijas un vecāku zīdaiņu peldināšanas kompetences izpēte ļauj dziļāk un precīzāk izprast pētījuma problēmas būtību.

Literatūras analīze un diskusija *Review of literature and discussion*

Vecāku kompetences zīdaiņu peldināšanā tiek pilnveidotas dažādi. Viena no izplatītākajām zīdaiņu peldināšanas metodikām Austrumeiropā ir Gutermana metodika (Guterman, 1981). Zīdaiņu peldināšana pēc Gutermana metodikas sastāv no 4 posmiem, kur galvenie posmu mērķi ir: pieradināt zīdaiņi pie peldināšanas, peldēšanas refleksu nostiprināšana, peldēšanas apmācība ar noturēšanu un zīdaiņu peldēšanas prasmju pilnveidošana. Savukārt Firsova metodika (Firsov, 2013) ir viena no jaunākajām, kuru var sekmīgi izmantot zīdaiņu peldināšanā. Tās galvenais mērķis ir zīdaiņu peldēšanas apmācība mājas vannā un specialajās vannās vai baseinā, kur kā galarezultāts ir: zīdaiņi patstāvīgi turās uz ūdens virsmas; ienirt nelielā dziļuma un no grīdas pacelt mantiņu; vieglā apģērbā nolekt no malīņas un noturēties ūdenī. Zīdaiņu peldināšanā ASV plaši tiek pielietota Sarkanā Krusta peldēšanas programma (*Red Cross Swim*) (Rich & Giles, 2014), kuras galvenie mērķi ir drošības nodrošināšana atrodoties ūdenī, pamata drošības vadlīniju pārskats, vingrinājumu izpildes tehnikas pārskats, dažādu kustību mācīšana ūdenī, izmantojot izklaidējošās aktivitātes ar vecākiem. Balstoties uz pieejamās literatūras analīzi iepriekš veiktajos pētījumos, kur mēs noskaidrojām vecāku kompetences zīdaiņu peldināšanā komponentu izvērtējumu pēc peldēšanas speciālistu aptaujas (Kurmeļeva & Fernāte, 2019a) un vecāku kompetences zīdaiņu peldināšanā pašnovērtējumu par kompetences komponentiem zīdaiņu peldināšanā (Kurmeļeva & Fernāte, 2019b), tika izstrādāta vecāku kompetences struktūra zīdaiņu peldināšanā.

Vecāku kompetence zīdaiņu peldināšanā ietver zināšanu un prasmju un attieksmes struktūrkomponentes (Stallman, 2014) (sk. 1.tab.).

Vecāku kompetenci zīdaiņu peldināšanā raksturo četras zināšanu komponentes: zināšanas par zīdaiņu peldināšanu, par peldināšanas ietekmi uz zīdaiņa organismu, par kontrindikācijām peldināšanas laikā un zināšanas par drošību un drošināšanu uz ūdens, peldinot zīdaiņi. Savukārt zināšanas par zīdaiņu peldināšanu ietver šādu saturu (Committee on Sports Medicine and Fitness and Committee on Injury and Poison Prevention, 2000; Tanaka, 2009; Francoise, 2014):

- Zīdaiņu turēšanas veidi peldināšanas laikā un metodiskie norādījumi darbības veikšanai (vertikāli; uz muguras; uz vēdera; uz sāniem; ar vienu roku; ar divām rokām; iegremdēšana);

- Peldošais inventārs zīdaiņu peldināšanā un to pielietošanas nepieciešamība (mīkstās mantiņas; bumbiņas; dēliši; nūjas; riņķi; lejkanna).
- Vingrinājumi zīdaiņu peldināšanā, pielietojot dažādus turēšanas veidos un metodiskie norādījumi darbības veikšanai (dažādi kustības virzieni; uz vietas; ar rokām; ar kājām; lēkšana; atspērieni; niršana).

1.tabula. Vecāku kompetences struktūra zīdaiņu peldināšanā
Table 1 Structure of development of parents' competences in infant floating

Vecāku kompetence zīdaiņu peldināšanā	
Zināšanas	Prasmes un attieksmes zīdaiņa peldināšanā
Zināšanas par zīdaiņu peldināšanu	Drošas vides nodrošināšana
Zināšanas par peldināšanas ietekmi uz zīdaiņa organismu	Atbildīga zīdaiņu peldināšanas prasmju pielietošana atbilstoši apstākļiem
Zināšanas par kontrindikācijām peldināšanas laikā	Līdzekļu izmantošana un inventāra pielietošana atbilstoši apstākļiem
Zināšanas par drošību un drošināšanu uz ūdens, peldinot zīdaiņi	

Zināšanu otrās komponentes saturs ietver: peldināšanas ietekme uz organismu zīdaiņu peldināšanas laikā (zīdaiņu fizioloģiskā attīstība – fizioloģiskie refleksi; pozas un līdzsvara reakciju rašanās; motorā attīstība; muskuļu tonusa izveidošanās un psiholoģiskā attīstība) (Barczyk, Skolimowski, & Zawadzka 2005; Zelazo & Weiss, 2006; Nystad et al., 2008; Sigmundsson & Hopkins, 2009; Dias et al., 2013; Faerch, 2018).

Trešajā zināšanu komponentē iekļauts saturs par kontrindikācijām zīdaiņu peldināšanas laikā (brūces; ādas nobrāzumi, iekaisumi; alergiskas reakcijas; potes; infekcijas; paaugstināta ķermeņa temperatūra) (Bernard et al., 2007; Voisin et al., 2010).

Ceturtajā zināšanu komponentē iekļauts saturs par drošību un drošināšanu uz ūdens, veicot zīdaiņu peldināšanu (Brenner, Gitanjali, & Gordon, 2003; Blitvich et al., 2012):

- Drošības noteikumi peldbaseinā (higiēna; ekipējums; iekāpšana un izkāpšana no baseina; pārvietošanās ūdenī; dziļuma maiņa; bīstamās situācijas un to cēloņi, medicīniskās pārbaudes);
- Rīcība neparedzētos gadījumos (rīcības secība bīstamās vai neparedzētās situācijās – kritieni, paklupšana, bērna izkrišana no rokām, aizrīšanās, izvilkšana no ūdens);

- Pirmā palīdzība (glābšanas teorētiskie pamati un rīcības secība; pirmā palīdzība pēc aizrīšanās, izvilksanas no ūdens; mākslīgās elpināšanas pamati).

Vecāku kompetenci zīdaiņu peldināšanā raksturo trīs prasmju un attieksmes komponentes zīdaiņa peldināšanā.

Pirmajā prasmju un attieksmes komponentē izpaužas drošas vides praktiskā nodrošināšanā peldinot zīdaiņi – praktisko darbību veikšana (iekāpšana, izkāpšana no baseina; zīdaiņu turēšanas veidi; praktiskā rīcība iepriekš neprognozētās situācijās) (Brenner, Gitanjali, & Gordon, 2003; Blitvich et al., 2012).

Prasmju un attieksmes otrajā komponentē – atbildīga zīdaiņu peldināšanas prasmju pielietošana atbilstoši apstākļiem – raksturīga vecāku praktiskā darbība speciālistu vadībā un patstāvīgi bez speciālistu klātbūtnes. Vecāku praktiskajā darbībā ietilpa (Committee on Sports Medicine and Fitness and Committee on Injury and Poison Prevention, 2000; Tanaka, 2009; Francoise, 2014):

- Atsevišķu vingrinājumu praktiskais izpildījums dažādos peldināšanas stāvokļos (vertikāli; uz muguras; uz vēdera; uz sāniem);
- Atsevišķu vingrinājumu praktiskais izpildījums uz vietas, dažādos kustības virzienos (uz priekšu; atpakaļ; sānis) un niršana;
- Atsevišķu vingrinājumu praktiskais izpildījums dažādām ķermeņa daļām (rokām; kājām; aizmugurējiem ķermeņa muskuļiem, priekšējiem ķermeņa muskuļiem).

Atbildīga zīdaiņu peldināšanas prasmju pielietošana atbilstoši apstākļiem ietver arī iepriekš apgūto vingrinājumu tehniskā izpildījuma pilnveidošanu, veicot zīdaiņu peldināšanu (Committee on Sports Medicine and Fitness and Committee on Injury and Poison Prevention, 2000; Tanaka, 2009; Francoise, 2014):

- Vingrinājumu kombināciju praktiskais izpildījums dažādos peldināšanas stāvokļos (vertikāli; uz muguras; uz vēdera; uz sāniem);
- Vingrinājumu kombināciju praktiskais izpildījums uz vietas, dažādos kustības virzienos un ar dažādu pārvietošanās ātrumu (uz priekšu; atpakaļ; sānis) un niršana;
- Vingrinājumu kombināciju praktiskais izpildījums dažādām ķermeņa daļām (rokām; kājām; aizmugurējiem ķermeņa muskuļiem, priekšējiem ķermeņa muskuļiem).

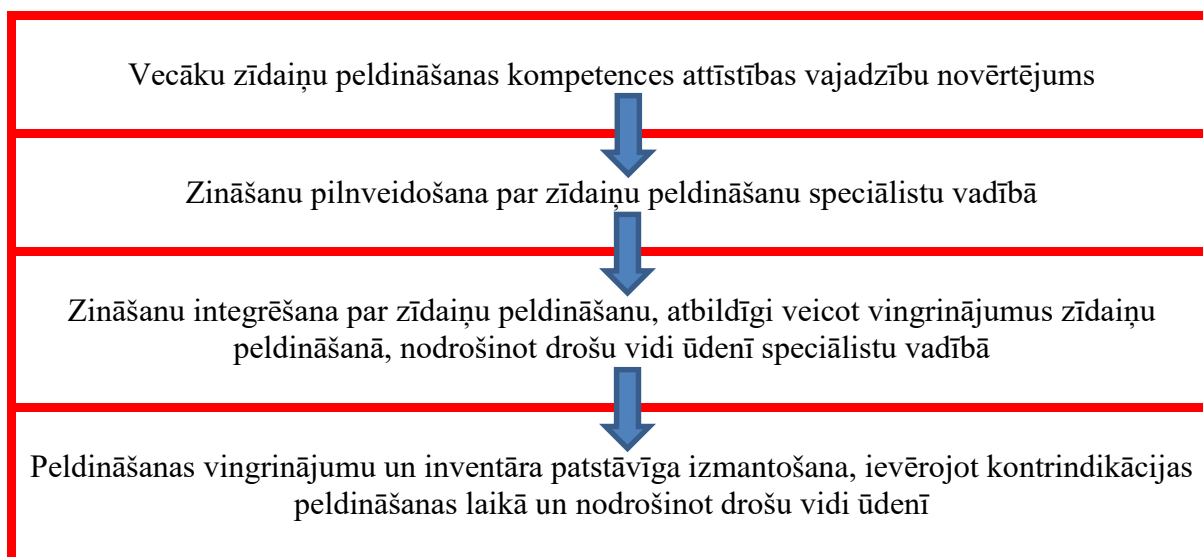
Trešajā prasmju un attieksmes komponentē izpaužas papildus līdzekļu izmantošana un inventāra praktiskā pielietošana, veicot zīdaiņu peldināšanu (mīkstās mantiņas; bumbiņas; dēlīši; nūjas; riņķi; lejkanna utt.) (Committee on Sports Medicine and Fitness and Committee on Injury and Poison Prevention, 2000).

Vecāku kompetence zīdaiņu peldināšanā kā darbības rezultāta kvalitātes līmenis, raksturojama konkrētā peldināšanas situācijā trīs līmeņos: elementārajā (ar speciālistu palīdzību), patstāvības, patstāvības un atbildības līmenī.

Izanalizējot vecāku kompetences pašnovērtējumu un viedokli par zīdaiņu peldināšanas komponentiem (Kurmeļeva & Fernāte, 2019) bija iespējams izvērtēt esošo situāciju un izstrādāt vecāku kompetences pilnveides modelis zīdaiņu peldināšanā. Izstrādātā modeļa mērķis ir vecāku kompetenču pilnveides veicināšana zīdaiņu peldināšanā, pilnveidojot katru no septiņām komponentēm vecāku kompetences struktūrā zīdaiņu peldināšanā.

Modeli veido četri zinātniski pamatoti, savstarpēji saistīti un atkarīgi komponenti, kas ir vecāku kompetences attīstīšanas priekšnosacījumi zīdaiņu peldināšanā (sk. 2.tab.). Izstrādātais vecāku kompetences pilnveides modelis zīdaiņu peldināšanā ietver sevī strukturētu, mērķtiecīgu vecāku kompetences pilnveidi dažādās mācīšanās situācijās, tā veicinot kompetences izaugsmi zīdaiņu peldināšanā.

2.tabula. *Vecāku kompetences pilnveides modelis zīdaiņu peldināšanā*
Table 2 *Model of development of parents' competences in infant floating*



Vecāku kompetences pilnveides modelis zīdaiņu peldināšanā atspoguļo secīgus darbības posmus. Sākotnējā posmā ir nepieciešams vecāku zīdaiņu peldināšanas kompetenču attīstības vajadzību novērtējums (vecāku sākotnējo zināšanu, prasmju un attieksmes novērtējums par zīdaiņu peldināšanu). Nākamais solis ir zināšanu pilnveidošana par zīdaiņu peldināšanu speciālistu vadībā. Vēlāk peldināšanas speciālistu vadībā tiek integrētas zināšanas par zīdaiņu peldināšanu, veicot vingrinājumus un nodrošinot drošu vidi ūdenī. Noslēgumā vecāki atbildīgi

un patstāvīgi izmanto peldināšanas vingrinājumus un inventāru, ievēro kontrindikācijas peldināšanas laikā un nodrošinot drošu vidi ūdenī.

Secinājumi **Conclusions**

1. Latvijā nav izstrādāta un praksē netiek pielietota vienota metodika zīdaiņu peldināšanā vecāku kompetences paaugstināšanai zīdaiņu peldināšanā. Pētījuma gaitā tika izstrādāta vecāku kompetences struktūra zīdaiņu peldināšanā, kas ietver septiņas zināšanu un prasmju un attieksmes struktūras komponentes: zināšanas par zīdaiņu peldināšanu, zināšanas par peldināšanas ietekmi uz zīdaiņa organismu, zināšanas par kontrindikācijām peldināšanas laikā, zināšanas par drošību un drošināšanu uz ūdens, drošas vides praktisko nodrošināšanu, atbildīga zīdaiņu peldināšanas prasmju pielietošana atbilstoši apstākļiem, līdzekļu izmantošana un inventāra pielietošanu atbilstoši apstākļiem.
2. Izstrādātā vecāku kompetences pilnveides modeļa struktūrai zīdaiņu peldināšanā raksturīgi četri secīgi posmi: vecāku zīdaiņu peldināšanas kompetences attīstības vajadzību novērtējums; zināšanu pilnveidošana par zīdaiņu peldināšanu speciālistu vadībā; zināšanu integrēšana par zīdaiņu peldināšanu, atbildīgi veicot vingrinājumus zīdaiņu peldināšanā, nodrošinot drošu vidi ūdenī speciālistu vadībā; peldināšanas vingrinājumu un inventāra patstāvīga izmantošana, ievērojot kontrindikācijas peldināšanas laikā un nodrošinot drošu vidi ūdenī.
3. Turpmākajos pētījumos būs iespējams izstrādāto vecāku kompetences pilnveides modeli aprobēt praksē, lai izvērtētu tā lietderību vecāku kompetences veicināšanā zīdaiņu peldināšanā, nodrošinot vecāku spēju patstāvīgi peldināt zīdaiņi.

Summary

Latvia has one of the highest ratios of drowning accidents per 100 thousand inhabitants not only amongst European countries, but all around the world. Currently, opinions regarding infant floating are contradictory. The optimal method and exercise sequence for best outcome is not fully discovered. There are two main approaches: therapeutic approach and pedagogical. The last of two involves training infant floating to parents. Research is based on analysis of 27 scientific resources, 22 of them in English, 2 in Latvian and 3 in Russian. Modelling is used for this research to investigate the essence of infant floating and possibilities for development. According to analysis of previous research, that consist of survey for swimming professionals and self-evaluation for parents, the structure of parental competence in infant floating was established. During this study, structure of parental competence that consists of seven

components of knowledge, skills and attitude, was developed. Analysis of parental competence self-evaluation and opinions about infant floating components allowed to assess the current state and create parental competence development model in infant floating. The aim of the model is to increase level of each of seven structural components of parental competence. The model is based on four scientifically based, interdependent and interdependent components which are prerequisites for parental competence development. Parental competence development model includes structured, purposeful development of parenting competences in different learning contexts, thereby contributing to the development of infant floating competence. In future studies it will be possible to use this model in practice, to evaluate its relevance for parental competence development in independent infant floating.

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CADETS AND JUNIORS SUCCESS: HOW IMPORTANT IS IT FOR SPORTS CAREERS IN FREE-STYLE WRESTLING?

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Abstract. *The successful and effective management of sports training is impossible without the justified forecasting, which is adequate to the modern scientific knowledge. The forecasting creates the necessary preconditions for correct management decisions by athlete, coaches and administration. Nowadays, the discovery of talented athlete and the ways of their improvement are among the most discussed and popular directions in the athletes' training. The aim of the research –to analyze the significance of the success of wrestlers at the cadet and junior levels on the performance results during the senior career in relation to the weight classes. The sports careers of the medalists in freestyle wrestling of the Cadets and Junior European Championships have been studied. The analysis of the cadets' results demonstrates that more than 30% of the athletes have taken part in seniors competitions, but unfortunately only under 15% of the athletes have achieved success. At the same time, the juniors' results are better: about 60% of the athletes continued their sports careers at the senior level, but only approximately 25% have achieved significant results. It is demonstrated that the athletes of the lightweight classes adapt faster to the senior wrestling and achieve success at the senior level.*
Keywords: *analysis, cadets, juniors, results wrestling.*

Introduction and literature review

The successful and effective management of sports training is impossible without the justified forecasting, which is adequate to the modern scientific knowledge. The forecasting creates the necessary preconditions for correct management decisions by athlete, coaches and administration. The setting of a definite promising goal is always connected to the forecasting of sport results (Bompa & Haff, 2009; Bruce, Farrow & Raynor, 2013; Platonov, 2015).

Nowadays, the discovery of talented athlete and the ways of their improvement are among the most discussed and popular directions in the athletes' training (Vaeyens, Lenoir, Williams, & Philippaerts, 2008; Gulbin, Weissensteiner, Oldenzel, & Gagné, 2013; Huxley, O'Connor, & Larkin, 2017).

The most important success factors in sports include body build, conditioning, technical and tactical skills, mental abilities and the experience of a competitor (Kalina, 2000). In scientific papers the various factors, criteria and determinants of recognizing talented athlete have been considered. The essential qualities are: anthropometric measures (Veale, Pearce, Buttifant, & Carlson, 2010); physical fitness (Mujika, Santisteban, Impellizzeri, & Castagna, 2009; García-Pallarés, López-Gullón, Muriel, Díaz, & Izquierdo, 2011), psychological measures and profiles (Mirzaei, Curby, Rahmani-Nia, & Moghadasi, 2009); gene influence – whether a person is born a champion or becomes it (Tucker & Collins, 2012); success at competitions and career achievements (Hollings, Mallett, & Hume, 2014; Brouwers, De Bosscher, & Sotiriadou, 2012; Barreiros & Fonseca 2012; De Bosscher, Shibli, Westerbeek, & Van Bottenburg, 2015; Li, De Bosscher, Pion, Weissensteiner, & Vertonghen, 2018; Foss, Sinex, & Chapman, 2019). Such complex approaches and multidisciplinary methods of talent identification (Reilly, Williams, Nevill, & Franks, 2000; Abbott & Collins, 2002) are also applied.

Sporting success is a result of demonstration of all the qualities of the person and may be considered as an integrated parameter. In combat sports the victory is achieved as a result of a competition with other athlete, that is why the previous sporting success is one of the most objective parameter of the following success. The studies on identifying correlations between performance successes at various stages of preparation in combat sports such as judo (Julio et al., 2011; Barreiros, Côté, & Fonseca, 2012), taekwondo (Sadowski, Gierczuk, Miller, Cieśliński, & Buszta, 2012; Li et al., 2018), Greco-Roman wrestling (Korobeynikov & Radchenko, 2009; Tropin, 2013; Biac, Hrvoje, & Sprem, 2014; Karninčić, Baić, & Sprem, 2017), free-style wrestling (Podlivaev, 2005; Latyshev et al., 2020) have been conducted. The weight classes in combat sports are of a significant importance, although we have not found the studies which would show

the dependence of the results at the junior and cadet levels on the results at the senior level in relation to the weight classes.

Aim of research – to analyze the significance of the success of wrestlers at the cadet and junior levels on the performance results during the senior career in relation to the weight classes.

Material and methods

We have studied the sports careers of the medalists (winning 1st to 3rd places) of Cadet and Junior European Championships.

Ninety-six international sporting biographies of all the medalists (winning 1st to 3rd places) in freestyle wrestling of the three Cadet European Championships (from 2003 to 2005) have been analyzed. They include 1224 athletes' results at the international competitions.

Eighty-eight international sporting careers of all the medalists (winning 1st to 3rd places) in freestyle wrestling of the three Junior European Championships (from 2006 to 2008) have been analyzed separately. They include 1977 athletes' results at the international competitions.

The data of the results has been taken from the official site of the “United World Wrestling” (unitedworldwrestling.org, 2019).

To clarify definitions, we mean that to achieve senior success is to win a medal (from 1st to 3rd places) at the European Championships (Senior European success) or at the World Championships and the Olympic Games (Senior World success). Participation implies participation in the European Championships, World Championships and the Olympic Games regardless of the taken place. The winners are athletes who took the first place, medalists are athletes who took 1st to 3rd places at the competitions.

All the weight classes have been divided into the three groups depending on the classes for the analysis. For cadets the lightweight group – 42kg, 46kg, 50kg; middleweight – 54kg, 58kg, 63kg, 69kg; heavyweight– 76kg, 85kg, 100kg. For juniors the division into the groups has been done in the following way: the lightweight group – 50kg, 55kg, 60kg; middleweight – 66kg, 74kg, 84kg; heavyweight – 96kg, 120kg.

Two parameters have been considered additionally for each weight group: the average age of the first participation in the international competitions and the first success at the international arena.

Methods of the descriptive statistics have been used in the paper. The following features of the research results were calculated: percentage, mean and standard deviation. To work with data (sorting, grouping, mathematical analysis), we used the programming language Python (libraries Numpy, pandas).

Results of research and discussion

First, the analysis of the performances of the athletes who have achieved success at the cadet level has been conducted. Out of all the medalists among the cadets: 51 (53.1%) athletes participated at the junior level and 32 (33.3%) athletes achieved success at the given age stage.

Table 1 demonstrates the achievement of athletes' performances during the senior career in relation to the performance results at the competitions at the cadet level.

Table 1 Number and percentage of the performance results of the medalists and the winners of the Cadets European Championships at the senior level

	Senior participation	Senior European success	Senior World success
Medalists of the Cadets European Championships, 1-3 places(n=96)	31 (32.3%)	12 (12.5%)	9 (9.4%)
Winners of the Cadets European Championships, the 1st place(n=30)	14 (46.7%)	10 (33.3%)	7 (23.3%)

The analysis of the results in Table 1 demonstrates that only about one third of the medalists (32.3%) and a half of the winners (46.7%) of the Cadets European Championships have taken part in the senior international competitions. Furthermore, the percent of the athletes who have achieved the result at the senior level is higher among the winners than that among the medalists more than two times. It is shown that only about 10% of the successful athletes of the cadet level achieve success at the senior level.

The successes of the athletes' performances depending on their weight classes are presented in Table 2.

Table 2 Number and percentage of performance results of the medalists of the Cadets European Championships at the senior level depending on the weight groups

Weight group	Senior participation	Senior European success	Senior World success
Lightweight (n=27)	9 (33.3%)	6 (22.2%)	4 (14.8%)
Middleweight (n=40)	14 (35.0%)	3 (7.5%)	3 (7.5%)
Heavyweight (n=29)	8 (27.6%)	3 (10.3%)	2 (6.9%)

The percent of the athletes who participated in the competitions at the senior level scarcely depend on the weight class (about 30%). At the same time, the percent of wrestlers who have achieved success is almost twice as high for the

wrestlers of the lightweight group than that of the wrestlers of middleweight and heavyweight groups regardless of the competition rank.

Next, we will consider the performance results of the athletes who have achieved success at the junior level. Out of 88 athletes only about a half of the athletes (55.7%) took part in the cadet level competitions and less than 30% achieved success.

Table 3 provides the information concerning the Juniors European Championships medalists and winners.

Table 3 Number and percentage of performance results of the medalists and the winners of the Junior European Championships at the senior level

	Senior participation	Senior European success	Senior World success
Medalists of the Junior European Championships, 1-3 places(n=88)	52 (62.5%)	20 (22.7%)	12 (13.6%)
Winners of the Junior European Championships, the 1st place(n=26)	20 (76.9%)	9 (34.6%)	6 (23.1%)

More than 60% of the medalists and more than 75% of the winners continued their international sports careers at the senior level. Considering the athletes who continued their careers at the senior level such results have been obtained: about 40% (38.5% of the medalists and 45% of the winners at the junior level) achieved the results at the European arena and 25% at the world one. There is a difference in the following career among the medalists and the winners of the Junior European Championships, nevertheless it is not as prominent in comparison with the successful cadets.

Table 4 presents a percentage and a number of junior athletes who continued performances and achieved success at the senior level.

Table 4 Number and percentage of performance results of the medalists of the Junior European Championships at the senior level depending on weight groups

Weight group	Senior participation	Senior European success	Senior World success
Lightweight(n=31)	20 (64.5%)	10 (32.3%)	4 (12.9%)
Middleweight (n=34)	20 (58.8%)	4 (11.8%)	4 (11.8%)
Heavyweight (n=23)	12 (52.2%)	6 (26.1%)	4 (17.4%)

The following tendency can be noticed there: the higher the weight class, the less athletes continue their senior career at the international level. More athletes of the light weight and heavyweight groups achieved success at the European

level. A correlation between success and a weight group has not been revealed for the world arena, the percentage of the athletes who have achieved success varies between 11% and 18%. However it is worth noticing that in general there is quite a low number of athletes of the heavyweight group – only 12 persons, that is why it is possibly not a relevant statistical data.

Comparing the obtained data with the data on the athletes of track-and-field athletics – a sport with a metric measurement system of the result (Hollings & Hume, 2010): only 46% of athletes among the medalists of junior competitions have continued their careers at the senior level, which is significantly lower comparing to the obtained data (62.5%) for wrestlers. At the same time 34% of the athletes of the track-and-field athletics achieved success (became winners or finalists at the international competitions) while this index for wrestlers is lower – 22.7% at the European arena and 13.6% at the world level.

Considering the retrospective analysis, the significance of the junior success among the Olympic champions (Latyshev et al., 2020) is demonstrated: 41 wrestling careers of the Olympic gold medalists from 1996 to 2016 has been analyzed. Twenty (48.8%) out of 41 Olympic wrestling gold medalists had started their international career before they turned 18 years (cadets age). During the junior age 35 (85.4%) out of 41 wrestlers participated in the continental or the world championship.

The next step of the analysis of the athlete's career has been estimating the age of achieving results in a senior career. These parameters are important for planning of the training process of athlete. They provide knowledge concerning how much time one needs for the adaptation to the senior sporting activities and how much time one needs for achieving result.

The athletes, who achieved success at the cadet level, participate at the senior level at the international arena for the first time at 22.4 ± 2.6 years on the average, while they achieve their first success at 23.4 ± 3.3 years.

Figure 1 demonstrates the average age of the first participation and success at the senior level depending on the weight group for the athletes who achieved success at the cadet level.

The figure clearly observes that the heavier the weight of the athlete the greater the age of the beginning of the performance at the international arena and the age of achieving the first success. The period between the first performance and the success is about a year (1.0 and 0.9 of a year) for the lightweight and middle weight groups correspondingly. At the same time, it is 1.5 year for the athletes of the heavyweight group.

Among the wrestlers who achieved success at the junior level the average age of the beginning of the performance at the senior level at the international arena is 22 ± 2.9 years, and the age of achieving results – 23.3 ± 2.7 years. The period between the first performance and achieving success is 1.3 year.

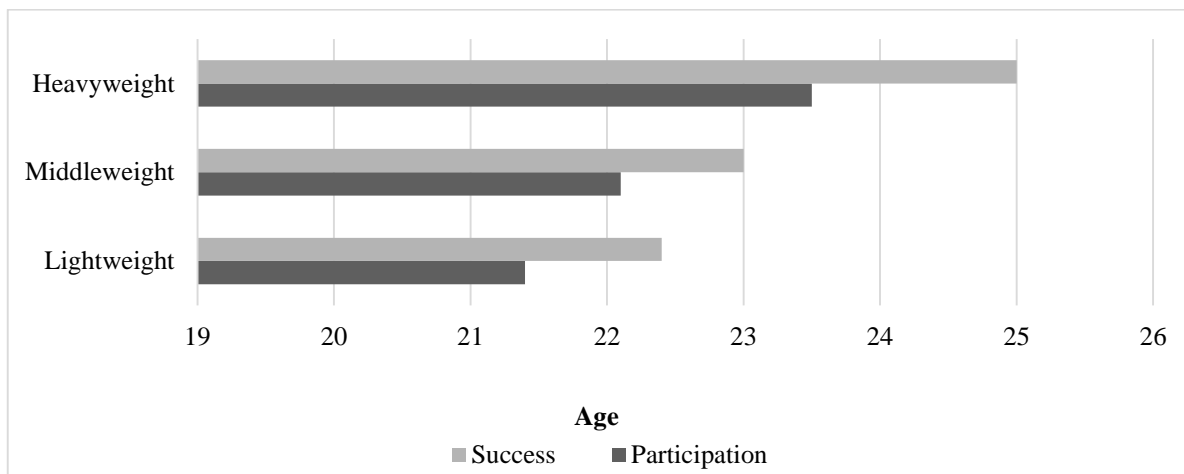


Figure 1 The average age of the first participation and first success at the senior level at the international competitions of the athletes who were medalists at the Cadet European championships

Figure 2 shows the average age of the first participation and success at the senior level depending on the weight group for the athletes who achieved success at the junior level.

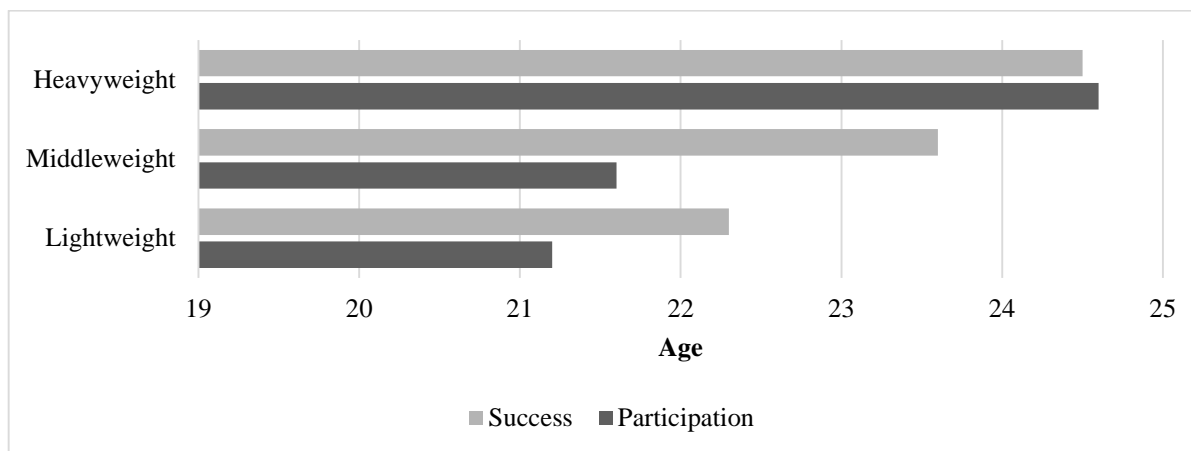


Figure 2 The average age of the first participation and first success at the senior level at the international competitions of the athletes who were medalists at the Junior European championships

For the lightweight wrestlers the time for adaptation is the shortest – the average age of the first participation is 21.2 ± 1.8 years. The period to the achievement of the first success is 1.1 year. For the middleweight wrestlers the period between the average age of the first participation and the first success equals 2 years. The heavyweight wrestlers almost simultaneously reach the age of achieving success and participation, however it takes place after reaching the age of 24 years.

The acquired data indicates that the lightweight wrestlers almost immediately after performances at the junior level are able to compete at the high level at the national championship, which gives them the possibility to perform at the international arena. Moreover, by the age of 22–23 years they already achieve international success. For the middleweight wrestlers the adaptation for the senior wrestling takes more time and achievement of success takes place by the age of 23–24 years, while for the heavyweight group it is even later – by the age of 25 years.

Conclusion

The perspective analysis of the successful cadets and juniors has been conducted. The analysis has demonstrated that the importance of the junior achievements is significantly higher than that of the cadet ones. 62.5% of the junior medalists continued their career at the senior level, while only 32.3% of the cadet medalists had the experience of performance at the senior international competitions. The success of the juniors, who were medalists at the championships, is also higher: more than 20% achieved success at the senior European championships. Among the cadets only 12.5% achieved success at the senior European level. The wrestlers of lighter weight classes achieve success notably earlier than the athletes of heavier weight classes.

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АНАЛИЗ ХАРАКТЕРИСТИК СОРЕВНОВАТЕЛЬНОЙ ДЕЯТЕЛЬНОСТИ БОЙЦОВ СМЕШАННЫХ ЕДИНОБОРСТВ ВЫСОКОЙ КВАЛИФИКАЦИИ

Analysis of Competitive Activity High Ranked Fighters of Mixed Martial Arts

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Abstract. *Mixed martial arts - a sport, which is a combination of many techniques, schools and direction of combat sports. Nowadays, mixed martial arts are the most popular and spectacular sport of all combat sports. Analysis of competitions performances is an important aspect of training athletes. The quantitative characteristics of competitive activity make it possible to model the training process at different stages of fighters. Aim of the research – to analyze the quantitative characteristics of competitive activity of high ranked fighters. All matches of Mixed martial arts Russian Cup in 2018 were analyzed: 84 preliminary and 8 final fights (for 1 place) in all weight categories. The following quantitative characteristics of the competitive activities of high ranked fighters were analyzed in the study: average fight time; average fight time in the standing and ground positions; distribution of fights by types of victory; activity, defense and reliability performing takedowns for each weight category. Also, a comparative analysis was carried out with the competitive activity characteristics of the top athletes from the Ultimate Fighting Championship rating for each weight group. These data can be used as model when planning the training process of both young and qualified athletes.*

Keywords: *competitive activity, mixed martial arts, quantitative characteristics.*

Введение *Introduction*

Смешанные боевые искусства или смешанные единоборства (ММА) – вид спорта, представляющий собой, сочетание множества техник, школ и направлений единоборств. ММА является полноконтактным боем с применением ударной техники и борьбы как в стойке, так и в партере (Mixed martial arts (ММА), 2019).

Истоки ММА уходят во времена до нашей эры: ещё древние греки на первых Олимпийских играх соревновались в панкратионе, однако до 1990-х годов ММА не могли похвастаться значительной популярностью в мире (ММА, 2019). Лишь со становлением и развитием таких организаций, как «Ultimate Fighting Championship», «Pride Fighting Championships» и т. д. популярность ММА начала резко возрастать (UFC, 2019).

Сейчас ММА является наиболее ярким и зрелищным видом спорта из всех единоборств. Это достигается с одной стороны понятностью правил для зрителей в отличие от других видов единоборств (в частности, видов борьбы). С другой стороны использованием спортсменами большого количества эффектных ударов в сочетании с высокоамплитудными и зрелищными приемами (ММА, 2019).

Количество спортсменов, занимающихся данным видом спорта, в Европе и в мире неуклонно растёт, открываются новые специализированные спортивные залы, перепрофилируются старые залы борьбы и бокса.

Уровень подготовки российских спортсменов в ММА очень высок, они являются фаворитами на Европейских и мировых чемпионатах (Anisimov, 2014). Наиболее значимыми состязаниями в России являются кубок и чемпионат страны, в которых принимают участие сильнейшие представители всех округов. Количественные характеристики соревновательной деятельности, полученные на состязаниях такого уровня, могут являться основой при планировании подготовки юных бойцов (James, Haff, Kelly, & Beckman, 2016; Platonov, 2015). Более того, учет этих характеристик необходим для индивидуализации подготовки спортсменов высокого класса (Latyshev, 2013; Latyshev & Korobeynikov, 2013). При этом научные исследования в данной области практически не проводились и данные о количественных характеристиках соревновательной деятельности бойцов ММА фрагментарны и не систематизированы, этим и обусловлена актуальность данной работы.

Цель работы. Определить и проанализировать количественные характеристики соревновательной деятельности бойцов ММА высшей квалификации.

Материалы и методы исследований *Materials and methods*

В исследованиях были использованы методы видеоанализа и хронометрирования соревновательных поединков, а также методы математической статистики.

Были проанализированы все поединки во всех весовых категориях на Кубке России по ММА 2018 года: 84 предварительных и 8 финальных боев (за 1 место). Для более детального анализа бойцы были распределены на три весовые группы: легкая до 70 кг, средняя от 70 кг до 85 кг, тяжелая свыше 85 кг.

Определены временные характеристики поединка: время поединка, время состязания в стойке и партере отдельно. Для поединков, закончившихся досрочно, определен способ достижения победы: болевой прием, удушающий или технический нокаут. Также для всех поединков определены следующие характеристики поединка: активность, результативность и надежность выполнения тейкдаунов (takedown – перевод соперника в партер). Активность и результативность тейкдаунов, является количество реальных попыток выполнения тейкдаунов за единицу времени и количество успешно выполненных тейкдаунов за единицу времени соответственно. Тогда надежность тейкдаунов будут рассчитываться как отношение активности к результативности в процентах.

Результаты исследований *Results*

Расчеты, проведенные по результатам хронометрирования, показали, что среднее время боя в предварительных поединках составило 4 мин. 44 сек. (при регламенте боя 2 раунда по 3 мин. с возможностью Extra раунда). При этом среднее время боя в стойке составило 2 мин. 9 сек. (46%), а в партере – 2 мин. 35 сек. (54%). Что касается финальных поединков, то среднее время боя составило 11 мин. 23 сек. (при регламенте боя 2 раунда по 5 мин. с возможностью Extra раунда). Среднее время поединка в стойке составило 5 мин. 36 сек. (49%), в партере – 5 мин. 47 сек. (51%).

Отметим, что среднее время предварительных поединков меньше установленного регламента (на 1 мин. 16 сек.), а финальных наоборот больше (на 1 мин. 23 сек.), при этом отношение среднего времени боя в стойке к среднему времени боя в партере, для предварительных и финальных поединков, составляет 0.85 и 0.96 соответственно.

Из 84 предварительных поединков 39 (46.4%) были закончены досрочно удушающим, болевым или техническим нокаутом, при этом

нокаутов зафиксировано не было, в 45 боях победитель был выявлен решением судей, что составляет 53.6%. Данные о досрочно законченных поединках по весовым категориям и группам представлены в таблице 1.

Из таблицы видно, что 5 (5.9%) поединков были закончены досрочно болевыми приемами, причем наиболее часто их выполняли спортсмены тяжелой весовой группы; 15 (17.8%) поединков были закончены досрочно удушающими приемами, их в основном применяли бойцы легкой и средней весовой группы; 19 (22.6%) поединков были закончены досрочно техническими нокаутами, их в основном применяли бойцы средней и тяжелой весовой группы. Исходя из этого, наиболее эффективными техническими действиями в партере являются технические нокауты (добивания), второе место по эффективности занимают удушающие приемы, болевые приемы занимают лишь третье место.

Таблица 1. Распределение количества предварительных поединков закончившихся досрочно по весовым категориям и группам
Table 1 Distribution of the number of preliminary fights by type of victory

Весовая группа	Легкая весовая группа			Средняя весовая группа			Тяжелая весовая группа		Всего
	56.7	61.2	65.8	70.3	77.1	84	93	93 +	
Весовая категория, (кг)									
Поединки, (кол-во)	13	10	13	12	11	9	10	6	84
Болевые приемы, (кол-во)	0	0	1	0	1	1	2	0	5
Удушающие приемы, (кол-во)	4	2	2	3	3	0	1	0	15
Технические нокауты, (кол-во)	5	0	0	2	3	4	2	3	19
Досрочные победы, (кол-во)	9	2	3	5	7	5	5	3	39
Доля досрочных побед, (%)	69.2	20	23	41.6	64.6	55.5	50	50	46.4
	38.9			53.13			50		

Как отмечалось выше, почти половина предварительных поединков были закончены досрочно, то есть, чистой победой, причем наибольший процент досрочно закончившихся поединков у спортсменов средней весовой группы (53.1%), а наименьший у легкой (38.9%). Наибольшая доля досрочных побед (69.2%) приходится на самую легкую весовую категорию (56.7 кг), наименьшая (20%) на весовую категорию до 61.2 кг.

Из 8 финальных поединков, только 2 боя, что составляет 25%, закончены досрочно: в весовой категории 93+ кг из-за запрета врачей на

выход бойца, и в весовой категории 77.1 кг удушающим приемом. Такая разница объясняется тем, что к в финальных поединках встречаются лучшие бойцы близкого уровня мастерства и досрочно выиграть бой в таких условиях очень сложно.

Распределение количества поединков, попыток выполнения тейкдаунов, успешных тейкдаунов, активности, результативности и надежности тейкдаунов по весовым категориям и группам в предварительных поединках представлено в таблице 2.

Анализируя данные, представленные в таблице 2, можно заключить, что наибольшая активность выполнения тейкдаунов наблюдается у бойцов легкой и средней весовых групп и составляет 0.39 попытки в минуту, для бойцов тяжелой весовой группы этот показатель равен 0.34.

Результативность проведения тейкдаунов в легкой и средней весовых группах практически одинакова и составляет 0.31 и 0.32 тейкдаунов в минуту соответственно, этот показатель для бойцов тяжелой весовой группы существенно ниже и составляет 0.24 тейкдаунов в минуту.

Таблица 2. Характеристики выполненных тейкдаунов в предварительных поединках

Table 2 Characteristics of performed takedowns in preliminary fights

Весовая группа	Легкая весовая группа			Средняя весовая группа			Тяжелая весовая группа	
	56.7	61.2	65.8	70.3	77.1	84	93	93 +
Весовая категория (кг)	56.7	61.2	65.8	70.3	77.1	84	93	93 +
Поединки, кол-во	13	10	13	12	11	9	10	6
	36			32			16	
Попытки тейкдаунов, кол-во	36	36	57	50	43	34	26	21
	129			127			47	
Выполненные тейкдауны, кол-во	26	28	49	43	32	29	19	15
	103			104			34	
Активность, п.т./мин	0.43	0.34	0.39	0.39	0.44	0.35	0.34	0.35
	0.39			0.39			0.34	
Результативность, т./мин	0,31	0,27	0,33	0,33	0,33	0,30	0,25	0,25
	0.31			0.32			0.25	
Надежность, (%)	72.22	77.78	85.96	86.00	74.42	85.29	73.08	71.43
	79.84			81.89			72.34	

Надежность выполнения тейкдаунов, также, практически одинакова в легкой и средней весовых группах (79.8% и 81.9%), в тяжелой весовой группе этот показатель ниже и составляет 72.3%.

Если проанализировать эти показатели по весовым категориям то наибольшая активность выполнения тейкдаунов наблюдается у представителей весовой категории 77.1 кг (0.44), а наименьшая у 61.2 кг и 93+ кг (0.34); наибольшая результативность выполнения тейкдаунов зафиксирована у бойцов весовой категорий 70.3 кг (0.34), а наименьшая у 93 кг и 93+ кг (0.25); наибольшая надежность проведения тейкдаунов зафиксирована у бойцов весовых категорий 70.3 кг (86.0%), 65.8 кг (85.9%), 84 кг (85.3%), а наименьшая у бойцов весовой категории 93+ кг (71.4%).

Из этого следует, что бойцы тяжелой весовой группы, имея меньшую надежность атаки, не рискуют и реже предпринимают попытки перевода соперника в партер.

В финальных боях в общей сложности было предпринято 59 попыток тейкдаунов, из них 36 успешных. Исходя из этих данных, средняя надежность тейкдаунов составляет 61.0%. Сравнивая эти результаты с результатами, полученными для предварительных поединков (в них средняя надежность тейкдаунов составила 79.5%), можно констатировать, что в финальных поединках надежность тейкдаунов в 1.3 раза ниже, чем в предварительных.

Распределение количества поединков, попыток выполнения тейкдаунов, успешных тейкдаунов, активности, результативности и надежности тейкдаунов по весовым категориям и группам в финальных поединках представлено в таблице 3.

Таблица 3. Характеристики выполненных тейкдаунов в финальных поединках
Table 3 Characteristics of performed takedowns in final fights

Весовая группа	Легкая весовая группа			Средняя весовая группа			Тяжелая весовая группа	
	56.7	61.2	65.8	70.3	77.1	84	93	93 +
Весовая категория (кг)	56.7	61.2	65.8	70.3	77.1	84	93	93 +
Поединки, кол-во	1	1	1	1	1	1	1	
	3			3			1	
Попытки тейкдаунов, кол-во	5	7	12	8	1	21	5	-
	24			30			5	-
Тейкдауны, кол-во	5	5	6	5	1	11	3	-
	16			17			3	-
А _т , п.т./мин	0.17	0.35	0.6	0.27	0.14	0.7	0.25	-
	0.34			0.45			0.25	
Е _т , т./мин	0.17	0.25	0.3	0.17	0.14	0.36	0.15	-
	0.23			0.25			0.15	
R _т , (%)	100	71.4	50	62.5	100	52.3	60	-
	66.7			56.7			60	-

Из этих данных можно сделать вывод, что наибольшая активность и результативность выполнения тейкдаунов наблюдается у бойцов средней весовой группы и составляет соответственно 0.45 и 0.25 тейкдаунов за минуту, наименьшее значение этих показателей наблюдается у представителей тяжелой весовой группы и составляет 0.25 и 0.15 тейкдаунов за минуту.

Наибольшая надежность тейкдаунов наблюдается у представителей легкой весовой группы и составляет 66.7%, наименьшая у представителей средней весовой группы и составляет 56.7%. Если проанализировать эти показатели по весовым категориям, то наибольшая надежность тейкдаунов наблюдается у представителей весовых категорий 56.7 кг и 77.1 кг и составляет 100%, а наименьшая у представителей весовой категории 65.8 кг и составляет 50%.

Сравнивая активность, результативность и надежность выполнения тейкдаунов в предварительных и финальных поединках можно заключить, что значения этих показателей существенно ниже в финальных поединках, чем в предварительных. Данный факт объясняется тем, что в финал выходят бойцы близкого уровня мастерства, поэтому выбрать момент для атаки и выполнить перевод в партер в такой жесткой конкуренцией существенно сложнее, бойцы это понимают и стараются меньше рисковать, но даже при этом надежность и результативность выполнения тейкдаунов у них меньше.

Выводы и дискуссия *Conclusion and discussion*

Нами в работе получены данные о средней продолжительности боя, а также средней продолжительности боя в стойке и партере отдельно. В предварительных встречах, спортсмены проводят 46% времени в стойке и 54% в партере (соотношение времени поединка в стойке к времени в партере составляет 0,85). Для финальных встреч данный показатель равняется 49% и 51% соответственно для стойки и партера (соотношение составляет 0,96).

Спортсменки ММА мирового уровня (Miarka et al., 2016) в стойке проводят 71,4% времени поединка, а в партере 28.6% (соотношение составляет 2,5), что показывает гендерные различия в структуре боя. Анализ схваток чемпионатов Европы и мира по вольной борьбе (Latyshev, Latyshev, Kvasnytsya, & Knyazev, 2017; Latyshev, Latyshev, & Gavrilin, 2009) показал, что в стойке спортсмены проводят 80% от всего времени поединка, а в партере лишь 20% (соотношение составляет 4.0). Эти различия обусловлены особенностями видов спорта и следуют учитывать при переходе спортсменов из спортивной борьбы в ММА.

Анализ поединков показал, что в среднем спортсмены выполняют 3.0 тейкдаунов за поединок и делают 3.9 попыток тейкдаунов за поединок (надежность 76.5%). В тяжелой весовой группе среднее значение ниже, чем в легкой и средней весовых группах. Сравнительный анализ с источниками литературы показал, что у спортсменок мирового уровня (Miarka et al., 2016) данный показатель значительно ниже: количество попыток в среднем за поединок составляет всего 1.1 ± 1.4 действия. В тоже время данные для спортсменов-профессионалов Великобритании (Kirk, Hurst, & Atkins, 2015) показывают, что спортсмены выполняют 7.5 ± 6.5 попыток и 2.5 ± 3.2 успешных тейкдаунов (надежность 33.3%). Вариативность данной характеристики соревновательной деятельности связана с различиями в уровне подготовленности и гендерными отличиями.

Дополнительно выполнен сравнительный анализ с характеристиками соревновательной деятельности лучших спортсменов из рейтинга UFC (UFC, 2019) для каждой весовой группы (были отобраны 15 лучших бойцов в каждой весовой категории, затем они были объединены в весовые группы: легкую, среднюю и тяжелую и для каждой группы рассчитаны эти показатели). Рассмотрены показатели надежности, активности и результативности.

Для лучших спортсменов рейтинга UFC среднее значение активности, результативности и надежности выполнения тейкдаунов составили: 0.30 п.т./мин, 0.12 т./мин и 33.5% для легкой весовой группы; 0.34 п.т./мин, 0.11 т./мин и 36.6% для средней весовой группы; 0.32 п.т./мин, 0.12 т./мин и 36.6% для тяжелой весовой группы.

Топовые бойцы UFC выполняют почти такое же количество попыток тейкдаунов за минуту, как и финалисты чемпионата России, однако надежность выполнения тейкдаунов у них почти в два раза меньше. Данные различия, на наш взгляд, обусловлены более высокой конкуренцией бойцов лиги UFC.

Сравнительный анализ работ показал различия между способом достижением победы. Так, на Кубке России 46.4% предварительных поединков были закончены досрочно удушающим, болевым или техническим нокаутом, при этом нокаутов зафиксировано не было, а в 53.6% боях победитель был выявлен решением судей. В соревнованиях среди женщин топ уровня (Miarka et al., 2016) 16% поединков были закончены техническим нокаутом или нокаутом, 11.4% поединков были закончены удушающим или болевым и в 72.4% победитель был определен по решению судей. Что показывает значительные различия по гендерному признаку, мужчины значительно чаще заканчивают поединок досрочно. В исследовании (Del Vecchio, Hirata, & Franchini, 2011) установлено следующее распределение способов достижения победы: 57.7% поединков

были закончены техническим нокаутом или нокаутом, 23.1% поединков были закончены удушающим или болевым и в 19.2% победитель был определен по решению судей. Анализ 100 боев представителей ММА чемпионатов Bellator и UFC (Mordvintsev, 2016) показал, что 10% боев на этом уровне достижений заканчиваются техническим нокаутом одного из соперников. В 9% боев досрочная победа одерживается посредством применения различных вариантов удушения соперника. Нокаутом заканчивается 3% поединков и 2% заканчиваются посредством болевых приемов. Полученные данные могут быть использованы при планировании учебно-тренировочного процесса как юных, так и квалифицированных спортсменов (Korobeynikov, Latyshev, Latyshev, Goraschenko, & Korobeynikova, 2016).

В различных исследованиях также проводятся измерение и анализ других показателей соревновательной деятельности, таких как серийность боевых действий (Mordvintsev, 2016), показатель эффективности атаки, защиты и общей эффективности технико-тактической подготовленности (González & Miarka, 2013), попытки выполнения различных технико-тактических действий в поединке (Kirk, Hurst, & Atkins, 2015), распределение интенсивности поединка по времени (Del Vecchio, Hirata & Franchini 2011; Miarka, Coswig, Del Vecchio, Brito, & Amtmann 2015), количество нанесенных ударов в различные области тела (Bridge, Jones, & Drust, 2011; Miarka et al., 2016) или разными частями тела (Mordvintsev, 2016). Необходимо отметить, что исследователи выбирают различные подходы к анализу соревновательной деятельности спортсменов (Coswig, Ramos Sde, & Del Vecchio, 2016; James et al., 2017), часто заимствованные из других видов спорта (Silva, Del Vecchio, Picanço, Takito, & Franchini, 2011; Tabben et al., 2015), что несколько затрудняет выполнить сравнительный анализ характеристик. Это требует дополнительных и более глубоких исследований для классификации и систематизации полученных результатов.

Summary

Mixed martial arts - a sport, which is a combination of many techniques, schools and direction of combat sports. Nowadays, mixed martial arts are the most popular and spectacular sport of all combat sports. Analysis of competitions performances is an important aspect of training athletes. The quantitative characteristics of competitive activity make it possible to model the training process at different stages of fighters. Aim of the research – to analyze the quantitative characteristics of competitive activity of high ranked fighters. All matches of Mixed martial arts Russian Cup in 2018 were analyzed: 84 preliminary and 8 final fights (for 1 place) in all weight categories.

The following quantitative characteristics of the competitive activities of high ranked fighters were analyzed in the study: average fight time; average fight time in the standing and

ground positions; distribution of fights by types of victory; activity, defense and reliability performing takedowns for each weight category.

The results of the study showed that athletes in preliminary fights spend 46% of the time in the standing position and 54% in the ground position (the fights ratio of the time is 0.85). For the final fights, these indicators are 49% and 51%, respectively, for the standing and ground positions (the ratio is 0.96). These data show the structure of the fight and the differences from other types of combat sports.

The data analysis showed the differences between the way to achieve victory: 46.4% of the preliminary fights were completed by submission (23.8%) or technical knockouts (22.6%), while there were no knockouts. The remaining 53.6% of the fights the winner was identified by decision of the judges.

These data can be used as model when planning the training process of both young and qualified athletes.

The literature review present, that researchers choose various indicators and characteristics for the competitive activity analysis, which complicates the comparative analysis. This requires additional studies to classify and systematize the results.

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**ПРИОРИТЕТ ЦЕННОСТНО-СМЫСЛОВЫХ
ОРИЕНТАЦИЙ У
ВЫСОКОКВАЛИФИЦИРОВАННЫХ
СПОРТСМЕНОВ**

*The Priority of Value-Semantic Orientations
in Highly Qualified Athletes*

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Abstract. *A stable structure of life values is one of the components of success in sports. When defining the value of value as a category of psychology, based on data from many authors, we denote that it reveals value as a concept used in philosophy and sociology to designate objects and phenomena that are significant in the life of society, social groups and individuals. Athletes who have achieved high results are dominated by such life values as “spiritual satisfaction” (74%) and “achievements” (61%). Since “spiritual satisfaction” is a moral value, it becomes obvious that it is moral values that motivate athletes to achieve high results. According to the results of multiple regression of terminal values in the total sample of athletes ($n = 118$, $p < 0.05$), we observe that the “achievement” of qualified athletes is most affected by “spiritual satisfaction”. In second place in terms of contribution to the formation of “achievement” value is “own prestige”, and in third place is “financial standing”. The value hierarchy of athletes also contains such a value as “self-development”, which indicates the athlete’s desire to work on himself, his character, the development of necessary abilities and other subjectively important characteristics of his personality.*

Keywords: *achievements, own prestige, spiritual satisfaction, terminal values.*

Анализ литературных источников *Literature review*

Журавлева Н.А. считает, что ценностные ориентации представляют собой наиболее гибкую форму регуляции поведения и деятельности личности и выступают в качестве целей жизни и основных средств их достижения (Zhuravleva, 2013). Пиянзин А.Н. рассматривает ценностные ориентации личности с позиции осмысления сущности ценностей, формирования ценностно-ориентированной направленности личности на профессиональную подготовку (Piyanzin, 1992). Магомедова Е.Ш. рассматривает ценностные ориентации исходя из общей теории управления, многоэтапного психолого-педагогического воздействия на личность, направленного на формирование профессионально-значимых ценностных ориентаций (Magomedova, 2017).

Головей Л.А. отмечает, что «система ценностных ориентаций определяет содержательную сторону направленности личности и составляет основу ее отношения к окружающему миру, к другим людям, к себе самой, основу мировоззрения и ядро мотивации жизненной активности, основу жизненной концепции и философии жизни» (Golovey, 2015).

В целом, ценности, которые содержат различные критерии, являются принципами, правилами, которыми человек руководствуется в жизни. Ценности выбираются из вариантов с учетом результатов, которые отображаются в поведении, преобразовываясь в образ жизни. Процесс приобретения ценностей, который начинается с рождения человека, претерпевает изменения и дифференцируется под влиянием развития и приобретения опыта, формируя ценности на всю жизнь (Kaur & Panju, 2012).

Ценности - это не феномен, который люди приносят с рождения. Ценности часто получают благодаря образованию на протяжении всей жизни. По этой причине приобретение или передача ценности сама по себе является образовательной проблемой (Yeşil & Aydın, 2007).

Признано, что спорт оказывает естественное формирующее влияние на детей и молодежь. Такие понятия, как честность, стремление, обучение работе с людьми, принятие победы и поражение, и, конечно, внутренние качества для развития активного здорового образа жизни являются одними из характеристик, которые спорт дает детям и молодежи. (Özdenk & Karabulut, 2018).

Профессиональный спорт в последние десятилетия активно входит в сферу интересов социологической науки. Исследования ценностей профессионального спорта также стало устойчивой программой современных социологов спорта.

Ценности профессионального спорта являются неотъемлемой частью общественных ценностей, однако обладают особенными отличительными чертами (Gonashvili, 2015). Другими словами, можно сказать, что в профессиональном спорте, как и в любой другой профессиональной деятельности, существует дихотомия общественных ценностей и внутренних ценностей как профессиональной группы, так и каждого спортсмена в частности.

Преобразования в ценностно-смысловой сфере личности спортсмена, которые происходят в процессе длительной спортивной деятельности, которая включает не только процесс подготовки, но и выступления на международных соревнованиях, могут основываться на осознании личностью ее отношений с миром, которые в последствии реализуются в ее деятельности. По теории "Действенного подхода" Леонтьева А.Н. смысл всегда связан с мотивом, а мотив с деятельностью, а это касается и субъекта деятельности в спорте. Значимым выступает "личностный смысл" объектов и явлений, возникающих в практике спортивной деятельности, как составляющая образов восприятия и представления мира личностью (Leontiev, 2000).

Определение системы ценностей может сыграть важную роль в сравнении ценностных приоритетов молодых людей в реальной жизни и в спорте. В спорте ценности включают в себя не только критерии успеха, такие как выигрыш и хорошая игра, но и честная игра, спортивное мастерство, дружба. Поэтому, ценности активно участвуют в формировании внутренней программы действий спортсмена как в повседневных, так и в критических ситуациях спортивных соревнований. Знать ценностные ориентации спортсменов – значит уметь прогнозировать уровень их социальной активности и ответственности за достигнутые спортивные результаты. Соответственно, становится актуальным вопрос приоритета ценностно-смысловых ориентаций у высококвалифицированных спортсменов в настоящее время.

Методы и организация исследования

Methodology

Выбор методов определялся необходимостью системного изучения различных аспектов исследования, получение достоверных данных, корректной математической обработкой материалов работы. Применялись следующие методы исследования: обобщение научно-методической, психолого-педагогической и специальной литературы по проблеме исследования; методы психодиагностики; педагогическое наблюдение в процессе тренировочной и соревновательной деятельности; методы

математической статистики. Исследование проводилось со спортсменами высокой квалификации (n=118) сборных команд в разных видах спорта в возрасте от 18 до 32 лет.

Результаты исследования **Results**

Исследования проводились по методике Сопова В.Ф. «Морфологический тест жизненных ценностей» (МТЖЦ) (Sopov & Korushina, 2007). В результате изучения доминирующих жизненных ценностей у квалифицированных спортсменов обнаружено значительное преимущество ценности «духовное удовлетворение» (74%). На втором месте жизненная ценность «достижения» (61%) и на третьем - «собственный престиж» (56%) и «материальное положение» (56%) (рис. 1).

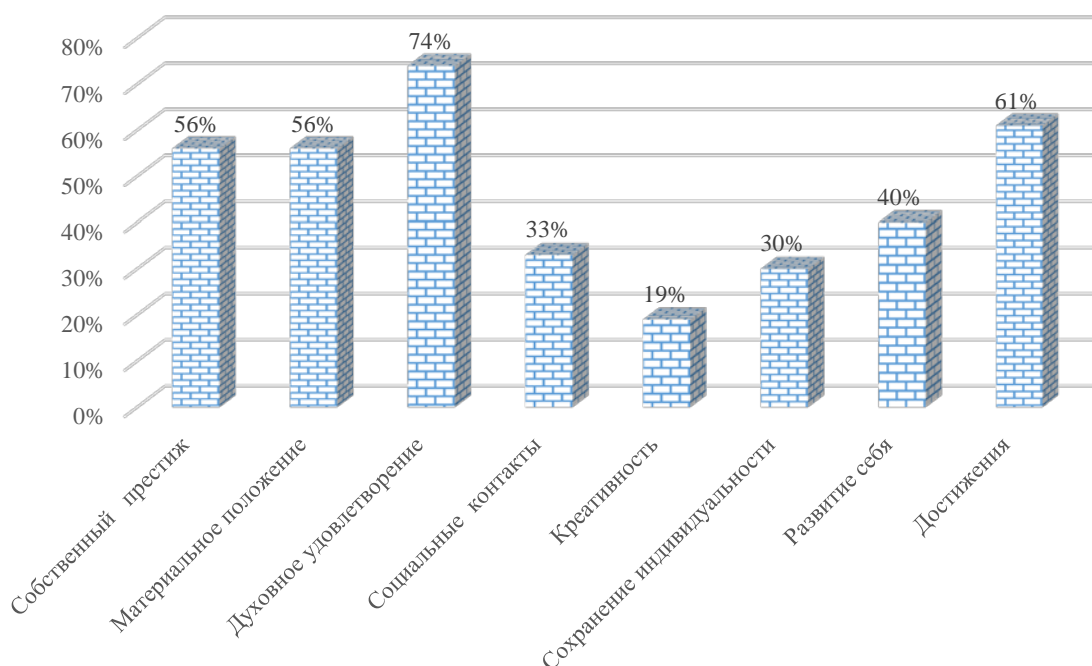


Рисунок 1. Показатели выразительности терминальных ценностей у квалифицированных спортсменов (n = 118): 1-собственный престиж; 2 - материальное положение; 3- духовного удовлетворения; 4- социальные контакты; 5 - креативность; 6-сохранение индивидуальности; 7-развитие себя; 8 -достижение

Figure 1 Indicators of expressiveness of terminal values among qualified athletes (n = 118): 1-own prestige; 2 - material position; 3- spiritual satisfaction; 4- social contacts; 5 - creativity; 6-preservation of personality; 7-development of oneself; 8 - achievement

Гринь А.Р. и Голец А.Р. при изучении ценностно-смысловой сферы спортсменов разного пола и уровня квалификации в процессе

тренировочной деятельности определила, что на первом месте – «достижение» (6,49 стэна– МС, 6,86 стена- КМС), на третьем – «духовное удовлетворение» (6,2 стэна– МС, 6,24 стена- КМС), и «материальное положение» - только на 7 месте (5,75 стэна– МС, 5,8 стена- КМС). Как и в нашем исследовании, такие ценности как «достижение» и «духовное удовлетворение» занимают первые позиции в иерархии ценностей (Grin & Golec, 2014).

У спортсменов, которые принимали участие в нашем исследовании и добились высоких результатов (призеры и чемпионы крупных международных первенств), ценность «духовное удовлетворение» доминирует. Так как эта ценность является морально-нравственной ценностью, это подтверждает и то, что именно моральные ценности мотивируют спортсмена к достижению высоких результатов. Мысли о престиже своей страны, города, команды, то есть патриотизм является не менее важным стимулом к достижению победы, чем материальная ценность.

Согласно проведенным исследованиям на втором месте - ценность «достижение». Ее высокое положение подтверждает, что спортивное достижение, которое является результатом тщательно планируемого тренировочного процесса, выступает и как моральная ценность для спортсмена. Для того, чтобы добиться поставленной цели, спортсменам необходимо ставить конкретные цели на каждом старте, так как длительное время невозможно находится на пике спортивной формы. У спортсменов высокого класса, в частности легкоатлетов, летний сезон начинается в мае и заканчивается в сентябре, поэтому подготовка планируется таким образом, чтобы на значимых соревнованиях – спортсмен показывал высокий результат, который позволит ему или выиграть соревнования или быть в призах, при этом выполняя также и условия контракта, которые в конечном итоге скажутся на его материальном вознаграждении.

По результатам нашего исследования на третьем месте – ценность «материальное положение» (56%). Согласно исследованиям Журавлевой Н.А. было установлено, что наиболее предпочтительными ценностями для студентов-спортсменов оказались: материальное обеспечение (9,3); успех в спортивной карьере (9,0); деньги любыми способами (8,9); заключение выгодного контракта (8,7); здоровье (8,5); интересная работа (8,2); повышение спортивных достижений (8,0). При этом, с повышением спортивной квалификации (независимо от пола), у студентов-спортсменов повышается значение материально обеспеченной жизни. Так ответили 70% мастеров спорта (Zhuravleva, 2013).

Кузьмин А.М. и Тарасевич И.В. в результате исследования студентов – спортсменов определил, что стремление к высокому материальному

положению у всех студентов имеет тенденцию к повышению и к старшим курсам переходит со 2 – 3-го места на 1-е (Kuzmin & Tarasevich, 2014).

Однако стоит учитывать, что данные авторы исследовали студентов-спортсменов, уровень квалификации которых не превышает МС (мастер спорта).

Согласно данным Сибирева В.В. вид спорта определяет специфику формирования ценностных ориентаций. Спортсмены, занимающиеся циклическими видами спорта достоверно выше ценят общественную деятельность ($p < 0,05$) и ниже – духовность. При этом, ядром системы ценностных ориентаций являются ценности материального успеха (12 связей при $p < 0,01$) и личностного роста (9 связей), что отчасти подтверждает результаты нашего исследования (Sibirev, 2004).

Согласно результатам множественной регрессии терминальных значений в общей выборке спортсменов ($n = 118$, $p < 0,05$), мы наблюдаем, что на такую ценность как «достижение» у квалифицированных спортсменов больше всего влияют такие ценности как «духовное удовлетворение», «собственный престиж» и «материальное положение».

Так как в профессиональном спорте, престиж и материальная сторона тесно связаны, то полученные данные вполне объективно это подтверждают. Что касается «духовного удовлетворения», та данная ценность, на наш взгляд, включает и моральную и материальную сторону тренировочного и соревновательного процесса. Спортсмен испытывает удовлетворение когда показывает высокие результаты и в добавок к этому, его достижения хорошо оплачиваются.

Иерархия ценностей спортсменов также содержит такую ценность, как «саморазвитие», которая указывает на желание спортсмена работать над собой, своим характером, развитием необходимых способностей и другими субъективно важными характеристиками его личности.

Таблица 1. Результаты пошаговой множественной регрессии терминальных ценностей в общей выборке спортсменов (n=118)

Table 1 The results of a step-by-step multiple regression of terminal values in the total sample of athletes (n = 118)

Терминальные ценности	Бета-коэффициент	Коэффициент регрессии	Ошибка коэффициента	Достоверность
Сдвиг/Коэффициент регрессии	-	0,7821	0,3989	1,8938
Собственный престиж	0,2589	0,2469	0,0688	3,5287
Материальное положение	0,3392	0,3301	0,0709	4,5402
Духовное удовлетворение	0,4518	0,4399	0,0559	7,7634

Согласно нынешним тенденция в профессиональном спорте становится очевидно, что сегодня основная цель профессионального спортсмена - достижение максимально возможного результата, является ключевым моментом и в вопросах материального вознаграждения. При этом, на международные соревнования спортсменов приглашают учитывая помимо результата и уровень популярности спортсмена, любит ли его публика, поэтому такая категория как социальный престиж, в данное время является весьма значимой.

Выводы *Conclusions*

Ценностно-смысловая сфера личности является важной составляющей успешности в спорте, так как она включает и объединяет различные мотивационные образования: жизненные параметры и позиции, мировоззрение и убеждение, цель притязания, идеалы, которые являются значимыми для спортсмена и, определенным, влияют на процесс спортивного совершенствования.

Сфера спортивной деятельности у спортсменов является профессиональной деятельностью. Спортсмены посвящают практически все свое время своей работе, считая при этом, что профессиональная деятельность является главным содержанием их жизни на данном этапе. Поэтому преобладание таких ценностей как достижения и духовное удовлетворение, говорит о том, что монотонность тренировочного процесса и значительные нагрузки, могут восприниматься спортсменами не как тяжелая работа, а как продвижение к намеченной цели. Восприятия спортивной подготовки выступает как желанная и необходимая деятельность на пути к намеченной цели, поэтому она может восприниматься спортсменом по своему и, соответственно, может вдохновлять его к дальнейшему спортивному совершенствованию.

Summary

Transformations in the value-semantic sphere of the athlete's personality that take place in the process of long-term sports activity, which includes not only the preparation process, but also performances at international competitions, can be based on the person's awareness of its relations with the world, which are subsequently realized in its activities. The studies were conducted according to the method of V.F. Sopov "Morphological test of life values" (ITLC). As a result of studying the dominant life values, qualified athletes found a significant advantage in the value of "spiritual satisfaction" (74%). In second place is the life value of "achievement" (61%) and in

third place is “own prestige” (56%) and “financial situation” (56%). According to the results of multiple regression of terminal values in the general sample of athletes ($n = 118$, $p < 0.05$), we observe that such values as “achievement” among qualified athletes are most affected by such values as “spiritual satisfaction”, “personal prestige” and “financial situation.” The value-semantic sphere of personality is an important component of success in sports, as it includes and combines various motivational formations: life parameters and attitudes, worldview and conviction, goal of aspiration, ideals that are significant for the athlete and, definitely, affect the process of sports improvement. Therefore, the predominance of such values as achievements and spiritual satisfaction, suggests that the monotony of the training process and significant loads can be perceived by athletes not as hard work, but as an advancement to the intended goal. The perception of sports training appears as a desired and necessary activity on the way to the intended goal, so it can be perceived by the athlete in his own way and, accordingly, can inspire him to further sports improvement.

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THE EFFECTS OF COGNITION AND FUNCTIONAL PERFORMANCE ON CORE STABILITY IN THE ELDERLY POPULATION: A CROSS-SECTIONAL STUDY

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Abstract. *The researches indicate that core stability may play a substantial role in reducing fall risk in the elders. Nevertheless, cognition and functional performance has been identified with fall risks as well. The impact of functional performance elements and/or cognition on core stability, to complement the intervention programs for seniors in the future, has not been fully studied. This study aimed to assess the effects of leg strength, static balance, walking speed and cognition on the core stability scores. In a cross-sectional design study a sample of 62 participants were eligible for the study. Elderly aged 60 or older living in Social care centers or autonomous were recruited. Independent variables included static balance, walking speed, leg strength measured by Short Physical Performance Battery, cognition (alertness, divided attention, selective attention, and working memory) evaluated with the RehaCom screening software and age. Dependent variable core stability (the ability to maintain appropriate contraction of muscle transversus abdominis) was assessed performing Prone test with Chattanooga Stabilizer Pressure Biofeedback. A hierarchical multiple regression was used for statistical analysis. Static balance and cognition presented greater effects significantly explaining 18% and 13% of the variability of core stability, whereas no significant effects of walking speed and leg strength were found on core stability. Exercise programs where static balance and cognition tasks are implemented to complement core stability performance might be worth investigating and compare with other intervention methods to reduce the risk of falling in the elderly population.*

Keywords: *accidental falls, aging, cognition, physical functional performance, transversus abdominis.*

Introduction

Aging is a process that can consequently result in deterioration of a person's functional state, which could lead to an augmented incidence of falls (Granacher, Gollhofer, Hortobagyi, Kressig, & Muehlbauer, 2013) therefore affecting daily activities. There has been evidence stating that daily activities are dependent on both sensorimotor processes and higher-level cognitive functions (Laessoe, Hoeck, Simonsen, & Voigt, 2008). It is known the (pre)frontal lobe (associated with executive function (Yuan & Raz, 2014)) is vulnerable to age-related degeneration (Fjell, McEvoy, Holland, Dale, & Walhovd, 2014; Fjell et al., 2009; Pfefferbaum et al., 2013; Raz, 1999; N. Raz et al., 1997) and it has been established that sensorimotor training where core is controlled by supraspinal centers or cognitive functions may be more efficacious than customary training programs (Markovic, Sarabon, Greblo, & Krizanic, 2015).

Furthermore, the components as muscle mass, bone density and neural system also are affected by degeneration processes (Granacher et al., 2013). The studies recommend that exercise methods challenging muscle endurance, strength and balance would improve scores of functional performance in seniors (Cadore, Rodriguez-Manas, Sinclair, & Izquierdo, 2013). The scores of functional performance are supposedly influenced by core performance as well (Granacher et al., 2013). Even though, it appears that the core may play a substantial role in controlling sensorimotor processes during everyday activities (Granacher et al., 2013), the opposite neural pathways controlled by functional performance have not been fully researched. Functionally, the core is challenged by external and internal forces and it must manage the transfer of torques and angular moments between the hands and legs while maintaining body equilibrium (Behm, Drinkwater, Willardson, & Cowley, 2010), therefore functional performance and supraspinal activation skills may play substantial role during these challenges. The core stability that can be defined as the ability to maintain or resume an equilibrium position of the trunk after perturbation (Zazulak, Hewett, Reeves, Goldberg, & Cholewicki, 2007) is based on three subsystems: the passive spinal column, active spinal muscles and a neural control unit (Panjabi, 1992). It is suggested that the central nervous system uses contraction of the transversus abdominis (TrA) to stabilize the lower spine, in anticipation of activation of the prime movers of the limbs (Hodges & Richardson, 1996).

While the association between the trunk muscle strength and functional performance (e.g. static balance, walking speed and leg strength) has been described (Baker et al., 2007; Suri, Kiely, Leveille, Frontera, & Bean, 2009), the impact of functional performance elements and cognition on core stability has not been fully studied in older adults. Based on the evidence stating that the importance of voluntary control over the trunk muscles is crucial for maintaining

static or dynamic balance (Anderson & Behm, 2005; Haefeli, Vögeli, Michel, & Dietz, 2010) and that there is lack of evidence examining the functional performance on core we aim to describe the effects of leg strength, cognition, static balance, gait speed on the core stability scores and hypothesize that functional performance and cognition could influence core stability.

Methods

The study was based on a cross-sectional design. Between May 2017 and May 2018, a sample of 103 elderly living in Social care centers or autonomous were recruited. Both gender individuals were included when older than 60 years, able to walk 20 meters without aids and have not regular physical activities last 6 months. The exclusion criteria were: inability to understand and speak Latvian, an acute medical illness in the past 3 months, severe health problems (e.g. recent cardiac infarction, uncontrolled diabetes or uncontrolled hypertension), unstable cardiovascular diseases, metabolic disorders (e.g., type 2 diabetes), major orthopaedic (e.g., osteoarthritis) or neurological diseases that prevent participation, medications that act on neuronal level (e.g. Psychotropic medications), cognitive impairments (Mini-Mental State Examination < 20 points). Forty-one participants had to be excluded. The mean age of the participants was 70.6 ± 6.8 , BMI 27.4 ± 1.6 , included female in the research was 40 and male 22.

The LASE (Latvian Academy of Sports Education) committee on ethics approved the study protocol. Written informed consent, in accordance with the Declaration of Helsinki about ethical principles in the research involving human subjects, was obtained from all the participants.

Clinical Assessment

Full medical examination and collection of gender, age, weight and height were performed. Body mass index (BMI, in kg/m^2) was calculated based on anthropometry measurements.

Physical Performance Measures

Physical performance was measured using the Short Physical Performance Battery (SPPB) (Guralnik et al., 1994). The SPPB includes static balance measured in the sequence of three positions (side-by-side, semi-tandem and full tandem balance). If the first position is held for 10 seconds participant receives 1 point and follows the next position where the same scoring approach is applied. In the third position participant receives 2 points if maintains it 10 seconds. The second test of SPPB is gait speed (timed 4-meter walk at a self-selected pace (best score (the shorter time) of two test performances is used). If time is less than 4.82 seconds the maximal score of 4 points is received. Longer the time spent performing test the lesser points received. The same point scoring system applies

to chair stand test (ability and time needed to stand five times as quickly as possible with arms folded across the chest from a straight-backed chair) where the maximum score of 4 points participant receives if chair stand up time is 11.19 seconds or less. In each of the three tests the maximum score can be 4 points, the minimum - 1 point. If unable to perform the test - 0 points (Guralnik, Ferrucci, Simonsick, Salive, & Wallace, 1995). These measures have a high test-retest reliability ($r > 0.9$) (Ostir, Volpato, Fried, Chaves, & Guralnik, 2002).

Cognitive function evaluation

The selected tests are associated with the component factors underlying EFs (executive function): divided attention, alertness, working memory, and selective attention (Alvarez & Emory, 2006; Grady, 2012; Van Vleet et al., 2016). RehaCom software 6.7 (HASOMED GmbH, Magdeburg, Germany) was used to evaluate EF. Test results are presented as the % of Z score. In the literature % of Z score presents norms from very conspicuous, conspicuous, but not pathologic deviations from norm and normal range (Sturm, 2002; Sturm & Willmes, 2001; Sturm, Willmes, Orgass, & Hartje, 1997).

Divided attention (3 min without practice)

The subject must work on visual and auditive tasks in parallel. Five circles with openings at changing positions must be observed. When the circle is closed, the subject must press the answer-button. Synchronously, high and low tones are presented alternatively. When the same tone sounds two times in a row, the subject must press the answer-button. Correctness of the visual and auditive answers as well as reaction time are evaluated and % of Z score is calculated (Sturm et al., 1997).

Selective attention (2 min without a short introduction and one exercise)

During the test, a visual stimulus is displayed on the screen. Randomly one of two divergent stimuli appear. In the case of the horizontal striped square, quick action is required, in case of the vertical stripes, no action is required. Action should be to press a certain button. Correctness of the answers and reaction time is evaluated and calculated into % of Z score (Sturm et al., 1997).

Alertness (maximum of 6 min)

In this test, the tonic alertness, the phasic alertness, and intrinsic alertness are detected. In the first phase the response time when full quadrante appears on the screen is measured. The participant must press a button as quick as possible in response. In the second phase, reply time to the same quadrante is detected while a beep sound was played before the quadrante emerges. The participant must wait until the quadrante emerges on the screen to press the button (not reacting to the beep sound). Correctness of the answers and reaction time is evaluated and calculated into % of Z score (Sturm & Willmes, 2001).

Working memory (7 min or by the time the maximum number of mistakes is reached)

During the test, 10 dots in one circle are presented on the screen. Dots each individually will light up in red and change again to white. The sequence to memorize starts with two dots. After the pattern was shown the same sequence must be marked in the correct order. This module is adaptive. After two accurate reproductions of the sequence, the number of dots to remember will be increased. If the participant fails, the number of dots which are to memorize will be reduced. The higher the level (meaning more dots participant can remember) the higher is test score. In additional, correctness of the answers is evaluated and score is given. At the end both parameters are calculated as a % of Z score (Sturm, 2002).

Core stability test

A Chattanooga Stabiliser pressure biofeedback pad (Chattanooga Group, Inc., Austin, TX, United States) and a stopwatch were used during the test. Participant was lying in prone position. The inflatable pad was placed centrally beneath the abdomen with the lower edge at the level of the anterior superior iliac spines. The subjects were trained on how to contract their TrA using an abdominal drawing-in maneuver (Richardson, Toppenberg, & Jull, 1990). They could practice no more than three practice tries to prevent premature fatigue. Readings were taken at the start and after the 10-second contraction (timed using a stopwatch), over three consecutive contractions. Changes in pressure readings were numerated from the baseline of 70 mm Hg, meaning, that 70 mm Hg (the start of the test) – end value (value taken after the 10 seconds) = final score of the test (change in the pressure). The mean change in pressure at the end of the three contractions was calculated. The better performance of abdominal draw in manoeuvre, the lesser final score appears. Research have established that normal response of mean change in pressure is ≥ -4 mm (Hodges & Richardson, 1996; Richardson & Jull, 1995), -2 to -4 mid-range (uncertain response) (Cairns, Harrison, & Wright, 2000), ≤ -2 mm Hg (abnormal response) (Richardson & Jull, 1995).

Statistical analysis

Power analysis was performed using G*Power 3.1.9.2 software to establish the type 2 error (Faul, Erdfelder, Buchner, & Lang, 2009). SPSS statistics application version 23 (IBM Corp. in Armonk, New York, United States) was used for further research. Assumptions for linear relationships, homoscedasticity (established by scatterplots and partial regression plots), multicollinearity (established through an inspection of correlation coefficients and Tolerance/Variance inflation factors values) and independence of observation (measured by Durbin-Watson statistic) to perform hierarchical multiple regression analysis, were checked ensuring adequacy of the values. Firstly, hierarchal multiple regression analysis was executed with the controlled variable that is age (proved to be main determinant affecting neurogenic and myogenic factors (Clark & Manini, 2008; Clark, Taylor, Hong, Law, & Russ, 2015)) serving

as an independent variable. In the second stage new set of independent variables together with the first step independent variable were analysed to establish whether new independent variables deliver additional effect to the core stability as it may appear considering the evidence (Suri et al., 2009). In the third stage cognition was added to the mentioned variables assuming that it might influence core stability as well.

Results

The participants overall showed average results in the tests. Except, in the SPPB test the outcomes were higher than in the normal population with similar age. Mean body mass index (BMI) 27.41 kg/m² shows overweight of the participants (Table 1).

Table 1 Tests results stated as mean ± SD (N=62)

Sum of SPPB (points)	8.7 ± 1.8
<i>Static balance</i>	2.9 ± 0.9
<i>Leg strength</i>	2.6 ± 1.1
<i>Walking speed</i>	3.2 ± 0.8
Rehacom Cognition score (%)	51.6 ± 9.2
Prone test (mm Hg)	3.1 ± 1.2*

*Score is as an absolute value

Interpretation of tests results:

SPPB, Short Physical Performance Battery (0 points - the highest mortality risk, 12 points - the lowest mortality risk in following years); Static balance, Leg strength and Walking speed (in each test 0 points - the highest mortality risk, 4 points – the lowest mortality risk in following years);

Rehacom Cognition score ($\geq 15.9\%$ normal range, 2.3% to 15.9% results conspicuous, but not patalogic, $\leq 3.3\%$ very conspicuous deviation from norm); i

Prone test's (in the start of the test onset score 70mm Hg) end value (value taken after the 10 seconds) ≤ 66 mm Hg (or ≥ -4 mm Hg change in pressure) normal response, 68 mm Hg to 66 mm Hg (-2 to -4 mm Hg) mid- range (uncertain response), ≥ 68 mm Hg (≤ -2 mm Hg) abnormal response.

The power analysis of the sample size adequacy presents high power that is 0.98. Model 2 and Model 3 fit satisfactory to the data. The core stability is significantly predicted by them $F = 3.31$, $p < .05$ and $F = 5.18$, $p < .01$ (Table 2). Static balance ($\beta = .34$, $p < .01$ in Model 2 and $\beta = .31$ in Model 3, $p < .05$) and cognition ($\beta = .35$ in Model 3, $p < .01$) present greater effect on the core stability from the given outcomes. Model 2 explains 18% share of variability in the dependent variable ($R^2 = .18$). Independent variables in Model 3 explained 31%

of the variance of core stability ($R^2 = .31$). The statistically significant influence on core stability comes from static balance and cognition. Both showing a similar proportion that influence core stability.

Table 2 Summary of Hierarchical Regression Analysis for variables predicting core stability

Variable	Model 1			Model 2			Model 3		
	B	SE B	β	B	SE B	β	B	SE B	β
Age	.03	.02	.16	.03	.02	.19	.03	.02	.19
Functional performance elements									
<i>static balance</i>				.48	.17	.34**	.44	.16	.31*
<i>leg strength</i>				.05	.14	.04	.05	.13	.04
<i>walking speed</i>				.20	.19	.13	.18	.18	.12
Cognition							.04	.01	.35**
R ²		.02			.18			.31	
F for change in R ²		1.77			3.31*			5.18**	

B, unstandardized coefficients; SE B, standar error of unstandardized coefficients; β , standardized coefficients; R², coefficient of determination; F, F-ratio

**p < .05. **p < .01*

Discussion

The present research tested the voluntary activation of TrA. It increments intra-abdominal pressure and tensions the thoracolumbar fascia (Borghuis, Hof, & Lemmink, 2008) that could radiate to lower limb anatomical structures (Barker, Briggs, & Bogeski, 2004; Norton-Old et al., 2013; Myers, 2013). If the muscular system is perceived as a multiple mechanism of myofascial meridians described by Mayers (Myers, 2013), consequently relatively reliable relationships could be found between the trunk region and lower limbs. However, our study does not show a significant connection between these parameters, respectively core stability with leg muscle strength or gait speed. Only the minor degree influence of aforementioned variables on core stability was demonstrated that wasn't statistically significant. Locomotion primarily is an automated process (Haefeli et al., 2010), where central pattern generator (CPG), supposedly, localized in the spinal cord, plays a substantial role in controlling the movements of the corresponding limbs (Ivanenko, Poppele, & Lacquaniti, 2006). It is unknown whether the appearance of closer relationships between the gait and core stability would be substantial if the subjects instead of voluntary rather

automatically have performed core stability test (Hodges & Richardson, 1996) therefore subconsciously activating neural circuits between the mentioned variables.

However, spinal locomotor (Grillner, 2011) and nonlocomotor (Borroni, Montagna, Cerri, & Baldissera, 2008) activity are also under supraspinal control, where it executes the CPG's organized sequencing of motor activity in locomotion (Drew, Prentice, & Schepens, 2004). That goes in line with other studies stating, that the coupling of corticospinal with propriospinal circuits may result in partial synchronization of activation components (Haefeli et al., 2010; Ivanenko et al., 2006). Our study shows significant relationships between cognition (e.g. EF) and core stability underlining the possible presence of sensorimotor pathways connecting (pre)frontal lobe and TrA. It has been described, that core stability is affected by cognitive programming that is based on stored central commands that interchange in signalling with voluntary adjustments (Radebold, Cholewicki, Polzhofer, & Greene, 2001). These relationships may be crucial during the specific locomotor tasks that may cause senior to fall like change in the direction, circumvention of an obstacle or stepping over it (Haefeli et al., 2010). The authors (Haefeli et al., 2010) state, that drive from supraspinal centers (e.g. Brodmann areas 9, 10, 11 associated with cognition) performing the obstacle task is stronger than during walking. Therefore, the implementation of cortical and lower spine area tasks in the exercise sessions might be worth of further investigation (Haefeli et al., 2010; Ivanenko et al., 2006), because this approach may benefit during the day by day activities when carrying out specific locomotor tasks.

Lower supraspinal or so-called subcortical levels whose certain properties when challenged influence balance also may affect core stability (Radebold et al., 2001). The findings of our study show that static balance impacts core stability, therefore it can be assumed that neural pathways of cognition and balance (both probably interacting with each other) play a substantial role in core functioning. It is known, the brain stem level pathway that coordinates vestibular (being considered as the main balance controller (Anderson & Behm, 2005)) and visual input (Radebold et al., 2001) is substantial during stepping over obstacles, cos neurons in the brainstem ensure that modifications of the motor cortex are superimposed on an appropriate base of postural support (Drew et al., 2004). Spinal proprioception mechanism and equilibrium have been reported to be crucial in minimizing the postural destabilization (Ebenbichler, Oddsson, Kollmitzer, & Erim, 2001). Probably, the analysis of correlation between the spinal functioning mechanism and brainstem and/or prefrontal lobe would depict more explicit inside if our research included more tests related to functional performance. For instance, a dynamic balance test where the participant must walk 10 meters in tandem gait (Ramnath, Rauch, Lambert, & Kolbe-Alexander, 2018) also might be an important determinant during the specific motor activities.

However, more studies are warranted in this field. In addition to evidence of static balance impacting core stability it should be clarified that core stability test presented in our study measures participants' ability to activate TrA and endurance (ability to maintain TrA contraction for 10 seconds) (Cairns et al., 2000). Even though, core endurance seemingly is an important parameter during the daily activities (Borghuis et al., 2008), the strength of core muscles may play an important role. Therefore, the effect of static balance on core strength should be investigated in the future as there is little research documenting it (Borghuis et al., 2008).

From the evidence collected in the present research, it appears that the functioning of the sensorimotor system and its main controllers respectively both pre-frontal cortex (cognition) and vestibular component (balance) affect core stability significantly more than walking speed or leg strength which are mostly dictated by spinal circuits. This might be crucial during everyday activities when specific locomotor tasks are performed challenging higher levels of CNS (central nervous system) to preserve equilibrium of the trunk.

Limitations of the study

Different approaches to testing might present a more explicit look at the research. For example, to measure both strength and endurance of core more appropriate may be Sahrman core stability test (Stanton, Reaburn & Humphries, 2004). The best approach to functional performance testing yet has to be defined. In the next researches performance of Grip strength, Functional reach and other tests could be accommodated. For instance, the Timed Up and Go test could be more appropriate, because includes walking, turning, stopping elements that occur during the real-time obstacle overcome. The results of multiple regression showed, that only one-third of core stability was explained from measured variables, therefore settling space for further speculations and uncertainties.

Conclusion

The core stability is significantly affected by cognition and static balance identifying the presence of neural circuits between them which when challenged may play a crucial role during the locomotor tasks.

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AWARENESS OF LATVIAN PREGNANT WOMEN ABOUT THE SAFETY OF MEDICINES DURING THE CHILD'S EXPECTATION

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Abstract. *Worldwide studies on the safety of medicines for pregnant women show that most women know which medicines to avoid during pregnancy. However, a large number of women are not aware that the use of medication during pregnancy can lead to adverse events. This type of studies has not been conducted in Latvia yet. The aim of this work is to find out the level of awareness among pregnant women in Latvia about the safety of the use of different medications during pregnancy, in order to clarify the ways of improving it. Quantitative and qualitative research methods have been used in this study. Between September 2018 and December 2019, 606 women were surveyed. Expert interviews led to conclusions on improving the education of pregnant women and pharmacy assistants. About 75% of women have been taking medicines during pregnancy. Usually it was 2-3 medicinal products. Approximately 10% used 4 or more medicines. Most women surveyed are not aware that the use of medications during the second and third trimesters can have a negative effect on the mother or baby. Most women (78%) wouldn't use medications without a doctor's advice, but 17% would if they consulted a pharmacist. Obtained results on the awareness of pregnant women showed that it is important to improve their knowledge of the safety of medicines. This can be achieved by improving the education program for pharmacy assistant pharmacists. A focus group discussion has been organised on this matter.*

Keywords: *awareness, pregnancy, safety of drugs.*

Introduction

Often, the first place where pregnant women would ask questions about medicines and their use is a pharmacy. About 50% of pregnancies are unscheduled and often revealed when a woman has already taken some medications. Pregnant women often visit a pharmacy because it is the most accessible place to ask a pharmacist whether any harm to the foetus has been caused when taking medications. Data from the scientific literature show that pharmacists often refer

pregnant women to their consulting physician without providing any information. This is due to the fact that pharmacists are often not prepared enough to provide information on teratology. However, if pharmacists provide information to pregnant women, in some cases, it is not sufficiently accurate and based on their own opinion and not on scientific evidence (Samuel & Einarson, 2011).

A study on the safety of medicines in Saudi Arabia found that the majority of women (59.2%) know which medicines should be avoided during pregnancy (Zaki & Albarraq, 2014). However, a large part of women is not aware of that, so it is important that the pharmacist gives a proficient and accurate recommendation to them, helping to avoid the negative effects of medicines on the foetus. Recommending medicines harmful to pregnancy can lead to undesirable consequences, such as neonatal organ pathology or developmental disorders. It is possible to avoid this by assessing the need for use of medicines and correct usage of them, recommending the safest option.

A study that enrolled 19,000 women has shown that around 90% of women took at least one medicine during pregnancy (Mitchell et al., 2011).

During pregnancy, a variety of food supplements containing vitamins and minerals are often used. Vitamins and minerals play a major role in foetal development, but overdose may have an opposite effect, for example, vitamin A in such cases leads to a teratogenic effect (Dibley & Jeacocke, 2001). Therefore, when vitamins and minerals are administered to pregnant women, and when recommended by pharmacists, the doses should be followed and it is important that they are not exceeded.

The aim of this work is to find out the level of awareness among pregnant women in Latvia about the safety of the use of different medications during pregnancy, in order to clarify ways of improving it.

Quantitative and qualitative method has been used in this study. During the period from September 2018 to December 2019, a survey of 606 women was carried out. The study was conducted through social networks. To reach the required number of respondents, the questionnaire was placed in closed mothers' groups in social networks.

When results of the questionnaire were acquired, a discussion took place within the focus group. As a result, it was possible to put forward proposals to raise awareness among pregnant women about the use of medicines.

Literature review

There are no effective drugs known to have no side effects. This fact obliges the prescriber to always assess the benefits compared to the risks that the medicines might pose (Shcoen, Osborn, Doty, & Bishop, 2007). This applies to all patients, but especially care should be taken with pregnant women, as all

medicines should be avoided if possible during the first trimester and should only be prescribed if the expected maternal benefit is greater than the risk of foetal (Sachdeva, Patel, & Patel, 2009). Although it is desirable to avoid medicines during pregnancy, it is often impossible and can be harmful because there are some pregnant women who suffer from chronic illnesses and new modern health problems that appear during pregnancy. Failure to comply with these conditions and diseases may have an impact on the mother and on the health of her child (Andrade, Gurwitz, Davis, & Chan, 2004). A small number of drugs have been identified as teratogenic, but thousands of drugs have none. In only 3% of cases, teratogenic effects are related to medicines (Koren, 2009). A doctor may prescribe some vitamins or minerals during pregnancy as food supplements, or medicines to treat common symptoms during pregnancy, such as headache, nausea, vomiting (Pange, 2006). Pregnant women may also be treated with other medicines that may cause an adverse effect on the foetus (Sorensan, Philips, & Mutnick, 2004). In different countries, healthcare providers seek to ensure that pregnant women have adequate health awareness (Eiser & Eiser, 1985; Marsack, Alsop, Kurinczuk, & Bower, 1999). However, a number of studies have shown that women have a weak knowledge of the risks associated with medicines during pregnancy (Eiser et al., 1985; Marsack et al., 1999; Roth & Taylor, 2001; Arnold et al., 2011).

According to the Food and Drug Administration classification, medicines are classified in 5 categories depending of their safety during pregnancy:

- 1) Category A. Safe drugs. Adequate, well-controlled human studies have been conducted and there has been no proven risk to the foetus during the 1st trimester, including the 2nd and 3rd trimesters;
- 2) Category B. Low-risk medicines. No adequate human studies have been performed, but animal studies have been conducted. Animal studies may show and may not present risks;
- 3) Category C. Unknown risk medicines. No qualitative studies have been performed in pregnant women, but studies in animals have shown adverse effects. In some situations, the benefits of taking this medicine may exceed their potential risks. Medicines may adversely affect the foetus, but do not cause birth defects;
- 4) Category D. Risky drugs. There are studies in pregnant women that have demonstrated a risk to the foetus. Drug use is associated with hereditary defects and irreversible consequences. In some cases, the benefits of this medicines are greater than the potential risks;
- 5) Category X. Medicines that are contraindicated to pregnant women. Studies in pregnant women have shown a risk to the foetus and/or studies in humans or animals have shown foetal abnormalities. Drug risks outweigh potential benefits (Leek & Arif, 2019).

Methodology

A questionnaire was used to conduct a survey among women living in Latvia who have been pregnant at least once. A total of 606 women were surveyed (9 women were under the age of 20; 101 women were aged 20-24; 227 women were aged 25-30; 269 women were older than 30). This survey was conducted between September 2018 and December 2019. The survey took place in the Web, on the Google platform. In order to reach the required number of respondents, it was placed in closed mothers' groups in social networks. The questionnaire consisted of 7 questions. There were questions about age, the number of medicines used during pregnancy, the sources of information from which women learned about the safety of medicines, and the question of which medicines may be dangerous during the different trimesters of pregnancy. In the course of the survey, women had to list some medicines that should be avoided during pregnancy, and the phrases (I agree; I do not agree; I neither agree nor disagree) that reflect their views the best regarding the various claims related to the safety of medicines.

Available sources of scientific literature, such as PubMed, Medscape, UpToDate, have been used in this study.

The discussion within the focus group led to conclusions on improving the level of education for pregnant women and pharmacy assistants in order to provide more insight into this issue than through a questionnaire or survey. The focus group consisted of 8 experts: a director of Pharmacy study programme in the Red Cross Medical College of Rīga Stradiņš University, a lecturer of Pharmacy study programme at the Rīga Stradiņš University and 6 heads of pharmacies. The participants discussed ways to raise awareness among pregnant women reading the use of medicines and ways to improve lectures for future pharmaceutical professionals on the pharmaceutical care of pregnant women at the College. The focus group discussion lasted about 50-60minutes.

Research results

Questionnaire showed that the general awareness of the use of medicines in pregnant women is low. In this section, you can see more detailed results.

Figure 1 shows that the majority of respondents – 71% – could name specific medicines that should be avoided during pregnancy. 36% could name 1 medicine, while 35% – 2 or more. Most commonly, ibuprofen and antibiotics were mentioned. 29% of respondents couldn't name any medicines. A similar study conducted in Saudi Arabia found that about 60% of women could name medicines that should be avoided during pregnancy (Zaki et al., 2014). On the other hand, a similar study in Sudan showed that 50.6% of women could not name any medicines that should be avoided during pregnancy (Eldalo et al., 2015).

Compared to Saudi Arabia and Sudan, women in Latvia are more informed about medicines that should be avoided while pregnant.

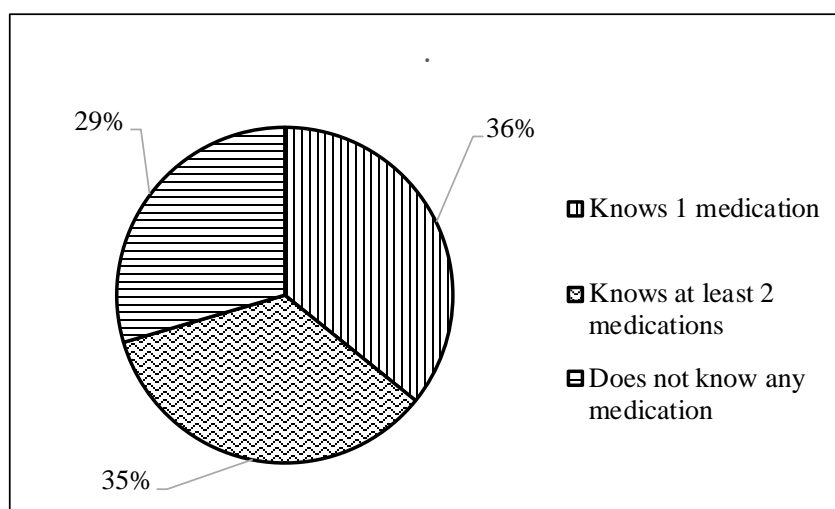


Figure 1 Responders' ability to name medicines that should be avoided during pregnancy

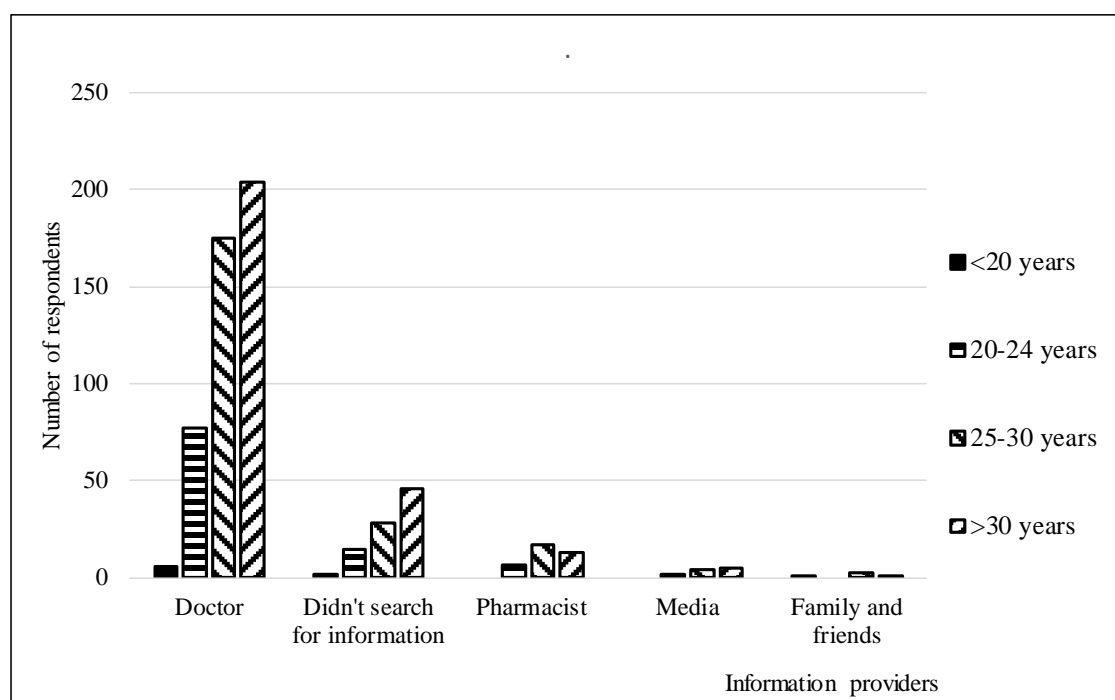


Figure 2 Sources of information on the safety of medicinal products during pregnancy, depending on responders' age

It is evident (see Fig. 2) that in most cases (76% of cases) information about drug safety was obtained from a doctor. 6% of respondents asked the pharmacist for advice. 2% learned about the safety of medicines from the media, but a very small part – from friends and/or relatives. A similar study conducted in Sudan

showed that 60.2% of respondents obtained information on the safety of medicines from a doctor, 34.4% from a pharmacist and 1.4% from the media (Eldalo et al., 2015). Another study in Saudi Arabia showed that 71.1% of surveyed obtained information on the safety of medicines from a doctor, 11% from a pharmacist, 5% from the media, 3% from family members and/or friends (Zaki et al., 2014). Another study, which took place in Italy, showed that pregnant women obtained safety information in 81.3% of cases from a doctor, 46.9% from the media, and 14.7% from a pharmacist (Nevaro et al., 2018). In all these countries, the most common safety information during pregnancy is obtained from a doctor. However, pharmacists play a less important role in this matter in Latvia compared with Saudi Arabia, Sudan and Italy.

The question of which medicines are dangerous during the different trimesters of pregnancy had the option of selecting more than one response. Figure 3 shows that most of responders' think that medicines are dangerous during the first trimester of pregnancy (93%). Nearly half, 39%, said it could be dangerous to use medicines during the third trimester. And only 33% of surveyed women responded that taking medications during the second trimester of pregnancy can be dangerous. The majority of responders were not aware that, during the second and third trimesters of pregnancy, medications may have a negative effect on the mother or/and the child. It appears that women who did not take medications during pregnancy are more informed that the drugs can be dangerous in all trimesters of pregnancy. In a similar study conducted in Sudan, the results were as follows: 66.8% (334) thought medications are dangerous during the first trimester; 27% did not know the answer to that question, while others believed that taking medications is dangerous during the second or third trimester of pregnancy (Eldalo et al., 2015). Compared to Sudan, women in Latvia are better informed about the dangers of medicines during pregnancy.

The majority of women, 75%, have used medicines during pregnancy (taking 2 to 3 medicines was the most common case). Compared to a similar study conducted in Sudan, women in Latvia take medicines less. In Sudan, 84.8% of women had taken medications during pregnancy (Eldalo et al., 2015). Meanwhile, a similar study in Saudi Arabia has found that only 40.1% of women used medicines during pregnancy (Zaki et al., 2014). Another study carried out in Italy showed that 59.6% of women were taking medicines during pregnancy (Nevaro et al., 2018). Compared to Saudi Arabia and Italy, in Latvia and Sudan, medicines are used more often among pregnant women.

If woman had responded that she had been taking medications during pregnancy, she had been asked to list the medicines she had taken. The most commonly used group of medical treatment products was vitamins (magnesium, iron and complex vitamins were most mentioned). The second group of the most commonly used drugs was painkillers and antispasmodic. The data obtained in

Latvia differ from the data obtained in a similar study in Saudi Arabia. Paracetamol was mentioned there in 13.2% of cases (11.06% in this study) and vitamins in 13.2% of cases (53.05% in this study). Antibiotics were mentioned in 2.6% of cases (5.19% in this study), antihistamines in 1.3% (in this study 1.13%) (Zaki et al., 2014). Vitamin-containing products in Latvia have been used approximately 4 times more frequently than in pregnant women in Saudi Arabia. Antibiotics have also been used about 2 times more frequently. Paracetamol and antihistamines have been used in approximately the same amount.

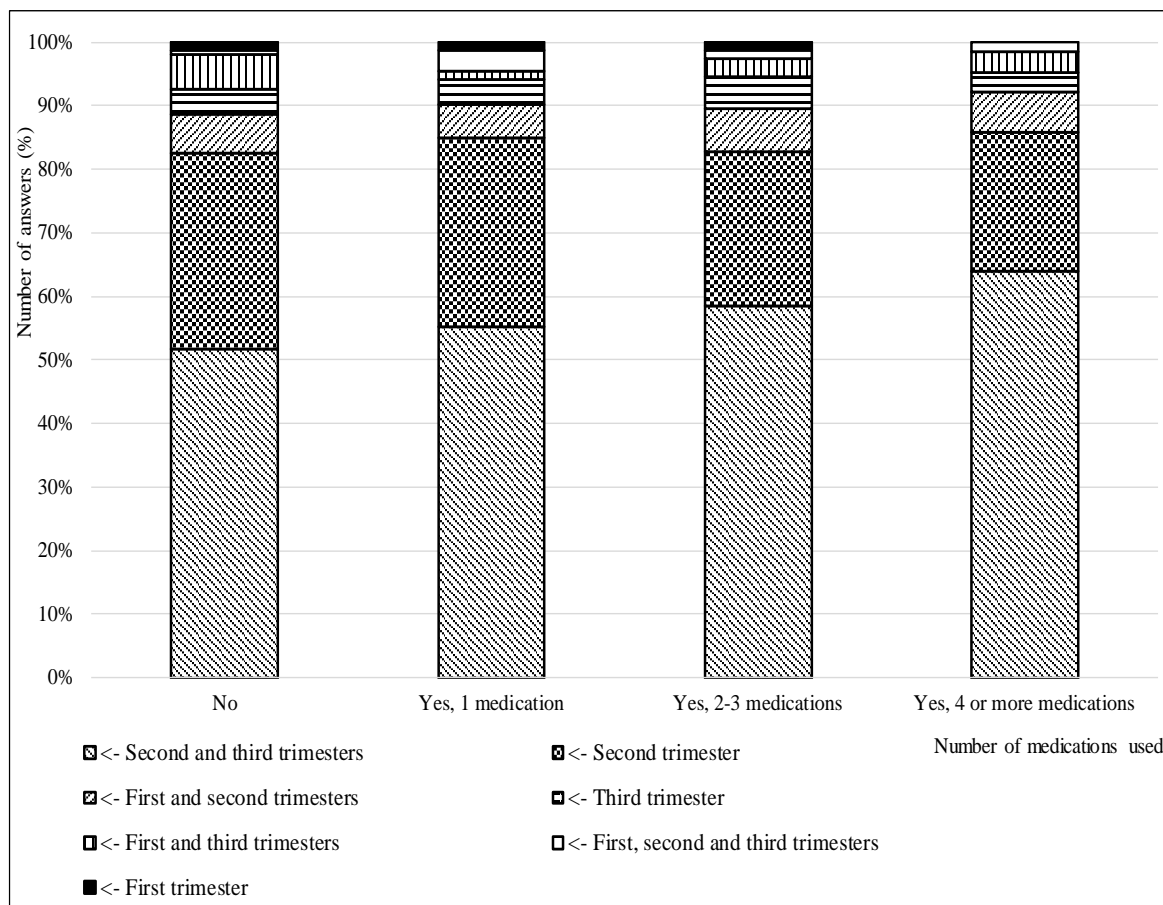


Figure 3 Respondents' awareness of the hazardous effects of medicines during different periods of pregnancy, depending on whether medicines have been administered during pregnancy

Women had to note if they agree with the given statement. Figure 4 shows that the majority of women, 53%, do not agree that all medicines can be dangerous to the foetus. However, 27% of women agree with this statement and only 20% were not convinced and chose to “neither agree nor disagree”. A similar study conducted in Sudan yielded the following results: 12.2% agreed; 80.6% disagreed; 7.2% neither agreed nor disagreed (Eldalo et al., 2015). Meanwhile,

the results of the study in Saudi Arabia were the following: 59.2% agreed; 22.4% disagreed; 18.4% neither agreed nor disagreed (Zaki et al., 2014). Another study took place in India. In this study, women had to specify their thoughts about the same statement, only the answers were more detailed. The answers were as follows: 2.6% responded that medicines can be dangerous for the mother; 68.46% responded that medicines can be dangerous for the foetus; 24.55% replied that medicines can be dangerous for both the mother and the child; 4.39% replied that medicines are safe during pregnancy (Kureshee & Dhande et al., 2013). There were significant differences in data collected in different countries. Data from Latvia shows that the majority of women believe that not all medicines are dangerous to the foetus, but in Sudan women are even more confident about it. In Saudi Arabia, most women think all medicines can be dangerous to the foetus. In India, too, most respondents think that medicines are dangerous to the foetus, and only a small percentage of women consider them safe.

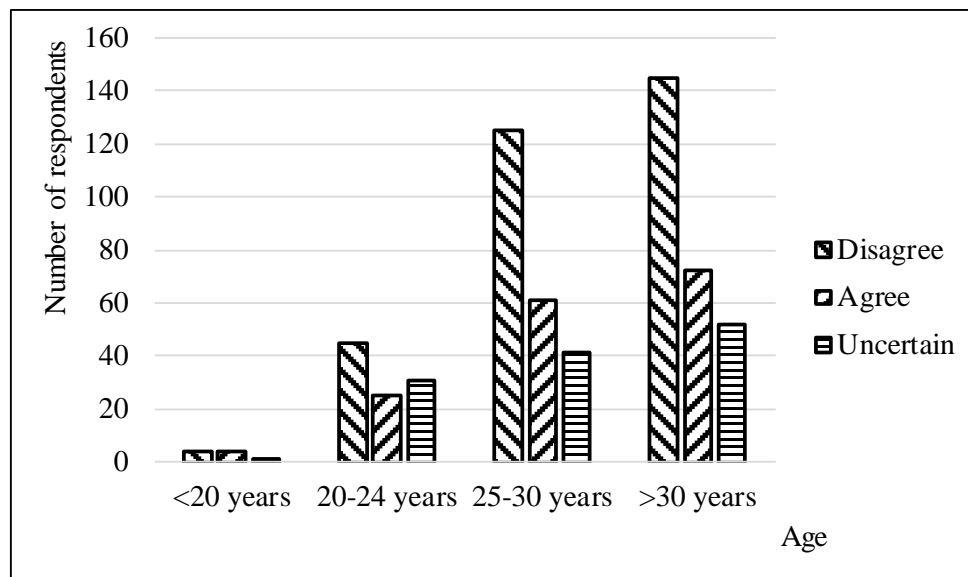


Figure 4 Respondents' views on the claim "All medicines can be dangerous to the foetus" depending on age

Analysis of obtained results in the focus group

Experts agreed that in order to raise awareness among pregnant women about the safety of medicines during pregnancy, the responsible institutions of country should organize a set of measures. These measures could include special groups in social networks intended for Latvian women. These groups would have the opportunity to learn about the effects of various medicines on the foetus from health care professionals. This information would be secure, reliable, and based on more recent medical research. It would also be valuable to create informational materials – booklets, promotional materials, 1 day courses for emerging mothers

on the subject. The gynaecologist should be required to inform the patient on the first visit that there are medicines that are not safe during the pregnancy and to enrol the patients into the state-reimbursed courses on the subject.

In the course of the conversation, the focus group came to conclusion that the changes to the lectures regarding pregnant women for the future pharmaceutical professionals at Red Cross Medical College of Rīga Stradiņš University would be valuable. The lecture is currently devoted not only to the acquire information about pregnant women, but also about seniors and the paediatric population. There is a group work for students during the lecture: they have to prepare a paper on one of three topics: pregnant women, seniors, or children. The focus group decided that dedicating a full lecture to the subject of pregnancy would be more feasible. In the first part of the lecture, the lecturer would tell students about the most commonly used medicines in difference conditions (such as cold, diarrhoea, wounds, etc.). He would tell about which medicines can be used and which should be avoided. The lecturer would tell which category each medicine belongs to by FDA classification system (A, B, C, D, X). In the second part of the lecture, students would have the opportunity to acquire practical skills in the pharmaceutical care of pregnant women, modelling different situations and creating dialogues. Students would be given homework to write a paper on medicines during pregnancy, which would require them to find information on the subject themselves. Particular attention should be paid to the reliability of the sources and to how new and up-to-date the used articles are.

Conclusions

According to the results of survey, women in Latvia are poorly informed about the hazards of medicine usage during pregnancy. This fact is important if we know that the majority of women take medicines during pregnancy. Unfortunately, most think that only medicines used during the 1st trimester can have a negative effect on the new-born. In the light of this and other data generated by the questionnaire, it was decided within the focus group that it was crucial to organize educational events for emerging mothers on this topic, such as groups in social networks for Latvian women, informative leaflets and promotional materials, 1 day educational courses. The focus group also came to the conclusion that the lecture about the treatment of pregnant women for the future pharmaceutical professionals at the Red Cross Medical College of Rīga Stradiņš University is needed to be improved, with a greater emphasis on the skills and the collection of up-to-date information on the use of medicines during pregnancy. This would be important because pharmaceutical professionals are also health professionals, and their role is to transfer information to the citizens on health-related topics.

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MODERN LEGAL DEFINITION OF HUMAN HEALTH

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Abstract. *The World Health Organisation has proposed an innovative view on the legal definition of human health, which countries have borrowed and included in their national laws and regulations. At the beginning the legal definition of human health was seen as an innovation and a progressive view on the legal understanding of human health. However, nowadays this legal definition of human health is considered too narrow and needs to be specified in two areas. Firstly, the legal definition of human health should include significant and already existing health principles for objective and comprehensive interpretation. Secondly, nowadays, a more detailed evaluation of the notion of health broadens its interpretation, revealing new aspects of the definition of human health. The research aim is to analyse the legal definition of human health and propose its more specific version in accordance with the modern legal system. The following main research methods of the legal science were used: analytical, systemic, teleological.*

Keywords: *health, human, legal definition, legal system, principles.*

Introduction

The World Health Organisation (hereinafter – WHO) has proposed an innovative view on the legal definition of human health, which countries have borrowed and included in their national laws and regulations. At the beginning the legal definition of human health was seen as an innovation and a progressive view on the legal understanding of human health.

However, nowadays this legal definition of human health is considered too narrow and needs to be specified.

The research aim is to analyse the legal definition of human health and propose its more specific version in accordance with the modern legal system. The following main research methods of the legal science were used: analytical, systemic, teleological.

Literature review

Literature, laws and regulations and legal practice materials were used in the research process. Considering that the definition of human health is not covered in the Latvian legal science, foreign sources were used primarily. Foreign studies cover certain issues of the definition of human health, without providing a

comprehensive legal view on the understanding of human health or proposing its specific legal definition.

Methodology

Special legal science research methods were used in the research process: the semantic, grammatical, analytical, historical, comparative, systemic, and teleological method.

Discussion

The WHO has made a significant contribution to the formulation of the modern legal definition of human health. Soon after the WWII the WHO defined health in its constitution as “a state of complete physical, mental and social well-being”, specifying that health is “not merely the absence of disease or infirmity” (Constitution of the World Health Organization, 1946); this definition was also stressed in a later period (The Ottawa Charter for Health Promotion, 1986). The proposed definition of health is characterised by 4 main features: 1) health is described as a category only characteristic of humans; 2) health is opposed to disease, excluding the presence of health disorders in case of health (Health, 2019a); 3) the notion of health also includes the element of social well-being as a prerequisite for health and a result to be achieved in relation to health (Jakarta Declaration on Leading Health Promotion into the 21st Century, 1997; Rogers, Castree, & Kitchin, 2013; Svalastog, Donev, Kristoffersen, & Gajovič, 2017); 4) health is equated to a state of absolute well-being. Considering that this definition of health was not legally binding (Habersack & Luschin, 2013), countries borrowed it and included in their national laws and regulations (e.g.: Ārstniecības likums, 1997; Veterans Health Care Regulations, 1990). Thus, the definition of health proposed by the WHO acquired a binding nature, becoming the content of national laws and regulations.

Although the definition of health by the WHO is seen as an innovative view on the understanding of human health, nowadays it needs to be corrected. Legal arguments are found that promote the necessity to improve the legal definition of human health.

Health is defined as a state of absolute well-being. Such approach is criticised, stating that it is an utopian vision with an unachievable, practically non-existent result (Misselbrook, 2014; Ottendörfer, 2016; Gangl, 2015; Habersack & Luschin, 2013). This raises the question – what actual level of well-being is required to define health. Countries tend to determine the minimum threshold of basic needs and provide for measures to avoid harm to health or life, recognising health as one of the most important objective elements of well-being

(Büchs & Koch, 2019; Nordenfelt, 2007). And by implementing these measures, it is possible to achieve the required level of well-being for health, without denying the opportunity to achieve a higher level of well-being. It can thus be concluded that health is a complete rather than an absolute state, where its objectively achievable result may differ.

Based on the definition of human health by the WHO, health is opposed to disease, recognising these as absolute and mutually exclusive categories. This raises the question whether health can still be defined for a person with health disorders and whether a person with health disorders can be considered healthy. On the one hand, there is an opinion that health is a state of existence which includes health disorders if a person is able to develop and perform everyday requirements and which also depends on everyone's own beliefs and perception whether one is healthy or ill (Misselbrook, 2014; Sartorius, 2006; Müller; Schramme, 2012). On the other hand, health is also assessed as a state of being in relation to others (Gangl, 2015) where society defines whether a person is considered to be healthy. Middle ground is the most appropriate. After all, health is a person's internal category characterised by the ability to fulfil social obligations while being in harmony with their own and public values (Ibeneme, Eni, Ezuma, & Fortwengel, 2017; Lock, Last, & Dunea, 2006; Sartorius, 2006). However, if there is danger to society, it is largely in the interest of society to determine what conditions should be recognised as disease, where disease is recognised as a deviation from the biological norm in accordance with the criteria of the time period and the social culture (Schramme, 2012; Ibeneme et al., 2017; Habersack & Luschin 2013; Wilensky & Teitelbaum, 2020). Thus, health is a benefit characteristic of any person; only the level of health is different. According to the general principle, a person with health disorders should also be considered healthy if this corresponds to their perception and if the person is able to fulfil their needs to the extent acceptable to them. And society, taking into account the consideration of public safety, as well as public interest, should have the right to set a limit up to which an individual's own initiative for assessing their own health is acceptable. Over this limit, the person is not recognised as completely healthy; their health should be assessed in the particular situation regardless of their own beliefs but considering the objective criteria defined by society.

This raises the question, when is it determined whether a person is healthy. From social and legal norms follows the idea what a person should be like. Good health and emotional comfort are better than ill health and emotional discomfort where appearance of illness is subject to particular laws, finding a natural explanation for it, and illness needs to be diagnosed (Brazier, 1992; Gaile & van Hofa, 2003; Rumpelsberger, 2012). It can thus be concluded that health is a benefit characteristic of a person while the opposite has not been proven. And health is one of the elements of the set of benefits characteristic of each individual

in society. For example, one such element is also a person's legal capacity where the presumption of legal capacity exists (Mazure, 2014; see: Crewe (Re), 2007 NSSC 322, 2007; Hospitals Act of Nova Scotia, 1989) while it has not been disproven due to the person's health. Although illness applies to the entire human body, with the interaction of organ systems, still, a specific disease is diagnosed where a specific level of health thus forms for the particular individual. It is thus presumed that a person has complete health while they have not been diagnosed with a specific disease, forming the person's specific level of health.

The definition of human health proposed by the WHO includes three forms of human well-being – physical, mental, and social. Understanding of human health is nowadays expanding, describing the idea in more detail. Five elements of human health are derived from the categories of the body, mind, soul, family, society, education, and belief: 1) emotional or mental, i.e. the ability to understand, solve problems, study and work, as well as the sense of humour; 2) intellectual, i.e. the ability to obtain information, process it and make decisions (this element stands out from emotional); 3) spiritual, i.e. the ability to have internal harmony; 4) physical, i.e., the condition of the body, its ability to resist to ill conditions (the ability to perform the necessary life functions – *Author's note*); 5) social, i.e., the ability to be part of society, to be responsible, to communicate (the ability to socialise – *Author's note*) (Apostu, 2013; Žukovs et al., 1969; Baldunčiks & Pokrotniece, 1999; Svalastog et al., 2017; Health, 2019b; Molineux, 2017; Müller, Ganten, & Larisch, 2014). These elements of human health are actually concluded from the idea of “best interest”. It is described as something a reasonable person would want; and considering that there is no such reasonable person, the idea is fiction filled with content by society; and people always possess this “best interest”, regardless of their legal capacity (Mason & McCall Smith, 1994; Kennedy & Grubb, 1998). Nowadays, with the development of medicine, understanding of society about a person's “best interest” is also changing, becoming deeper and more diverse. And to achieve this interest a person is given additional abilities, including these in the notion of health. Thus, human health is a state that allows implementing the following abilities – emotional, intellectual, spiritual, physical, and social, expanding the understanding of human health.

There is controversy regarding the proportion of the abilities included in the understanding of human health and those to be achieved. Clearly, the opinion that these abilities interact with each other (Apostu, 2013) can be supported because human organ systems are strongly interconnected. However, there is also a belief that the predominant element of human health is the physical element in particular where the human body is the informative indicator (Barinov, Kosukhina, & Mikheyeva, 2016). This is explained by the fact that a person's physical ability is easier to prove; whereas mental ability is difficult to determine, losing the strong

connection with the evidence-based medical science (Jackson, 2013; Ottendörfer, 2016); the spiritual and social abilities are interpreted differently depending on the values of a particular society. Still, regardless of the fact that each element of human health is important, where, for example, emotional harm can often be deeper and longer-lived than physical harm (R.v.L.K., 2011 ONSC 3056, 2011), problems in the spiritual element can make the functioning of the other elements, as well as the entire human body, significantly more difficult. Trying to understand the desirable proportion of the elements of human health, two principles have been found for determining this proportion: firstly, the importance of lifestyle for maintaining health is emphasised even in the Hippocratic Oath, and it is still stressed nowadays (Gaile & van Hofa, 2003; Apostu, 2013); secondly, the idea of balance in health is proposed (Wellbeing, 2019; Welfare, 2019; Gangl, 2015; Sartorius, 2006; Ibeneme et al., 2017). It can thus be concluded that predominance of any element in the understanding of human health, thus viewing it in isolation from the human body, should not be supported. The physical, emotional, intellectual, spiritual, and social element of human health should be determined as a proportion, on the basis of two principles, i.e., lifestyle as a measure and balance as a criterion in the implementation of lifestyle.

With the expanding understanding of human health, which opens up many more detailed elements of health, we need to evaluate the legal nature of the concept of health nowadays. Even though promoting medical technology and pharmaceutical industry with the understanding of health is criticised, still it is recognised that medical intervention is required to correct deviations in health (Huber, Knottnerus, Green, van der Horst, Jadad, Kromhout et al., 2011; Misselbrook, 2014; Müller et al., 2014) by attributing the understanding of health and health promoting activities in western society to scientific rationalism (Ibeneme et al., 2017). Thus, medical understanding of health prevails. However, we have to agree with the opinion about the formation of the interdisciplinary nature of health (Büchs & Koch, 2019; Den Exter, 2002) where understanding of health is expanding and the medical science nowadays no longer covers full interpretation of health. Thus, health is an interdisciplinary concept which preserves the medical nature of health as the prevailing one in its scientific explanation.

One of the drawbacks of the definition of human health is that the definition does not reflect individual's personal involvement and its meaning in maintaining and improving health. Even though the right to health does not mean or guarantee the right to be healthy, still every individual is entitled to the highest level of health that can be achieved (The Right to Health, 2008; Starptautiskais pakts par pilsoniskajām un politiskajām tiesībām, 1966; Eiropas Sociālā harta, 1961). Moreover, there is an opinion that a person who does not strive for health will not become ill because they are already ill (Hahn, 2013). Thus, human desire to be

healthy or as healthy as possible is presumed to obviously correspond to public values where the opposite action is considered a deviation from the common norm.

Health is an individual's highest good which forms the starting position for their possible further action (Hahn, 2013; Buijsen, 2000), which is characterised by the following action escalation stages. At the beginning, health provides the strength to be and the state for action (Gangl, 2015; Nordenfelt, 2007; Misselbrook, 2014). At the next stage, health provides the ability to be autonomous (Rumpelsberger, 2012), which expands the scope of initial action. Where as by implementing autonomy, health provides the person with the basis for maximum individual self-fulfilment and social self-realisation (Montgomery, 1997; Parson, 1967; Svalastog et al., 2017; Rumpelsberger, 2012; Ibeneme et al., 2017). The scope of abilities to act related to health can be developed and improved (Sartorius, 2006; Kabaeva, 2011; Müller et al., 2014), thus achieving the next action escalation stage. Such definition supports the understanding of active and interactive health where the individual is seen as a dynamic rather than passive system (Svalastog et al., 2014; The Ottawa Charter for Health Promotion, 1986; Gangl, 2015; Kennedy & Grubb, 1998). Thus, the definition of human health should include the idea of dynamics which manifests in two ways. On the one hand, health is not a frozen state where a person has the opportunity to achieve the highest level of health. On the other hand, health itself provides the basis for a person's action with different possible stages of escalation. Human health strongly interacts with a person's actions where the results are mutually dependent.

Research results and conclusions

1. The legal definition of human health does not cover significant and already existing principles of health, which is why this definition is believed to be too narrow and imprecise. For an objective and comprehensive understanding of human health, the definition should include the following principles:
 - a) Health is characteristic of each individual; however, with actually different levels;
 - b) Complete health is presumed for a person;
 - c) A person possesses self-determination in the evaluation of their own health to an objective limit determined by society;
 - d) Health provides the basis for a person's action with different escalation levels depending on the person's level of health;
 - e) A person has the opportunity to strive to achieve the highest level of health, i.e. maintain and improve it.

2. With the understanding of human health expanding, new principles describing human health appear nowadays. This is why the legal definition of human health should include more detailed principles in accordance with the modern legal system. These are the following:
 - a) Health is the state of a person's organism;
 - b) Health is a complete rather than an absolute state;
 - c) Health is the state that allows implementing the emotional, intellectual, spiritual, physical, and social ability;
 - d) Elements of health are interrelated with the principle of balance among them, which is achieved through lifestyle as a measure;
 - e) Health is an interdisciplinary concept where the prevalence of the medical explanation is preserved.
3. When analysing the legal definition of human health, it needs to be adjusted in accordance with the modern legal system. Firstly, this definition should include already existing objective principles of human health. Secondly, the definition of human health should be completed with innovative modern principles of the understanding of human health.
Revise the first sentence of Section 3(1) of the Medical Treatment Law as follows:
"Section 3. (1) Health is a complete state of a person's organism, which, depending on the person's level of health, allows them to implement in a balance through lifestyle the emotional, intellectual, spiritual, physical, and social ability, presuming complete health for each individual while the opposite has not been proven via medical testing, and where the person's aim is to achieve the highest level of health objectively possible."

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BIOMEDICAL INDICATORS OF PRE-COMPETITIVE STRESS IN FEMALE AND MALE JUDO PLAYERS

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Abstract. *The aim of the present paper is to monitor changes of selected mental and physiological stress indicators in both female and male sportsmen in the subsequent days prior to an International Judo Tournament in Poland and on the competition day. The study included 9 men and 9 women, participants of the training camp that ended with a tournament. Every morning, on the three consecutive days preceding the competition (day -3, -2, -1) and on the competition day (day 0) capillary blood was sampled to determine serum cortisol (C) and testosterone (T) levels, then the subjects assessed their night sleep quality (SQ) with the use of a 5-point Likert scale, and perceived anxiety using the State-Trait Anxiety Inventory questionnaire by Spielberger (STAI - Polish version). SQ insignificantly deteriorated, and C and anxiety levels increased with the time to event. The inter-group analysis for the entire period showed higher scores in average anxiety and higher average level of C in women than men. The relative changes in these biomarkers could indicate higher pre-competitive stress in women, however without taking into account the sports class of the opponents individually for each of the groups one cannot imply gender-specific susceptibility to stress as a general principle.*

Keywords: *anxiety, arousal, competition, gender, judo, hormones, stress.*

Introduction

In the fifties of the 20th century Hans Selye, the Canadian physiologist, carried out experiments on animals that revealed physiological mechanisms of "alarm" reactions of the body exposed to strong and long-term physical stimuli. Selye called these reactions stress and referred to the stimuli as such as stressors. The effect of stressors initially involved adaptive changes in the body, however prolonged exposure led to reversing adaptive changes causing the state of exhaustion and loss of defence mechanisms. Selye published many scientific

articles on stress and also popularized the practical knowledge of the causes and consequences of sensory overload in his popular science monographs (*Stress of Life* 1956). Since that time the concept of stress has come to the scientific and colloquial language, where it is often treated as either the effect or the cause. What is more, the conceptual scope of this notion is constantly widening. With the development of analytical techniques the number of biochemical markers useful for identifying stress reactions increases. For classification of stress causes, i.e. stressors, two basic categories of stress inducement stimuli, physical and psycho-social were adopted. The former group includes exposures of the body to the adverse external conditions such as high or low ambient temperature, the deficit of oxygen in the air (hypobaric or normobaric hypoxia), presence of factors harmful to health, large gravity acceleration, physical injuries (injuries, pain), large physical effort and somatic diseases. Harmful psycho-social stimuli include e.g. disturbances in personal relationships, e.g. aggressiveness, anti-social behaviors and excess of responsibilities at work, which as time goes by leads to chronic fatigue and deterioration of health (Rose, 2017)

All these stimuli induce momentary or long-term psycho-physiological changes according to their intensity and duration. These changes are also valuable markers of stress reactions and are used to assess the degree of "resistance to stress". Similarly to the stimuli, also stress reactions can be assigned to the group of somatic or psycho-emotional reactions. The group of somatic reactions includes changes in the activity of the hormonal, immunological, autonomous and cardiovascular systems, since they are most sensitive to stimuli. Therefore, measured somatic reaction indicators are measurements of concentrations of so-called stress hormones in bodily fluids (cortisol, testosterone, growth hormone, adrenaline and noradrenaline and dopamine), concentration of α -amylase in saliva and heart rate and blood pressure. Questionnaires of emotional states and moods used in psychological tests serve to measure the intensity of psycho-emotional reactions.

A special place in research on collective stress experienced by populations is given to observations of Post-Traumatic Stress Disorder (PTSD) syndrome. An example are multi-annual studies of dynamics of PTSD among residents of New York after the terrorist attack carried out on 11 September 2001 (Bromet et al., 2016; Galea, 2002) or in inhabitants of Japan after the great earthquake (Fujiwara, 2017). Traumatic disorders following the above mentioned risks manifested themselves in the growth rate of psychiatric symptoms, increased anxiety and deterioration in the quality of sleep, which was more frequently reported by women than men. The most commonly used parameter that specifies the current stress intensity before the competitions is the result of anxiety tests. There are two components of this state, cognitive anxiety (CA) and somatic anxiety (SA). The first signal of the psychogenic stressor is activation of the

amygdala. This is a part of the limbic system that analyzes the external situations and stimuli and sends signals to the cerebral cortex showing which of them are important to the body, including those involving some risk. Then alarm signals are sent to the hypothalamus. Here a cascade of physiological responses covering the entire body is triggered. These reactions are at the heart of the phenomenon known as SA. Therefore, increased CA precedes the emergence of SA.

Sport is an important area of exploration to researchers of the stress phenomenon. In economically developed countries, in this part of the population to whom physical exercise at work is reduced or is not present at all, physical activity during leisure time plays an important role in prevention of civilization diseases. The level of this activity is a choice that depends on age, needs and exercise capacity and varies between typical recreation and competitive sports practised at a professional level (Litwiniuk, 2019). Competitive sport involves large training loads during the competition and training season, mandatory participation in the competitions and risks of injury. Intense training drills, i.e. physical stressors, are accompanied to a larger extent by an elevated level of SA, yet as for sports rivalry both CA and SA occur. The waiting for participation in important competitions may induce such great mental arousal that as its consequence strong physiological responses emerge that are defined as pre-competitive stress. A similar condition expressed by increased perceived stress and the anxiety level was also noticed in students of 1st academic year of both sexes before important examinations (Balaji et al., 2019). In this study, results show a higher stress level and anxiety connected with examinations in female students. The cause of psycho-physiological response before an important test of skills in athletes or students is anxiety in connection with failure and a negative assessment of the task performance level.

One of the less frequently undertaken lines of research on pre-competitive stress in sportsmen is the effect of sex. The results obtained by various authors are unambiguous. One of the studies suggests a higher anxiety level before tournaments in women. For example, before the first game in tennis the average pre-competitive level of cognitive anxiety (CA) was by 23 percent higher in women than in men (Filaire et al., 2009). Also a higher level of CA before the tournament in table-tennis was observed in women (Kurimay, 2017), and in girls than in boys, swimmers, tested several times on different days during the training season (Da Silva, 2019). However, the changes in CA level in short term period before the competitions indicate a slightly higher anxiety level in men (Hagan, 2017). The results of the cortisol reaction to competitions in both sexes are also divergent. In tennis before competitions, women presented a higher cortisol level (Filaire et al., 2009), but before and during the taekwondo

tournaments a lower concentration of this hormone could be noticed (Chiodo, 2011).

Among a large number of sports disciplines, eastern martial arts seem to be interesting for the purpose of exploring the phenomenon of stress in both sexes. These are contact sports that require extreme efforts and cause the risk of injury. For this reason in Poland only a small part (approx. 3%) of physically active persons practises this form of physical activity at an amateur or professional level (Biernat, Krzepota, & Sadowska, 2018). The number of scientifically described studies on our athletes is not too high. Even less attention was paid to exploration of pre-competitive stress in both sexes. These studies showed a significant deterioration in the quality of sleep in the night before the high-level international tournament (Obmiński & Mroczko, 2015) in judo females athletes, and in one of the players on the competition day a dramatic decrease in blood testosterone concentration down to a non-physiological value in men and a very high concentration of cortisol were observed (Obmiński, 2009). In addition to the biochemical and circulatory stress bio-markers, it is worth mentioning about parallel measurements of skin electrical conductivity changes known as electrodermal activity (EDA) and comparing the data with personality traits. These studies carried out among the young taekwondo players, participants of the national team selection competition revealed significant correlations between EDA results and certain parameters of the Big Five personality traits: extraversion, agreeableness conscientiousness, emotional stability and openness. This shows the practical importance of research on the personality profile in exploration of pre-competitive stress (Bingboga et al., 2012).

For technical reasons, there are not many results of tests on parallel dynamics of biochemical and psychometric stress indicators directly before the tournament in both sexes in combative sports, but they seem to be valuable. They showed a consistent direction of changes in the cortisol concentration and alpha-amylase and state anxiety (Capranica, 2017). Unfortunately, the subjects in this study along with their coaches did not consent to the last measurement of anxiety immediately before the fight as it was considered too time-consuming and distracting participants, and a small group of subjects (3 women and 6 men) did not allow the authors to perform an assessment of sex-dependent differences.

In order to examine possible differences between sexes in reactions to stress that are a sign of anticipation of high level judo competitions, a group of female and male judokas was examined.

Material and methods

Senior judokas took part in diagnostic routine tests, namely women aged 24-26 years (n=9) and men (n=9), participants of a one-day international judo tournament (Warsaw Judo Tournament) that had taken place for many years

annually in Poland. Athletes of both sexes were among the national elite in this sport and repeatedly participated in high level competitions in Poland and abroad. Biomedical observations started at the end of 2-week training camp that finished two days before the competition day. At the end of the camp, both groups left the training centre and were checked in one the day before the competition at the hotel near the tournament hall. Hormone and psychological tests were carried out every day for 4 consecutive days, 3 consecutive days before the tournament (-3D, -2D, -1D) and in the same manner on the day of the tournament (0D). Every morning before breakfast (7:00) capillary blood was sampled from the earlobe, after breakfast current mood (SA) was examined using Trait/State Anxiety Inventory by Spielberger (Polish version), then the sleep quality (SQ) was measured using the 5-point Likert scale (where 5p reflected deep, continuous sleep and 1p referred to insomnia). In blood plasma, hormone concentrations were determined, namely: cortisol (C) and testosterone (T), using ELISA, DRG-GERMANY analytical kits. In each series of sample analyzes carried out in duplicates, control samples of known hormone concentration were added in order to control and calculate the level of inter-assay error, the relative value of which did not exceed 8 % for the analyses of both hormones. In the immediate pre-competitive period and at the time of the tournament, club coaches and the main coach provided psychological support and advice to their athletes. The differences between sexes and subsequent days of tests were analysed by means of two-way analysis of variance (ANOVA) and post-hoc Bonferroni's test.

Results

Table 1 shows results of measurements as mean values and standard deviations for hormone concentrations, the anxiety level and sleep quality in four consecutive days in both sexes.

Table 1 Descriptive statistics for scores of cortisol (C) and testosterone (T) levels, and scores of state anxiety (SA) and sleep quality (SQ) in female (F) and male (M) judo competitors

variable	sex	Time to event (Days)				Entire period	Between group differences
		-3D	-2D	-1D	0D		
C nmol/L	F	560±83	574±123	605±95	673±103	603±107	Significant F>M
	M	576±91	497±47	525±96	554±38		
T nmol/L	F	2.2±0.6	2.2±0.5	2.5±0.7	2.9±0.6	2.5±1.4	Sex-related dimorphism
	M	24.5±6.0	21.8±5.4	18.2±5.6	21.7±5.8		
SA scores	F	37.0±9.1	38.2±4.9	38.8±4.7	43.0±6.1	39.2±6.3	Significant F>M
	M	36.7±3.2	32.9±3.0	34.6±1.2	38.2±2.3		
SQ scores	F	3.4±1.0	3.1±1.2	2.3±0.6	2.7±0.7	2.9±0.9	No significant
	M	3.1±0.6	3.3±0.9	2.9±0.9	2.8±1.0		

Table 2 presents statistical calculations, differences between sexes and days for hormonal variables, state anxiety and sleep quality.

Table 2 Differences between average variable values (excluding T) by sex and Day as measured with analysis of variance

variable	factor	F-value	P-value	η square	α -value	differences
C	sex	9.68	0.003	0.131	0.865	significant
	Day	2.37	0.073	0.099	0.567	non sign
	interaction	1.88	0.142	0.081	0.464	non sign
SA	sex	9.84	0.003	0.128	0.872	significant
	Day	3.85	0.014	0.147	0.800	significant
	interaction	0.941	0.943	0.042	0.246	non sign
SQ	sex	0.459	0.500	0.007	0.102	non sign
	Day	2.761	0.049	0.114	0.641	significant
	interaction	0.801	0.498	0.036	0.214	non sign

In Table 3, linear correlation coefficient matrix is presented.

Table 3 Matrix of correlation coefficients between variables

Correlation	Females (36 observations)	Males (36 observations)
C • T	0.578	0.133
SA • C	0.296	0.580
SA • T	0.100	-0.056
SQ • C	0.297	-0.121
SQ • T	0.100	0.130
SQ • SA	-0.137	-0.194

In the calculation, a statistically significant difference between the average value occurred for $p < 0.05$. The analysis of differences between the sexes showed significantly lower ($p = 0.003$) average SA result in men (10%) for the entire period of study, namely for the number of the two sets after $n = 36$ observation. In the group of men, average values in consecutive days were subject to slight fluctuations, whereas in women SA on the competition day (0D) was 16% higher than on 3D day, but this difference was not statistically significant. In addition, on the competition day SA was by 11% higher in women and there was a significant difference between groups.

There were no significant inter-group differences in sleep quality scores, however in the entire group ($n = 18$) SQ deteriorated with time and in the night before competitions it was worse by 14.7% in women and by 3.2% in men when compared to the baseline value i.e. on -3D day.

The concentration of cortisol in each of the sexes did not change significantly in the consecutive days of observation. In men an average C value was virtually the same in consecutive days. In women a small progressive increase could be seen during the 4-day-long observation and on the competition day C was higher by 20% than the output value. The average value of C for the whole period was significantly higher in women. Because of the well-known sexual dimorphism for concentrations of testosterone, the intergroup comparison was abandoned, and the differences between the days for each group were examined using only one-way analysis of variance. In women, insignificant progressive increase of T in consecutive days parallel to changes of C was noticed. In men one day before the competitions (-1D) the lowest average T level was observed. It was significantly lower than the one at the beginning of the study. Significant correlations between C and T in women and SA and C in men for the entire period of research presented in Table 3 are due only to the parallel changes of the investigated parameters.

Discussion

In our previous studies on anxiety (CA) and perceived stress (PS) on the judo tournament day carried out on the greater number of female and male athletes (Obmiński & Mroczkowska, 2014), insignificantly higher CA in women (44.9 ± 10.9) than men (40.2 ± 6.4) was observed. The relative difference of this variable (11.2%) between groups was almost the same as in the current study. The fact that in both our studies CA result dispersion, expressed by means of coefficient of variation-CV %, is lower in men, which indicates greater homogeneity of this group, seems to be interesting. In the presented paper, the investigated judokas of both groups were among the sport elite. As regards the pre-competitive anxiety analysis in a larger population one should consider the skill level of the participants. Studies have shown that men from the sport elite show slightly higher CA and SA than those from the semi-elite group, while in women the relationship is reversed (Hagan. 2017). In our research, significant dependence between SA and C was observed in men ($r=0.580$) only. The relationship between these variables before and during the judo competitions was also noted by other authors (Salvador et al., 2003; Filaire, 2001).

Sleep quality in competitive athletes is an important indicator of their psychophysical health and health status. During the training camp, this parameter depends on many circumstances. The anticipation of the first training session, scheduled too early in the morning, shortens the length of sleep (Sargent et al., 2014). In our research SQ deteriorated significantly as the date of competitions approached. But the size of these changes was significantly smaller than the one we saw in our previous studies in five female athletes participating

in more prestigious competitions, namely the European Judo Championships (Obmiński & Mroczkowska, 2015). It should be noted that the sleep quality in athletes is affected by many factors which may interfere with the pre-competitive stress before the competitions. For example, SQ deterioration may result from too high everyday training loads and physical fatigue, which contributes to too high mental activity, experiencing emotions while in bed (Hoshikawa, Uchida, & Horano, 2018).

It can be assumed that pre-competitive arousal in athletes investigated by the authors of the present paper was not too high due to the favorable result of drawing lots to allocate their first opponents who represented a moderate skill level and not too high a position in the ranking. The second reason for a lack of more distinct stress reactions could be significant lower physical activity in the last days of the camp prior to the competitions. This enabled the athletes to have a natural recovery phase after a hard training period preceding the competitions or reduction of physical stressor intensity. In these circumstances the interference of both circumstances could have attenuated the changes caused by anticipation of the tournament.

Study limitation

In the study, the analysis of the stress source, namely cognitive anxiety before the competitions, was omitted. One could speculate that before sports competitions, before examination or any other challenge important for a given person, anxiety connected with failure occurs. As regards tournaments in judo that is a contact sport, some athletes may be afraid of various injuries typical for this sport (Popeco, 2013; Kamitani, 2013). Fortunately, serious injuries are not frequent and they occur in athletes with lesser experience and a lower skill level. Another factor modulating pre-competitive stress are interpersonal relations, particularly athlete-coach interactions. Mental support from the coach relieves stress and also experienced athletes have different strategies to cope with stress that vary depending on e.g. the personality profile (Allen, 2011). Our research omitted identifying the participation of the above mentioned factors affecting the pre-competitive stress.

The research has been approved by the Ethics Commission, Institute of Sport.

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SELF-REPORTED MUSCULOSKELETAL ACUTE AND OVERUSE INJURIES AMONG LATVIAN INFANTRY SOLDIERS

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Abstract. *Musculoskeletal injury is the leading cause of disability among different military populations that results in socioeconomic burden and negatively affects military readiness. Study aim was to describe self-reported musculoskeletal injuries among Latvian infantry soldiers during one-year period. Survey-based cross-sectional study was carried out. Data was assessed using survey about injuries that occurred in one-year period during annual medical check-up. Musculoskeletal injuries were classified according to body regions as it is in Barell injury matrix and by injury type – acute or overuse. Study results showed in one-year injury incidence rate was 867.8 cases per 1000 person-years (95% CI 824.8 – 913.0) with total 197 musculoskeletal injuries reported among active duty infantry soldiers. Typical acute injuries were superficial contusion injuries (n=24), fractures (n=21), joint dislocations (n=21) and sprains (n=29). Typical overuse diagnoses were lower back pain (n=42), patellofemoral pain syndrome (n=11), medial tibial stress syndrome (n=9), plantar fasciitis (n=8). Present study showed high incidence of overuse back injuries and overuse and acute lower leg injuries. Mostly of reported injuries could be classified as preventable and should be reduced through injury reduction programmes.*

Keywords: *Barell matrix, military personnel, musculoskeletal injuries, occupational health.*

Introduction

Musculoskeletal injuries remain leading cause of disability among military population that results in socioeconomic burden and negatively affects military readiness among different countries. Half of all outpatient medical visits in U.S. appear to be due to injuries (Knapik et al., 2004). In the United Kingdom, musculoskeletal injuries are the primary cause of medical discharge among military population (UK Ministry of Defence, 2018).

Studies conducted in military injury epidemiology field usually are based on medical-record analysis; however, recent study showed high self-reported injury

data accuracy when comparing with medical-record based data (Schuh-Renner et al., 2019).

Important aspect of injury prevention process is systematic injury surveillance, which monitors injury rates and trends (Jones et al., 2010; Schuh et al., 2017). For better understanding impact of injury reducing strategies, long-term monitoring of injury rates is recommended by Wardle & Greeves (2017).

Latvian Land forces is the biggest branch of Latvian National Armed forces and infantry soldiers have consistently high physical demands. No epidemiologic data on musculoskeletal injuries among Latvian infantry soldiers have been published previously and first step for injury rates monitoring is survey usage for injury rate assessment. Therefore, purpose of this study is to describe self-reported musculoskeletal injuries among Latvian infantry soldiers during one-year period.

Methods

To assess self-reported musculoskeletal injury data we performed survey-based cross-sectional study. Latvian infantry soldiers were asked to fill in the survey about injuries that occurred in one-year period during annual medical check-up in State Military Medicine Centre. Participation was voluntary and written informed consent was retrieved after providing information on study purpose. Approvals for this research from Riga Stradiņš university Ethics committee (Nr.40/26.10.2017) and Land forces of Latvia were admitted. Musculoskeletal injury was defined as an injury of any musculoskeletal system elements (bones, muscles, tendons etc.). Injuries were classified according to body regions as it is in Barrel injury matrix (Barell et al., 2002) and by injury type – acute or overuse. Barrel injury matrix is a basic tool for injury analysis; it displays twelve types of injury in columns and thirty six body regions in rows.

Musculoskeletal injuries due to blunt, crushing or penetrating trauma were classified as acute (Iannotti & Parker, 2013). Injury caused by repetitive and/or forceful tasks as the result of repeated overstretching, overloading, deformation, compression, friction, or ischemia was classified as overuse injury (Kernan 2008; McCarty et al., 2017). For example, strains, sprains, ligament ruptures and fractures are acute injuries and overuse injuries are different tendinitis, bursitis etc. Stress fractures were included in overuse injury group due to micro-traumatic aetiology.

To describe injury incidence relative and absolute frequency distribution was used. Injury incidence calculated as number of injuries divided by the population at risk of an injury in a one-year period, results expressed as the number of injuries per 1000 person-years. For non-normally distributed data median values with standard deviation was reported.

Results

Totally 227 soldiers participated in survey, 94% of survey participants were males at the mean age of 29.6 ± 7.2 years and with mean service time 7.1 ± 6.4 years. Participant characteristics are shown in Table 1.

Table 1 The demographics of the subjects

	Total n=227	Age, years \pm SD	Service time, years \pm SD	Foot blisters, % (n)	Smoking		
					Non- smokers, % (n)	<10 cigarettes per day	11< cigarettes per day
Males	213	29.6 ± 7.2	7.1 ± 6.4	43,7 (93)	54.9 (117)	34.7 (74)	10.4 (22)
Females	14	29.8 ± 7.4	7.4 ± 6.6	42,3 (6)	85.7 (12)	7.14 (1)	7.14 (1)

Overall, incidence rate reported 867.8 injuries per 1000 person-years (95% CI 824.8 – 913.0) with total 197 musculoskeletal injuries reported in 2017 among active duty infantry soldiers. 45.6% of participants reported only one injury (n=108), 26% reported two injuries (n=59), and others reported three or more injuries (n=30).

Acute injury rate was 436.1 injuries per 1000 person-years (95% CI 376.1 – 505.6); reported overuse injury rate was 431.7 injuries per 1000 person-years (95% CI 371.8 – 501.2). Barrel injury matrix with listed acute and overuse injuries is in Table 2. Most common acute injury sites were lower leg and ankle, knee, wrist and shoulder.

Typical acute injuries were superficial contusion injuries (n=24), fractures (n=21), joint dislocations (n=21) and sprains (n=29). Acute injuries of abdomen and trunk, as well as any crush injuries, amputations or blood vessel injuries were not reported.

Overuse injuries were reported in 43% of cases (n=98). Most commonly injured locations due to overuse were lower back, knee, lower leg and foot. Typical overuse diagnoses were lower back pain (n=42), patellofemoral pain syndrome (n=11), medial tibial stress syndrome (n=9), plantar fasciitis (n=8). Metatarsal (n=1) and fibular (n=1) stress fractures were not common in this study.

Table 2 *Barrel injury matrix for acute and overuse injuries*

Body region of injury		Acute injuries by type						Total acute injuries, n	Total overuse injuries, n	
		Fracture	Dislocation	Sprains and strains	Open Wound	Contusion or superficial	Burns			Nerves
Torso	Chest (thorax)	1	-	-	-	-	-	-	1	1
	Pelvis and urogenital	-	-	-	-	1	-	-	1	-
	Back and buttock	-	-	1	-	2	-	-	3	42*
	Shoulder and upper arm	3	4	2	-	1	-	-	10	4
Upper Extremities	Forearm and elbow	-	-	2	-	4	-	-	6	6
	Wrist, hand, and fingers	3	1	1	2	2	1	-	10	1
	Hip	-	-	-	-	1	-	-	1	-
Lower Extremities	Upper leg and thigh	-	-	1	-	4	-	1	6	-
	Knee	-	2	5	-	5	-	-	12	15
	Lower leg and ankle	11	14	16	-	-	-	-	41	17
	Foot and toes	3	-	1	-	4	-	-	8	12
Total by injury type		21	21	29	2	24	1	1	99	98

Note: *Injuries with incidence $\geq 10\%$ are highlighted in bold

Discussion

Present study assessed self-reported musculoskeletal injury data among infantry soldiers. To authors' knowledge, this is the first descriptive study on epidemiology of injury data among Latvian infantry soldiers. Current research

data provides information about most common acute and overuse injury types and locations based on survey data among infantry soldiers.

Acute and overuse injuries of lower extremity remain common among military populations, especially in infantry soldiers which is consistent with this study findings (Knapik et al., 2006). Most commonly lower back, knee, lower leg and foot were injured and these findings are similar to Abt et al. findings in US Army Operational Forces and Dijkma et al. recently reported injury locations in Netherlands Armed Forces (Abt et al., 2014; Dijkma et al., 2019). Orr et al. at self-reported injury study found bones and joints of lower extremity injuries as most commonly injured structure where most injuries occurred during marching (Orr et al., 2017). In this survey, few female soldiers participated and it reduces representativeness of injury rates found in this study. However, it has been reported that in military population females are have higher injury risks when comparing to males (MoD, 2018).

Acute musculoskeletal injuries, such as dislocations and sprains, according to Abt. et al. (2014), as well as overuse injuries identified in this study among infantry soldiers are classified as preventable in nature and prevention strategies should appear.

Observed overuse injury rate among all body regions at present study was 43%, which is similar to 49% reported by Lovalekar et al. in 2018 for U.S. Air Forces (Lovalekar et al., 2016).

Among all locations, lower extremity overuse has been reported with higher rates and it is similar to another study findings. For example, Ruscio et al. reported lower extremity overuse as the leading cause of limited duty in U.S. army (Ruscio et al., 2006).

Injury incidence rate calculation based on self-reported data is a strength and weakness at the same time. Smith et al. report, that approximately half of musculoskeletal injuries among infantry populations are not reported to medical personnel (Smith et al., 2016). However, self-reported injury data can also include injuries for which soldier did not seek any medical help or which were concealed from State Military Medicine centre doctors, so it helps to gain more comprehensive insight of injury prevalence.

Cross-sectional study design is a serious limitation in interpretation due to relatively small and heterogeneous study population, recall bias and honesty. Using surveys remain cost-effective method to gain data from large populations so in spite of study limitations, strength of this research is that it helps to gain insight to musculoskeletal acute and overuse injury sites. Recent study showed high self-reported injury data accuracy when comparing with medical-record based data, thereby additionally supporting survey data usage for injury assessment (Schuh-Renner et al., 2019).

Conclusions

Overall self-reported injury incidence rate was 867.8 injuries per 1000 person-years. Present study showed high incidence of back and lower leg injuries. Reported injuries could be reduced through injury reduction programmes and in order to evaluate effectiveness of these programmes it is important to report injuries regularly and compare injury trends over time. Continuing injury monitoring allows implementing injury-oriented prevention strategy and assessing its effectiveness.

Acknowledgement

The author would like to thank soldiers who participated in the study and State Military Medicine Centre for the support.

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DEVELOPMENT OF PRIMARY SCHOOLS IN THE CONTEXT OF DUAL CAREER

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Abstract. *The concept of dual careers is based on the principles of the Olympic Charter with harmony of the mind and body at its core. Contemporary education systems are goal-oriented and neglect their responsibility to aid in the personal development of students. The role of sports is not sufficiently emphasized in the educational process. In order to draw attention to these issues, the author has initiated a dual career development project 'Sports class' with the financial support of Cēsis Municipality. The project launched on September 1, 2019. The study population was grade 7a of Cēsis Secondary School enrolled in extra physical education classes. To attain the main aim of dual career of combining education and sports, all participants needed to achieve a certain average mark in academic subjects. This research aims to determine the overall results of the project in the first semester of the academic year 2019/2020. Research methods included quantitative methods (surveys) with 83 participants and qualitative methods with 5 interviewees. Data collection and analysis were done using Windows SPSS. The three dependent variables were academic results, progress in sports and personal development. The acquired data show significant progress in all variables. Thus, it is possible to recognize the positive role of sports in overall academic achievement. As a result, the scope of the project will be expanded and continued in the future.*

Keywords: *dual career, education, primary school, sports.*

Introduction

There is increasing awareness of the potential effects and benefits exercise can have on our health. This tendency has been growing over time, however, several factors have greatly contributed to the improved outlook on exercise in modern society.

Primarily it is linked to changes in stereotypes associated with the academic achievements of athletes and their access to high-quality education. This concept is known as a dual career (Lee & Sum, 2017). In countries such as Germany and France, sports governing bodies have been providing athletes with the opportunity to concurrently train, attend competitions and obtain an education for over a decade. The main aim of this system is to avoid cases when athletes are unable to study due to commitment to the sport, which subsequently has a negative impact on their access to the job market (Knight et al., 2018).

The author of this research paper wishes to focus on the current situation in Latvia, which is improving, yet a number of issues are hindering further development. Potential solutions to the problems would include allocating additional financial resources and developing infrastructure. Nevertheless, work on developing a dual career system is actively pursued. For example, the Latvian Olympic Committee has instituted a project 'Sport in class' and universities are offering support for their student-athletes.

This research paper is based on the first phase of the project 'Sports class' implemented by the author. It complies with the first stage prescribed by the European Union Guidelines on Dual Careers of Athletes, where sport and education are combined at primary and secondary schools (European Guidelines on Dual Career of Athletes, [EG], 2012). The project is intended to serve as the basis for the author's doctoral thesis on dual careers and their development. Currently, the first semester has concluded, thus evaluation of data and results have been performed to analyze potential issues and implement improvements, as the project is planned to be continued and expanded in the future.

In order to realize the full potential of the project 'Sports class', participants were required to fulfill certain criteria, including attaining a certain level of academic achievement and attending weekly sports activities. The range of activities was broad and encompassed an extra physical education class, physiotherapy class, swimming lessons or cross-country skiing lessons.

Literature Review

The primary source used by the author for information regarding dual careers is the Guidelines on Dual Careers of Athletes issued by the European Union (EG, 2012). They are based on three key principles. Firstly, primary and secondary education institutions have to be introduced to and informed about the concept of dual careers and have to integrate its principles into their education systems. The main emphasis is on the possibility for students to study and train without any interference at the professional level of specific age groups. Secondly, guidelines on dual careers focus on higher education institutions. The system has to support and facilitate student activity in the fields of both education and sports. The final principle concerns the transition stage of a professional athlete in the job market.

During the process of developing the concept of the project, the author together with local sports governing bodies discussed the main goals, which included promoting exercise, sport and a healthy lifestyle among youth while also focusing on academic achievements. These principles conform to the opinions of researchers on dual careers stressing the importance of developing a healthy relationship with exercise at a young age, thus allowing successful implementation of the dual-career system.

One of the primary goals on a national level would be to improve the economic and social systems to reach the level of European welfare states. This also applies to the dual-career system. The United Kingdom is one of the leading countries that has successfully created an effective student-athlete support system TASS (The Talented Athlete Scholarship Scheme, 2014). Representatives of this organization indicate that appropriate infrastructure, sports medicine, and service staff are major components required for the development of the dual-career system. In the context of this research paper, this example cannot be applied directly as it concerns professional sports. However, appropriate infrastructure is the uniting aspect that has a major role in the development of a dual career system (Tylor, 2014).

Another researcher in sport and exercise (Geranisoa & Ronkainen, 2015) analyzed the potential of dual career and motivation of athletes in Slovakia. The main conclusions were that there is a need for support from family and friends. Infrastructure was only listed as the third most important factor.

The author of the research analyzed another country of a high level of education. Norway has set up a high quality of dual career development system focusing on the age group 16-19 years. It is based on the Norwegian education system rules on compulsory education at the age of 6 and 16. The result - continuing education has become a network of private schools providing young people with different opportunities for development. One of them combining learning with sport-school based lesson schedules, extra counseling, and other important factors. A Norwegian education scientist, in her research about dual career, concluded that this kind of education system could become increasingly in demand (Kristiansen, 2017).

In order to successfully develop a dual career, education institutions need to consider several aspects. One of them – the level of teacher education in the context of dual career. The teacher needs to understand and support students who can combine both processes – sport and education. Researchers (Budevica, 2018) analyzed that teachers should not only support students but also encourage them to take part in the dual-career process.

The development of a dual career depends on several factors. An important shared vision of the public policy is how the sports system is developed and the dual-career role played in it (Domville et al., 2018). However, a major contribution can be made to the municipal authorities responsible for sport - most often local sports schools. Their immediate tasks are to promote the popularity of children's sport, to ensure their participation in competitions, and to promote a healthy lifestyle.

Primary schools can contribute to their development by promoting a dual career process - showing interest and initiative in the progress of young people's

personalities. As a result, schools may increase the number of students or promote their educational achievement.

Methodology

Aim of the research: To study and analyze the first semester of the dual-career development project 'Sports class'.

The author conducted a quantitative survey that was completed by 24 students, 12 teachers and 42 parents. All respondents were part of the first 'Sports class'. The relatively low number of respondents is associated with the specifics of the project and the allocated financial resources. Currently, the financial resources are provided by the Cēsis Municipality, which together with the Cēsis Secondary School and Cēsis Sports School, support the author's project. To ensure that the project is successful and can gradually expand, it was initially decided to involve only one class of students. The plan is to open another sports class in the next academic year, which would double the number of respondents.

20 statements with multiple answers based on the Likert scale were given to the respondents. The data were analyzed using *Windows SPSS* or Microsoft Excel. All respondents replied to a number of statements, however, certain questions were only given to students. Statistical analysis was also performed on data regarding the academic achievements of students to evaluate the significance and effects of the project in regards to academic education.

Research Results

The author would like to draw attention to the question about the general attitude towards the project 'Sports class'. The total number of respondents was 78. The majority (n-65) of respondents had a favorable rating of the project, indicating that its continuation would be welcome. This positive response of the involved participants is a vital component for the project to function and expand.

Another important question from the survey concerned the direction of the project. A dual career has two components, namely, sport and education. Initially, the focus of the project was to improve the understanding of students about a healthy lifestyle and increasing their responsibility towards education. The replies of respondents to the statement 'The primary direction of sports class is sport' were drastically different. This can be associated with the different outlooks of the three groups of respondents. Certain tendencies can be observed in groups of students, parents, and teachers. Most students agreed to this statement (n-17). However, the tendency was different among teachers and parents. Most teachers disagreed (n-8) with only a few (n-2) choosing to agree. Similar tendencies were also observed in the group of parents (See, Figure 1). All groups of respondents

assessed the same process. The differences could be explained with the effects of psychological factors. Students focus on activities they perceive as interesting and motivating to achieve results. In this case, the students' priority was physical education classes, and regular classes were considered secondary. Whereas teachers and parents can objectively evaluate the process as they have a better understanding of the underlying notion of the project.

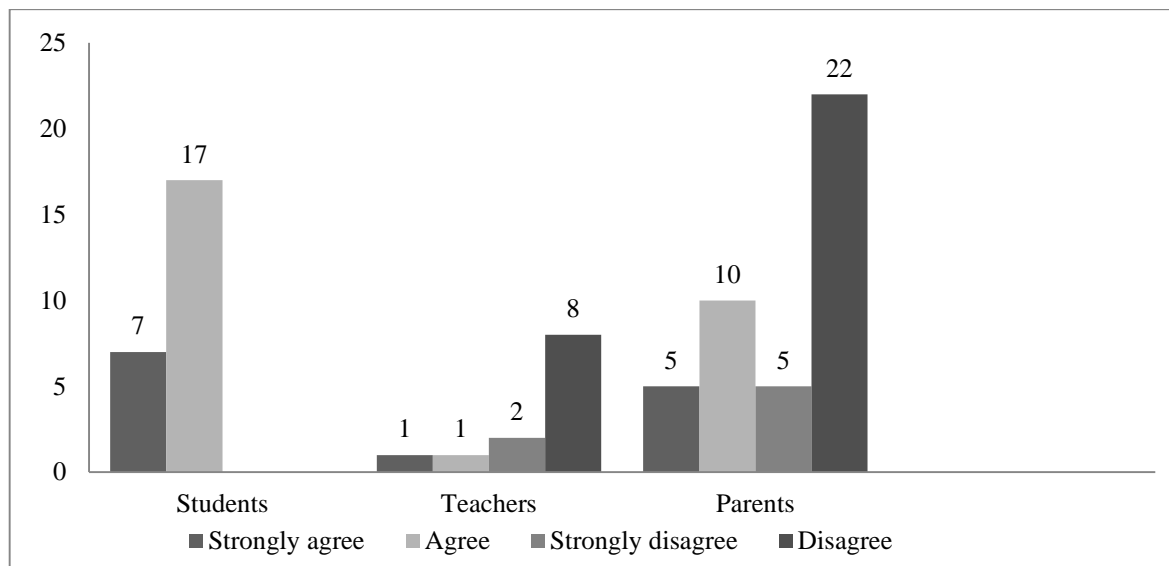


Figure 1 Primary direction of the project

Although according to these replies students mainly focused on sports, the analysis of their academic results showed an opposite trend. In comparison to the previous academic year (when the same students were in grade 6), 16 out of 24 participants of 'Sports class' improved their academic results (average mark). This is an important factor as each subsequent grade becomes more challenging in terms of academic requirements, therefore good marks are more difficult to obtain. When compared to the average mark of the entire school, the results of the 'Sports class' (average mark 6.6) fell just below the school average (6.9). These statistics are important for project development as they indicate the impact of the dual career process. In this case, the results may have been better.

Certain data obtained from the survey were analyzed using *Windows SPSS*. These were the statements focused on the practical aspects of dual careers and answered only by students. Several correlations were acquired. There was a correlation between statements 8 and 10. It was statistically significant as the p-value was 0.00. The statement was that 'Already prior to the project, I focused on combining sport and studies' and 'This project helped me understand the notion of dual career and focus on both studies and sport'. The correlation was 0.405, (See, Table 1) which is not high. Therefore, it cannot be implied that the project

has radically changed the outlook of students on the primary direction of a dual career. This can be linked to the target group of the project. Most participants involved in the project had already attended Cēsis Sports School prior to the project, thus sport was already an integral part of their daily lives.

Table 1 Correlation coefficient of the statements

8. Assertion	Correlation Coefficient	,298*	,225*	,349*	,096	,154	,164	,058	-,084	,405*	1,000
	Sig.(2-tailed)	,006	,034	,001	,370	,146	,126	,584	,429	,000	
	N	73	73	73	73	73	73	73	73	73	73
9. Assertion	Correlation Coefficient	,287*	,290**	,327**	-,011	,331**	,229*	,041	,141	1,000	,405**
	Sig.(2-tailed)	,008	,006	,002	,918	,002	,031	,693	,181		,000
	N	73	73	73	73	73	73	73	73	73	73
10. Assertion	Correlation Coefficient	-,089	,153	,232*	,096	,192	,218*	,346**	1,000	,141	-,084
	Sig.(2-tailed)	,410	,148	,028	,364	,069	,041	,001		,181	,429
	N	73	73	73	73	73	73	73	73	73	73

The correlation between the statements selected significant because it is pointing to the current dual career path. Understanding this type of process is important to understand that dual career can change student's attitudes towards learning, which is one of the key standards of dual career.

Conclusions

This research aimed to study and promote the concept of dual career and its association with the ideology of the Olympic Charter (Olympic Charter, 2004). It was also necessary to investigate and analyze the opinions of the participants involved in the project. Surveys were conducted to obtain this information from students, teachers, and parents participating in the project 'Sports class'. Analysis of the data revealed several important features that should be improved to ensure that further implementation of the project is successful. Primarily this concerns communication with students. Results of surveys show that students do not fully comprehend the notion of the project and do not devote enough attention to their academic subjects. Responsibility for improvement of this issue in the future lies

with the author, who is also the manager of this project. The other responsibility is that of parents and teachers to attend events that are part of the project. A meeting will be organized to inform participants about the results and future plans.

Thus far the project has proceeded successfully and according to initial plans. The first semester has concluded and a total of 24 students were part of the project. Although the actual length of the project is short, preparation for it has been lengthier. The first meetings and development of the idea began in January 2019. The involved parties included Cēsis municipality, Cēsis Sports School, Cēsis Secondary School, and sports organizations. They decided on initiating a dual career system in Cēsis. It was planned to involve one class of students. The chosen target group was small as it was not known at the time what the number of participants would be from a class of students. In case if the project was simultaneously initiated at different age groups, it was suggested that the number of participants would not reach the desired target.

The author's future perspective of expanding this program is partially based on the results obtained during this research project. For example, in the academic year 2020/2021, it is planned to create another 'Sports class' in the same age group. The class of students currently involved in the project would then be grade 8 students and would continue their study process as previously, namely with a focus on both sport and academic studies. In the next three years, the intention is to have 4 operational 'Sports classes' with around 100 participants.

The chosen age group has not been a random choice as adolescents aged 13 to 14 are at a high risk of developing addictions or lack the motivation to study or participate in sports. This project aims to accentuate the important values in life while facilitating the personal development of students.

Considering the aforementioned factors, the author will focus on the measures necessary in order to acquire the financial resources for further implementation of the project.

After analyzing several results of the research, the author concludes that the project has developed a dual career starting point. Student's responses indicate that the emphasis is more on the field of study. At the moment, the main conclusion – not possible to radically change a student's attitude towards sport and education. If the person is focused on learning a direction, it can be facilitated, but cannot radically change their overall perception.

The average grade for sport 'Sport class' is lower than the average grade for s school, further emphasis will be placed on the motivation of students to improve achievement. As a result, the project will increasingly fulfill the social function of developing the ethics of student's disciple trough sport.

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LIFE QUALITY IN IRAQI CHILDREN AND ADOLESCENTS LIVING IN AREAS OF ARMED CONFLICT

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Abstract. *The aim of the paper was to analyze the quality of life (QL) of Iraqi children and adolescents, and identify which aspects of functioning had the greatest impact on the overall assessment of the well-being in this population group. Participants were healthy children aged 5–18 years (n=150, 50% females) who studied in Baghdad schools. QL was assessed using PedsQL questionnaire by four scales – physical (PF), emotional (EF), social (SF), and school functioning (SchF). Samples were compared using the Kruskal–Wallis test. An exploratory factor analysis was performed to understand the structure of QL. The QL of Iraqi children was moderate. The highest level of PF, SF, and SchF had persons aged 13–18 years ($p<0.05$). Females had a higher level of QL ($p<0.05$), regardless of age. It was established that the data was convenient for factor analysis ($KMO=0.753$, $\chi^2=110.047$; $p=0.000$). The results showed that the varimax method presents the best fit. Factor analysis supported the 2-component model that explained 73.86% of the total variance.*

Keywords: *factor analysis, Iraq, PedsQL, quality of life, school students.*

Introduction

Before the war in 1980, Iraq was a country that had been actively developing and with high-quality healthcare and education systems (Rawaf et al., 2014). However, numerous military conflicts, which have been occurring from 1990 to the present day, as well as terrorist threats, mass protests, guerrilla warfare, and international sanctions, have destroyed the livelihoods and infrastructure and completely changed the situation in this country. Nowadays, the standard of living of the population has worsened significantly, the socio-economic conditions in the country are unsatisfactory, the unemployment rate is constantly growing, services are provided but of very poor quality or none at all. The basic human needs remain unfulfilled – safety, protection, water, and food.

WHO estimates that the humanitarian crisis in Iraq remains one of the most threatening in the world, but it represents the greatest danger to the human resource of the country itself. Half of the population of Iraq are people under the age of 19 (World Health Organization. Iraq Health Profile, 2011), and most of them are socially vulnerable, often unable to identify and meet their own needs people. The concept of health-related quality of life allows to evaluate the physical, mental and social aspects of well-being from the children's or adolescent's point of view, characterize their functional and cognitive abilities, identify life-critical aspects of their being, carry out daily and professional activities, and perform social roles (Wallander & Koot, 2016).

General and specialized methods are used to determine the quality of life. They allow evaluating some specific aspects of life (physical, and mental states, physical, and social activity). Pediatric Quality of Life Inventory (PedsQL) has been translated into more than 70 languages (Caocci et al., 2011; Raj et al., 2017; Viira & Koka, 2011); it is a validated tool (Varni, Limbers, & Burwinkle, 2007; Varni, Seid, & Rode, 1999) that aims at analyzing the negative aspects of daily functioning, in particular identifying those aspects that have been an issue for the children over the past month. The tool has been adapted for persons of different ages; its basic part can be used both for healthy people, and for those with chronic or acute diseases.

The goal of the work was to analyze the quality of life of Iraqi children and young people, considering the socio-demographic factors and identify which aspects of functioning have the most influence on the overall assessment of the quality of life of this group of respondents.

Methods

Study sample

Participants were healthy children aged 5–18 years (n=150, 50% females) who studied at schools in Baghdad. The study was conducted in the 2018–2019 academic year. Participants were informed about the goals and objectives of the study and could refuse to participate in it at any time.

Research tool

Quality of life has been assessed using the Generic Core Scales of Pediatric Quality of Life Inventory (PedsQL™ 4.0) (Varni et al., 1999; Varni et al., 2007). Permission to use the validated Arabic version of the questionnaire (self-reports) for children aged 5–7, 8–12, and 13–18 years has been granted by Mapi Research Trust (Lyon, France) that is the right holder organization of the methodology.

The PedsQL consists of 23 questions, which are grouped into four separate blocks. The answers to each question are formed using a 5-point Likert scale (answer options are “Never,” “Almost never,” “Sometimes,” “Often,” and

“Almost always”). Based on the results of the survey, it is possible to assess the value of quality of life on the scales of Physical Functioning (PF), Emotional Functioning (EF), Social Functioning (SF), and School Functioning (SchF). The PedsQL total score has been composed of the Physical Health Summary (identical to the Physical Functioning) and psychosocial scores. Psychosocial Health Summary (PHS) has been calculated using Emotional, Social, and School Functioning. The importance of the quality of life on each scale has been measured in points; the maximum indicator is 100 points, the minimum – 0 points. If the respondent does not answer more than half of the questions in a separate block, then the final indicator on this scale is not calculated. The value under 50 points has been interpreted as very poor/poor quality of life, 51–75 points – moderate, and above 75 points – high (Sasi et al., 2016).

Statistical analysis

The following software has been used for the statistical processing of data: Origin Pro 8.6, and IBM SPSS Statistics V. 23 (SPSS Inc., Chicago, Illinois, USA). The mean (M), corrected standard deviation (SD), standard error (SE), and confidence intervals (CI) have been determined. Samples have been compared using the Kruskal–Wallis test. The differences have been considered to be significant at $p < 0.05$.

An exploratory factor analysis (EFA) has been performed to understand the structure of quality of life using maximum likelihood estimation and varimax rotation. The data of four general scales (PF, EF, SF, and SchF) have been used. The Kaiser-Meyer-Olkin Measure (KMO test) of sampling adequacy and Bartlett’s test of sphericity have been used before the EFA. The KMO test presents normalized values (ranged from 0 to 1.0); values close to 1.0 indicate that the factor analysis method has been perfectly suited for the data processing. The Bartlett’s test of sphericity is based on the statistical chi-square distribution; it tests the null hypothesis. Levels of significance > 0.1 indicate that the data cannot be used.

Results

The quality of life of the respondents has been average (Table 1) and has not exceeded 66 points on all scales. The values of PF and PHS scales have been statistically significantly different ($p < 0.001$). The highest results have been observed for the PF (64.69 ± 24.38 points) and SF (65.90 ± 23.08 points), and EF has been of the lowest value (54.78 ± 26.41 points).

Table 1 Quality of life for people aged 5–18 years

Scales	M ± SE	SD	95% CI
Physical Functioning	64.69 ± 2.19*	24.38	60.36; 69.03
Psychosocial Health Summary	61.23 ± 1.94*	21.00	57.38; 65.07
Emotional Functioning	54.78 ± 2.39	26.41	50.05; 59.52
Social Functioning	65.90 ± 2.07	23.08	61.80; 70.00
School Functioning	63.35 ± 2.90	31.46	57.61; 69.08

Notes. * – there were statistically significant differences between these scales ($p < 0.001$)

Similar differences have been observed in respondent groups of different ages (Table 2). The highest SF scale indicator (70.2 ± 23.77 points) has been observed among children of 5–7 years of age; in individuals aged 13–18 years – PF (81.51 ± 16.31 points) and SchF (74.39 ± 18.10 points). The values of PF and PHS scales within the age group of 5–7 years and 13–18 years have been statistically significantly different ($p < 0.05$), but among the respondents aged 8–12 years, the indicators of these scales have been at the same level ($p > 0.2$).

Table 2 Quality of life of respondents of different ages

Scales	M ± SE	SD	95% CI
5–7 years (n=50)			
Physical Functioning	55.32 ± 7.14* [†]	35.68	40.59; 70.05
Psychosocial Health Summary	61.50 ± 5.95* [†]	29.77	49.21; 73.79
Emotional Functioning	56.70 ± 6.41	32.04	43.48; 69.92
Social Functioning	70.2 ± 4.75 [†]	23.77	60.39; 80.01
School Functioning	57.60 ± 8.09 [†]	40.44	40.91; 74.29
8–12 years (n=50)			
Physical Functioning	52.91 ± 1.67** [‡]	11.78	49.56; 56.25
Psychosocial Health Summary	54.51 ± 2.74** [‡]	17.94	48.99; 60.03
Emotional Functioning	52.37 ± 3.37 [‡]	23.34	45.59; 59.14
Social Functioning	59.34 ± 3.24 [‡]	22.91	52.83; 65.85
School Functioning	54.32 ± 5.16 [‡]	34.25	43.91; 64.73
13–18 years (n=50)			
Physical Functioning	81.51 ± 2.33* [†]	16.31	76.82; 86.19
Psychosocial Health Summary	66.98 ± 2.34* [†]	16.35	62.29; 71.68
Emotional Functioning	56.16 ± 3.79	26.50	48.55; 63.78
Social Functioning	70.40 ± 3.10 [†]	21.73	64.16; 76.64
School Functioning	74.39 ± 2.59 [†]	18.10	69.19; 79.59

Notes. * – the value of all scales within the age group is statistically significantly different ($p < 0.05$); ** – the value of all scales within the age group is not statistically significantly different ($p > 0.2$); [†] – the quality of life of the respondents aged 5–7 years and 13–18 years of age is statistically significantly different on the corresponding scales ($p < 0.05$); [‡] – the quality of life of people aged 8–12 years on the corresponding scales is the lowest in comparison with other age groups ($p < 0.05–0.1$)

Individuals aged 8–12 years have a poor quality of life, and all indicators have not exceeded 60 points. In general, all respondents in this age group have a poor or lower than moderate quality of life; confidence intervals have been in the range of 40–60 points. On all scales, the quality of life of this age group is lower ($p < 0.1$) compared to other groups.

Comparing with the respondents of 5–7 years of age, 13–18-year-old individuals have a higher ($p < 0.05$) quality of life on the PF (81.50 points), SF (70.39 points) and SchF (74.39 points) scales. The EF value for these age groups has neither differed ($p > 0.5$) nor exceeded 57 points.

The females have accounted for a higher quality of life compared with the scales of both physical and psychosocial functioning. The best quality of life has been observed on the scale of SF (67.84 ± 2.97 points), and a lower one on the scale of EF (51.52 ± 3.36 points). The values of all scales have been significantly different amongst themselves ($p < 0.05$). Male's quality of life has been lower than female's and has not exceeded 63.0 points. Statistically significant differences have been observed for the PF and SchF scales ($p < 0.05$), the difference between the indicators of these scales has reached 10 points. Similar patterns have been revealed at comparing the quality of life of males and females in each age group (Fig. 1). For females and males of 13–18 years of age, the indicators have been different on the scales of PF and EF; for the age group of 8–12 years – on the PHS scale; for the age group of 5–7 years – on the scales of PF and SF.

In order to find out whether the data collected are appropriate to the EFA, KMO coefficient and Bartlett's test of sphericity, – all the values have been calculated ($KMO = 0.753$, $\chi^2 = 110.047$; $p = 0.000$). It has been established that the data are convenient for the factor analysis.

The results have shown that the varimax method presents the best fit. This extraction method minimizes the number of factors needed to explain each variable. Factor analysis supports a 2-component model that explains 73.86% of the total variance. After identifying the factor loadings of the four main PedsQL scales, it has been found that the eigenvalue of the first component has been 2.287, the explained variance ratio has constituted 57.173, the eigenvalue of the second component has made up 0.667, and the explained variance ratio has reached 16.687. The factor loadings of the items forming the first component have amounted between 0.520 and 0.822, and the factor loadings of the items of the second component have been between 0.132 and 0.706 (Table 3).

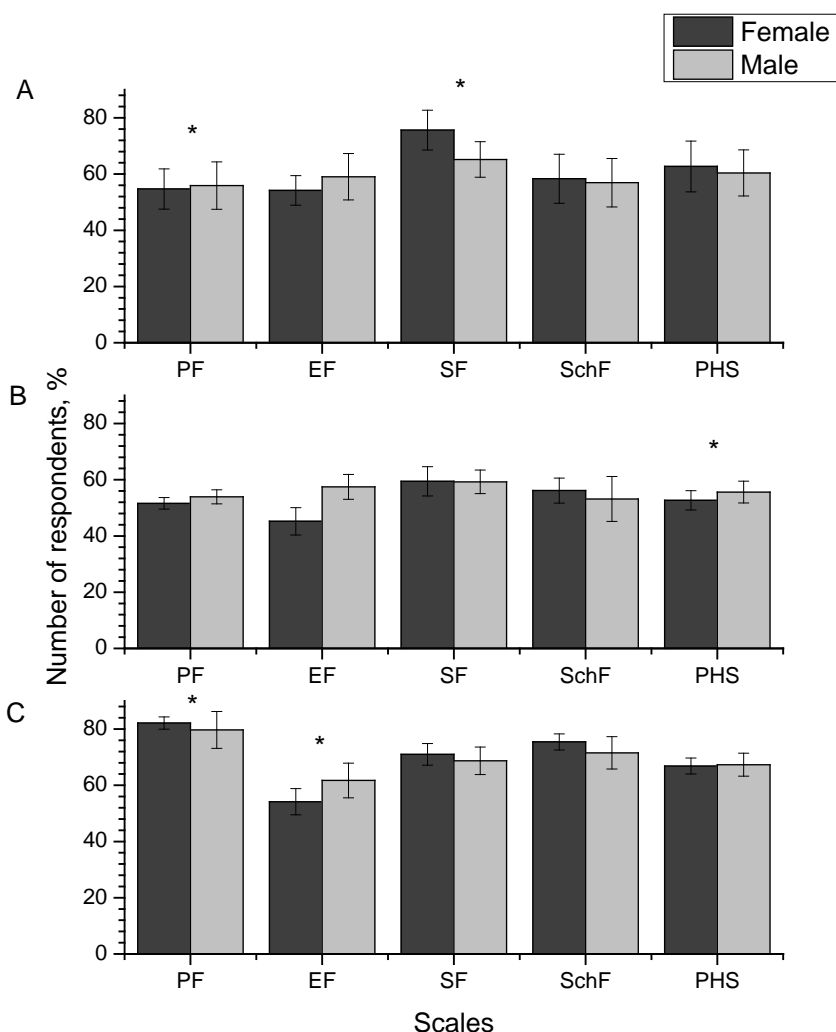


Figure 1 The quality of life of people of different ages and sex:
A – people aged 5–7 years, B – people aged 8–12 years, C – people aged 13–18 years.
** – the quality of life of females and males on this scale differs ($p < 0.05$).*
PF – Physical Functioning, EF – Emotional Functioning, SF – Social Functioning,
SchF – School Functioning, PHS – Psychosocial Health Summary

Table 3 Factor analysis of quality of life data

Scale	Component	
	1	2
Physical Functioning	0.822	0.132
Emotional Functioning	0.520	0.706
Social Functioning	0.608	0.359
School Functioning	0.791	0.152

The results of the survey of the respondents have been analyzed in more detail precisely on these scales (PF, SchF, and to a somewhat lesser extent on the scale of EF) since they are decisive for the general indicator of life quality

according to the results of the factor analysis. From 14 to 45% of the respondents have had problems with daily activity – the most critical for the respondents have been weight lifting (45.2% of the respondents), personal care (taking a bath or shower – 36.3% of the respondents), housework (38.7%), and lack of strength (28.2%) (Fig. 2). The level of activity in the school has been reduced in 18.6–37.1% of the children. One in four to five respondents negatively assesses his/her abilities when comparing himself/herself with other peers, and poorly concentrates and performs tasks in the classroom. The relative number of individuals has admitted having troubles with memorization that makes up 37.1%; 23.4% regularly miss classes to visit a doctor.

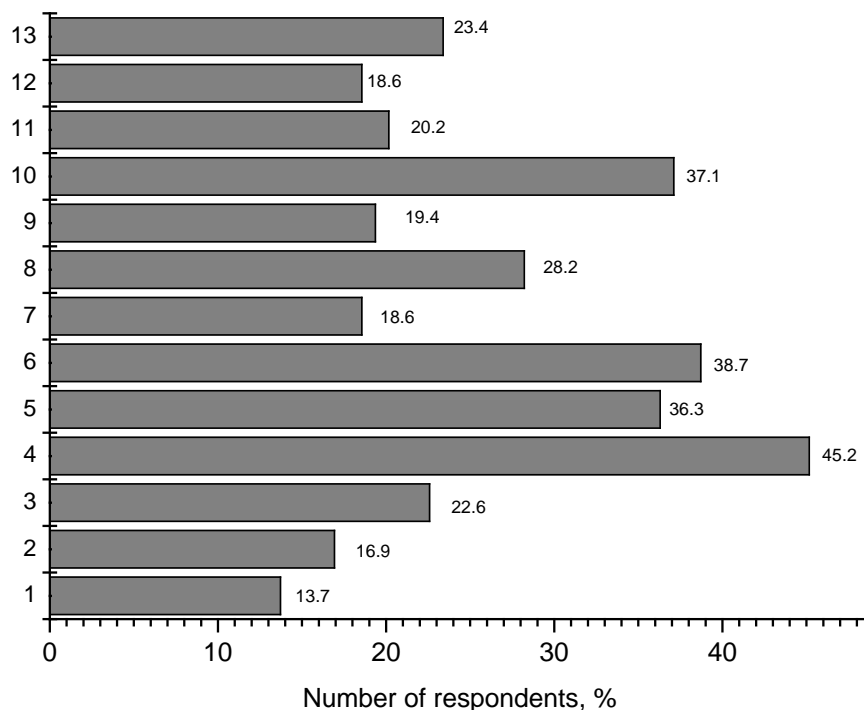


Figure 2 Subjective assessment of physical and social functioning:

the respondents have noted that they often, or almost always: 1 – have difficulties with walking more than one quarter; 2 – have difficulties with running; 3 – have difficulties with going in for sports or doing exercises; 4 – have trouble with lifting heavy stuff; 5 – have difficulties with taking a bath or shower; 6 – find it difficult to help with housework; 7 – have pain; 8 – have little strength; 9 – find it difficult to concentrate on classes in the classroom; 10 – find it difficult to remember something; 11 – find it difficult to keep up with school tasks; 12 – drop out of school due to poor health; 13 – miss classes to see the doctor or go to hospital

The following problems are critical for the emotional functioning of the respondents: sleep (25% of the respondents have noted that they always or almost

always have problems with sleep), fear (39.51%), grief (34.67%), anger (34.91%), and anxiety about the future (39.51%). A smaller part of the respondents have mentioned problems with communication – difficulties in establishing relations with others (15.32%), having trouble making friends (10.48%), bullying (17.74%), etc.

Discussion

Assessing the quality of life of children and adolescents is essential for the search and analysis of critical factors affecting the physical and mental health of the younger generation and, in general, allows identifying the need for this group of the population in medical services. Children who have complaints about physical functioning or who do not have a satisfactory assessment of their school environment more often visit a healthcare professional for a month (Rajmil et al., 2006).

Nowadays, with the help of the PedsQL questionnaire, the quality of life of children from different countries of the world with different health conditions has been studied, in particular, health-related life quality of Iraqi children with chronic diseases (Caocci et al., 2011), refugees living in Australia (Ziaian, Anstiss, Antoniou, Puvimanasinghe, & Baghurst, 2016), however, there are no studies on the life quality of healthy children of different ages living in Iraq. The quality of life of the population studied by us has several features that differ from other countries of the world – lower rates are typical to young people and males. The scale of Physical Functioning is decisive in the overall assessment of the quality of life, and along with the scale of Social Functioning explains 57% of the variance.

The results we have attained can be regarded as threatening, since the youngest part of the population have significantly lower quality of life than children with severe chronic diseases living in other countries of the world (Başgöl, Üneri, & Çakin-Memik, 2011; Upton, Lawford, & Eiser, 2008; Varni et al., 2007). It should be noted that the quality of life associated with health, in general, does not tend to improve with age; indicators of Physical Functioning decrease, but Emotional Functioning may remain at a relatively stable level, or even improve. The quality of life of the examined children on all scales is less than 30 points lower than that of the US citizens (Varni et al., 2007), Brazil (Klatchoian et al., 2008), Sweden (Petersen, Hägglöf, Stenlund, & Bergström, 2009), Estonia (Viira & Koka, 2011), India (Raj et al., 2017), China (Ji et al., 2011), and Ukraine (Pavlova, 2015). So, for example, the general indicator of the quality of life of Indian people aged 5–7 years is 90.4 ± 8.1 points (Raj et al., 2017), and the value of individual scales is not lower than 80.3 points; the quality of life of children from Brazil (Klatchoian et al., 2008) makes up 88.9 ± 7.4 points;

the life quality of children from Ukraine (Pavlova, 2015; Pavlova, Vynogradskyi, Ripak, Zikrach & Borek, 2016), Jordan, and Palestine (Arabiat, Elliott, Draper, & Al Jabery, 2011) amounts between 73–82 points. Comparison of the obtained data with other results (Varni et al., 1999; Varni et al., 2007), indicates that the health-related life quality of refugee children and adolescents living in other countries of the world, including their physical, emotional, social and school functioning, cannot be compared with the general pediatric population, and that in turn means that a significant part of the respondents who have participated in our study suffer or have chronic health problems.

A significant factor contributing to the poor health status of children and youth is mental and emotional problems (Lisiecka et al., 2016). Studies on Iraq in this direction are unique (“An unbearable reality,” 2017; Bolton, 2013) and allow only a superficial assessment of this issue. According to the Iraq Mental Health Survey, anxiety and depressive disorders have been common to 13.8% of the population. The report which focus on the impact of war and displacement indicates that Iraqi society is experiencing a high level of violence and various restrictions that cause toxic stress. Collective trauma in society is often a trigger for the development of domestic violence and aggressive behavior.

Limitation

The present findings have several potential limitation. The sample size in this study was relatively small compared to prior studies (Ji et al., 2011; Klatchoian et al., 2008; Pavlova, 2015; Petersen, Hägglöf, Stenlund, & Bergström, 2009; Raj et al., 2017; Viira & Koka, 2011). The results of factor analysis indicated a typical two-factor solution, but the general life quality result was largely due to the predominance of Physical and School Functioning in the aggregate figure. No comparison was analyzed between healthy children and children with different types of disability, as well as parent-proxy reports was also not tested. Therefore, we recommend further study with larger samples to analyze for age and gender based differences, and identification of the main components of the factor structure of well-being.

Conclusions

Experience of Iraqi children with violence and displacement affects their mental health and psychosocial needs, and the child’s condition depends on how long he/she has been in the war zone or lost loved ones. The lack of targeted and long-term aid will have prolonged negative effects on this generation. The younger population was, the significantly lower quality of life was observed. The child’s population has a lower quality of life than children with severe chronic

diseases from other countries.

The highest level of Physical, Social, and School functioning had persons aged 13–18 years. Females had a higher level of life quality, regardless of age. For the overall life quality, physical and school functioning was essential (explained variance ratio was 57.173).

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PRAKTIZĒJOŠO MĀSU INDIVIDUĀLĀS UN PROFESIONĀLĀS VĒRTĪBAS

Individual and Professional Values of Nurse Practitioners

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Abstract. *Individual and professional values of nurses enhance the psychological wellbeing of healthcare professionals, enabling them to do professional and proficient work and also reducing the risk of burnout. The aim of the study was to investigate individual and professional values of nurse practitioners and the relationship of these values to socio-demographic data. The study involved 163 nurses aged 22–70 years (41.6 ± 12.64) with 99.8% women. Respondents were interviewed in two hospitals in Riga in 2019. Permission from Rīga Stradiņš University Ethics Committee was obtained to do the study. Two surveys were used in the research: (1) Rokeach Value Survey and (2) Nurses Professional Values Scale–Three (NPVS–3). There was no statistically significant correlation between socio-demographic data of nurses and their professional values. The most evident professional value group for nurses was care. The Rokeach scale listed physical and mental health as a priority of all terminal values with an average rate 3.8. On the other hand, happiness of others ranks as the last priority in the list of terminal values with an average rating of 14.5. At the top of the instrumental values was honesty with an average rating of 6.3. Intolerance toward the drawbacks of oneself and other people concludes the list with an average rating of 15.0.*

Keywords: *individual value, nurse, professional value.*

Ievads

Introduction

Personības vērtības ir apgūti, sociāli nostiprināti uzskati, kas atspoguļo personas vajadzību pielāgošanu tam, kas sabiedrībā tiek uzskatīts par pieņemamu (Parks & Guay, 2009). Rokičs (Rokeach, 1973), kurš ir veicis nozīmīgus pētījumus par vērtībām, ir teicis, ka vērtība ir ticība, kas parāda citu uzskatu statusu attiecībā uz ideālas uzvedības stilu vai dzīves mērķiem, raksturojot tās kā daudzpusējus standartus, kas nosaka indivīda uzvedību dažādos veidos un arī kā personiskās vai sociālās izvēles par to, kas ir vēlams (labs) un kas ir nevēlams (slikts). Autors (Rokeach, 1973) izdala divas vērtību klases: (1) terminālās vērtības, kas raksturo indivīdam vēlamo eksistences gala stāvokli, t.i., mērķi, ko

indivīds tiecas sasniegt savas dzīves laikā, piemēram – laime, panākumi; (2) instrumentālās vērtības, kas raksturo vēlamo rīcību terminālo vērtību īstenošanai, piemēram – godīgums, drošme.

Personiskās vērtības tiek atspoguļotas individuālās attieksmēs, savukārt profesionālās aprūpes vērtības tiek definētas kā svarīgi profesionālās aprūpes cilvēku cieņas, godīguma, altruisma un taisnīguma principi, kas kalpo par standartu, profesionālās prakses un novērtēšanas pamatu (Altun, 2002; Rassin, 2008; Lin, Wang, Yarbrough, Alfred, & Martin, 2010). Vērtības dzīves laikā tiek apgūtas – tās var iemācīties tieši vai netieši, novērojot citu cilvēku uzvedību. Aprūpes vērtības tiek internalizētas, izmantojot profesionālo socializāciju, piemēram, profesionālu mācību procesu.

Problēmas teorētiskais pamatojums *Theoretical basis of the problem*

Pētījumā par medicīnas studentu individuālām vērtībām (Uskenbajeva & Aldungarov, 2015) tika noskaidrots, ka studenti izdala tādas terminālās vērtības kā veselība, laimīga ģimenes dzīve un produktīva dzīve, un tādas instrumentālās vērtības kā ētiskās, komunikācijas vērtība un darba vērtības (Uskenbajeva & Aldungarov, 2015). Pie tam dažādos studiju gados šīs vērtības atšķiras, piemēram, pirmajos studiju gados personīgā dzīve studentiem ir svarīgāka par profesionālo realizāciju, bet vecāko gadu studenti jau vairāk ir orientēti uz profesionālo realizāciju, viņu atbildēs dominē darba vērtības (Uskenbajeva & Aldungarov, 2015).

Salīdzinot medicīnas studentu un humanitāro studentu vērtības, tika konstatētas statistiski ticamas atšķirības – humanitāro zinātņu studenti vairāk ir tendēti uz pašrealizāciju, brīvību, radošumu, savukārt medicīnas studenti – uz pētniecību, novērtē veselību. Lai gan abās grupās dominē arī tādas vērtības, kā ģimene, mīlestība, karjera un profesionāla pašrealizācija, medicīnas studentiem vairāk piemīt altruisms, godīgums, disciplīna, cieņa pret citiem (Iskra & Moskvicheva, 2014).

Pētījumā (Poorchangizi, Farokhzadian, Abbaszadeh, Mirzaee, & Borhani, 2017; Gallegos & Sortedahl, 2015; Schank & Weis, 2001; Shahriari & Baloochestani, 2014) izpētīja profesionālo vērtību nozīmīgumu no klīnisko māsu perspektīvas, konstatējot, ka svarīgākās profesionālās vērtības bija “pacientu konfidencialitātes saglabāšana”, “pacientu tiesību uz privātumu garantēšana”, “atbildības uzņemšanās par kultūrāli daudzveidīgas populācijas veselības vajadzību apmierināšanu” un “atbildības uzņemšanās par savu praksi”. Pētījumā (Leners, Roehrs, & Piccone, 2006) kā mazāk svarīgas vērtības atzītas, piemēram, “profesionālo māsu asociāciju lomas atzīšana veselības aprūpes politikas veidošanā”, “piedalīšanās pētniecības aprūpē un/vai ar praksi saistītu pētījumu

rezultātu īstenošanā”, “piedalīšanās valsts politikas lēmumos, kas ietekmē resursu sadali” un “piedalīšanās kolēģu novērtēšanā”. Iespējams, ir vairāki faktori, kuru dēļ māsas nevēlas pieņemt visas vērtības vienādi, piemēram, personiskie uzskati un attieksme (Shih et al., 2009), apstākļi un faktori, kas attiecas uz darba vidi, darba slodze un organizatoriskā kultūra, organizatoriskā atbalsta līmenis (Mathooko, 2013, Kubsch, Hansen, & Huyser–Eatwell, 2008), informētība, izglītības programmas, motivācijas un interešu līmenis (Tadd et al., 2006). Attiecībā uz profesionālo māsu asociāciju lomas zemo nozīmi autori (Schank & Weis, 2001) norādīja, ka ar asociācijām saistītās darbības ir ārpus darba laika, nav obligāti jāiesaistās tajās un tās nav tieši saistītas ar aprūpi.

Pētījumos konstatēta profesionālo vērtību saistība ar sociodemogrāfiskiem rādītājiem, piemēram, vecuma pozitīva, bet ne pārāk nozīmīga saikne ar profesionālo vērtību rādītājiem (Kubsch et al., 2008), vai tieši pretēji – vecākām māsām ir zemāks profesionālo vērtību rādītājs (Shahriari & Baloochestani, 2014). Iespējams, to var saistīt ar personības briedumu līdz ar vecumu, kā arī ar lielākām pielāgošanās spējām attiecībā uz problēmām. Pētījumos (Gallegos & Sortedahl, 2015) tika novērota pozitīva un ne pārāk nozīmīga saikne starp darba pieredzi un profesionālo vērtību rādītājiem, zemāki rādītāji bija māsām ar 3 līdz 10 gadu pieredzi, bet tie uzlabojās līdz ar māsu pieredzes pieaugumu. Savukārt ir pētījumi, kuri parāda, ka nav būtiskas atšķirības starp darba pieredzi un profesionālajām vērtībām (LeDuc & Kotzer, 2009). Tiek ierosināts slimnīcām pastāvīgi izglītot māsas, lai veicinātu profesionālo vērtību attīstību un sekmētu pacientu aprūpi (Wintrup, 2015).

Dotā pētījuma mērķis bija noskaidrot praktizējošo māsu individuālās un profesionālās vērtības, kā arī noskaidrot, vai tās korelē un vai pastāv vērtību saistība ar sociodemogrāfiskajiem datiem.

Metodoloģija

Materials and methods

Pēc Veselības inspekcijas datiem Latvijā praktizē 8474 māsas (Veselības inspekcija, 2019). Saskaņā ar izlases apjoma kalkulatoru, kur ticamības jeb drošības līmenis ir 0,95 jeb 95%, populācijas lielums – 8474 un pieļaujamā proporcijas novērtējuma kļūda (kļūdas robeža) ir 0,05 jeb 5%, ideālam izlases apjomam jābūt 368 māsas. Pētījums tika veikts divās valsts nozīmes slimnīcās. Tika izdalītas 410 anketas, bet atpakaļ tika saņemtas 366 anketas, no tām pilnībā nebija aizpildītas 203, tāpēc tās netika iekļautas pētījumā. Pētījumā piedalījās 163 māsas (atsaucības rādītājs 39,8%) vecumā no 22 līdz 70 gadiem, vidējais vecums $41,6 \pm 12,6$ gadi.

Tika saņemta Rīgas Stradiņa universitātes Ētikas komitejas atļauja un atļaujas no slimnīcu administrācijām. Respondenti tika informēti par pētījuma norisi un tika iegūta viņu informētā piekrišana. Respondenti brīvprātīgi aizpildīja aptaujas.

Pētījumā tika izmantotas trīs aptaujas – autoru veidota sociodemogrāfisko datu aptauja, Rokiča vērtību ranžēšanas aptauja un Māsu profesionālo vērtību aptauja.

Sociodemogrāfisko datu aptauja satur sešus jautājumus par respondenta dzimumu, vecumu, darba stāžu, vienlaicīgu darbavietu skaitu, pamata darba specializāciju un iegūto izglītību.

Rokiča vērtību ranžēšanas aptauja (*Rokeach Value Survey*, Rokeach, 1973; adaptācija Latvijā – Karpova, 1994).

Anketa ir vērtību saraksts, kurā vispirms alfabētiski sakārtotas 18 terminālās vērtības, pēc tam 18 instrumentālās vērtības. Katrai vērtībai līdzās ir īss tās izskaidrojums un tukšs lauks, kurā respondents atzīmē vērtības nozīmīgumu. Jo zemāka skaitliskā vērtība, jo respondentam tā ir personīgi svarīgāka, piemēram, ja respondents ieliek 1, tas norāda, ka šī vērtība viņam ir vissvarīgākā.

Māsu profesionālo vērtību aptauja–trīs (*Nurses Professional Values Scale–Three*, NPVS–3, Weis, Schank, 2017, adaptēja Briede, 2019). Aptauja sastāv no 28 apgalvojumiem. Tā ir sadalīta 3 skalās – Aprūpe, Aktivitāte, Profesionalitāte. Vērtējumi doti Likerta skalā no 1 (nav svarīgi) līdz 5 (vissvarīgākais). Kopā aptaujā iespējams iegūt minimālais 28, maksimālais 140 punktus. Aprūpes un Aktivitātes skalā – katrā min 10, max 50 punkti, Profesionalitātes skalā min 8, max 40 punkti.

Māsu profesionālo vērtību aptauja tika tulkota no angļu uz latviešu valodu – saskaņā ar tulkošanas procedūru, latviešu valodas gala versija tika veidota, savstarpēji salīdzinot divus neatkarīgi veiktus tulkojumus, katrā jautājumā izvēloties optimālāko un veiksmīgāko tulkojuma versiju. Tika veikts pilotpētījums aptaujas aprobācijai. Oriģinālajai NPVS–3 anketai Kronbaha alfa ir 0,944, skalām – Aprūpe 0,885, Aktivitāte 0,912, Profesionalitāte 0,799. Adaptētajai NPVS–3 anketai Kronbaha alfa ir 0,897, skalām – Aprūpe 0,826, Aktivitāte 0,838, Profesionalitāte 0,680.

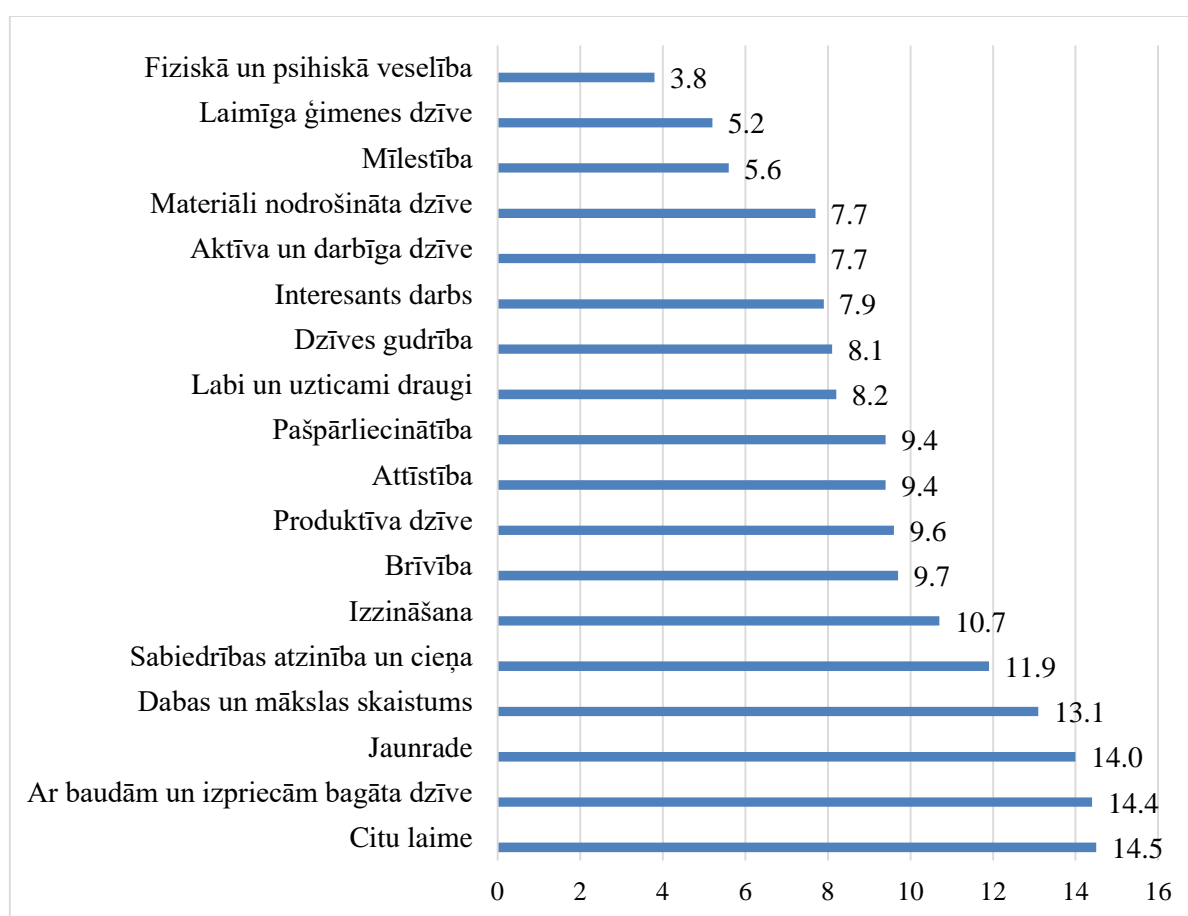
Iegūto datu matemātiskā apstrāde tika veikta ar MS Excel programnodrošinājumu un SPSS 23 statistikas programmu. Tika izmantotas sekojošas datu apstrādes metodes: aprakstošā statistika; Kurtosis (ekscesu), Skewness (asimetriju) normālā sadalījuma pārbaudei. Datu sadalījums neatbilda normālsadalījumam. Tika izmantoti Spīrmena (*Spearman*) rangu korelācija un Kruskola-Valisa (*Kruskal–Wallis*) tests.

Rezultāti

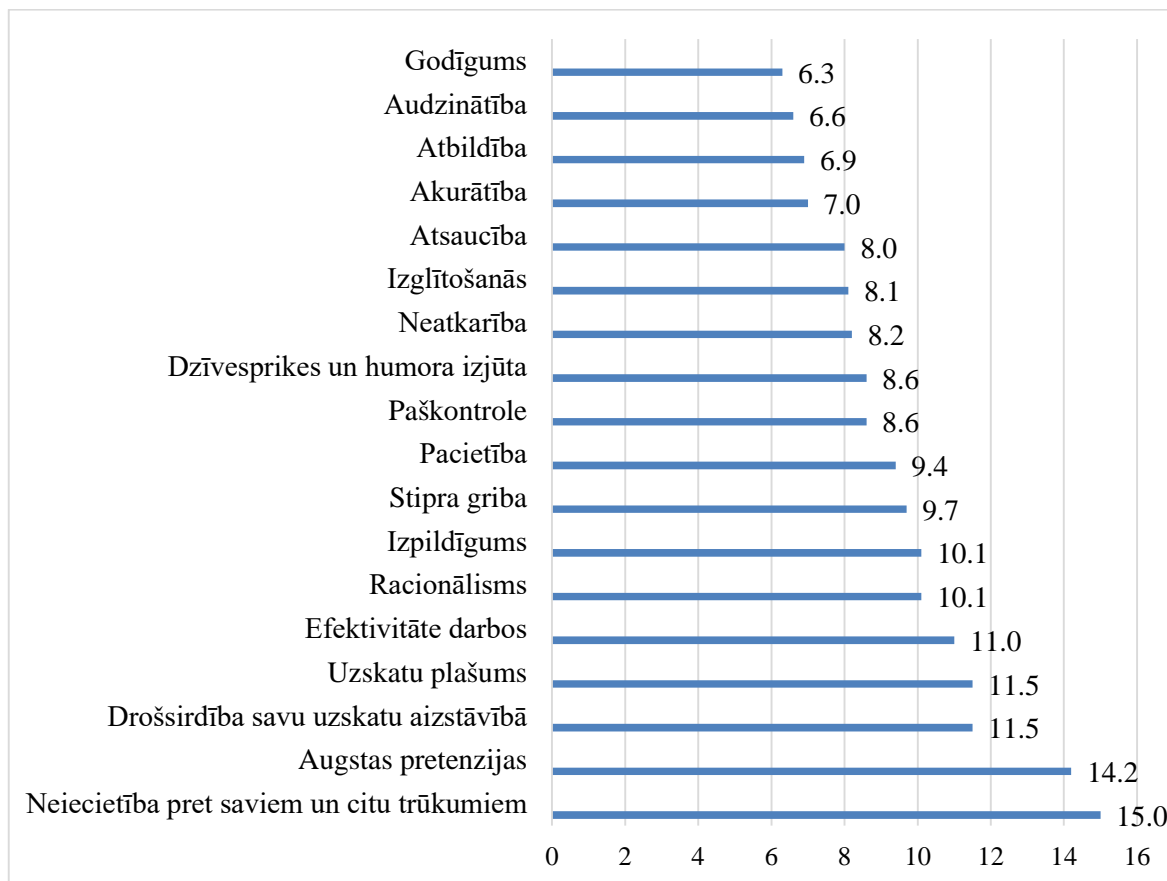
Results

Pētījuma gaitā tika aptaujātas 163 praktizējošas māsas vecumā no 22 līdz 70 gadiem, vidējais vecums $41,6 \pm 12,6$ gadi. Lielākā daļa respondentu ir sievietes (98,8%), ar darba stāžu 20-35 gadi (29,4%), galvenokārt ar vienu darbavietu (49,1%). Lielākā daļa no respondentiem strādā kā ķirurgijas māsas (36,8%). Respondentiem ir pirmā līmeņa augstākā profesionālā (35,0%) un bakalaura (35,0%) izglītība.

Turpmākajos divos attēlos tiek attēlotas terminālo vērtību (1. att.) un instrumentālo vērtību (2. att.) prioritārais sadalījums.



1.attēls. Terminālo vērtību sadalījums pēc prioritātes
 Figure 1 Distribution of terminal values by priority



2.attēls. *Instrumentālo vērtību sadalījums pēc prioritātes*
 Figure 2 *Distribution of instrumental values by priority*

Rokiča skalā kā prioritārākā no visām terminālajām vērtībām ir minēta Fiziskā un psihiskā veselība, kuras vidējais rādītājs ir 3,8, savukārt kā pēdējā prioritāro terminālo vērtību sarakstā ierindojas Citu laime ar vidējo rādītāju 14,5.

Instrumentālo vērtību augšgalā atrodas Godīgums ar vidējo vērtību 6,3, bet noslēdz Neiecietība pret saviem un citu trūkumiem ar vidējo vērtību 15,0.

Aprēķinot korelācijas starp demogrāfiskiem datiem un terminālajām vērtībām, konstatēts, ka pastāv statistiski pozitīva korelācija starp vecumu un ar baudām un izpriecām bagātu dzīvi ($r=0,351$, $p=0,000$); pašpārlicību ($r=0,272$, $p=0,001$) un stipru gribu ($r=0,186$, $p=0,025$).

Pastāv statistiski negatīva korelācija starp vecumu un aktīvu un darbīgu dzīvi ($r=-0,174$, $p=0,036$); interesantu darbu ($r=-0,225$, $p=0,006$); dabas un mākslas skaistumu ($r=-0,305$, $p=0,000$); izzināšanu ($r=-0,171$, $p=0,040$); akurātību ($r=-0,175$, $p=0,035$); neiecietību pret saviem un citu trūkumiem ($r=-0,217$, $p=0,009$) un efektivitāti darbos ($r=-0,211$, $p=0,011$).

Pastāv statistiski pozitīva korelācija starp augstāku darba stāžu un ar baudām un izpriecām bagātu dzīvi ($r=0,384$, $p=0,000$); pašpārlicību ($r=0,264$, $p=0,001$) un paškontroli ($r=0,178$, $p=0,032$).

Pastāv statistiski negatīva korelācija starp augstāku darba stāžu un interesantu darbu ($r=-0,201$, $p=0,016$); dabas un mākslas skaistumu ($r=-0,298$, $p=0,000$); neiecietību pret saviem un citu trūkumiem ($r=-0,168$, $p=0,044$), kā arī efektivitāti darbos ($r=-0,209$, $p=0,011$).

Pastāv statistiski pozitīva korelācija starp augstāku izglītības līmeni un labiem un uzticamiem draugiem ($r=0,206$, $p=0,013$); izzināšanu ($r=0,241$, $p=0,013$); akurātību ($r=0,231$, $p=0,005$); audzinātību ($r=0,186$, $p=0,025$), kā arī neiecietību pret saviem un citu trūkumiem ($r=0,230$, $p=0,005$).

Pastāv statistiski negatīva korelācija starp augstāku izglītības līmeni un stipru gribu ($r=-0,181$, $p=0,030$) un uzskatu plašumu ($r=-0,226$, $p=0,006$).

Pēc Kruskala –Valisa testa tika salīdzinātas mūsu specializācijas un Rokiča skalu vidējās vērtības. Starp instrumentālo vērtību vidējiem rādītājiem nebija statistiski nozīmīgas atšķirības.

Statistiski nozīmīgas atšķirības uzrādījās starp terminālajām vērtībām, piemēram, aktīva un darbīga dzīve internās aprūpes māsām un ķirurģiskās aprūpes māsām (attiecīgi 5,35 un 8,81; $p=0,005$), produktīva dzīve anestēzijas, intensīvās un neatliekamās aprūpes māsām un internās aprūpes māsām (attiecīgi 10,64 un 7,70; $p=0,034$), internās aprūpes māsām un operāciju māsām (attiecīgi 7,70 un 12,27; $p=0,024$).

1.tabula. *Profesionālo vērtību rādītāji (N=163)*
Table 1 *Indicators of professional values*

	Vidējais	SD	Mediāna	Min	Max
Aprūpe	36,7	5,6	37	19	50
Aktivitāte	29,1	6,0	29	12	45
Profesionalitāte	27,5	3,9	28	15	40
Kopā	93,2	13,0	94	50	128

Profesionālo vērtību aptaujas rezultāti (1. tab.) rāda, ka visaugstākā vidējā vērtība ir Aprūpes skalā, bet viszemākā – Profesionalitātes skalā.

2.tabula. *Profesionālo vērtību un sociodemogrāfisko rādītāju korelācijas (N=163)*
Table 2 *Correlation between professional values and sociodemographic data*

Sociodemogrāfiskie dati	Skalas			
	Aprūpe	Aktivitāte	Profesionalitāte	Kopā
Vecums	-,056	,119	,005	,024
Darba stāžs	-,056	,084	,013	,014
Darbavietu skaits	-,086	-,027	,017	-,057
Dzimums	-,157*	-,090	-,127	-,133
Izglītība māsas profesijā	,017	-,014	-,011	-,017

*- p vērtība $\leq 0,05$

Aprēķinot korelācijas starp Māsu profesionālo vērtību aptaujas skalām un sociodemogrāfiskiem datiem (2. tab.), redzams, ka statistiski nozīmīgas korelācijas parādās vienīgi saistībā ar dzimumu, tomēr jāņem vērā, ka gandrīz visi respondenti bija sievietes.

Diskusija *Discussion*

Māsai ir jāpiemīt noteiktām īpašībām un jāseko noteiktām vērtībām (Budzinski, Walkiewicz, & Tartas, 2018), kas vienlaicīgi ļautu būt profesionālai savā darbībā un cilvēciskai savā attieksmē. Pētījumā tika noskaidrotas māsu individuālās un profesionālās vērtības un to saistība ar sociodemogrāfiskiem datiem.

Pētījumā konstatēts, ka viena no prioritārajām terminālajām vērtībām māsām ir fiziskā un psihiskā veselība, bet instrumentālo vērtību grupā – godīgums, kas sasaucas ar citu pētījumu atradnēm (Uskenbajeva & Aldungarov, 2015). Autori (Budzinski et al., 2018) arī izsaka domu, ka māsu individuālās vērtības un to izpausmes var būt saistītas arī ar darba stāžu un nodaļu, kurā tās strādā. Tas apstiprinājās pētījumā, ka atsevišķām individuālām vērtībām ir statistiski nozīmīgākas korelācijas gan ar vecumu, darba stāžu, gan ar izglītības līmeni un nodaļu, kurā māsa strādā. Pētījuma viens no pārsteidzošākajiem korelācijas aprēķiniem uzrādīja, ka pastāv statistiski negatīva korelācija starp augstāku izglītības līmeni un stipru gribu un uzskatu plašumu. Pārsteidzoši tas šķita tādēļ, ka ikdienā esam pieraduši domāt, ka indivīdiem ar augstāku izglītību būs plašāks uzskatu loks.

Savukārt, pētījumā konstatēts, ka nav nozīmīgas saistības starp dalībnieku demogrāfiskajiem profiliem un viņu atbildēm profesionālo vērtību skalā. Tādējādi, varētu domāt, ka indivīda profesionālo vērtību kopumu nenosaka viņa dzimums, darba stāžs, izglītības līmenis, specializācija vai vecums, līdzīgi kā citos pētījumos (Almalki, FitzGerald, & Clark, 2011; Kotzer, 2009), pēdējā pat tika konstatēts, ka profesionālo vērtību rādītāji ir līdzīgi trim paudzēm. Tomēr ir pētījumi (Fisher, 2014; Kubsch et al., 2008), kuros konstatēja, ka vērtību rādītāji augstāki māsām ar augstāko izglītību, bet (Martin, Yarbrough, & Alfred, 2003) secināja, ka šīs atšķirības ir nenozīmīgas. Šajā pētījumā novērotais saiknes trūkums starp izglītības līmeni un profesionālajām māsu vērtībām var liecināt par to, ka māsu izglītības process varētu nebūt noteicošais vērtību izstrādē. Iespējams, to vairāk ietekmē to individuālo vērtību attīstība, kas topošajām māsām bija pirms iestāšanās aprūpes programmā. Saskaņā ar pētījumu (Gouveia, Vione, Milfont, & Fischer, 2015) māsu izglītība nav dzīves uzskatus mainošs notikums, kas būtu līdzvērtīgs notikumiem, kas ir pierādīti, kā indivīda vērtības mainoši.

Pētījumā tika konstatēts, ka būtiskākā no profesionālām vērtībām ir saistīta ar aprūpi, līdzīgi kā norāda citi pētījumi, kur praktizējošo māsu biežāk atzīmētās profesionālās vērtības ir vērstas uz pacienta aprūpi, bet visretāk atzīmētās vērtības ir iesaistīšanās dažādās organizācijās un arī pētniecībā (Kotzer, 2009; Poorchangizi et al., 2017). Kā nosaka māsu asociāciju ētikas kodeksi, pacienta veselība ir viena no galvenajām vērtībām un, atbilstoši šai vērtībai, māsām jāsniedz kvalitatīva palīdzība, neņemot vērā pacienta rasi, dzimumu, slimības, reliģiskos vai politiskos viedokļus, sociālo statusu u.c.

Pētījuma ierobežojumi *Limitation of the study*

Visus iegūtos datus nevar attiecināt uz Latvijas māsām, jo izlase tika veidota pēc ērtuma principa, nerandomizējot, tā ir neliela, kā arī to galvenokārt veido sievietes. Tāpat kā jebkurā pašnovērtējuma aptaujā pastāv iespēja, ka pētījumā iesaistītie cilvēki pārvērtēja savu vērtību nozīmi, sniedzot sociāli vēlamas atbildes, neapzināti parādot sevi pozitīvākā gaismā. Lai novērstu šo relatīvi neizbēgamo ierobežojumu, būtu jāveic to pašu māsu atkārtota izpēte vai papildu izpēte lielākā izlasē dažādās ārstniecības iestādēs.

Summary

The importance of the individual and professional values of nurses has not yet been fully researched, but it is safe to say that the quality of health care depends on them and they also contribute to the psychological well-being of medical workers, allows them to work professionally and adequately, as well as they reduce the risk of occupational burnout. The aim of this study was to determine the individual and professional values of nurses and correlation with socio-demographic data. The sample of the study was not large and it was represented mainly by women who are predominant in the nursing profession. The results showed that the most important terminal values for the respondents in the given study were physical and psychological health, happy family life and love, while most important instrumental values were honesty, obedience and responsibility. In terms of professional values, the key role was played by nursing values that are needed to maintain high quality standards in the nursing profession by behaving responsibly and without prejudice towards the patient. These findings correspond to those of other studies. The study was also used to calculate correlation between socio-demographic data and values; and correlation between values and age, work experience, educational level and specialization was determined.

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D TIPA PERSONĪBAS IEZĪMJU UN PROBLĒMU RISINĀŠANAS SPĒJU SAISTĪBA STUDENTIEM

Correlation between Type D Personality Traits and Problem Solving in Students

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Abstract. *Type D personality is characterized by the synergic effects of two persistent personality traits: negative affectivity combined with simultaneous suppression of these emotions in social situations to avoid disapproval or rejection. Type D personality traits are more prominent in certain professions and specialties, including assistance and care, which affect both behavior and problem solving in many ways, resulting in emotionally focused problem solving and avoidance style. The aim of the study - determine the relationship between Type D personality traits and problem-solving skills in students. Research question: Is there a correlation between Type D personality traits and problem-solving skills? 160 students from two faculties of Rīga Stradiņš University participated in the study - Faculty of Public Health and Social Welfare and Faculty of Rehabilitation. The permission from the Ethics Committee of Rīga Stradiņš University was obtained to do the research. Data were obtained electronically in May 2019. Three surveys were used in the research: Three questionnaires are used in the study: demographic questionnaire, DS14: Standard Assessment of Negative Affectivity, Social Inhibition, and Type D Personality and Problem Solving Inventory. The study found a statistically significant positive correlation between the level of social inhibition and the level of negative affectivity, there is a statistically significant positive correlation between the level of problem solving and the level of avoidance style, there is a statistically significant negative correlation between the age of the respondents and the level of negative affectivity and there is a statistically significant positive correlation between the level of negative affectivity and the level of problem solving.*

Keywords: *D type personality, negative affectivity, social inhibition, students.*

Ievads

Introduction

D tipa personību raksturo divu stabilu personības iezīmju sinerģiska ietekme: **negatīva afektivitāte** kombinācijā ar vienlaikus esošu šo emociju apspiešanu sociālās situācijās (**sociālā inhibīcija**), lai izvairītos no nosodījuma vai atraidīšanas. Individīdiem ir jābūt augstiem abiem šiem faktoriem, lai tiktu nosaukti

kā D tipa personība (Denollet, 2005; Neo & Neo, 2001). Negatīva afektivitāte saistīta ar negatīvu skatījumu uz sevi pašu, uz nākotni, uz pasauli, uz citiem (Polman, Borkoles, & Nicholls, 2009). D tipa personība ir cieši saistīta ar depresijas un trauksmes simptomiem, hronisku spriedzi, pesimismu, sociālā atbalsta trūkumu, zemāku subjektīvo labklājību un pašapziņu, neapmierinātību ar dzīvi, zemāku dzīves kvalitāti un sliktu ķermeņa tēlu (Mols & Denollet, 2010; Kim et al., 2017; Borkoles et al., 2018).

Pētījumi pierāda, ka D tipa personības iezīmes vairāk vērojamas noteiktām profesijām un specialitātēm, tai skaitā palīdzošajām un aprūpes (Geuens et al., 2015; De Fruyt & Denollet, 2002; Ogińska-Bulik, 2006). Izteiktākas D tipa personības iezīmes ir saistītas ar veselības aprūpes speciālistu sliktāku garīgo veselību, augstāku izdegšanas līmeni, jo darbavieta tiek uztverta kā stresu izraisošs faktors (Ogińska-Bulik, 2006).

D tipa personības ir vairāk neaizsargātas pret paaugstinātu psiholoģisko stresu, kā arī ar zemu mērķtiecības līmeni un arī vairāk sliecas iesaistīties nesekmīgos stresa pārvarēšanas stilos, piemēram, izvairīšanās, vai arī koncentrē uzmanību uz sava distresa simptomiem, nevis tā risinājumiem (Sudha & Reddy, 2017). Šie indivīdi mēdz izmantot pasīvas un nepiemērotas stresa izvairīšanās stratēģijas, piemēram, atkāpšanos no amata. Tas ir saistīts ar augstāku uztvertā stresa līmeni un paaugstinātu izdegšanas simptomu līmeni (Mols & Denollet, 2010).

Problēmu risināšana klīniskās aprūpes praksē ir labas aprūpes sniegšanas būtība (Taylor, 1997), un izglītības iestādes, kas sniedz šādas akadēmiskās un praktiskās zināšanas, ir apņēmušās studentiem sniegt šādas spējas, kas nepieciešamas, lai būtu profesionālis veselības aprūpes vidē un savā jomā (Olivares-Olivares & López-Cabrera, 2014). Veselības aprūpes speciālistu pienākumi var ievērojami atšķirties atkarībā no veselības aprūpes jomas un vides, taču būtiskas ir teicamas komunikācijas, lēmumu pieņemšanas, komandas darba, problēmu risināšanas un kritiskās domāšanas prasmes. Nesen veiktā pētījumā atklāts, ka palielinoties psiholoģiskajai elastībai un pašapziņas līmenim, palielinās problēmu risināšanas prasmes. Turklāt, palielinoties pašapziņai, palielinās arī psiholoģiskā izturība. Autori konstatē, ka ir augsti psiholoģiskās noturības un problēmu risināšanas prasmju rādītāji tiem vecmāšu studentiem, kuri saņem sociālo atbalstu (Sukran, Gulay, & Neslihan, 2018).

Pētījuma mērķis bija noteikt saistību starp D tipa personības iezīmēm un problēmu risināšanas prasmēm Sabiedrības veselības un sociālās labklājības fakultātes un Rehabilitācijas fakultātes studentiem. Šie studenti izvēlēti tāpēc, ka tie pārstāv veselības aprūpes multidisciplinārās komandas pārstāvjus. Šajās abās fakultātēs 12 studiju programmās sagatavo māsas, vecmātes, supervizorus, veselības sporta, uzturzinātņu speciālistus, fizioterapeitus, sociālā darba,

sabiedrības veselības, ortozēšanas/ protezēšanas speciālistus, rehabilitologus, ergoterapeitus, audiologopēdus.

Metodoloģija *Materials and methods*

Pētījuma izlasi veido Rīgas Stradiņa universitātes Sabiedrības veselības un sociālās labklājības un Rehabilitācijas fakultātes studenti. Abās fakultātēs kopā mācās 1480 studenti (attiecīgi 816 un 664). Saskaņā ar izlases apjoma kalkulatoru, kur ticamības līmenis ir 95%, un pieļaujamā kļūdas robeža ir 5%, izlases apjomam jābūt 305. Pirms pētījuma uzsākšanas tika iegūta Rīgas Stradiņa universitātes Ētikas komitejas atļauja. Ar abu fakultāšu dekānu atļauju studentiem tika izsūtīta hipersaite ar pētījuma instrumentāriju, kas satur trīs aptaujas – demogrāfisko datu anketu, Negatīvās afektivitātes, sociālās inhibīcijas un D tipa personības aptauju un Problēmu risināšanas aptauju. Pētījuma dalībnieki tika informēti par pētījuma norisi, kā arī tika saņemta informētā piekrišana. Visu aptauju kopējais aizpildīšanas laiks ir apmēram 5-7 minūtes. Visas trīs aptaujas aizpildīja un pētījumā tika iekļauti 160 respondenti.

Demogrāfiskā anketa ir autoru izveidota, kas sastāv no jautājumiem par respondentu dzimumu, vecumu, fakultāti, pašreizējo studiju kursu un studiju programmu.

DS-14: negatīvās afektivitātes, sociālās inhibīcijas un D tipa personības aptauja (DS14: Standard Assessment of Negative Affectivity, Social Inhibition, and Type D Personality, Denollet, 2005), latviešu valodā to adaptēja Āre, Lauva, Seimane, 2016. Aptauja sastāv no 14 apgalvojumiem, kas sadalīti divās apakšskalās – Negatīvā afektivitāte un Sociālā inhibīcija. Atbildes tiek vērtētas Likerta skalā no 0 līdz 4. Katrā apakšskalā iespējamais punktu skaits ir no 0 līdz 28. Abu skalu rezultātu interpretācijas sastāv no 7 vērtējumiem – ļoti zems, zems, zem vidējā, vidējs, virs vidējā, augsts, ļoti augsts, ko nosaka atšķirīgs punktu skaits katrā līmenī. Individīdiem ir jābūt augstiem abiem faktoriem (10 vai vairāk punkti), lai tiktu nosaukti kā D tipa personība, savukārt D tipa personības iezīmes noteiktas, ja vienā no faktoriem tiek iegūti 10 vai vairāk punkti. Kronbaha alfas koeficients aptaujai Negatīvās afektivitātes apakšskalā bija 0,848, Sociālās inhibīcijas apakšskalā – 0,835.

Problēmu risināšanas aptauja (*Problem Solving Inventory*, Heppner & Petersen, 1982), latviešu valodā adaptēja Pētersone, Asmine, 2015. Šī aptauja sastāv no 32 apgalvojumiem, kas tiek vērtēti 6 punktu Likerta skalā, un sastāv no 3 apakšskalām: (1) Problēmu risināšanas spējas (*Ability of Solving the Problems*). Šajā apakšskalā ietilpst 11 apgalvojumi ar punktu diapazonu no 0 līdz 55. Zemi rādītāji šajā skalā norāda, ka indivīds tic viņa spējai atrisināt savu problēmu. (2) Izvairšanās stils (*The Approach-Avoidance Style*) – personas vispārējā attieksme

pret problēmu risināšanas darbībām un to novēršanu. Šajā skalā ietilpst 16 jautājumi ar punktu diapazonu no 0 līdz 80. (3) Paškontrolē (*Self-control*) – norāda, cik daudz persona tic savām spējām pārvaldīt un kontrolēt savas emocijas un uzvedību problēmu risināšanas laikā. Šajā skalā ietilpst 5 apgalvojumi ar punktu diapazonu no 0 līdz 25. Aptaujā ir deviņi jautājumi ar reversām atbildēm. Triju kopējo faktoru rādītāji ir kopīgais aptaujas rādītājs. Zemi rādītāji liecina par vislabāko personisko spēju (*Personal Abilities*) uztveri, kā arī norāda uz uzvedību un attieksmi, kas parasti ir saistīti ar veiksmīgu problēmu risināšanu. Problēmu risināšanas aptaujai Problēmu risināšanas spēju apakšskalā Kronbaha alfa ir 0,771, Izvairīšanās stila apakšskalai – 0,664, Paškontroles apakšskalai – 0,675.

Dati apstrādāti, izmantojot SPSS programmas 23. versiju. Normālā sadalījuma atbilstības pārbaudei tika lietots Kolmogorova – Smirnova tests ar Lilleforsas korekciju. Tika izmantotas aprakstošās statistikas metodes, aprēķināti vidējie aritmētiskie (M) un standartnovirzes (SD), mediānas un kvartīles. Lai noteiktu D tipa personības iezīmju un problēmas risināšanas spēju saistību, tika noteikts Spīrmena rangu korelācijas koeficients, savukārt divu grupu salīdzināšanai – Manna-Vitnija tests (*Mann – Whitney*), Kraskela – Vollisa tests (*Kruskal – Wallis*). Korelācijas sanāca statistiski nozīmīgas, bet ne tik augstas, lai pielietotu regresijas analīzi – prognozētu vienu lielumu atkarībā no otra.

Rezultāti *Results*

Respondentu (N=160) vecums ir no 19 līdz 48 gadiem, ar vidējo vecumu – 23,9 (SD±5,7). Lielākā daļa respondentu bija sievietes (92,5%). No Rehabilitācijas fakultātes – 84 respondenti (52,5%), kas no fakultātē studējošo kopskaita ir 12%, ar vidējo vecumu 22,9 (SD±4,9), bet no Sabiedrības veselības un sociālās labklājības – 76 (47,5%), no kopskaita – 9%, ar vidējo vecumu 24,9 (SD±6,4). Lielākā daļa respondentu šobrīd studē pirmajā studiju kursā (34,4%), otrajā kursā studē 31,9%, trešajā – 11,9%, ceturtajā – 21,3% un viens piektā kursa students (0,6%).

Nosakot D tipa personības aptaujas vērtējuma lielumu, redzams, ka ļoti zema līmeņa rādītāju (0 punkti) nav, tāpēc vērtējums tiek atspoguļots, sākot no zema līmeņa (1.tab.).

Aprēķinot D tipa personības rādītājus (10 punkti un vairāk), konstatēts, ka gandrīz puse jeb 48,8% (n=78) no respondentiem tika identificēti kā D tipa personība.

Salīdzinot pa fakultātēm, D tipa personības skaits pētāmajā grupā lielāks ir Rehabilitācijas fakultātē (RF) (n=43; 51,2%), salīdzinot ar Sabiedrības veselības un sociālās labklājības fakultātes (SVSLF) respondentiem (n=35; 46,1%), tomēr atšķirības nav statistiski nozīmīgas ($\chi^2=0,422$, $p=0,516$).

1.tabula. D tipa personības aptaujas vērtējumi
Table 1 Ratings of DS 14

Līmenis	D personības aptauja	
	Negatīvā afektivitāte (n; %)	Sociālā inhibīcija (n; %)
Zems	4 (2,5%)	10 (6,3%)
Zem vidējā	10 (6,3%)	32 (20,0%)
Vidējs	21 (13,1%)	39 (24,4%)
Virš vidējā	37 (23,1%)	35 (21,9%)
Augsts	61 (38,1%)	39 (24,4%)
Ļoti augsts	27 (16,9%)	5 (3,1%)

Aprēķinot Problēmu risināšanas stilu, konstatēts, ka Problēmu risināšanas apakšskalā vidējais rādītājs ir 31,0, kas atbilst augstam punktu skaitam; Izvairīšanās stila apakšskalā – 53,0, kas atbilst augstam punktu skaitam; Paškontroles apakšskalā – 16,0, kas atbilst vidējam punktu skaitam. Salīdzinot pa fakultātēm abu aptauju rādītājus, var secināt, ka nav statistiski nozīmīgu atšķirību nevienā aptauju apakšskalā (2.tab.).

2.tabula. Abu aptauju apakšskalū vidējie rādītāji, salīdzinot pa fakultātēm
Table 2 The average of the both surveys by faculty

Aptaujas	Apakšskalās	SVSLF (n=76)		RF(n=84)		p
		M	SD	M	SD	
Problēmu risināšana	Problēmu risināšanas spējas	31,1	6,1	32,2	7,1	0,336
	Izvairīšanās stils	53,1	7,1	52,9	8,0	0,943
	Paškontrole	16,2	3,7	16,8	4,1	0,207
D tipa personība	Negatīvā afektivitāte	13,2	5,3	13,2	5,9	0,973
	Sociālā inhibīcija	11,3	5,6	11,8	5,7	0,495

SVSLF – Sabiedrības veselības un sociālās labklājības fakultāte

RF – Rehabilitācijas fakultāte

Respondenti tiek iedalīti divās grupās: tie, kas klasificēti kā D tipa personība un tie, kas netiek klasificēti kā D tipa personība. Šīs divas grupas tiek salīdzinātas ar Problēmu risināšanas aptaujas apakšskalām (3.tab.).

Statistiski nozīmīgas atšķirības konstatētas divās aptaujas apakšskalās: Problēmu risināšanas spēju apakšskalā augstāki vidējie rādītāji ir D tipa personībām, bet Paškontroles apakšskalā augstāki rādītāji ir ne-D tipa personībām.

3.tabula. *Problēmu risināšanas aptaujas apakšskalu rādītāji D tipa un ne D tipa personībām*
 Table 3 *Scores of the Problem Solving Inventory subscales for Type D and non-type D personalities*

Apakšskalas	D-tipa (n=78)		Ne D-tipa (n=82)		p
	Mean	SD	Mean	SD	
Problēmu risināšanas spēja	32,4	7,3	30,1	6,1	0,019
Izvairīšanās stils	52,5	7,1	53,6	7,4	0,237
Paškontrolē	15,3	3,6	18,2	4,8	0,001

4.tabula. *Spīrmena korelāciju rādītāji abām aptaujām*
 Table 4 *Spearman correlations rates for both surveys*

Mainīgie	Vecums	Sociāla inhibīcija	Problēmu risināšanas spējas	Izvairīšanās stils	Paškontrolē
Negatīva afektivitāte	-0,190*	0,523**	0,289**	0,086	-0,619**
Sociāla inhibīcija	0,008		0,125	-0,057	-0,310**
Problēmu risināšanas spējas	-0,082			0,443**	-0,380**
Izvairīšanās stils	-0,001				-0,344**
Paškontrolē	0,186*				

* $p < 0,05$

** $p < 0,001$

Aprēķinot abu aptauju apakšskalu korelācijas (4.tab.), redzams, ka pastāv statistiski nozīmīga pozitīva saistība starp negatīvās afektivitātes līmeni un sociālās inhibīcijas, problēmu risināšanas spēju līmeni; starp problēmu risināšanas spēju līmeni un izvairīšanās stila līmeni; starp vecumu un paškontroles līmeni. Pastāv statistiski nozīmīga negatīva saistība starp negatīvo afektivitāti un vecumu; starp paškontroli un negatīvo afektivitāti, sociālo inhibīciju, problēmu risināšanas spējām un izvairīšanās stilu.

Diskusija Discussion

Šajā pētījumā no visiem pētījuma dalībniekiem D tipa personība tika identificēta 48,8%, kas ir augsts rādītājs un ir saskaņā ar to, ka D tipa personība bieži ir sastopama palīdzošajās profesijās strādājošiem, kā to min citi autori savos

pētījumos (Geuens et al., 2015; De Fruyt & Denollet, 2002; Oginska-Bulik, 2006; Polman, Borkoles, & Nicholls, 2009).

Jau iepriekš tika atklāts, ka vecumam ir nozīmīga loma starp personību un negatīvo afektivitāti (Mroczek & Kolarz, 1998). Konstatēts, ka salīdzinājumā ar jaunākiem pieaugušajiem vecāki pieaugušie uztver un atceras pozitīvu informāciju vairāk nekā negatīvu (Carstensen & DeLiema, 2018). Šajā pētījumā tika atklāts, ka pastāv statistiski nozīmīga negatīva saistība starp respondentu vecumu un negatīvās afektivitātes līmeni, respektīvi pieaugot vecumam, pastāv tendence samazināties negatīvās afektivitātes līmenim. To apstiprina arī citi autori, kur dalībnieku vidū pozitīvai afektivitātei bija tendence palielināties līdz ar vecumu, bet negatīvai – tendence samazināties (Hill et al., 2014). Pētījumā tiek arī secināts, ka pieaugot vecumam, pastāv tendence pieaugt paškontroles līmenim – tā ir daļa no pieaugšanas procesa, indivīdam iemācoties, kā kontrolēt un pārvaldīs savas emocijas un darbības.

Pētījumā tiek secināts, ka pastāv saistība starp D tipa personības iezīmēm un problēmu risināšanas spējām, taču tā nav augsta, iespējams ierobežoto respondentu skaita dēļ. Līdzīgus rezultātus uzrāda citu autoru pētījumi – D tipa personībām piemīt maladaptīva emociju regulēšana (Denollet, 2005), personībai ir būtiska ietekme uz problēmu risināšanas stilu (Van Elderen, Maes, & Dusseldorp, 1999), bet citi autori (Morys et al., 2015) konstatē, ka nav saistības starp personības tipu un problēmu risināšanas stilu. Pašapziņas trūkumam ir pozitīva saistība starp negatīvu pieeju problēmu risināšanai un neirotismu (Arslan, 2016).

Problēmu risināšana ir Sabiedrības veselības un sociālās labklājības un Rehabilitācijas fakultātes studentiem ir ļoti svarīga. Efektīvas problēmu risināšanas prasmes nosaka personas spēju produktīvi attiekties pret konkrēto situāciju, kas radusies, izmantojot problēmu risināšanas prasmes, jo palīdzošo profesiju pārstāvjiem darbs saistīts ne tikai ar saskarsmi ar kolēģiem, bet arī ar pacientiem/klientiem, viņu tuviniekiem un problēmu risināšanas prasmes, kas ir neefektīvas, tikai veicina starppersonu problēmu attīstību un ir traucēklis visai aprūpes sistēmas kvalitātei kopumā.

Indivīdi, kas tiek klasificēti kā D tipa personība, uzskata, ka problēmu risināšanas spējas tiem ir neefektīvākas nekā tiem, kas netiek klasificēti kā D tipa personība. Trauksmainiem un nedrošiem indivīdiem ir tieksme izmantot negatīvu pieeju problēmu risināšanā, ņemot vērā, ka negatīvā pieeja problēmām saistīta ar pesimismu, neticību problēmu risināšanas prasmēm (D’Zurilla & Chang, 1995). To apstiprina arī šī pētījuma rezultāti, kur indivīdiem, piedzīvojot negatīvas emocijas, nebūs pārliecība sevī, saskaroties ar problēmām, un tāpēc tās vistīcamāk necentīsies risināt. Lasot pētījumus par saistību starp problēmu risināšanu un indivīdiem, kas izvairās no sociālās vides, tika konstatēts, ka izvairīšanās lēmumu pieņemšana ir saistīta ar problēmu risināšanu (Deniz, 2004), un indivīdiem, kas

demonstrē sociālo izvairīšanos, ir sliktas problēmu risināšanas prasmes (Mcmurran & McGuire, 2005). Pētījumi norāda, ka problēmu risināšanas prasmes ir saistītas ar vispārējo trauksmi, kautrību, sociālo trauksmi (Erenler, 2007), bet spēja izmantot efektīvas problēmu risināšanas prasmes atbrīvo indivīdu no sociālās trauksmes, kā arī vispārējās trauksmes (Stein, Hollander, & Rothbaum, 2009), pie tam trauksmi var samazināt ar problēmu risināšanas apmācību (Anderson & Kazantzis, 2008; Szabo & Lovibond, 2002). Tādas situācijas kā trauksme, kautrība un bailes negatīvi ietekmē indivīdu problēmu risināšanas prasmes. Dotā pētījuma rezultāti sasaucas ar citu pētījumu atradnēm, kas pēta saikni starp problēmu risināšanu un sociālo trauksmi (Hamarta, 2009; Baltaci & Hamarta, 2013), konstatējot, ka sociāli satrauktiem indivīdiem ir sliktākas problēmu risināšanas prasmes.

Tika konstatētas negatīvas korelācijas starp neirotismu un impulsīvo stilu (D'Zurilla, Maydeu-Olivares, & Gallardo-Pujol, 2011) un neirotisms bija nozīmīgi un pozitīvi saistīts ar impulsivitāti un izvairīšanās stilu, līdzīgi, kā tika konstatēts šajā pētījumā, ja indivīdam nav pārliecība sevī, saskaroties ar problēmām, tad tas nevis izrādīs iniciatīvu pieeju, bet gan centīsies izvairīties no tās.

Pētījuma ierobežojumi *Limitation of the study*

Ņemot vērā, ka pētāmā izlase nebija liela un tika veidota pēc ērtuma principa, iegūtos datus nevar attiecināt uz visiem palīdzošo profesiju studentiem. Tāpat kā jebkurā pašnovērtējuma aptaujā pastāv iespēja, ka pētījumā iesaistītie dalībnieki sniegs sociāli vēlamas atbildes, neapzināti parādot sevi no pozitīvākās puses. Tāpēc būtu jāveic papildu izpēte lielākā izlasē, salīdzinot dažādu kursu studentu rādītājus, vai tie mainās līdz ar nākamo kursu, vai mācību process palīdz sekmīgāk tikt galā ar problēmu risināšanu. Varētu arī salīdzināt dažādu mācību iestāžu studentus.

Summary

Type D personality is common in the helping professions and is associated with poorer mental health and burnout rates by health professionals as these individuals tend to use passive and inappropriate stress avoidance strategies. The study involved respondents (N=160) – students from two faculties (Public health and social welfare and Rehabilitation faculties), who would be health care professionals in the future. When calculating Type D personality indicators, it was found that almost half or 48.8% (n=78) of the respondents were identified as Type D personality, consistent with findings from other studies. Comparing the faculties of both surveys, it can be concluded that there are no statistically significant differences in both survey subscales, although the number of Type D personality is higher among students of the

Faculty of Rehabilitation (n=43; 51.2%; $\chi^2=0,422$, p=0,516). Individuals classified as Type D personalities have less effective problem-solving abilities than those who are not classified as Type D personalities. The study shows, that Type D persons have higher average scores in the Ability of Solving the Problems, but non-Type D persons – in the Self-control subscale. Calculating the correlations between the subscales of the two surveys, it was found that there is a statistically significant positive correlation between the level of Negative affectivity and the level of Social inhibition and Problem solving; between the level of Problem solving and the level of Approach-Avoidance style; between age and the level of Self-control. There is a statistically significant negative correlation between Negative affectivity and age; between Self-control and Negative affectivity, Social inhibition, Problem-solving abilities, and the Approach-Avoidance Style.

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THE DEVELOPMENT OF PUPILS' OLYMPIC VALUES: KNOWLEDGE, SKILLS, ATTITUDES

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Abstract. *Objective: The aim of this study was to investigate the knowledge, skills, and attitudes of 5th grade pupils regarding Olympic values. Methods: A qualitative study using the survey method was conducted from January until March, 2019. The participants of this study were 416 fifth grade pupils (49.0 % girls), ranging from 11 to 12 years old, from seven randomly selected general education schools in Klaipėda County (Lithuania). The questionnaire design was considered suitable for discovering the range of knowledge, skills and attitudes about Olympic values. The survey was created and pilot tested internally. The final version contained 35 questions, including five demographic questions and 30 questions related to the Olympic values. Results: The Olympic value, which was found to be the most developed, is Friendship: which is at a high level. The Olympic values of Excellence and Respect both were at an average level. The worst results were with the Olympic value of Fair Play. Conclusion: Pupils have a high level of knowledge of Olympic values (Excellence, Respect, Friendship, Joy of Effort, and Fair Play), but have poorer results regarding their skills and attitudes. The level of attitudes towards the Olympic value of Fair play is low.*

Keywords: *Fair Play, Olympic values, pupils.*

Introduction

Our society is changing dramatically. In everyday life, traditional societal, cultural, and ethical norms are no longer viewed as universal and necessary codes of conduct. According to Čiužas et al. (2005), there is a noticeable decline in the sense of responsibility and the concepts of decency and decadence have been obscured. Schiller and Bryant (2004) note that the younger generation's awareness of values is considered to be the most important prerequisite for successful personality development. Values, as a special code of human spiritual life, reflect what is most valuable to humanity in cultural, psychological, moral and beauty terms. One of the tools that help to educate young people as active citizens and thoughtful, creative members of the public, ready for lifelong learning and contributing to the development of society, may be the implementation of Olympic education programs that foster the interiorization of values (Naul, 2008). Olympic education promotes the cultivation of lifestyles based on Olympic values: the pursuit of excellence, fair play, joy of effort, balance between body, will and mind, and respect for others (Karoblis, Neseckienė, & Gudīškis, 2015).

According to Binder (2005), upholding Olympic values is essential to break through the barriers of tradition and superstition, especially in today's world when we are surrounded by despair, violence and deceit.

International Olympic Committee (2017) produced the Olympic values education program. Using the context of Olympic sports and the core principles of Olympism, participants are encouraged to experience value-based learning and to assume responsibilities of good citizenship. It communicates the benefits of sports and physical activity through an understanding of Olympism and its impact on individual health, enjoyment, and social interaction. The National Olympic Committees (New Zealand, Australia, the United Kingdom, Germany and Canada) promote Olympic education for children and young people by developing websites, preparing teaching materials for teachers prior to each Olympics and developing special Olympic education programs for schools. Most National Olympic Committees organize an "Olympic Day" during which young people participate in sports, art competitions and attend youth leadership seminars (Binder, 2007). Effective programs for developing Olympic values have been and are being implemented in Algeria (Binder, 2007), Ukraine (Bulatova, 2011), Greece (Filis, 2014). Lithuania also devotes considerable attention to the development of children's Olympic values. For more than ten years, the Lithuanian National Olympic Committee has been implementing the Children and Youth Olympic Education Project through non-formal physical education of children, one of the aims of which is to educate Lithuanian children and youth on the importance of Olympic values of respect, fair play and friendship and to ensure that they make these values the foundation for their activities not only in sports but also in life.

This paper raises the following issues:

- 1) Do pupils have sufficient knowledge of Olympic values, are able to base their activities on them, and what attitudes do they have that will influence their behavior in certain situations?
- 2) Does participation in youth sports affect the Olympic values of 5th grade pupils?

The aim of this study was to investigate the knowledge, skills, and attitudes of 5th grade pupils regarding Olympic values.

Methods

The study was conducted from January until March 2019 in seven general education schools from Klaipeda county. One school from each Klaipeda county municipality was selected by random sampling. The research sample consisted of 204 respondents. Prior to conducting the questionnaire, permits were obtained from the school directors. The survey was conducted during physical education

classes. The study involved 416 5th grade pupils, 49.0% of whom were girls. 58.2% of respondents participated in youth sports. 96.4% of respondents were ethnically Lithuanian, 2.2% were Russian and 0.7% of respondents said they belong to the Italian and German ethnic groups.

The education of Olympic values was assessed using an original questionnaire prepared by Iveta Kaškevičiūtė. The questionnaire design was considered suitable for discovering the range of knowledge, skills and attitudes about Olympic values. The survey was created and pilot tested internally. The final version contained 35 questions, including 5 demographic questions and 30 questions related to the five Olympic values (Excellence, Respect, Friendship, Joy of effort, and Fair play). There were six questions for each value, the first two questions representing the pupils' knowledge, the next two - skills and the remaining two - attitudes. The coefficient of scale reliability (Cronbach's alpha) was 0.839.

Statistical analysis

While analyzing the demographic data and the Olympic values knowledge, skills and attitudes of young teenagers, percentages were calculated to measure performance and the results were separated into 3 levels: low (up to 33%), average (33-66%), high (66-100%). The Mann-Whitney U criterion was used to compare the results of pupils in and out of youth sports. Statistical significance was set at $p < 0.05$. All statistical analyses were performed with the Statistical Package for Social Sciences (SPSS) (version 20.0 for Windows).

Research ethics

The study was approved by Klaipeda University Department of Physical Education. All participants were informed that participation in the research study is voluntary, and they may freely withdraw at any time without any type of penalty. After being informed about the nature and steps of the study, verbal consent was obtained from all participants. Written voluntary consent was provided by all their parents and/or guardian.

Results

The 5th grade pupils' levels of knowledge, skills and attitudes towards Olympic values is presented in Table 1. The best developed is the Olympic value of *Friendship*, where the level of knowledge, skills and attitudes vary from average to high. The participants' responses to the Olympic Value of *Fair Play* is notable: the pupils have a high level of knowledge of this value, a average/high level of ability, but low level attitudes that will influence their behavior in certain situations.

Table 1 Knowledge, skills and attitudes of 5th grade pupils towards Olympic values

Olympic values	Level		
	Knowledge	Skills	Attitude
<i>Excellence</i>	Average/High	Average/High	Average/High
<i>Respect</i>	Average/High	Average/High	Average/High
<i>Friendship</i>	High	High	Average/High
<i>Joy of effort</i>	Average	Average	High
<i>Fair play</i>	High	Average/High	Low

Comparative analysis of the results of pupils participating and not participating in youth sports.

Olympic Value of *Excellence*. While examining the pupils' knowledge, it was discovered that pupils participating in youth sports are more aware of the definition of the Olympic value of *Excellence* ($p < 0.05$). For them, the Ancient Greek concept of *Kalokagathia* is also clearer ($p > 0.05$). While examining the respondents' abilities and attitudes, the Mann - Whitney U criterion revealed that pupils participating in youth sports (mean rank = 222.52, $n = 416$) are more likely to set goals and pursue them consistently in sporting activities, $U = 17662.00$, $p = 0.001$, and are determined to achieve their goals and the best results in sports and/or life, (mean rank = 230.98, $n = 416$), $U = 15615.00$, $p = 0.000$.

The Olympic Value of *Respect*. The levels of knowledge and skills regarding the Olympic value of *Respect* were higher among the pupils participating in youth sports than those of pupils who do not, $p < 0.05$. There was no statistically significant difference in the answers to the question „If your friend won a sports competition through fraud and deception, would they win your respect?“, which reflects the pupils' attitudes, $p > 0.05$.

The Olympic Value of *Friendship*. The Mann - Whitney U criterion revealed that pupils participating in youth sports (mean rank = 219.56, $n = 416$) are able to define the meaning of this value with statistical significance, $U = 18378.00$, $p = 0.006$. Those attending youth sports (mean rank = 218.94; $n = 416$) were also more likely to be friendly with people of another race or religion, $U = 18527.00$, $p = 0.008$. While studying the attitudes, the pupils were given a situation to “imagine that [their] relative ranked 68th in the Olympic biathlon and [the respondent] had the opportunity to talk to him right after the finish for 5 minutes. Would [they] be able to congratulate him joyfully?” Respondents participating in youth sports (mean rank = 221.52, $n = 416$) had more positive responses, $U = 17902.50$, $p = 0.001$.

The Olympic value of the *Joy of effort*. Responses reflecting the knowledge, skills and attitudes regarding this Olympic value were higher in pupils

participating in youth sports than in those who do not, $p < 0.05$. The results of the Olympic Value of *Fair Play* are presented in Table 2.

Table 2 The Knowledge, skills and attitudes of 5th grade pupils (who do and do not participate in youth sports) towards the Olympic value of Fair play

No.	Questions	Participate in youth sports	Mean rank	Mann-Whitney U test	p
1.	Do you know what "Fair play" means in sport?	Do not	203.41	20168.500	0.054
		Participate	212.16		
2.	Which of the following statements do you consider an example of respectable combat and "Fair play" in sporting competitions?	Do not	193.65	18470.000	0.001*
		Participate	219.18		
3.	Do you strive to achieve victory by behaving honestly and without fraud?	Do not	186.78	17275.500	0.000*
		Participate	224.11		
4.	Do you compete to win at any cost?	Do not	204.55	20366.000	0.556
		Participate	211.34		
5.	Imagine that your opponent has a torn sneaker. You have spare shoes you can lend. Would you help your opponent?	Do not	214.20	20063.000	0.383
		Participate	204.40		
6.	If your teammate was cheating, would you report it because it is the right thing to do?	Do not	194.43	18606.000	0.022*
		Participate	218.62		

* $p < 0.05$

Discussion

In this study, we aimed to investigate the knowledge, skills, and attitudes of 5th grade pupils regarding the Olympic values (OV). The study also compared the results of pupils who do or do not participate in youth sports. The aim was to determine whether participation in youth sports has an impact on the development of Olympic values in 5th grade pupils.

Varfolomeeva (2014) provides brief theoretical analysis of the concept of "Olympic education", which generally has two main approaches. The first views Olympic education in a very broad sense, which includes physical education. The second viewpoint is a very narrow understanding of Olympic education as the knowledge about the Olympic Games and the Olympic Movement. Olympic education, as notes Varfolomeeva, is a factor of personal development and a kind of education, which includes certain knowledge, skills, and moral values of the Olympic culture.

Hatipoğlu (2017) has explored whether value education at school is necessary and useful and what values need to be developed. The vast majority of the principals who took part in the study considered it important and useful to develop them. In most cases, the informants highlighted the value of *Respect*.

Georgiadis (2008) has conducted a study on the implementation of the Olympic curricula and found that the Olympic curricula, which include the development of Olympic values, are best implemented through physical education (45.5%), with only 29.9% implemented through other general education programs; 27.3% acquire knowledge through informal activities and 40.3% of respondents are interested in self-education. A study by Majauskienė, Šukys, and Lisinskienė (2011) revealed that in schools, the focus is on teaching the history of the Olympics, practically no time is spent on teaching *Fair play* and other values. Hatipoğlu (2017) explored whether value education at school is necessary and useful and what values need to be developed. Thus, it was revealed that the vast majority of school leaders in the study considered it important and useful to develop them.

Pupils' knowledge of the Olympic value of *Excellence* was found to be average/high. When asked if the respondents knew what the word *Kalokagathia* means, more than half of the pupils answered correctly (61.5%). A significant proportion (30.5%) of the respondents said that it meant "Biology and Physics". Studying the pupils' abilities, we found that they are also average/high. 64.7% of the pupils claimed they set themselves goals and pursue them consistently in sporting activities or in other areas of interest. Two thirds (66.6%) of the respondents claimed they do the best they can for certain jobs. The results regarding pupils' attitudes were worse. Only 21.9% of the respondents said "yes" when asked if they were "determined to achieve [their] goals and the best results in sports and/or life without comparing [themselves] to others" while 33.7% of them responded "sometimes". Šarkauskienė and Kaškevičiūtė (2018), when examining the knowledge, skills and attitudes of 5th–6th grade pupils regarding the Olympic values, found that knowledge about *Excellence* is at an average level while skills and attitudes are high. Answers found that those who participated in non-formal physical education classes on the Olympic value of *Excellence* responded better, with higher scores on all questions.

While comparing the scores of pupils participating in youth sports with those who did not attend sports after school the Mann-Whitney criterion revealed that the results were statistically significantly ($p < 0.05$) better among those participating in youth sports (except regarding the answers to "How do you understand the Ancient Greek concept of *Kalokagathia* - the Harmonious Man?").

A study by Vaičekauskienė (2015) has revealed that the most frequently mentioned (23.3%) value among younger adolescents is *Respect*. From the respondents answers to the questions pertaining to the Olympic value of *Respect*,

it was found that their knowledge, skills and attitudes are average/high. Answering the question „What do you think is the meaning of *Respect* in sports?“ more than half (60.1%) of pupils answered correctly - it is honesty and the fight against doping and other unethical behavior. 75.0% of pupils know that *Respect* entails respect for yourself and your body, other people, rules, religions, sports and the environment. 76.0% of respondents claimed they are respectful of other people (coaches, referees) while being engaged in their sport, 56.7% of pupils responded that they consider the wishes, opinions and needs of their teammates. 46.9% of pupils said they could not respect their rivals, fellow players and referees. Asking if they would congratulate the first place winner who comes to congratulate them after they lost the race by one point and took the second place, 88.0% indicated that “yes, [they, the respondent] would appreciate their prowess and congratulate them on their victory.”

Varfolomeeva (2014) has studied the ability of pupils to be tolerant, which is highly related to respect and skills. 432 secondary school 5th–6th grade pupils participated in the study. The vast majority of pupils showed average results. The number of pupils with a level of tolerance above average was not significant. The level of ethnic tolerance was found to be particularly low.

Comparing the responses of pupils participating in youth sports and those who do not, the pupils who participate in youth sports were found to have developed a higher level of *OV Excellence* and *Respect*, $p < 0.05$. Only the answers to the question “If Your Friend Won A Sports Fight Through Deception, Would They Win Your Respect?“ did not differ significantly, $p > 0.05$.

Friendship has been defined by philosophers as a form of relationship that exhibits mutual concern and willingness to act for the good of the other for the other's sake, is based on the mutual positive regard two people have for one another, and involves time spent together in shared activities (Helm, 2013). Friendship are widely regarded as important to children's wellbeing and adjustment (Adams, Santo, & Bukowski, 2011; Berndt, 2002).

Pupils answering questions about the Olympic value of *Friendship* were found to have a high level of knowledge: 72.4% said that the Olympic value of *Friendship* is the basis of all sports, which creates understanding between different people and builds friendships and 70.9% noted that it encourages everyone to become interested in sports because through them people have the opportunity to make friends around the world. The skills were also found to be high level: 71.9% of pupils considered themselves friendly with people of another race and 69.0% of pupils said they talk and behave cordially with their opponents during sports competitions.

The results regarding attitudes were slightly worse: the pupils were offered to imagine that “[their] relative ranked 68th in the Olympic biathlon and [they, the respondent] had the opportunity to talk to him right after the finish for 5

minutes. Would [they] be able to congratulate him joyfully?" 68.5% pupils said they agree or strongly agree. 52.6% thought they could make friends with their rivals. For pupils who participate in youth sports, all OV *Friendship* scores were statistically significantly $p < 0.05$ better than of those who do not participate in youth sports after school.

The respondents' answers to the questions regarding the Olympic value *Joy of effort* revealed that their knowledge and skills were at an intermediate level: in response to the question "What do you think is the meaning of *joy of effort*?" 61.3% answered correctly - it means the challenges in sports and in life that we are happy to overcome. Answering the question „Are you happy with your personal performance even if you don't win the competition?" 56.7% said they agreed. The results regarding the attitudes were high: the pupils were told to „Imagine that [they] ran a distance of 60 meters and took [their] personal record. Would it bring [them] joy?" 84.1% of respondents said "Yes, because [they] would feel happy to have reached a personal record". The knowledge, skills and attitudes regarding the OV *Joy of effort* were higher among the pupils participating in youth sports ($p < 0.05$) than among those who did not.

From the pupils answers to the questions about the Olympic value of *Fair Play* we have learned that they have a high level of knowledge regarding that value. 95.0% indicated the correct definition of the concept, and 84.1% indicated the correct example of *fair play* when presented with multiple options. Similar results were reported by Adaškevičienė and Budreikaitė (2007). The researchers found that the greater part (78.5%) of pupils aged 12 to 14 are aware of the characteristics that reflect this value. According to the opinion of the study subjects, the Olympic value of *Fair Play* is: compassion, honesty, self-sacrifice, observance of the rules of the game, kindness and compassion. While researching the skills regarding the OV of *Fair play* they were also found to be at a high level: 71.4% of respondents answered positively to the question "Do you strive to achieve victory by behaving honestly and without fraud?" The respondents were found to have a high level of knowledge and skills regarding the OV *Fair play* but low level attitudes towards it. The majority of respondents claimed they want to always (30.8%) or sometimes (40.6%) win in competitions at any cost. The results of Karoblis, Majauskienė, and Paulauskienė (2009) are very similar. After analyzing the attitudes of 11-17-year-old pupils (Belgium, Czech Republic, Estonia, Finland, Germany, Hungary) towards the Olympic Movement and the Olympic values, the researchers noted that adolescents were familiar with *Fair play* in sports, but 11.4% of respondents would use forbidden substances to win an Olympic medal, while 25.0% of girls and 32.3% of boys would cheat if their opponents were cheating.

Luquin and Olliden (2012) analyzed the subjective perception of the importance of five dimensions related to *Fair play* (having fun, following the

rules, being committed, winning and fair play) in a large sample of young sports people (children and youth players) ($n = 762$). The least valued dimension was related to winning the game. The most important dimension differed for boys and girls: girls considered it more important to play fair, whereas for boys the priority was to have fun. No differences were found between commitment and respect for the rules in the male group, although the difference between these dimensions was more pronounced among girls.

Comparing the responses of athletic and non-athletic pupils, only a few cases showed significant differences. Athletic pupils were found to know better what the Olympic value of *Fair play* means. Šukys and Majauskienė (2014) conducted a study with 747 adolescents. The researchers compared the results of Olympic values for athletes and non-athletes. Sports experience was a significant predictor ($p < 0.05$) of prosocial behavior, which is characterized by unselfish actions towards other people, with teammates and opponents. There was no statistically significant difference between the other values that the researchers also studied.

Conclusion

Pupils have a high level of knowledge of Olympic values (*Excellence, Respect, Friendship, Joy of Effort, and Fair Play*), but have poorer results regarding their skills and attitudes. The level of attitudes towards the Olympic value of *Fair play* is low.

Conflicts of interests

The author declares that she has no competing interests.

Acknowledgement

We are thankful for the administration of the general education schools, where the research was performed, and for the physical education teachers who constituted the conditions necessary to fulfil the research. We are thankful for all the pupils who took part in this research.

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DIFFERENCES OF THE LATVIAN POPULATION PERCEPTIONS AND MEMORIES OF THE DAILY ACTIVITIES OVER 30 YEARS

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Abstract. Regular physical activity helps to improve physical and mental functions as well as reverse some effects of chronic disease to keep older people mobile and independent (McPhee et al., 2016). However, physical activity with aerobic load elements could be a contributing factor to aging (Prakash, Voss, Erickson, & Kramer, 2015). Epidemiological studies have shown that the intensity of daily physical activity might have an important role to maintain life-long cognition (Kimura, Yasunaga, & Wang, 2013). The aim is to identify differences Latvian time use from the retrospective surveying primary data from Total Life-span Physical Activity questionnaire and tertiary data from 1979 published data on population time use and trends (Eglite, Svikis, & Zarina, 1979). Methods: The primary data of daily activities was from April to December 2019 obtained from the retrospective questionnaire “Total Lifespan Physical Activity questionnaire” (Ulmane, Šneidere, & Stepens, 2019) and tertiary data were used from 1979 published data on population time use and trends (Eglite, Svikis, & Zarina, 1979). The data were adjusted to six physical activity categories to be comparable - Work/education, physiological needs, Transportation, Leisure time, Household activities and Sports. Results: did not affect males and females differently in these measures, but only differences of some categories. Results show that the most differences were found in the categories – transportation, household activities, and sport. Conclusions: The study had several limitations because data from the 1979 published book (Eglite, Svikis, & Zarina, 1979) was only available in aggregate form. Together these results provide important insights into the difference between the capital city, small towns or rural areas, but 2019 study respondents were almost always from the capital city. However, in the future for more precise data analysis needed primary or secondary data.

Keywords: life-time, physical activity, primary data, tertiary data.

Introduction

In recent years, there has been an increased interest in healthy aging. Aging is one of the growing priorities worldwide (WHO, 2015). Low levels of physical activity (PA) are a global concern and increasing PA engagement is becoming a priority in current public health policies (Puggina et al., 2017). Aging correlates with high risk for physical and cognitive impairment, which contribute to disability to do some simple household activities, physical exercises and possible loss of independence (Bruderer-Hofstetter et al., 2018). Thanks to daily physical activities, people can improve their physical and mental (such as cognitive processes) functions, as well as reduce the risk of developing cardiovascular diseases, to allow older people to be more independent and mobile (McPhee et al., 2016).

As other authors have already mentioned, the importance of physical activity in maintaining the health of the elderly (Stessman, 2009), however, there is a lack of information on behavioral changes in physical activity throughout life, particularly the transition from mid-life to older age. Authors like Hamer and his colleagues listed important factors that change lifelong physical activity behaviors (Hamer, Kivimaki, & Steptoe, 2012), such as the transition from elementary to high school (Garcia et al., 1998), transition from high school to university (Burke, Beilin, Dunbar, & Kevan, 2004), marriage (Raymore, Barber, & Eccles, 2001), becoming a parent (McIntyre & Rhodes, 2009) and retirement (Allender, Foster, & Boxer, 2008).

Muchiri and his colleagues pointed out studies which suggest that physically active older adults benefit from maintained physical health by having fewer cardiovascular diseases, better physical functioning (Manini & Pahor, 2009), mental health such as lower depression, better cognitive functioning (Kramer, Erickson, & Colcombe, 2006) (Muchiri, Olutende, Kweyu, & Vurigwa, 2018). Daily physical activity can decrease the physiological influence of a sedentary lifestyle and raise active life expectancy by reducing the risk of noncommunicable diseases and other conditions (e.g. psychological diseases) (De Lira et al., 2018).

Epidemiological studies have shown that the intensity of daily physical activity might have an important role to maintain life-long cognition. Especially, it applies to elderly people who generally engage in moderate physical activity (i.e., intensive walking) might show a reduced risk of age-related cognitive function (Kimura, Yasunaga, & Wang, 2013). Active living involves purposeful walking, for example, to the shop or work, use stairs instead of using the elevator, do more household activities, wash dishes, small clothes instead of using washing machines, cook more at home not eating at the restaurant, clean your house with a broom not using some robotic technologies. For elderly people it could be to take care by themselves not others, for example, bathing or have a shower, clean

their teeth, dressing, clean the house a little, feed a pet, etc. (Muchiri, Olutende, Kweyu, & Vurigwa, 2018).

Improvements in mental health, emotional, psychological, and social well-being and cognitive function are also associated with regular physical activities. Despite these health benefits, physical activity levels amongst older adults remain below the recommended 150 min/week (Boulton, Horne, & Todd, 2018). Dumith and his colleagues claim that the prevalence of physical inactivity in the world is 21.4% higher among women than men (Dumith, Hallal, Reis, & Kohl, 2011). This means that one in four or one in five does not engage in physical activity, being physically inactive or with lower physical activity levels than recommended from WHO (WHO, 2010). WHO suggested recommendations include aerobic exercises and strength exercises, to reduce the risk of falls, WHO also suggest doing some balance exercises. Elderly people should be as active as they can be, their ability and conditions allow, but only if they are unable to follow the instructions due to health problems (Langhammer, Bergland, & Rydwik, 2018). However, physical activity with aerobic load elements could be a contributing factor to aging (Prakash, Voss, Erickson, & Kramer, 2015).

Table 1 *The daily activities categories*

The aim of daily activities	
Work/education	Regular paid full and part-time jobs/ formal education and non-formal education (Ulmane, Šneidere, & Stepens, 2019).
physiological needs	<i>Sleep and Self-care</i> (personal hygiene and food consumption) (Ulmane, Šneidere, & Stepens, 2019).
Transportation	Cycling, walking, using public transportation and driving (Ulmane, Šneidere, & Stepens, 2019).
Leisure-time physical activity	Type of physical activity undertaken during an individual's discretionary time that results in substantial energy expenditure (i.e., a physically active lifestyle). Physical activity may be undertaken for a variety of reasons, but one of the main objectives involves improving morbidity or health outcomes (Motl et al., 2017).
Household physical activity	Includes all domains referring to activities within the home and/or garden (Williams et al., 2012).
Exercise physical activity (sports)	Domains referring to exercise or other activities that are more vigorous than usual everyday activities (Williams et al., 2012).

The object of the research is Total Life-span Physical Activity questionnaire and tertiary data from 1979 published data on population time use and trends (Eglite, Svikis, & Zarina, 1979), and the aim is to identify differences of the Latvian population perception and memories of daily activities over the 30 years.

Materials and Methods

Participants

This is a comparison study. The primary data of daily activities was from April to December 2019 obtained from the retrospective questionnaire “Total Lifespan Physical Activity questionnaire” (Ulmane, Šneidere, & Stepens, 2019). Participants were 22 seniors aged from 66 – 80 years ($M= 69.3$; $SD=6.68$) seniors (41% male). All seniors reported no health problems and were speaking Latvian as a first language.

The tertiary data of daily activities was from 1979 published data on population time use and trends (Eglite, Svikis, & Zarina, 1979). The survey did not include people who were ill, whose use of time is with a difference, and those who were on vacation, there was no possibility to interview. The data thus obtained represents the distribution of time during a normal working week. Each of the respondents recorded their activities and their duration within one week, as well as their gender, age, education, occupation, family composition and level of well-being. To characterize the average time spent by the population of the republic on an annual basis, the survey was conducted in two periods of the year and in each of these three types of territory - residence in Riga, other cities and rural areas. In total it collected more than 4,000 valid weeks' budgets (Eglite, Svikis, & Zarina, 1979).

Measures and Procedure

The first for equal compare the data for the daily activities in this study data was selected from the retrospective questionnaire “Total Lifespan Physical Activity questionnaire” (Ulmane, Šneidere, & Stepens, 2019) those respondents who were at least 15 years old before the 1979 year. The Total Lifespan Physical Activity questionnaire (Ulmane, Šneidere, & Stepens, 2019) was conducted at Riga Stradiņš University. The questionnaire does not only include information regarding sports activities during the lifetime, but also normal daily activities, such as housework, transportation, and leisure time activities, and questionnaire consists of eight parts (work, education, sleep, transportation, self-care, leisure time, household activities and sports). *Work* section includes regular paid full and part-time jobs, and divided sedentary work, moderate physical activity work, and vigorous physical activity work. *The education* section included subsections – formal education (high-school, college, university) and non-formal education (seminars, courses, and others). *Sleep* and naps define the hours spent asleep, and are collected during the interview. *Transportation* included questions regarding the use of daily transportation and indicated four main types: cycling, walking, using public transportation and driving. *Self-care* includes personal hygiene compliance (e.g. showering, brushing teeth) and food consumption (e.g. mean meal times). *Leisure time* was divided into three categories: sedentary leisure

activities (e.g. reading, watching TV, writing, knitting), outdoor activities (e.g. hiking, visiting a Zoo) as well as social activities (e.g. clubbing, meeting with friends) (Ulmane, Šneidere, & Stepens, 2019). Leisure-time physical activity may be undertaken for a variety of reasons, but one of the main objectives involves improving morbidity or health outcomes (Motl et al., 2017). *Household activity* divided Light household activities (e.g. dusting, washing dishes), Moderate household activities (e.g. ironing, laundry washing) and Vigorous household activities (e.g. gardening, repairs) (Ulmane, Šneidere, & Stepens, 2019). Sports (Exercise physical activity) included purposeful physical activity running, swimming or Nordic Walking), strength (e.g. weight lifting) and group activities (e.g. basketball, volleyball) (Ulmane, Šneidere, & Stepens, 2019). To investigate life-long physical activity retrospectively was using cognitive interview methods. Cognitive interviewing techniques are often used in retrospective studies. In this study was used verbal probing – asking specific questions with added memory probes (Willis & Artino, 2013).

But for tertiary data were used from 1979 published data on population time use and trends. At the Institute of Economics of the Latvian Academy of Sciences, the total time use balance of the population of the Republic was elaborated. It describes the distribution of the time fund by type of activity and population. The time budgets needed for the calculations were obtained between 1971 and in 1973 in a special sample survey. The information from survey consists of four parts - *Total work time* – including work, lunch at work, way back and forth from work; *Total household activities* - household at home, household at auxiliary farming, parenting and child care, Shopping, institutions visiting; *Physiological needs*; *Leisure time together* - Study/self-study, Social activities (volunteering), watching performances, active leisure, other types of leisure activities.

Next in this study, we linked from 1979 published data on population time use and trends (Eglite, Svikis, & Zarina, 1979) capital city with small town and country, because in the retrospective study wasn't fixed demographic location residence for its lifetime. In the second stage in this study were created common categories for comparing data. The data were adjusted to six physical activity categories to be comparable - Work/education, physiological needs, Transportation, Leisure time, Household activities and Sports.

Data analysis

For data analysis was used JASP 0.11.1. To determine the descriptive statistics were calculated to determine averages.

Results and Discussion

The aim of the present study was to identify differences in Latvian time use over the last 30 years comparing tertiary data from 1979 published data on

population time use and trends (Eglite, Svikis, & Zarina, 1979) with primary data from the retrospective questionnaire “Total Lifespan Physical Activity questionnaire” (Ulmane, Šneidere, & Stepens, 2019). Taken together, these results suggest that there is an association between Latvian population perceptions and memories of the daily activities over the 30 years.

In 1967, a workplace transition began for five working days a week from six working days a week. The new law provided for a 41-hour working week, a maximum of eight hours per day, so it was often necessary to go to work on Saturdays. But the six-hour working day was for teachers and students. In the 1970s, women in Latvia had become equal to men in the labour environment, but women continued to spend significantly more time on household activities than men (Pavlovičs, 2012).

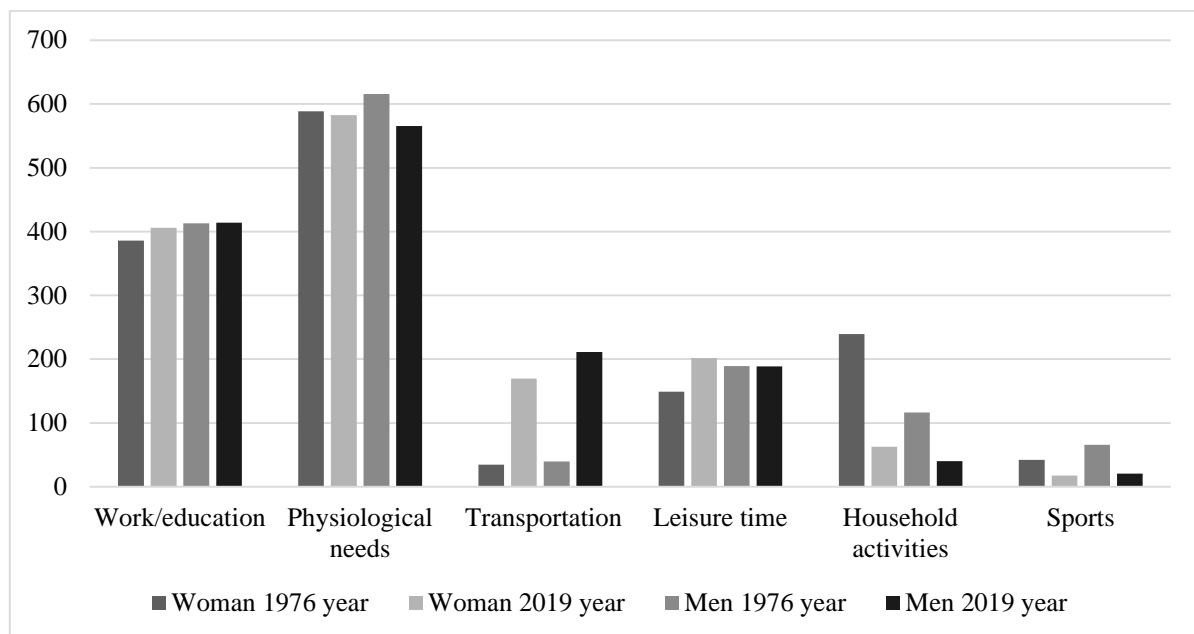


Figure 1 Differences of the Latvian population perceptions and memories of the daily activities over the 30 years (minutes per day)

The chart above shows the proportion of different categories of daily activities from 1979 published data on population time use and trends (Eglite, Svikis, & Zarina, 1979) and to 2019 obtained data from the retrospective questionnaire “Total Lifespan Physical Activity questionnaire” (Ulmane, Šneidere, & Stepens, 2019). The average scores of 1979 published data and 2019 obtained data were compared to differences of the Latvian population perceptions and memories of the daily activities over the 30 years for women's and men's groups.

From this data (Figure 1), we can see that 1979 published data resulted in slightly fewer minutes of work/education than 2019 obtained data. Comparing the

two results, it can be seen that physiological needs are similar before, both also population perceptions and memories of the daily activities. There were significant differences in transportation activities, data from the retrospective questionnaire "Total Lifespan Physical Activity questionnaire" (Ulmane, Šneidere, & Stepens, 2019) (woman M= 169.7; men M=211.4) showed much more minutes than 1979 published data (woman M= 34.5; men M=39.7). But there were no significant differences between perceptions and memories of the leisure time of the Latvian population. Comparing the results, it can be seen that there were differences between data from the 1979 published data and 2019 obtained data in household activities and sports categories.

Although women had the same working hours as men after working eight hours, women devoted more than one and a half hours to household activities (Pavlovics, 2012), which can also be seen in this study. But there is a difference between woman household activities data from 1979 and primary data from the retrospective questionnaire because the 2019 study (Figure 1) had a smaller sample and the respondents were almost always from the capital city. Capital city people spend significantly less time on household activities, about 1/3 less time, than those who live in small towns or rural areas. The most time-consuming household activities for those who living in Riga is cooking and clothes washing (Drizulis, 1980).

The road to work for the capital city (Riga) was much more time consuming than for small towns or rural people (Drizulis, 1980). It can also be seen in this study (Figure 1) assuming that the data obtained in 2019 is from the capital city population. The same can be observed for leisure time, but this study did not distinguish walking from transportation categories, because data from 1976 reflected only going to and from work, at the same time in 2019 study had to separate all types of transportation. This study combined all of 2019 study data about transportation and categorized under one category because data from 1976 there was only one category that pointed to transportation type. The most common types of leisure time for capital city people were watching television, walking and reading. And leisure time is about 5% -25% less for them who don't live in a capital city. On average over 2 hours a week, every capital city citizen spends time attending theatre shows, concerts or events (Drizulis, 1980). So you can see that in this study there is much more transportation daily activity, but there was no difference in leisure time (Figure 1).

There was a program by the Communist Party of the Soviet Union, which said that people will increasingly devote their free time to social activities, cultural life, mental and physical development. Sports will be firmly anchored in people's daily lives (Eglite, Svikis, & Zarina, 1979). Maybe that is the reason why there are differences in category "Sports", that men and women spent more time on sports than respondents in this study.

Pupils and students have significantly more leisure time for different activities (Drizulis, 1980). Therefore comparing tertiary and primary data there may be significant differences. Eglite and colleagues (1979) survey about daily time consumption collected data from respondents from the age of 12. What is interesting in this data is that other studies and literature on the life of Latvians in the 1970s reflects the changes 2019 obtained data from the retrospective questionnaire "Total Lifespan Physical Activity questionnaire" (Ulmane, Šneidere, & Stepens, 2019) and data from 1979 published data on population time use and trends (Eglite, Svikis, & Zarina, 1979). In 1970, only 38% of the population of Latvia was still lived in the countryside (Pavlovičs, 2012). There are several aspects to the daily consumption of time - place of residence, age, gender, main occupation, family composition, education (Drizulis, 1980).

Overall, these results did not affect males and females differently in these measures, but only differences of some categories. In summary, these results show that the most differences were found in the categories – transportation, household activities, and sport. Together these results provide important insights into the difference between the capital city, small towns or rural areas, but 2019 study respondents were almost always from the capital city. It would, therefore, be necessary to increase the sample of respondents and record where they live at a particular stage of life. The next step in this study is to conduct a deeper analysis of 1979 published data on population time use and trends (Eglite, Svikis, & Zarina, 1979).

Conclusions

The study had several limitations because data from 1979 published book (Eglite, Svikis, & Zarina, 1979) was only available in aggregate form, but in the future for more precise data analysis needed a primary or secondary data. However, generally pointing to a tendency for the difference between the Latvian population perceptions and memories of the daily activities over the 30 years. One of the most pronounced results is about women's leisure time, then and now, if then it was the least time spent on leisure time, but now it's the most used time also compared to men groups.

Significant differences in results can be observed in the category "Transportation" because women and men in this study approximately spent 5 times more time on transportation than 1979 published data. Overall, these results did not affect males and females differently in these measures, but only differences of some categories. In summary, these results show that the most differences were found in the categories – transportation, household activities, and sport. For further study could be interesting and necessary to increase the sample of respondents and record where they live at a particular stage of life.

Acknowledgments

This study was conducted under the RSU project's long-term physical activity on cognitive dysfunction and depression burden on seniors (ELPA-COG) decision of the Scientific Council of 7 March 21/1/1/2019-3.

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NŪJOŠANAS NODARBĪBU IETEKME UZ SIEVIEŠU ĶERMEŅA KOMPOZĪCIJU: SISTEMĀTISKAIS PĀRSKATS

Effect of Nordic Walking Activities on Women Body Composition: a Critical Review

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Abstract. Nordic walking (NW) is a particularly health-friendly type of physical activities. Sessions of NW are carried outdoors in “a natural sports hall”. NW with a healthy and biomechanically correct movement evenly employs 600 muscle groups, or 90% of the body muscles. NW is a type of physical activity for developing various biomotor abilities that help in the healthy elimination of overweight. NW activates metabolism and increases energy exchange. Several research have confirmed the positive effects of physical activities for this particular group of patients. Three of the included works of research (Song et al., 2013., Jasinski et al., 2015., Hagner-Derengowska et al., 2015) had a set research quality in the PEDro database, and it corresponded to high quality (6 points out of 10). All included works of research are randomised controlled works of research. The objective of the research is to summarise proof available in sources about the effectiveness of NW in the improvement of health indicators for patients. Research has shown that NW exercise significantly reduces total body fat and is more effective than other forms of physical activity. The results of the study allow to recommend NW as an effective physical activity for improving and maintaining body composition

Keywords: body composition, Nordic Walking, physical activity, women.

Ievads

Introduction

Nūjošana (no angļu valodas: Nordic walking – NW turpmāk tekstā) dzimtene ir Somija. NW ir sevišķi draudzīgs cilvēku ķermenim fizisko aktivitāšu veids.

Nodarbības notiek „dabas sporta zālē” un kļūst arvien populārākas Latvijā un ārvalstīs (Upeniece et al., 2014). NW var šķist gana vienkārša, taču nepieciešams iemācīties pareizu tehniku, izvēlēties atbilstošu ekipējumu un ievērot pareizu nodarbību metodiku.

Pareizas veselīgas un biomehāniski pareizas kustības NW laikā vienmērīgi tiek nodarbinātas 600 muskuļu grupas jeb 90% ķermeņa muskulatūras. NW – fizisko aktivitāšu veids dažādu biomotoro spēju attīstīšanu ietekmējošs, kas palīdz veselīgi atbrīvoties no liekā svara. NW aktivizē vielmaiņu un paaugstina enerģijas apmaiņu (Materniņa, 2010).

Kā liecina Pasaules Veselības organizācijas (PVO) apkopotie dati, mūsdienās mirstību un invaliditāti galvenokārt izraisa neinfekciozās slimības, kas ir iemesls 60% no visiem nāves gadījumiem. PVO aptaukošanos definē kā sarežģītu multifaktoriālu hronisku slimību, kas rodas ģenētisku un vides faktoru mijiedarbības ietekmē (PVO, 2008). Būtiski meklēt fiziskās aktivitātes, kas būtu sabiedrībā populāras, mazāk simptomus izraisošas un līdz ar to stimulētu cilvēku iesaisti tajās (Upeniece et al., 2016).

Adekvāti dozētas fiziskās aktivitātes ir neatņemama adipozitātes/ aptaukošanās ārstēšanas un profilakses sastāvdaļa, vairāki pētījumi ir apliecinājuši fizisko aktivitāšu pozitīvos efektus dotajai klientu / pacientu grupai. Fizisko aktivitāšu ietekmē samazinās kardiovaskulārie riski (hipertensija, dislipidēmija, tauku akumulācija u.c.).

Kā viena no šādām aktivitātēm ir NW, kas daudzviet ieguvusi popularitāti dažādās vecuma grupās un it īpaši vecākās paaudzes sievietes patiesi motivētas nodarboties ar NW (Upeniece et al., 2016). Sieviešu vidū popularitāti guvuši arī citi fiziskās aktivitātes veidi, tādi kā tradicionālās pastaigas (turpmāk tekstā soļošana), ūdens aerobika, Pilates.

Pētījuma mērķis: apkopot literatūrā pieejamos pierādījumus nūjošanas efektivitātei veselības rādītāju uzlabošanā sievietēm ar lieko svaru un salīdzināt nūjošanas efektivitāti ar citām fiziskajām aktivitātēm.

Materiāls un metode ***Material and Methods***

Kā datu vākšanas avoti tika izmantotas tiešsaistes datubāzes: EBSCO, SCOPUS. Tika veikta pētījumu atlase pamatojoties uz atslēgas vārdiem: “body composition, Nordic Walking, physical activity, women” un publicēti laikā no 2013 līdz 2019. gadam. Nākamais solis bija atlasīt pētījumus, kuri atbilstoši tēmai pēc virsraksta un noņemt pētījumu dublikātus, pētījumus, kuri nav angļu valodā, sistemātiskus pētījumu apskatus un gadījumu analīzes, un nepilna teksta pētījumus. Tēmai atbilstoši bija pētījumi, kuros tika pētīta NW ietekme uz sieviešu kompozīciju ar lieko svaru vecumā no 50 līdz 75 gadiem. Tēmai

neatbilstoši bija pētījumi, kas tika veikti citām pacientu (klientu) grupām, kā arī tos, kuros bija izmantota cita veida iejaukšanās. Nākamais etaps bija pētījumu kopsavilkumu pārskats, lai atlasītu pētījumus, kas atbilst izvirzītajiem iekļaušanas kritērijiem.

Atlasītie pētījumi tika iekļauti tālākajā apkopojumā un tika analizēti, ņemot vērā iekļaušanas kritērijus, kas tika izveidoti pēc PRISMA rekomendācijām. Tika iekļauti randomizēti kontrolēti pētījumi, kuros eksperimentālai grupai bija pielietota NW pēc konkretizētas metodikas, kas salīdzināta ar kontroles grupu un ar grupu, kura veica citas fiziskās aktivitātes. Netika iekļauti pētījumi, kuros NW tika kombinēta ar cita veida iejaukšanos. Tika iekļauti pētījumi, kuros bija izmantoti standartizēti mērījumi efektivitātes izvērtēšanai. Tika izslēgti pētījumi, kuros tika pētīti pacienti vai klienti ar dažādām blakus diagnozēm.

Pētījumu kvalitāte tika izvērtēta, balstoties uz PEDro datu bāzē atrodamo kvalitātes novērtējumu. Šī skala izveidota, lai varētu novērtēt pētījumu kvalitāti, tā sastāv no 11 punktiem un maksimālais novērtējums ir 10 balles. Par atbilstību katram kritērijam tiek piešķirta viena balle, bet pēc ballēm netiek vērtēta paša pētījuma atbilstība, tāpēc 11 kritēriju skalā maksimālais punktu skaits ir 10. Instruments attiecināms uz diviem kvalitātes aspektiem – ticamību un, vai pētījums ir interpretējams. Ticamība tiek vērtēta pēc nejaušas un slēptas izlases, sākotnējas salīdzināmības, ar nodomu ieteikt vecākās paaudzes sievietēm NW fiziskās aktivitātes profilaksei un veselības aprūpē, kā arī iespējamo fizisko aktivitāšu veidu liekā svara mazināšanai. To, vai pētījums ir interpretējams, vērtē pēc, starp grupu salīdzināmības, un ziņojuma par punktiem un aprēķinu mainīguma. Skala pēdējo reizi grozīta 1999. gada 21. jūnijā.

Sieviešu vidū popularitāti guvuši arī citi fiziskās aktivitātes veidi, tādi kā soļošana, ūdens aerobika, Pilates. Pētījumu atlasē un analīzes rezultātā radās iespēja salīdzināt NW ietekmi uz sieviešu ķermeņa kompozīciju ar citām sieviešu vidū piekoptajām fiziskajām aktivitātēm, jo, atlasot pētījumus, kritiskam apskatam, tika konstatēts, ka randomizētos kontrolētos pētījumos tika iekļautas sieviešu grupas, kuras nodarbojās ar citām, augstākminētajām, fiziskajām aktivitātēm un sieviešu kontrolgrupas, kuras nav iesaistītas kādā speciāli organizētā fiziskās aktivitātes veidā.

Pētījuma rezultāti ***Results of research***

Sākotnēji, balstoties uz izvēlētajiem atslēgas vārdiem un publicēšanas gadu, tika atrasti 12 pētījumi. Pārskatot sākotnēji atlasīto pētījumu kopsavilkumus, tika izslēgti pētījumi, kuri nebija angļu valodā, sistemātiski pētījumu apskati un gadījumu analīzes. Tēmai atbilstoši izrādījās 5 pētījumi, no kuriem tālāk tika

izslēgtas kopijas. No atlasītajiem pētījumiem 3 atbilda iekļaušanas kritērijiem un tika iekļauti sistemātiskajā pārskatā.

Trijiem no iekļautajiem pētījumiem (Song et al., 2013; Jasiński et al., 2015; Hagner-Derengowska et al., 2015) bija noteikta pētījuma kvalitāte PEDro datubāzē un tā atbilda augstai kvalitātei (6 balles no 10). Visi trīs iekļautie pētījumi ir randomizēti kontrolēti pētījumi (1.tabula).

1.tabula. **Ķermeņa kompozīcijas rādītāji pirms un pēc fiziskajām aktivitātēm** (Song et al., 2013; Jasiński et al., 2015; Hagner-Derengowska et al., 2015)

Table 1 **Body composition scores before and after physical activity** (Song et al., 2013; Jasiński et al., 2015; Hagner-Derengowska et al., 2015)

		Song et al., 2013			Jasiński et al., 2015			Hagner-Derengowska et al., 2015		
		67 sievietes			24 sievietes			147 sievietes		
		n=21 NW	n=21 W	n=25 C	n=8 NW	n=8 WA	n=8 C	n=69 NW	n=58 Pilat	n=20 C
Vecums		67.8±2.5	68.2±2.6	68.0±2.5	57.9 ± 3.43	57.3 ±4.83	58.7 ± 3.38	55-75	55-75	55- 75
		p<0.001			p<0.05			p <0.05		
Ķermeņa kompozīcijas rādītāji	Ķermeņa masa (kg)	59.6±5.2 58.6 ±5.2 p<001	57.2±8.8 56.4±8.9 .002	60.7±6.9 60.8±7.1 .659	74.8 ±5.82 73.8 ± 6.18 p=0.03	73.7 ±8.98 76.0 ±7.82 p=0.12	71.3 ±5.24 71.6 ±6.06 0.80	84.3 (14.2) 78.9 (14.1) <0.0001	81.1 (10.5) 79.8 (10.2) <0.0001	77.9 (8.0) 78.3 (8.0)
	ĶMI (kg/m ²)	24.5±1.7 24.0 ±1.8 p = .002	24.0±1.8 23.0±3.1 .257	25.0±2.9 24.9±3.1 .562	27.3 ± 1.54 27.0 ± 1.40 p=0.03	27.8 ±2.93 28.1 ±2.97 p=0.12	27.5 ±3.02 27.6 ±3.41 p=0.74	31.4 (5.04) a 29.4 (5.1) <0.0001	30.9 (3.8) a 30.4 (3.7) <0.0001	1 28.9 (2.2) 29.0 (2.2)
	Ķermeņa tauku (%)	34.2±4.1 34.1±5.9 p<001	31.9±6.2 30.7±5.6 .005	34.7±5.7 34.1±5.9 .104	35.1 ±3.19 32.6 ±2.76 p=0.01	33.8 ±2.76 34.3 ±2.73 p=0.67	33.4 ±2.94 33.6 ±2.97 p=0.58			

NW-Nordik Walking/ nūjošanas grupa, W- Walking/tradicionālās pastaigas (soļošanas) grupa, C-Control Group/ kontroles grupa, WA- Water Aerobic/ ūdens aerobika, Pilat – “Pilates” autora vārdā nosauktā vingrošana

Vienā pētījumā (Song et al., 2013) kopumā tika iesaistītas 67 sievietes. Eksperimentālajā grupā NW n=21, soļošanas grupa (Walking “W” - turpmāk tekstā) n=21, kontroles grupa, kas neveic fiziskās aktivitātes n=25. Sieviešu vecums tika definēts, kā pāri 65 gadiem.

Sievietes piedalījās pētījumā 12 nedēļas, 3 reizes nedēļā, nodarbības ilga 60 minūtes. NW un W nodarbības struktūra: 10 min. izometriskie vingrojumi “warm-up exercise” NW vai W pakāpeniski paaugstinot slodzi treniņa distancē no adaptīvās pirmajā nedēļā līdz aerobai un augstākas intensitātes, kam sekoja 15 min. atsildīšanās vingrojumi “cool – down exercises” dinamiskās muskuļu stiepšanas vingrojumi. Nodarbību norise tika vadīta un kontrolēta intensitāte.

Otrajā pētījumā (Jasiński et al., 2015) kopumā tika iesaistītas 24 sievietes. Sievietes tika sadalītas trijās grupā: NW, ūdens aerobika un kontroles grupa, kas neveic fiziskās aktivitātes. Katrā grupā piedalījās 8 sievietes. Nodarbības ilga 8 nedēļas, vienu stundu divas reizes nedēļā. Uztura paradumi netika mainīti.

Nodarbības vadīja divi fizioterapeiti: NW treneris un NW instruktors. Treneri kontrolēja senioru vispārējo pašsajūtu un ja bija nepieciešamība dažas sievietes tika atbrīvotas no atsevišķu vingrinājumu izpildes. Ūdens aerobikas nodarbības notika divreiz nedēļā, pa 45 minūtēm. Intensitāte vingrinājumos tika definēta kā viegla. Vingrinājumi tika veikti ūdenī temperatūrā no 31° līdz 32° C 1,4 m dziļumā pēc noteiktas aerobikas programmas. Nodarbība sastāv no trijām daļām. Ievads pirms nodarbībām par drošības ievērošanu vingrojot ūdenī, iesildīšanās vingrinājumi, kas ļāva dalībniekiem pierast pie ūdens un tās temperatūras, veica vingrinājumus locītavu sagatavošanai. Galvenajā daļā bija ietverta kardio slodze un vingrinājumi muskuļu stiprināšanas – spēka vingrinājumi. Pēdējā daļa aktīvā atpūta, kas sastāvēja no lēnām ekstremitāšu atslābināšanas kustībām ar elpošanas vingrojumu elementiem.

Trešajā pētījumā (Hagner-Derengowska et al., 2015) piedalījās 196 sievietes ar lieko svaru vai aptaukošanos, post menopauzes vecumā. Pabeidza pētījumu 147 (75%): NW – 69, Pilates (P) - 58 (39%) un 20 kontrolgrupā. Kontroles grupas dalībnieces saglabāja iepriekšējo aktivitāti. Dalībnieču vecums no 50 līdz 75 gadiem.

Nodarbības abās programmās (NW un Pilates) veica trenera vadībā. 10 nedēļas, trīs reizes nedēļā, 60 minūšu ilgas nodarbības. Pirms programmas sākšanas dalībnieki apguva tehniku un tika pārbaudīta viņu meistarība. Iesildīšanās tika organizēta pirms katra treniņa. Katra treniņa beigās tika veikta atsildīšanās, veikti stiepšanās vingrojumi. Vidējais dienas attālums NW treniņu dalībniekiem bija līdz 3,6 km.

Uzlabojās slodzes tolerance; pētījuma procesā vidējais dienas attālums bija palielinājies līdz 4,8 km. Pilates vingrinājumu apmācība tika veikta ar vienādu biežumu un ilgums tieši tāds kā NW nodarbībās. Slodzes intensitāte tika noteikta ar “Polar” sirds ritma monitoringa pulksteni.

Visos trijos analizētajos pētījumos bija veikta pētījuma dalībnieču ķermeņa svara un KMI noteikšana un analīze, pirms un pēc pētījuma.

Rezultāti tiek atspoguļoti tabulā nr.1 un zemāk tiek analizēti būtiskākie uzlabojumi ķermeņa svara, KMI, un ķermeņa tauku % izmaiņām, kas liecina par fizisko aktivitāšu ietekmi uz sieviešu ķermeņa kompozīciju.

Sievietēm NW dalībniecēm (Jasiński et al., 2015) salīdzinot - ķermeņa masa un KMI samazinājās ($p = 0.03$, $p = 0.03$) salīdzinot ar ūdens aerobikas grupu, kurai 8 nedēļu treniņā nebija būtisku izmaiņu šajos rādītājos.

Pētījumā (Hagner-Derengowsk et al., 2015) pēc 10 nedēļām sievietes NW grupā uzrādīja ievērojamu ķermeņa svara samazināšanos un KMI (6,4%) salīdzinājumā ar Pilates grupu, svars samazinājās par (1,7%), KMI (1,7%).

Pētījumā (Song et al., 2013) 12 nedēļu NW rezultātā, salīdzinot ar parasto vai tradicionālo staigāšanu uzlabojās būtiski ($p < 0.001$).

Divos pētījumos (Song et al., 2013) un (Jasiński et al., 2015) ir noteikts ķermeņa tauku % daudzuma izmaiņas (BF). NW grupas salīdzinot ar ūdens aerobikas grupu samazinājās ($p = 0.01$) un salīdzinot ar soļošanas grupu uzlabojās būtiski ($p < 0.001$).

Rakstos (Song et al., 2013 un Hagner-Derengowsk et al., 2015) ir aplūkoti bioķīmiskie rādītāji. Divas reizes tika veiktas asins analīze – pirms pētījumiem un pētījumu beigās.

NW grupai kopējā holesterīna rādītāji ($p < 0.001$), ABL augsta blīvuma holesterīns ($p = 0.005$), ZBL zema blīvuma holesterīna ($p = 224$) rādītāji uzlabojās, salīdzinot ar soļošanas grupu.

Salīdzinot NW ar Pilates grupu. NW grupai glikozes līmenis asinīs (3,8%), kopējais holesterīns (10,4 %), ABL holesterīna līmenis (16,7%, zema blīvuma lipoproteīna holesterīns (12,8%) un triglicerīdi (10,6%), kā arī ABL augsta holesterīna līmeņa palielināšanās (9,6%). Pilates grupā ievērojami mazākas ($p < 0.05$), lai gan joprojām labvēlīgas - izmaiņas glikozes un ABL holesterīna līmenī.

Rezultāti: Divas reizes tika veiktas asins analīze – pirms pētījuma un pētījuma beigās. Pēc 10 nedēļām NW sievietēm tika konstatēta ievērojama svara samazināšanās (6,4%), ķermeņa masas indekss (6,4%), glikozes līmenis asinīs (3,8%), kopējais holesterīns (10,4%), (ABL) holesterīns (16,7%), ZBL “sliktais” (12,8%) un triglicerīdi (10,6%). Lai gan ļoti mazas, bet labvēlīgas.

Diskusija *Discussion*

Nūjošana ir fizisko aktivitāšu veids, kas iegūst aizvien lielāku popularitāti visa pasaulē. Nūjošanu var izmantot gan veselības veicināšanā un saglabāšanā, gan saslimšanu profilaksē un ārstēšanā. Svarīgi motivējošie faktori, kas veicina vēlmi nodarboties ar nūjošanu jebkura vecuma sievietēm, ir atrašanās svaigā gaisā

„dabas sporta zālē”, gūstot prieku, uzlabojot garīgo un fizisko veselību. (Upeniece et al., 2016)

Pētījumu analīze atklāja, ka NW aktivitātes tiek dažādi organizētas, metodikas atšķirība jāņem vērā, interpretējot pētījumos iegūtos rezultātus. Būtisks aspekts ir arī slodzes apjoms, kas neatkarīgi no izvēlētas aktivitātes formas ietekmē veselības rādītāju izmaiņas. Visos trijos pētījumos fiziskās aktivitātes organizēšana un metodika ievērota un pārdomāta, ievēroti treniņu organizēšanas pedagoģiskie principi: dota iespēja dalībniecēm adaptēties slodzei, apgūstot fizisko aktivitāšu tehnikas pamatus, slodze palielināta pakāpeniski, no zemas intensitātes līdz aerobicai un pat dažkārt pārejot uz augstāku intensitātes slodzi. Tas ceļ iegūto rezultātu vērtīgumu un ticamību. Iekļauto pētījumos sievietes vecumā (50-75) fiziskai slodzei jābūt individualizētai, motivējošai, atbilstošai sievietes fiziskajai sagatavotībai, izpildāmai, kā rezultātā pozitīvi ietekmējošai veselību.

Pētījumi apstiprināja ķermeņa kopējā tauku daudzuma samazinājumu, KMI uzlabošanu NW ietekmē, un tā bija pārāka par kontroles grupas rādītājiem un citām fiziskajām aktivitātēm: tradicionālā staigāšana, ūdens aerobika, Pilates un pārāka par kontroles rādītājiem (t.i., NW uzrādīja lielāku pozitīvo efektu par cita veida fiziskajām aktivitātēm). NW popularitāte sekmē augstu indivīdu līdzdalību, kas pamato NW priekšrocības. Gribētos izcelt NW kā pozitīvas aktivitātes ietekmi uz tādiem rādītājiem - ķermeņa kompozīcijas rādītājiem, kas ir būtiska dzīves kvalitātes sastāvdaļa.

Secinājumi **Conclusions**

NW ir efektīvs fizisko aktivitāšu veids, kas salīdzinājumā ar citām fiziskajām aktivitātēm, kā ūdens aerobika, tradicionālā soļošana un Pilates ir efektīvākas, un par to liecina pētījumu rezultāti, un secinājumi sistemātiskajā pārskatā iekļautajos pētījumos.

Augstas kvalitātes pētījumu rezultāti apstiprina, vairāku nedēļu nūjošanas nodarbības ar dozētu fiziskās aktivitātes slodzi, kas tika realizētas, treneru, fizioterapeitu vadībā būtiski samazina ķermeņa kopējo tauku procentu, KMI un citus svarīgus ķermeņa kompozīcijas rādītājus pacientiem ar palielinātu svaru un aptaukošanos.

Visos trijos iekļautajos apskatā augstas kvalitātes pētījumos tika apstiprināts, ka fiziskās aktivitātes, šajā gadījumā aktualizētā NW ir neatņemams pacientu/ klientu ar lieko svaru ārstēšanas un profilakses elements.

Summary

Several research have confirmed the positive effects of physical activities for this particular group of patients. Three of the included works of research (Song et al., 2013; Jasinski et al., 2015; Hagner-Derengowska et al., 2015) had a set research quality in the PEDro database, and it corresponded to high quality (6 points out of 10). All included works of research are randomised controlled works of research. The objective of the research is to summarise proof available in sources about the effectiveness of Nordic Walking (NW) in the improvement of health indicators for patients. Research has shown that NW exercise significantly reduces total body fat and is more effective than other forms of physical activity. The results of the study allow to recommend NW as an effective physical activity for improving and maintaining body composition.

Objective of the research: Collect evidence in the literature on the effectiveness of NW in improving the health performance of women with overweight and compare the effectiveness of NW with other physical activities.

Material and methods. Online databases were used as sources of data collection: EBSCO, SCOPUS. A study was selected based on keywords: body composition, Nordic Walking, physical activity, women and published between 2013 and 2019. Appropriate studies were investigate the effect of NW on the Overweight Women body composition at age 50-75. Overview of study summaries to select studies that meet the inclusion criteria. Selected studies were included in the following summary and analyzed in the light of inclusion criteria developed following the recommendations of PRISMA. Randomized controlled trials were included in which the experimental group used NW according to a refined methodology compared to the control group and the group that performed other physical activities. Studies combining NW with other interventions were excluded. Studies using standardized measures to measure efficacy were included. Studies involving patients or clients with different side-diagnoses were excluded. The quality of the studies was evaluated based on the quality assessment found in the PEDro database.

Conclusions:

NW is an effective type of physical activity that is more effective compared to other physical activities, such as water aerobics, traditional walking and Pilates, as demonstrated by the results of the studies and the conclusions of the studies included in the systematic review.

The results of high-quality studies confirm, several weeks of nuancing lessons with a metered load of physical activity that was realized, under the guidance of coaches, physiotherapists, significantly reduce the body's overall fat percentage, BMI and other important body composition rates in patients with increased weight and obesity.

In all three high-quality studies included, it was confirmed that physical activity, in this case the updated NW, is an integral element of the treatment and prevention of patients/overweight clients.

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HEART RATE RECOVERY CHANGES FOR HIGH CLASS CANOE SPRINT ATHLETES DURING DIFFERENT TRAINING PERIODS

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Abstract. *One of the criteria for exercise intensity in sport science is heart rate. Reduced heart rate in exercise indicates heart's ability to work more effectively. 12 high class flat-water kayakers (Latvian national team members) took part in this study. The main aims of the study were to evaluate the improvements of the heart regeneration rate and the functional condition of the athletes over the time period of 4 years - where all participant repeated a maximum oxygen consumption test on rowing ergometer 43 times (2-6 times per athlete). Heart rate recovery drop was obtained in the first 4 minutes after the maximum oxygen consumption test. For reflection on functional condition, speed on kayak ergometer at lactate concentration in blood values of 1 mmol/l and 3 mmol/l was measured (low-intensity load and submaximal intensity load). Speed on kayak ergometer at a blood lactate value 3 mmol/l show an average increase of 0.96 km/h (By Student's *t* – test for related samples and Wilcoxon's criteria). For heart rate regeneration Wilcoxon's criterion shows an average increase of 0.46%.*

Keywords: *anaerobic threshold, heart rate, heart rate recovery, lactate concentration.*

Introduction

Heart rate is the governing indicator of the development and physical condition of the cardiovascular system. It is easy to determine the heart rate at any given time by reading the pulse on the arteries of the palms. If the heart rate is in the average range (not excessively high) it shows that the heart performs a normal blood-pumping function and ensures oxygen transportation to the cells. In sports practice, heart rate is widely used as an evaluation criterion for load intensity (Karvonen & Vuorimma, 1988; Iwasaki, Zhang, Zuckerman, & Levine 2003; Banister & Calvert, 1980; Bourdon et al., 2017).

The heart rate reflects the amount of the work heart needs to do during the exercise and in a steady state. Furthermore, it can indicate disorders in the body's regulatory system if the heart rate is increased or with an uneven rhythm.

With the development of technologies, various heart rate receivers (sport watches, straps, bracelets, etc.) have become more popular (Laukkanen & Virtanen, 1998; Nims, Capozzi, Hailey, & Crankson, 2018). Therefore, the intensity and heart rate during the exercise usually is measured by these devices. The data obtained can be saved and analysed for a proper adaption of the training loads and recovery.

Literature review

In the last decades several studies have been conducted (Carter, Banister, & Blaber, 2003; Yamamoto, Myachi, Saitoh, Yoshioka, & Onodera, 2001; Greiwe et al., 1999; Smith, Hudson, Graitzer, & Raven, 1989; Amano, Kanda, UE, & Moritani, 2001; Lambert, & Borresen, 2010) about the heart rate and the impacts of endurance training on that. It is essential to study this phenomenon more extendedly in high class athletes.

The studies performed by (Wilmore et al., 1996) shows that after a 6-month period of moderate endurance training heart rate is reduced by 10–30 beats per minute. With higher intensity endurance training, heart rate drops even more. Since the heart rate regeneration period becomes shorter as a result of endurance training, it is considered being a cardiovascular conditioner. Therefore, after standardized exercise, a physically advanced person recovers faster than a physically weaker person (Seiler, Haugen, & Kuffel, 2007). However, not only does physical capability affect heart rate recovery. Exercise at elevated temperatures or high above the sea level may prolong the heart rate recovery period (Lambert, Mbambo, & Gibson, 1998). Also, the duration of the recovery may be affected by a stronger sympathetic nervous system reaction (Shin, Minamitani, Onishi, Yamazaki, & Lee, 1995a, 1995b; Dixon, Kamath, McCartney, & Fallen, 1992; Kannankeril, Le, Kadish, & Goldberger, 2004).

The reduced heart rate under loads indicates the heart's ability to work more effectively as a result of the training. To perform the necessary functions, a trained heart will do much less work than an untrained heart. Studies by (Borg & Linderholm, 1967; Skinner, 1973; Stamford, 1976; Eston & Williams, 1986) confirm that there is a linear relationship between heart rate and load intensity.

Sports researcher Platonov (2004) analysed high class athletes. This study concluded that training load has different effects on the heart rate recovery of athletes depending on physical condition. For athletes with higher physical condition, the training load does not cause significant changes in the body, but for athletes with weaker physical conditions on the contrary. Moreover, the recovery process after peak load is faster for higher class athletes.

It is important to view high-class athlete's heart rate regeneration performance for the purpose to improve an athlete's health and optimisation of the training processes.

Outline

In the present paper, the data obtained of the heart rate regeneration after maximal oxygen consumption load tests and functional condition assessment (by power/speed demonstrated on ergometer) of professional flat-water kayakers are presented. The aims of the study were to evaluate the improvements of the heart regeneration rate and the functional condition of the athletes over the time period of 4 years. To determine heart rate regeneration and functional condition improvements of the athletes, speed on ergometer was determined on the lactate concentration in the blood (3 *mmol/l*). Moreover, to evaluate the heart rate recovery changes over the time period the mathematical statistics such as the Wilcoxon criterion and T-test were used.

Methodology

The test subjects were 12 professional (high class) flat-water kayakers. The duration of the study was 4 years, where all participant repeated a maximum oxygen consumption test on rowing ergometer 43 times (2-6 times per athlete). All tests were performed in the Latvian Olympic Laboratory (LOV). The data was collected from different measuring tools, such as ergometry, heart rate monitoring, and blood lactate measurements during the test phases. The physical condition of the test subject in each test was different and depended on training cycles. The results of the study were processed with the **RStudio** application – an integrated development environment (IDE) for R (programming language), a programming language for statistical computing and graphics. The following values were obtained: average arithmetic, standard deviation, variation coefficient, standard error, an average increase, an empirical value of the student's T-test, T-theoretical value for mutual distribution, T-theoretical value for one-sided distribution.

Maximum oxygen consumption test

The maximum oxygen consumption test was performed on a kayak ergometer “Dansprint” (Dansprint.com, n. d.). This type of kayak ergometer provides the closest possible sense of the paddling in the water. The ergometer can simulate speed up to 18 km/h. Furthermore, it measures breaking load on the

flywheel and accumulates kinetic energy, thereby determining the athlete's workload.

The heart rate was determined with the company's Polar RS 800 heart rate monitor (Support. polar.com, n. d.) and electrocardiogram. The pulse meter strap was used to verify data from electrocardiogram measurements.

The lactate levels in the blood were measured with a BiosenC (HaB Direct, n. d.) line equipment. This type of apparatus measures both glucose and lactate levels in the blood. BiosenC apparatus is based on a special chip sensor technology and provides fast and high precision measurements. The measurements of the blood lactate levels take up to 25 seconds and only 20 μ l of the blood is required for the measurement.

The tests begin with the anthropometric measurements and weighting of the athletes. The resting heart rate, blood pressure, respiratory test and lung volume measurements were performed. Before the maximum oxygen consumption tests the athletes performs cardiopulmonary stress test (abbr. CST). (no data or results from CST are discussed in this paper). The CST duration is up to 7 minutes. The heart rate, blood pressure and lactate concentration in the blood are measured. After the CST is a 5 minute recovery, resting period. Subsequently, athlete goes to kayak ergometer and paddles up to the anaerobic threshold (the test is interrupted after a rapid rise of lactate concentration in the blood and oxygen consumption). Then follows a 5-minute resting period. At the end of the 5-minute recovery period, the test continues with 8 intervals (see Table 1).

Table 1 Description of intervals

<i>Interval number</i>	<i>Duration time, (sec)</i>	<i>Rest time, (sec)</i>	<i>Speed, (km/h)</i>
1.	40		11.5
		20	
2.	40		12.0
		20	
3.	40		12.5
		20	
4.	40		13.0
		80	
5.	40		13.0
		20	
6.	40		13.5
		20	
7.	40		14.0
		20	
8.	200 m		max with time control

The blood pressure, lactate levels and heart rate are measured at every minute. After intervals athletes have a 5-minute recovery period, followed with a 20-minute cool down, or more, if needed. Every 5 minutes the blood lactate is measured to control recovery of the athletes.

Heart rate recovery changes were determined in the first 4 minutes after the maximum oxygen consumption test. The data of the maximum heart rate, heart rate on the 1st recovery minute, heart rate on the 2nd recovery minute, heart rate on the 3rd recovery minute and heart rate on the 4th recovery minute were collected. Every minute heart rate drops, and total heart rate drops were determined for all athletes and analysed.

To determine the improvement of the functional condition of athletes the heart rate and speed values were collected at the fixed levels of test loads (governed by blood pressure and lactate concentration in blood). Speed on kayak ergometer at lactate concentration in blood values of 1 *mmol/l* and 3 *mmol/l* was fixed (low-intensity load and submaximal intensity load). Furthermore, to evaluate functional condition of the speed on the kayak ergometer was measured at lactate concentration of 3 *mmol/l*. In practice, there are lots of opinions between sports researchers. Kindermann, Simon, & Keul (1979) made a conclusion that high impact on endurance can be gained by training in the range of 2 *mmol/l* lactate. Range from 2 to 4 *mmol/l* lactate are considered the aerobic – anaerobic transition range. 4 *mmol/l* lactate – the anaerobic threshold (Baldari & Guidetti, 2000). The concept of the aerobic-anaerobic transition as a framework was used for performance diagnosis and training prescription in endurance sports (Faude, Kindermann, & Meyer, 2009). Since 1979, this framework has been adopted, applied and refined by several researchers (Skinner & Mclelan, 1980; Stegmann & Kindermann, 1982; Faria, Parker, & Faria, 2005; Jones 2006; Mann, Lamberts, & Lambert, 2013). Since 3 *mmol/l* lactate for most individuals are considered as mixed aerobic – anaerobic transition range it was confided as a suitable value to measure athletes progress.

Results

The results of the study are presented in two parts: heart rate recovery changes and functional condition of the athletes. The data from measurements is analysed with descriptive statistics.

Heart rate recovery changes

The data of 43 tests is presented in Figure 1. Figure 1 shows heart rate recovery changes for every athlete in the studies.

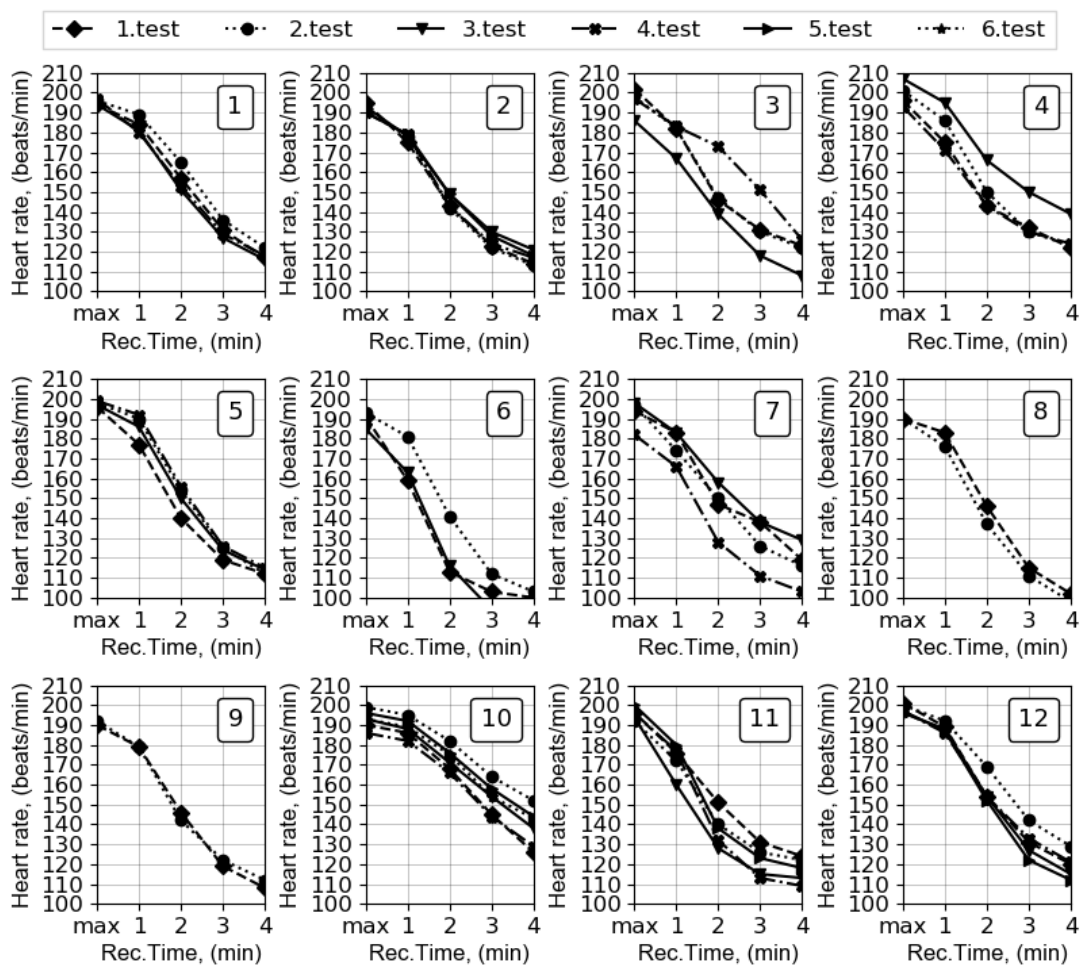


Figure 1 Heart rate recovery changes for every athlete in the studies

(1) 1st athlete, (2) 2nd athlete, (3) 3rd athlete, (4) 4th athlete, (5) 5th athlete, (6) 6th athlete, (7) 7th athlete, (8) 8th athlete, (9) 9th athlete, (10) 10th athlete, (11) 11th athlete, (12) 12th athlete

The data in Figure 1 shows that the maximal heart rate for every test subject is in the range from 189 to 200 *beats/min*, except for the 4th athlete in test 3 the maximal heart rate was 207 *beats/min*. The changes in reaching the maximal heart rate for each test subject are in limits +/- 4 percent between performed tests. Furthermore, all test subjects reached similar maximal heart rate readings. The heart rate frequency curve after the load for all test subjects are similar and the slopes steepness is non-linear.

In order to examine heart rate recovery, drop more details, the data of heart rate decrease in each minute were collected (see Figure 2). From the maximum HR value till 1st minute, from 1st minute to 2nd minute, from 2nd to 3rd minute and from 3rd to 4th minute. The total HR drop was also calculated – total decrease in *beats/min* from maximum HR till HR of the 4th recovery minute.

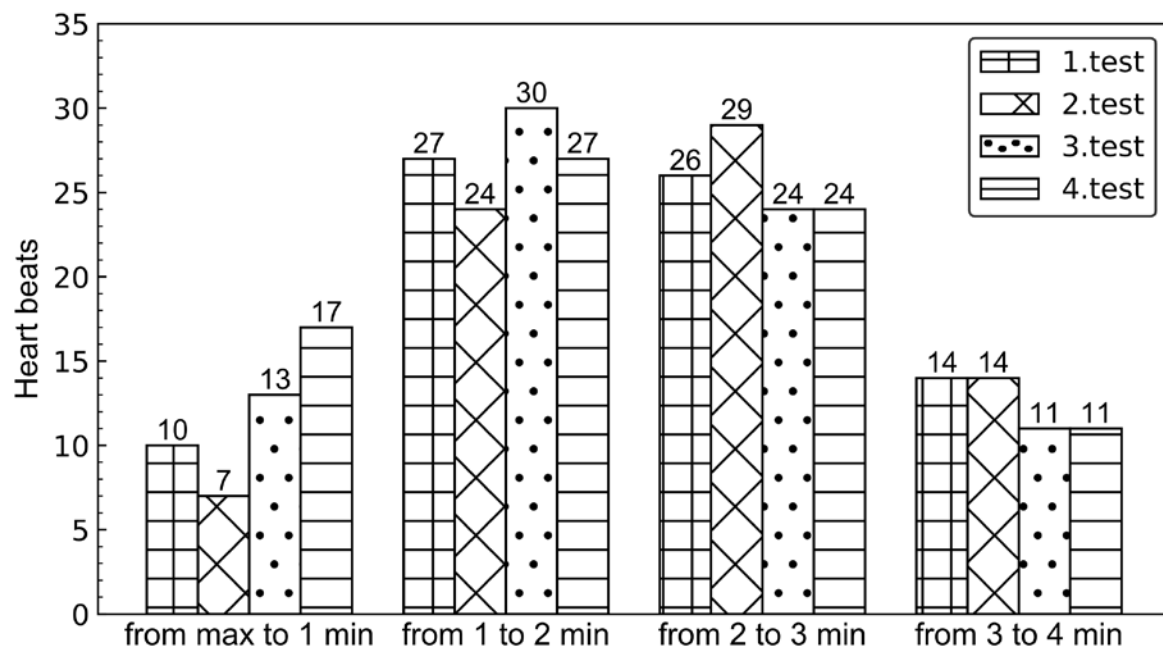


Figure 2 1st athlete's heart rate drops in every minute

Figure 2 shows the data of the 1st athlete's heart rate drops in every minute through four tests. The drops of the heart rate do not increase from test to test, but it fluctuates in a specific interval for every recovery minute. The first and fourth recovery minutes give the lowest heart rate drops, and they are in limits from 7 to 17 *beats/min*. Moreover, the second and third minutes give the highest heart rate drops from 24 to 30 *beats/min*. The heart rate drops in second and third minutes is almost twice as high as in the first and fourth minutes. As it can be seen, the third test in which the athlete made the highest speed on kayak ergometer at lactate 3 mmol/l not stand out among the rest of the tests performed.

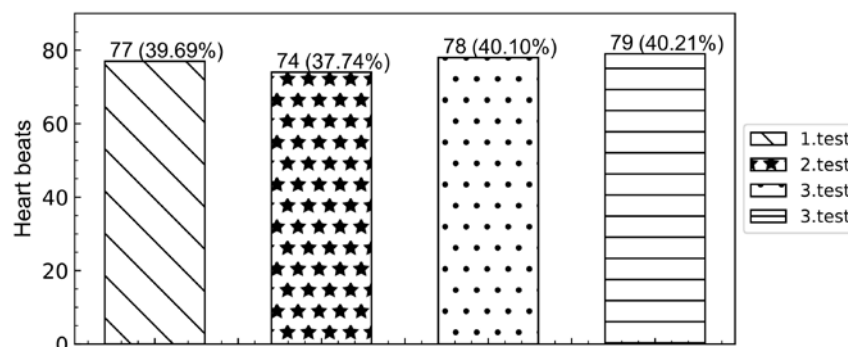


Figure 3 1st athlete's total heart rate drop

Figure 3 shows data for total heart rate drops for the 1st athlete. Heart rate drop in all four tests is in limits from 74 to 79 *beats/min*; the average total drop is

77 beats/min. The difference in the lowest total heart rate drop (2nd test) and the highest heart rate drop (4th test) converting into percentages is 2.47 percent (see Figure 3). All other test subjects showed similar results with a maximal heart rate drop of the 6th athlete in a 3rd test with 93 beats/min. Moreover, the lowest maximal heart rate drop was for the 10th athlete in a 2nd test with 47 beats/min.

The overall percentage drop from the maximum HR until recovery in the 4th minute has a non-linear trend. The highest HR drop is in the 4th test with a 40.21 percent. On other hand, in the 2nd test, when athlete showed the highest speed measurements on the kayak ergometer at lactate 3 mmol/l, the overall percentage drop was 2.05% lower than in the 1st test. Therefore, non-linear increase in a total drop is observed.

Functional condition

The functional condition (athletes speed on kayak ergometer) varies depending on the tests. The data of the highest speed and the lowest speed for all twelve athletes at a blood lactate 3 mmol/l are presented in Figure 4. The lactate value of 3 mmol/l was chosen as a close range to anaerobic threshold (Faria, Parker, & Faria, 2005; Jones 2006; Mann, Lamberts, & Lambert, 2013).

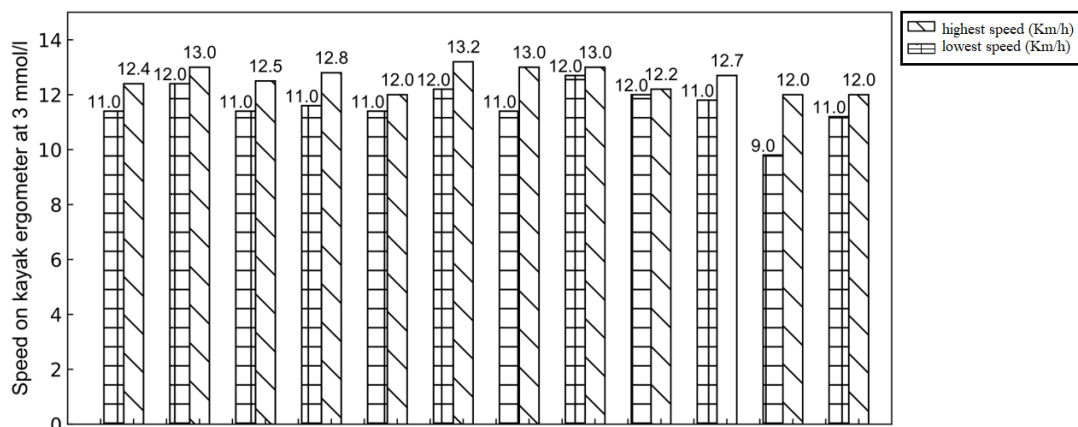


Figure 4 Athletes functional condition (reflected as speed on kayak ergometer on blood lactate value 3 mmol/l)

The worst and the best speed on the kayak ergometer for each athlete are shown in Figure 4. The lowest speed from all 43 tests is demonstrated by 11th athlete – 9.8 km/h. Moreover, this speed value is lower by 1.4 km/h from the second lowest speed value. The highest speed on the kayak ergometer is demonstrated by the 6th athlete – 13.2 km/h. All speed values from the best and the worst vary in limits from 0.2 km/h to 2.2 km/h.

The analysis of the test groups descriptive statistics (see Table 2) shows a variation coefficient value for the highest functional condition of 3.5% and for the

lowest 6.3%, thus the group is considered uniform. The speed rate increase on kayak ergometer at a blood lactate 3mmol/l, varies according the law of a normal distribution.

Table 2 Descriptive statistics of functional condition

	<i>Lowest functional condition</i>	<i>Highest functional condition</i>
<i>Average arithmetic</i>	11.6	12.6
<i>Standard deviation</i>	0.7	0.4
<i>Variation coefficient</i>	6.3%	3.5%
<i>Confidence interval (error probability < 0,05)</i>	11.1 – 12.1	12.3 – 12.8
<i>Asymmetry indicator</i>	-1.077	-0.108
<i>Asymmetry t-test (t < 3)</i>	1.690	0.170
<i>Excess t-test (t < 3)</i>	2.237	1.302
<i>Compliance with a normal distribution</i>	yes	yes

Since there is compliance with a normal distribution further analysis is possible. The use of Student’s t – test for related samples and Wilcoxon’s criteria show an average increase of 0.96 km/h (see table 3). Both criteria confirm that the increase in value is credible. $t \geq t_{\alpha;v}$

Table 3 Analysis of Functional Changes by Wilcoxon’s Criterion

	<i>Lowest functional condition</i>	<i>Best functional condition</i>
<i>Average arithmetic</i>	11.61	12.57
<i>Standard deviation</i>	0.74	0.44
<i>Variation coefficient</i>	6.3%	3.5%
<i>Average increase</i>	0.96	
<i>Changes are reliable</i>		
<i>Error probability < 0.05</i>		

For statistical analyses (see table 4) athlete’s heart rate drops from values of beats per minute (bpm) were converted in percentage values. To create descriptive statistics athlete’s heart rate drops were compared (heart rate drops in the worst test versus the best).

In Table 4, can be seen athlete’s total heart rate drop as a percentage (compared with each athlete’s worst and best test times). The total heart rate percentage drop improved only in 5 cases from 12. Despite demonstrating higher speed on kayak ergometer on blood lactate values 3mmol/l, 7 cases from 12

showed a decrease in the total heart rate drop percentage values for athlete's (a - 4,75% for 7th athlete).

Table 4 Percentage drop of heart rate

Athlete	Heart rate drop (%) in the lowest functional test	Heart rate drop (%) in the best functional test
1 st athlete	39.69	40.21
2 nd athlete	41.54	37.31
3 rd athlete	39.11	36.04
4 th athlete	37.76	35.75
5 th athlete	42.86	42.21
6 th athlete	46.63	50.27
7 th athlete	43.41	38.66
8 th athlete	48.42	46.32
9 th athlete	43.16	41.67
10 th athlete	23.62	30.65
11 th athlete	36.73	41.75
12 th athlete	35.50	43.15

The highest heart rate drop is observed for 6th athlete – 50.27% and the lowest heart rate drop for 10th athlete – 23.62%. In two cases, the total heart rate improved more than 7%. These cases were for the 10th athlete and for the 12th athlete with 7.03% and 7.65 improvement, respectively.

Descriptive statistics determined that the coefficients of variation are 16.1% and 12.8%, respectively (see table 5).

Table 5 Descriptive statistics of heart rate percentage drop

	At the worst test	At the best test
Average arithmetic	39.87	40.33
Standard deviation	6.41	5.18
Variation coefficient	16.1%	12.8%
Asymmetry indicator	-1.395	0.090
Excess indicator	3.247	0.520
Asymmetry t-test ($t < 3$)	2.190	0.142
Excess t-test ($t < 3$)	2.635	0.422
Compliance with a normal distribution	yes	yes

As coefficient of variation > 10% and the group is not uniform. This can be explained by the individual indicators of each athlete – every individual has specifically his own individual indicators (Bangsbo, Mohr, Poulsen, Perez-Gomez, & Krustup, 2006; Shlyk, 2016). Average arithmetic heart rate drops in lowest test (when athletes demonstrated the lowest speed on kayak ergometer at

a blood lactate value 3mmol/l) was 39.87% and at the best test 40.33%. The increase between average arithmetic heart rate drops is 0.46%. Descriptive statistics show that the trait to be studied, in this case, the total heart rate drop (%), varies according to the law of a normal distribution. Therefore, the Wilcoxon's criterion may be used to check the credibility of the difference (see table 6).

Table 6 Analysis of heart rate drop by Wilkinson's criterion

	<i>Lowest functional condition</i>	<i>Highest functional condition</i>
<i>Average arithmetic</i>	39.87	40.33
<i>Standard deviation</i>	6.41	5.18
<i>Variation coefficient</i>	16.1%	12.8%
<i>Standard error</i>	1.85	1.49
<i>Average increase</i>	0.46	
<i>Changes are unreliable</i>		

Wilcoxon's criterion shows an average increase of 0.46%, but changes are not reliable $T > T_{\alpha;v}$. The criterion indicates that sample differences are random.

Discussion

According to studies by (Wilmore et al., 1996) the effects of endurance training is beneficial for athletes, because the heart rate curve adapts, and its values are on a lower level. Reduction of the heart rate indicates that the heart works more efficiently as a result of training. To perform the necessary functions under the loads, a more developed, trained heart will do much less work than an untrained heart. Studies (Borg & Linderholm, 1967; Skinner, 1973; Stamford, 1976; Eston & Williams, 1986) confirm that there is a linear relationship between heart rate and load intensity.

The heart rate recovery in presented study shows different results comparing with Platonov (2004), where heart rate recovery rates of high-class freestyle wrestler were showed during different training periods, with changes in heart rate recovery curve.

This study was performed on professional male athletes (canoe sprint athletes). In this sport, extremely high endurance capabilities are combined with high strength. As for freestyle wrestling, it is more strength and power-oriented sport. The results of the study reflect heart rate recovery peculiarities in cyclic endurance sport. The main results showed, when the athletes get to a certain level of physical condition of their recovery rates in different training periods do not change significantly. Research shows that heart rate recovery after maximum

oxygen consumption test for research subjects (kayakers) does not change significantly (even in different training periods and functional conditions).

Conclusions

In this paper, the heart rate recovery and functional condition of the professional canoe sprint athlete after maximum oxygen consumption test were studied. The heart rate recovery was measured in one-minute time periods up to four minutes after maximum oxygen consumption tests. In total, 43 tests were performed. Moreover, the functional condition was determined as a maximal speed on kayak ergometer at a blood lactate 3 *mmol/l*. The differences between the worst and the best performance for each athlete were compared and analysed. The following main conclusions are drawn:

- The total heart rate drop (decline) for athletes after maximum oxygen consumption test, comparing to the highest and the lowest functional condition (demonstrated speed on kayak ergometer at a blood lactate 3 *mmol/l*), increased in 41.7% cases.
- Wilcoxon criterion indicates that the heart rate parameters (heart rate, total percentage drop) for athletes after maximum oxygen consumption tests that show improvement in an aspect of physical condition (demonstrated speed on kayak ergometer at a blood lactate 3 *mmol/l*) changed (increased) by 0.46%. However, the criterion indicates that the sample, in this case the heart rate drop (in percentage) differences are not reliable.
- The differences between the worst and the best performance of the tests for every athlete is different, values vary from 0.2 to 2.2 *km/h*. Converting these values to 1 km race the total decrease in time would be from 8 to 75 *sec*.
- Student t-test for related selections and after Wilcoxon's criterion athletes show an increase in speed on kayak ergometer at a blood lactate concentrations 3 *mmol/l*. By comparing the worst test with the best, it can be seen an average increase of 0.96 *km/h*. Average growth in the speed is considered being reliable and the group status of a fundamental change.

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SIGNIFICANCE OF INTENSITY OF SWEDISH MASSAGE COURSE IN IMPROVEMENT OF HEALTH STATUS

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Abstract. *The aim of the study is to compare the immediate and cumulative effects of Swedish massage on the physiological, emotional, and biochemical factors of healthy individuals, as well as the sustainability of the effects depending on the intensity of the course. The study subjects were 30 healthy young women. The subjects were randomly assigned into two groups. Subjects got in total ten Swedish back massages: twice and once a week. At the research the complete blood count was performed, salivary cortisol level, total antioxidant capacity were checked with the resources of laboratory "E. Gulbja Laboratorija" (www.egl.lv) Emotions were tested by using the FaceReader 6.0™. Body composition analysis was performed by using Tanita SC 330, blood pressure and heart rate were also measured (Omron M7-IT). The collected data was analyzed by using methods of mathematical statistics. Regression testing was performed by using the Fisher criterion. Analysis of the obtained data allows us to observe positive trends in Swedish massage to the improvement of health status. Differences in some summary results of massage effects were identified.*

Keywords: *course intensity, healthy individuals, health status, Swedish massage.*

Introduction

Massage therapy is a purposeful, widely recognized medical technology, which applies dosed mechanical influence to the soft tissues of the human body - skin, tendons, ligaments, fascia, and muscles (Fritz, 2014). The effect produced by massage in the human's organism is a complicated physiological process, which involves numerous systems and organs, but the leading role belongs to the nervous system (Fritz, 2014; Moraska, Pollini, Boulanger, Brooks, & Teitlebaum, 2010).

Despite the growing popularity of massage, most of the published research materials have very cautiously formulated conclusions: massage may reduce pain, stress, symptoms of depression and insomnia, it can improve certain parameters

of immunity. There isn't much research that has addressed the issue of how massage helps, i.e. it's mechanisms of action, instead of whether it helps. Research on the immediate effects of massage and the effects of repeated influence of massage on the body is lacking and the significance of the “dosage” of influence (interval between sessions) is a completely new research direction (Moyer, Rounds, & Hannum, 2004).

The aim of the study is to compare the immediate and cumulative effects of Swedish massage on the physiological, emotional, and biochemical factors of healthy individuals, as well as the sustainability of the effects depending on the intensity of the course.

Literature review

In the most of researches, massage is done twice a week (Fielda, 2016). According to the results of Fateme, Mojtaba, & Hojatollah research, it is recommended that massage, as a valuable non-invasive method, is used for nurses in intensive care units to reduce their stress, promote mental health and prevent the decrease in quality of nursing work life. Swedish massage was performed on participants of the experimental group for 25 min in each session, twice a week for four weeks (Fateme, Mojtaba, & Hojatollah, 2015).

The findings of another research indicate that massage therapy enhances positive well-being and reduces stress perception among community-dwelling older adults. Participants (n=54) got 50 min massage or guided relaxation sessions twice weekly for four weeks. The massage included Swedish, neuromuscular and myofascial techniques (Sharpe, Williams, Granner, & Hussey, 2007).

The effect of a single Swedish massage session (45 min) on the oxytocin level of a healthy adult, hypothalamic–pituitary–adrenal activity and improvement in immunity was researched at the University of Atlanta in 2009. The study did not confirm a significant increase in oxytocin levels, but a minor decrease in cortisol level was observed and the overall conclusion was made that a single massage session cannot significantly reduce the factors that characterize stress (Rapaport, Schettler, & Breese, 2010). Therefore, the researchers at the University of Atlanta conducted another study in 2011, where the effect of a 5-week massage course (once or twice a week), where the factors characterizing stress and immunity of a healthy adult were researched. The researchers concluded that the cumulative effect of massage may differ, depending on the intensity of massage sessions, as well as stated that further research is required (Rapaport, Schettler, & Breese, 2012).

Cortisol has been indicated as a stress characterizing factor in several studies on the effect of massage (Bunker et al., 2003; Dickerson & Kemeny, 2004; Field, Hernandez-Reif, Diego, Schanberg, & Kuhn, 2005). For example, Field, et al.

(1996), twenty-six adults got a chair massage and 24 control group adults were asked to relax in the massage chair for 15 minutes, two times per week for five weeks. Group by repeated measures and post hoc analyses revealed the following: 1) frontal *delta* power increased for both groups, suggesting relaxation; 2) the massage group showed decreased frontal *alpha* and *beta* power (suggesting enhanced alertness); while the control group showed increased *alpha* and *beta* power; 3) the massage group showed increased speed and accuracy on math computations while the control group did not change; 4) anxiety levels were lower following the massage, but not the control sessions, although mood state was less depressed following both - the massage and control sessions; 5) salivary cortisol levels after the massage were lower only for one day, but not after the control sessions; 6) at the end of the five-week period depression scores were lower for both groups, but job stress score were lower only for the massage group (Field et al., 1996).

Seven weeks course massage therapy consisted of a 20 min massage therapy session offered daily to patients (a young adult psychiatric inpatient) during the period of hospitalization. There was a significant reduction in self-reported anxiety ($p < 0.001$), resting heart rate ($p < 0.05$) and cortisol levels ($p < 0.05$) immediately following the initial and final massage therapy sessions (Garner et al., 2008).

Two similar design studies in Givi (2013) and Moeini, Givi, Ghasempour, & Sadeghi (2011) shows the effects of massage on blood pressure (BP). It was performed on women with pre-hypertension. The study consisted of two groups - test group (25 patients) getting 10 sessions of Swedish massage (10-15 min) three times a week, and the control group (25 patients), which was offered a relaxation in the same environment without getting any massage. The results indicated that mean systolic and diastolic blood pressure in the massage group was significantly lower in comparison with the control group ($p < 0.001$). Evaluation of durability of the massage effects on BP also indicated, that even 72 hours after finishing the study there was still a significant difference between the test and control groups in systolic and diastolic BP ($p < 0.001$). Findings of the study indicated that massage therapy was a safe, effective, applicable and cost-effective intervention in controlling BP of the pre-hypertension women and it can be used in the health care centers and even at home (Givi, 2013; Moeini, Givi, Ghasempour, & Sadeghi, 2011).

A study conducted in Japan included 12 elderly people requiring long-term care, who were randomly divided into two groups (A and B). Group A got hand massage and group B got foot massage -for 15 min each. After one week, group A got foot massage and group B got hand massage - for 15 min each. Results showed that the degree to which participants felt pleasant, relaxed and refreshed was high after both kinds of massage. This study suggests that hand and foot

massage modulate psychological factors in elderly people requiring long-term care and can be used more regularly to support the well-being of elderly people (Nakano et al., 2019).

In general, the findings of studies carried out so far have shown that massage effectively improves health and well-being, both in virtually healthy subjects and in people with different diseases. Massage has been performed twice a week in most of studies. The effect of massage on different health parameters has been demonstrated, but did not find any studies of the immediate and cumulative effects of massage and the residual effects of course exposure depending on the intensity of the massage course.

Methodology

This was a 5 and 10 weeks randomized open-type comparative study that compared the immediate and cumulative effects of Swedish massage to the physiological, emotional and biochemical factors of healthy individuals, as well as the sustainability of massage impact depending on the intensity of the course.

The study was conducted the Red Cross Medical College of Riga Stradiņš University (hereinafter – RSU RCMC) scientific activities development project “The importance of classical massage course intensity in improving health status” No 1.), which took place in the for ten months in accordance with generally accepted standards of good scientific practice and ethical principles provided by the Helsinki Declaration. The protocol was reviewed and approved RSU RCMC ethical committee. Before being included in the study, each participant signed the informed consent to participate in the study.

The main inclusion criteria of the study participants were: a physically and psychologically healthy person aged 18 to 35 who did not smoke, has not taken within the last six months more than a glass of wine or its equivalent (another alcohol) per day, has not used drugs, has not worked night shifts, denied pregnancy, failed to follow a special diet, the body mass index (BMI) was within the normal range of 18.5 to 24.9 and the results of a full blood test were consistent with the generally accepted normal values of a healthy person.

The main exclusion criteria were:

- serious medical problems with recent history of medical interventions;
- participant prepares to follow some health-affecting program during the study;
- risk of not completing the study (it was previously known that participant will not be able to attend all massage and test sessions).

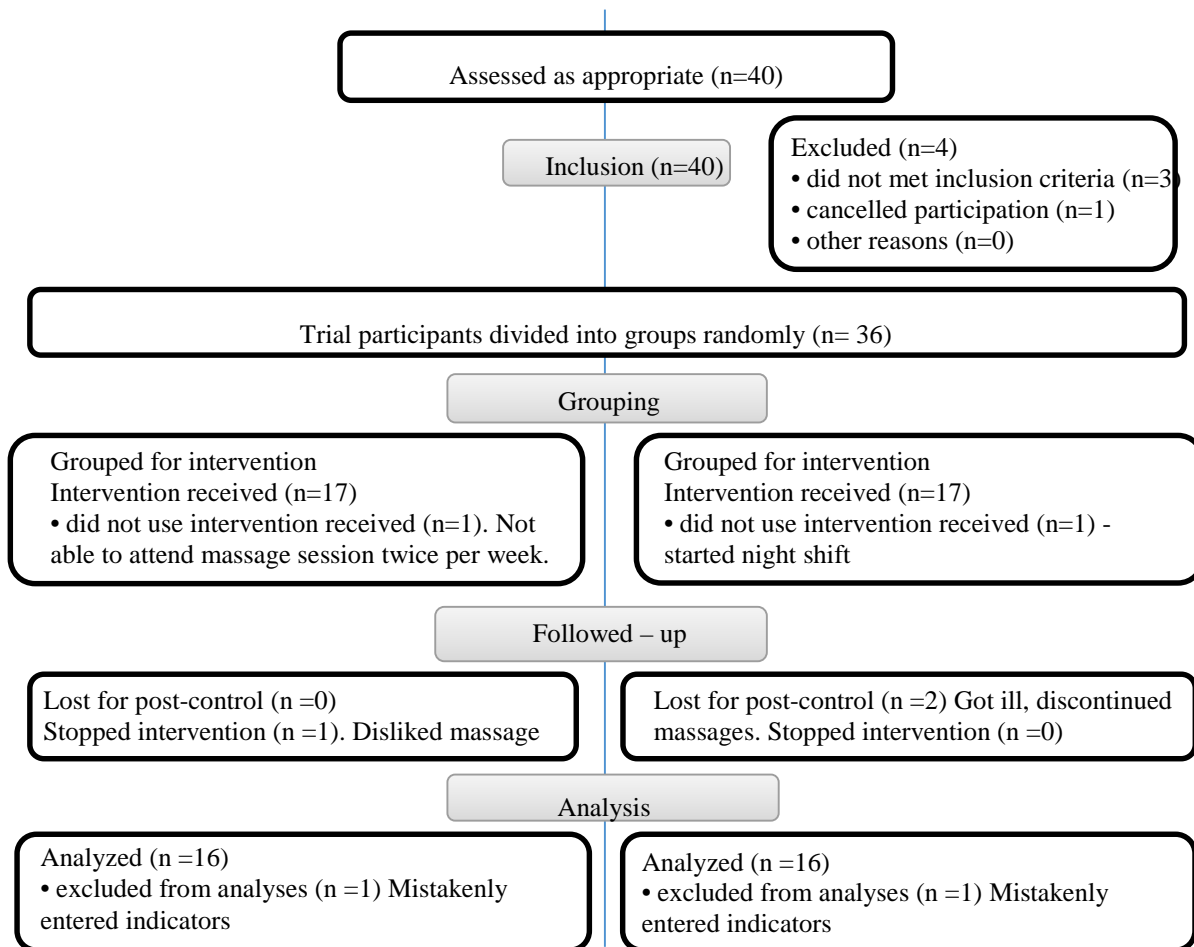


Figure 1 Study Flow Scheme

Following the first anthropometric and laboratory assessments, the participants were divided into groups (randomly) using the drawing lots (Figure 1). Group A members were massaged twice a week, i.e., they had a five-week course, while group B members were massaged once a week and had a 10-week course.

Methods. The weight was determined using professionally calibrated scales and the analyser Tanita SC 330 (N 11030184 TANITA 545 N 510426) to the nearest 100 g. The participants were wearing lightweight clothing, no shoes.

The clinical blood test was conducted to assess the actual health status of the study participants: (Hb, WBC, RBC, HT, PLT) + WBC differential + ESR (capillary photometry method). The results of the analysis showed the results of the patient's blood composition and generally recognized reference ranges for the healthy person.

Full blood counts were detected, cortisol levels in saliva and total antioxidant capacity measured at the beginning of the study, after the fifth massage, after the last massage and two weeks after the last massage. The levels of cortisol in the

blood vary depending on stress and correlate with the levels of cortisol in saliva (Kirschbaum & Hellhammer, 1994).

Photometric method was used for the determination of cortisol in saliva. Cortisol has a diurnal rhythm: under normal conditions the level of cortisol increases 1–2 hours before waking up and reduces during the day until it reaches the minimum at midnight. Laboratory “E. Gulbja Laboratorija” has determined the following reference ranges of salivary cortisol: from 2.30 p.m. – 3.30 p.m. <11.9 nmol/L. Samples were taken at 3.00 p.m. – 3.30 p.m. The total amount of antioxidants was determined by the photometric method in heparinized blood plasma. In normal, antioxidant levels in a healthy person range from 1.3 to 1.77 nmol/L. All tests were carried out in an accredited laboratory, which performed testing in accordance with the international standard (LVS EN ISO 15189: 2008).

Before and after each massage session the study participants were filmed, all video - analysed, using the *FaceReader 6.0*™ software to perform an analysis of their emotional condition and define which of the six basic feelings (happy, angry, sad, surprised, frightened, disgust or neutral) prevail (Ekman & Cordaro, 2011). In the study *FaceReader 6.0* was used to test well-being by measuring the levels of positive and negative feelings. Video analysis and results` mathematical statistics were performed *Noldus Information Technology BV (Netherlands), www.noldus.com*.

The study analysed BP parameters, particularly changes in systolic and diastolic pressure, and their progression to normal intervals. BP measurements were performed before each massage using the automatic BP measurement apparatus Omron M7 – IT. A remeasurement on the same arm was performed after the massage.

Back massage was performed in accordance with the following principles:

- positioning of the customer according to his individual needs before starting a massage;
- massage duration - 25 minutes;
- massage is performed for the back part from C7 to S5;
- massage is performed using the following sequence of techniques: gliding, rubbing, kneading and vibration.

Statistical analysis was performed using the statistical software package SPSS 17.0 for Windows. Data were expressed as mean and standard deviation. The differences in the distribution of qualitative variables were assessed by the Chi-square test. The difference considered to be significant when $p < 0.05$. Regression testing was performed by using the Fisher criterion.

Research results

The results of the study showed no significant differences between the two groups ($p < 0.01$) (Table 1). Repeated analysis of total blood scenes and body composition allowed an assessment of the effects of the procedure. The analyses were conducted four times during the study. The results showed that the subjects were generally healthy, and therefore the results were not analysed.

Table 1 Descriptive statistics of the anthropometry of the A group and B group

			Mann-Whitney test for $p=0.01$ and $n=15$	
Parameters	A group	B group	U	U_{krit}
Age (years)	25.0±5.3	23.7±5.3	86	51
Weight (kg)	63.5±9.0	65.2±7.6	79	51
Height (m)	170.7±6.6	169.5±8.4	87	51
BMI (kg/m ²)	21.7±2.2	22.6±1.2	84	51
BMI=body mass index. Values are expressed as mean ± standart deviation $n=15$				

Before intervention both groups were almost similar in regard to total antioxidant capacity, salivary cortisol level and BP levels, with the exception, that the salivary cortisol level was slightly higher for group A; in any case - all rates were within normal limits and all differences between both groups were statistically insignificant ($p > 0.05$) (Table 2).

Table 2 Descriptive statistics of the Cumulative Change of the A group and B group

			Before massage course	After the 5th massage session	After the 10th massage session	Two weeks after massage course
Total antioxidant	A	Mean	1.58	1.37	1.61	1.63
		SD	0.13	0.13	0.13	0.12
	B	Mean	1.59	1.56	1.76	1.63
		SD	0.09	0.13	0.05	0.08
Salivary cortisol	A	Mean	16.07	11	14.8	14.27
		SD	10.5	4	6.53	5.46
	B	Mean	13.57	10.21	10	15.21
		SD	5.73	2.75	3.4	5.67
Systolic BP (mmHg)	A	Mean	120.27	117.73	119.8	121.27
		SD	5.56	6.5	5.09	7.1
	B	Mean	119.27	116.87	116.6	117.93
		SD	7.74	6.82	6.81	7.53
Diastolic BP (mmHg)	A	Mean	73.47	71.33	72.47	73.07
		SD	4.91	5.02	4.03	6.1
	B	Mean	72.8	69.4	72.47	70.73
		SD	4.31	5.79	5.1	5.97

Salivary cortisol levels, decreased after the first five massage sessions in both groups, but the data are not statistically significant ($p>0.05$). The effects of Swedish massage on the physiological and biochemical factors of healthy individuals were irrelevant, excluding heart rate.

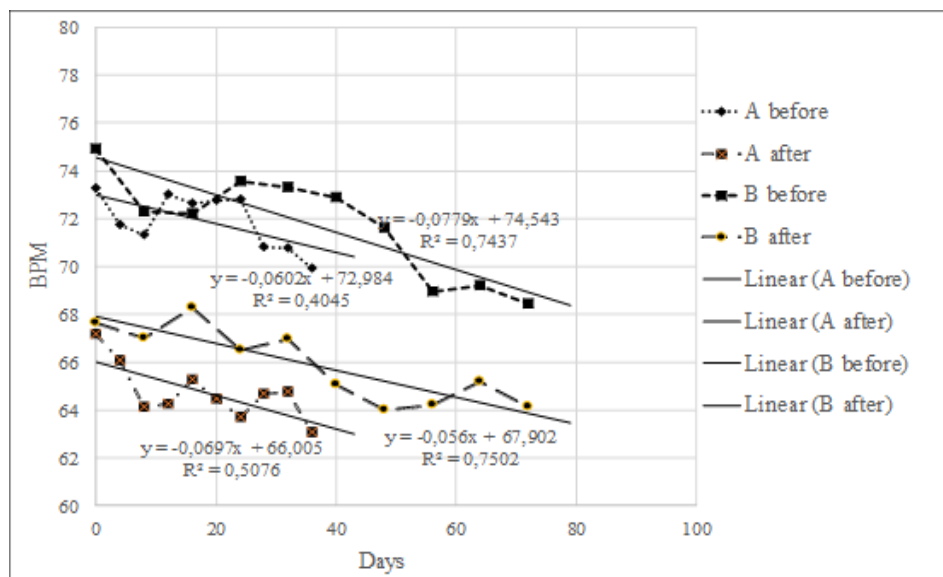


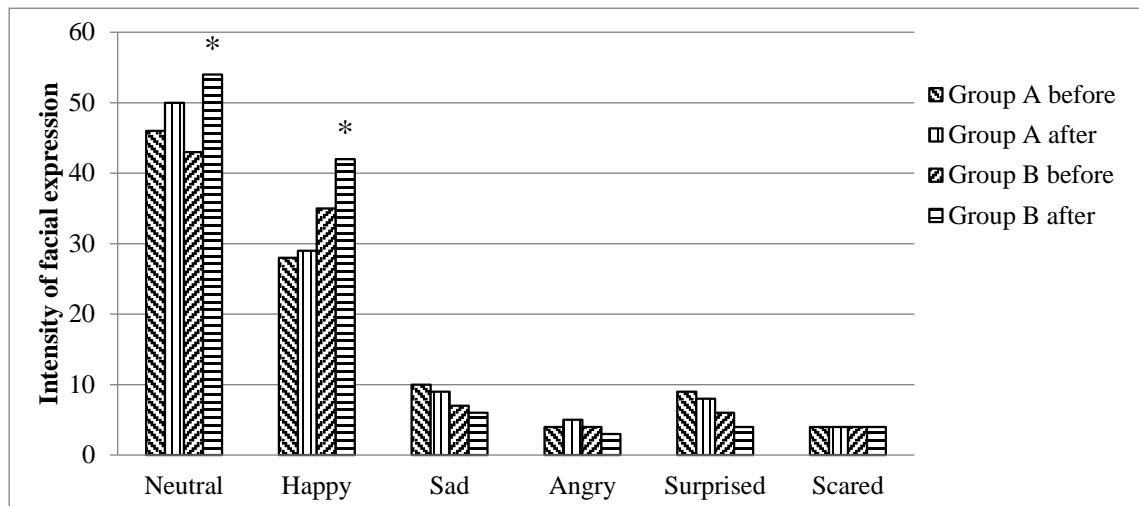
Figure 2 Heart rate of the A group and B group

Before intervention, the heart rates for group A and B did not differ significantly ($p>0.05$). Slope position was determined by Fisher criterion. With a 5% reduction in probability will be all the time. Statistically significant ($p<0.05$) (Figure 2, Table 3).

Table 3 Descriptive statistics of the heart rate of the A group and B group

	Intercept	Slope	For Slope			
			F	Significance F	Lower 95.0%	Upper 95.0%
A before	72.984	-0.0602	5.43	0.04808	-0.1198	-0.000647
A after	66.005	-0.0697	8.25	0.02078	-0.1257	-0.013728
B before	74.543	-0.0779	23.21	0.00132	-0.1152	-0.040633
B after	67.902	-0.0560	24.02	0.00119	-0.0823	-0.029635

The students' independent t-test results showed that the average score of neutral and happy emotions was different between the A and B groups before and after intervention ($p>0.05$) (Figure 3).



* significant differences compared to before massage course ($p \leq 0.05$)

Figure 3 Induced emotions before and after massage of the A group and B group

Conclusions and discussion

This was a 5 and 10 weeks randomized open-type comparative study that compared the immediate and cumulative effects of Swedish massage to the physiological, emotional and biochemical factors of healthy individuals, as well as the sustainability of massage impact depending on the intensity of the course. Blood pressure, pulse and emotion measurements were performed before and after each massage session to determine the immediate effects of massage. The results of the study showed that there were no significant differences between the two groups ($p < 0.01$), while average physiological parameters were close to the upper limit of norm. The study data showed that the effect of a single massage was weak, similar to that of Rapaport, Schettler, & Breese (2010) study. The impact analysis of each massage session showed minor changes in determinations of physiological and emotional factors, but before each following massage there were positive determination trends.

The analysis of these determinants of group A (a massage course twice a week) showed higher fluctuations in results, which generally ensured less stabilization of physiological and emotional factors. Data of group B (a massage course once a week) showed higher stabilizing effects of the results. The proportion of neutral and happy feelings increased during the course and heart rate decreased, which is statistically significant ($p < 0.05$).

While massage therapy lacks evidence-based research, its popularity is rising. It's important to consider the availability of massage. Massage is performed twice a week in most studies (Fielda, 2016). For example, the study of Fateme, Mojtaba, & Hojatollah (2015) demonstrated the importance of twice a week massage in health maintenance and in work quality of intensive therapy units'

nurses. Similar studies analysing the effect's sustainability would be required for massage course with sessions performed once a week.

Another study (Sharpe, Williams, Granner, & Hussey, 2007) shows that massage therapy improves positive well-being and reduces stress perception among older adults. It would be necessary to carry out once per week massage session studies for this target group in order to consider the possibility to ensure broader availability of massage. As mentioned above, our study concluded that in practically healthy young adults, massage provided on once per week basis increased positive feelings during a massage course ($p < 0.05$).

As in the Field et al. (1996) study, the results of this study showed a tendency to impact the levels of saliva cortisol. Saliva cortisol levels decreased after the first five massage sessions in both groups, but the data is not statistically significant ($p > 0.05$). Saliva cortisol level is a good indicator for analysing the immediate effects of Swedish massage.

Givi (2013) and Moeini, Givi, Ghasempour, & Sadeghi (2011) examine the effect of massage on blood pressure. The study was conducted three times a week in women with pre-hypertension. In our study participated healthy subjects, and the effect of massage on blood pressure is not statistically significant ($p > 0.05$). Nor did the study confirm a significant increase in total antioxidant levels.

Comparing heart-rate scores in both groups heart rates declined regardless of whether massage was performed two or once per week. This expected finding is supported by earlier studies (Garner et al., 2008) as well.

Based on the findings of this study, it may be concluded that a once per week massage course is recommended to improve the health status of practically healthy people. Similar studies in older people and people with increased levels of workplace stress would be recommended in future.

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THE RELATIONSHIP BETWEEN HEAD POSTURE AND LEVEL OF PHYSICAL ACTIVITY IN OFFICE WORKERS

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Abstract. *The purpose of this study was to discover the relationship between head and neck posture and level of physical activity for office workers. In our study, 66 subjects (women 28-49 age old) who work in office longer than one year, sitting would total about 6 hours per 8 hour workday. Exclusion criteria were self-report of previous significant back injury; current neck or upper back pain; or referred pain into the upper extremity (i.e. cervical radiculopathy). Informed consent was obtained from all participants. Physical activity levels were evaluated using the International Physical Activity Questionnaire short form. The head posture and the craniovertebral angle was measured using photogrammetry, Protractor mobile application using iPhone 6s cell phone. The cervical Range of Motion was analyzed using the inclinometer and the Neck Disability Index as an instrument for self-rated disability. The collected data were analyzed using the methods of mathematical statistics. Pearson correlation was used to determine the relationship of level of physical activity with craniovertebral angle and Neck Disability Index. The results showed physical activity level has no correlations at all, a weak correlation to the craniovertebral angle. There is a correlation between all other head posture indicators.*

Keywords: *head posture, level of physical activity, office workers.*

Introduction

Today, most employees spend their working day in a sitting position. It means - the office jobs are related to the static load. In the U.S., for example, more than 80% of all jobs are mostly sedentary, so full-time office employees face disorder, increased risk of cardiovascular and metabolic morbidity and mortality

(Gremaud et al., 2018). Women are less physically active than men (Skidmore & Carson, 2016). Sedentary lifestyles, stress at work and inactivity can lead to changes in the systems of support and movement. Musculoskeletal disorders are usually characterized by pain, mobility restrictions that reduce people's ability to work (James et al., 2018). One of the most frequent changes in systems of support and movement are localized in back and neck, followed by relevant pain (Tsakitzidis et al., 2009). Although the prevalence of musculoskeletal disorders is increasing with age, younger people are also affected, most often - during the peak of their economic activity (Impact of Musculoskeletal Disorders on Americans - Opportunities for Action [IMDA-OA], 2016).

Physical activities are recommended as one of the non-pharmacological treatments (World Health Organization, 2019). Nevertheless, there are studies demonstrating that long-term sitting also affects health of people with sufficient physical activity (Vallance et al, 2018; Dunstan, Howard, Healy, & Owen, 2012; Biswas et al., 2015). The key is that physical activity does not completely offset the negative effects of the unfavorable lifestyle centered on sitting (Ekelund et al., 2016; Koster et al., 2012).

Several studies have reported adverse health effects of the lack of physical activity on cardiovascular health (Evenson, Wen, & Herring, 2016; Wilmot et al., 2012), back pain (Citko, Górski, Marcinowicz, & Gorska, 2018), respiratory health (Jintae, Soojin, Youngju, Yeonsung, & Hyeonnam, 2016) and endocrine system (Loprinzi & Sng, 2016), etc. There is a lack of specific studies on the relationship of physical activity levels to head posture. The purpose of this study was to discover the relationship between head and neck posture and level of physical activity for office workers.

Literature review

The world is increasingly dominated by technologies that ease both - professional and household life. Increasingly, less physical activities are needed to perform daily duties. Also travel and spare time are often accompanied by reduced physical activity. Evidence suggests that in the U.S. over the past 50 years the time of sedentary activities (during recreation and work) has increased from 26 to 38 hours a week, while in the U.K. between 30 and 42 hours a week, expressing troubling prospects for 2030. This means that the number of 'sedentary occupations' has increased by 20%, while it has decreased for 'physically active professions' (Ng & Popkin, 2012).

Office employees spend the largest part of their working day in a sitting position and long-term sitting is associated with an increased health disorder risks (Mansfield et al., 2018). Looking at the possibility to increase the level of physical activity during out-off-office hours, it was concluded that there was a clear

relationship between spare time during office hours and inactive behavior outside of working hours (Saidj et al., 2015).

The sedentary lifestyle is defined as long-term sitting in work, spare time and moving; these activities require energy spending of less than 1.5 metabolic equivalent of task (MET). Consequently, on average per week, the physical activity associated with the various 'performances' (professional work, mobility, homework, recreation and tourism) does not exceed 600 MET/min/per week (Leitzmann, Jockem, & Schmid, 2018). The latest recommendations are that more health benefits would be if people reach 3,000 to 4,000 MET / min/ per week (World Confederation for Physical Therapy). 46% of the population of the European Union did not carry out physical activities, unlike 56% of the population in Latvia (Sport and Physical Activity, 2017). Only 13% of Latvia's population have physical activities at least half an hour a day, four to six times a week (Latvijas iedzīvotāju veselību ietekmējošo paradumu pētījums 2016).

From the sources of current literature, it can be concluded that men and women have different levels of physical activity, and these differences expose women to a variety of serious health problems and consequences (Skidmore & Carson, 2016). Physical activities play an important role in strengthening women's health (Upeniece, Vinberga, Arnis, & Erts, 2016).

A study by Diaz et al. (2017) found that regardless of the level of daily physical activities, if sitting becomes uninterrupted for more than 90 minutes, it increases the risk of mortality in the future. Therefore, the recommendation is to move every 30 minutes, since the time spent sitting is hazardous to health, regardless of the fact that physical activity is performed afterwards (Diaz et al., 2017).

Citko, Górski, & Marcinowicz (2018) conducted a survey on medical personnel in the north-east of Poland on inactive lifestyles and non-specific lower-back pain. The findings were following - a sedentary lifestyle significantly increases the incidence of repeated back pain, while physical activity reduces the development of back pain. In the inactive lifestyle group it was founded that the presence of a metabolic disorder significantly increases the risk of non-specific back pain (Citko et al., 2018).

In many professions work takes long hours in static and inactive poses. This can lead to a continuous contraction of muscle in the neck and shoulders' muscles, which develops in most people the forward head posture (FHP) (Falla, 2004).

Consequently, FHP is a common disorder in society and is caused by long-term sitting at the desk (Kong, Kim, & Shim, 2017). Maintaining static posture causes ligament damage around the spine and especially the neck. In addition, FHP is caused by muscle fatigue and reduced physical activity. A systematic review of prospective longitudinal studies allows conclude, that many people

have FHP, but that doesn't mean a direct correlation with the neck pain (Damasceno et al., 2018).

Methodology

This is a pilot study for a cross-section correlation study, which aims to discover the relationship between head and neck posture and level of physical activity for office workers. The hypothesis was, that in office employees with a health-enhancing level of physical activity, the head position would be correct, but in office employees with insufficient physical activity would have FHP. Ethics Commission Meeting Protocol No. 239/42813.

Since 2013 a short version of the International Physical Activity Questionnaire (IPAQ) has been used in the private practice of physiotherapy (Veseta & Līce, 2014), as it helps to determine the level of the customer's physical activity and, if necessary, to motivate customers' physical activities based on the results of the survey, as it is one of the of the physiotherapist's professional goals. The study analyzed client documents accumulated in outpatient physicality practice, which had an indication: "The client has agreed that his data is used for scientific research, subject to data protection rules and published only in aggregated form".

The study included 66 subjects (women - 28 to 49 years old) working in the office for more than one year, sitting down day-to-day for about 6 hours during 8 hours of work and normal (healthy weight), body mass index (BMI) (kg/m²) - 18.5 to 25. The exclusion criteria were a self-assessment of the previous major spinal injury; regular neck or upper back pain; or pain in the upper part (i.e., neck radiculopathy).

The level of physical activity was assessed using the short form of the International Physical Activity Questionnaire (IPAQ-s). There are three levels of physical activities: insufficient physical activity, minimum physical activity required and health-enhancing physical activity. The short version of the IPAQ has been tested extensively and is used in many international studies (Hagströmer, Oja, & Sjöström, 2006). Head position, craniovertebral angle (CVA) was measured using photogrammetry (a Protractor mobile app using an iPhone 6s mobile phone). Normal craniovertebral angle is 49.9 degrees. These measurements were carried out on the basis of a study, confirming the reliability of such measurements and underlining the need to use available measuring instruments in practice (Severinsson, Elisson, & Bunketorp, 2012). The cervical Range of Motion was analyzed using the inclinometer that is approximate: flexion and extension – 45°, rotation 60°-75° and lateroflex 45°-60° in each direction. The neck disability index (NDI) was used as an instrument for self-assessed disability.

Score: 0-4 – no disability; 5-14 – mild disability; 15-24 – moderate disability; 25-34 – severe disability; 35 or over – complete disability (IMDA-OA, 2016).

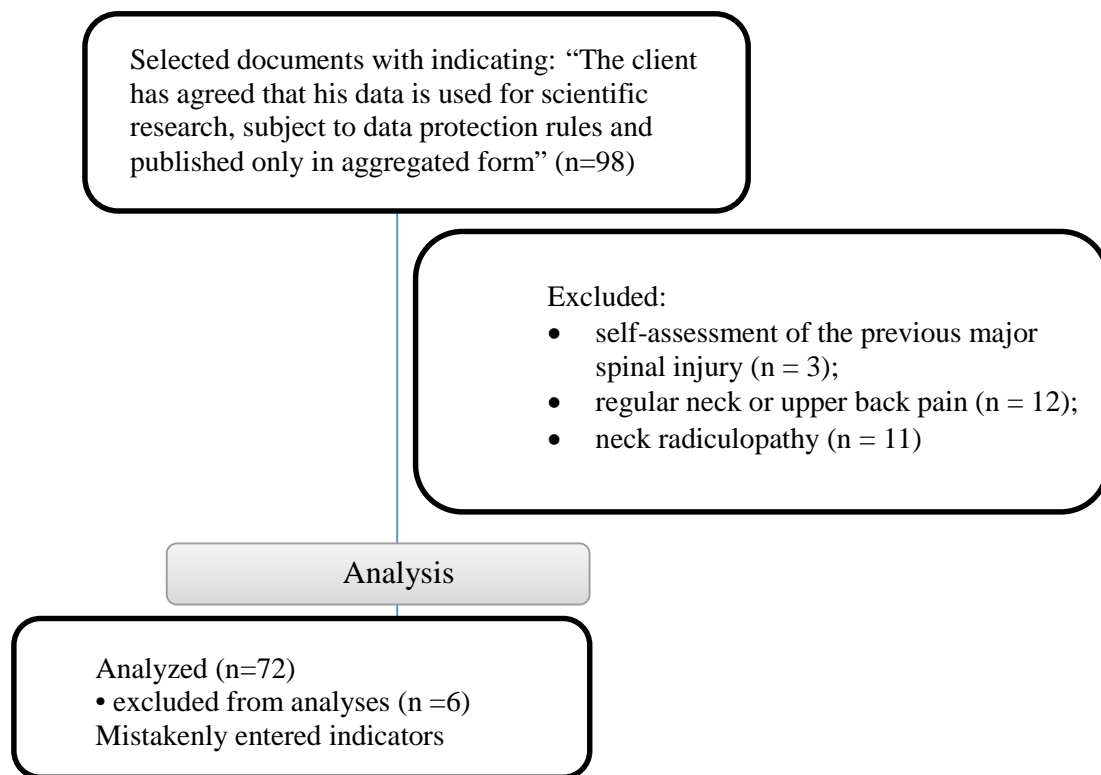


Figure 1 Study Flow Scheme

The collected data were analyzed using the methods of mathematical statistics. The statistical analysis used average and standard deviation (SD). Independent t-test was used to identify differences between office employees with different levels of physical activity. Pearson's correlation was used to determine the relationship of the level of physical activity and CVA, IPAQ and NDI.

Research results

The study included 66 subjects (women - 28 to 49 years old) working in the office for more than one year, sitting down day-to-day for about 6 hours during 8 hours of work. The statistical analysis of baseline values is shown in Table 1.

Table 1 The statistical analysis of baseline values

	Age	BMI	CVA (degrees)	IPAQ	NDI	Flexion (degrees)	Extension (degrees)	Rotation Dex (degrees)	Rotation Sin (degrees)	Lateroflex. Sin (degrees)	Lateroflex. Dex (degrees)
Mean	38.85	23.98	42.42	2.03	5.30	38.17	34.89	45.3	45.15	40.95	42.09
SD	5.64	2.44	5.81	0.84	4.03	6.00	6.29	9.87	9.97	9.20	10.06

By dividing the data obtained into three sub-groups according to the levels of physical activity: 1-minimum required physical activity, 2-almost sufficient physical activity and 3-health-enhancing physical activity, the relationship between these groups was established.

Table 2 Correlation between IPAQ and head posture data

	CVA	IPAQ	NDI	Flexion	Extension	Rotation dex	Rotation sin	Lateroflexion sin	Lateroflexion dex
CVA	1								
IPAQ	0.41	1							
NDI	-0.86	-0.37	1						
Flexion	0.77	0.32	-0.73	1					
Extension	0.82	0.38	-0.78	0.83	1				
Rotation dex	0.76	0.25	-0.82	0.74	0.70	1			
Rotation sin	0.77	0.33	-0.82	0.74	0.74	0.93	1		
Lateroflex. sin	0.80	0.21	-0.84	0.80	0.77	0.84	0.86	1	
Lateroflex. dex	0.79	0.27	-0.84	0.80	0.78	0.84	0.82	0.93	1

A zero hypothesis was tested during an analysis of dispersion. The hypothesis that the head position is affected by the level of physical activity can't be accepted. Table 2 shows that the level of physical activity does not correlate with the determinants of the head position. IPAQ has no correlations at all, a weak correlation to the CVA. There is a correlation between all other head posture indicators.

In Figure 2 shown mean values, SD, and trendline. An absolute trend of decreasing mean $R^2 = 0.9$ indicates a linear relationship between IPAQ 1 mean value 7.3, SD 4.2, IPAQ 2 mean value 5, SD 3, IPAQ 3 mean value 3.8, SD 4.1.

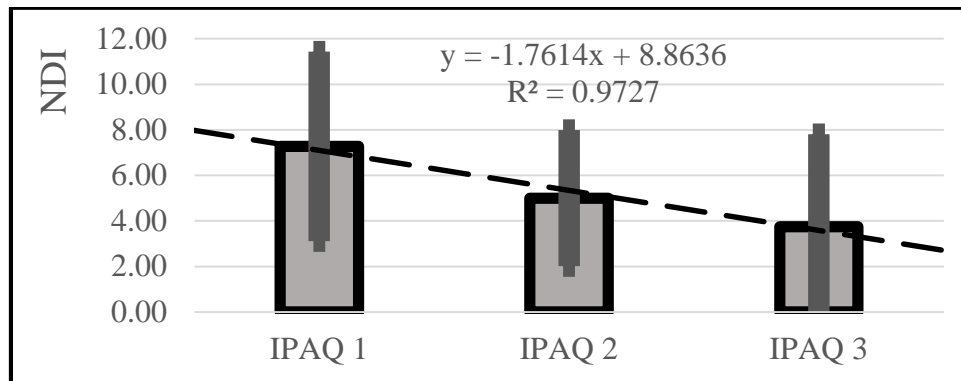


Figure 2 IPAQ level and NDI trendline

Figure 3. The differential function of the normal distribution shows the increased probability of NDI for lower levels of physical activity. The results of this study: IPAQ 1 mean value for NDI is mild disability, IPAQ 2 - ‘borderline’, and IPAQ 3 with NDI results in the mean range - no disability.

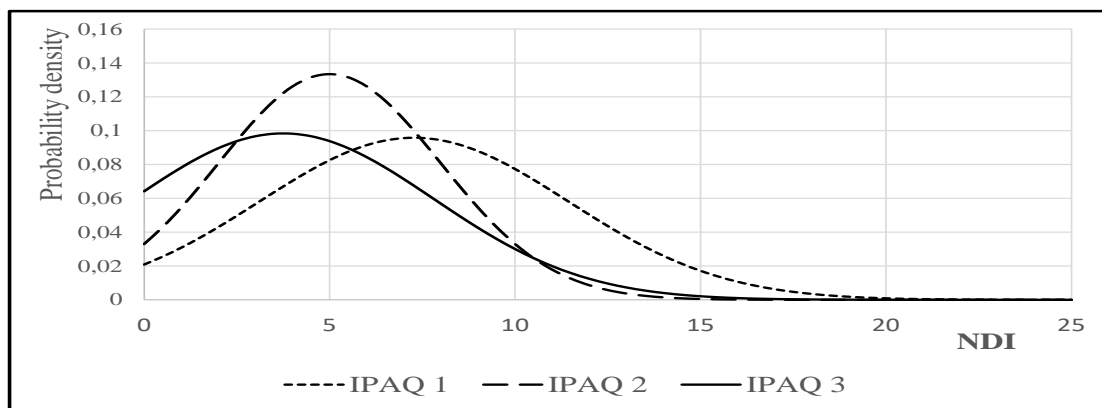


Figure 3 Differential function of the normal distribution (IPAQ and NDI)

Conclusions

This is a pilot study for a cross-section correlation study, which aims to discover the relationship between head and neck posture and level of physical activity for office workers. The hypothesis was that in office employees with a health-enhancing level of physical activity, the head position would be correct, but in office employees with insufficient physical activity would have FHP.

Following the results of the study it can be concluded, that the CVA for all subjects was reduced, did not correspond to normative indicators, i.e., presented the evidence of the FHP. The proportion (FHP) appears to be lower in cases of health-enhancing physical activity. The more physical activity, the smaller is

proportion. The question is how this is achieved and why does it not affect equally?

By using dispersion analysis of the study results, a zero hypothesis was tested and concluded, that a hypothesis - head posture is affected by the level of physical activity – can't be accepted. The level of physical activity was shown to have no correlation with head posture determinants, a weak correlation with a CVA, but there is a correlation between all other head posture determinants.

The results of this study may be explained by pre-existing studies which have shown that in long-term sitting has a negative health impact also on people with sufficient physical activity (Vallance et al., 2018; Dunstan et al., 2012; Biswas et al., 2015). The key is that physical activity does not completely offset the negative effects of the unfavourable lifestyle centred on sitting (Ekelund et al., 2016; Koster et al., 2012).

Although the need for physical activity is constantly being reminded, in everyday life becomes less and less physically active. A large part of the day is spent at work, in addition to that - the number of 'sedentary occupations' has increased by 20%, to compared to 'physically active professions' (Ng & Popkin, 2012). Members of this study spend most of the day in a sitting position, like a study conducted by Mansfield et al. in 2018, which concludes that office employees spend most of their working day in a sitting position, and long-term sitting is associated with increased health disorder risks (Mansfield et al., 2018).

Researchers Damasceno et al., 2018 systematically reviewed prospective longitudinal studies and found that it was possible for many to find a FHP, but that doesn't mean a relationship to neck pain. Nor did the results of this study show a correlation between the CVA and NDI, but indicated the deviations of the CVA from the normal in all cases that suggests the importance of the problem. Perhaps this is also due to phone usage habits, which have also been studied and proven in many studies (Kong et al., 2017; Damasceno et al., 2018; Gustafssona, Thoméa, Grimby-Ekmana, & Hagberga, 2017).

In the future a cross-sectional study on the CVA would be needed because, regardless of the daily level of physical activity and the absence of complaints, the angle determinants the, was detected outside the norm, which could lead to health problems in the future. Further studies and recommendations are essential to prevent changes in CVA.

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ASSESSMENT OF THE STATE OF EMOTIONAL HEALTH OF UKRAINIAN UNIVERSITY STUDENT YOUTH THAT IS INVOLVED INTO DIFFERENT LEVELS OF PHYSICAL ACTIVITY

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Abstract. *In the present days, we encounter and can observe a widespread distribution of physical, moral and psychological crisis among the citizens of Ukraine. The most inclined to undergo and experience distress group of the population is higher educational institutions' youth. Based on the data we have collected and carefully analyzed, we have discovered that regular exposure of a person to physical activity helps maintain the levels of distress and influence of other negatively oriented emotional states to their minimums whereas the physical activity positively impacts emotional health, especially in regard to student youth. Accordingly, our research is dedicated and conducted to investigate and assess how emotional health of Ukrainian students correlates with different levels of physical activity they experience. In order to complete the study, we asked a few female students that indeed take physical training (PT) classes at their universities, precisely, 48, to take part in our investigation. The participants were at the particular stages of their Bachelor's program progression (from Freshmen to Senior Year students) at the moment of the study being conducted. We attempt to measure and assess the indices that constitute emotional health which we defined as a) mood, b) well-being, c) overall activity, and d) anxiety. Additionally, we determine the levels of physical activity of each student. Based on the evidence we have collected, the students evaluated their moods in the range of $56 \pm 10,0$ points (high evaluation marks), their well-beings in the range of $51 \pm 10,7$ points (high evaluation marks), and the levels of their overall activity in the range of $43 \pm 9,5$ points (average evaluation marks). Altogether, the vast majority of the participants marked their levels of trait and state anxieties as $47 \pm 3,9$ points and $48 \pm 3,7$ points, accordingly, that we define as high. On the other hand, we have discovered that most participants have low physical activity index that constitute into the value of 31. On the contrary, the ones whose physical activity is higher have stated that their state anxiety is lower — $46,3 \pm 3,4$ points, — compared to those who involve into average and low exposure to physical activity — $47,2 \pm 3,5$ points and $47,6 \pm 4,3$ points, respectively. The potential of future studies of emotional health are highly dependent upon researches into emotions that students experience, how well students recognize, distinguish,*

and live through their feelings, as well as into the abilities of students to adapt to alternate vital circumstances.

Keywords: *emotional health, physical activity, students.*

Introduction

We have noticed the crisis of physical, moral and psychological health of population nowadays in Ukraine. The vulnerable part of population are students (Vasilievih, 2010; Skorbach & Shastun, 2013). Students' life is in conditions of nervous tension and permanent stresses. Numerous researches determined positive correlation between motor activity and students' emotional health (Penedo & Dahn, 2005; Strong et al., 2005; Biddle & Asare, 2011; Ahn & Fedewa, 2011).

Few scientists have investigated the problem of students' emotional health in Ukraine. Only some aspects of this problem are clarified. The influence of emotional health on harmonious development of students as person has been described by L.O. Kolisnyk (2010). The author states that numerous amount of students have deviation in emotional sphere. T.V. Scorbach and T.O. Shastun found out socio-psychological factors of students' physical health infringement (Skorbach & Shastun, 2013). Their research indicates that first year students and students from countryside are in the risk groups. A lot of investigations are about emotional burnout of students (Maslach & Leiter, 1997; Pomitkina & Kovalkova, 2008; Lipson, Lattie, & Eisenberg, 2019). Within, some research determined methods of improving students' psychological health (Vasilievih, 2010; Breus, 2013; Zavydivska, Rymar, & Malanchuk, 2015). The popular methods are motor activity optimization, emotional intelligence development, positive motivation and settings creating.

Even though that correlation between motor activity and emotional health is obvious, the discussion about its meaning are still exist (Strong et al., 2005). Perhaps, regular physical trainings improve emotional health or people are more physically active when they are healthy psychologically. That is why, we have decided to made evaluation of indicators of emotional health of students with different motor activity and take part in discuss the question.

Methods

We have applied such methods as theoretical analysis, generalization of informational sources and questionnaire for solving the goal of research. 48 students from 1-2 years of studying that regularly go for sport and attend physical education classes have been taken part in the research. We have provided the evaluation of such indicators of emotional health of students as

well-being, activity, mood and level of anxiety. According to the goal we provide the students' questionnaire by two surveys: self-being-activity-mood (Doskin, Lavrent'eva, Miroshnikov & Sharaj, 1973) and Spilberg-Hanin (Greiben', 2007). While processing data according the survey well-being-activity-mood we have evaluated each indicator in the principle: <30 points – low rate, 30-50 points – average rate, >50 points – high rate. In the result of second survey we have established levels of individual and reactive anxiety of students. Within, the point below 30 represents low level of anxiety, the point between 31 and 45 represent average level of anxiety and point, higher that 45 testifies the high level of anxiety.

The evaluation of motor activity we have made according the methodic from Framingham research (Davidenko & Masaud, 1999). We have analyzed students' daily expenses of time for various types of activity and determined the index of motor activity. In order to determine the quantitative value (in points) for different types of motor activity (according its intensity) we have applied weighting coefficients of motor activity (Table 1). Thus, the time (in hours), devoted for some level of motor activity is multiplied by appropriate coefficient.

Table 1 Physical Activity Mass Coefficient (Kannel & Sorlie, 1979)

Level of Physical Activity	Oxygen Consumption, liters/minute	Mass coefficient
Basic	0.25	1.0
Time Spent Sitting	0.28	1.1
Low	0.41	1.5
Average	0.60	2.4
High	1.25	5.0

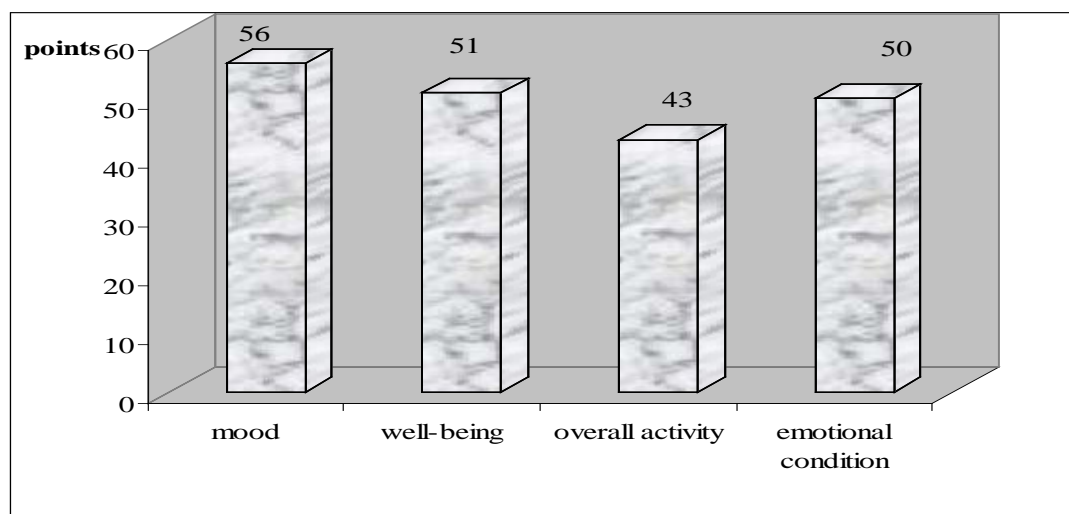
The evaluation of motor activity we provide according the scale: <31 points – low index; 31-34 points – average index; >34 – high index.

In the process of statistical processing of results of the research we have calculated such statistical characteristics: arithmetic mean \bar{x} and mean square deviation σ .

Results

The prime indicators of students' emotional health that we have evaluated and assessed during our study are as enlisted: 1) well-being, 2) overall activity, 3) mood, and 4) anxiety levels. Our investigation provides the following

evidences: generally, the participants marked their well-being levels as 51 ± 10.7 points, which we consider as a high level of the measure (Fig. 1).



Note. The principles of emotional condition evaluating is made according the methodic of well-being-activity-mood: <30 points – low rate; $30-50$ points – average rate; >50 points – high rate

Figure 1 Students' self-esteem of emotional condition

Based on that evidence, we arguably state that the participants' well-being is high enough to actively and without any restrictions educate themselves within the facilities of the higher educational institution. According to the conducted research results, we have determined that the lowest level of motional activity of the participants is in the range of 43 ± 9.5 points (average level). Henceforth, the vast majority of the ones who took part in the study was active, mobile, fast, able to perform at a decent level of any endeavor, excited, and patient enough. Nonetheless, a few students stated that they were inclined to regularly be sleepy during the work days, and that they would like to be resting more often.

One of the most notable aspects of the study is that the students highly evaluated their mood — 56 ± 10.0 points, which, in turn, is the most highly-evaluated indicator amongst the emotional health indicators. Nevertheless some positive responses regarding their moods, we still have to pay attention to the fact that student's cycle incorporates high levels of excitement at the beginning of the degree acquisition process to high levels of skepticism when it comes to assessment of higher educational institutions' regimes alongside the methodologies of pedagogy and of some particular pedagogues.

62% of the participants have declared that they experience high levels of trait anxiety, resulting into 50 ± 3.1 points of the measure (Table 2). The

remainder 38% have scored 44 ± 1.5 points having average levels of trait anxiety. These observations can lead us to a conclusion that the students appear at a vitally important turning points of their lives where they have to choose carefully what to do for living and how to proceed further in life, therefore, arriving at being stressed about their futures, both about everyday activities and the closest circles of each of them. The respondents adequately react to stressful situations, and the levels of their both trait and state anxieties correspond to the norms, which, in turn, entails no further special treatment of the participant audience group.

Table 2 *The evaluation of individual and reactive students' anxiety (n=48)*

Indicators	Individual anxiety		Reactive anxiety	
	Rate, points ($x \pm \sigma$)	%	Rate, points ($x \pm \sigma$)	%
high level of anxiety	50 ± 3.1	62	49 ± 2.6	73
average level of anxiety	44 ± 1.5	38	$43 \pm 2,0$	27
arithmetic mean	47 ± 3.9		48 ± 3.7	

Thus, accordingly to the results of the investigation, on average, the female students' trait anxiety levels are high, having 47 ± 3.9 points. We conclude that such levels of trait anxiety are characteristic of the participants' age group. On the other hand, the state anxiety levels indicate high marks as well, resulting into 49 ± 2.6 points for 73% of those who took part in the study. Two most widespread features of such students are closeness and decreased levels of social activity and involvement. Primarily, this group of people share the trait of being non-initiative as well as their expectations for lives are severely lowered compared to the one whose state anxiety levels are closer to the standards. Too, they have lower self-esteem and expectant to fail more often, therefore, becoming less ambitious. The rest 27% scores for 43 ± 2.0 points that lies within the boundaries of the norm. It translates into moderate level of tranquility among the group representatives, they are more active and friendly; although, some of them seldom experience anxiety that does not regard the circumstances at hand.

Based on the date we collected by exposing the participants to fill in the questionnaire, we can infer that, on average, the students tend to have high level of state anxiety - 48 ± 3.7 points. The increased levels of state anxiety feature subjectively deformed well-being comprehension of oneself. These females have a higher tendency to anticipate and perceive threats when there are none, with the respect to their self-esteem and overall security in a wide variety of life circumstances, reacting over-stressfully with apparent behavioral changes and further complications. Unfortunately, throughout the process of the research

conduction, we have not identified any participant whose state anxiety level is below the averages. It allows us to draw a conclusion, that the majority of the students experience disbelief, lack of confidence, and worry, especially when they encounter extremely discomfort situations. Subsequently, a regular exposure to such circumstances could lead to neurotic disorders, infarcts, or pre-infarction states.

In order to determine the levels of motional activity of the participants, we utilized the Framingham methodologies. Surprisingly, we have collected enough data to conclude that the corresponding levels are low — 31 point of the measurement scale. Considering the fact that the Framingham methodologies' indicators have to display at the very least 42 to be deemed optimal, none of the respondents who took part in the investigation has such a result. Based on these data, we affirm that students are involved into physical activity too rarely. The distribution of time spent in a specific way is 33% for time spent sitting, 30% for basic motional activity, and 29% for low motional activity level (Fig. 2). On the contrary, during the weekends, the distribution is as following — 36% of the time is dedicate to basic motional activity, 39% for sitting, and 14% for the average level of motional activity.

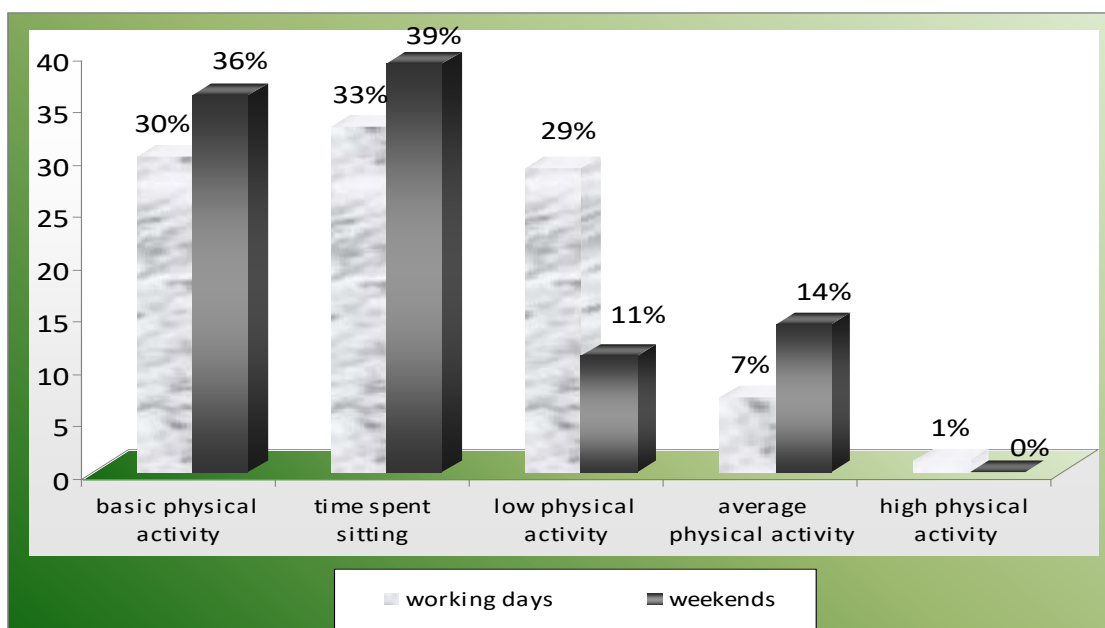


Figure 2 Students' distribution by levels of motor activity

Having thoroughly analyzed the data we computed with the regard to the indicators of emotional health, considering that the participants will be associated with a particular level of involvement into physical activities, the results are the following with the respect to the “mood” indicator — the highest

score of 55.2 ± 10.8 points (high evaluation) represents the group of students whose physical activity index is average (Table 3). The representatives of the low physical activity index score have 55 ± 9.6 points (high evaluation) against the measurement scale, whereas those who are highly involved into physical activity evaluated their mood as 54.7 ± 11.4 (high evaluation), which by surprise is the lowest among all of the groups.

Table 3 The evaluation of indicators of students' emotional health with different motor activity (n=48)

Indicators	Index of physical activity (IPA)		
	High	Average	Low
Well-being	49.9 ± 0.3	51.3 ± 11.2	48.3 ± 10.1
Activity	45.3 ± 10.6	44.7 ± 9.4	39.7 ± 7.6
Mood	54.7 ± 11.4	55.2 ± 10.8	55.0 ± 9.6
Individual anxiety	46.7 ± 5.6	47.6 ± 4.4	46.4 ± 3.6
Reactive anxiety	46.3 ± 3.4	47.2 ± 3.5	47.6 ± 4.3

Note. The principles of evaluation by the methodic well-being-activity-mood: <30 points – low rate; 30-50 points – average rate; >50 points – high rate.

Principles of evaluation anxiety levels by methodic Spielberg-Hanin:

<30 points – low anxiety level; 31-45 points – average anxiety level; >45 high anxiety level.

Comparing to the physical activity indexes of each group, we can infer that the participants objectively assessed and identified their overall activity, that is the other emotional health indicator. The lowest mark has been hit by the group of students whose index is low, corresponding to 39.7 ± 7.6 points. The highest score of 45.3 ± 10.6 points is representative of the high physical activity index group. 44.7 ± 9.4 points is the result of the average group.

Speaking of the well-being indicators, the score vary as well. The best state of well-being is characteristic of the group with the average index — 51.3 ± 11.2 points. 49.9 ± 10.3 points and 48.3 ± 10.1 points are respectively representative of the high and low indices of the physical activity.

Drawing an overall conclusion, we can state that students decreasingly involve into physical activities that leads to depreciation of the overall organism functionality, thus, the students become less trained and enduring. To become trained and overall perform better, it is necessary for one to experience high-intensity physical activities, for instance, well organized and planned intensive training sessions. Taking to the consideration the fact that such trainings are a part of high-intensity level of physical activity, most students do not possess such a listing on their everyday schedule.

As well, we have discovered that physical activity influence anxiety levels. Thus, the students whose physical activity index is high score in 46.3 ± 3.4 points against the state anxiety measurement scale. 47.2 ± 3.5 points and 47.6 ± 4.3 points

are representative of those who have average and low indices, respectively. The lower the index, the higher level of state anxiety is expected. Hence, the students with the lowest scores tend to react more adequately to the most significant socio-psychological distress sources (expectancies of negative judgements by other people, expectancies of aggressive response by other people, acceptance of inappropriate treatment of them by others, threats to self-esteem and self-respect, the prestige level), which, in turn, leads to both better states of physical and emotional health.

Conclusions and discussion

The elaborated research represented high level of well-being, mood and activity of students that took part in the research. Within, the indicators from research did not change significantly. The highest rate students gave to their mood. However, we were concerned about level of students' anxiety. We noticed high level of reactive anxiety in 73% of students. The higher level of anxiety can be the subjective display of personality problems. It is difficult to work with such students. They are reserved, low sociable, have low motivation and show more behavioral and discipline problems. As a rule, they are uninitiated, that is connected with expectation of fails and low confidence in themselves. However, students with high motor activity got lower level of anxiety, than students with average and low activity levels. Data, we have got are confirm researches of lots of authors (Strong et al., 2005; Penedo & Dahn, 2005; Biddle & Asare, M., 2011) that physical load decrease symptoms of depression and anxiety and improve their mood.

The research we have made represented now index of students' physical activity according Framingham methodic. The data we got is not respond declared students' self-esteem according methodic well-being-activity-mood. It may indicate about lack of students' knowledge about norms of motor activity that is appropriate to their age. Accordingly, their motivation is formed in due to support proper motor activity. We suppose that increasing of volume of motor activity would minimize anxiety among students. Within, the research of Penedo and Dahn (Penedo & Dahn, 2005) represent that regular physical load may prevent symptoms of depression and anxiety.

There is much potential for further studies aimed at finding correlation between emotional health and physical activity. They will primarily depend upon investigations of students' emotions, their abilities to recognize, distinguish and live through their feelings, as well as of the abilities of youth to adapt to alternate vital circumstances.

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**PĒTĪJUMI EKONOMIKAS UN
VADĪBAS JOMĀ ILGTSPĒJĪGAI
IZGLĪTĪBAI**

*Researches in Economics and
Management for Sustainable Education*

ЗАРУБЕЖНЫЙ ОПЫТ НАЛОГООБЛОЖЕНИЯ ДОХОДОВ ГРАЖДАН И ВОЗМОЖНОСТИ ЕГО ПРИМЕНЕНИЯ В РОССИИ

Foreign Experience of Taxation of Citizens Income and Possibilities of its Application in Russia

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Abstract. *The goal of research is to develop recommendations for improving the mechanism of income taxation in Russia, taking into account the best foreign practices.*

The framework of studies was the monographic method and the method of comparative analysis of statistics and legislative documents of the financial authorities of Russia and leading foreign countries, as well as methods of modeling and generalization of the results.

The necessity of strengthening the social function of income taxation is substantiated. A comparative analysis of modern taxation of personal income in Russia and abroad is carried out. As a result of the research, it was revealed that the main share of this tax is provided by taxing the incomes of the poorest segments of the population, which contradicts the principles of fair taxation.

To improve the mechanism of taxation of incomes of Russian citizens, the experience of leading foreign countries in the application of a progressive scale, family taxation, the establishment of a tax-free minimum (allowance) and tax deductions was used. Particular attention is paid to introducing a tax-free minimum into the mechanism for applying standard deductions taking into account the cost of living.

Keywords: *family taxation, income tax, progressive taxation, tax burden, tax incentives.*

Введение *Introduction*

Налоги являются важнейшим инструментом государственного регулирования экономики, особое место среди которых занимает налог на доходы физических лиц. Помимо основной фискальной функции, он призван выполнять и социальную функцию, способствуя повышению уровня и качества жизни населения и решению проблемы дифференциации доходов граждан. Однако, несмотря на богатую и длинную мировую историю подоходного налогообложения, на сегодняшний день так и не создан его универсальный механизм, который бы учитывал и соизмерял социально-экономические интересы населения и фискальные интересы

государства. В своем исследовании (Szarowska, 2014) делает вывод о том, что не существует единой формулы для определения степени вертикальной или горизонтальной справедливости, поскольку она зависит от степени индивидуальной солидарности в обществе или от уровня уклонения от налогов получателей дохода. Поскольку каждая страна и каждая эпоха находятся под влиянием совокупности различных экономических, политических, социальных и финансовых факторов, поэтому для построения адекватной и соответствующей государственному развитию системы налогообложения доходов физических лиц необходимо постоянное развитие и совершенствование методических подходов исчисления и уплаты данного вида налога (Kuznetsova, 2017).

Целью исследования является разработка рекомендаций по совершенствованию механизма подоходного налогообложения в России с учетом исторического опыта и лучших зарубежных практик.

Методологической основой работы явились монографический метод и метод сравнительного анализа статистических данных и законодательных документов финансовых органов Российской Федерации и ведущих зарубежных стран, а также методы моделирования и обобщения полученных результатов.

Теоретические аспекты справедливого подоходного налогообложения *Theoretical Aspects of Fair Income Taxation*

Особенно остро в сфере налогообложения физических лиц стоит проблема справедливого налогообложения. Следует отметить, что достаточно неоднозначна позиция научного сообщества в отношении справедливости пропорциональных и прогрессивных ставок в подоходном налогообложении.

Наиболее раннее обсуждение справедливости прогрессивного налогообложения принадлежит Франческо Гвиччардини в сочинении «La Decima Scalata», написанном еще в начале XVI века (Scheve & Stasavage, 2016). Его рассуждения о равенстве прогрессии заключались не в том, чтобы плательщики уплачивали одинаковый процент, а в том, чтобы выплаты создавали им одинаковые сложности. При этом сам автор не был сторонником прогрессивного налога. Шотландский философ и экономист Адам Смит в реализации налогового принципа справедливости видел пропорциональность уплачиваемых налогов с доходов граждан. Но при этом защищал и идею прогрессивного налогообложения, используя аргумент «возможность платить» (Smit, 2017).

Применение же маржинальных вычислений позволило установить, что для справедливого распределения налогового бремени следует

использовать прогрессивную шкалу налогообложения доходов, поскольку для различных групп налогоплательщиков субъективная ценность дохода не является одинаковой: чем выше доход, тем ниже полезность его каждой последующей единицы.

Дж.С. Милль утверждал, что справедливой будет прогрессивная система налогообложения доходов, которая компенсирует регрессивность косвенных налогов, поскольку доля доходов, расходуемых на потребление, у бедных существенно выше, чем у богатых (Mill, 1980–1981).

Также следует отметить, что налогообложение – явление не только социально-экономическое, но и политическое, поэтому зачастую налоговые реформы приобретали классовый характер. И действительно, пропорциональная шкала наиболее удобна для высокодоходных групп населения, поскольку ослабляет их налоговое давление по мере роста доходов. Прогрессивная же шкала, учитывающая интересы малоимущих слоев общества, для богатых становится более чувствительной, чем выше прогрессия. Так К. Маркс и Ф. Энгельс для обеспечения социальной справедливости при распределении национального богатства предлагали резкий рост ставки по мере увеличения дохода вплоть до 100% ее уровня, то есть до полного изъятия сверхдоходов (Marks & Jengel's, 1955).

Учитывать платежеспособность граждан введением дифференцированного подоходного налога в своих научных трудах предлагали в разные периоды и российские ученые Н.И. Тургенев (Turgenev, 1818), И.И. Янжул (Janzhul, 1890), И.Х. Озеров (Ozerov, 1898), Д.П. Боголепов (Bogolepov, 1925).

По мнению Н.И. Тургенева, налог должен был взиматься с чистого дохода, а не с рабочей платы. А подушные подати (уравнительный налог) он называл «следами необразованности предшествовавших времён». Кроме того, им предлагалось освободить от налогообложения первые потребности (Turgenev, 1818). И.Х. Озеров настаивал на введении дифференцированного (эластичного) подоходного налога, указывал на его стимулирующее значение для экономики и фискальных интересов государства (Ozerov, 1898).

Дальнейшее развитие методологии прогрессивного налогообложения строилось на различном сочетании социально-экономических интересов населения и фискальных интересов государства. И наибольшее распространение в мировой практике получило в XX веке.

В настоящее время вопросам анализа и применения в Российской Федерации опыта зарубежных стран по исчислению подоходного налога и применению прогрессивной шкалы уделяется повышенное внимание со стороны научного сообщества и специалистов – практиков, таких как: И.В. Балынин (Balynin, 2016), Д.С. Дума (Duma, 2017), В.Г. Пансков и

Н.П. Мельникова (Panskov & Mel'nikova, 2018), Е.В. Ордынская (Ordynskaja, 2018), Т.Г. Давлетшин (Davletshin, 2019), А.А. Хандрамай и С.О. Кузнецова (Handramaj & Kuznesova, 2019).

Ряд авторов: И.А. Митрофанова, Е.А. Шкарупа, Д.А. Шестаков, рассматривают «увеличение прогрессии подоходного налога как один из самых негативных с точки зрения экономического роста способов пополнения бюджета, и именно в этом видят причины оттока бизнеса в ряде европейских стран» (Mitrofanova, Shkarupa, & Shestakov, 2017).

Характеристика современного состояния подоходного налогообложения в России *Description of the current state of income taxation in Russia*

Основы современного налогообложения доходов физических лиц в Российской Федерации были заложены в 1991-1992 гг. введением прогрессивного индивидуального налога, соответствующего рыночным условиям хозяйствования и принципам справедливого выравнивания доходов населения по горизонтали и по вертикали. При этом минимальный размер оплаты труда налогом не облагался.

Однако политическая и экономическая ситуация данного периода в России характеризовалась недостаточно развитой системой налогового администрирования и высоким уровнем теневых доходов (рассчитан по методике Д. Кауфмана - А. Калиберды – от 32,8% в 1992 г. до 41,6% в 1995 г. по отношению к ВВП) (Kaufmann & Kaliberda, 1996).

В результате бюджет недополучал значительные суммы налогов с доходов граждан, скрывааемых от налогообложения, тем самым фискальную функцию подоходный налог исполнял не в полной мере. Для стимулирования легализации теневых доходов граждан и частных предпринимателей, а также для упрощения процедуры налогового контроля в период налоговых реформ 1999-2001 гг. была введена пропорциональная ставка налога на доходы физических лиц (далее – НДФЛ) – 13%, не зависящая от уровня их доходов. (Nalogovyj Kodeks Rossijskoj Federacii, 5 avgusta 2000 g.).

Почти 20 лет существования плоской шкалы НДФЛ в России сделало его стабильным, однако, как и до реформ, незначительным источником бюджетных доходов – около 10% доходов консолидированного бюджета Российской Федерации (табл. 1). В то время как в зарубежных странах его роль – ведущая, и составляет он в налоговых поступлениях от 25% (в среднем по странам ЕС) до 35% (в США), а по отношению к ВВП – до 10% и выше (OECD, 2018).

Таблица 1. Роль НДФЛ в доходах бюджета РФ в 2000 – 2018 гг.

(по Россия в цифрах. 2019: Крат. стат. сб., составлено автором)

Table 1 The role of personal income tax in the budget revenues of the Russian Federation in 2000 – 2018 (by Rossiya v tsifrakh. 2019: Krat.stat.sb., compiled by the author)

Показатель	2000 г.	2002 г.	2005 г.	2010 г.	2015 г.	2016 г.	2017 г.	2018 г.
Доля НДФЛ в доходах, %	8,34	10,18	9,29	11,17	10,43	10,71	10,47	9,79
Доля НДФЛ в ВВП, %	2,40	3,30	3,27	3,87	3,38	3,51	3,53	3,52

Во многом это объясняется низкой ставкой НДФЛ, применяемой в России. В большинстве стран с развитой рыночной экономикой ставки подоходного налога в несколько раз выше и в основном – прогрессивные (рис. 1).

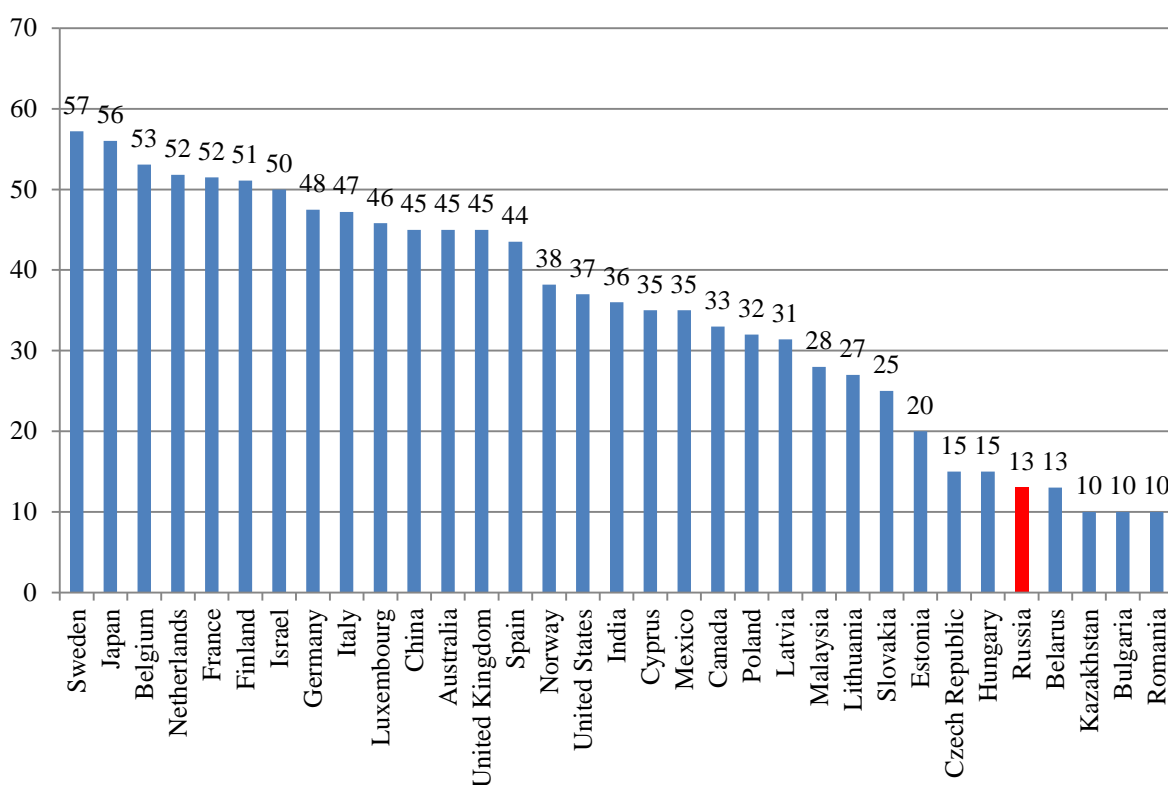


Рисунок 1. Самые высокие установленные ставки подоходного налога с населения (включая надбавки) в 2019 году (%)

(European Union, 2019; составлено автором)

Figure 1 Top statutory personal income tax rates (including surcharges) in 2019 (%)

(European Union, 2019; compiled by the author)

При этом характер прогрессивного налогообложения в таких странах – многоступенчатый. Количество уровней прогрессивной шкалы составляет от 2–5 (в Польше, Великобритании, Канаде, Финляндии, Австралии) до 10–18 (в Швейцарии и Люксембурге). Границы ступеней налогообложения зависят от уровня дохода, а в некоторых странах, например, в США, Германии, Франции, – от семейного статуса плательщика и наличия иждивенцев. В Швейцарии применяются различные количество ступеней для одинокого плательщика (10) и супружеской пары (14). Помимо прогрессивной шкалы во многих странах дополнительно применяется необлагаемый минимум, с которого начинают применяться минимальные ставки (Австралия, Австрия, Бельгия, Германия, Финляндия, Франция, Швейцария). Причем сложный характер применения прогрессивных ставок позволяет постепенно без резких скачков увеличивать эффективную ставку налога по мере роста дохода. (Nalogi v mire, 2020).

Среди стран ЕС плоская шкала на сегодняшний день осталась только в семи странах: Кипр, Литва, Эстония, Чехия, Венгрия, Болгария и Румыния. Однако, несмотря на плоскую шкалу, характер налогообложения доходов в этих странах тоже можно назвать прогрессивным, поскольку устанавливается минимальный доход, необлагаемый налогом, выше которого и будет применяться единая ставка.

К примеру, в Эстонии максимальный необлагаемый минимум – 1200 EUR, который перестает применяться, когда ежемесячный доход превысит 2100 EUR (Puzule, 2019). А прогрессия заключается в повышении эффективной ставки по мере роста дохода (табл. 2). Такое налогообложение еще называют «скрытой прогрессией».

Однако прогрессия действует в очень узком диапазоне – вблизи необлагаемого минимума, а далее, насколько бы не рос доход, ставка остается одинаковой, поэтому данный вид налогообложения многие экономисты считают «условно-прогрессивным».

Таблица 2. Расчет эффективной ставки при пропорциональном подоходном налогообложении на примере Эстонии (составлено автором)
Table 2 Calculation of the effective rate for proportional income tax on the example of Estonia (compiled by the author)

Доход в месяц, EUR	Необлагаемый минимум, EUR	Налоговая ставка, %	Сумма налога, EUR	Эффективная ставка, %
1500	1200	20	60	4,0
2000	1200	20	376	18,8
2500	0	20	500	20,0
10000	0	20	2000	20,0

В России необлагаемый минимум при расчете налога на доходы физических лиц не применяется. А те стандартные вычеты, которые были введены с целью социальной защиты граждан, в основном принимавших участие в военных конфликтах или в ликвидации последствий техногенных катастроф, неактуальны. Практически не встретишь продолжающего работать инвалида или участника Великой отечественной войны в силу своего преклонного возраста. Да и размер вычета – 3 000 руб. в месяц (а для отдельных категорий – 500 руб.) в несколько раз ниже прожиточного минимума в России – 10 287 руб. в месяц (Rossiya v tsifrakh 2019: Krat. stat. sb.).

Вычет на детей также является недостаточным для выполнения своей социальной функции – 1 400 руб. на первого и второго ребенка, 3 000 руб. – третьего и последующих, в то время как прожиточный минимум на ребенка 10 150 руб. (Rossiya v tsifrakh 2019: Krat. stat. sb.).

В результате те налогоплательщики, доходы которых находятся на уровне прожиточного минимума или чуть выше, лишаются не только части средств на воспроизводство своей рабочей силы, но и на содержание иждивенцев.

Еще одним недостатком действующей модели НДФЛ в России является присутствие в ней скрытой регрессии за счет косвенных налогов: НДС, акцизов и таможенных пошлин. И поскольку они входят в виде надбавки в цену практически всех потребительских товаров, то фактически уплачиваются населением. При этом доля косвенных налогов в общей сумме дохода снижается по мере роста доходов, что и обуславливает их регрессивный характер. Но в большинстве развитых стран регрессия при уплате налогов на потребление способствует сглаживанию установленной прогрессии в индивидуальном подоходном налогообложении. В российской же налоговой системе в условиях действия пропорциональной шкалы НДФЛ, а также существенного превышения косвенных налогов над прямым индивидуальным налогом, налогообложение населения фактически приобретает ярко выраженный регрессивный характер (Panskov & Mel'nikova).

Сравним совокупную налоговую нагрузку работника с самым распространенным размером среднедушевого денежного дохода (50% населения России) и высокодоходного гражданина в таблице 3. Как видим, налоговая нагрузка почти в 2 раза выше у работника с низким доходом. Причем сумма его накоплений не позволяет ему воспользоваться остальными льготами и вычетами: на образование, лечение и тем более приобретение имущества. Что же касается высокодоходного гражданина, то он может еще больше сократить свою эффективную ставку за счет применения социальных и имущественных вычетов практически до нуля.

Таблица 3. Сравнение налоговой нагрузки граждан с разными доходами в РФ в 2018 г. (Rossiya v tsifrakh. 2019: Krat. stat. sb.; составлено автором)
Table 3 Comparison of the tax burden of citizens with different incomes in Russia in 2018 (Rossiya v tsifrakh. 2019: Krat. stat. sb.; compiled by the author)

Показатель	Доход (низкий)		Доход (высокий)	
	в месяц	в год	в месяц	в год
Доход, руб.	13 630	163 560	200 000	2 400 000
Доля населения, %	50		5	
Сумма вычетов на 1 ребенка, руб.	1 400	16 800	1 400	1 400
Ставка НДФЛ, %	13		13	
Доход после уплаты НДФЛ, руб.	12 040	144 480	174 182	2088182
Величина прожиточного минимума, руб.	10 287	123 444	10 287	123 444
Доля НДС в доходе, %	11,51		0,78	
Совокупная налоговая нагрузка работника, %	24,51		13,78	
Сумма накоплений, руб.	1 753	21 036	163895	1964738
Социальные вычеты по расходам на лечение и образование, руб.	-		120 000	
Имущественные вычеты по расходам на приобретение жилья, руб.	-		2 000 000	
Итоговая налоговая нагрузка работника, %	24,51		0	

Таким образом, плоская шкала НДФЛ в России, не учитывающая не только материальное положение граждан, но и их возраст, состав семьи, а также обложение налогом доходов ниже прожиточного минимума, привели к тому, что российская налоговая система оказалась перевернутой – значительное налоговое бремя несут бедные, низкооплачиваемые слои населения, тогда как богатые граждане пользуются разными налоговыми привилегиями и льготами (Davletshin, 2019).

Это еще более усиливает дифференциацию и степень расслоения населения в стране по уровню доходов и провоцирует массовое уклонение от налогообложения. По оценкам Ассоциации дипломированных сертифицированных бухгалтеров (АССА), объем теневой экономики России к началу налоговых реформ подоходного налогообложения – в 2001 году составлял 21% ВВП (1,7 трлн руб.), а 2016 году он достиг 39% ВВП (33,6 трлн руб.) (The Association of Chartered Certified Accountants, 2017).

На высокую степень расслоения населения в РФ указывает значение коэффициента Джини (индекс концентрации доходов) – 41,13, которое в 1,5–2 раза превышает его уровень в развитых странах: 20–35. Коэффициент фондов, показывающий разрыв между 10% самого богатого и 10% самого бедного населения, составил в 2018 году 15,6, также существенно превышая

среднемировые значения: 7–10. (OECD, 2018).

Кроме того, в настоящее время почти 80% работающих россиян получают заработную плату меньше среднего ее уровня в стране (43 445 руб.), а 12% населения получают денежные доходы меньше величины прожиточного минимума (10 287 руб.) (Rossiya v tsifrah 2019: Krat. stat. sb.).

Таким образом, уровень неравенства в российском обществе на порядок превосходит аналогичные показатели ведущих экономик мира.

Выводы *Conclusions*

В результате исследования и сравнения российской и зарубежной практики применения подоходного налогообложения выявлены его особенности и специфические факторы в Российской Федерации:

- низкий уровень денежных доходов населения и их соотношения с ВВП, плоская шкала налогообложения с низкой налоговой ставкой, а также высокий процент теневой экономики не способствуют существенному пополнению бюджета и выполнению им фискальной функции;
- высокая степень расслоения населения по уровню доходов, плоская шкала налогообложения, не учитывающая не только финансовое положение граждан, но и социальный статус: возраст, состояние здоровья, семейное положение, состав семьи, не позволили ему выполнять в полной мере и социальную функцию.

Таким образом, есть все основания сделать вывод, что систему российского подоходного налогообложения необходимо реформировать. Реформа должна затронуть, в первую очередь, сам механизм налогообложения, поскольку низкая и плоская ставка НДФЛ не дает возможности маневрировать при предоставлении льгот и преференций без ущерба для бюджета. Что же касается налоговых вычетов, то их следует привести в соответствие с прожиточным минимумом, а выпадающие при этом доходы бюджета следует компенсировать прогрессивной шкалой налогообложения. Здесь следует также учитывать позитивный и негативный опыт зарубежных стран в установлении максимального размера дохода, облагаемого повышенными ставками.

Если в странах ЕС прогрессия в основном затрагивает платежеспособный средний класс, то для России с высоким расслоением населения такой механизм не подойдет. Поскольку попросту средний класс отсутствует, и взимать повышенный налог будет не с кого, а точнее не с чего. Наиболее вероятным в применении в российской практике может стать американский опыт, где разрыв с максимальной суммой, облагаемого

по высокой ставке налога, достигает почти 20 раз. Другими словами прогрессия в России должна быть достаточно резкой.

При введении прогрессивной шкалы в РФ особо остро стоит проблема «теневых» доходов. Наиболее действенным инструментом в борьбе с такими доходами во всем мире является контроль за расходами физических лиц с одновременным их сопоставлением с уровнем задекларированного дохода. Особых успехов в данном направлении добились США, скандинавские страны. При этом и в России на сегодняшний день скрывать расходы становится все сложнее, в силу развития института регистрации права собственности по всем дорогостоящим объектам (недвижимости, транспортным средствам, ценным бумагам), а также информационных технологий и цифрового дистанционного контроля, имеющих на вооружении у налоговых органов и уже доказавших свою эффективность.

В качестве рекомендаций по совершенствованию механизма подоходного налогообложения в России предлагается:

- привести в соответствие с прожиточным минимумом размеры налоговых вычетов, учесть при этом семейное положение и социальный статус налогоплательщика;
- выпадающие при этом доходы бюджета следует компенсировать прогрессивной шкалой налогообложения с достаточно резким ростом ставки. Это позволит облагать сверхдоходы богатых граждан;
- в налоговом администрировании перейти к налоговому контролю за расходами физических лиц с одновременным их сопоставлением с уровнем задекларированного дохода.

Summary

The aim of the study is to develop recommendations for improving the mechanism of income taxation in Russia, taking into account historical experience and best foreign practices.

Taxes are the most important instrument of state regulation of the economy, a special place among which is the tax on personal income. The most acute in the field of income taxation is the problem of justice. However, despite the rich and long world history of income taxation, to date, its universal mechanism has not been created that would take into account and measure the socio-economic interests of the population and the fiscal interests of the state.

An analysis of the existing system of taxation of personal income in Russia in comparison with leading foreign countries revealed its features and identified problems. Almost 20 years of the flat personal income tax existence in Russia has made it a stable source of budget revenues (10%), but insufficient to fulfill the fiscal function. This is largely due to the low rate (13%) and flat personal income tax in Russia. This does not take into account not only the financial situation of citizens, but also their age, family composition, and taxation of income below the subsistence level. As a result, the Russian tax system has been turned upside down - the poor, low-paid sections of the population bear a significant tax burden, while rich citizens enjoy

different tax privileges and benefits. Thus, the fulfillment of the social function by personal income tax is also called into question by the author.

As events that increase the importance of personal income tax in Russia, and based on foreign experience, it is proposed:

- bring tax deductions in line with the cost of living, taking into account the marital status and social status of the taxpayer;
- budget revenues falling out should be compensated by a progressive taxation scale with a rather sharp increase in the rate. This will allow taxing the super-incomes of wealthy citizens;
- in tax administration, switch to tax control over the expenses of individuals with their simultaneous comparison with the level of declared income.

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TECHNOLOGICAL CHALLENGES IN THE CONTEXT OF TRAINING MODERN LAWYERS

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Abstract. *The development of modern technologies poses new challenges for training legal professionals. Traditional forms of teaching do not produce the desired secondary effect (for example, the students' interest in acquiring knowledge in a particular course) or the end result (acquiring the competences needed for the modern job market). Consequently, teaching should be more focused on the application of new, non-traditional forms of education while preserving the best traditions of legal training (handwriting rather than e-device, developing communication skills and emotional intelligence). As a result, this article analyses the use of technologies and potential threats they pose to maintaining traditional values specific to the legal profession in the education process. The article, using the method of literature analysis, dialectical research, the deductive and inductive method, analysis and synthesis, and modelling, which ensures the validity of the results obtained, sociological observation method, including as well as the experience of Rezekne Academy of Technologies and of Pskov State University in the training of new lawyers, summarises information and draws conclusions on how to use technology and its development opportunities in the education process.*

Keywords: *education programme, education technologies, information and communication technologies, law, professional competencies.*

Introduction

Currency of the issue of training future lawyers is determined by the review of a complex of educational approaches, technologies, and methods in the modification of students' legal consciousness and legal awareness of the digital transformation of educational and professional space when they perform their legal practice, law enforcement, and expert advisory activity while achieving professional efficacy and a social effect.

Both Russia and Latvia have designed strategies for increasingly greater introduction of technologies in various spheres of life, including the field of Law.

Development of legal education in Russia as well as Latvia is determined by the legal and regulatory framework, qualification requirements, specific criteria and results for educational institutions in designing education programmes, implementing the academic process for training future specialists, updating educational approaches for launching new professions and work arrangements for a future lawyer.

The leading motive for decreasing inertia in order to improve the training of lawyers, which can certainly promote the effectiveness of policy-making and legal practice, is updating the educational and networking partnership with the professional sector, business community, and governmental institutions of our countries, between both higher education institutions, and other foreign cooperation partners in the creation and launching of digital and professional platforms for the implementation of practice-oriented and interactive education arrangements in various areas of Law.

Thus, in the framework of implementing the Strategy for Development of Information Society in the Russian Federation (hereinafter – Russia) in accordance with the Decree of the President of Russia dated 09.05.2017 No. 203 “On the Strategy for Development of Information Society in Russia for 2017 – 2030”, in the conditions of digital transformation of the legal system, digital competencies of professionals are in demand. Development of new information technologies transforms the institutes of law in the area of public processes: the legal status of a digital profile, the procedure for the identification and authentication of persons in property relations, the legal status of the material situation and smart contracts, the system of government control of cryptocurrency turnover and cryptocurrency transactions, the procedure for online settlement of disputes and legal conflicts, the legal status of cybernetic and information security.

Law specialists are prepared at the Rezekne Academy of Technologies (Latvia), Faculty of Economics and Management, the Legal Science field, and at Pskov State University (Russia), the Faculty of Law. To make sure the training of specialists best corresponds to the modern development trends, both higher education institutions devote special attention to the introduction of new forms of teaching on the basis of the laws and regulations created by the authorities of their respective countries for the development of digital technologies.

The aim of the research is to discover the considerations and prospects of applying educational approaches and methods during the development process for the implementation of education projects using the networking/online and distance solutions as a prospect for restyling current education programmes in different areas of Law.

The following general scientific methods were used in the research process: dialectical research, the deductive and inductive method, analysis and synthesis,

and modelling, which ensures the validity of the results obtained, sociological observation method.

Discussion and results

In order to fulfil the provisions of the national projects “Digital Economy in Russia” and “Education” in accordance with the Order of the Government of Russia dated 08.05.2019 No. 570 “On the Implementation of Certain Measures Aimed at the Creation and Development of the Information Resource “Modern Digital Educational Environment in Russia”, the proportion of working-age specialists with competitive professional competencies shall amount to 37% annually in the process of implementing the plan for the achievement of national development objectives until 2024.

When reviewing the issues related to the formation of new competencies of a lawyer on the job market, it would be hard to disagree with the opinion of the authors (Perevalova, Mezenceva, & Shemshurina, 2019, p. 159) who indicate a number of unsolved *problems*:

- No linear interdependence of professional and education standards;
- Low diversification of the education track network;
- Insufficient technological supply of digital resources and specialisation platforms; and as a result,
- Low demand for previous professions of a lawyer.

A number of flaws has been found when the authors analysed the Russian national education standards:

- No qualification requirements for lawyers found regarding the use of digital technologies at the level of a basic and professional user where the formation of integrational competencies is possible, determined by the interdisciplinary and networking approach;
- No directions of professional activity and related professional competencies are registered in the field where ICT software is applied;
- During the design of new standards and their synchronisation with professional standards in a short period of time in the form of a project, they become outdated, which calls for a proactive approach to designing education projects.

Currently, in order to form competitive professional competencies, Russian higher education institutions (Serova, 2019, 18) are designing and introducing trending (interdisciplinary) and alternative education programmes. Whereas during the liberalisation of third generation federal education standards while introducing professional standards, it is possible to build individual education tracks, design a competency integration model, which allows personalising the

education path independently, unlocking the professional potential, with the capacity to eliminate and pre-empt violations of the law and prevent any threats of the digital transformation of the legal system.

For example, in accordance with the requirements of the Federal State Learning Standards for Vocational Higher Education (hereinafter – FGOS VPO) of Russia and the standards for the profession of a competition law specialist and a financial monitoring specialist, the competency integration model of the Master level education project in the field of training 40.04.01 Law, specialty “Legal Regulation of Digital Economy” in Russia contains a set of professional competencies (PC) and specialised professional competencies (SPC).

The competency integration model provides for solving the following problems: - designing a practice-oriented approach to the education process on the basis of digital and professional platforms; - designing learning and teaching support materials in the form of modules in the corresponding academic courses; - interdisciplinary design and modification of existing education programmes in the field of law, economics, information and engineering technologies in the implementation of trending and effective education technologies and methods.

To summarise, updating the qualification features of a modern lawyer, including in accordance with the Order of the Government of Russia dated 18.06.2017 No. 723 “On the Approval of the Provisions for Providing Grants in the Form of Subsidies from the Federal Budget to Federal State Higher Education Institutions”, is determined by following an abundance of education criteria, including the integration of technologies in the learning process. For example:- Quality of online courses and skills requirements in the field of online learning; Quality of software, technological infrastructure, government services, integration solutions for the development of single window online learning; Level of diversity and promotion of modern education technologies based on the principles of fundamentalism, science, and technology; Degree of involvement in cooperation with employers in the framework of contractual legal relationships in designing online education products, providing common professional examination platforms and digital platforms for practice-oriented and interactive forms of education.

Based on the experience of leading practitioners and specialists, in Pskov State University, in accordance with the above features, an educational project has been created at the master's level in the field of education 40.04.01 Law, specialty "Legal regulation of the digital economy." In Russia, the program must comply with the requirements of the market and the following regulations: Federal Law “On Education in Russia” dated December 29, 2012 No. 273-Ф3 Based on the experience of leading practitioners and experts, in Pskov State University proposed in accordance with the features above, the Master level

education project in the field of training 04/40/01 Law, specialty “Legal Regulation of Digital Economy” in Russia needs to correspond to the demands on the market and the following laws and regulations: Federal law “On Education in Russia” dated 12/29/2012 No. 273-FZ; Order of the Ministry of Education and Science of Russia dated 23 August 2017 No. 816 “Procedure for the Use of Electronic Learning, Distance Education Technologies by Educational Organisations during the Implementation of Education Programmes”; Order of the Ministry of Education and Science of Russia dated 14.12.2010 No. 1763 (rev. date 31.05.2011) “On the Approval and Putting into Effect of the Federal State Higher Vocational Education Standard in the field of training 030900 Law (qualification (degree) "Master")”; Order of the Ministry of Labour of Russia dated 09.10.2018 No. 625n “On the Approval of the Professional Standard “Competition Law Specialist”; Order of the Ministry of Labour of Russia dated 24.07.2015 No. 512n “On the Approval of the Professional Standard “Financial Monitoring Specialist (In the Field of Countering the Legalisation (Laundering) of Criminally Obtained Incomes and the Financing of Terrorism)”. This register of the fundamental legal principles contains legal regulations for the implementation of project, professional, and granting activity in the field of Law.

Whereas the training of future legal specialists at RTA was started in 1995. In 1995, the Law on Higher Education (Law on Higher Education Institutions, 1995) was adopted and comes into force in Latvia. On 10 June 2010, the Parliament of the Republic of Latvia (hereinafter – Latvia) approved the “Sustainable Development Strategy of Latvia until 2030” (Sustainable Development Strategy of Latvia until 2030, 2010). This strategy stresses the importance of developing the regions of Latvia, the importance of change in the educational paradigm, quality and accessible lifelong education, and quality of education as a development opportunity for Latvia and as a prerequisite for increasing the value of human capital. As for technologies, the strategy stresses that global economy and technologies can significantly change in the next 20 years, and an effective and flexible higher education system is a decisive factor for the competitive capacity of Latvia and the value of human capital. The National Development Plan of Latvia for 2014 also defines the primary areas where the rightfulness and ensuring of effective application of law in any field of activity has an important place.

The programmes implemented at RTA in the “Legal Science” field have been designed on the basis of the Standard for the Profession of a Lawyer (Latv. - *Jurista profesijas standarts*) and the Standard for the Profession of an Assistant Lawyer (Latv. - *Jurista palīga profesijas standarts*), which are mandatory for application in all Law programmes in Latvia. Starting from academic year 2020/2021, Master students in all Law programmes in Latvia will

be taking a centralised exam in Law in order to certify their qualification of a lawyer. And in the conditions of ensuring a common approach in the “Law Science” field, RTA has also introduced changes in the Master programme to make sure it corresponds to the common requirements provided for by Cabinet Regulation No. 46 dated 14.01.2019 “Procedure for the State Centralised Examination for the Professional Qualification of a Lawyer”. The Master education programme in Law (2 years or 4 semesters) and the preceding academic Bachelor programme (3 years) together ensure the fulfilment of the requirements of this common standard. Master students approach the examination test with knowledge in five areas of Law: criminal law/criminal proceedings; civil law/civil proceedings, commercial law; international law and European Union law; constitutional law, administrative law/administrative procedure law; legal theory, legal philosophy, and the history of Latvia. The test consists of two parts: theoretical part and practical part (solving cases in all five areas of Law). It is planned that the qualification exam will be computerized and Master students will be taking the test in the electronic environment using only the legislative database of Latvia on www.likumi.lv for solving cases, and codes will be used.

The RTA e-course (Moodle) system is also actively used in training of young lawyers (www.ekursi.lv).

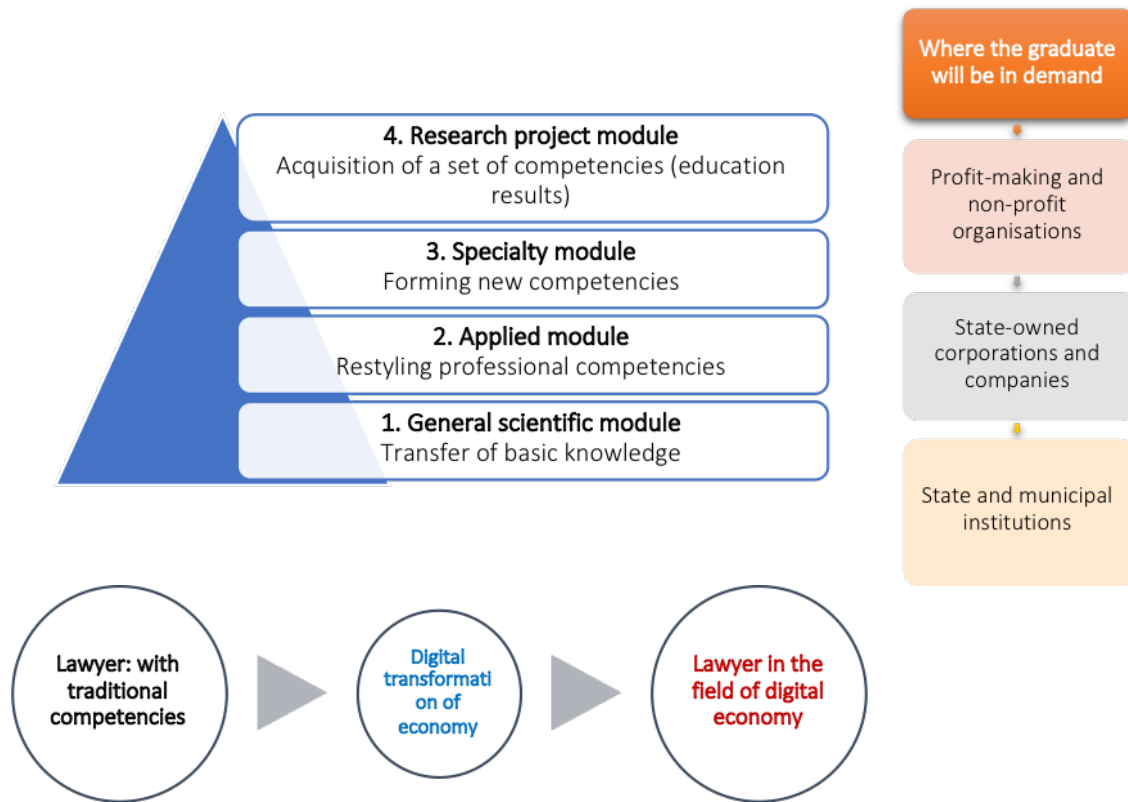
The education project is unique because a networking approach of RTA and Pskov State University is planned in the implementation of an interdisciplinary, practice-oriented modular and block solution. The prospect of the project is the approbation of the online learning model, trending and effective education methods for forming digital competencies during the implementation of additional education programmes.

The aim of the education project designed by Pskov State University is to prepare professional lawyers who are able to apply digital technologies to the design and application of legal tools when ensuring and protecting the rights of the subjects of legal relationships, court proceedings and enforcement proceedings in the field of digital economy, digital transactions, business-process management, databases, electronic signature and personal data, intellectual property and blockchain technologies.

The advantage of the education project is the transfer of professional and IT platforms by education partners and the professional community of employers – programme experts, members of the Academic Council in the organization of practice-oriented activity and the work of project teams in the creation of individual and common projects (orders).

The concept of the Master programme in Law at Pskov State University is filled with trendlines, which form the mission and competitive capacity features of the education project, the segment of the target audience, education paths and

results, the design of the portrait of a graduate (Figure 1). The concept consists of four modules: the general science and professional module, the module “Practice and Scientific Research: Specialties”, and the module “Final State Certification: Research Project”, which ends in awarding the qualification “Master”.



Competency Landscape of a Graduate

Policy-making
Legal practice
Basic and Leadership Competencies

BC-1, 2, 3, 4
PC-1, 2 + SPC:

- ▶ Ability to create a strategic vision
- ▶ Ability to be a leader and a team player
- ▶ Striving for professional cooperation and independence

Policy-making
Legal practice
Basic and Leadership Competencies

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Policy-making
Legal practice
Basic and Leadership Competencies

BC-1, 2, 3, 4
PC-1, 2 + SPC:

- ▶ Ability to create a strategic vision
- ▶ Ability to be a leader and a team player
- ▶ Striving for professional cooperation and independence

Figure 1 Predicted Portrait of a Graduate (developed by the authors)

The target audience includes human resources for companies, organisations, and institutions implementing professional activity in the field of digital economy and those in need of digital updating of their knowledge and competencies in these fields.

Flexible and alternative education approaches and methods are planned for personalising education tracks. In this cycle, the first year of education, the so-called *exploration* year, is related to formulating problems and the motive by the Master students during the acquisition of knowledge. The forms of the learning process are the following: intensive lectures, distance reference form, consultations, intensive meetings with personal approach, work in project teams, independent distance learning, case-studies. Forms of on-going control: *exploration* essay presentation, monitoring list; digest of legal norms; roadmaps, conclusion and expert evaluation projects. Form of intermediate control: test/ differentiated test/ exam with public approbation of scientific and legal results.

Whereas the second year of education – *actualisation of problems in practice* – contains such forms of the learning process as online sessions, discourse analysis, work in project teams, synchronous seminars, master classes, action research. Forms of on-going control: discussing prospectuses, roadmaps, models. Form of intermediate control: test/ differentiated test/ exam with public approbation, presenting scientific reviews, scientific articles, theses and portfolio.

The structure of the Master programme forms a complete education cycle (Figure 2) of project logic where education results are prioritised at the level of the programme, module, academic subject, and class, including the (conventionally labelled) integration component 3F: the form of conducting classes, the form of on-going and intermediate control in the acquisition of competencies.

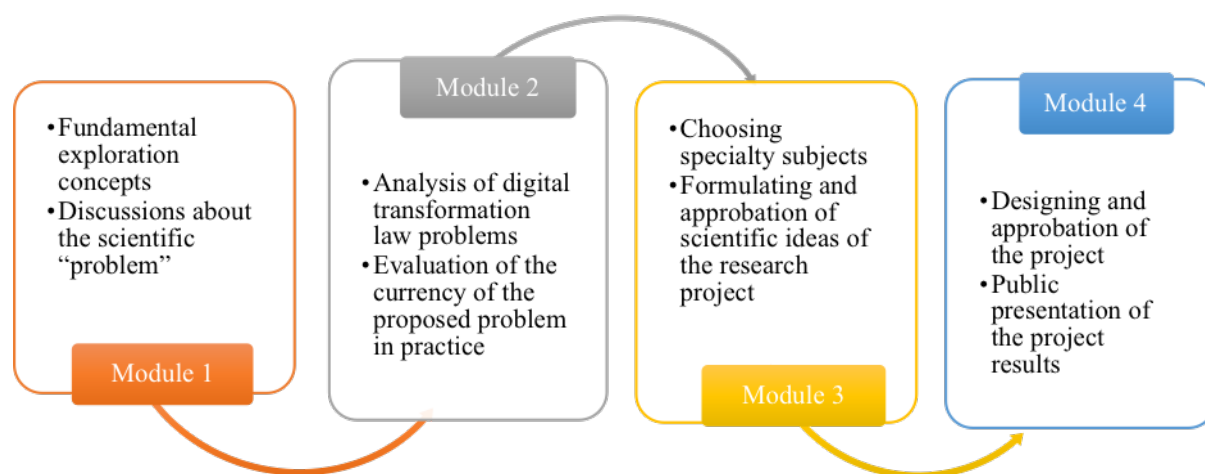


Figure 2 *Complete Education Cycle of the Programme* (developed by the authors)

Summary

Overall, reviewing and launching modern education approaches and methods at Pskov State University can be a factor in applying technological solutions while preserving the principles of fundamentalism, science, and professionalism in the training of lawyers. At the same time, on the basis of the implementation of the common approach, including to the centralized qualification exam in Latvia, the experience of RTA in using technologies, while preserving classic traditions of legal education is imperative, can promote the growth of competitive capacity of RTA graduates on the job market of Latvia and the European Union.

Whereas the implementation of the education project of Pskov State University with the participation of RTA described in this article will promote the development of not only education programmes in Law at Pskov State University and RTA, but also the development of both higher education institutions and the regions in general.

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THE EXPECTED DEMOGRAPHIC INFLUENCES ON THE PROVISION OF EDUCATION SERVICES IN THE NEIGHBOURHOODS OF RIGA

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***Abstract.** This paper discusses the spatial extent of population change and provides new insights into the relationships between demographic characteristics and the provision of education services in urban neighbourhoods of Riga. Thus, our empirical evidence confirms that the provision of social infrastructure is fundamentally dependent on the nature of demographic processes. The aim of this paper is twofold: to explore the spatial extent of changes in the number of pre-school and school-aged children in Riga, and to assess how the demographic change of particular age cohorts are associated with the provision of educational establishments at the neighbourhood level. Using available statistics and based on calculations, this article reveals how the interplay between demographic and education related characteristics could be used in the analysis of particular age groups. The main findings show that educational institutions in capital city are distributed unevenly. Similarly, there is a great variety in demographic development between the urban neighbourhoods of Riga. Thus, unmatched demand for educational facilities or lacking specific types of institutions altogether create additional load in the neighbourhoods of inner-city, while increasing daily mobility of children and their parents.*

***Keywords:** demography, educational statistics, population forecast, Riga, school network, urban neighbourhoods.*

Introduction

Throughout the past decades' demographic change in Latvia and its consequences on socio-economic development has attracted growing interest in academic studies, public debate, and national policies. Since the early 1990s, Latvia along the other countries of Central and Eastern Europe experienced

sudden and simultaneous turnabouts in all the components of demographic change – fertility, mortality and international migration (Krūmiņš & Krišjāne, 2016; Weishaupt, 2016; Fihel & Okólski, 2019). The recent demographic processes and the post-socialist transition created unique conditions, resulting in a certain deterioration in the living standards for society and a drop in expenditure for social infrastructure (Vihalemm et al., 2017). Therefore, the share in total population and geographic distribution of particular age groups is essential in the provision of certain services. Riga, the capital and the largest city of Latvia, houses around one-third of nations nearly two million populations. The Latvian capital, similarly to other largest cities in the Central and Eastern Europe, has witnessed a process of steadily population decline (Kabisch & Haase, 2011). Population shrinkage has contributed to changes in the age structure of the urban population. Some paradox is emerging since 2011, as both the elderly and the child share have been increasing at the same time (Bērziņš, 2019). Thus, the Riga City Council has to take into account the demand for adequate social infrastructure and to ensure coverage of the essential services and facilities among others also efficient school network provision. According to the responsibility of Riga City Council, they should provide access to pre-school education, primary education, secondary or vocational education to all children. Access also include choice of interest education, support extracurricular activities. The infrastructure of educational institutions in the city of Riga consists of the network supported by the state, municipality and private institutions. Nevertheless, it has been stated that school network in Riga require optimisation (RD IKSD, 2020).

The aim of this paper is twofold: to explore the spatial extent of changes in the number of pre-school and school-aged children in Riga, and to assess how the demographic change of particular age cohorts are associated with the provision of educational establishments at the neighbourhood level. Using available statistics and based on calculations, this article reveals how the interplay between demographic and education related characteristics could be used in the analysis of particular age groups.

Previous studies and literature review

Demographic change affects societal development at various levels and social infrastructure. Thus, touching upon school network when studying the distribution of children in a city (Weishaupt, 2016). A recent study on population modelling in the context of urban land use shifts in Europe recognise the importance of composition and dynamics of the population in the projection of the population structure (Terama et al., 2019). Mayaud et al. (2019) have studied accessibility to essential services among most vulnerable groups such as children and youth and seniors. A recent study by Langfor et al. (2019) addresses the

urgent need to map the observed picture of the institutional network at early childhood age. The situation in Latvia highlights the importance of research-based policymaking and increase of awareness of demographic issues (Rivza & Jermolajeva, 2018). Previous demographic research as the main challenges indicated the need to overcome the population decline in Riga. As possible tools to stabilise inevitable population decrease and regular age structure update suggested to eliminate the causes of emigration and increase the number of children by supporting families (Eglīte et al., 2012; Krūmiņš & Bērziņš, 2019). Usually much effort is expended by researchers, governments and municipalities in predicting the future of the population under a given set of assumptions. This is essential for planning the health provision and improving people's access to education, in delivering future retail services and in adaption of pension system to current demographic conditions (Wilson & Rees, 2005).

Methodological approach

The interest in population forecasts has always attracted the attention of wide public. Simultaneously the number of relevant studies has increased in recent years (Krūmiņš & Bērziņš, 2019). This reflects the growing availability of statistical data to be assessed. However, the geographical coverage and the available time series are still insufficient for comprehensive population projections. In this study we used an extrapolation time series method to predict the number of pre-school and school-aged children in each neighbourhood of Riga. Extrapolative time series method allows to produce prediction intervals that encompass variability from the past change (Booth, 2006). Mathematical calculations were used to forecast place-specific changes of pre-school (0-6) and school-aged (7-14) children, based on previous studies (Krūmiņš & Bērziņš, 2019) and past data analysis of time series (2016-2019) coefficients on the changes in fertility, mortality and net migration rates. The greatest uncertainties concern the net migration component of the current forecast and the time coverage of the past data available for predictions. The data sets used in the calculations were derived from the database of the Central Statistical Bureau of Latvia (CSB) referring to territorial statistics or also named as experimental statistics. Subsequently the necessary fertility, mortality and net migration rates required for population forecast were calculated using these data sets from particular time series (2016-2019).

For the analysis on the provision of education services, we used education statistics available at the neighbourhood level in Riga. Information on the number of institutions of pre-school, general education, and vocational education, as well as sports facilities were accumulated from various sources (RD IKSD, 2020; RD PAD, 2020). It is also possible to predict the future demand for primary and

secondary education facilities by comparing current number of children in “0-6” and in “7-14” age groups in every neighbourhood. Furthermore, using available population statistics (CSB, 2020), we calculated several demographic characteristics in order to describe the demographic conditions of a particular neighbourhood in details (see Table 1). The methodological framework includes several steps of analysis. Firstly, we present descriptive statistics of the demographic and education related characteristics used in the study. Secondly, we adopt the ranking procedure of neighbourhoods based on the overall combination of the above indicated characteristics. This allowed us to find out the trend of demographic development and the provision with educational institutions in each neighbourhood of Riga and then rank them in ascending order.

Table 1 Descriptive statistics of the demographic and education related characteristics used in the study

<i>Characteristics</i>	<i>Mean value</i>
Share (%) of the pre-school aged (0-6) children, 2019 ¹	8.1
Change (%) of the pre-school aged (0-6) children, 2018-2019	10.4
Share (%) of the school aged (7-14) children, 2019 ¹	8.2
Change (%) of the school aged (7-14) children, 2018-2019	8.2
Expected change (%) of the pre-school aged (0-6) children, 2019-2030	10.9
Expected change (%) of the school aged (7-14) children, 2019-2030	8.2
Crude birth rate per 1 000 inhabitants, 2018	11.2
Crude death rate per 1 000 inhabitants, 2018	13.3
Net migration rate per 1 000 inhabitants, 2018	0.9
Pre-school aged (0-6) children per institution of the preschool education, 2019	325
School aged (7-14) children per institution of the general education, 2019	411
School aged (7-14) children per institution of the vocational education, 2019	522
School aged (7-14) children per sport facility, 2019	295

Note: ¹at the beginning of the year.

Source: Authors' elaboration based on the data acquired from the Central Statistical Bureau of Latvia (CSB) and the Education, Culture, and Sports Department of Riga City Council (RD IKSD).

Finally, the average values of the sum of the rankings obtained due to the calculations were broken down into quartiles allowing to identify the areas with good demographic conditions and the provision of educational establishments, as well as less favourable neighbourhoods. Upper quartile (see Figure 3) means

relatively good demographic conditions and balanced provision of educational establishments, while lower quartile represents demographic decline and/or lack of adequate services in terms of educational institutions and sports facilities available to children.

The expected changes in the number of pre-school and school aged children in Riga neighbourhoods

The expected changes in the number of the particular age groups of interest were calculated on the assumption of the demographic development trends from particular time series (2016-2019), taking into account basic demographic processes (fertility, mortality and net migration). According to the expected changes, the total population of Riga will continue to decline. However, the share of pre-school and school aged children is expected to stabilize (see Figure 1), but the numbers will even slightly increase by 2030. Thus, in both age groups the predicted total number of children in each age group will comprise around 50 thousand by 2030. This indicates a very small increase in the number of pre-school children and approximately the same number in the school aged group.

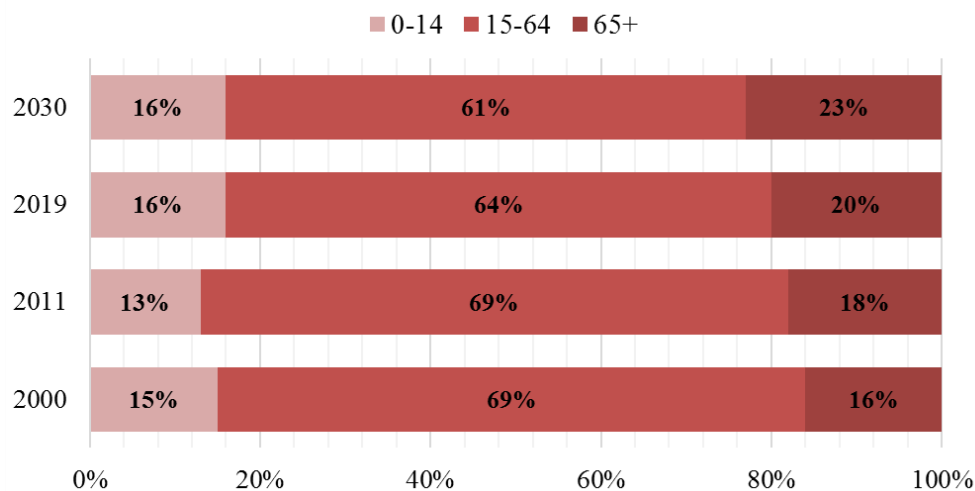


Figure 1 Estimated and expected share (%) of main age groups in Riga (authors' elaboration based on the data acquired from the CSB; Krūmiņš & Bērziņš, 2019)

Table 2 summarises the expected shifts in the numbers of children aged 0-6 years and 7-14. Numerous neighbourhoods are showing a steady to moderate decline. At the same time also moderate to high grows of the number of children can be expected, pointing to the need to reassess the school network. Neighbourhoods not mentioned in Table will hold a stable number of children up to six years old by 2030 could be stable and not differ from the one observed in 2019 by more than 5%.

Table 2 Projection results of the preschool aged (0-6) and school aged (7-14) children by the neighbourhoods of Riga for 2019-2030

<i>Strong decline (over 15%)</i> ↓	<i>Moderate decline (up to 15%)</i> ↓	<i>Age group</i>	<i>Moderate growth (up to 15%)</i> ↑	<i>High growth (over 15%)</i> ↑
Brasa Dreiliņi Mangaļsala Salas Spilve	Bieriņi Bolderāja Centrs Daugavgrīva Grīziņkalns Iļģuciemis Imanta Katlakalns Ķīpsala Kundziņsala Maskavas forštate Mežaparks Purvciems Šķirotava Torņakalns Vecmīlgrāvis Vecpilsēta Zasulauks Zolitūde	0-6 years	Āgenskalns Avoti Brekši Dārziems Dzirciems Jugla Ķengarags Mežciems Pētersala/Andrejsala Pļavnieki Pleskodāle Rumbula Šampēteris Sarkandaugava Suži Teika Trīsciemis Vecdaugava Ziepniekkalns	Atgāzene Beberbeķi Bergi Bišumuiža Bukulti Buļļi Čiekurkalns Dārziņi Jaunciemis Kleisti Mīlgrāvis Mūkupurvs Skanste Vecāķi Voleri
<i>Strong decline (over 15%)</i>	<i>Moderate decline (up to 15%)</i>	<i>Age group</i>	<i>Moderate growth (up to 15%)</i>	<i>High growth (over 15%)</i>
Beberbeķi Bieriņi Bolderāja Daugavgrīva Dreiliņi Kundziņsala Mangaļsala Mežaparks Šķirotava Spilve Suži	Buļļi Centrs Dzirciems Iļģuciemis Imanta Ķengarags Ķīpsala Maskavas forštate Pleskodāle Purvciems Sarkandaugava Torņakalns Vecmīlgrāvis Zasulauks Zolitūde	7-14 years	Āgenskalns Atgāzene Avoti Brasa Bukulti Dārziems Grīziņkalns Jaunciemis Jugla Mežciems Mīlgrāvis Pētersala/Andrejsala Pļavnieki Salas Teika Trīsciemis Vecpilsēta Ziepniekkalns	Bergi Bišumuiža Brekši Čiekurkalns Dārziņi Katlakalns Kleisti Mūkupurvs Rumbula Šampēteris Skanste Vecāķi Vecdaugava Voleri

Source: Authors' elaboration based on the data acquired from the Central Statistical Bureau of Latvia (CSB).

The current provision of education services in the neighbourhoods of Riga

The following maps below (see Figure 2) show the number and distribution of institutions of the pre-school education and institutions of the general education, vocational education, and sports facilities in Riga. Both maps indicate an uneven distribution of educational facilities available in each neighbourhood. The smallest spatial variance is observed in pre-school institutions, while variance for schools and vocational schools is higher. Small in terms of population and some outer-city neighbourhoods mostly enjoy relatively low demand for schools and other facilities. Although understandably, vocational schools are mostly situated in the inner-city, there is an apparent lack of such institutions in densely populated neighbourhoods with high shares of children in 7-14 age group. The neighbourhoods with unmatched demand for educational facilities or lacking specific types of institutions altogether create additional load on their adjacent areas and central parts of the city while increasing daily internal mobility of children and their parents.

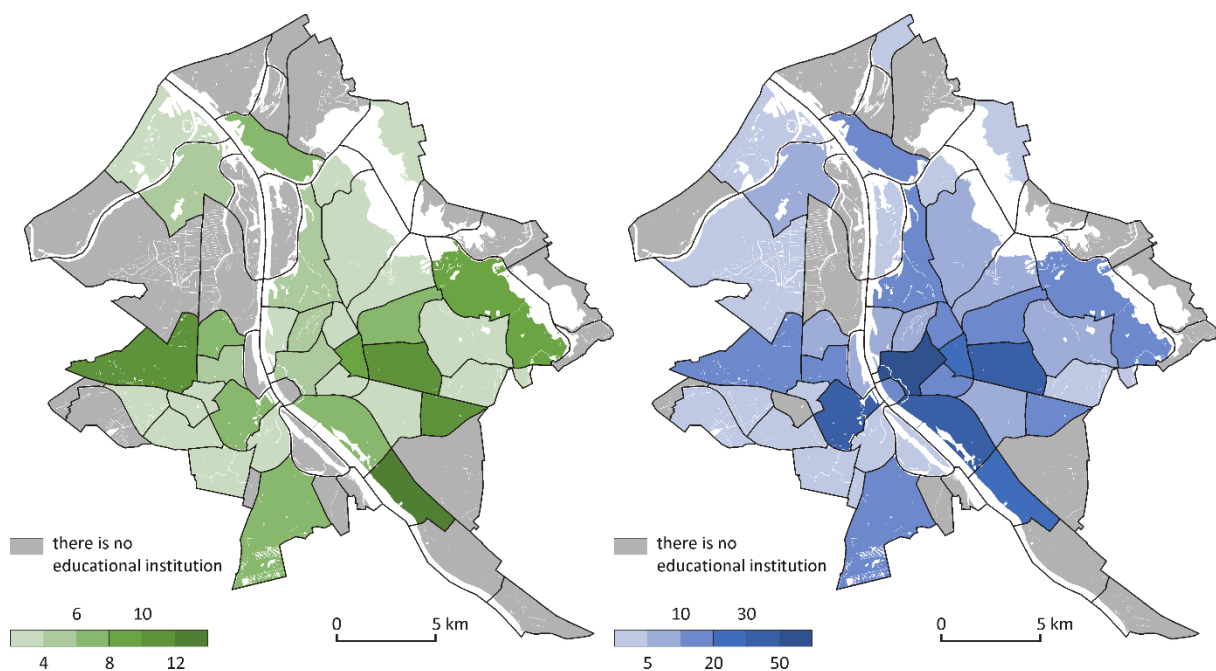


Figure 2 Number and distribution of institutions of the preschool education (on the left) and institutions of the general education, vocational education, and sports facilities (on the right) in the neighbourhoods of Riga (authors' elaboration based on the data acquired from the Education, Culture, and Sports Department of Riga City Council, RD IKSD))

When looking at regular schools, the situation is similar. With some exceptions, most neighbourhoods currently dealing with higher demand for primary schools will see a gradual reduction in the number of school-age children

within the next few years when relatively smaller pre-school groups reach primary school age.

The results of the neighbourhood ranking based on the overall combination of the demographic and education related characteristics confirms that the provision of education services in terms of different kind of institutions are distributed unevenly within the city (see Figure 3). It is also evident that according to the current development trend, educational infrastructure in Riga neighbourhoods is fragmented. Thus, the unmatched demand for educational facilities or lacking specific types of institutions altogether create additional load on their adjacent areas and central parts of the city, while increasing daily internal mobility of children and their parents. According to the obtained results of ranking procedure the neighbourhoods in upper quartile (Q1) display balanced distribution of demographic and education-related characteristics, which means that demographic trends are consistent with the available infrastructure of educational institutions. These neighbourhoods are mostly located in the inner-city, as well as some outer-city neighbourhoods where demographic characteristics appeared to be very good (e.g. Bullī, Vecāķi, Kleisti, Dārziņi, Atgāzene).

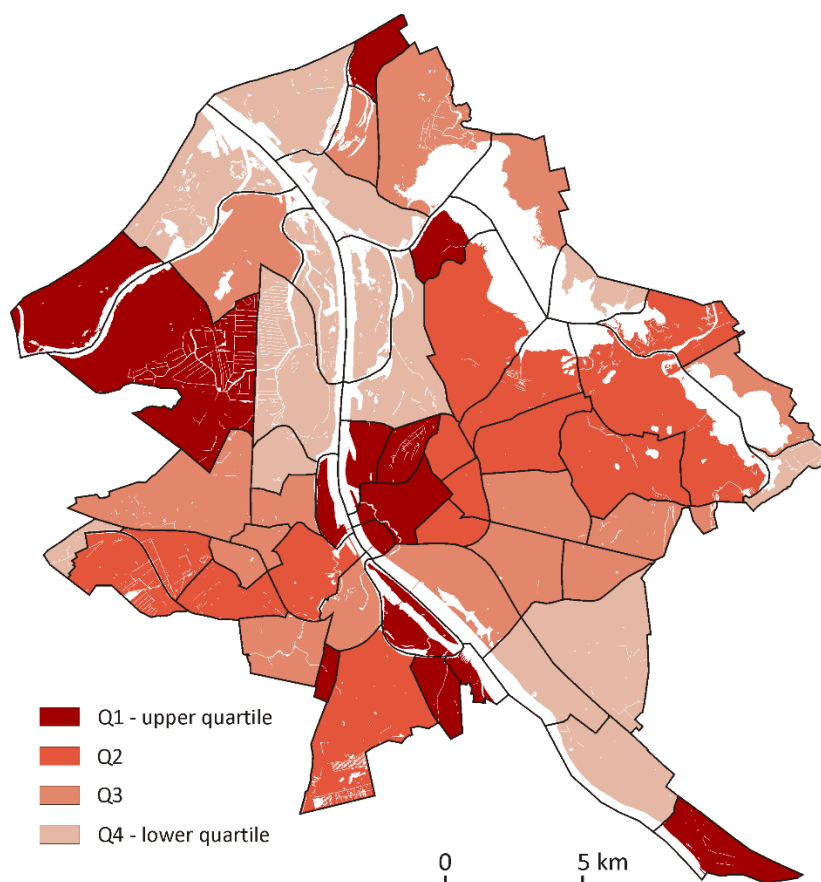


Figure 3 *The results of the overall ranking of the demographic and education related characteristics used in the study (authors' elaboration based on the data acquired from the Education, Culture, and Sports Department of Riga City Council, RD IKSD)*

At the same time the Figure 3 indicates that urban neighbourhoods in the both lower quartiles (Q3 and Q4) represent areas with a not balanced distribution of education services in terms of institutions and demographic trends. Consistent planning approach for sustainable societal and territorial development should be regarded in those urban neighbourhoods with a numerous population (e.g. Ķengarags, Ilģuciems, Dzirciems, Sarkandaugava, Pļavnieki, Purvciems, Imanta, Vecmilgrāvis and others).

Conclusions

We summarise the conclusions of our study of the expected demographic influences on the provision of education services in the neighbourhoods of Riga. Spatial analysis on demographic change and provision of education services is essential for societal development. This is particularly noteworthy in the context of depopulation trends in Latvia and planning the future provision of social infrastructure. With this paper we explore the spatial extent of changes in the number of pre-school and school-aged children in Riga by assessing the demographic change of particular age cohort's association with the educational establishments at the neighbourhood level. A clear distinction between neighbourhoods can be seen from the available data. In some cases, pre-school age group significantly outnumbers the 7-14 age group, indicating a potentially growing demand for primary and secondary schools, as well as for associated vocational and sports facilities in the next decade. Neighbourhoods with unmatched demand for educational facilities or lacking specific types of institutions altogether create additional load on their adjacent areas and central parts of the city, while increasing daily internal mobility of children and their parents.

Acknowledgements

This work was supported by the ERDF grant 1.1.1.2/VIAA/1/16/184 and National Research Program Project grant number VPP-IZM-2018/1-0015.

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THE GEOGRAPHY OF INTERNATIONAL STUDENTS IN LATVIA'S HIGHER EDUCATION: PREROGATIVE OR 'SECOND CHANCE'

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Abstract. *This paper links geographies of in-flow international students to the higher education system in Latvia and destination country choice rationales. Latvia welcomes international students from diverse geographies. Besides specific sourcing countries like Germany and India, there are also considerably constant and stable flows from former Soviet countries. International students are both an essential source of revenue for higher education institutions and to some extent, replacement of decrease of local students.*

This study adopts a mixed-method approach and based on the analysis of official statistical data and survey data. The survey reveals views on decision-making process and motives of current full-time international students in Latvia. The results indicate that to an extent, geography sets the main motives for study choice in Latvia. Seldom Latvia is set as the only priority destination country. On the one hand, among others balanced costs and accessibility of quality education in English attract foreign students, thus providing 'second chance' to be successful. On the other hand, Latvia gives the prerogative to have education in the European Union which for long-distance travelled students is a life-time opportunity.

Keywords: *foreign students, higher education, human geography, Latvia.*

Introduction

Economic development and success of the country and region largely depend on human capital resources. The young population for that reason is an essential asset for, firstly, the sustainability of educational, secondly, employment system and, thirdly, demographic stability and reproduction. Noteworthy, thus the question on how can Latvia attract and retain human resources, for local educational and employment systems?

Lacking human resources or international students, Latvia does receive but are unable to retain in a longer-term successfully. The higher education system is an essential economic sector in Latvia. Moreover, student mobility is also an element of internationalisation of the higher education institution itself (Mietule et al., 2019). While the increase in international students generates financial benefits in the short term, the proportion of graduates remaining in Latvia and entering the local labour market is modest. Even more students from Western Europe to Latvia are „second chance migrants“ who are looking for the opportunity to be successful. Overall, Latvia is not a favourable destination among immigrants from other countries. However, in the past decade, there is a steady increase in numbers of international students choosing Latvia as their destination country. Latvia due to its geography (Eastern border of the EU), history (post-soviet heritage), social (large number of Russian speaking minority; low integration rates) and economic (low costs of living, low university fees and also low integration into labour market as a drawback) context serves to international students to a lesser extent.

The study aims to link geographies of in-flow international students to the higher education system in Latvia and destination country choice rationales. This study adopts a mixed-method approach and based on the analysis of official statistical data and survey data. The survey reveals views on decision-making process and motives of current full-time international students in Latvia.

Literature review

The migration history within Europe and elsewhere are traditionally strongly connected to inequalities in the home country. Mostly migrants from developing or relatively poor countries choose to move to regions with a higher level of welfare (King, 2017).

Within Europe, there have been several factors that have contributed to international migration. In 1989-1991 and after 2004 eight Central and Eastern European countries (Estonia, Latvia, Lithuania, Poland, Hungary, Czech Republic, Slovakia and Slovenia) joined the EU, followed by Bulgaria and Romania in 2007 and Croatia in 2013. New migration flows ensued from east to west. The so-called periphery-to-core migration rose when people moved from less developed countries to more advanced countries economically as well as socially and politically (King, 2017).

Another major event that contributed to international migration was the 2008 financial crisis. Falling incomes, severe austerity measures that drastically cut welfare, and rising unemployment triggered a new wave of periphery-to-core migration, which continues up to present (King, 2017).

As a result of these European and other global factors, international migration continues to expand. Thanks to the open borders as well as globalization

and internationalization processes, the number of international students keeps growing. The number of mobile students has approximately doubled every 20 years since 1975 (Adnett, 2010). In 2000 there were about 2 million students while in 2007 there were over 5.3 million international students. Following countries, the United States of America, the United Kingdom, Australia, France, Germany and the Russian Federation constitute over half of the international students' study in educational programmes in these six countries. Most important sending countries of international students include China, India, Germany, South Korea, Nigeria, France, Saudi Arabia and several Central Asian countries (UNESCO, 2019). Estimates indicate that the number of mobile students will increase up to 7-8 million in the next ten years (Auers & Gubins, 2016).

Factors that encourage students to study overseas are usually categorised in the so-called push and pull factors. Push factors operate within the source country and initiate student's decision to study abroad (Mazzarol & Soutar, 2002). The critical push factors are limited study options in students' home country, desire to live in a different place and to get to know a different culture as well as moving to a different country to increase possible future opportunities to study or work at a specific region. For example, by studying in Latvia, it is possible to get a European diploma which might give more opportunities to work in other European countries like Germany or France (Auers & Gubins, 2016). A lot of students choose to study abroad if they are denied a study place in their home country (Prazeres et al., 2017). Differences in course fees and access to loans significantly influence options of where to study. For some studies abroad is not a privileged choice but rather an alternative if securing a state-funded place in their home country fails (Lulle & Buzinska, 2017).

Pull factors operate within the host country to make that country relatively attractive to international students (Mazzarol & Soutar, 2002). The critical pull factors are availability of studies in a foreign language that the students already know or want to learn, high-quality, specialised study programs that are not available in students' home countries, internationally recognised qualification, acceptable study fee, easy visa application process, as well as an excellent overall country image (Auers & Gubins, 2016).

Although the recognition and prestige of the university are one of the primary pull factors, nowadays, more and more students choose to study abroad because of the place and not the university itself. Instead of international studies as a strategy for future employment, many students seek to go abroad for an opportunity for fun and adventure. Many times, students decide to move to a different country for their different lifestyle that may even determine whether they will settle down in these places after graduation. Popular culture, media and social circles also have a significant role in students' decision-making process

(Prazeres et al., 2017).

More to that many times, students choose to study abroad to increase their opportunities back home. The overseas educational experience indicates fluency in English as well as other characteristics such as confidence, sociability as well as a valuable cultural experience. These characteristics and experiences may provide more opportunities career-wise back in the home country, especially in different international companies (Holloway et al., 2012).

Youth migration has several distinctive features. Most students do not intend to settle permanently in their study country but move back home or to a different country after graduation. Some migrants, however, settle longer-term.

In the EU, migration has become very easy as EU citizens have the right to residence, work and study in other member-states. Youth mobility usually is sudden and spontaneous. Although the family has a significant role in students' decision on studying abroad, nowadays, the role of the family is diminishing (King, 2017). For many international studies allow gaining better employment opportunities after graduation (Baláz & Williams, 2004), for some, it increases the social and cultural capital (Holloway et al., 2012) and often drawback of part-time employment during studies (Arkoudis et al., 2019). According to the choice of destination, there are different opportunities to acquire lifelong skills and competences, to enhance the welfare and to shape identities, as well as risks and uncertainties (Williams & Baláž, 2012).

Methodology

This study adopts a mixed-method approach and is based on the analysis of official statistical data and survey data. The first stage of the mixed method approached included scrutinised work with the secondary data from the Central Statistical Bureau of Latvia and Ministry of Education and Science that reveal the actual situation in Latvia concerning: 1) the total number of youth aged 15 to 34; 2) the number of local and international students at the beginning of the academic year in period 2004 to 2018; 3) the share of emigrated young people in the period from 2004 to 2017.

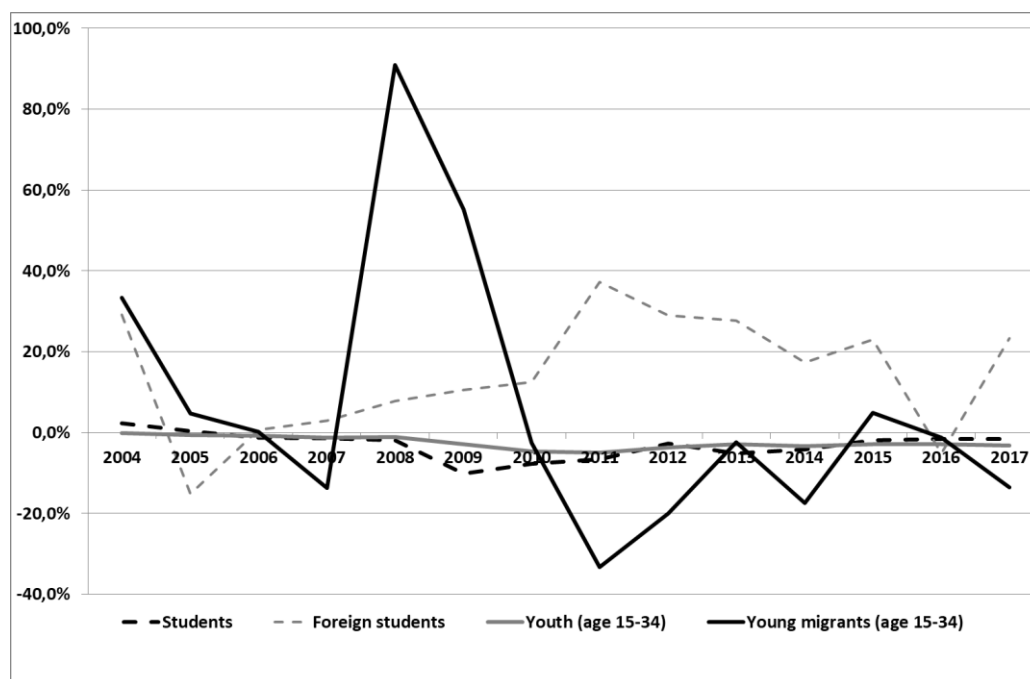
The second stage of the mixed-method approach involved a survey with international students in Latvia. The questionnaire was designed within the framework of the project "Latvia as an escalator: internationalisation, youth labour market performance, regional and human capital disequilibria in Latvia". The questionnaire includes 40 questions, divided into thematic blocks - basic characteristics of the student, previous schooling experiences, motivations to study abroad, the choice to study abroad, satisfaction with the current life and strategies on future carrier plans. The primary purpose of the survey was to reveal views on the decision-making process for international study move to Latvia and

motives of current full-time international students in Latvia. Questionnaires were distributed to 492 students representing the foremost higher education institutions in Latvia (for example: University of Latvia, Riga Stradins University, Riga Technical University etc.) and four main geographic profiles: 1) European countries (n=188); 2) South Asian countries (India, Pakistan, Sri Lanka) (n=177); 3) post-soviet countries (n=97); 4) Other countries (Canada, USA etc.).

The software of PASW Statistics 18 for survey data array analysis used in this study. Two econometric data methods for data analysis used: 1) Pearson chi-square test; 2) Analysis of variance (one-way ANOVA).

Dynamics of the local youth and international students in Latvia

Since 2007 the number of enrolled students decrease. Decline (see Figure 1) in local student numbers relate to two critical factors - the low fertility rate around 2000, resulting in a low youth population in Latvia today, as well as the high emigration rate, which also includes young people emigrating for study and work-related reasons.



Note. Figure 1 shows changes of youth and students in actual year comparing to previous year in percent.

Figure 1 Changes of the number of youth and students in Latvia 2004-2017
(authors' elaborations, IZM, 2019; CSP, 2018)

Latvia's accession to the European Union made intra-EU relocation more accessible and less cost involving. As displayed in Figure 1, the global economic

crisis in 2007 – 2010 negatively contributed to the decrease in the number of young people in Latvia. Since 2010 there is a steady increase of international students in Latvia. In 2018, India, Uzbekistan, Germany, Russia, Sweden, Ukraine, Finland, Kazakhstan, Sri Lanka and Pakistan were the countries with the most significant number of students. Currently, students from 95 different countries around the world are studying in Latvia (Ministry of Education and Science, 2019). The most common study directions for international students are social science and business management, followed by medicine and health care. There are different geographical trends in the choice of study paths: students from the CIS (Commonwealth of Independent States) and Georgia tend to prefer social science and business management, while European students tend to opt for medical and health care programs. Asian students do not have a single field of study and have a broader range of interests - they study engineering, medicine, social science, and business management (Auers & Gubin, 2016).

Latvia as a destination country: prerogative or 'second chance'

Analysis of data (Table 1) show that there is a significant relationship between the four groups of students $X^2(1, N = 472) = 18.7, p = .000$. Latvia is more likely the first choice for studies abroad for students from South-Asia, but less likely for students from Europe and Post-Soviet countries. These findings reveal that Latvia works as a second choice for students from countries with limited studying opportunities due to a restricted number of students in particular study programs (for example, medicine in Germany, France) or the country in general (for example, Uzbekistan).

Table 1 Latvia as a firsts choice for studies abroad per country group (created by the authors)

	Latvia as main destination for studies	
	YES	NO
POST-SOVIET	41,5%	58,5%
SOUTH-ASIA	54,1%	45,9%
EUROPE	32,4,%	67,6%
OTHER	58,3%	41,7%

Source: Survey, 2019, N=492

32.4% of European students claim that studying in Latvia was their first choice. Other options included universities back in their home countries as well as other European universities; for example, many medical students stated that they were considering applying to Semmelweis University in Budapest, Hungary,

which is famous for medicine studies. From Post-Soviet countries, 41.5% of the students stated that studying in Latvia was their first choice. Their other options included universities in Europe, as well as in North America and Russia. Out of students from India, Pakistan, and Sri Lanka, as many as 54.1% stated that studying in Latvia was their first choice. Their other options mostly included different Latvian universities.

Students find studying in English very easy. They also do not find it hard to make friends in Latvia and to adjust to Latvian culture, especially easy it seems for students from Post-Soviet countries. The hardest aspect of living abroad for all students is finding a local job while studying. Only about 17% of the students have found a part-time job in Latvia. Out of European students, only 9% have found a job while from Post-Soviet countries as well as from India, Pakistan, and Sri Lanka students have been in a better situation – 26% and 20%, respectively. Many students, especially from Europe, did not provide an answer to the question about how hard it is to get a job in Latvia, stating that they are not even looking for one.

Detailed analysis of the destination country decision-making process reveals that for them to study in Latvia, it was essential to study in the English language and also the quality of the studies. This indication has the highest overall mean value rating (4.44) among students from Post-soviet countries (4.13) for South-Asia respondents and (4.8) among European Students. Nevertheless, the lowest factor among all groups within the analysis of Latvia as a destination choice was low engagement with friends and relatives from Latvia. Crucial is also modest first wish for the opportunities to engage in the employment opportunities with a mean value of 3.04 among students from the Post-soviet countries, the mean value of 2.94 among South-Asian students, and the lowest among Europeans (mean value) 1.61. An increasing number of international students' engagement in the local labour market in various fields of economics is alarming. However, it still raises a question – does knowledge and skills of international students is appropriate for priorities of economic development of Latvia.

A one-way ANOVA conducted to compare the importance of several motivation factors to study in Latvia among four groups of students. The results are quite similar in the four geographical groups analysed except that the students from European countries tended to have lower scores than students from other countries. Firstly, students from India, Pakistan and Sri Lanka tend to value higher and appreciate studying in the Baltic region as well as a cultural experience and living in a city. Findings also show that students from South-Asia appreciate the costs of living in Latvia. At the same time the costs of living are not important at all for students from more wealthy countries in Europe (For example, Norway, Sweden, France, Germany). Secondly, students from Post-Soviet countries (For example, Russia, Uzbekistan, Belarus) valued higher potential employment

opportunities as well as socialising in the Russian language. These findings reveal the on-going trend that students from Post-soviet countries combine a part-time job while studying. It is easier for them than for students from other groups to find a job in Latvia, because many people speak Russian (notably in the capital city – Riga) which makes it easier for students from Post-Soviet countries to communicate with others and look for possible employment opportunities.

Thirdly, findings confirm that Latvia as a destination is a „second choice“ among students from Europe. Also, their rating on getting European diploma is not as high compared to other students. Possibly again geography of origin set their choice. Studying in Europe is taken for granted thus educational documents from an institution in Europe more accessible compared to somebody from a more distant geographies. Most of the motivation factors European students rated lower than other student groups, except living in a city. Hence, we can hypothesises that attraction of Riga as a place for the study period, and the chosen study program is much appreciated.

Table 2 Latvia as a destination country: the analysis of favourable factors per country group (created by the authors)

Measure	POST-SOVIET		SOUTH-ASIA		EUROPE		OTHER		F (3, 492)
	M	SD	M	SD	M	SD	M	SD	
Quality of studies	4,16	0,88	4,02	1,15	3,69	1,14	4,04	1,37	4,72**
Studies in the Baltic region	2,60	1,28	3,38	1,29	2,14	1,22	2,14	1,38	29,71**
Studying in English	4,44	0,93	4,13	1,18	4,08	1,09	3,96	1,48	2,78*
Friends living in Latvia	1,86	1,20	2,13	1,35	1,66	1,11	1,48	1,05	5,04**
Family living in Latvia	1,48	1,02	1,62	1,16	1,34	0,98	1,28	0,89	2,29
Employment opportunities	3,04	1,32	2,94	1,39	1,61	1,09	2,88	1,48	42,11**
Cost of living	3,54	1,07	3,77	1,25	2,70	1,16	3,21	1,40	25,29**
Cultural experience	3,14	1,36	3,77	1,25	2,69	1,20	2,93	1,41	21,16**
Living in or near a city	2,96	1,50	3,57	1,30	3,15	1,39	3,00	1,59	4,99**
Socialising in Russian	2,55	1,56	2,44	1,31	1,47	1,09	1,63	1,20	19,38**

*Note: *p<0.05, **p<0.01*

Source: Survey, 2019, N=492

Conclusions

This paper links geographies of in-flow international students to the higher education system in Latvia and choice rationales upon choosing Eastern European country Latvia as a destination country for the study period. Latvia welcomes international students from diverse geographies. Besides specific sourcing countries like Germany and India, there are also considerably constant and stable flows from former Soviet countries. For purposes of this study, three main groups are depending on the country of origin distinguished, namely, students from

Europe, East-Asia, Post-soviet countries and others.

On the one hand, among others balanced costs and accessibility of quality education in English attract international students, thus providing a „second chance“ to be successful. On the other hand, Latvia gives the prerogative to have education in the European Union which for long-distance travelled students is a life-time opportunity.

The results indicate that geography sets the primary motives to choose Latvia. Seldom Latvia is set as the first and only priority among other possible destination countries, however, more often among students from South-Asia which relate to relatively lower costs of living and opportunities to study in English. At the same time, Latvia is a „second choice“ for students from Europe, although Latvia is not the priority to students from the Post-Soviet countries. Nevertheless, still a well-recognised study destination for them due to facilitated communication in everyday life and accessible employment opportunities.

Acknowledgement

This work was supported by the ERDF grant 1.1.1.2/VIAA/1/16/184.

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ГОСУДАРСТВЕННАЯ ПОЛИТИКА УКРАИНЫ В СФЕРЕ НЕПРЕРЫВНОГО ЭКОНОМИЧЕСКОГО ОБРАЗОВАНИЯ

The State Policy of Ukraine in the Field of Continuous Economic Education

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Abstract. *The aim of the paper is to substantiate the main components and factors of the state policy of Ukraine that influence the development of continuous economic education and to outline ways of its improvement. Achieving the aim of the research study made it possible to use the following methods: comparative and structural-logical analysis, classification, systematization, generalization. Results of the research. The essence of continuous economic education, its role and importance at national and world levels are considered. On the basis of a structural-logical analysis and systematization, the current normative-legal acts of Ukraine are grouped into the following groups: strategic guidelines for the development of continuous economic education; documents regulating the content of continuing economic education; regulatory and legal regulation of state supervision measures in the field of education and quality assurance. The main components of the state policy of Ukraine that influence the development of continuous economic education are defined, namely: development of the system of continuous economic education throughout life; creation of equal opportunities for formal, informal and non-formal economic education for all citizens of Ukraine; formation of values and social economic responsibility; a policy of enhancing the culture of teaching, learning and assessment. The dynamics of applicants for higher economic education of bachelor's and master's degrees are analysed.*

Keywords: *continuing education, economic education, educational levels, informal education, formal education, non-formal education, public education policy.*

Введение

Introduction

В Украине развитие непрерывного образования определено приоритетом государственной образовательной политики. Этот вектор созвучен со стратегическими приоритетами развития Европейского пространства высшего образования, поскольку непрерывное образование

предполагает не только приобретение компетенций и знаний на протяжении всей жизни, но и личностное развитие.

Современная государственная политика в области непрерывного экономического образования в Украине требует разработки новых подходов и механизмов, что будет способствовать формированию экономической культуры личности и укреплению позиций общечеловеческой и социальной ценности образования.

Вопросы формирования и реализации государственной политики в сфере непрерывного экономического образования исследована в диссертационных работах М. Артюшиной (Artyushina, 2011), Н. Болюбаш (Bolubash, 2011) и др. Проблематика непрерывного образования постоянно находится в пределах круга научных интересов зарубежных исследователей (Astakhova, Lobanov, & Skvortsov, 2014; Mezirow, 2003). Среди научно-коммуникативных мероприятий, тематическая направленность которых была сосредоточена на решение задач непрерывного образования, следует выделить конференцию Academy Day (28 ноября 2019, г. Киев) и др. Однако, несмотря на достаточный уровень научного осмысления проблематики образования на протяжении всей жизни, непрерывное экономическое образование остается открытым для дальнейших научных исследований.

Цель статьи – обосновать основные составляющие и факторы государственной политики Украины, влияющие на развитие непрерывного экономического образования и наметить пути ее совершенствования.

Достижение цели исследования позволило использование методов: сравнительного и структурно-логического анализа для аналитической обработки источников; классификации, систематизации обобщения, проблемно-целевой для анализа государственной политики в сфере непрерывного экономического образования.

Результаты исследования *The results of the study*

В предыдущих направлениях нашего научного поиска (Bezliudnyi & Kirdan, 2019) выделены особенности социального заказа на профессиональную подготовку будущих экономистов в системе непрерывного образования.

В рамках концепции непрерывного образования и модели ее реализации, предложенной О. Гулай, определено понятие непрерывного профессионального образования как систематическая, целенаправленная деятельность по приобретению и совершенствованию знаний, умений и навыков как в любых видах общих и специальных учебных заведений, так

и путем самообразования. В такой системе, по мнению исследовательницы, очевиден приоритет высшей школы, что фактически определяет цели и содержание деятельности всех других звеньев (Gulai, 2010).

Обосновав непрерывное образование как систему, Н. Семенюк указывает на комплекс государственных, частных и общественных образовательных учреждений, обеспечивающих организационное и содержательное единство и последующую взаимосвязь всех звеньев образования, удовлетворяя стремление человека к самообразованию и развитию на протяжении всей жизни (Semeniuk, 2013).

Приоритетные направления государственной образовательной политики О. Комарова рекомендует сгруппировать в три блока: стратегические, оперативные и трансформационные направления. Как стратегические направления государственной образовательной политики исследовательницей предложены: обеспечение интеграции отечественного образования в международное образовательное пространство; трансформация традиционной парадигмы образования в виртуально-дистанционную; разработка и внедрение научно обоснованных образовательных стандартов с целью повышения качества образования; повышение уровня занятости выпускников учебных заведений. В качестве оперативных направлений государственной образовательной политики определены: формирование и развитие непрерывной ступенчатой системы образования; обеспечение условий для предоставления свободного доступа к образовательным услугам всем гражданам; усовершенствование системы финансового обеспечения образовательной отрасли. О. Комаровой рекомендованы такие трансформационные направления государственной образовательной политики: повышение качества учебного процесса путем его модернизации и интенсификации; гуманизация и гуманитаризация обучения; переход от традиционной к личностно-ориентированной парадигме образования (Komarova, 2015, 107).

По нашему мнению, непрерывное экономическое образование можно рассматривать на разных уровнях: личностном, государственном и мировом. На личностном уровне мы определяем непрерывное экономическое образование как процесс формирования и удовлетворения познавательных мотивов и потребностей личности, развития ее задатков и способностей в системе формального экономического, неформального и информального образования. На государственном уровне непрерывное экономическое образование определено законодательными и концептуальными положениями государственной образовательной политики по обеспечению условий непрерывного экономического образования каждого гражданина; на мировом – механизмами и способами развития экономического потенциала государств.

Формирование и реализация государственной политики в сфере непрерывного экономического образования охватывает стратегический, тактический, операционный, институциональный уровни.

На стратегическом уровне должны быть определены принципиальные государственные задачи. Среди актуальных направлений развития профессионального экономического образования в системе непрерывного образования особого внимания требует формирование государственного и регионального заказа на подготовку экономистов в ступенчатой системе высшего образования; оптимизация сети высших учебных заведений; повышение уровня трудоустройства выпускников-экономистов; формирование социального заказа на подготовку будущих экономистов с развитым интеллектуальным и компетентностным потенциалом; поддержка последипломного непрерывного экономического образования (образования взрослых), самообразования и др.

На тактическом уровне формирования и реализации государственной политики в сфере непрерывного экономического образования должны быть определены конкретные цели и сроки их достижения. Поэтому необходимо детализировать соотношение целей и преемственности ступенчатого высшего экономического образования и процессов глобализации, интеграции и цифровой трансформации общества. Экономическое образование в системе непрерывного образования должно быть направлено на гармонизацию развития личности, государства и общества.

На операционном уровне формирование и реализация государственной политики в сфере непрерывного экономического образования должны подкрепляться разработкой и внедрением нормативно-правовых документов, государственных стратегий и программ, государственных образовательных стандартов и др. Целесообразно наработать и принять новую Концепцию непрерывного экономического образования, поскольку Концепция 2003 г. морально устарела и не отвечает на главные вызовы современного трансформационного периода. Вместе с тем, уже несколько лет продолжалось обсуждение нового закона «Об общем среднем образовании», принятие которого состоялось в 2020 г.

На институциональном уровне реализации государственной политики в сфере непрерывного экономического образования необходимо сформировать у студентов культуру непрерывного самообразования – потребность в самообразовании и постоянном повышении уровня профессиональной квалификации; сформировать интегральную, общие и профессиональные компетентности, «мягкие» навыки; развить самостоятельное, критическое мышление; способствовать профессиональной и социальной

самореализации личности в условиях современной цифровой трансформации экономики и образования.

В соответствии с евроинтеграционным курсом возникла необходимость приведения в соответствие с европейскими стандартами системы высшего экономического образования Украины. Это детерминировало обновление нормативно-законодательного обеспечения системы непрерывного образования и разработку нормативно-правовых документов, направленных на урегулирование этого процесса. Сейчас на законодательном и институциональном уровнях принято и имплементировано нормативные и подзаконные акты, которые включают основные направления государственной политики в сфере непрерывного экономического образования. Ориентирами развития непрерывного экономического образования в Украине стали концептуальные документы (UNESCO, 2017; UNESCO, 2016) и др.

Государственная политика в сфере образования отражена в нормативных документах. К основным законодательным актам, определяющим стратегические ориентиры развития непрерывного экономического образования, отнесены Конституция Украины, законы Украины «Об образовании», «О высшем образовании», Концепция развития экономического образования, постановления Кабинета Министров, приказы Министерства образования и науки Украины и др. Стратегические преобразования в сфере высшего экономического образования связаны с общим вектором трансформационных преобразований, которые заложены в ряде документов, а именно: Национальной доктрине развития образования (2002 г.), Национальной стратегии развития образования в Украине на период до 2021 г. (2013 г.), стратегии устойчивого развития «Украина-2020» и др.

Профессиональная подготовка будущих экономистов в системе непрерывного образования неразрывно связана с созданием и деятельностью Национального агентства по обеспечению качества высшего образования и введением в действие с 1 сентября 2017 г. постановления Кабинета Министров Украины от 30 декабря 2015 г. № 1187 «Об утверждении лицензионных условий осуществления образовательной деятельности учебных заведений».

В 2018 г. введено в действие приказами Министерства образования и науки Украины семь стандартов высшего образования по экономическим специальностям. С начала 2019 г. утверждено 8 стандартов высшего образования по подготовке специалистов-экономистов различных образовательных ступеней. Анализ нового поколения отечественных образовательных стандартов начального, общего среднего и высшего образования 2016–2019 гг. дает основания для вывода, что они содержат

четкий перечень основных компетенций, одной из которых является экономическая компетентность личности.

На основе проведенного исследования (Kirdan, 2019), а также структурно-логического анализа и систематизации нормативно-законодательного обеспечения системы непрерывного образования, действующие нормативно-правовые акты Украины объединены в следующие группы: стратегические ориентиры развития непрерывного экономического образования; документы, регулирующие содержание непрерывного экономического образования; нормативно-правовое регулирование мероприятий государственного надзора и обеспечения ее качества.

Государственная образовательная политика Украины в сфере непрерывного экономического образования находится под влиянием ряда факторов, среди которых наиболее значимыми являются: сбалансирование влияния государства и рынка на финансирование образования и формирования заказа на подготовку экономических кадров; стандартизация высшего экономического образования; массовость и доступность высшего образования; формирование внутренней и внешней систем обеспечения качества высшего образования; снижение роли отечественных образовательных традиций; миграционная активность соискателей высшего образования; интернационализация высшего образования; формирование ценностных ориентиров современной педагогики: новейшие технологии, космополитизм, конфликт цивилизаций, обучение категорий людей с особыми потребностями в социальном контексте и др.

Современные социально-экономические вызовы информационного общества и технико-технологические инновации способствуют трансформационным преобразованиям и развитию информационно-цифрового образовательного пространства, детерминируя образовательные реформы. Приоритетом современной государственной образовательной политики является направленность на качество высшего образования и формирование общества знаний. Современные педагогические концепции и подходы могут целостно и комплексно решить поставленные задачи, но существенно усложняются многомерностью и динамичностью системы непрерывного образования. Поэтому в практике высших учебных заведений наблюдаем снижение потенциала инноваций, трудности в реализации системных трансформаций и др.

Значительное место в системе непрерывного экономического образования занимает общее среднее и последиplomное образование. Именно эти составляющие в системе непрерывного экономического образования, на наш взгляд, нуждаются в усиленной государственной поддержке. Крайне актуален вопрос введения экономики как учебной дисциплины в новый государственный стандарт общего среднего образования.

Нуждается в послевузовском сопровождении профессиональное развитие выпускников-экономистов посредством деятельности ассоциаций выпускников, менторского наставничества преподавателей высших учебных заведений и др. Для этого необходимо тщательно изучить международный опыт государственной политики в сфере непрерывного образования, а конструктивный опыт внедрить в Украине.

Профессиональную подготовку будущих экономистов в системе непрерывного образования Украины обеспечивают такие типы высших учебных заведений: университеты (многоотраслевые – классические, технические; профильные экономические и технологические, педагогические, гуманитарные, юридические, аграрные и др.), академии, институты (профильные экономические и технологические, технические, педагогические, юридические, аграрные и др.), колледжи (высшие учебные заведения или структурные подразделения университета, академии или института).

Согласно действующему законодательству, подготовка будущих экономистов осуществляется по образовательным или научным программам на начальном, первом (бакалаврском), втором (магистерском) и третьем (образовательно-научном) уровнях высшего образования.

В системе высшего образования непрерывная профессиональная подготовка специалистов-экономистов осуществляется при условии выполнения требований стандартов высшего экономического образования по специальностям отраслей знаний 05 «Социальные и поведенческие науки», 07 «Управление и администрирование», 28 «Публичное управление и администрирование» и 29 «Международные отношения». Анализ данных Государственной службы статистики Украины свидетельствует о том, что значительное количество студентов – 244621 ч. получают высшее экономическое образование в университетах, академиях и институтах в 2018–2019 уч. г. Общее количество студентов этих заведений составляет 1079837 человек, что свидетельствует о престижности экономических специальностей среди соискателей высшего образования (The higher education in Ukraine in 2018). В 2019 г. подготовку бакалавров по специальности 051 «Экономика» осуществляли 176 высших учебных заведений государственной, коммунальной и частной форм собственности; 133 вузов осуществляли подготовку магистра. Подготовку бакалавров по специальности 071 «Учет и налогообложение» осуществляли 163 высшие учебные заведения, а магистров – 121 заведение (The subsidiary «Inforesource»).

На основании анализа динамики подготовки специалистов по образовательным уровням (бакалавр, магистр) и отраслями знаний отметим, что количественные показатели свидетельствуют о преобладании

соискателей высшего образования отрасли знаний 07 Управление и администрирование. Относительно формы обучения, стоит указать на преобладание количественных показателей подготовки соискателей заочной формы магистерского уровня высшего образования по отраслям знаний «Управление и администрирование» и «Публичное управление и администрирование». Причинами этого, на наш взгляд, являются возможность трудоустройства; сочетание профессиональной и образовательной деятельности; приемлемая стоимость обучения на заочной форме, по сравнению с получением образования на дневной форме; стремление иметь больше времени для непрерывного самообразования и др.

Выводы **Conclusions**

Обобщение научной литературы и результатов теоретического исследования позволило сделать следующие выводы:

1. Формирование и реализация государственной политики в сфере непрерывного экономического образования охватывает стратегический, тактический, операционный и институциональный уровни. На стратегическом уровне должны быть определены и решены такие задачи: формирование государственного и регионального заказа на профессиональную подготовку экономистов в ступенчатой системе высшего образования; оптимизация сети высших учебных заведений; повышение уровня трудоустройства выпускников-экономистов; формирование социального заказа на подготовку будущих экономистов с развитым интеллектуальным и компетентностным потенциалом; поддержка последиplomного непрерывного экономического образования (образования взрослых), самообразования и др. На тактическом уровне формирования и реализации государственной политики в сфере непрерывного экономического образования должны быть определены конкретные цели и сроки их достижения. На операционном уровне формирование и реализация государственной политики в сфере непрерывного экономического образования должна подкрепляться разработкой и внедрением нормативно-правовых документов, государственных стратегий и программ, государственных образовательных стандартов и др. На институциональном уровне необходимо сформировать у студентов культуру непрерывного самообразования; интегральную, общие и профессиональные, «мягкие» компетентности; развить

- самостоятельное, критическое мышление; способствовать профессиональной и социальной самореализации личности в условиях современной цифровой трансформации экономики и образования.
2. Нормативно-законодательное обеспечение системы непрерывного экономического образования Украины включает стратегические ориентиры развития непрерывного экономического образования; документы, регулирующие содержание непрерывного экономического образования; нормативно-правовое регулирование мероприятий государственного надзора и обеспечения ее качества.
 3. Государственная образовательная политика Украины в сфере непрерывного экономического образования находится под влиянием ряда факторов: усиление миграционной активности соискателей высшего образования; интернационализация высшего образования; формирование ценностных ориентиров современной педагогики: новейшие технологии, космополитизм, конфликт цивилизаций, обучение категорий людей с особыми потребностями в социальном контексте и др.
 4. В Украине профессиональную подготовку будущих экономистов в системе непрерывного образования обеспечивают такие типы высших учебных заведений: университеты, академии, институты, колледжи. Подготовка будущих экономистов осуществляется по образовательным или научным программам на начальном, бакалаврском, магистерском и образовательно-научном уровнях высшего образования. Анализ нового поколения отечественных образовательных стандартов начального, общего среднего и высшего образования 2016–2019 гг. дает основания для вывода, что они содержат четкий перечень основных компетенций, одной из которых является экономическая компетентность личности.
 5. В организации государственной политики в сфере непрерывного экономического образования необходимы серьезные изменения. Они связаны с необходимостью принятия Концепции непрерывного экономического образования, введении экономики как учебной дисциплины в новый государственный стандарт общего среднего образования; внедрения эффективной системы послевузовского сопровождения профессионального развития выпускников-экономистов и др. Для этого необходимо тщательно изучить международный опыт государственной политики в сфере непрерывного экономического образования, а конструктивный опыт внедрить в Украине.

Summary

The regulatory support for the system of continuous economic education of Ukraine includes strategic guidelines for the development of continuous economic education; documents governing the content of continuing economic education; legal regulation of measures of state supervision and ensuring its quality.

The state educational policy of Ukraine in the field of continuing economic education is influenced by a number of factors: increased migration activity of applicants for higher education; internationalization of higher education; the formation of value guidelines for modern pedagogy: the latest technology, cosmopolitanism, the conflict of civilizations, the training of categories of people with special needs in a social context, etc.

In Ukraine, the training of future economists in the continuing education system is provided by the following types of higher education institutions: universities, academies, institutes, and colleges. The training of future economists is carried out according to educational or scientific programmes at the elementary, bachelor, master and educational and scientific levels of higher education.

The analysis of the new generation of domestic educational standards of primary, general secondary and higher education in 2016–2019 gives grounds for the conclusion that they contain a clear list of core competencies, one of which is the economic competence of the individual.

On the basis of a structural-logical analysis and systematization, the current normative-legal acts of Ukraine are grouped into the following groups: strategic guidelines for the development of continuous economic education; documents regulating the content of continuing economic education; regulatory and legal regulation of state supervision measures in the field of education and quality assurance.

The organization of state policy in the field of continuing economic education requires serious changes. They are associated with the need to introduce economics as an academic discipline in the new state standard of general secondary education; postgraduate support for the professional development of graduate economists. For this, it is necessary to carefully study the international experience of state policy in the field of continuing economic education and introduce constructive experience in Ukraine.

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ФОРМИРОВАНИЕ СПЕЦИАЛЬНЫХ КОМПЕТЕНТНОСТЕЙ СТУДЕНТОВ-ЮРИСТОВ ДЛЯ РАБОТЫ В СФЕРЕ ЭКОНОМИКИ

Formation of Special Competencies of Law Students for Work in Economic Field

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Abstract. *The aim of the research paper is to suggest the proposals on improving approaches to the formation of special competencies of law students for their preparedness to legal support of economic activity. The article focuses on the shortcomings of the legal education system, which lay in the lack of applied skills of the graduate students, as well as their insufficient ability to apply theoretical knowledge, which they acquired, in practice. One of the reasons for this state of training of future lawyers is the predominance of traditional forms of teaching specialized legal disciplines. The study concluded that the list of special competencies contained in The Standard of higher education of Ukraine on specialty «Law» was not sufficiently specific, because it does not focus on the competencies, directed specifically to work in economic field. Based on the analysis of the specialties of legal practice in economic field, a basic list of such special competencies is proposed. One of the ways of forming special competencies of law students using the method of analysis of video recording of the broadcast of trial proceedings on the example of the academic discipline «Economic Procedural Law» is illustrated in the paper.*

Keywords: *economic field, law students, legal education system, special competencies.*

Введение

Introduction

Одним из основных и наиболее востребованных направлений профессиональной юридической деятельности является правовая работа в

экономической сфере, в том числе юридическое обслуживание предприятий и иных субъектов хозяйствования. С учетом этого, важной задачей в обучении студентов юридических специальностей является формирование у них профессиональных компетентностей (знаний, умений навыков), необходимых для практического решения правовых вопросов, которые возникают в процессе организации и осуществления экономической деятельности.

В указанном контексте уместно обратить внимание на результаты проведенного в Украине анализа мнений работодателей и экспертов, согласно которому хозяйственное право и процесс отнесены к числу дисциплин, которые выпускники юридического профиля должны знать в первую очередь. Вместе с тем главным недостатком имеющейся системы образования респонденты считают нехватку у выпускников прикладных умений и навыков, их неумение применять на практике приобретенные теоретические знания. В частности, подчеркивается, что выпускники не умеют применять законы на практике, не обучены составлению юридических документов, не умеют работать с информацией (Koz'yaков, Lylyk, Lylyk, Pyrohova, & Krasnovs'kyj, 2015).

Вышеизложенное свидетельствует об актуальности затронутого вопроса и необходимости более качественной подготовки будущих юристов в процессе преподавания хозяйственно-правовых дисциплин.

Целью данной статьи является подготовка предложений по совершенствованию подходов к формированию специальных компетентностей студентов юридических специальностей для их готовности к правовому сопровождению деятельности предприятий и других субъектов хозяйствования.

Данная статья базируется на анализе и обобщении опыта преподавания указанных дисциплин на юридическом факультете Донецкого национального университета имени Василя Стуса, данных аналитических отчетов относительно мнений работодателей о выпускниках юридических ВУЗов, а также результатах опроса самих студентов и выпускников юридического факультета.

Теоретические основы исследования *Theoretical substantiation of the problem*

Исследовательский интерес к вопросам преподавания хозяйственно-правовых дисциплин основывается на традициях и значительном опыте соответствующих научных школ, в особенности основанной в Украине академиком В.К. Мамутовым Донецкой научной школы хозяйственного права, представители которой выступили основными разработчиками

Хозяйственного кодекса Украины – базового законодательного акта, регулирующего отношения в сфере хозяйствования. Осознавая и подчеркивая важность качественной подготовки юристов-хозяйственников, В.К. Мамутов уделял внимание и проблемам содержательного наполнения учебных курсов, методике преподавания хозяйственного права (Mamutov, 2008).

Наряду с работами В.К. Мамутова среди научно-методических публикаций, в которых в той или иной степени рассматриваются вопросы формирования профессиональной компетентности студентов в процессе преподавания дисциплин хозяйственно-правового цикла, целесообразно выделить статью А.Г. Бобковой о подходах к преподаванию общей части учебной дисциплины «Хозяйственное право» (Bobkova, 2006), а также статью О.П. Подцерковного о необходимости учета соотношения экономических и юридических отношений в процессе преподавания хозяйственно-правовых дисциплин (Podcerkovnyj, 2006). На актуализацию хозяйственного права в процессе подготовки будущих юристов в современных условиях обращает внимание Л.Н. Николенко (Nikolenko, 2019). Кроме того, представляют интерес разработки Л.Д. Руденко относительно одной из моделей преподавания дисциплины «Хозяйственное право» (Rudenko, 2019).

Вместе с тем после принятия Стандарта высшего образования Украины по специальности 081 «Право» отрасли знаний 08 «Право» для первого (бакалаврского) уровня высшего образования, который утвержден приказом Министерства образования и науки Украины от 12 декабря 2018 г. № 1379 (Standart vyshhoji osvity Ukrayiny: pershyj (bakalavrs'kyj) riven' vyshhoji osvity, haluz' znan' 08 «Pravo», special'nist' 081 «Pravo»), вопросы формирования специальных компетентностей студентов-юристов для работы в сфере экономики требуют дальнейшего исследования и остаются актуальными.

Методы исследования *Research methods*

При проведении исследования использовались теоретические и эмпирические методы познания действительности. Метод анализа и синтеза использован при рассмотрении и уточнении компетентностей выпускника-юриста; формально-юридический метод применялся при анализе действующего законодательства относительно требований к выпускникам-юристам; социологический метод использован при обработке анкет студентов специальности «Право»; метод наблюдения был использован при обобщении результатов обучения по отдельным хозяйственно-правым

дисциплинам.

Эмпирическую базу исследования составили опросы преподавателей, студентов и выпускников Донецкого национального университета имени Василя Стуса с целью выяснения влияния приобретенных компетентностей на будущую профессиональную деятельность в экономической сфере. Опрос проводился авторами этой публикации по таким учебным дисциплинам: «Хозяйственное право», «Хозяйственное процессуальное право», «Аграрное право», «Конкурентное право». В опросе приняли участие 168 человек: студенты 3-4 курсов специальности «Право» дневной и заочной формы обучения, выпускники 2017-2019 годов выпуска, которые трудоустроены в сфере экономики. Опрос включал вопросы о целесообразности изучения предметов хозяйственно-правового направления, их содержании, формы преподавания, а также о влиянии на формирование общих и специальных компетентностей и др. (Рис. 1).



Рисунок 1. Результаты опроса
Figure 1 The results of the questionnaire

Результаты исследования **Research results**

На государственном уровне общие положения относительно профессиональных компетентностей выпускников юридических специальностей в Украине установлены Стандартом высшего образования Украины по специальности 081 «Право» отрасли знаний 08 «Право» для первого (бакалаврского) уровня высшего образования, который утвержден приказом

Министерства образования и науки Украины от 12 декабря 2018 г. № 1379. Закрепленный этим Стандартом перечень компетентностей выпускника включает:

- интегральную компетентность – способность решать сложные специализированные задачи и практические проблемы в отрасли профессиональной правовой деятельности или в процессе обучения, что предусматривает применение правовых доктрин, принципов и правовых институтов и характеризуется комплексностью и неопределенностью условий;
- общие компетентности (такие как, способность к абстрактному мышлению, анализу и синтезу, способность применять знания в практических ситуациях, и т.д.);
- специальные (предметные) компетентности (среди которых, в частности: способность определять надлежащие и приемлемые для юридического анализа факты; способность анализировать правовые проблемы, формировать и обосновывать правовые позиции; способность к критическому и системному анализу правовых явлений; способность к консультированию по правовым вопросам, и др.).

Указанные компетентности, предусмотренные Стандартом, безусловно, необходимы и выпускникам, дальнейшая профессиональная деятельность которых связана с решением правовых вопросов в сфере экономики. Вместе с тем приходится констатировать, что содержащийся в Стандарте перечень специальных компетентностей на сегодня является недостаточно конкретизированным: в нем не сделан акцент на особых компетентностях, сориентированных именно на работу в вышеназванной сфере. Более того, в Стандарте прослеживается недооценка важности и необходимости подготовки студентов для такой работы. Так, отдельной строкой в перечне профессиональных компетенций выделена способность применять знания задач, принципов и доктрин национального права, а также содержания правовых институтов, как минимум по таким отраслям права, как: конституционное право, административное право и административное процессуальное право, гражданское и гражданское процессуальное право, уголовное и уголовное процессуальное право. Упоминание о хозяйственном и хозяйственно-процессуальном праве в данном случае отсутствует, несмотря на то, что наличие у выпускников-юристов компетентностей в данной отрасли относится к совокупности первоочередных требований на практике, в том числе и при выборе профессии судьи, адвоката, нотариуса. На этот недостаток Стандарта ранее обращали внимание и другие исследователи (Nykytchenko, 2019).

На основе анализа особенностей юридической практики в сфере хозяйствования можно предложить следующий базовый перечень специальных компетентностей, формирование которых в процессе обучения студентов-юристов будет способствовать их успешной профессиональной деятельности в указанной сфере:

- 1) умение разрабатывать проекты основных юридических документов, опосредующих организацию и осуществление хозяйственной деятельности, в частности, проекты:
 - учредительных документов хозяйственных организаций (с учетом особенностей той или иной организационно-правовой формы);
 - локальных документов, определяющих правовой статус отдельных структурных подразделений, а также органов управления хозяйственных организаций;
 - хозяйственных договоров различных видов, протоколов разногласий к хозяйственным договорам;
 - претензий и исковых заявлений;
- 2) способность осуществлять юридическую экспертизу перечисленных и иных документов по вопросам деятельности субъектов хозяйствования, формулировать предложения о приведении таких документов в соответствие с требованиями законодательства;
- 3) умение готовить письменные юридические заключения по вопросам, возникающим в деятельности субъектов хозяйствования, предоставлять устные консультации по таким вопросам;
- 4) способность выбрать оптимальный способ защиты прав и законных интересов субъектов хозяйствования, обеспечить реализацию данного способа;
- 5) способность представлять интересы субъекта хозяйствования в судах и иных органах.

Необходимость формирования перечисленных профессиональных компетентностей целесообразно учитывать при разработке учебных планов и образовательных программ подготовки студентов юридических специальностей, а также при составлении рабочих программ и преподавании учебных дисциплин хозяйственно-правового цикла.

Одной из предпосылок для успешного приобретения студентами указанных компетентностей может стать расширение круга таких дисциплин – введение высшими учебными заведениями различных дисциплин (специальных курсов) по выбору студентов, направленных на углубленное изучение отдельных отраслей и институтов хозяйственного права, а также иных вопросов правового обеспечения экономической

деятельности. К примеру, на юридическом факультете Донецкого национального университета имени Василя Стуса наряду с учебными дисциплинами «Хозяйственное право» и «Хозяйственное процессуальное право» студентам средних и старших курсов преподаются такие дисциплины, как «Договорное право», «Бухгалтерское право», «Транспортное право», «Страховое право», «Биржевое право», «Таможенное право», «Налоговое право», «Банковское право», «Инвестиционное право», «Корпоративное право», «Конкурентное право», «Менеджмент юридической фирмы», «Адвокат в хозяйственном процессе», «Юридическое обслуживание субъектов хозяйствования».

Преподавание указанных дисциплин проводится с учетом того, что наукой доказано: уровень восприятия информации при визуализации намного выше (50%), чем при чтении (10%) или слушании лекции (20%) (Dale, 1969). В рамках преподавания каждой из этих дисциплин уделяется внимание приобретению студентами конкретных специальных компетентностей, необходимых для решения прикладных задач по правовому обеспечению осуществления хозяйственной деятельности.

Так, для приобретения таких специальных компетентностей как умение разрабатывать проекты основных юридических документов, опосредующих организацию и осуществление хозяйственной деятельности, способность осуществлять юридическую экспертизу документов по вопросам деятельности субъектов хозяйствования в рамках учебной дисциплины «Хозяйственное право» в учебном процессе используется метод моделирования. При этом во время нескольких занятий студенты моделируют организацию деятельности туристической корпорации, в состав которой входят субъекты хозяйствования, предоставляющие туристические и смежные с ними услуги.

Для построения модели корпорации студенты объединяются в группы по 5 человек, каждая из которых представляет одного из субъектов. Корпорацию представляют 4-5 студентов, выполняющих роли юридических советников и координаторов.

Целью моделирования является приобретение навыков и умений работы по правовому сопровождению создания субъектов хозяйствования, организации их последующей деятельности, подготовке и проверке документов, сопровождающих указанные процессы и др. Материалами для моделирования являются исходные данные, которые дает преподаватель по видам субъектов и их деятельности, классификаторы по организационно-правовым формам, видам продукции, лицензионные условия, учредительные документы аналогичных субъектов хозяйствования, регистрационные карточки, разрешительные документы и др. Все материалы студенты должны просмотреть и изучить до занятия на

соответствующую тему, так и выполнить задания.

Результатом моделирования предполагается подготовка полного пакета документов для создания, регистрации и начала деятельности конкретного субъекта хозяйствования (начиная с протокола о создании и заканчивая договорами на приобретение офисной мебели и т.п.).

Все подготовленные документы обсуждаются на занятиях: изучаются координаторами, перекрестно оцениваются группами и затем анализируются преподавателем.

Итоговая оценка выставляется координаторами и согласовывается с преподавателем, после чего проводится анонимное анкетирование студентов, при котором им предлагается оценить форму занятия, задания и их сложность, затраты времени, полезность для будущей профессии, работу координаторов, связь с преподавателем и др.

Еще одним примером формирования компетентностно-ориентированного подхода при проведении занятий с будущими юристами можно привести опыт одного из авторов данной статьи относительно проведения практического занятия на тему «Участники хозяйственного процесса» (учебная дисциплина – «Хозяйственное процессуальное право») с использованием записей трансляций судебных заседаний, размещенных на официальном веб-портале «Судебная власть».

Применение указанной методики преподавания способствует овладению студентами знаниями и пониманию особенностей реализации и применения норм материального и процессуального права через практику.

Целью занятия является формирование у студентов способности представлять интересы субъекта хозяйствования в судах. Для достижения поставленной цели занятие разделено на функциональные этапы и структурировано следующим образом: вступление, основная часть, выводы, организационная часть.

Первый этап необходим для настройки присутствующих на работу в аудитории и начала формирования профессиональной компетентности. Во вступлении студентам объявляется тема занятия, раскрывается ее значение через взаимосвязь с предыдущими и последующими темами курса, сообщаются цель, задачи и порядок проведения практического занятия.

Второй этап предназначен для активного формирования у студентов способности представлять интересы субъекта хозяйствования в судах путем развития: 1) умения выяснять процессуальный статус участников судебного заседания, очерчивать круг их процессуальных прав и обязанностей, основания и порядок приобретения процессуального статуса; 2) понимания особенностей представительства в хозяйственном процессе, знания требований к документам, подтверждающим полномочия представителя, и правовых последствий их несоблюдения, правил определения объема

полномочий представителя, оснований и порядка прекращения представительства; 3) понимания особенностей процессуального положения судьбы хозяйственного суда, порядка решения вопросов при единоличном и коллегиальном рассмотрении дела; 4) умения анализировать и критически оценивать поведение участников судебного процесса, исходя из обстоятельств дела, делать выводы и мотивировано их обосновывать.

Основная часть практического занятия начинается с обсуждения фабулы дела в контексте цели, обозначенной во вступлении, и демонстрации видеозаписи судебного заседания. По результатам просмотра видеозаписи судебного заседания студентам предлагается:

- обсуждение в форме совместной дискуссии позиций сторон и суда по ходатайству о допуске к участию в деле экспертов и приобщения их выводов к материалам дела (предполагается применение метода «Большой круг»);
- дать заключение относительно поведения участников судебного процесса в контексте реализации ими своих процессуальных прав и выполнения обязанностей (в том числе содержания выступлений, способов обоснования и освещения своей позиции) с определением положительных и отрицательных сторон (предполагается применение метода «Работа по три»).

Применение метода «Незаконченные предложения» для обобщения ключевых положений и идей, озвученных во время обсуждения выполняемых заданий, позволяет закрепить результаты, полученные на втором этапе.

В процессе выполнения заданий могут использоваться и другие интерактивные методы обучения, такие как «Работа в группах (тройках)», «Аквариум», «Круг идей», «Микрофон», «Займи позицию», «Ролевая игра» и т.д. (Boyars'kuj, 2019).

На следующем этапе происходит подведение итогов по основным рассмотренным вопросам, оценка уровня достижения цели и полноты выполнения задач, очерченных во вступлении.

Завершающий этап практического занятия предназначен для обозначения путей дальнейшего совершенствования сформированной компетентности. Студенты получают обратную связь относительно результатов своей деятельности и методические рекомендации, необходимые для дальнейшей самостоятельной работы.

Следует отметить, что результативность описанной методики в значительной степени зависит от конкретности формулировки конечного учебного результата и ориентации на его достижение. Кроме этого, важное значение имеет анализ учебной среды и учет его результатов при подготовке к проведению занятия.

Для формирования специальных компетентностей, необходимых выпускнику юридического факультета для работы в сфере экономики, могут использоваться и другие методы. Так, эффективными являются кейс-метод и проблемный метод, при которых студентам дается ситуация (проблема), сформулированная с максимальным приближением к практике. Применение этих методов позволяет выработать у студентов умения по подготовке письменных юридических заключений и устных консультаций субъектам хозяйствования, способности выбора и реализации оптимального способа защиты прав и законных интересов указанных субъектов.

Выводы и предложения *Conclusions and suggestions*

Результаты данного исследования позволили сформулировать предложения по формированию специальных компетентностей студентов-юристов для их готовности к правовому сопровождению хозяйственной деятельности. На основе анализа особенностей юридической практики в сфере экономики предложен базовый перечень специальных компетентностей студентов-юристов, необходимых для работы в этой сфере: 1) умение разрабатывать проекты основных юридических документов, опосредующих организацию и осуществление хозяйственной деятельности; 2) способность осуществлять юридическую экспертизу таких документов, формулировать предложения об их приведении в соответствие с требованиями законодательства; 3) умение готовить письменные юридические заключения по вопросам, возникающим в деятельности субъектов хозяйствования, предоставлять устные консультации по таким вопросам; 4) способность выбрать оптимальный способ защиты прав и законных интересов субъектов хозяйствования, обеспечить реализацию данного способа; 5) способность представлять интересы субъекта хозяйствования в судах и иных органах.

Необходимость формирования перечисленных профессиональных компетентностей целесообразно учитывать при разработке учебных планов и образовательных программ подготовки студентов юридических специальностей, а также при составлении рабочих программ и преподавании учебных дисциплин хозяйственно-правового цикла.

Одним из путей успешного приобретения студентами указанных компетентностей может стать введение высшими учебными заведениями различных дисциплин (специальных курсов) по выбору студентов, направленных на углубленное изучение отдельных отраслей и институтов хозяйственного права, а также иных вопросов правового обеспечения хозяйственной деятельности.

Обобщение опыта проведения занятий в разных группах и данные опроса студентов юридического факультета позволяют сделать вывод, что применение подхода в преподавании, при котором преподаватель выступает фасилитатором в сочетании с интерактивными методами обучения способствует повышению эффективности при формировании специальных компетентностей.

Предложены для обсуждения два способа формирования специальных компетентностей студентов-юристов, которые по результатам анкетирования студентов дают положительные результаты.

Summary

The article focuses on the shortcomings of the legal education system, which lay in the lack of applied skills of the graduate students, as well as their insufficient ability to apply theoretical knowledge, which they acquired, in practice. One of the reasons for this state of training of future lawyers is the predominance of traditional forms of teaching specialized legal disciplines.

The aim of the research paper is to suggest the proposals on improving approaches to the formation of special competencies of law students for their preparedness to legal support of economic activity.

The integral, general and special competencies provided for The Standard of higher education of Ukraine on specialty "Law" were analyzed in the paper. The study concluded that the list of special competencies contained in this Standard was not sufficiently specific, because it does not focus on the competencies, directed specifically to work in economic field in spite of the considerable need for such knowledge and skills that demonstrated by the employers.

Based on the analysis of the specialties of legal practice in economic field, a basic list of such special competencies is proposed.

Two ways of forming the special competencies of law students, which give positive results according to the student's survey questionnaire, are proposed for discussion.

The first of them is the use of the modeling method aimed at acquiring such special competencies: ability to develop draft basic legal documents, which are used in the process of organizing and conducting business activities, ability to conduct legal examination of documents on issues of activity of business entities. The second way - using the method of analysis of video recording of the broadcast of trial proceedings allows student to form the ability to represent interests of the business entity in the courts.

Other methods can be used to form special competencies necessary for law graduate to work in economic field, such as the case-method and problem-based learning method and others.

The paper is based on the analysis and generalization of teaching experience at the Law Faculty of Vasyl' Stus Donetsk National University, data of analytical reports on employers' views on graduates of law higher educational institutions, as well as the results of the interview of graduates of the Law Faculty.

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THE NATION'S HUMAN CAPITAL IS A MAJOR RESOURCE OF THE STATE'S INNOVATION POTENTIAL

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Abstract. *The problem is important and relevant because in the process of formation of the world economy and economic science, the goals and objectives, means and criteria of modern socio-economic development of countries have been rethought. Studies of competitiveness, priority factors of economic growth, and criteria for the effectiveness of economic activity in a market environment have become relevant. The state of the economy, intensification, progress of economic development depend on innovative potential and human capital, which affect the system of economic relations at the micro, macro and mega levels.*

The aim of the article is to study the evolution of the scientific concept of human capital and determine the socio-economic nature of national human capital. The article also determines the value of human capital in the system of factors of innovative development of the economy of countries.

The article used general scientific and special research methods: analysis and synthesis, morphological analysis, logical generalization and comparison, graphical method.

The study presents approaches to determining the socio-economic category of "human capital". An analysis of the scientific literature indicates that the category of "human capital" most fully reflects the role and place of people in the economic system.

The article notes that different countries of the world use different indicators of human capital: the Human Development Index, the Quality of Life Index and the Index of Human Happiness. The most common indicator of human capital development is the Human Development Index. The article presents the author's classification of human capital, which includes the levels and structure of capital. This will help government agencies better regulate the development of national human capital.

Keywords: *company human capital, human capital, innovative development, innovative potential, intelligence, national human capital, personal human capital.*

Introduction

During the formation of the world economy and economic science, a rethinking of the goals and objectives, means and criteria of socio-economic development took place. In modern conditions of dynamic pace of economic development, globalization and internationalization of economic processes, studies of competitiveness issues, priority factors of economic growth, and criteria for the effectiveness of economic activity in a market environment are

becoming more relevant. The state of the economy, its intensification and progress are determined by the innovative ability of society and the innovative potential of the country. These processes radically alter the system of economic relations both at the micro, macro and mega level.

The aim of the article is to study the theoretical foundations and evolution of the concept of human capital, to determine inextricably linked its socio-economic nature and role in ensuring the innovative development of the national economy. To realize the main aim of the article, we set the following tasks: to analyze the evolution of the socio-economic category “human capital”; offer a modern interpretation of this concept; propose the author’s classification of human capital by level of use and the structure of its types.

The research used general scientific and special methods, in particular: analysis and synthesis – in the classification of human capital by the levels of use and selection of the structure of its species; comparison, systematization and generalization – while clarifying the essential features of the concept of “human capital”, graphical method – to clearly represent the theoretical and practical provisions of the scientific article.

Main text

Fundamental theoretical and empirical studies of human capital are reflected in the works of such foreign scholars as W. Petty, A. Smith, A. Marshall, J. Mill, E. Denison, G. Kendrick, F. Machlup, P. Mintzer, L. Thurow, I. Fisher and others. T. Schultz and G. Becker became Nobel laureates for the development of the theory of human capital. Modern problems of the formation and development of human capital as a factor in the competitiveness of national economies are actively investigated by such domestic scientists and economists as O.S. Mocherna, A.V. Pereverzieva and others.

It should be noted that the concept of human capital is sufficiently developed, but so far there is no single point of view among scientists regarding the meaningful content of the category “human capital”.

The methodological basis of scientific research is a combination of principles, techniques, general theoretical, special and interdisciplinary methods of scientific research. The information base of the research is the works of Ukrainian and foreign scientists on the problems of human capital development, the formation and use of knowledge, and intellectual potential; Internet resources; materials of periodicals and international examinations and other reference sources.

The current state of the world economy is characterized by the development of market relations and production in the conditions of limited (due to their high cost) material resources. The integration of developing countries

into the global economic space with a high level of competition has led to a transition from a resource-based to an innovative model of economic development. First of all, this is due to the accumulation and effective use of the innovative potential of the economies of some countries.

The study of innovative potential and its definition is associated with the interpretation of the term “potential”. In our study, the term potential should be understood as the resources available to economic entities, their optimal structure and the ability to rationally use them to achieve their goals. That is why the definition of innovative potential often differs only in the composition of the resources of innovative activity.

L.H. Melnyk believes that “innovative potential is a combination of financial, material and labor resources that a specific system can use to implement pilot projects that are aimed at the production of new types of products” (Melnyk, 2003).

As a combination of resources of innovative activity and the ability to perceive and introduce innovations, determines the innovative potential of H.M. Huzenko: “The innovative potential of the economy is a combination of factors of innovative economic development: resource, such as resource potential; effective, aimed at realizing the existing possibilities for implementing the modern innovation process; internal, which represent the ability of the economic system to perceive and introduce innovations” (Huzenko & Babak, 2009).

The Law of Ukraine “On Priority Directions of Innovation in Ukraine” considers innovative potential as a set of scientific, technological, financial, economic, industrial, social, cultural and educational opportunities of a country (industry, region, enterprise, etc.) necessary to ensure innovation development. At the same time, such an activator of potential as an innovative culture (in our study, the innovative ability of society), which characterizes the level of educational, general cultural and socio-psychological preparation of the individual and society as a whole for the perception and creative implementation of the idea of developing a national economy on innovative basis (Law of Ukraine, 2011).

It can be concluded that the basis of innovation potential, its source is the person and society, as representatives of a certain educational and qualification level and moral and psychological qualities necessary for the implementation of successful innovative impact on natural resources, financial flows and production capacity in the process of economic activity. In the future, in the context of globalization and activation of migration processes, countries will compete for quality of life. A high standard of living is capable of forming and developing human capital. In this context, a detailed study of the conditions for the formation and development of human capital as the basis of innovative

competitiveness at all levels of the national and world economy becomes relevant.

The concept of human capital is based on the achievements of institutional theory, neoclassical theory, neo-Keynesianism, and other economic theories. Its emergence was the answer of economic and related sciences to the demand of the real economy and life. There was a problem of in-depth understanding of the human role and the accumulated results of its intellectual activity on the pace and quality of development of society and economy. The impetus for the creation of the theory of human capital was the statistics of growth of economies of developed countries of the world, which exceeded the calculations based on the account of classical factors of growth (Bogashko, 2017).

The first attempt to evaluate human capital was made by the founder of Western political economy, William Petty. As early as 1683, the outstanding English economist and statistician in the scientific work "Political Arithmetic" revealed the essence of the concept of the economic value of a human worker. However, he did not bring his views to the level of an independent theory (McCormick, 2010). After that, various aspects of human capital were described in the writings of the classics of economic science, in particular A. Smith, K. Marx, A. Marshall.

A. Smith in 1776, in his work "The Wealth of Nations", investigated that the differences between the capabilities of people with different levels of education and training reflect differences in their incomes, and also ranked the knowledge, skills and experience of people, like machines, land, buildings in the fixed capital of society (Smith, 1937).

Particularly noteworthy are the works of K. Marx, who justified the category of "labor" as the main productive force of society, determined its value, and considered the development of physical, mental, creative abilities of a person from the point of view of direct production as a process of creating fixed capital, which requires corresponding costs (Marx, 1999).

A. Marshall did not include man and his natural qualities in the category of capital, since man himself is not a commodity, but he believed that knowledge and ability to work is an integral part of capital (Marshall, 1920).

The concept of "human capital" came into science in the early 60s of the twentieth century. The economists of the Chicago school G. Becker and T. Schultz began to use it in science. Having developed the concept of human capital, they proved that human capital, and not material means of production, is a determining factor in achieving a high level of competitiveness of the national economy. The source of economic growth is education, science, healthcare, which at that time were interpreted exclusively as industries that consume, rather than produce. T. Schultz by "human capital" refers to the knowledge, skills and abilities of a person that contribute to the growth of the productive power of her

labor (Schultz, 1975). The most important feature of such capital is that a person and his human capital are inseparable from each other. It becomes human capital because it is an integral part of a person and a form of capital, since human knowledge and abilities are a source of future earnings. According to Schulz, from the aggregate product produced in society to the accumulation of human capital, not 1/4 is used, as follows from most theories of reproduction of the 20th century, but 3/4 of its total value. G. Becker, at the same time developing this theory at the micro level, noted that “human capital is formed by investing in people, among which are education, training in production, health care costs, migration and the search for information on prices and incomes” (Becker, 1964). G. Becker praised the cost-effectiveness of education, primarily for the employee himself. Becker also made a special contribution to the theory of competition, strategy and company development. He introduced a distinction between special and general investment in man. He emphasized the special importance of special training, special knowledge and skills. Special training of employees forms the competitive advantages of the company, the characteristic and significant features of its products and market behavior, ultimately, its know-how, image and brand. Firms and corporations themselves are primarily interested in special training, therefore they finance it.

Further thorough research on the main provisions of the concept of human capital was carried out by E. Denison, G. Kendrick, F. Machlup, P. Mintzer, L. Thurow, I. Fisher and others (Kuzminov, Sorokin, & Froumin, 2019). During this period, Western scholars began to invest much broader content in the concept of “human capital”. L. Edvinson and M. Malone regarded this capital as a component of intellectual capital along with structural capital (Edvinsson & Malone, 1997). Human capital, in their opinion, cannot be the property of the company, unlike structural capital, which consists of technical and software, organizational structure, patents, licenses, trademarks, databases, electronic networks and all that can be an object sale. They call the elements of “human capital” embodied in the company's employees a combination of knowledge, practical skills, creative abilities, as well as moral values of the company, work culture, ability to innovate, company philosophy and general approach to business.

The multifaceted nature of the category of “human capital” focuses both on highlighting one or another characteristic, and on the whole multitude of manifestations of this concept. The main approaches to its determination by foreign and domestic scientists are grouped in the form of table 1.

Table 1 Systematization of approaches to the definition of socio-economic categories of “human capital” (Mocherna, 2009)

No.	Author	Approach	Definition of category
1	R. Dornbush, E. Dolan, D. Lindsey, L. Thurow, I. Fisher	Resource Consumer	Human capital is the totality of all possible qualities of workers that determine productivity and can become sources of income for a person, family, enterprise
2	G. Becker, T. Schultz, D. Bohynia, O. Holovin, O. Hrishnova	Investment	Human capital is an intangible asset that is formed and accumulated as a result of investment in education, health care, recreation, and cultural development
3	A. Dobrynin, S. Diatlov, M. Krytskyi, I. Ilinskyi	Historical (Civilization)	Human capital is a form of expression (organization, functioning, development) of the productive forces of a person that is adequate to the post-industrial state of the society of the era of the scientific and technological revolution, based on the movement of an economic subject as a new force of social progress
4	C. McConnell, S. Brue N. Holikova	Cumulative	Human capital is an intangible asset that accumulates as a result of previous investments in education, training, healthcare and more
5	Y. Ben-Porat, R. Ehnenberg, A. Smith	Personal	Human capital is an asset owned by workers (and not their employers) who possess it and decide when, how and where they will invest it
6	J. Coleman, A. Bilyk	Psychological	Human capital arises from a combination of activity with mental reality, psyche and motivation

Source: formed on the basis (Abuzyarova et al., 2019; Mocherna, 2009; Kuzminov et al., 2019).

Thus, human capital is a category that at the present stage most fully reflects scientific views on the role and place of man in the economic system. The basic definition of human capital is the concept of capital as “self-rising value”. From these positions, a person gains the functions of capital only when he becomes a subject of economic activity, that is, when he begins to work, and investments make a profit.

In our opinion, human capital is a set of human abilities that are closely related to his activities. One of the most important properties of human capital is that it is in continuous development. A person is able to control his development within the appropriate limits, applying precisely those abilities that are most necessary in this case. Consider the following types of abilities (Kamenetsky & Patrikeev, 2006):

- Intellectual, which express a person's ability to analyze and summarize information;
- Labor, among which the prevailing ability to process information on specific issues on which a person has enough knowledge;
- Physical, associated with the implementation of a coordinated impact directly on objects of labor;
- Other abilities associated with the fact that some people have specific qualities to a much greater extent than others.

Human capital in the economic sphere is an assessment of the person's abilities to generate income through the use of intellectual, labor and other abilities, as well as the resources that society controls.

To analyze the conditions for the formation and development of human capital in different countries of the world, various indicators are used: the Human Development Index, the Quality of Life Index and the Index of Human Happiness. The most common indicator that allows you to assess the conditions for the formation and development of human capital is the Human Development Index, which reflects the average level of achievements of the country in the three most important elements of human development: a long and healthy life, which is measured by the indicator of life expectancy at birth; knowledge, measured by the level of adult education and the total number enrolled in educational institutions; a decent standard of living, which is measured by the indicator of Gross Domestic Product per capita.

However, as A.V. Pereverzieva points out in economic literature, the equal sign is often put between the concepts of "human capital" and "human potential". Although these two concepts are similar, this is not true. Although the definition of human capital and human potential is similar, there is a significant difference between them. The concept of human potential is included in the concept of "human capital", since in both cases a person with a certain education, health, upbringing, motivational preferences is considered, but the concept of human capital refers more to economic activity, while human capital is a more sociological and psychological concept (Pereverzieva, 2008).

In a theoretical aspect, the concepts of "human capital" should be distinguished at three levels:

- On a personal level, human capital refers to the knowledge and skills that a person received through education, training, practical experience (using his natural abilities) and thanks to which he can provide valuable production services to other people. At this level, human capital can be compared with other types of personal property, generating income, and it is called personal or private human capital;

- At the microeconomic level, human capital represents the combined qualifications and professional abilities of all employees of the enterprise, as well as the achievements of the enterprise in the effective organization of labor and personnel development. At this level, human capital is associated with the production and commercial capital of the enterprise, since profit is obtained through the efficient use of all types of capital;
- At the macroeconomic level, human capital includes accumulated investments in such areas of activity as education, vocational training and retraining, career guidance and employment services, rehabilitation, etc., and therefore is an essential part of the country's national wealth. This level includes the entire amount of human capital of all enterprises and all citizens of the state (Filatov & Vysochina, 2009).

We propose the following structure of human capital, including its classification and division into types (Figure 1), which, in theoretical terms, will help to more fully reveal the essence of this concept, and in practical terms it will provide opportunities for state regulation of its development.

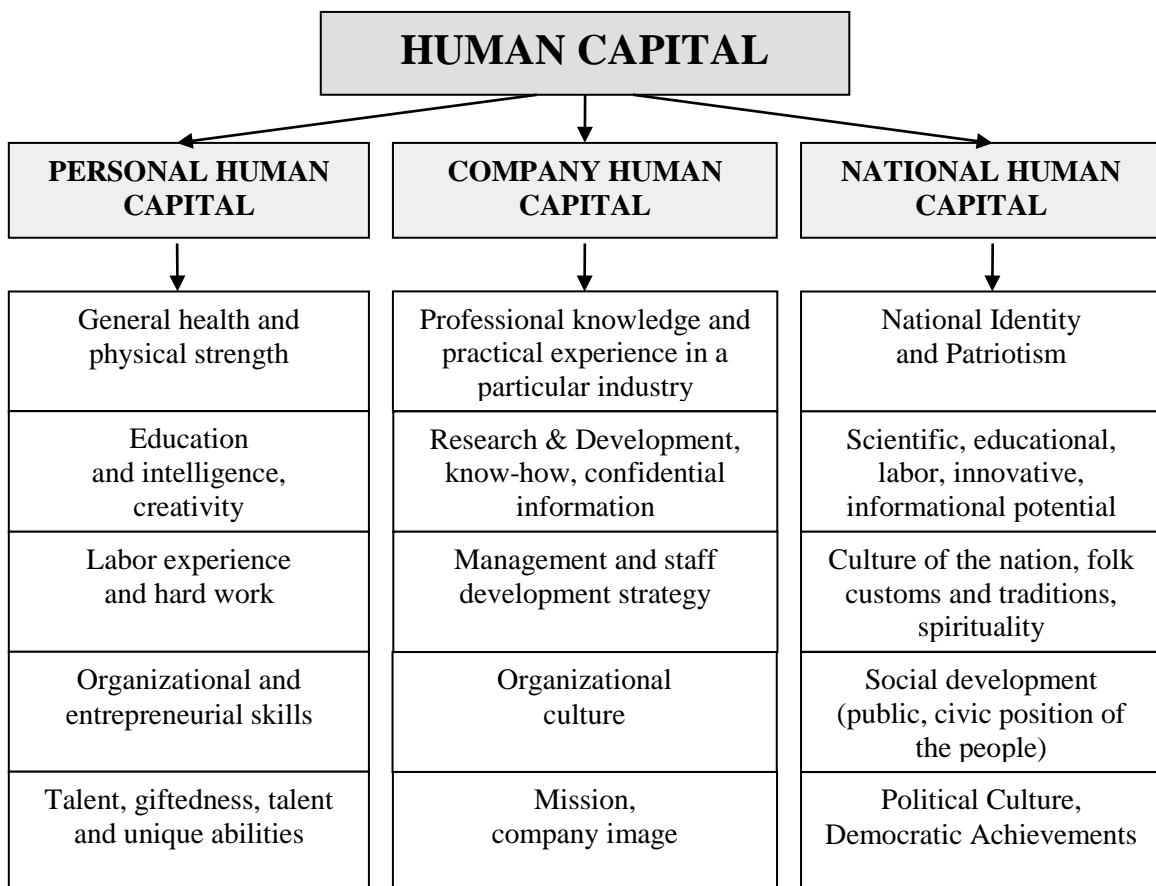


Figure 1 Classification of human capital according to levels use and species structure (classified by the author)

In our opinion, human capital is a socio-economic category that characterizes the totality of productive individual and social abilities that have developed and developed as a result of investments, such as general health and physical strength, education and level of intelligence, work experience and hard work, organizational and entrepreneurial abilities, talent and talent, which are purposefully used in a particular area of social production, contribute to the growth of labor productivity and agodarya that affect the growth of income both its owner and society or the nation as a whole.

Thus, the article analyzes the evolution of the socio-economic category of “human capital” and on this basis a modern interpretation of this concept is proposed. The classification of human capital by levels of use and the structure of its types is presented, which will provide new opportunities for state regulation of its development.

The development of man as the highest social value, improving the quality of human life is an important priority and one of the factors for the effective economic recovery of the state economy. The main tasks of managing the development of national human capital should be recognized: improving the healthcare system and education, gradually increasing the level of financing for human development, creating favorable conditions for the formation and development of human capital at all levels of the national economy. The socio-demographic policy, which should provide favorable conditions for the reproduction, preservation and enhancement of quantitative indicators and qualitative characteristics of the state’s population, has a significant influence on the formation of total human capital.

Subsequent scientific developments in this direction may include research and development of a concept for the development of national human capital and the provision of practical recommendations for its implementation.

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ИССЛЕДОВАНИЕ УДОВЛЕТВОРЕННОСТИ НАСЕЛЕНИЯ СОСТОЯНИЕМ УСЛУГ НА РЫНКЕ ОБРАЗОВАНИЯ

Research of Satisfaction of Population with the Status of Services in the Education Market

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Abstract. *The article discusses the problems of implementing state policy in the field of school education and preschool sphere. The article analyzes the results of a sociological study on the example of the educational services market Leningrad region. The results of a sociological study allow us to identify certain shortcomings in the organization of public services at the municipal level of government. The article discusses such aspects of organizing a competitive environment in the field of education as the number of organizations in the market, the representation of organizations in the market, the quality of services, price and the choice of organization. The results of the study allow us to note that more than a third of respondents are satisfied with the quality of services, and the choice of organization, and pricing policy. At the same time, the majority of respondents express certain doubts about these indicators, which is expressed in a small amount of differences between negative and positive values. The results of the study allow us to state the relevance of research on the quality of the organization of the provision of services in the field of preschool education, additional education of children, the market of psychological and pedagogical support services for children with disabilities. Studies show the high importance that households in the Leningrad Region attach to the education sector. This study allows us to identify areas of managerial impact to local authorities regulating these services. Monitoring the state of the market for services in the field of school and preschool education makes it possible to identify problem organizations and directions for solving social and economic problems in the field of educational organization. The education sector for all modern states is an important political component, the accessibility and universality of education is a constitutional indicator of the status - “social”, “rule of law”.*
Keywords: *education, public administration, quality of education, service, social policy.*

Введение *Introduction*

Значительное внимание органов государственного управления и органов муниципальной власти к системе дошкольного и школьного

образования связано с необходимостью постоянно поддерживать и развивать инфраструктуру системы образования, создавать активную среду для полноценного развития этой сферы. Дошкольные учреждения и центры дополнительного образования детей традиционного являются точками социальной, общественной, гражданской активности населения. В сложных демографических условиях сокращения количества детей, важно сохранить не только инфраструктуру сферы образования, но и создать условия для реализации основных положений социальной политики государства, обеспечить соблюдение гарантий социального правового государства в отношении детей.

Многие исследователи рассматривают образование как один из важнейших факторов развития нации, как с глобальной, так и с индивидуальной точки зрения (Lovelock & Wirtz, 2011). В исследовании (Cheng, 2003) констатируется, что образование представляет основной источник инвестиций в людей, что способствует развитию государства. Техническое и информационно-технологическое развитие современного общества предъявляет новые требования к качеству образования, к процессу организации образования. Основные цели предоставления образовательных услуг следующие: создание, оценка и совершенствование образовательных программ; совершенствование учебного процесса и навыков учителей; преобразование преподавательского опыта в значимые для студентов компетенции; содействие непрерывному образованию; продвижению образовательных инноваций. Образовательный процесс представляет собой систему саморазвития, отвечающей на внешние вызовы, хорошо структурированный процесс, способствующий успеху обучающихся (Fuller & Brown, 1975; Steffy et al., 2000). Сфера образования традиционно является социально-значимой, органы государственного и муниципального управления традиционно уделяют значительное внимание организации процесса дошкольного и дополнительного образования детей, стимулированию качества образовательного процесса.

Методология *Methodology*

Качество проведенного авторами социологического исследования обеспечивается соблюдением необходимой структуры анкеты и научной систематизацией вопросов, рассматриваемых в контексте изучаемого социально-экономического процесса, что потребовало вскрытия научной проблемы в дополнительных вопросах анкеты.

Важнейшим направлением исследования социальных процессов является социологические инструменты изучения социальных явлений и

процессов, такие как анкетирование, интервьюирование, фокус-группы и пр.

Применение социологических инструментов позволяет выявить и замерить обратную связь с целевыми аудиториями, структурировать проблемное пространство для последующего принятия управленческих решений.

В рамках исследования проведенного авторами, объем выборки составил 1515 респондентов, проживающих в регионе Ленинградской области, что является достаточной базой для эмпирического подтверждения гипотезы, обрабатываемый полученный массив информации их 1515 анкет даст вероятность 5% ошибки, что является величиной среднестатистической погрешности результата измерения.

Результаты исследования

Research results

Респондентам предлагалось оценить удовлетворенность качеством товаров и услуг и ценовой конкуренцией на рынках Ленинградской области. Географически выборка представлена следующими наиболее активными респондентами: Бокситогорский муниципальный район - 17,6%, г. Пикалево - 10,2%, Тихвинский муниципальный район – 9,9%, Тосненский муниципальный район - 7,9%, Волховский муниципальный район - 8,8 (% Выборгский муниципальный район - 5,9%, Лодейнопольский муниципальный район - 8,4%, Кингисеппский муниципальный район - 13,8%, Выборгский муниципальный район – 6,6%, г. Выборг - 5,3%, Приозерский муниципальный район - 6,6%, Тосненский муниципальный район - 7,3%, г. Луга - 7,7%, и т.д.

Половозрастные характеристики целевой аудитории следующие: две трети респондентов - представители женского пола - 41,9%, респондентов-представителей мужского пола - 58,1% соответственно. Выборка респондентов достаточно репрезентативна по возрасту, так 35,5% - респонденты в возрасте от 21 до 35 лет, 30,8% респондентов - в возрасте от 36 до 50 лет, более пятой части опрошенных (22,4%) - в возрасте старше 51 года, и каждый десятый (11,3%) - в возрасте до 20 лет.

Реконструкция социального статуса целевой аудитории Ленинградской области представлена характеристиками занятости респондентов, большинство опрошенных являются работающим контингентом – 69,1%. 13,4% респондентов являются студентами или учатся, доля пенсионеров составляет 10,1%, безработных среди опрошенных 6,7% респондентов, домохозяйки составили 3,7%.

Семейный статус и наличие детей характеризуется следующими показателями: один ребенок в семье (27,2%), семьи с наличием двух детей - 31,1%, отсутствие детей наблюдается у 34,3% респондентов, и 7,4% респондентов отметили позицию «наличие 3 и более детей».

Выбранная аудитория обладает значительным образовательным багажом, так 43% опрошенных с высшим образованием, со средним специальным образованием - 29,1%, с неполным высшим образованием - 9,6%, с общим средним образованием – 16,6%, и 1,8% респондентов характеризуется наличием ученой степени.

Исследуемая аудитория не обладает значительными финансовыми ресурсами, это подтверждается тем, что при ответе на вопрос о среднемесячном доходе в расчете на одного члена семьи преобладают ответы с уровнем дохода от 10 до 20 тыс. рублей - 39,9%, с уровнем дохода на одного члена семьи от 20 до 30 тыс. рублей - 27,9% респондентов, с доходом до 10 тыс. рублей отмечен каждый десятый ответ респондентов - 14,3%, от 45 до 60 тыс. рублей - 4,6% опрошенных, высокий уровень доходов (более 60 тыс. рублей) показывают только 1,2% респондентов.

В Ленинградской области на рынке услуг дошкольного образования осуществляют деятельность 352 организаций, из них только 10 находятся в частной собственности, остальные в государственной и муниципальной собственности.

60% опрошенных ведут свою деятельность на рынке услуг дошкольного образования Ленинградской области более 5 лет, 40 % осуществляют свою деятельность на рынке от 2 до 3 лет.

Деятельность на рынке осуществляют преимущественно микропредприятия, годовой оборот которых составляет до 120 млн рублей.

40% опрошенных считают, что конкуренция в сфере оказания услуг дошкольного образования высокая (из них 20% респондентов оценивают конкуренцию как очень высокую). По мнению 40% хозяйствующих субъектов, конкуренция на рынке умеренная. Только для 20% участников рынка конкуренция на рынке слабая.

20% опрошенных считают, что у них нет конкурентов, 80% утверждают, что их конкурентами являются от 1 до 3 организаций.

Больше половины респондентов считает, что состав участников рынка не менялся за последние 3 года, что подтверждается данными о продолжительности осуществления деятельности на рынке услуг дошкольного образования: 60% опрошенных являются участниками рынка на протяжении 5 и более лет.

20% респондентов считают, что конкуренция на рынке за последние 3 года увеличилась, что также подтверждается фактом появления на рынке организаций, осуществляющих свою деятельность от 3 до 5 лет.

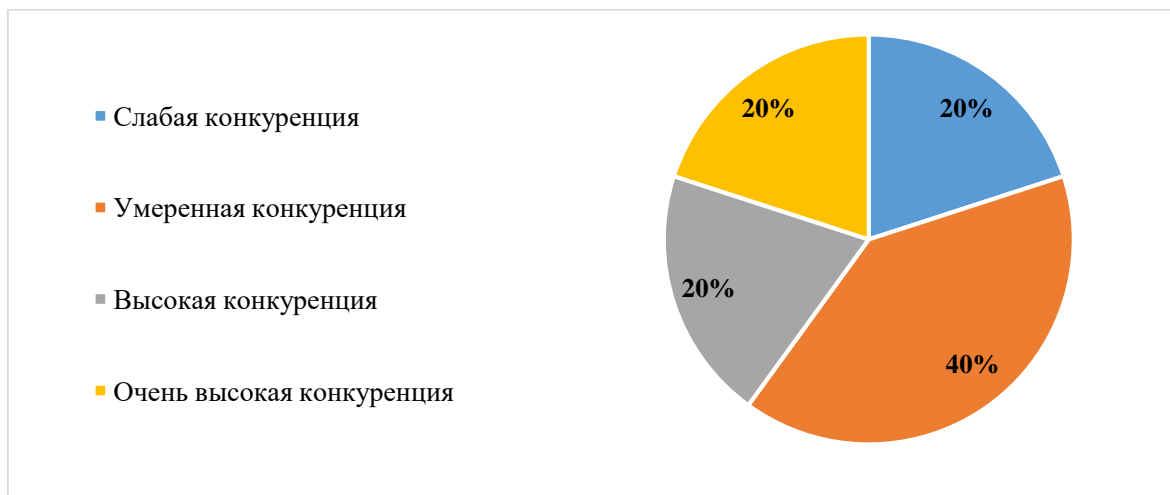


Рисунок 1. Результаты опроса на вопрос: «Как бы Вы оценили уровень конкуренции на рынке услуг дошкольного образования»

(результаты исследования полученные авторами лично) N=1515, 2019

Figure 1 The results of a survey on the question: “How would you rate the level of competition in the market for preschool education services”

(research results personally received by the authors) N=1515, 2019

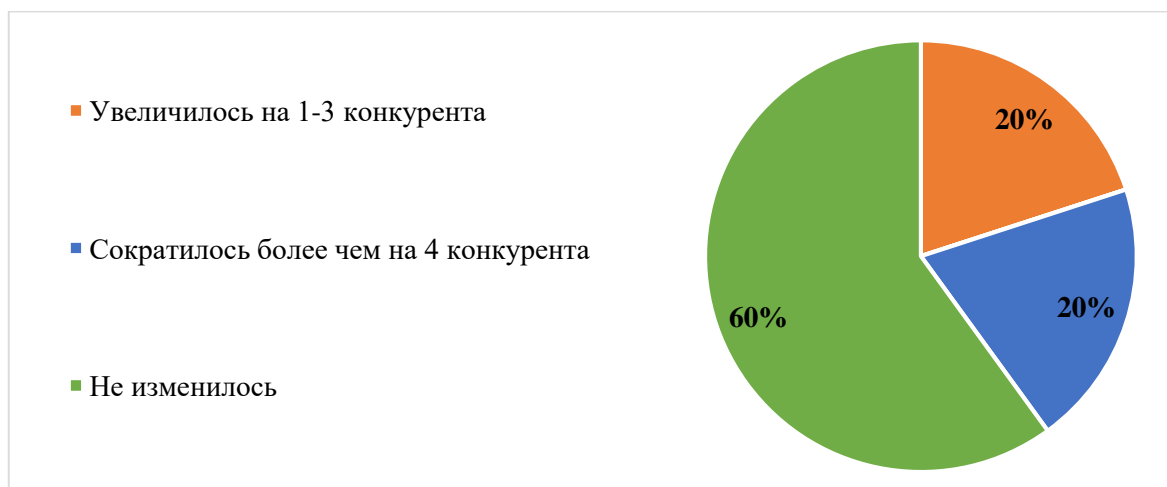


Рисунок 2. «Как ВЫ считаете, как изменилось количество конкурентов на рынке услуг дошкольного образования»

(результаты исследования полученные авторами лично) N=1515, 2019

Figure 2 “How do you think how the number of competitors in the market for preschool education services has changed”

(the results of the study personally received by the authors), N=1515, 2019

Каждый пятый из опрошенных (20%) считают, что существующие меры поддержки предпринимателей достаточны.

Меры по улучшению конкурентной среды на рынке Ленинградской области хозяйствующими субъектами-респондентами предложены не были.

Оценка удовлетворенности качеством услуг на рынке образовательных услуг Ленинградской области представлена достаточно дифференцированными оценками респондентов.

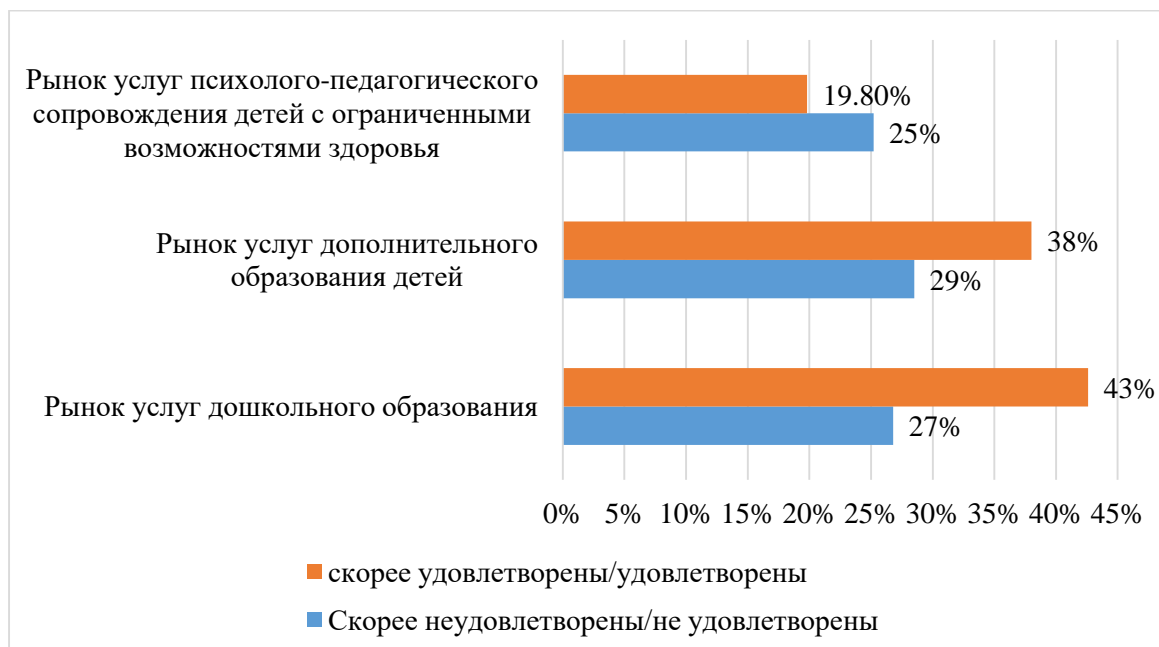


Рисунок 3. Результаты опроса на вопрос: «Насколько Вы удовлетворены характеристиками товаров и услуг на следующих рынках вашего района (города)» по критерию – качество

(результаты исследования полученные авторами лично) N=1515, 2019

Figure 3 The results of a survey on the question: “How satisfied are you with the characteristics of goods and services in the following markets your district (city)” by the criterion - quality

(the results study received by the authors personally) N=1515, 2019

Анализ удовлетворенности товаров и услуг потребителями Ленинградской области по критерию «качество» представлен репрезентативными оценками по ряду рынков и сфер деятельности, так удовлетворительные оценки получили следующие рынки: рынок услуг дополнительного образования детей - 38%, рынок услуг дошкольного образования - 43%.

Очевидны затруднения респондентов при оценке ряда рынков – тех, с которыми нет активного и регулярного взаимодействия, респонденты сомневаются при анализе и интерпретации собственного социального опыта соприкосновения с данными рынками. По таким рынкам как - рынок услуг психолого-педагогического сопровождения детей с ограниченными возможностями здоровья - 55% респондентов не смогли дать ни положительный, ни отрицательный ответ.

В целом необходимо отметить высокий уровень удовлетворенности населения региона состоянием конкурентной среды на рынке дошкольного и дополнительного образования детей. Налицо рост удовлетворенности населения, что означает наличие положительных результатов реализации национального проекта «Образование» нацеленного на создание условий для развития потенциала каждого обучающегося.

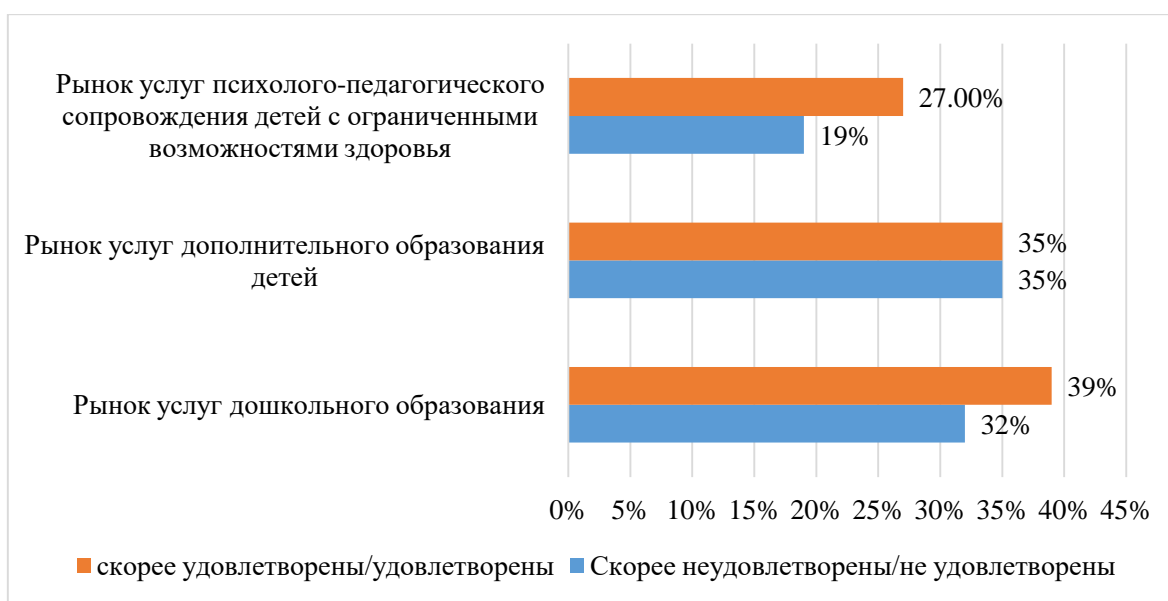


Рисунок 4. «Насколько Вы удовлетворены характеристиками товаров и услуг на следующих рынках вашего района (города)» критерий (уровень цен) (результаты исследования полученные авторами лично) N=1515, 2019

Figure 4 “How satisfied are you with the characteristics goods and services in the following markets your area (city)” criterion (price level) (the results study received by the authors personally) N=1515, 2019

Анализ полученных данных позволяет говорить о положительных трендах в сфере удовлетворенности населения Ленинградской области, положительные суждения относительно показателя уровня цен на ряде рынков региона, таких как - рынок услуг детского отдыха и оздоровления (41%), рынок услуг дошкольного образования – 39% респондентов, рынок услуг психолого-педагогического сопровождения детей с ограниченными возможностями – 27% (рис.4).

Важнейшим показателем оценки конкурентной среды является оценка возможности выбора потребителями (гражданами, населением) услуг на тех или иных отраслевых рынках.

Данный показатель является принципиально важным, так как возможность выбора потребителями и домохозяйствами на рынках товаров и услуг той или иной организации характеризует уровень конкуренции,

широкое представительство организаций на потребительских рынках позволяет домохозяйствам делать выбор по объективным показателям (цена, качество, ассортимент, узнаваемость бренда, локализация производства и др.) и субъективному социальному опыту.

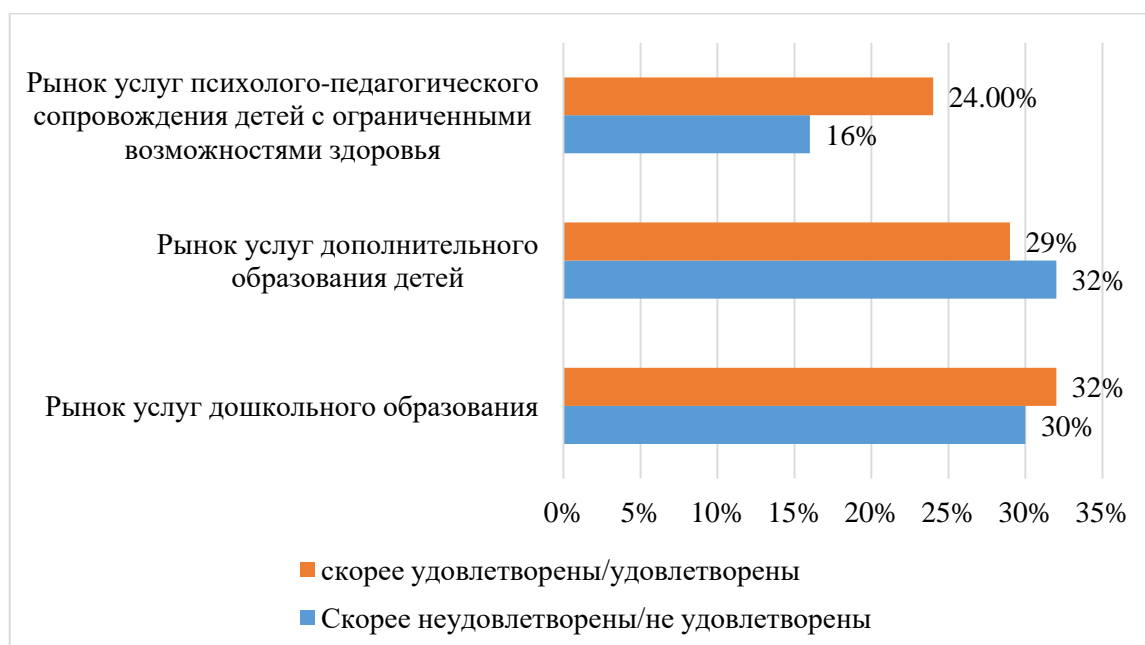


Рисунок 5. Результаты опроса на вопрос: «Насколько Вы удовлетворены характеристиками товаров и услуг на следующих рынках вашего района (города) по критерию «возможность выбора»

(результаты исследования полученные авторами лично) N=1515, 2019

Figure 5 The results the survey on the question: “How satisfied are you with the characteristics of goods and services the following markets of your district (city) according to the criterion of “choice”

(the results of the study personally obtained by the authors) N=1515, 2019

Результаты оценки показателя возможности выбора рыночного субъекта в части анализируемых рынков, позволяет говорить о сохранении практически равных позиций положительных и отрицательных оценок, так респонденты оценивая рынок услуг дополнительного образования детей в основном дают отрицательные оценки – 32% опрошенных неудовлетворены возможностью выбора среди организаций оказывающих данные услуги, что позволяет говорить о сокращении присутствия хозяйствующих субъектов и организаций на данном рынке, и 29% демонстрируют положительную удовлетворенность по данной позиции (см. рис.5). Такая же позиция, респондентов относительно возможности выбора рыночного субъекта в части сферы услуг дошкольного образования выражена разницей в 2 п.п. между положительными и отрицательными оценками.

Выводы *Conclusions*

В целом резюмируя результаты проведенного исследования, в рамках данной статьи, следует отметить наличие значительного резерва в части общественного настроения оценки состояния конкуренции на рынке образования. Предоставление услуг на данных рынках активно регулируется государством через инструменты регламентации, стандартизации, лицензирования. Возможности органов государственных власти и органов местного самоуправления в части создания институциональных условий развития сферы образования значительны и проведенная социологическая оценка позволяет акцентировать внимание органов управления на необходимых направлениях совершенствования организации предоставления рыночных услуг в сфере дошкольного и дополнительного образования детей и детей с ограниченными возможностями здоровья.

Результаты исследования показывают, что на рынке услуг общего образования респонденты раскрывая проблемы административного регулирования, указывают что только четверть участников рынка не сталкивалась с административными барьерами. Остальные участники исследования среди административных барьеров отметили: нестабильность российского законодательства, регулирующего предпринимательскую деятельность (25% опрошенных), сложность/затянутость процедуры государственной регистрации/лицензирования (25%), высокие стандарты и предъявляемые к качеству требования (24,5%), высокие налоги (13%), коррупция (12%).

Благодарность *Acknowledgement*

Статья выполнена в рамках НИР «Формирование эффективных моделей и технологий коррекции девиантного поведения подростков в различных учреждениях с использованием художественного образования и культурологии» Федерального государственного бюджетного научного учреждения «Институт художественного образования и культурологии Российской академии образования» (ФГБНУ «ИХОиК РАО»).

Summary

In order to increase the effectiveness of state policy the field of education of state bodies, sociological tools for measuring social processes are increasingly used. School, preschool and additional education of children is a constant concern of the state. The education sector in all developed democracies is one of the most important areas state social policy. Sociological

measurements of the state services market the field of school and preschool education allows us to identify problems and directions for solving social and economic problems in the field of educational organization.

The article discusses the problems of implementing state policy the field of additional education and preschool education. The article analyzes the results a sociological study the example of the educational services market Leningrad Region in such areas as: pre-school education services, psychological and pedagogical support services for children with disabilities, additional education services.

A sociological study conducted by the authors allows us to talk about average indicators of population satisfaction with the services provided in these markets. The education sector traditionally refers to the service sector of the economy, a market economy has allowed to actively realize the potential of business in improving the quality of services provided to the population.

The business is an active participant the market of educational services, including additional support for children.

Sociological tools for studying social processes make it possible to identify shortcomings the organization of public services at the municipal level of government. The article discusses such aspects of organizing a competitive environment in the field of education as the number of organizations in the market, the quality of services, price and the ability of consumers to choose the organization's services. The results of the study allow us to note that more than a third of respondents are satisfied with the quality of services, and the choice of organization, and pricing policy. A third of the positive assessments for given market indicators do not allow us to speak of a stable and developing situation in the regional education market, most of the respondents preferred to give either negative assessments or neutral ones. It is this target audience that is the most important for organizing the work of authorities in the long term. The results of the study allow us to state the relevance of research on the quality of the organization the provision of services in the field of preschool education, additional education of children, the market for psychological and pedagogical support of children with disabilities. Studies show the high importance that households in the Leningrad Region attach to the education sector.

The study allows us to talk about the need for a detailed and detailed analysis of the quality of the services provided both in the preschool education market and in the market of psychological and pedagogical support for children with disabilities.

This study allows us to identify areas of managerial impact to local authorities regulating these services.

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ЭФФЕКТИВНОСТЬ ГОСУДАРСТВЕННЫХ УСЛУГ: УСЛУГИ ДОШКОЛЬНОГО ОБРАЗОВАНИЯ РЕСПУБЛИКИ КОМИ

The Effectiveness of Public Services: Preschool Education Services in the Komi Republic

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Abstract. *The article analyzes the tasks of implementing the national project "Education" in the region using the example of the Komi Republic. The article examines the conditions for the implementation of a national education project based on the example of the public servant "preschool education". Based on monitoring indicators of the provision of pre-school education for children aged 1 to 6 years old in educational institutions in the Komi Republic, an assessment is made of the process of providing services by local authorities. The positive dynamics of the provision of public services in terms of the availability of preschool education in the territory of the Komi Republic is revealed. This indicator is ensured by the construction, re-equipment of premises in existing preschool educational institutions, the redemption of premises for placement of nursery groups, as well as by the development of varied forms of preschool education: groups for short-term stay of children, counseling centers of various kinds, groups for the supervision and care of preschool children ages organized by individual entrepreneurs. The article provides a grouping of municipalities by the effectiveness of the provision of public services of preschool education. The article also analyzes the results of the implementation of the national project "Demography", one of the directions of which is the creation of additional places in preschool educational institutions for children under the age of 3 years. Positive factors in the development of the market for preschool services are the presence of a private business and the creation of private preschool educational organizations in the region, the creation of groups for the supervision and care of preschool children organized by individual entrepreneurs. Important for the Far North region is the creation of groups of short-term stay of children in municipal organizations. The analysis shows the activity of government bodies in creating consultation centers for methodological, psychological, pedagogical, diagnostic and advisory assistance to parents in the education and upbringing of preschool children, centers for play support, leisure activities, weekend groups, parent-child club, groups for children disabled people. Digitalization of public administration is implemented through the creation of a regional electronic register of children in need of places in preschool educational institutions of the Komi Republic, which provides the possibility of a*

"transparent" procedure for the provision of services for receiving applications, registering and enrolling children in preschool educational organizations in electronic form.

Keywords: educational service, preschool education, project, public administration.

Введение ***Introduction***

Национальный проект в сфере образования является не только политической программой, но и политическим инструментом реализации управленческих задач на национальном уровне. С 2018 года запуск национальных проектов по приоритетным задачам общественного развития выявляет функциональное состояние региональных органов управления, призванных реализовывать федеральные установки и задачи, демонстрируя, в ряде случаев, недостаточное соответствие качества многих органов управления поставленным задачам.

Основные задачи национального проекта образования сконцентрированы вокруг приоритетов индивидуального развития каждого ребенка, создания условий для выявления способностей и талантов у детей и молодежи, формирования профессиональной ориентации у обучающегося. Важной задачей национального проекта, ретранслированного на регионы, видится повышение интересов и мотиваций к обучению и вовлеченность в процесс образования на основе совместной проектной деятельности. Национальный проект также направлен на формирование условий для раннего развития детей в возрасте до трёх лет, реализацию программы психолого-педагогической, методической и консультативной помощи родителям детей, получающих дошкольное образование в семье.

Данные инициативы федерального центра, направленные на повышение активности региональных органов власти, призваны разрешить системные проблемы территорий по обеспечению равного доступа семей с детьми к государственным услугам в сфере дошкольного и школьного образования, дополнительного образования детей. Дифференциация социально-экономического развития регионов подчеркивает не только различия в потенциалах регионов России, но и необходимость в управленческом воздействии федерального центра для повышения качества государственного управления, стимулирования создания условий организации предоставления качественных государственных и муниципальных услуг.

Исследования (Halonen, 2004) ярко демонстрируют значение государственных услуг в сфере образования, исследование показывает влияние распространения правил глобализации на динамику процессов образования, формирования трансграничных практик управления

образовательной сферой. В статье (Gorina, 2016) дана оценка значения маркетинга и стратегий продвижения образования в современном обществе, где наблюдается рост требований к качеству образования на всех уровнях и во всех формах образовательной услуги. В исследовании (Martinez, 2015) дан подробный анализ факторов оказывающих влияние на состояние образовательной сферы, влияния глобальных коммуникаций, истории, лингвистических факторов влияющих на стратегию развития образования. Исследование Ложкиной Е. раскрывает комплекс проблем связанных с системой организации дошкольного образования в России, на примере оценки состояния системы образования детей в дошкольных образовательных учреждениях в 36 субъектах Российской Федерации, в исследовании описываются региональные модели дошкольного образования, представлены методические рекомендации для распространения лучших практик (Lozhkina, 2015). Важным для понимания состояния рынка образовательных услуг является исследование Клячко Т. раскрывающей состояние региональных систем общего образования, анализа доступности дошкольного образования и качества условий его предоставления в регионах России (Klyachko, 2018).

Опыт Республики Коми как важнейшего субъекта Северо-Западного Федерального округа демонстрирует позитивные результаты в продвижении федеральных инициатив в сфере дошкольного и школьного образования, дополнительного образования детей.

В Федеральном проекте «Успех каждого ребенка» поставлена задача по созданию ключевых центров дополнительного образования детей, реализующих дополнительные общеобразовательные программы, в организациях, осуществляющих образовательную деятельность по образовательным программам высшего образования. В 2019 году Республика Коми стала получателем федеральной субсидии в объеме 7,9 млн. рублей на обучение 400 детей по программам дополнительного образования детей технической и естественнонаучной направленности на базе образовательной организации высшего образования.

В целях создания прозрачной системы распределения и предоставления финансовых средств для реализации задач национального проекта «Образование» (таких, как создание центров при институтах и университетах) между различными уровнями бюджета (федеральный, региональный) необходимо на федеральном уровне государственного управления разработать механизм передачи средств субъекта РФ федеральному учреждению, финансирование которого осуществляется из федерального бюджета.

Основная цель исследования: проанализировать состояние показателей системы дошкольного образования в образовательных организациях

региона, провести ранжирование показателей дошкольных образовательных организаций в муниципальных образованиях Республики Коми.

Основные задачи исследования: проанализировать показатели охвата дошкольным образованием детей региона в образовательных организациях, выявить факторы оказывающие влияние на показатели охвата детей дошкольным образованием, проранжировать муниципалитеты по показателю «доля детей в возрасте 1-6 лет, состоящих на учете для определения в муниципальные дошкольные образовательные учреждения», оценить состояние материально-технической базы детских дошкольных учреждений Республики Коми.

В этой связи важным представляется анализ результатов проведенного мониторинга показателей организации предоставления государственных и муниципальных услуг в сфере дошкольного образования, ввиду особой общественной значимости именно этой сферы.

Методология *Methodology*

Методами исследования являются системный и структурно-функциональный анализ сферы дошкольных образовательных учреждений, институциональный анализ сферы образования.

Особенностями структурно-функционального анализа является всесторонняя оценка взаимосвязи социальных и экономических явлений и процессов, особенностей регулирования сферы дошкольного образования органами местного самоуправления.

Применение методов статистической группировки позволяет обобщить явления и процессы, выявить особенности их реализации в контексте раскрытия показателей охвата детей дошкольным образованием. В исследовании применяются инструменты количественных оценок.

Результаты исследования *Research results*

С участием авторов проведено исследование удовлетворенностью жителей Республики Коми услугами на рынке услуг дошкольного образования. Всего опросом было охвачено 2497 человек. Опрос проводился во всех муниципальных образованиях городских округов и муниципальных районов республики.

В ходе исследования было из числа опрошенных - 64,8% работающего населения, 20,4% пенсионеров, 9,8% студентов, учащихся, 4,9% неработающего населения. Молодежь до 20 лет составляла 9,2%, лица в

возрасте от 21 до 35 лет - 34,6%, от 36 до 50 лет - 31,4%, старше 51 года - 24,8%.

Большинство респондентов имели высшее образование - 40,9%. Специалистами со средним специальным образованием являлись 30,6% опрошенных.

Большинство респондентов ответили, что в их городе (районе) мало организаций, предоставляющих услуги на рынке услуг дошкольного образования. Наибольшая доля таких респондентов зафиксирована в Прилузском, Усть-Цилемском районах и в Сыктывкаре.

На вопрос «Как, по Вашему мнению, изменилось количество организаций, предоставляющих услуги на рынке услуг дошкольного образования в течение последних трех лет?» 52,4% опрошенных ответили, что не изменилось, 7,2% - снизилось и 18,3% - увеличилось. В 5-и муниципалитетах количество тех, кто полагал, что снизилось число организаций, предоставляющих услуги дошкольного образования, в течение последних трех лет, превышало число тех, кто считал, что таких организаций стало больше. Респондентов, высказавших удовлетворенность уровнем цен на рынке услуг дошкольного образования, оказалось больше, чем респондентов неудовлетворенных (таблица 1). Это характерно и в целом по выборке, и для более осведомленных в этом отношении респондентов - имевших детей.

Таблица 1. Удовлетворенность респондентов характеристиками рынка услуг дошкольного образования в 2017 г., в %

Table 1 Respondents' satisfaction with the characteristics of the market for preschool education services in 2017, in %

(Doklad "Sostoyanie i razvitie konkurentnoj sredy na rynkah tovarov, rabot, uslug v Respublike Komi", 2017).

	Удовлетворен	Скорее удовлетворен	Скорее не удовлетворен	Не удовлетворен	Затрудняюсь ответить	Разница положительных и отрицательных ответов
Все опрошенные						
Уровень цен	14,1	28,2	18,6	14,2	25,0	+9,5
Качество услуг	11,1	25,1	31,6	7,9	24,2	-3,3
Возможность выбора услуг	8,7	21,4	19,3	26,8	23,8	-16,0
Респонденты, имевшие детей						
Уровень цен	17,3	28,6	18,3	12,4	23,4	+15,2
Качество услуг	12,1	25,9	30,8	7,6	23,6	-0,4
Возможность выбора услуг	10,0	22,8	19,0	25,9	22,3	-12,1

Качество услуг чаще оценивалось положительно, нежели отрицательно. Наибольшая доля неудовлетворенных ценами на услуги дошкольного образования наблюдалась в Удорском районе, качеством услуг - в Усть-Вымском районе.

Возможностью выбора услуг дошкольного образования не удовлетворены 44,9% опрошенных. Наибольшие их доли зафиксированы в Троицко-Печорском и Усть-Куломском районах.

Проведенный анализ позволяет сделать вывод о положительной динамике показателя обеспеченности детей местами в детских дошкольных учреждениях.

В 2018 году обеспеченность детей в возрасте от 1 года до 6 лет дошкольным образованием в образовательных организациях на территории республики Коми составляла 85,9%.

Более 90% детей в возрасте от 1 года до 6 лет охвачено дошкольным образованием в образовательных организациях муниципального образования городской округ (далее сокращенно МО ГО) «Сыктывкар» (98,6%), МО ГО «Ухта» (97,9%) и МО ГО «Вуктыл» (92,9%), менее 70% - в муниципальном образовании муниципальный район (далее сокращенно МО МР) «Сысольский» (68,3%), МО МР «Сыктывдинский» (65,9%) МО МР «Троицко-Печорский» (63,5%), МО МР «Удорский» (62,7%), МО МР «Койгородский» (62,5%), МО МР «Усть-Куломский» (60,0%) и МО МР «Корткеросский» (58,2%).

В 2017-2018 году наблюдается положительная динамика показателя «Доля детей в возрасте 1 – 6 лет, получающих дошкольную образовательную услугу и (или) услугу по их содержанию в муниципальных образовательных учреждениях в обще численности детей в возрасте 1 – 6 лет» так в 4 (20%) муниципальных образованиях республики: в г. Сыктывкар (на 1,6%), Сыктывдинский район (на 1,0%), Усть-Вымский район (на 0,7%), Ижемский район (на 0,5%).

В остальных муниципальных образованиях отмечено снижение (ухудшение) значений показателя.

Анализ позволяет отметить, тот факт, что во всех муниципальных образованиях региона наблюдаются очереди для поступления в муниципальные дошкольные образовательные учреждения (при расчете показателя учитываются дети, поставленные на учет, желаемая дата зачисления которых не наступила). Самая высокая доля детей в возрасте 1 – 6 лет, стоящих на учете для зачисления в муниципальные дошкольные образовательные учреждения, отмечена в МО ГО «Сыктывкар» (15,2%).

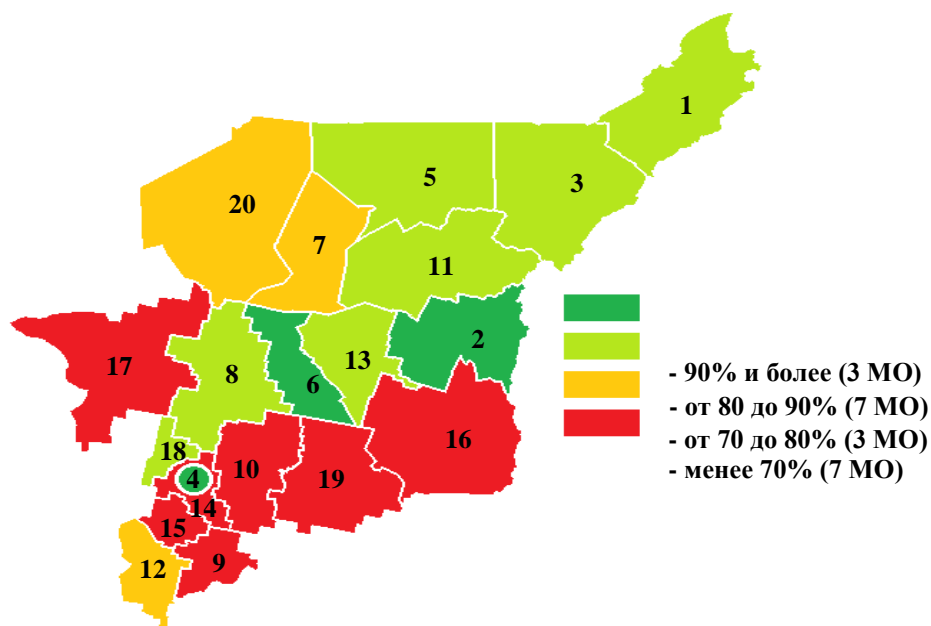


Рисунок 1. Доля детей в возрасте 1-6 лет, получающих дошкольную образовательную услугу и (или) услугу по их содержанию в муниципальных образовательных учреждениях в общей численности детей в возрасте 1-6 лет, в%, 2018 г.

Figure 1 The proportion of children aged 1-6 years receiving preschool educational services and (or) services for their maintenance in municipal educational institutions in the total number of children aged 1-6 years, in %, 2018

Минимальные значения показателя «Доля детей в возрасте 1 – 6 лет, стоящих на учете для определения в муниципальные дошкольные образовательные учреждения в общей численности детей в возрасте 1 – 6 лет» (менее 5,0%) достигнуты в районах: Ижемский (4,8%), Княжпогостский (4,4%), Койгородский (4,3%), Прилузский (3,9%), городах: Воркута (2,6%), Вуктыл (2,1%), Инта (0,5%).

Ухудшение значений показателя отмечено в 8 муниципальных образованиях (районах Печора» и Прилузский (на 3,1%), Удорский (на 2,0%), городе Усинск (на 1,8%), районах Усть-Цилемский (на 0,7%) Троицко-Печорский (на 0,5%), Княжпогостский и Сыктывдинский» (на 0,2%).

Рост показателя вызван увеличением общего количества детей данной возрастной категории, а также за счет включения в данный показатель детей, поставленных на учет для предоставления места в дошкольные образовательные организации, желаемая дата зачисления которых еще не наступила.

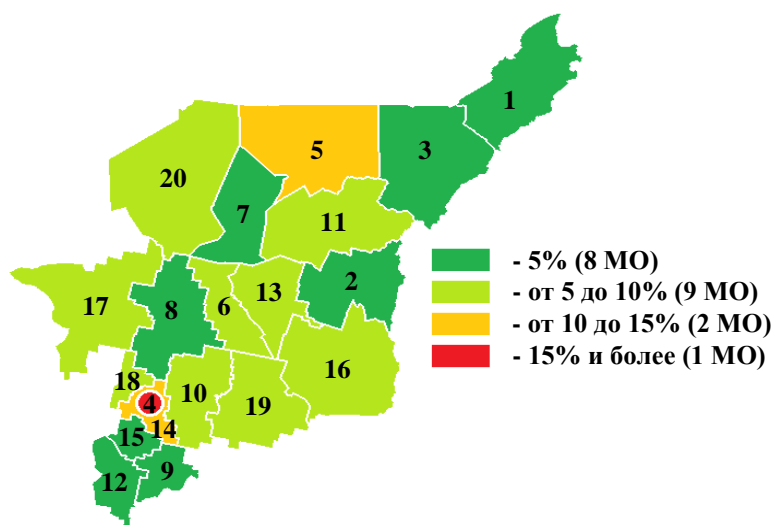


Рисунок 2. Доля детей в возрасте 1-6 лет, состоящих на учете для определения в муниципальные дошкольные образовательные учреждения, в общей численности детей в возрасте 1 - 6 лет, в %, 2018 г.

Figure 2 The share of children aged 1-6 years, registered for determination in municipal preschool educational institutions, in the total number of children aged 1-6 years, %, 2018

Доступность дошкольного образования на территории Республики Коми обеспечивается за счет строительства, переоборудования помещений в действующих дошкольных образовательных организациях, выкупа помещений под размещение ясельных групп, а также за счет развития вариативных форм дошкольного образования: группы кратковременного пребывания детей, консультативные пункты различной направленности, группы по присмотру и уходу за детьми дошкольного возраста, организованные индивидуальными предпринимателями.

В 2018 – 2019 учебном году в регионе функционируют: 3 частные дошкольные образовательные организации на территории МО ГО «Сыктывкар» (ИП Бобрецова А.В., ООО Консультативно-развивающий центр «Интеллект», ООО «Малое инновационное предприятие «Интеллект +») с охватом 85 человек; 25 групп присмотра и ухода за детьми дошкольного возраста, организованные индивидуальными предпринимателями (МО ГО «Сыктывкар», МО ГО «Ухта», МО МР «Сыктывдинский») с охватом 391 человек; 19 групп кратковременного пребывания детей (МО ГО «Сыктывкар», МО ГО «Усинск», МО МР «Троицко-Печорский») с охватом 188 человек; 89 консультационных пунктов методической, психолого-педагогической, диагностической и консультативной помощи родителям в обучении и воспитании детей дошкольного возраста на базе 84 дошкольных образовательных организаций и 5 общеобразовательных

организаций в 18 муниципальных образованиях (за исключением районов Ижемский и Сысольский). За услугой в течение 2018 года обратилось 1 412 родителей с 1 262 детьми; родителям с детьми оказано более 3 тыс. услуг методической, психолого-педагогической, диагностической, консультативной помощи в вопросах образования и воспитания детей.

Также в регионе функционируют 8 центров игровой поддержки, досуговой деятельности, группы выходного дня, детско-родительский клуб, группы для занятий с детьми-инвалидами (города Воркута, Усинск), которые посещают 112 детей; республиканский электронный реестр (очередь) детей, нуждающихся в местах в дошкольных образовательных организациях Республики Коми, который обеспечивает возможность «прозрачной» процедуры предоставления услуги по приему заявлений, постановке на учет и зачислению детей в дошкольные образовательные организации в электронном виде, позволяет оперативно получать информацию о состоянии очереди, о результатах комплектования детских садов, получать автоматизированный расчет очереди.

В 9 муниципальных образованиях республики имеются дошкольные образовательные организации, здания которых требуют капитального ремонта: Прилузский район (75,0%), Троицко-Печорский район (66,7%), Сыктывдинский район (50,0%), Корткеросский район (22,2%), Койгородский район и Сысольский район (по 20,0%), г. Инта (10,0%), район Печора (9,1%), Усть-Куломский район (8,7%).

Как показывает осуществленный анализ, в результате проведенных мероприятий в отдельных муниципальных образованиях данный показатель в сравнении с 2017 годом сократился: в г. Воркута (с 3,4% до 0,0%), муниципальный район Ижемский (с 9,1% до 0,0%), муниципальный район Прилузский (с 85,7% до 75,0%).

В 9 муниципальных образованиях (города Сыктывкар, Ухта, Усинск, Вуктыл, районов Княжпогостский, Сосногорск, Удорский, Усть-Вымский и Усть-Цилемский) доля таких зданий как по итогам 2017 года, так и по итогам 2018 года равна 0,0%.

В 6 муниципальных образованиях (г. Инта, районах Печора, Сысольский, Сыктывдинский, Усть-Куломский, Троицко-Печорский) зафиксирован рост данного показателя (от 1,8% (район Усть-Куломский) до 41,7% (район Сыктывдински)).

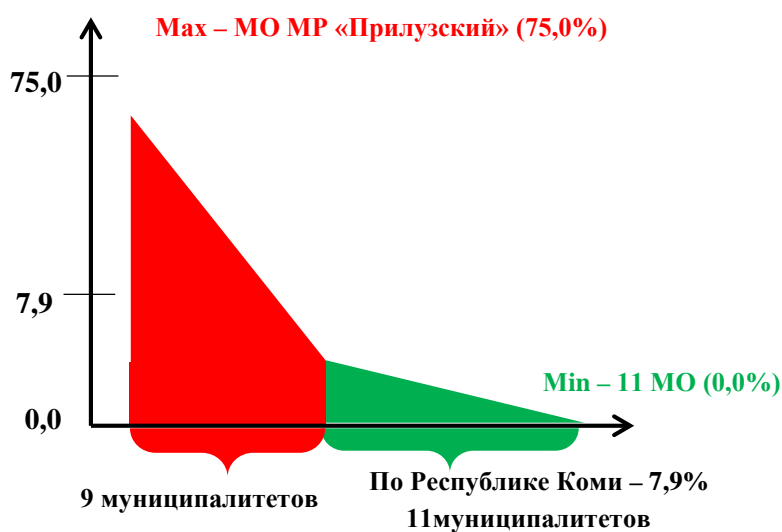


Рисунок 3. Доля муниципальных дошкольных образовательных учреждений, здания которых находятся в аварийном состоянии или требуют капитального ремонта, в общем числе муниципальных дошкольных образовательных учреждений, %, 2018

Figure 3 The share of municipal preschool educational institutions, buildings of which are in disrepair or require major repairs, in the total number of municipal preschool educational institutions, %, 2018

Наличие значительного количества зданий муниципальных дошкольных образовательных организаций, требующих капитального ремонта, объясняется давностью их постройки, а также нехваткой средств местных бюджетов на содержание учреждений в нормативном состоянии. По информации муниципальных образований, здания дошкольных образовательных организаций, требующие капитального ремонта, включены в планы капитальных ремонтов, реализуемые на муниципальном уровне.

В 2018 году начата реализация национального проекта «Демография», одним из направлений которого является создание дополнительных мест в дошкольных образовательных организациях для детей в возрасте до 3-х лет.

В рамках проекта осуществляется строительство детского сада на 50 мест в с. Большелуг (Корткеросский район), администрациями г. Сыктывкар и Сыктывдинский район организована работа по подготовке к строительству новых зданий детских садов в г. Сыктывкар и с. Выльгорт.

В целях создания новых мест для детей в возрасте до 3-х лет в Республике Коми в 2018 году организованы ремонтные работы в дошкольных образовательных организациях, осуществлен выкуп помещений 1 этажа зданий для дошкольных групп. В результате, по итогам 2018 года введено 290 новых мест для детей в возрасте до 3-х лет, в том числе за счет:

- переоборудования помещений 7 действующих детских садов в МО ГО «Сыктывкар» введено 170 мест;

- выкупа помещения в жилом доме в г. Сыктывкар, в котором размещено 50 детей (2 группы);
- проведения капитальных ремонтов имеющихся помещений создано 70 мест: 20 мест в МБДОУ «Детский сад № 35» п. Щельяюр (район Ижемский); 20 мест в МБОУ «Няшабожская СОШ» (район Ижемский); 30 мест в новом учебном корпусе начальной школы МБОУ «Выльгортская средняя общеобразовательная школа № 2» с. Выльгорт (район Сыктывдинский).

Кроме того, в 2018 году было продолжено строительство 3-х дошкольных образовательных учреждений:

- детский сад на 120 мест в с. Усть-Цильма (район Усть-Цилемский);
- детский сад на 45 мест в с. Щельябож (г. Усинск);
- детский сад на 80 мест в с. Мутный Материк (г. Усинск).

Помимо этого, в соответствии со Стратегической картой развития (строительства) инфраструктуры сферы образования в Республике Коми на период до 2025 года планируется строительство 12 объектов дошкольного образования взамен ветхих.

По итогам ранжирования показателей, характеризующих эффективность деятельности в сфере дошкольного образования, за 2018 год, с учетом весовых коэффициентов среднего темпа роста и среднего объема показателей наилучшие результаты среди муниципальных образований республики достигли: г. Инта, районы Сысольский и Усть-Куломский.

Таблица 2. Муниципалитеты лидеры и муниципалитеты аутсайдеры Республики Коми по показателю эффективность деятельности в сфере дошкольного образования

Table 2 Municipalities leaders and municipalities outsiders of the Komi Republic in terms of the effectiveness of activities in the field of preschool education

Муниципальные образования – лидеры	Муниципальные образования – аутсайдеры
МО ГО «Инта»	МО ГО «Воркута»
МО МР «Сысольский»	МО МР «Троицко-Печорский»
МО МР «Усть-Куломский»	МО ГО «Сыктывкар»

Во всех муниципальных образованиях региона приняты и реализуются муниципальные программы «Развитие образования», включающие в себя комплекс организационно-управленческих мероприятий, направленных на развитие дошкольного образования, в том числе: мероприятия, направленные на ликвидацию дефицита мест в дошкольных образовательных организациях; подготовку образовательных организаций к новому учебному году.

Заключение *Conclusions*

Таким образом, подводя итоги, следует сказать, что для улучшения показателей эффективности деятельности органов местного самоуправления и решения приоритетных задач, в сфере управления образованием, необходимо рекомендовать следующие организационные мероприятия:

- разработать планы мероприятий («дорожные карты»), направленные на ликвидацию очередности в дошкольные образовательные организации для детей в возрасте от 2 месяцев до 3 лет;
- организовать работу по приведению зданий организаций дошкольного образования в соответствие с требованиями пожарной, санитарно-эпидемиологической, антитеррористической безопасности;
- создать механизмов сетевого взаимодействия учреждений;
- организовать работы по повышению эффективности бюджетных расходов в сфере дошкольного образования, в том числе за счет объединения ресурсов образовательных организаций.

Меры, которые необходимо принять и реализовать на уровне Республики Коми для решения основных проблем и улучшения значений показателей: контроль органов управления за обеспечением современных условий в соответствии с требованиями федеральных государственных образовательных стандартов дошкольного образования в образовательных организациях; реализация Стратегической карты развития (строительства) инфраструктуры сферы образования в Республике Коми на перспективу до 2025 года; реализация приоритетных задач развития в рамках национального проекта «Образование».

Благодарность *Acknowledgement*

Статья выполнена в рамках НИР «Формирование эффективных моделей и технологий коррекции девиантного поведения подростков в различных учреждениях с использованием художественного образования и культурологии» Федерального государственного бюджетного научного учреждения «Институт художественного образования и культурологии Российской академии образования» (ФГБНУ «ИХОиК РАО»)

Summary

The article discusses the conditions for the implementation state and municipal services in the field of preschool education. The example the region Komi Republic analyzes the sphere of preschool education. An analysis of the conditions makes it possible to differentiate assessments the state of preschool education by municipalities. The article summarizes that in 2018, the provision of preschool education to children in the Komi Republic from 1 year to 6 years of age in educational institutions was 85.9%. The analysis allows us to talk about high rates of activity of governing bodies. More than 90% of children aged 1 to 6 years old are enrolled in preschool education in educational institutions in the regions and cities of the region. In 2017-2018 there is a positive trend in the indicator "The share of children aged 1-6 years receiving preschool educational services and (or) services for their maintenance in municipal educational institutions in the total number of children aged 1-6 years." The analysis shows that the availability of preschool education in the Komi Republic is ensured through the construction, re-equipment of premises in existing preschool educational institutions, the purchase of premises for placement of nursery groups, as well as through the development of varied forms of preschool education: groups for short-term children, counseling centers of various kinds, groups for the supervision and care of children of preschool age, organized by individual entrepreneurs.

The analysis made by the authors shows that there are 8 centers of game support, leisure activities, weekend groups, a parent-child club, and groups for studying with disabled children (Vorkuta city, Usinsk city), which are visited by 112 children; republican electronic register of children in need of places in preschool educational organizations of the Komi Republic. The registry provides the possibility of a "transparent" procedure for the provision of services for the reception of applications, registration and enrollment of children in preschool educational institutions in electronic form, allows you to quickly receive information about the status of the queue, the results of the completion of kindergartens, and receive an automated calculation of the queue.

The presence of a significant number of buildings of municipal pre-school educational organizations requiring major repairs is explained by the limitation of their construction, the deficit of local budgets for maintaining institutions in necessary condition. According to the municipalities, the buildings of preschool educational organizations that require major repairs are included in the plans for major repairs implemented at the municipal level.

The analysis shows the importance of national projects in the field of education, culture and demography. This national project allows many regions to update the material base of education. The project principle of financial allocation allowed the regions to develop projects in the field of education and culture. Regional projects have improved the quality of management in the field of education and culture. The national project is very important for the region in terms of stimulating fertility in the Far North of Russia. In 2018, the national project "Demography" was launched, one of the directions of which is the creation of additional places in preschool educational organizations for children under the age of 3 years.

The implementation of the national project has allowed to create a competitive environment in the field of preschool education. It is important to involve business in the organization of the provision of preschool education services. This indicator of the state's active presence in the field of preschool education is both social and political. The development of preschool education allows the state to ensure an increase in the quality of services to the population.

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CLASS ATTENDANCE AS A FACTOR AFFECTING ACADEMIC PERFORMANCE

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Abstract. *The purpose of this paper is to investigate whether class attendance in higher education improves academic performance. The research has been performed among bachelor level (EQF 6) international students studying in English for a full-time degree in Latvia. The attendance is analysed for fall and spring semesters while the academic performance has been analysed in three categories – midterm exam grade, exam grade and the final assessment. Correlation as a research instrument has been applied. The research results reveal interconnectivity between the attendance of classes and the subsequent academic performance. The results of the correlation obtained have been discussed with a representative of Higher Education Export Association.*

Keywords: *academic performance, class attendance, correlation.*

Introduction

Over the past decade, there have been increasing discussions on the importance of class attendance in higher education (Walker, Voce, Nicholls, Swift, & Ahmed, 2014; Edwards & Clinton, 2019). The authors have stated several reasons why class attendance would be important for the future success of students. Many researchers consider that with a shift of higher education towards E-learning, web-based learning, internet-based learning, online learning, or computer-assisted instruction, the importance of attending classes in the academic performance of students is diminished (Phillips & Pharm, 2015; Vajoczki, Watt, Marquis, Liao, & Vine, 2011; Morris, Swinnerton, & Coop, 2019; Schnee et al., 2019).

There have been fewer studies on the importance of attending classes for students studying abroad. With an increase in international mobility, more and more students choose to study outside their home countries. According to OECD, more than 4.1 million tertiary-level students were enrolled outside their country of citizenship in 2010 (Education at a Glance 2012, 2012). For students who

choose to study abroad, the knowledge of languages is not the only essential issue. Studying in a foreign university requires students to adapt to the local study system and its requirements (Lan, 2018). Therefore, it can be assumed that class attendance is an extremely important factor for the successful performance of international students. Several authors, like Bijsmans and Schakel (2018), Jansen and Suhre (2010), Credé, Roch, and Kieszczynka (2010) have already pointed to this fact.

The aim of the research is to investigate whether class attendance in higher education improves academic performance. The research was conducted among international students studying at the Faculty of International Tourism of *Turība* University (Latvia). The university has implemented an accurate class attendance register, where data are regularly recorded in the internal management system. The academic performance was analysed in 3 categories: midterm exam grade, exam grade and the final assessment.

Class attendance and academic performance – theoretical approach

A number of researches projects have addressed the impact of class attendance on academic performance internationally. As stated earlier, there is no consensus among researchers regarding an explicitly positive correlation between class attendance and academic performance. One of the researches, conducted in 2010 on Electronics Engineering course module, shows that class attendance is highly correlated to academic performance, despite the availability of online class notes (Nyamapfene, 2010). Researchers Paisey and Paisey (2004) provided a positive correlation between class attendance and academic performance in an accounting class in Scotland. They concluded that a positive correlation between attendance of classes and the subsequent academic performance was highly evident. Students appeared to have a realistic view of their attendance indicating that they believed that regular attendance would have a considerably greater effect on examination results as opposed to coursework performance (Paisey & Paisey, 2004). A positive correlation between class attendance and academic performance was also found by researchers Schmuliana and Coetzee (2011), Thatcher, Fridjhon, and Cockcroft, (2007), Westerman, Perez-Batres, Coffey, and Poudier, (2011), Kassagnir, Bjerre-Nielsen, Mones, Lehmann, and Lassen (2017). Researchers Schmuliana and Coetzee (2011) found that the student who acquired the highest mark in the examination (88%) had an overall attendance rate of 100% throughout the module. The student who acquired the lowest mark in the examination (8%) had an overall attendance rate of 76% throughout the module. Researchers Irwin, Burnett, and McCarron (2018) observed a positive, and statistically significant interrelation between the attendance and the examination performance, especially in the coursework elements of the module. The

attendance of the module across both year groups was approximately 80% (Irwin, Burnett, & McCarron, 2018).

At the same time, several other pieces of research clearly indicate that good academic performance is not always affected by class attendance. For example, a study conducted in Finland indicates that students, who for any reason study independently, have a good ability to proactively search for information and study independently (Lukkarinen, Koivukangas, & Seppälä, 2016). The fact that attendance is not necessarily equivalent to learning and lectures are not always the best way to teach material has been researched by several authors (Brennan, Sharma, & Munguia, 2019; Freeman et al., 2014; Kelly, 2012; Dolnicar et al., 2009).

Reasons for lecture attendance

Despite the fact that academic staff considers that attending classes contributes to the academic performance of students, the attendance is optional in many universities (Crede et al., 2010). There is a broad range of reasons, and the difficulty of attending lectures in large settings on a regular basis is named as one of them (Crede et al., 2010).

It is important not only to understand the consequences but also to find out the reasons for students choosing to miss classes. Two groups of reasons can be distinguished – one is related to students themselves, but another one – to lecturers and their teaching and assessing methods.

Despite the attempts of researchers to establish the most common causes of absence, it is absolutely certain that each student who misses classes has his or her own personal reason. Massingham and Herrington (2006) report that the most common causes of non-attendance and eventual withdrawal include sickness, being too busy and having to do paid work. Moreover, Field singles out genuine sickness as one of the key reasons for non-attendance (Field, 2012). Authors Paisey and Paisey (2004) point to the additional financial stress placed on students with the ever-increasing cost of their education and the subsequent need of students to acquire part-time jobs during term-time and vacations. The author reported that 21% of responses from 68 third-year students indicated that absence was a result of illness. He found that the most frequent response for missing classes was part-time work, with 34% of respondents stating this as a reason. Another reason was found by Massingham and Herrington. According to the researchers (Massingham & Herrington, 2006), there are students who do not attend university for the enjoyment of the learning process, rather they focus on the end goal, which is to find a good job. Therefore, class attendance is not important to them.

In the context of teaching, the main reason for attending classes from the point of view of a student is perceiving the class attendance as value for them. Value perceptions are based largely on the teaching process, the lecturer's competence and style of teaching. It may be that today's students are simply bored by the instructive approach they face in classes. Students are also particularly interested in information that will eventually help them in receiving a more positive assessment of their assignments and attend classes only for these reasons.

Technologies also play an important role in university – student relations. With the availability of a broad range of information resources, the value of classes decreases. Field states that issues such as boring content and information already being available, are recorded as prominent motives for non-attendance (Field, 2012).

Without denying the importance of all the reasons mentioned above, however, one of the most frequent reasons still is the paid work of students carried out in parallel with studies.

Paid employment and its impact on studies

Recent reports indicate that there is a significant share of students who work regularly throughout the whole study period. Research shows that 72.5% of Australian university students have paid employment during the semester, working an average of 15 hours per week (McInnins & Hartlet, 2002). Around 50% of students are engaged in paid jobs during the lecture period in Estonia and Germany, Latvia, Switzerland, Czech Republic, Austria, the Netherlands and Norway (Masevičiūtė, Šaukeckienė, & Ozolinčiūtė, 2018).

Moreover, 50% of students state that without a paid job, they could not afford to study. Having a paid job during studies means that students are demanding more flexibility in the way they study (Massingham & Herrington, 2006).

There is a clear concern for policy-makers and students that part-time or sometimes even full-time employment will have a deleterious impact on the study and academic attainment. Having a job in term-time is not just an academic problem, it has implications for access policies, states Robin Humphrey (2001). In the Barke, Braidford, and Houston (2002) study the students were asked to assess the impact that part-time work had on their studies. The majority (57.1%) of working students perceived that employment had no effect upon their academic performance, 42.9% of students felt that their term-time job did have a deleterious effect on their academic performance. 35.6% of working students admitted missing time-tabled sessions as a result of their work commitments. Comparable analyses of academic performance of working and non-working students, show that students without employment showed significantly better results in comparison with the median employed student (Barke, Braidford, & Houston,

2002). Humphrey (2001) found that engaging in term-time employment had important consequences for social experiences and in the academic performance of students. Students who were employed during the academic year had a 3 per cent lower mark on an end-of-year on average in comparison to students who could concentrate on studies only (Humphrey, 2001). However, by researching the different type of students' employed, Yanbarisova (2015) found that only non-professional full-time employed students felt the negative effects of employment on their academic performance. Other strategies of student employment showed no statistically significant effect on academic performance.

Authors of the discussion paper 'Does Student Work Really Affect Educational Outcomes? A Review of the Literature', having analysed the results of a number of authors' studies, found mainly a negative effect of student employment on academic performance, and hence that student work appeared to be a substitute for education. In particular, studies report that more intensive working schemes yield worse educational outcomes (Neyt, Omey, Verhaest, & Baert, 2017).

To summarize, the authors conclude that there are different reasons for students not attending classes, including a paid job. In addition, there is an increasing trend for more and more students to work in parallel with their studies. Results on the impact of class attendance on academic results show mixed results and further research should be conducted.

Background

Latvian higher education institutions are attracting international students in order to internationalise the overall study and research environment, to meet international recognition and to compensate the unstable domestic students' market. The biggest drop of domestic students took place in 2009 when the number of first-year students decreased by 26% compared to the previous year and the absolute number of students in Latvian higher education institutions decreased by 10%. Since then, Latvia has been actively involved in the internationalization process (Auers & Gubins, 2016).

In 2018 the total number of full-time international students studying in all higher education institutions in Latvia reached 8,380, representing 10% of all students of higher education institutions and colleges in Latvia. In comparison, there were 7.563 (9%) international students in 2017 and 8.137 (10%) in 2016 (Pārskats par Latvijas augstāko izglītību, 2016, 2017; Pārskats par Latvijas augstāko izglītību, 2017, 2018; Pārskats par Latvijas augstāko izglītību, 2018, 2019).

The research sample involves professional bachelor students of *Turība* University (Latvia). *Turība* University is the biggest private university in Latvia,

established in 1993. First full-time study programme in English, established for attracting international students was opened in 2003. At the moment, there are 3,333 students studying in one of the 24 study programmes. Out of them, there are totally 829 (as on 01.10.2019) permanent international students at *Turiba* University. More than 45% of the international students - 249 - study in the *Tourism and Hospitality management* study programme. In general, *Turiba* University holds the 4th position in terms of the number of international students enrolled (*Turiba* University, 2019).

The methodology

The purpose of this research is to investigate whether class attendance in higher education improves academic performance.

The research sample involves professional bachelor students of *Tourism and Hospitality Management* study programme of *Turiba* University (Latvia). Accurate and regular attendance registers are required at *Turiba* University and the data acquired are regularly recorded in the internal management system. Data were analysed for 3 semesters in the academic years 2018/2019 and 2019/2020. Overall, data from 21 study courses (Table No.1) were analysed. The attendance was analysed purposely among first-year students who still held the highest motives of attending classes.

Attendance was checked on a regular basis for every study course. Classes comprised a mix of lectures and seminars. The attendance was coded as “1” if students attend the class and “0” if they did not. No information was collected regarding the reasons for absence. Attendance was categorized in percentages at 10 groups (for example 0%-10%, 10%-20%....80%-90%, 90%-100%) for correlation analysis.

The maximum number of classes, planned for a study course, is calculated based on the requirements established by law (Regulations on the second level professional higher education state standard, 2014), which define that there should be at least 16 contact hours per 1 credit point.

Academic performance was analysed in 3 categories: a midterm exam, an exam and the final assessment. For midterm exam 1025 and for exam 891 students` grades have been included for analyses.

The total assessment is calculated on the basis of a value assigned to each midterm exam grade and the exam grade (summative scoring system). All data are analysed only in an aggregated form without evaluating the performance of a particular student.

According to the *Regulations on the second level professional higher education state standard* (2014) students` assessment is carried out on a 10 point scale (“10” - with distinction and “1” - unsatisfactory), where grade “4” (almost

satisfactory) is the last credited grade “pass” in Latvia. Academic performance of students analysed in absolute grades according to the legislation of Latvia.

The quantitative approach to the study was selected as appropriate research to explain the relationship among variables (Creswell, 2005).

The study was conducted in 2 stages: 1) context analysis, 2) empirical study. The empirical study was developed by a descriptive analysis of students' attendance and the attendance and academic performance correlation analysis (Pearson quotient). Correlation designs are procedures in quantitative research in which researchers measure the degree of relationship between two or more variables using correlation analysis (Creswell, 2005). The degree of relationship indicates whether one variable can predict another.

The quantitative data analysis software MsExcel 2016 was applied for data processing. To calculate the correlation in MsExcel Correlation formula “Correl (If)” is used as argument choosing – study course and category of assessment (Slavio, 2017).

The descriptive analysis is made for class attendance (in %) analysis toward midterm exam grade and exam grade. The average level of attendance (%) per study courses was analysed. It might be concluded that significant difference does exist between attendance of study courses and midterm exam ($r=4.65$, $p=0.00$), exam grade ($r=2.43$, $p=0.00$) and final assessment ($r=2.47$, $p=0.00$). Data are statistically significant at confidence level 0.95. There is no week correlation between student attendance and midterm grade ($R=0.40$), exam grade ($R=0.23$) and final assessment ($R=0.24$). R Square=16% for midterm grade, 5% for exam grade and 6% for final assessment (explained by variability of attendance in %, which is not satisfactory result for class attendance).

The results of the correlation obtained have been discussed with a representative of Higher Education Export Association.

Results

Research indicates a highly diverse attendance of classes in different study courses. The highest average attendance is for *English 2*, where the observed average attendance reached 81.97%. The lowest attendance was recorded at *Civil Defense* classes, where an average only 7.69% attended classes. According to the sources assessed previously, as well as to the opinion of representative of Higher Education Export Association, the motivation to attend classes can be affected by the overall number of students in the class (e.g., in the *Civil Defense* classes there are around 150 students, which is the exact opposite to the small language classes)

Per all study courses at 10% attendance, the midterm exam grade “4” earns 5.17% of the total number of students (exam grade 3.93% students). It can be

concluded that a successful assessment can be achieved by attending even the minimum number of classes.

On the other hand, higher midterm exam and exam grades ranging from “5” to “10” can be acquired with the attendance of 50%-70% of all classes. 29% of students fall in this category in the case of the midterm exam grade (26.6% of students in the case of the exam grade). In Higher Education Export Association believes that motivation to get better grades and more to attend lessons appears in later courses. As well as important motivation for students is possibility to obtain scholarships.

It can be concluded that there exists a clear regularity and grades for most students will increase with a 60%-70% attendance of classes. A 90%-100% attendance is reached by 2.93% of the total number of students who have passed the midterm exam and exam. This indicates that by attending 90%-100% of all classes there is only a 0.49% chance of getting the highest grade “10” in the midterm exam (and 0.34% in the case of the exam). The students who attended 70% of all classes did not fail their midterm exams. In the case of the exam, such regularity does not exist. Negative grade “3 – not passed” was received by 0.11% of students who attended 90%-100% of all classes.

Table 1 depicts the correlation between academic performance and attendance per study courses in the years 2018 and 2019. The average attendance in % per all study courses in 2018 and in 2019 is 47.05%. Table 1 reflects the analysis of the average grades and attendance per study courses. The lowest average grade for the midterm exam is “5.75” in the study course *Hospitality and Customer Service* and the highest average grade of “8.4” is in study course *Catering Service*”, while the average attendance of both study courses is rather equal.

A conclusion can be drawn that attendance does not affect academic performance. The lowest average grade for the exam is “4.80” in study course *Travel Agencies and Information Systems* while the highest is “7.03” in the study course *Professional terminology 2*, which in this case could be explained by a gap of attendance between courses.

Therefore, it can be concluded that higher attendance equals higher grade. The highest final assessment is “7.20” in the study course *Information Technologies*, while the lowest average grade is “5.00” in study course *Travel Agencies and Information Systems*. However, in this case, there is no regularity, since the average attendance of both courses average is among the lowest compared to other study courses.

Learning the average grades and the average attendance per individual study courses provides for the opportunity of calculating Pearson correlation. Table 1 reflects the results of stemming from the correlation, formula used “Correl (If)” as argument changing each time with a different study course.

*Table 1 Correlation between academic performance and attendance per study courses
(created by the authors)*

Study courses	Average				Correlation (r) between academic performance and attendance		
	Midterm exam grade	Exam grade	Final assesment	Attendance (%)	Midterm exam grade	Exam grade	Final assesment
Civil Defence	6,01	4,97	5,44	7,69	0.27	0.10	0.09
Food and Beverage Operation	7,56	5,91	7,12	52,06	0.15	(0.02)	(0.02)
Catering Service	8,04	6,43	7,08	46,70	0.53	0,33	0.49
Research Methods	6,2	6,4	6,13	55,00	0.57	0.52	0.55
Introduction into Tourism	7,15	6,57	6,79	58,93	0.15	0,29	0.28
Information Technologies	7,33	6,68	7,2	27,06	0.09	(0.05)	0.06
English 1	6,36	5,89	6,23	50,21	0.14	0,17	0.23
English 2	6,23	6,77	6,46	81,97	0.39	0.43	0.43
Professional terminology (German / French / Spanish / Russian) 2	6,73	7,03	6,87	72,92	0.29	0.49	0.37
Professional terminology (German / French / Spanish / Russian) 1	6,88	6,75	7,02	48,96	0.23	0,2	0.19
Travel Agencies and Information Systems	6,87	4,8	5	25,00	0.35	(0.13)	(0.13)
Tourism Geography	6,88	6,28	6,74	46,66	0.18	(0.06)	(0.01)
Hospitality and Customer Service	5,75	6,15	6,12	44,68	0.25	0.22	0.22
Hotel Department Management	6,46	5,31	6,06	40,82	0.58	0.50	0.46

The correlation can be observed for the study course *Hotel Department Management* for midterm exam grade (r=0.58), for the exam grade (r=0,50) and for the final assesment (r=0.46). The correlation between attendance and grades has been observed in the study course *Research Methods* indication midterm exam (r=0.57), exam (r=0.52) and final assesment (r=0.55) correlation. In the study course, *Food and Beverage Operation* the correlation have been observed for midterm exam grade and attendance (r=0.53).

It is clear that more thorough results could be gained if the academic performance per study courses were addressed individually per each study course`s attendance rates.

Table 2 reflects the Pearson correlation between the academic performance in 3 categories (the midterm exam grade, the exam grade, the final assesment) and the total attendance. It was found that there was not a particularly strong correlation between the total attendance and the total academic performance (Pearson's correlation coefficient, r=0.47, r=0.42, r=0.40). Therefore, the attendance and the academic performance for each study course shown in Table 2 will be analysed.

Table 2 Correlation between total academic performance and total attendance
(created by the authors)

	Pearson correlation (r) between total academic performance and total attendance		
	Midterm grade exam	Exam grade	Final assessment
Attendance	r=0.47	r=0.42	r=0.40
Number of students	1025	891	957

Table 3 provides information on Pearson correlation analysis regarding Midterm exam grade per attendance levels (from 0%-100%) per study courses. The correlation is strong for the study course *Introduction into Tourism* at attendance 10%-20% (r=1) and at attendance 30%-40% (r=0.96). The correlation is also strong for the study course *English 2* at attendance 50%-60% (r=1). A strong correlation (r=1) exists for the study course *Research Methods* at attendance 30%-40%.

Table 3 Correlation - Midterm exam grade per attendance (%) per study course
(created by the authors)

Study courses	Attendance (%)									
	0%-10%	10-20%	20%-30%	30%-40%	40%-50%	50%-60%	60%-70%	70%-80%	80%-90%	90%-100%
Civil Defence	n/c	0.89	n/c	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Food and Beverage Operation	n/c	n/a	(0.45)	0.68	(0.50)	0.02	(0.12)	(0.55)	0.68	n/a
Catering Service	n/c	0.76	n/c	0.37	n/c	0.37	(0.70)	n/c	n/c	n/a
Research Methods	n/a	n/c	n/a	1.00	n/a	(0.37)	(0.58)	n/a	n/c	n/a
Introduction into Tourism	0.65	1.00	(0.04)	0.96	(0.79)	0.00	0.24	0.31	(0.06)	n/a
Information Technologies	0.06	(0.75)	n/c	0.01	n/c	0.26	0.72	(0.13)	n/c	n/a
English 1	0.65	0.65	n/c	0.02	n/c	0.05	0.10	n/c	n/c	n/a
English 2	n/a	n/c	n/a	n/c	n/c	1.00	n/c	n/c	(1.00)	n/c
Professional terminology (German / French / Spanish / Russian) 2	n/c	(1.00)	n/a	n/c	n/a	0.00	(0.72)	n/c	(0.28)	0.32
Professional terminology (German / French / Spanish / Russian) 1	(0.32)	0.01	n/c	0.66	n/c	(0.08)	0.22	n/c	n/c	0.13
Travel Agencies and Information Systems	n/a	n/a	0.58	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tourism Geography	n/c	n/c	n/c	0.49	n/c	0.22	n/c	n/c	n/a	n/a
Hospitality and Customer Service	0.87	n/c	(1.00)	(0.16)	(0.14)	0.31	n/c	n/c	n/a	n/a
Hotel Department Management	n/a	n/a	n/c	0.20	n/c	n/c	n/a	n/a	n/a	n/a

n/c = data is uncorrelated
n/a = no student has attended the course in the given level of attendance

A negative correlation, represented in brackets, could mean that with the increase of the value of one variable (i.e. the attendance), the value of the other variable decreases (grade). This phenomenon is mainly observed at 60%-70% attendance and at some point, has been observed for 9 study courses (out of 14).

Based on results reflected in Table 3, it can be concluded that attendance strongly correlates with academic performance in the midterm exam grade category in 11 (out of 14) study courses and at least in one of the attendance levels (assuming that strong correlation is $r \geq 0.50$).

Table 4 also shows that the correlation was quite high between attendance and academic performance (in the category of exam grade) in 11 study courses out of 14 courses at least in one of the attendance levels (assuming that a strong correlation is $r \geq 0,50$). Table 4 shows that the greatest correlation is for the study course English 2 ($r=1$) both at attendance 50%-60% and at attendance 80%-90%.

An excellent correlation is reflected in the study course *Hotel Department Management* ($r=1$) at 20%-30% attendance and the study course *Food and Beverage Operation* ($r=0,93$) at attendance 80%-90%.

A negative correlation is mainly observed at 50%-60% attendance and at some point, has been observed for 10 study courses (out of 14). This fact has to be taken into account by educators for the purpose of designing meaningful, interesting and stimulating study courses and for promoting the achievement higher grades.

Table 5 reflects the correlation between the final assessment per attendance levels (%) per study courses. It might be concluded that there was a clear relationship between the two factors in the study course *English 2* ($r=1$) both at 50%-60% and at 80%-90% level of attendance. The correlation exists ($r=1$) for the study course *Hotel Department Management* at attendance 20%-30%.

Table 4 Correlation - Exam grade per attendance (%) per study course
(created by the authors)

Study courses	Attendance (%)									
	0%-10%	10-20%	20%-30%	3%-40%	40%-50%	50%-60%	60%-70%	70%-80%	80%-90%	90%-100%
Civil Defence	n/c	0.71	n/c	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Food and Beverage Operation	n/c	n/a	0.13	0.32	(0.15)	(0.08)	(0.21)	(0.39)	0.93	n/a
Catering Service	n/c	0.50	n/c	0.24	n/c	(0.26)	(0.33)	n/c	n/c	n/a
Research Methods	n/a	n/c	n/a	n/c	n/a	(0.89)	0.58	n/a	n/c	n/a
Introduction into Tourism	(1.00)	(1.00)	(0.12)	0.78	(0.72)	0.04	0.07	0.12	0.03	n/a
Information Technologies	0.02	(0.89)	(0.93)	(0.04)	n/c	0.38	0.13	(0.33)	n/c	n/a
English 1	0.72	0.28	n/c	0.08	n/c	0.07	0.32	n/c	n/c	n/a
English 2	n/a	n/c	n/a	n/c	n/c	1.00	n/c	n/c	1.00	n/c
Professional terminology (German / French / Spanish / Russian) 2	n/c	(1.00)	n/a	n/c	n/a	(0.58)	0.08	n/c	(0.49)	0.21
Professional terminology (German / French / Spanish / Russian) 1	0.44	(0.44)	n/c	0.51	n/c	0.05	0.16	n/c	n/c	0.12
Travel Agencies and Information Systems	n/a	n/a	(0.13)	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tourism Geography	n/c	n/c	n/c	0.70	n/c	(0.17)	n/c	n/c	n/a	n/a
Hospitality and Customer Service	0.57	n/c	(1.00)	(0.12)	(0.40)	(0.20)	n/c	n/c	n/a	n/a
Hotel Department Management	n/a	n/a	1.00	n/c	n/c	n/c	n/a	n/a	n/a	n/a
n/c = data is uncorrelated										
n/a = no student has attended the course in the given rank of attendance										

A negative correlation is observed again at attendance 60%-70% and at some point, has been observed for 9 study courses (out of 14). The possible explanation is that in some courses the attendance is not a decisive factor for acquiring higher academic performance indicators.

Based on results reflected in Table 5 it can be concluded that attendance strongly correlates with academic performance in the category Final assessment in 11 (out of 14) study courses at least in one of the attendance levels (assuming that strong correlation is $r \geq 0,50$).

Moreover, it can be concluded that study course English 2 has an equal correlation ($r=1$) among all 3-grade categories at the attendance level 50%-60%. Since students are from many countries where their mother language is not English and the studies are in the English language, attending English classes might be one of the factors for a higher correlation for attendance and academic performance. In addition, *English 1* and *English 2* have almost no negative correlation among 3-grade categories (with the exception of the midterm exam grade for *English 2* at 80%-90% attendance).

Table 5 Correlation - Final assessment per attendance (%) per study course (created by the authors)

Study courses	Attendance (%)									
	0%-10%	10-20%	20%-30%	3%-40%	40%-50%	50%-60%	60%-70%	70%-80%	80%-90%	90%-100%
Civil Defence	n/c	0.77	n/c	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Food and Beverage Operation	n/c	n/a	0.34	0.62	(0.35)	(0.05)	(0.18)	(0.58)	0.33	n/a
Catering Service	n/c	0.50	n/c	0.25	n/c	0.09	(0.62)	n/c	n/c	n/a
Research Methods	n/a	n/c	n/a	n/c	n/a	(0.71)	(0.58)	n/a	n/c	n/a
Introduction into Tourism	n/c	(1.00)	(0.06)	0.87	(0.72)	0.01	0.30	0.18	(0.17)	n/a
Information Technologies	n/c	(0.85)	(0.33)	0.01	n/c	0.60	0.42	(0.29)	n/c	n/a
English 1	0.65	0.50	n/c	0.12	n/c	0.06	0.20	n/c	n/c	n/a
English 2	0.65	n/c	n/a	n/c	n/c	1.00	n/c	n/c	1.00	n/c
Professional terminology (German / French / Spanish / Russian) 2	0.65	(1.00)	n/a	n/c	n/a	(0.58)	(0.25)	n/c	0.44	0.20
Professional terminology (German / French / Spanish / Russian) 1	0.65	(0.12)	n/c	0.61	n/c	0.00	0.19	n/c	n/c	0.13
Travel Agencies and Information Systems	0.65	n/a	(0.13)	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tourism Geography	n/c	n/c	n/c	0.73	n/c	0.08	n/c	n/c	n/a	n/a
Hospitality and Customer Service	0.87	n/c	(1.00)	(0.16)	(0.25)	0.04	n/c	n/c	n/a	n/a
Hotel Department Management	0.65	n/a	1.00	n/c	n/c	n/c	n/a	n/a	n/a	n/a
n/c = date is uncorrelated n/a = no student has attended the course in the given rank of attendance										

It could be inferred that the correlation at attendance level (90%-100) per academic performance is rather low and only is in place for two study courses: *Professional terminology (German / French / Spanish / Russian) 1* and *Professional terminology (German / French / Spanish / Russian) 2*. Students in the study courses *Professional terminology (German / French / Spanish / Russian) and English* have been divided into small groups. Higher attendance - higher

academic performance might be explained by the relatively low number of students in groups, thus motivating students and providing regular focus and feedback.

At attendance 80%-90% the correlation is rather strong in 4 study courses ($r=0.68$, $r=0.93$, $r=1$, $r=1$). The majority of study courses correlate with academic performance (in 3-grade category) at attendance level 30%-40%. This correlation analysis shows more in-depth insight into attendance and academic performance.

Conclusions

The average attendance per all study courses in the years 2018 and 2019 stands at 47.05%. There could be several reasons, which should be analysed in depth in next researches. University policy towards attendance is one of the milestones related to academic performance.

Per midterm exam students who attended 0%-10% classes positive assessment gained 20.5% students, negative assessment 79.5% students. 29 out of 30 students who attended 90%-100% classes gained positive assessment. In case of midterm exam all students who attend at least 70% classes gain positive assessment.

Per exam students who attended 0%-10% classes positive assessment gained 13%, negative assessment gained 86% students. 26 out of 29 students who attended 90%-100% classes gained positive assessment.

The midterm exam has motivating character, with the goal of learning, finding mistakes, getting feedback, that's the reasons for so many passes. The exam, on the other hand, has stricter, more specific requirements.

The highest average attendance among study courses is for course *English 2*, where the observed average attendance reached 81.97%. According to the opinion of representative of Higher Education Export Association, the motivation to attend classes can be affected by the overall number of students in the class.

In case of exam only 1 student out of 891 have gained negative assessment "3". In case of final assessment all students have passed at attendance level 90%-100%.

The results of the current research show Pearson correlation between the total attendance and the total academic performance $r=0.47$ for midterm exam grade, $r=0.42$ for exam grade and $r=0.40$ for final assessment.

Correlation among academic performance in 14 study courses and attendance levels are concluded. At 90%-100% attendance level correlation exists $r=0.32$; $r=0.13$ for midterm grade, $r=0.21$ for exam grade and $r=0.20$ for final assessment.

At 80%-90% attendance level correlation exists $r=0.68$ for midterm grade, $r=0.93$ and $r=1.00$ for exam grade and $r=1$ for final assessment.

At 50-60% attendance level correlation exists $r=1$ for midterm grade, $r=1.00$ for exam grade and $r=1.00$; $r=0.60$ for final assessment.

At 30-40% attendance level correlation exists $r=0.68$; $r=1$; $r=0.96$; $r=0.66$ for midterm grade, $r=0.78$; $r=0.51$; $r=0.70$ for exam grade and $r=0.62$; $r=0.87$; $r=0.61$; $r=0.73$ for final assessment.

At 10-20% attendance level correlation exists $r=0.89$; $r=0.76$; $r=1.00$; $r=0.65$ for midterm grade, $r=0.71$; $r=0.50$ for exam grade and $r=0.77$; $r=0.50$; $r=0.50$ for final assessment. At 0-10% attendance level correlation exists $r=0.65$; $r=0.65$; $r=0.87$ for midterm grade, $r=0.72$; $r=0.57$ for exam grade and $r=0.87$; $r=0.65$ for final assessment.

At 40%-50% and 70%-80% attendance level positive correlation do not exist at all.

It can be concluded strong correlation (assuming that strong correlation $r \geq 0,50$) exists more often among class attendance per study courses and academic performance at attendance level 0%-40%. The high correlation reflects the impact of a class attendance on positive academic performance without specification what grade is achieved.

It indicates, that only partly international students see class attendance as a value in their academic performance. In Higher Education Export Association believes that motivation to get better grades and more to attend lessons appears in later study years.

It has to be taken into account by the educators for the purpose of designing a meaningful, interesting and stimulating study course promoting the achievement of higher grades.

Authors suggest smaller student groups per study courses as it can lead to better attendance and therefore better academic performance.

Further research should analyse students gaining the highest and lowest overall marks in order to find if there is a difference in their attendance. Further research should individualise student profiles and their background. While generalizations have been made, it does not appear that attendance is a predictor of performance on an individual basis.

Further research should also analyse the part-time employment of students in order to address the ways paid employment might affect attendance and academic performance.

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КАКОЙ ЭКОНОМИЧЕСКОЙ ТЕОРИИ НУЖНО ОБУЧАТЬ, ЕСЛИ ЦЕЛЬ - УСТОЙЧИВОЕ РАЗВИТИЕ?

What Economic Theory Should be Taught if the Goal is Sustainable Development?

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Abstract. *The article is devoted to the topic of possible transformations in the paradigm of socio-economic development of modern world civilization, in the context of climate change. The purpose of the study: to identify what it would be desirable to change in textbooks on economics so that those who study, becoming managers and politicians, do not destroy the Earth's biosphere by their actions. What in the economic mainstream underlies those pathological features of the world economy that lead all of humanity to the climatic apocalypse? At the level of theory, this is due to the extreme subjectivity of modern economic theory, which has taken the form of abandoning the category of "value". The discussion of value is potentially of great practical importance: it is, in essence, a discussion of the legitimacy of the entire modern world financial and economic order. As the whole experience of world civilization shows, new ideas replace old ones when a new generation grows, for which these ideas are an organic part of their view of the world. Therefore, a change in the financial and economic paradigm should begin with changes in the textbooks of economics.*

Keywords: *changing of the climate, ecology, economics, sustainable education.*

Введение

Introduction

Статья посвящена теме возможных трансформаций в парадигме социально-экономического развития современной мировой цивилизации, - которые будут вызваны изменениями в биосфере Земли (в контексте

изменений климата). Глобальные изменения в биосфере Земли (и изменения климата как один из аспектов этих очевидно происходящих в биосфере изменений) так или иначе вызовут существенные изменения в экономике. Либо человечество сумеет достичь баланса между экономическим развитием и сохранением окружающей среды, либо само его существование окажется под вопросом (Gluhovcev & Salahova, 2016; Ioseliani, 2019).

В рамках этой огромной (как по значимости, так и по масштабу) задачи в настоящем тексте мы рассмотрим аспект тех изменений в экономической теории, которые, по нашему мнению, являются одним из необходимых оснований для выработки новой экономической политики.

Как заметил по этому поводу лауреат нобелевской премии (и автор самого, вероятно, известного учебника по экономике) П. Самуэльсон: “Мне все равно, кто пишет законы страны, если я могу написать ее учебники по экономике” (Samuelson, 1990, p. 4).

Теоретическим основанием основных институтов современной мировой экономики является неоклассическая экономическая теория (в силу своего тотального господства называемая еще «экономический mainstream»).

Каким образом идеологемы mainstream связаны с парадигмой экстенсивного социально-экономического развития? И что именно желательно было бы в современной экономической теории изменить для трансформации парадигмы экономического развития современной мировой цивилизации (предотвращения глобальной экологической катастрофы, весьма вероятной при сохранении парадигмы экстенсивного социально-экономического развития)? - ответы на эти вопросы мы и предполагаем найти в данном исследовании.

Это и будет в то же время ответом на вопрос, нахождение которого и есть цель настоящего исследования: что желательно было бы изменить в учебниках по экономике, чтобы те, кто учится, став менеджерами и политиками, не разрушали бы своими действиями биосферу Земли.

Так как исследование является теоретическим, методы исследования: научно-философский анализ текстов и теоретическое конструирование.

Методы исследования *Methodology of the research*

Аспект, заслуживающий обсуждения в методологическом разделе работы: насколько велик вклад в глобальное потепление (очевидно имеющее место последние десятилетия) антропогенной компоненты?

Идею о возможности разогрева земной атмосферы парниковыми газами (в первую очередь углекислым газом) предложил в конце 19-го века шведский ученый С. Аррениус (Arrhenius, 1896). Последние 100 лет человечество с каждым годом увеличивало использование ископаемого органического топлива, при сжигании которого образуется углекислый газ (CO₂); последние десятилетия детектируется увеличение углекислоты в атмосфере Земли. Предположение, что эти факты взаимосвязаны (сжигание нефти, газа и угля влечет за собой увеличение CO₂ в атмосфере, которое, в свою очередь, и является причиной роста средней температуры на Земле), - то есть что климат на Земле меняется в результате антропогенной деятельности (выбросов в атмосферу парниковых газов, в первую очередь CO₂), - было положено в основу Рамочной конвенции ООН об изменении климата.

Дополнительным документом к Рамочной конвенции стал принятый в Японии в декабре 1997 года Киотский протокол (Kiotskij protokol k Ramочноj konvencii ООН ob izmenenii klimata, 1998), который обязывает страны, которые его приняли (таких стран в мире подавляющее большинство; договор не ратифицирован США, и из него вышла Канада) сократить или стабилизировать выбросы парниковых газов.

Существует масса публикаций, популяризовавших гипотезу антропогенного изменения климата (Gor, 2007); в 2018 году Нобелевская премия по экономике была присуждена Уильяму Нордхаусу за исследования влияния климатических изменений на долгосрочный экономический рост (Nordhaus, 2017).

Имеет место и критика гипотезы антропогенного изменения климата (а также принятых на ее основе Киотского и Парижского протоколов).

Так, в работе (Bomer-Kristiansen, 2000) эксплицированы ненаучные (геополитические) обстоятельства, вызвавшие конъюнктурную поддержку обсуждаемой концепции.

Если же обратиться к собственно научной критике, ее аргументы таковы: природа глобальной климатической системы очень сложна, ее изменения не могут быть объяснены каким-то одним фактором (Kondrat'ev, 2010); рост температуры атмосферы в последние десятилетия с высокой степенью вероятности является частью природного цикла большого масштаба; (Sorokhtin, Chilingar, Khilyuk, & Gorfunkel, 2007; Demirchan, Kondrat'ev, & Demirchan, 2010); повышение концентрации углекислого газа в атмосфере может быть не причиной, а следствием изменений климата (Sorokhtin, 2011).

В 2004 году во исполнение поручения Президента РФ и Правительства РФ Российская академия наук провела научную экспертизу Киотского протокола. В итоговом документе, подписанном Президентом

РАН, было, в частности, сказано: «1. Киотский протокол не имеет научного обоснования. <...> 4. Ратификация Протокола в условиях наличия устойчивой связи между эмиссией CO₂ и экономическим ростом, базирующемся на углеродном топливе, означает существенное юридическое ограничение темпов роста российского ВВП» (Pavlenko, 2017, 34). За прошедшие годы позиция РАН принципиально не изменилась (Pavlenko, 2017).

Наша позиция здесь следующая: глобальное потепление угрожает человечеству не само по себе (никто ведь не опасается массовых смертей от теплового удара), а негативным воздействием на глобальные биогеохимические круговороты (Gorshkov, 1995). Экстенсивный экономический рост оказывает это негативное воздействие: как требуемым для него высоким уровнем использования биосферных ресурсов, так и высоким уровнем загрязнения биосферы отходами. Какой конкретно канал негативного воздействия экономики на биосферу является главным: выбросы CO₂, или какой-то иной, для задачи настоящего исследования (экспликация связи идеологием современного экономического mainstream с парадигмой экстенсивного социально-экономического развития) не является принципиальным вопросом.

Поэтому в рамках данной статьи мы принимаем официальную позицию Межправительственной группы экспертов по изменению климата, и выраженную в Киотском и Парижском протоколах, как рабочую гипотезу.

Результаты

Results

Аспекты социально-экономической парадигмы, оказывающие негативное воздействие на биосферу (и климат, как одну из ее ключевых характеристик):

а) Гипертрофированное потребление (в первую очередь в странах «золотого миллиарда»), в том числе потребление демонстративное (приобретение товаров не для использования по прямому назначению, а для демонстрации собственного статуса). Наиболее «чистый» пример здесь – США: последние несколько десятилетий США потребляют более трети мировых ресурсов. Уже в 1946 г. специалист по розничной торговле В. Лебоу возвестил в журнале «Fortune» о начале «эпохи изобилия»: «Наша чрезвычайно производительная экономика... требует, чтобы потребление стало для нас стилем жизни, чтобы мы превратили покупку и использование вещей в ритуал... нужно, чтобы вещи покупались,

выбрасывались и заменялись другими во все больших масштабах» (Luk'janenko, 2009).

Даже Папа Римский Франциск в энциклике «Laudato si'» заявил, что богатым странам пора подумать о сдерживании экономического роста и даже о «шагах в обратном направлении, пока не поздно» (Francis, 2015). При этом он осуждает преувеличенное внимание к росту населения, указывая на главную проблему: «экстремальность» уровня потребления привилегированного меньшинства: потребление сырья в развивающихся странах в 5 раз меньше среднемирового и составляет 10 тонн на одного человека, а в странах «золотого миллиарда» – в 25 раз больше (250 тонн) (Luk'janenko, 2009).

б) Гипертрофированное развитие мировой финансовой системы, архитектура которой создана тем же «первым миром» (в первую очередь Великобританией и США) Англосаксонские финансовые институты более двухсот лет доминируют на мировом финансовом рынке: «... важно осознать, что глобальные финансовые рынки приносят выгоду странам, находящимся в центре международной рыночной системы, в особенности США. Финансовые рынки “всасывают” большую часть сбережений и прибыли, создаваемых во всем мире, перекачивают их в центр... Поэтому он получает львиную долю всех доходов» (Soros, 1999).

Миф о хаосе финансовых рынков (которыми, якобы, никто не в состоянии управлять) никак не стыкуется со статистическими данными (Abdulgamidov & Gubanov, 2002), показывающими, что процесс финансовой глобализации есть ряд последовательных циклов раздувания либо рынков акций ведущих корпораций США, либо рынка государственных облигаций США, с последующими управляемыми биржевыми крахами, потери в которых несут почти исключительно неамериканцы. Если кто-то «финансовым креативом» получает ценности из ничего, кто-то другой должен эти ценности произвести (а затем их лишиться).

Так, уже к 2007 году мировые финансовые активы превышали мировой ВВП в десятки (!) раз (Buzgalin & Kolganov, 2009). Из надстройки над экономикой реальной экономика виртуальных финансов превратилась (превращена) в доминирующую систему, систематически эксплуатирующую реальный сектор экономики. Это, собственно, в значительной степени и обеспечивает сверхпотребление «большой семерки» (оборачивающееся экологической катастрофой в масштабах планеты в целом): так, внешний долг США по состоянию на август 2019 года составлял 22,5 триллиона долларов, то есть 68,770 долларов на душу населения. Очевидно, его погашение вряд ли предполагается (если оно вообще возможно). Происходит концентрация обязательств на одном

полюсе (мировая периферия, страны Юга) и долгов (за полученные, но не оплаченные ценности, - «первый мир», страны глобального Севера).

Социально-экономическая поляризованность мира «Север–Юг» (в значительной степени ответственная за нарастающее давление на биосферу), еще 100 лет назад поддерживалась военным доминированием стран Запада. Но в настоящее время ситуация существенно изменилась:

Главным фактором становится продвижение таких социально–экономических идей, которые изначально предполагают (при их принятии как теоретической основы для осмысления реальности) создание институтов в интересах архитекторов современной мировой экономики. При этом мы совсем не имеем в виду какой-то вселенский заговор западных ученых-экономистов; просто господство экономической парадигмы, созданной в годы, когда природа мыслилась бесплатным и бесконечным источником ресурсов, объективно приводит к воспроизводству соответствующей социально-экономической модели экстенсивного развития.

Что же в экономическом mainstream лежит в основе те паталогические особенности мировой экономики, которые и ведут все человечество к климатическому (биосферному) апокалипсису? По нашему мнению, это – предельный субъективизм, принявший в неоклассической экономической теории форму отказа от категории «стоимость».

Стоимость – мера ценности (некое общее свойство, позволяющее проводить сравнение ценностей качественно различных вещей). Этот теоретический конструкт эксплицирует сущностное свойство экономической реальности – то, что люди в самом деле как-то сопоставляют различные по природе ценности.

От Адама Смита до Карла Маркса понятие стоимости было в классической экономической теории ключевым. Однако сложности как выявления сущности стоимости, так и ее операционализации оказались очень велики. Альтернативой трудовой теории стоимости стал неоклассический подход, с доминацией которого стала общепринятой точка зрения: все осмысленные экономические вопросы могут быть разрешены без обращения к стоимости. Однако отказ от стоимости оборачивается отказом от объективной меры (Egorov, 2017):

Ранее нами показано:

i) как понятие идеальное, стоимость непосредственному наблюдению и измерению не подлежит, однако имеет эмпирическое истолкование (Egorov, Dyatlov, Bogdanov, Shushpanov, & Egorova, 2018);

ii) универсальный алгоритм измерения стоимости может мыслиться только теоретически, а на практике его реализация вряд ли возможна (Egorov, 2013). Но из сложности операционализации не следует ненаучность понятия “стоимость”, – также как невозможность

универсального критерия истины отнюдь не делает несостоятельной науку в целом, смысл которой – именно в поиске истины (Popper, 1966).

Детальное обоснование, что значительная часть критики идеи стоимости есть не столько наука, сколько идеология, см. также в (Egorov, 2016).

То, что современная мировая экономика организована как огромное казино, прямо связано с господством в умах людей неоклассической теории, а именно: представлений об отсутствии объективной стоимости у любого товара, в том числе и у денег (Egorov, 2016). Ведь если мы отрицаем существование стоимости, возникает вопрос – знаком чего являются деньги? В рамках *mainstream* на него можно дать только примерно следующий ответ: «деньги – это то, что выполняет функцию денег». В результате в современной экономике деньги давно уже являются мерой *без эталона*:

Чему будет равно завтра 1 евро? – тому, что за него дадут на валютных биржах. Гипноз СМИ, передающих сообщения с финансовых бирж как сводки погоды, делает колебания валютных курсов чем-то привычным (следовательно – «естественным»). А теперь обратимся к аналогии: вы едете на машине, спидометр показывает 90 км/час, но в километре утром 700 метров, а вечером – 1200 (а может –500) – куда вы приедете? Вы будете строить дом, используя резиновый метр и качающийся нивелир? Эти аналогии утрированы? Но в начале XXI века даже планирование бюджетов государств ведется по сценариям: «если курс национальной валюты вырастет, то...», «если цены на нефть упадут, то...», – и жизнь десятков миллионов человек меняется (при неизменной производительности труда).

Отсутствие денежного эталона и плавающие валютные курсы дают фактически безграничные возможности для эксплуатации реального сектора виртуально-финансовым, что в реальности оборачивается добычей и перемещением огромных масс ресурсов из «третьего мира» в «первый», с последующей тратой оных в гипертрофированном и демонстративном потреблении.

Другой аспект: отождествление любого роста экономики (ВВП) с общественным благом: в рамках экономического *mainstream* практически не ставится вопрос о качественных характеристиках роста (макроэкономические индикаторы предельно агрегированы). Дж. Кейнс (вероятно, самый влиятельный экономист за последние 100 лет) в 30-е годы прошлого века написал, что для борьбы с безработицей было бы вполне разумно закапывать в шахтах бутылки с банкнотами, а потом их снова «добывать» (Kejns, 2007, 145). Из этого вытекают «оправдания» демонстративного потребления: оно «дает работу», и тем самым «кормит бедных». Но

почему же эти «бедные» должны кормиться, удовлетворяя извращенные прихоти богатых (разрушающих гиперпотреблением биосферу)? Не разумнее ли было бы направить эти трудовые ресурсы на восстановление биосферы Земли?

Эксперты Всемирного Совета предпринимателей за устойчивое развитие (WBSCD) еще в 1997 году указали как на одну из главных проблем на пути к устойчивому развитию – отсутствие надлежащей технологии измерения стоимости окружающей среды. Причем меры, которые искажают представления об окружающей среде, дает именно экономическая наука (Kuznetsov, Kuznetsov, & Bol'shakov, 2000, 213).

Выводы **Conclusions**

Проблема современной экономической теории – в ее разобщенности. Создание интегральной экономической теории предполагает формирование такой первичной системы принципов (аксиом), в рамках которой основные теоретические схемы представляли бы собой частные случаи (при тех или иных дополнительных условиях). Возврат в экономическую теорию категории «стоимость» позволит объединить на едином теоретическом фундаменте и *mainstream*, и неорикарддианские (неомарксистские) течения экономической мысли: в дополнение к общему принципу существования ценностей в первом случае принимается принцип субъективизма (отсутствия у ценностей объективной меры), а во втором – принцип существования меры ценности, то есть стоимости (Egorov, 2017).

Дискуссия о стоимости (то есть – о степени адекватности экономического *mainstream*) потенциально имеет огромное практическое значение: это, в сущности, дискуссия о легитимности всего современного мирового финансово-экономического порядка. Возврат широких масс экономистов-теоретиков, менеджеров, политиков к идее объективности стоимости (и, соответственно, необходимости у денег эталона – золотого, энергетического, или какого-то еще, но обязательно объективного) лишит легитимности современную систему плавающих валютных курсов. По нашему мнению, это одна из необходимых предпосылок для преодоления современного социально-экологического кризиса мировой цивилизации (в том числе и в его климатическом аспекте).

Но, как показывает весь опыт мировой цивилизации, новые идеи приходят на смену старым тогда, когда вырастает новое поколение, для которого эти идеи являются органической частью их взгляда на мир. Поэтому изменение финансово-экономической парадигмы следует начинать с изменений в учебниках экономики.

Summary

The article is devoted to the topic of possible transformations in the paradigm of socio-economic development of modern world civilization, in the context of climate change. The purpose of the study: to identify what it would be desirable to change in textbooks on economics so that those who study, becoming managers and politicians, do not destroy the Earth's biosphere by their actions. What in the economic mainstream underlies those pathological features of the world economy that lead all of humanity to the climatic apocalypse?

This is hypertrophied consumption, including demonstrative consumption, as well as hypertrophied development of the global financial system. At the level of theory, this is due to the extreme subjectivity of modern economic theory, which has taken the form of abandoning the category of "value". The discussion of value is potentially of great practical importance: it is, in essence, a discussion of the legitimacy of the entire modern world financial and economic order. The return of the broad masses of economists, theorists, managers, and politicians to the idea of the objectivity of value (and, accordingly, the need for money as a standard - gold, energy, or some other, but necessarily objective) will deprive the modern system of floating exchange rates of legitimacy. And this is one of the necessary prerequisites for overcoming the modern socio-ecological crisis of world civilization, including in its climatic aspect.

As the whole experience of world civilization shows, new ideas replace old ones when a new generation grows, for which these ideas are an organic part of their view of the world. Therefore, a change in the financial and economic paradigm should begin with changes in the textbooks of economics.

The reported study was funded by RFBR, project number 19-010-00092.

Благодарности Acknowledgements

Авторы выражают благодарность Российскому фонду фундаментальных исследований за неоднократную поддержку исследований по теме.

Исследование выполнено при финансовой поддержке РФФИ в рамках научного проекта № 19-010-00092.

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SABIEDRĪBAS IZGLĪTOŠANA INTEREŠU SASKAŅOŠANAI TERITORIJAS PLĀNOŠANĀ

Educating of Community to Corrdinate Interests in Spatial Planning

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Abstract. *The main obstacles of low effectiveness of public participation in the development process of spatial planning documents in Latvia are the lack of confidence of the population in the effectiveness of public participation, the lack of adequate competence and skills of local authorities for involvement of different interest groups, insufficient understanding of society about the coordination the interests of individuals with spatial development aims in different planning levels, as well as with the aims of sustainable development of local government territory. There are a variety of informal measures and methods which the municipality can use to raise the level of public knowledge and awareness about spatial planning to achieve the best outcomes from both the public interest and sustainable development perspective. These measures help a more active involvement and effectiveness of participation of community in the spatial planning process. The purpose of the study is to describe the problems of coordination of different interests, insufficient public participation, as well as to identify the educational opportunities for the matching the different interests in spatial development planning process in Latvia. The following tasks were identified in order to achieve the objective of the study: (1) to justify the needs for the coordination of interests in the spatial planning process; (2) to identify the main problems of public involvement and educational opportunities for the coordination of the interests. Methods used - content analysis, document analysis, deductive and inductive method, comparative analysis.*

Keywords: *participation methods, public awareness, public involvement, public participation, spatial plan, spatial planning.*

Ievads

Intruduction

Atbilstoši Teritorijas attīstības plānošanas likuma prasībām, teritorijas plānojums ir vietējās pašvaldības ilgtermiņa teritorijas attīstības plānošanas dokuments, kurā noteiktas prasības teritorijas izmantošanai un apbūvei, tajā skaitā funkcionālais zonējums, publiskā infrastruktūra, teritorijas izmantošanas un apbūves noteikumi, kā arī citi teritorijas izmantošanas nosacījumi un kuru izstrādā administratīvajai teritorijai vai tās daļai (LR Saeima, 2011). Atbilstoši teritorijas plānojumā noteiktajam funkcionālajam zonējumam ikviens iedzīvotājs var ilgtermiņā plānot savu dzīvi, arī saimniecisko darbību, zinot to, kādam iepriekš

skaidri definētam un paredzamam mērķim jebkura vietējās pašvaldības teritorija tiks izmantota, kā arī kādas ir prasības tās izmantošanai. Vietējās pašvaldības teritorijas plānojumu izstrādā atbilstoši pašvaldības ilgtspējīgas attīstības stratēģijai, kā arī ievērojot citus nacionālā, reģionālā un vietējā līmeņa teritorijas attīstības plānošanas dokumentus.

Normatīvajos aktos, kas nosaka prasības teritorijas attīstības plānošanas dokumentu izstrādei ir noteikta kārtība, kādā ir jāorganizē un jāīsteno sabiedrības iesaiste un līdzdalība, kas ir nepieciešama un jāievēro gan vietējai pašvaldībai, gan privātpersonām. Tomēr normatīvo aktu formālo prasību izpildīšana ir nepietiekoša, lai objektīvi noskaidrotu ieinteresēto personu un sabiedrības viedokli par konkrētiem attīstības projektiem, kā arī par plānoto teritorijas attīstību ilgtermiņā. Ierastā prakse vietējo pašvaldību teritorijas plānojumu izstrādes procesā formāla publicēt paziņojumus laikrakstā "Latvijas Vēstnesis", vietējā laikrakstā un pašvaldības mājas lapā, ne vienmēr var tikt uzskatīta par pietiekamu, lai varētu uzskatīt, ka sabiedrības iesaistes un līdzdalības pienākums ir izpildīts efektīvi. Pieņemto lēmumu kvalitāte ir atkarīga ne tikai no pašvaldības vai atbildīgās institūcijas darbības šajā procesā, bet arī no tā, cik aktīvi sabiedrība iesaistās lēmumu pieņemšanas procesā. Tomēr jāatzīst, ka Latvijā valsts pārvaldes institūcijās ir ļoti vāji attīstīta sabiedrības informēšanas un iesaistīšanas prakse. Valsts pārvaldes institūcijas ir pasīvas sabiedrības aktivizēšanā un iesaistīšanā lēmumu realizācijā un sabiedrība reti tiek savlaicīgi un pietiekami informēta un iesaistīta lēmumu pieņemšanā. Nereti veidojas situācijas, kad sabiedrībai nav bijusi iespēja savlaicīgi līdzdarboties lēmumu pieņemšanā (VARAM, 2011).

Galvenie šķēršļi sabiedrības līdzdalības efektivitātes paaugstināšanai teritorijas attīstības plānošanas dokumentu izstrādes procesā ir iedzīvotāju neticība sabiedrības līdzdalības lietderīgumam, pašvaldību speciālistu neietiekošas kompetences un iemaņas dažādu interešu grupu aktīvai iesaistei, nepietiekoša izpratne par privātpersonu interešu un dažādu līmeņu teritorijas attīstības mērķu saskaņošanu ar vietējās pašvaldības teritorijas attīstības mērķiem. Papildus jāatzīmē arī tas, ka sabiedrībai kopumā ir nepietiekoša izpratne par teritorijas attīstības plānošanas nozīmi kā katra atsevišķa indivīda dzīvē, tā sabiedrībai kopumā.

Pastāv dažādi neformāli pasākumi un metodes, ar kuru palīdzību pašvaldība var veicināt sabiedrības zināšanu un informētības līmeņa paaugstināšanu par teritorijas plānošanu, kā arī aktīvāku iesaisti un līdzdalības efektivitāti teritorijas plānošanas procesā, lai tiktu sasniegts labākais rezultāts gan no sabiedrības interešu, gan ilgtspējīgas attīstības skatupunkta.

Pētījuma mērķis: raksturot interešu saskaņošanas un sabiedrības līdzdalības problēmjautājumus, kā arī identificēt sabiedrības izglītošanas iespējas interešu saskaņošanai teritorijas attīstības plānošanā Latvijā. Pētījuma mērķa sasniegšanai tika izvirzīti šādi uzdevumi: (1) pamatot interešu saskaņošanas nepieciešamību

teritorijas plānošanas praksē; (2) identificēt galvenās sabiedrības iesaistes problēmas un izglītošanas iespējas interešu saskaņošanai. Izmantotās metodes-kontentanalīze, dokumentu analīze, deduktīvā un induktīvā metode, salīdzinošā analīze.

Interesu saskaņošana teritorijas plānošanā *Coordination of interests in spatial planning*

Teritorijas plānošana ir viens no pašvaldības politikas īstenošanas instrumentiem, ar kura palīdzību, nodrošinot ilgtspējīgu attīstību, iespējams saskaņot dažādas, reizēm pat pretējas intereses teritorijas ekonomiskās, kultūras un vides attīstības jomā. Teritorijas plānojums rada tiesisko stabilitāti attiecīgās teritorijas izmantošanā ilgākā laika posmā un garantē, ka privātpersonas var paļauties uz noteiktā kārtībā apstiprinātu teritorijas plānojumu un īstenot savas saimnieciskās darbības plānus (Čepāne & Statkus, 2005).

Teritorijas attīstības plānošanas likums nosaka nepieciešamību ievērot pēctecības principu saskaņā ar kuru jaunus teritorijas attīstības plānošanas dokumentus izstrādā, izvērtējot spēkā esošos attīstības plānošanas dokumentus un to īstenošanas praksi, kā arī savstarpējas saskaņotības principu, atbilstoši kuram teritorijas attīstības plānošanas dokumentus izstrādā, tos savstarpēji saskaņojot un izvērtējot citos teritorijas attīstības plānošanas dokumentos noteikto, t.i., nodrošina dokumenta atbilstību hierarhiski augstākiem plānošanas dokumentiem un tajos noteiktajiem mērķiem (PKC). Tādējādi spēkā esošie teritorijas plānojumi kā normatīvie akti noteic ilgstošu teritorijas attīstības perspektīvu un teritorijas atļautās apbūves iespēju. Interesu saskaņotības princips nozīmē atsevišķu privātpersonu interešu un dažādu līmeņu (nacionālā, plānošanas reģiona un rajonu) teritorijas attīstības mērķu saskaņošanu ar vietējās pašvaldības teritorijas attīstības mērķiem. Teritorijas plānošanas galvenais uzdevums ir kompleksi saskaņot atsevišķu privātpersonu intereses ar attiecīgās teritorijas ilgtspējīgas attīstības iespējām (Auders, 2008).

Latvijas Republikas Satversmes 105. pants paredz gan īpašuma tiesību netraucētu īstenošanu, gan arī valsts tiesības sabiedrības interesēs ierobežot īpašuma izmantošanu. Īpašumam ir jākalpo sabiedrības interesēm, un tiesības uz īpašumu var ierobežot, ja ierobežojumi ir noteikti ar likumu, tiem ir leģitīms mērķis un tie ir samērīgi. Privātpersonām nav subjektīvu tiesību prasīt no pašvaldības, lai plānojumā tiktu ietvertas konkrētas privātpersonu vēlnes (LR Augstākā tiesa, 2013) un nekustamā īpašuma īpašniekam ir tiesības izvēlēties tikai tādus teritorijas izmantošanas veidus, kas noteikti kā atļautā izmantošana vietējās pašvaldības teritorijas plānojumā. Teritorijas plānojumu kontekstā ierobežojums izpaužas kā nekustamā īpašuma īpašnieka vai valdītāja ierobežojums brīvi izvēlēties teritorijas izmantošanas veidu. Īpašnieku tiesības

īstenot konkrētu būvniecības ieceri ir atkarīga no spēkā esošā vietējās pašvaldības teritorijas plānojuma, t.i., no tā kāds funkcionālais zonējums un atļautā izmantošana ir noteikta tā īpašumā vai valdījuma esošajam zemes gabalam.

Lēmuma pieņemējam (pašvaldībai) ne vienmēr ir jāvadās no personu izteiktajiem priekšlikumiem vai iesniegtajiem iebildumiem un personu ierosinājumi ir rūpīgi jāizvērtē, vadoties no lietderības apsvērumiem (LR Satversmes tiesa, 2004). Par galveno kritēriju rīcības brīvības pareizas izmantošanas pārbaudē ir jāuzskata teritorijas plānošanas procedūras atbilstība tās galvenajam plānošanas procedūras atbilstība tās galvenajam uzdevumam – kompleksi saskaņot atsevišķu privātpersonu intereses ar attiecīgās teritorijas ilgtspējīgas attīstības iespējām (LR Satversmes tiesa, 2004). Vietējai pašvaldībai, nodrošinot sabiedrības līdzdalību teritorijas plānošanas procesā, ir pienākums būt par objektīvu un neitrālu institūciju, kuras uzdevums ir uzklaut un taisnīgi izvērtēt visus ieinteresēto pušu viedokļus par konkrētas teritorijas atbilstošāko un piemērotāko attīstības veidu. Tajā pašā laikā Satversmes tiesa ir uzsvērusi, ka lēmuma pieņemējam ne vienmēr ir jāvadās no personu izteiktajiem priekšlikumiem vai iesniegtajiem iebildumiem un tie mehāniski jāietver attiecīgajā teritorijas attīstības plānošanas dokumentā (LR Satversmes tiesa, 2008). Ieinteresētajām personām ir tiesības piedalīties teritorijas plānojuma izstrādes procesā, izsakot savus ierosinājumus un paužot viedokli. Tomēr tām nav tiesību pieprasīt, lai pašvaldība teritorijas plānojumā paredzētu tām vēlamo teritorijas funkcionālo zonējumu vai nosacījumus teritorijas izmantošanai un apbūvei.

Arī Satversmes 115. pantā ietvertās tiesības uz labvēlīgu vidi nav absolūtas, un tās var ierobežot, samērojot personas vai personu apvienību tiesības ar sabiedrības interesēm uz līdzsvarotu saimniecisko attīstību un ekonomisko labklājību (LR Satversmes tiesa, 2008). Pie līdzīga secinājuma ir nonācis arī Latvijas Republikas Augstākās tiesas Senāts, kas savā spriedumā ir norādījis, ka atbilstoši ilgtspējīgas attīstības principam teritorijas plānošanas procesa mērķis ir nodrošināt gan ekonomisko attīstību, gan sociālo un kultūras interešu īstenošanu, kā arī vides aizsardzību. Savukārt privātpersonai nevar rasties paļāvība un subjektīvās tiesības prasīt no pašvaldības, lai plānojumā tiktu noteikta konkrēta zemesgabala apbūves iespēja (LR Augstākā tiesa, 2013).

Līdz ar to vietā, kur to pieļauj teritorijas plānojums, neviena persona, kuras īpašumam blakus atrodas brīvi neapbūvēti zemesgabali, nevar paļauties, ka blakus esošie brīvie zemesgabali paliks neapbūvēti. Tas, ka dzīvojamā māja atradās klusā, nepiesārņotā vietā, ar nelielu transporta plūsmu, kā arī apkārt līdz šim atradās ne pārāk urbāna vide, nenozīmē, ka blakus esošie zemesgabali nevarētu tikt apbūvēti. Neviena persona, kuras īpašumam blakus atrodas brīvi neapbūvēti zemesgabali, nevar paļauties, ka blakus esošie brīvie zemesgabali paliks

neapbūvēti. Personai ir jārēķinās, ka arī blakus esošā īpašuma īpašniekam ir tādas pašas tiesības izmantot savu īpašumu, arī apbūvēt (LR Augstākā tiesa, 2013). Jāsecina, ka nekustamā īpašuma īpašnieki vai valdītāji pilnībā neizprot to, ka teritorijas plānošanas ietvaros atsevišķu privātpersonu intereses tiek saskaņotas ar attiecīgās teritorijas ilgtspējīgas attīstības iespējām, kā arī to, ka tiesības uz īpašumu var tikt ierobežotas sabiedrības interešu labā.

Sabiedrības iesaistes problēmas teritorijas plānošanas procesā *Public involvement problems in spatial planning process*

Teritorijas attīstības plānošana ir viens no svarīgākajiem priekšnosacījumiem konkrētās teritorijas ilgtspējīgai attīstībai, kā arī neatņemama sastāvdaļa šīs teritorijas attīstības prioritāšu noteikšanā. Vietējo iedzīvotāju līdzdalība šajā procesā ir svarīga, tāpēc arī sabiedrības līdzdalība ir kļuvusi par būtisku teritoriālās attīstības plānošanas daļu (Providus, 2008).

Teritorijas plānošanas likums nosaka vietējās pašvaldības funkcijas attiecībā uz teritorijas plānošanu, t.sk nepieciešamību nodrošināt sabiedrības līdzdalību teritorijas plānošanas procesā (6.5. punkts), kā arī fizisko un juridisko personu tiesības piedalīties teritorijas plānojumu apspriešanā (9.punkts) (LR Saeima, 2011).

Sabiedriskajai apspriešanai jākalpo diviem galvenajiem mērķiem: pirmkārt, iegūt informāciju, kas sekmētu pamatota un taisnīga lēmuma pieņemšanu; otrkārt, pārliecināt sabiedrību, ka tās izteiktie viedokļi tiek apspriesti (LR Augstākā tiesa, 2013).

Sabiedrības līdzdalība teritorijas plānojuma izstrādē kalpo ne tikai kā veids, lai identificētu un līdzsvarotu sabiedrības kopējās intereses, bet arī kā līdzeklis, lai atbilstoši īstenotu un nepieciešamības gadījumā ierobežotu personas pamattiesības sabiedrības interešu labā. Teritorijas plānojums tiešā veidā ietekmē katras personas ikdienas dzīvi (vidi), kā arī ierobežo privātpersonas brīvu un netraucētu rīcību savā īpašumā. Teritorijas plānojumā, nosakot zemesgabala, kurš atrodas privātīpašumā, izmantošanu kā dabas pamatnes teritoriju, tiek aizskartas personas tiesības uz privātīpašuma netraucētu izmantošanu. Teritorijas plānojums var ierobežot personas tiesības uz labvēlīgi vidi, arī nosakot autoceļa izbūvi gar privātmājas logiem vai paredzot nozīmīgas zaļās teritorijas apbūvei. Šādos gadījumos nepieciešams saskaņot sabiedrības intereses ar privātpersonas interesēm, un privātpersonu tiesību aizskārums atbilstoši jāpamato (Providus, 2008).

No vienas puses, indivīdiem ir tikai tiesības, bet nevis pienākums piedalīties sabiedrībai kopumā svarīgu lēmumu pieņemšanā. Tomēr, no otras puses, šo tiesību īstenošana ir lielā mērā atkarīga no publiskās varas subjektu vēlmes patiesi ieinteresēt sabiedrību šādās aktivitātēs. Publiskās varas subjektiem nekādā

gadījumā nav tiesību prezumēt sabiedrības kūtumu un tādējādi attaisnot savu bezdarbību gadījumos, kad jādara viss iespējamais (saprātīgi jācenšas), lai informētu sabiedrību par paredzamo darbību (Auders, 2008)

Efektīva sabiedrības līdzdalība lēmumu pieņemšanā dod iespēju sabiedrībai paust un lēmumu pieņemējam ņemt vērā viedokļus un bažas, kas saistītas ar teritorijas plānojuma izstrādi, tādējādi ar sabiedrisko apspriešanu tiek nodrošināta plānojuma leģitimitāte un plānošanas procesa atklātība, sekmējot sabiedrības informētību vides jautājumos (Providus, 2008).

Pamatojoties uz Pētījuma par sabiedrības iesaistes mehānismiem attīstības plānošanā un uzraudzībā vietējā līmenī rezultātiem (Rīgas plānošanas reģions, 2013), var secināt, ka pastāv vairākas problēmas sabiedrības iesaistei teritorijas plānošanas procesā (1.tab.).

1.tabula. Sabiedrības iesaistes problēmas teritorijas attīstības plānošanas procesā
Table 1 The public involvement problems in the spatial development planning process
(Rīgas plānošanas reģions, 2013)

Problēma	Apraksts
1. Sabiedrības neticība sabiedrības līdzdalības lietderīgumam	Iedzīvotāji netic sabiedrības līdzdalības lietderīgumam, jo bieži viņu idejas neparādās apspriesto dokumentu gala redakcijās, vai arī viņi iepriekš ir piedalījušies, bet tas nav radījis nekādas viņiem būtiskas izmaiņas.
2. Zemā pašvaldību kapacitāte iesaistīt sabiedrību	Pašvaldību speciālistiem trūkst kompetences un iemaņas, kā iesaistīt un sadarboties ar dažādām interešu grupām.
3. Pašvaldību formālā pieeja sabiedrības līdzdalībai	Pašvaldības bieži vien sabiedrību iesaista formāli, lai izpildītu normatīvo aktu prasības.
4. Privāto interešu dominance sabiedrības līdzdalības procesā	Sabiedrības līdzdalībā, jo īpaši publiskajā apspriešanā, dominē privātās, nevis publiskās intereses.

Arī sabiedriskā politikas centra “Providus” pētījumā “Sabiedrības līdzdalība teritorijas plānošanas un būvniecības jautājumos” kā šķēršļi efektīvai sabiedrības līdzdalībai norādīti:

- 1) sabiedrības inertums - sabiedrībā valda neticība, ka tā ar savu līdzdalību var kaut ko mainīt (iedzīvotāji izsaka savu ieinteresētību tikai tajos gadījumos, kuri skar viņu šauri privātās intereses, t.i., ir saistītas ar viņu īpašumtiesībām vai pašu tuvāko apkārtni);
- 2) sabiedrības līdzdalības procesa organizētāju prasmes un zināšanu trūkums (Providus, 2008).

Lai nodrošinātu augstu plānošanas procesa kvalitāti, sabiedrības līdzdalība ir būtiska visos plānošanas cikla posmos – sākot ar to, ka sabiedrība vēlas („pasūta”) plānošanas procesu, veic plānošanas darbu un piedalās stratēģisko izvēļu noteikšanā un pēc tam uzrauga un līdzdarbojas plānu izpildē. Attīstības plānošana pašvaldības (Rīgas plānošanas reģions, 2013).Pašvaldība nedrīkst

samierināties ar sabiedrības vai kādas tās daļas aktivitātes trūkumu kā nemainīgu faktu. Tai ar dažādu metožu palīdzību ir jācenšas motivēt piedalīties arī tās grupas, kuras parasti ir neaktīvas sava viedokļa izteikšanā vai interešu aizstāvībā. Šādai “līdzdalības meklēšanas” stratēģijai un ievērojamam sabiedrisko attiecību darbam vajadzētu ieinteresēt iedzīvotājus piedalīties un izteikt savus ierosinājumus (Providus, 2008).

Apkopojot iepriekšminēto, organizējot sabiedrības iesaisti un līdzdalību teritorijas attīstības plānošanas procesā, svarīgi ir atcerēties, ka tieši zinoša un ieinteresēta sabiedrība ir arī informēta sabiedrība. Līdz ar to svarīgi ir nodrošināt izglītojošus pasākumus sabiedrības izpratnes veicināšanai par teritorijas plānošanu un tās ietvaros pieņemto lēmumu nozīmību teritorijas ilgtermiņa attīstībā, kā arī paaugstināt pašvaldību un atbildīgo institūciju kapacitāti daudzveidīgu metožu un pasākumu izmantošanā, lai nodrošinātu efektīvu interešu saskaņošanu pašvaldības teritorijas attīstības mērķu sasniegšanai.

Sabiedrību izglītojoši pasākumi un metodes teritorijas plānošanā *The methods and measures for educating of society in spatial planning*

Pastāv dažādas metodes un neformālie pasākumi, lai veiksmīgāk un efektīvāk varētu organizēt sabiedrības iesaisti un līdzdalību. Sabiedrības iesaistes un līdzdalības nolūks ir informēt sabiedrību, palīdzēt izveidot savu viedokli, kā arī aktīvi izteikt to. Izvēloties metodes un pasākumus būtiski ir definēt, kādi uzdevumi būtu jāsasniedz ar sabiedrības līdzdalību.

Nozīmīga teritorijas plānošanas procesa sastāvdaļa ir sabiedrības informēšana. Papildus svarīgi ir atcerēties, ka tieši zinoša un ieinteresēta sabiedrība ir arī informēta sabiedrība.

Efektīvāki ir tiešie informēšanas veidi – ar tiešām uzklauššanas iespējām, plāna izstādīšanu uz vietas, kontaktēšanos ar personām, kas var sniegt noderīgu informāciju utt. Pateicoties dažādām metodēm, var tikt izdibināta iesaistīto pušu nostāja pret plānošanu un iegūtas sākotnējās norādes par to, kāda sadarbība ir iespējama. Turklāt viedokļu izpēte ir arī piemērota, lai nodibinātu pirmos kontaktus ar konkrētām mērķa grupām (piemēram, tādām, kuras no savas puses neizrāda nekādu iniciatīvu) un modinātu tajās interesi par plānošanas vai attīstības iecerēm. Plānošanas un tās īstenošanas gaitā ar viedokļu izpētes palīdzību var tikt novērtēta arī veikto pasākumu atbalstīšana un to iespajds (Providus, 2008).

Teritorijas attīstības plānošanas procesā var izmantot arī neformālās sabiedrības līdzdalības metodes, tādas kā (1) tiešā iedzīvotāju konsultēšana, lai nodrošinātu tos ar informāciju un atbalstu jautājumos, kas skar plānošanu, kā arī aktivizētu iniciatīvu; (2) darba grupas un radošās darbnīcas, lai ieinteresētās puses un iedzīvotāji var aktīvi diskutēt par dažādiem plānojuma aspektiem, izstrādāt priekšlikumus un kopīgi sadarbojoties pieņemt lēmumus; (3) mērķa grupu

līdzdalība, piemēram, bērni un jaunieši, sievietes, gados veci cilvēki vai no ārvalstīm nākušie iedzīvotāji, lai plānošanas procesā celtu motivāciju līdzdarboties un tādējādi novērstu vienpusīgus, uz konkrētām interešu grupām vērstus plānošanas lēmumus u.c.

Savukārt kā sadarbības iespējas var tikt izmantotas tādas metodes kā:

- 1) moderācija - izmanto pārrunās, grupu darbā, lai efektīvā veidā nonāktu līdz kopīgi izstrādātam rezultātam, kam piekrīt visi grupas dalībnieki.
- 2) apaļie galdi, forumi - veicina ieinteresēto personu sapulcināšanu un nodrošina iespēju izteikt viedokļus, izdiskutēt konkrētus jautājumus, konstatēt iedzīvotāju noskaņojumu un atrast kopsaucēju;
- 3) mediācija jeb starpniecība – nodrošina pārrunu ceļā ar visām iesaistītajām pusēm apmierinošu risinājumu atrašanu konfliktsituācijās
- 4) vietējā partnerība - nozīmē sadarbību starp iedzīvotājiem, konkrētajā vietā esošajiem vietējiem amatniekiem un iestādēm u. c.
- 5) e-līdzdalība - metode, kuras mērķis ir izmantot informācijas un saziņas tehnoloģiju sniegtās priekšrocības labākas teritorijas plānojuma izstrādes nodrošināšanai, kā arī lai veicinātu sabiedrības līdzdalību šādos procesos (Providus, 2008).

Atbilstoši Hārvardas universitātes pētījumiem tika radīts tā sauktais Hārvarda koncepts, kas ir balstīts uz abu pušu uzvaru (*win-win*), kurā nav zaudētāju. Konfliktsituācijā katra puse bieži pastāv uz savu pozīciju. Tomēr *win-win* situācija ir iespējama tikai tad, ja strīda puses kooperējas, nevis neatlaidīgi pastāv uz savām (iesīkstējušajām) pozīcijām un prasībām. Kooperācija šajā gadījumā nozīmē to, ka puses apsēžas pie viena galda un atklāj savas intereses un motīvus, kas slēpjas aiz viņu prasībām, respektīvi, pozīcijām. Bieži tas var izrādīties ļoti grūti, tāpēc ka vairums cilvēku ļoti nelabprāt grib atteikties no jau reiz formulētas nostājas (pozīcijas). Tomēr, atklājot intereses, parasti rīcības un risinājumu telpa var tikt paplašināta. Var tikt ievērotas arī nozīmīgu trešo personu vēlmēs, kā arī citas pušu intereses un vajadzības, kam nav tieša sakara ar strīda priekšmetu. Hārvardas koncepcija attēlo strukturētu vienošanās pārrunu vadlīniju. Šis pārrunu metodes mērķis ir radīt *win-win* situācijas visām konfliktā iesaistītajām pusēm. Centrālie priekšnosacījumi pārrunām saskaņā ar Hārvardas koncepciju ir: (1) cilvēkus un problēmas skatīt šķirti (vest pārrunas saturiskajā līmenī); (2) centrā nostādīt nevis pozīcijas, bet intereses; (3) prom no risinājuma pie opcijas; (4) pirms lēmuma pieņemšanas izstrādāt dažādas izvēles iespējas (Trosens, Hofmans, & Rotfišere, 2004).

Savukārt inovatīvas jaunās tehnoloģiskās iespējas tīmekļa lietojumprogrammu jomā atbalsta jaunus saziņas veidus starp iedzīvotājiem un plānotājiem. Tie ietver tiešsaistes diskusijas, tīmekļa aptaujas, tiešsaistes forumus, virtuālus seminārus un konferences, e-pastu apmaiņu. Spēlēm ir spēks iesaistīt iedzīvotājus nopietnos plānošanas procesos, nedomājot par tiem ko var nosaukt

par "līdzdalības spēku bez līdzdalības". Rotaļīga sabiedrības līdzdalība (*playful public participation*) ir sabiedrības līdzdalība, kurā galvenā loma ir spēlei. Tās galvenā koncepcija ir veidota, ņemot vērā prieku iedzīvotājiem, kas iesaistīti sabiedrības līdzdalības procesos (Krek, 2008).

Secinājumi **Conclusions**

Teritorijas plānošanas normatīvajos aktos noteiktā kārtība, kādā tiek veikta sabiedrības iesaiste un līdzdalība, ir objektīvi nepieciešama un jāievēro visām iesaistītajām pusēm, t.sk., vietējām pašvaldībām, privātpersonām, interešu grupām, lai tiktu pieņemts taisnīgs lēmums konfliktējošu vai atšķirīgu interešu gadījumos teritorijas plānošanā. Sabiedrības iesaistīšana un līdzdalība pašvaldības attīstības plānu vai projektu apspriešanā nedrīkst būt formāls pasākums, bet gan tai ir jānodrošina maksimāli labākā lēmuma sasniegšana, ievērojot sabiedrības intereses un ilgtspējīgas attīstības viedokļa.

Organizējot sabiedrības iesaisti un līdzdalību teritorijas attīstības plānošanas procesā, svarīgi ir atcerēties, ka tieši zinoša un ieinteresēta sabiedrība ir arī informēta sabiedrība. Līdz ar to svarīgi ir nodrošināt izglītojošus pasākumus sabiedrības izpratnes veicināšanai par teritorijas plānošanu un tās ietvaros pieņemto lēmumu nozīmību teritorijas ilgtermiņa attīstībā un katra indivīda dzīvē, kā arī paaugstināt pašvaldību un atbildīgo institūciju kapacitāti daudzveidīgu metožu un pasākumu izmantošanā, lai nodrošinātu efektīvu interešu saskaņošanu pašvaldības teritorijas attīstības mērķu sasniegšanai.

Pastāv daudzveidīgas metodes (piemēram, radošās darbnīcas, e-plānošana, spēles, darba grupas, mediācija u.c.), kuras izmantojot pašvaldība var veicināt sabiedriskās līdzdalības efektivitāti.

Summary

The main obstacles of low effectiveness of public participation in the development process of spatial planning documents in Latvia are the lack of confidence of the population in the effectiveness of public participation, the lack of adequate competence and skills of local authorities for involvement of different interest groups, insufficient understanding of society about the coordination the interests of individuals with spatial development aims in different planning levels, as well as with the aims of sustainable development of local government territory. There are a variety of informal measures and methods which the municipality can use to raise the level of public knowledge and awareness about spatial planning to achieve the best outcomes from both the public interest and sustainable development perspective. These measures help a more active involvement and effectiveness of participation of community in the spatial planning process. The purpose of the study is to describe the problems of coordination of different interests, insufficient public participation, as well as to identify the educational opportunities for the matching the different interests in spatial development planning process in Latvia. The following tasks were identified in order to achieve the objective

of the study: (1) to justify the needs for the coordination of interests in the spatial planning process; (2) to identify the main problems of public involvement and educational opportunities for the coordination of the interests. Methods used - content analysis, document analysis, deductive and inductive method, comparative analysis.

It is important to remember that a well-informed and interested public is also an informed public. Therefore, it is important to provide educational measures to raise public awareness of spatial planning and knowledge about the significance of decisions made within the spatial planning process to the long-term development of the territory .

There are various methods (for example, creative workshops, e-planning, games, workshops, mediation, etc.) whereby the municipality can promote the effectiveness of public participation in the spatila planning process. The innovative technologies in web applications support a new ways of communication between citizens and spatial planners. These include online discussions, web surveys, online forums, gaming, virtual seminars and conferences, email exchanges.

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FACTORS OF SERVICE QUALITY AFFECTING STUDENTS, AS CUSTOMERS, SATISFACTION OF RIDESHARING SERVICES IN VILNIUS, LITHUANIA

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Abstract. Nowadays ridesharing has become crucial and extremely popular service. As modern consumers, students have become wiser and more rational, they tend to choose not only high quality transport but also they prefer desirable quality of transportation services. The main aim of this research is to identify the factors of service quality which have impact on customer satisfaction of ridesharing services in Vilnius, Lithuania. This study is an quantitative analysis. 124 students of Vilnius College of Technologies and Design Transport Logistics completed a questionnaire via apklausa.lt about factors which affect their evaluation of ridesharing services. Study participants filled out a questionnaire online and evaluate the importance of the values such as flexibility or speed on a 5-point Likert scale. According to the findings obtained, the opportunity to pay for transport by card, provided safety, reasonable price and comfort are significant factors in order to ensure customer satisfaction of ridesharing service.

Keywords: customer, evaluation, ridesharing service, satisfaction.

Introduction

The sharing services generate value for a consumer who is willing to pay for the services. The rapid growth of the ridesharing service shows that the appeal among consumers is self-evident. Reasonable price may not be major reason why consumers choose this service. The ridesharing services appear to compete with taxis for their increasing ubiquity as a convenient means of transportation. The ridesharing provides flexible transportation for anyone.

The aim of the article is to identify the factors which influence customers satisfaction of ridesharing services in Vilnius, Lithuania. The study focuses on students as customers.

In order to achieve a goal mentioned before the following tasks have been put forward:

1. Evaluate customers options of factors of ridesharing services which have impact on students satisfaction.

2. Present results of research on transport logistics students satisfaction of ridesharing services.

Literature review is beneficial in order to get specific knowledge of previous studies and essential analysis made in this field. This study is quantitative research and used method is the questionnaire survey.

The customers satisfaction of ridesharing services is the main element to explore the importance and necessity of ridesharing services, hence a quantitative research allows to compare students' opinions, as well as to identify the key factors of customer satisfaction of ridesharing service.

Theoretical aspects of customer loyalty

In the expanding global competition, new technologies came to place. Technologies have improved the relationship between consumers and businesses, thus increased customer expectations towards services. These changes in recent years have improved the satisfaction of users' needs and increased customers' loyalty.

Customers loyalty is vital for modern day business for two main reasons. Firstly, customers are scarce resource - it is more rational to hold an old customer than attract a new one (customer retention). Secondly, customer's loyalty has a positive effect on the profitability revenues of the company (Khadka & Maharjan, 2017).

The consumers will always want to get a high-quality service that meets set expectations. If the customer, after the completion of service, is satisfied then re-purchase becomes possible (Dudzevičiūtė & Peleckienė, 2010). Customer loyalty is positively related to customer satisfaction.

Satisfied customers usually buy more. Besides buying more they also work as a network to reach other potential customers by sharing experiences (Khadka & Maharjan, 2017). It means that customer satisfaction is a significant aspect talking about the success of ridesharing services.

According to Kotler and Keller (2006) satisfaction is an individual perception either they are satisfy or dissatisfy based on their expectations towards product or service performance. In line with the definition, customer satisfaction reflected from the disconfirmation theory of customer expectation, while a positive disconfirmation leads to satisfaction and negative satisfaction leads to dissatisfaction (Oliver, 1980; Reianu, 2014).

Consumer behaviour - a behaviour related to the satisfaction of receiving service, which is sought, ordered, used, and disposed, as well as the opinion formation about the delivery of the service. Changes in consumer behaviour is formed with influence of various factors.

Shifts in consumer behaviour are mostly influenced by the search and evaluation costs, price, quality, and the service that is provided on time and in place (Ginavičienė & Sprogytė, 2016).

The ridesharing services companies must ensure that it will be taken care of the customers' needs and expectations.

In addition, the modern technology available to the firms also supports the individualistic attitude toward customers. In most of the services, direct contacts with customers give a good starting point for the individual treatment of the customers (Grönroos, 2007).

Influence of customer satisfaction on the ridesharing services

Broadly speaking, customer loyalty is a behaviour while customer satisfaction is an attitude. Generally, price, quality, reliability, empathy, responsiveness are the main factors that influence both the customer satisfaction and loyalty (Khadka & Maharjan, 2017). This means that all criteria are taken into account when selecting a service. Therefore, there are certain differences between the factors which influence customer satisfaction and customer loyalty (Gajjar, 2013).

Product quality, price, service, consumer's emotion, personal factors, situational factors, a perception of equity or fairness and product features are the factors that have impact on the customer satisfaction. Customers expect the high quality of service through retailers, thus the service marketers have to assess how customers perceive the quality of the "services feature" implied by the perceived service quality framework (Khadka & Maharjan, 2017).

Service quality is influenced by perceived service and expected service. If the perceived service is less than the expected service, the customer will be disillusioned; but, on the other hand, if the perceived service is more than the expected service, the customer will be satisfied (Abd Elmeguid et al., 2018).

The possible dimension to measure customer satisfaction could be quality, price, trust relationship, complaints and problems. First of all, to maintain a relationship, the service has to fit the customer's need. Designing for relationships requires a customer orientated approach. Maintaining customer relationship just do not happen accidentally, they are constructed through the service and product provided. Today, the customers demand flexibility, availability, creativity and price advantages from the service provider (Khadka & Maharjan, 2017).

While private companies are mostly interested in measuring customer satisfaction in order to maintain an advantage over opponent players on the market, the major benefits of public institutions from measuring customer satisfaction emerge from the improvement in the quality of services that they are

offering, and an efficient way to do it by reducing costs and expenditures. Also, a higher confidence in public institutions is one of their objectives in a long run (Reianu, 2014).

Zeithaml et al. (2006) stated that tangibles like safety and convenience for customers are representative as a company's image and quality. As aforementioned some empirical studies proved that tangible has influence on customer satisfaction in overall.

As Husseni (2016) studied the relationship between service quality and customer satisfaction in the taxi companies in Nairobi Researchers found that service quality influences satisfaction of customer.

Following study by Horsu and Yeboah (2015) research on customer satisfaction towards minicab taxi services in Ghana. They used six variables namely reliability, continuous service, safety, comfort, affordability and drive behaviour. Variables were tested to examine the relationship with customer satisfaction. Through multiple regressions analysis they found that continuous service, comfort, affordability and reliability have a significantly positive influence on customer satisfaction.

Khuong and Dai (2016) found that reliability, responsiveness, price and satisfaction directly affected customer loyalty.

According to Litman (2008), the availability of service such as seats, space, journeys, and air conditioning directly affect service comfort.

Ride delay (duration difference between actual and direct ride times) and waiting time (duration difference between desired pick-up time and the time when the customer is actually picked up) also may be considered as important factors while analysing customer satisfaction.

In transportation, one of the contributing factors of customer satisfaction is personal security. Any anticipation of negative behaviour can affect all characteristics of travel options, which may include the mode, time of day; route to be taken etc. and it also force a person to not travel at all (Abd Elmeguid et al., 2018).

As per reviewing the literature, it was found that there are many factors that affect customer satisfaction and they vary according to the type of service provided as well as the culture of the geographical location that the service is allocated in it (Khadka & Maharjan, 2017).

As ride sharing service becomes important and inevitable nowadays, this research is designed to explore the factors achieving customer satisfaction regarding the service under study.

Customer satisfaction of the ridesharing services in Vilnius, Lithuania

As Balachandran & Hamzah (2017) stated that one of the advantages by conducting survey through email or internet is that this way is faster and more convenient than telephone interview. Due to this reason, in this research used method was a survey online.

The study took place in 2019. 124 students of the Vilnius College of Technology and Design study program Transport logistics participated in this research.

Survey sampling bias is calculated according to the Paniott formula:

$$n = \frac{1}{\Delta^2 + \frac{1}{N}}, \quad (1)$$

where n – sample size,

Δ^2 – bias probability,

N – Research totality, that ensures approximately 5% probability of bias.

After the evaluation of the study sample bias, it was found that the minimum number of respondents should be 123, the number of respondents in this research was 124 students.

Data collection method - a questionnaire survey, which was carried out electronically, through www.apklausa.lt and sent to the students via their personal e-mails.

Questionnaire items were compiled structured, containing response options. Most issues have been concluded using the Likert scale, as more useful information for the investigation can be collected in response to these types of questions.

The study was aimed to identify the factors of service quality which have impact on customer satisfaction of ridesharing services in Vilnius, Lithuania.

Total respondents were 124 students (1-4 course) who study in Vilnius College of Technologies and Design, in Transport Logistics program 2019-2020 and who were willing to complete a survey. Both genders participated in the study. It was 86 male respondents (70%) and 38 female respondents (30%).

The majority of respondents were aged between 18-23 years old (82.2%). The second smaller age group of respondents were between 24-30 years old (7.3%) and similarly the third age group of respondents were 31- 40 year old (7.2%). Finally the smallest group are until 18 years old together with ones above 40 years old (only 1.6%). The data would seem to suggest that 18-23 years old respondents were the most willing to use ridesharing services. It can be explained by mentioning that 18-23 years young people are not enough

financially stable (financial dependency from parents, student loans, etc.). Student may be try to find best solution considering price and quality of affordable transportation service but further research should be done in order to support these statement.

Income analysis shown that the majority of respondents is between less than 380 €(41.1%), the second are 301-500 €(21%), the third rank is 501-700 € (14.5%), the fourth rank is 701-1000 €(13.7%). The fifth rank is 1001-1500 € (7.3%). The smallest rank is more than 15001€(2.4%). Statistically speaking students who income is less than 380 € are more willing to choose ridesharing service in comparison with others.

The ridesharing users were using *Bolt* (50.6%) service more than *Etransport* (12.6%) or *Uber* (12.6%). It means most of the ridesharing users prefer to use *Bolt* not *Etransport* or *Uber*. The reason is the affordable price and the conveniency.

It is important to notice frequency of using ridesharing service. 68 of respondents (54.8%) use the service less than one in a month. Meanwhile, 31 respondents (25%) were using ridesharing services in 5 times or less in a month and 17 respondents (13.7%) are using this services' one in a month. 6 respondents (4.9%) were using ridesharing services in 5 times or less in a week and 2 respondents (1.6%) are using services for every day. According to statistics, the most popular answer was using ridesharing service less than one time in a month.

Respondents were asked what type of payment is more acceptable (Fig.1)

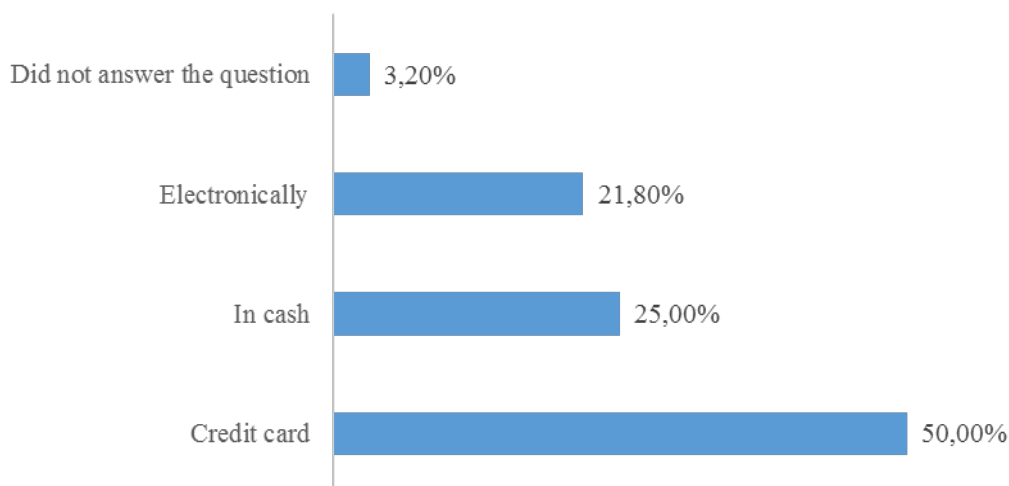


Figure 1 The types of payment (created by the authors)

50 respondents (50%) said that the most acceptable type of payment is paying by credit card. 25 respondents (25%) said that paying in cash is more convenient type of payment.

Respondents were asked to evaluate criteria why they choose ridesharing service (Fig.2). Evaluation of criteria was based on 5 scale Likert scale measurement (1 - not important at all, 2 - does not matter, 3 - partly important, 4 - important, 5 - very important). All calculations and conclusions about students' evaluation of ridesharing service were made paying attention only to the highest value of this scale (only to 5).

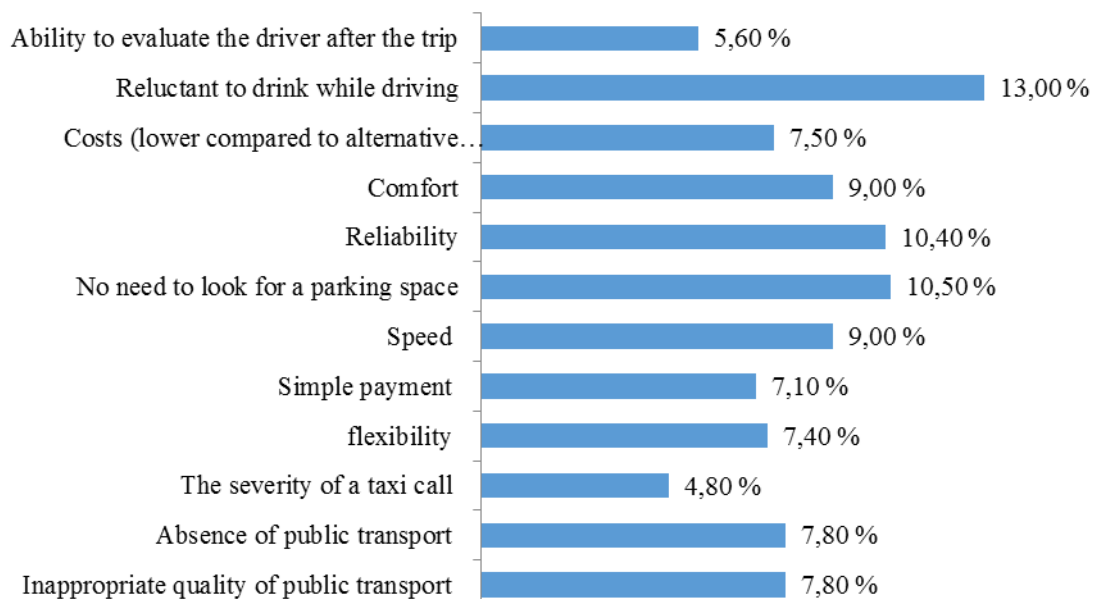


Figure 2 *The ridesharing services using criteria* (created by the authors)

Respondents had (Fig. 2) to evaluate the criteria's in accordance to importance. The ridesharing services users mentioned that one of the most popular reason to choose such services is not wanting to drive drunk (12.95%). The second reason to not waste time by looking for parking space for the own car (10.54%). It was relevant because lot of respondents are using ridesharing services for going to the city centre. The third is reliability (10.39%). Unpopular answers were the severity of a taxi call (4.82%) and the ability to evaluate the driver after the trip (5.57%).

After the literature review it became clear that the most influential factor of customer satisfaction is the comfort. Respondents were asked to evaluate criteria's (Fig.3) based Likert scale measurement (1 - not important at all, 2 - does not matter, 3 - partly important, 4 - important, 5 - very important).

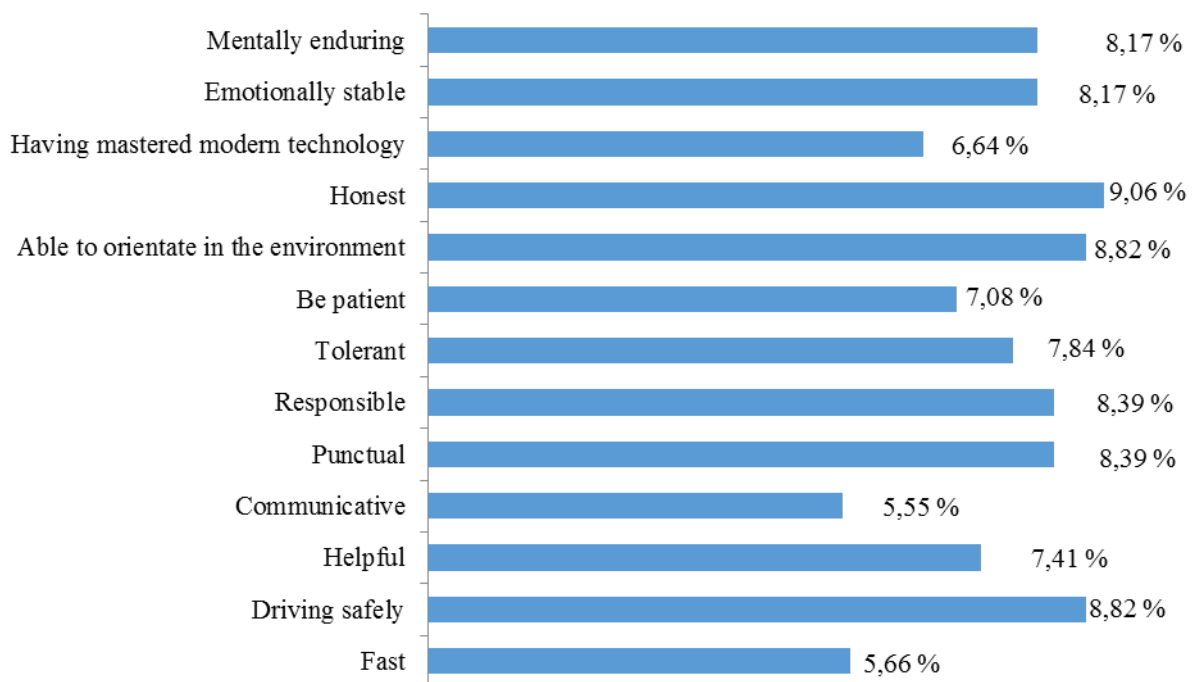


Figure 3 The ridesharing driver's criteria's (created by the authors)

The results showed that the most important driver's criteria's are honesty (9.6%), safety while driving (8.82%), the driver's ability orientate in the environment (8.82%), punctuality (8.39%) and responsibility (8.39%). Less remarkable for the ridesharing driver's criteria's are communicative (5.55%) and going fast (5.66%). It means most of the ridesharing services drivers must drive safely, orient in roads, be punctual and responsible.

It was found that the most influential factor of customer's satisfaction is the comfort. Students choose ridesharing in order to reach home safely instead of driving drunk, avoid thinking where to park their car and because of reliability.

It is crucial to emphasize that according to this research, payments should be made by credit card.

In the contemporary global market conditions, meeting the consumer needs is mandatory. This is confirmed by the results of students' opinion empirical research. The survey shown that Lithuanian the ridesharing services companies in competition with each other and comparing their own activities, indicate taking into account the customers' wishes and responses are the main factors of the competitive advantage.

Conclusions

Nowadays the ridesharing becomes important service. Ridesharing companies are trying to get clear indicators that their investment in customer

satisfaction is worth the risks and will provide good results. From this point of view, the measuring of customer satisfaction became an important tool. Reliability, quality, price, service, service comfort, consumer emotion, personal factors, situational factors, a perception of equity or fairness, product features are the factors that influence the customer satisfaction.

According to the survey, we found that the most influential factor of customer satisfaction is the comfort and reliability. Ridesharing service is an alternative in order to avoid driving drunk or avoid thinking about where to park a car. It is hard to deny that ridesharing service appears the most attractive for 18-23 years students and for ones who income is less than 380 €

The students' opinion research showed that customer satisfaction is the applied factor of Lithuania ridesharing services increasing their advantage. However further researches should be made in order to formulate more precise conclusions.

In the contemporary global market conditions, meeting the consumer needs is mandatory. The survey shown that Lithuanian the ridesharing services companies in competition with each other and comparing their own activities, indicate taking into account the customers' wishes and responses.

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ADAPTING A DUAL HIGHER EDUCATION SYSTEM IN VILNIUS COLLEGE OF TECHNOLOGIES AND DESIGN: THE CASE OF UNIVERSITY OF SZEGED

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Abstract. *The system of higher education in the European Union based on legal instruments valid for all States Member. However, each EU State Member has additional national legislation, which taken into account in the design of the higher education system. The design and implementation of study programs is one of the activities of higher education. Compliance with EU and national legislation are important in design of study programs. It is equally important that the programs are necessary for the national economy, companies and attractive to students. The aim of the article is to determine the need and possibilities of dual teaching in the study program Transport Logistics of Vilnius College of Technology and Design.*

The structure of curricula of dual education at Szeged University in Hungary is analysed. The indicators of changes in studies and practical training from the point of view of students and companies at Szeged University are present.

The article presents a comparative analysis of legislation, study programs and business needs in Lithuania. The analysis showed that business enterprises in Lithuania would be interested in dual training; the application of dual training is not in principle contrary to Lithuanian legislation.

Keywords: *dual education, enterprise, higher education, transport companies.*

Introduction

When designing, implementing and accrediting higher education programs, great attention is paid not only to the theoretical knowledge that is provided to students during their studies, but also to practical skills. It is not essential to distinguish whether the student achieves the required level of competences during theoretical or practical training, but only a set of theoretical and practical knowledge allows to do that.

Accordingly, companies for which higher education specialists are trained note that graduates must be able to quickly become involved in the work process and be a proficient specialist. Corporate executives are often dissatisfied with the practical preparation of the students.

Currently, higher education in Lithuania is regulated by the Law of the Republic of Lithuania (Lietuvos Respublikos mokslo ir studijų įstatymas [LRMSI], 2009). on Science and Studies, the Description of General Requirements for the Implementation of Studies (Bendrųjų studijų vykdymo reikalavimų aprašas [BSVRA], 2016) and other legal acts. There is a statutory minimum requirement for practical training in the design of study programs. European Commission documents (European Commission, 2013, 2017) highlight the importance of practical training and the need to explore ways to increase the proportion of practical training.

The aim of this article is to analyse whether the dual teaching approach would be useful in study programs at Vilnius College of Technology and Design.

The objective is to identify the stakeholders and the impact of dual training on the stakeholders. To compare the requirements of the legislation of the Republic of Lithuania for practical training in higher education study programs and possibilities in applying dual teaching. To analyse the experience of dual teaching at the University of Hungary. To carry out the managers of transport and storage companies survey on the aspects of dual training in higher education.

The research methods used by the authors included a literature review and questionnaire survey of transport and storage services sector's enterprises conducted in 2019.

In order to analyse the opportunities to adapt a dual higher education system in Vilnius College of Technologies and Design, quantitative research was used, which allowed the authors to explore transport and logistics companies' opinions.

The essence of dual studies

During the existence of the guild system, a strict hierarchy (Deksniienė et al., 2019) prevailed in Europe: the apprentice, the labourer and the master. The Master's name was the only written proof of competence, and "apprenticeship certificates" confirmed the completion of the first phase of training.

After the Industrial Revolution, the liberal economic doctrine that promoted "free market factors" treated the traditional guild system as a barrier to competition and free trade, thus it was abolished in many countries and, after a while, new systems which were very different appeared. In Germany, Georg Kerchensteiner, a teacher from Munich, was the man who laid the foundations for the current dual teaching system in the country in the late 19th century (UNESCO: International Bureau of Education, 1993).

Currently, when labour market prospects have improved significantly and companies are again in need of well-trained workers, there is a growing gap between the needs of the labour market and the competences of the workers it offers.

The dual education model of higher education is a system whereby students spend half of their time studying for practical training in a company. In this way, higher education aims to facilitate the transfer of knowledge tailored to the market needs, while meeting the expectations of the society, education and industry (Kovács &Török, 2016).

In the EU higher education system, cooperation between stakeholders and the academic sector is usually limited to the research and payment, commissioned by companies, and the involvement of the company experts in the final evaluations of high school students.

A competitive economy requires that knowledge acquired during a university year has to be closely linked to the needs of the labour market (Welsh et al., 2008). The dual form of the higher education system is common as countries are part of a common process of disseminating knowledge and experience. The dual system implies close, result-oriented cooperation between parties (companies and institutions) (Yu, 2012; Göhringer, 2002).

Dual higher education consists of three participants. One is a higher education institution, the second is a company, and the third is a student. Participants in dual studies have different motivations. The Higher Education Institution strives for a strong and long-lasting relationship with business representatives, training tailored to real-life needs, nurturing motivated students and gaining a reputation. Corporate motivation is long-term investment in higher education institutions in order to have a steady competent loyal workforce. The student expects appropriate competences, more practical skills and higher employability after graduation.

The institution in higher education wishes to build a strong and long-term relationship with the representatives of the economy and seeks to adapt the training to real life demands, wishes to educate motivated students and with the support of high training level achieve reputation. One fact that determines the motivation of companies is the long-term investment in higher education institutions in the interest of receiving a steady workforce who were socialized on the demands of the company. The other motivation of the companies is to ensure the loyal professionals who were chosen and nurtured by the company for replacement. Among the motivation of the students are the higher chances for getting a job after graduation, the possibilities of gaining more practical knowledge, moreover, ending the studies within a given time frame and the regular monthly payment they get during the course of training (Kovács &Török, 2016).

The dual student has the opportunity to understand the interrelation among different enterprise subsystems, instead of seeing them as separate subjects at a course. It is possible to present them the system as a whole, the connection points among controlling, accounting, marketing, HR, procurement, logistics etc.

They hope to improve the quality of workforce, easier recruitment and cost-effectiveness. Through the cooperation they can form the curriculum. But even more important is for them the opportunity of deeper human and professional relationships. Companies' expectations from a student differs from those of an active experienced colleague. The students' full integration is the most important for them: professional, human, peer, and community integration. They find that a young, open person has fresh mind, new perspectives and approaches. Students can help the company in reformation, companies expect the young new colleagues to come up with ideas and suggestions, to be curious, because creativity has added value.

Teachers indicate, as the best thing in dual education, that the practical knowledge students acquire at their dual company helps them a lot to understand the importance of the academic curriculum. This understanding is an excellent motivational tool, students put more effort in learning, because they understand the utility of the different topics (Pogatsnik, 2018).

Through dual teaching, the higher education institution provides academic education: theoretical knowledge and insures students' accountability. The company provides practical knowledge: management processes, technology, work-related approach. The student obtains practical work skills and theoretical knowledge (confirmed by practical need). The benefits of dual training are presented in Figure 1.

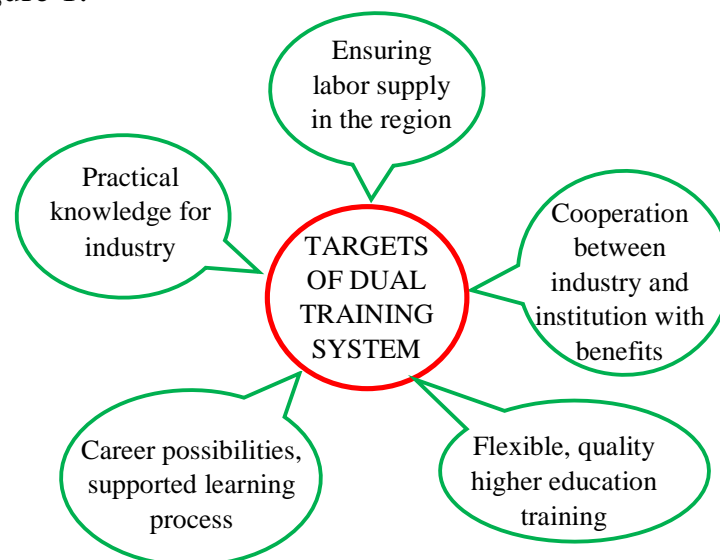


Figure 1 The general target system of dual training in higher education (Kovács & Török, 2016)

The active, collaborative relationship between the company and the university is another good impact of the dual training. The regular and formalized contacts can go beyond dual training and include joint innovation and research projects (Pogatsnik, 2018).

Lithuanian higher education system

The Law of the Republic of Lithuania (LRMSI, 2009) on Science and Studies (LRMSI, 2009) establishes the state regulation of science and studies, principles of quality assurance of science and studies, qualification awarding and recognition, institutions of science and studies management, organization and supervision of their activities. This law defines the mission of science and studies, which is (LRMSI, 2009) to help ensure the prosperity of the country's society, culture and economy, to be the backbone and incentive for every citizen of the Republic of Lithuania to fulfil his innate desire for knowledge.

General study requirements (BSVRA, 2016) and other legal acts specify that studies may be university or college; full-time or part-time (Nuolatinės ir išštesinės studijų formų aprašas, 2009).

The minimum duration for internships is at least 15 credits for university studies and at least 30 credits for college students. As the Vilnius College of Technology and Design, whose dual teaching we will analyse as an example, carries out college studies, it is worth noting that in college studies, practical training must account for at least one third of the program scope. At least 30 credits are given to practice, which represents 17 percent of the 180 study program credit scope. Similarly, the General Requirements for Study Conduct (BSVRA, 2016) stipulate that contact time should be at least 20 percent, it is 36 credits.

Lectures for full-time students are organized on weekdays. Such form of studies is hard to reconcile with work. Students acquire practical competences during the internship.

For part-time students, lectures are organized on weekdays or weekends. Students are employed in this form of studies. They acquire practical competences by working (if they are studying a work-related study program). Dual studies are not relevant for part-time students.

If a dual curriculum could be established without breaking the law, combining practice and practical training (seminars and workshops), we would get that from 144 credits (80 percent) to 54 credits (30 percent), students can develop practical competencies in companies.

The Case of University of Szeged (Hungary)

The University of Szeged, Hungary, started dual training at the Faculty of Engineering in 2015. Specially designed full-time study program for dual teaching. In dual teaching the following aspects were chosen and considered: practice-oriented branches, BSc and / or MSc level, full-time students, for the whole duration of education time, accredited companies (self-evaluation, visiting committee), according to regulation of the Dual Education Council. While creating the dual training program the following principles were taken into account: Professional knowledge: University - theory, Company - practice; Methodology: University - research, calculations, Company - projects, team works; Social skills: University - presentation methods, Company - negotiation technique.

Dual learning education program in Hungary was made on the basis of Germany's dual education system, but fully adapted to the Hungarian higher education system. The most important goal is a win-win situation for companies and graduates (and higher education).

Undergraduate programs have been adjusted from the traditional ones, where the study process consists of 7 semesters which have 210 credits with practice for 8 weeks at the company, and the dual learning program which has 210 credits with 58 weeks (290 working-days) practice at company.

The learning time table for dual education has 44 weeks (14 + 5 + 14 + 15) of practice in 1-3 studying year and 14 weeks in 4th year of studies.

Students are not employees, but have a special contract for some money (about 300 €/ m). In addition, they have to fulfil requirements such as: prescribed credits pro semester, good weighted educational average, positive approach, reliability, motivation. The contract can be cancelled anytime.

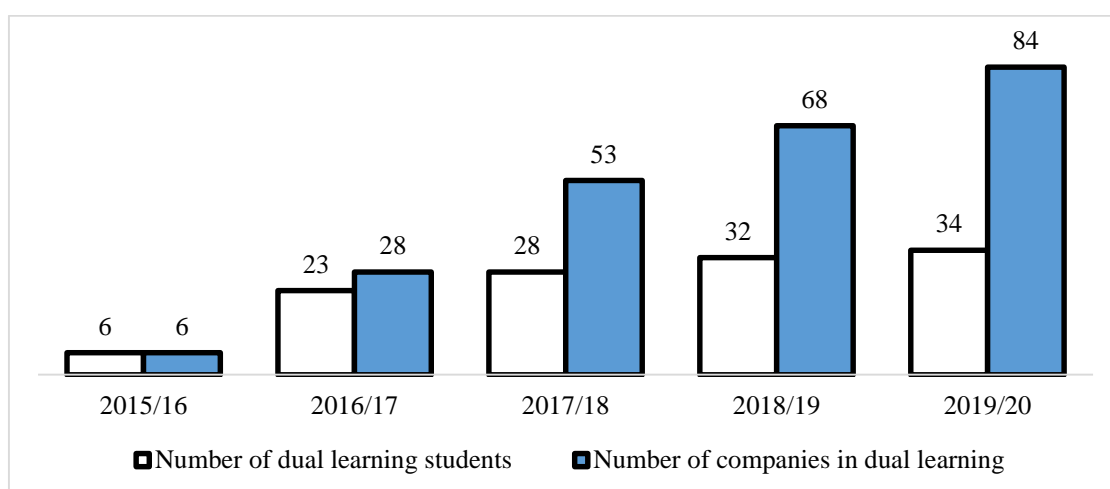


Figure 2 *Number of students of dual study programmes and partners for dual education at University of Szeged (created by the authors)*

The growing popularity of dual curricula, among students and companies, of the dual curriculum indicators are illustrate in figure 2. Meanwhile, the number of internships offered has grown from 6 to 347, over 57 times.

Dual education is advantageous for students for more theoretical and practical knowledge, more professional experience and about 1,5 year labour relations; for companies, because have young and fresh engineers, time of acclimatization is shorter; for universities, because have good connections with companies.

Good experience from dual learning: collaborating companies and their role are determinant (mentor engineer time, money, human energy); excellent expectations (good results, no longer duration of education); flexibility and communication between partners (students, university, companies) (content, timetable); motivated, loyal, purposive students.

Analysis of Possibilities of Dual Training in Lithuania

In the analysis of the possibilities of dual training application in Lithuania, a survey of managers of Lithuanian transport and storage sector companies was used. The survey is conducted in early January 2020. The aim is to determine the views of transport and storage company executives on students' practical preparation and approach to dual studies.

According to statistics (Lithuanian Republic Department of Statistics, 2020) in Lithuania in 2020, originally, there were 8565 transportation and storage companies. According to the Paniotto formula (Bailey, 1994), with 70 completed questionnaires, the survey reliability is 88,1% (sufficient above 80% (Bailey, 1994). The rating was on a 5-point scale with 1 being the lowest (strongly disagree) score and 5 being the highest (strongly agree) score.

The first questions of the survey aimed to find out the level of students' competence from the Transport Logistics department. Respondents assessed the level of theoretical knowledge of full-time students who had completed transport logistics studies. 77,2% of the respondents' answers highly value theoretical competences and only 5,8% received a low score.

Respondents assessed the level of practical competence of full-time students who have completed transport logistics studies (Fig. 3). 28,6% of the respondents highly value theoretical competences, 40% received average and 31,5% low score.

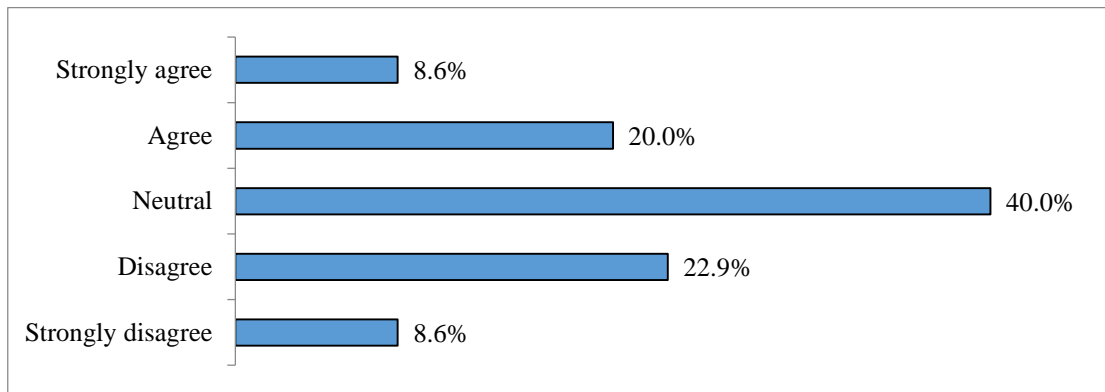


Figure 3 Respondents' assessment of the level of practical knowledge of graduated transport managers (created by the authors)

The first answers showed that theoretical competences were sufficient, but practical ones needed more.

The necessity of practice integration into the study process during the entire study period is shown by the respondents' answers 94,3% cite this as a necessity. There are no objections.

Respondents, who were asked about the duration of the internship, divided into equal parts, stating that the duration of the internship should be between 20 and 50 percent of the duration of the study. 88,6% of the respondents expressed the opinion that a practical training contract with the company could be signed for the entire study period.

An important issue is the integration of practice into the study process. Respondents did not have a consensus on whether it would be appropriate to integrate internships into the study process if part-time internships were held at the company and part at lectures in higher education (respondents split equally). However, when asked whether they would approve of work in the company for a few days a week, 82,9% of them agreed. (Fig. 4).

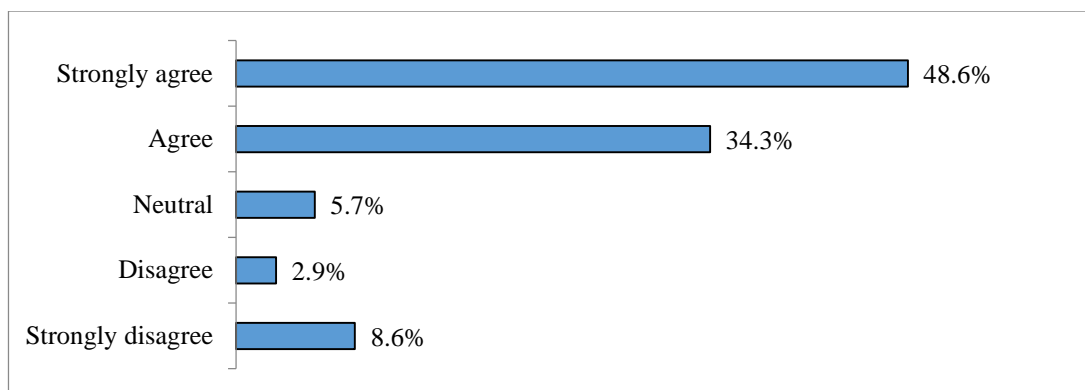


Figure 4 Respondents' assessment of the several days a week practice (created by the authors)

48, % of the respondents state the company benefits from the students during their internship. 11,4% of the respondents reject this fact. Therefore, 74,3% of the respondents agree with the opinion that students should get paid (scholarship) for work done during the practice. 5,7% oppose this idea. 37,2% of the respondents state that students should be paid a basic scholarship during the practice (34,3% of respondents disagree).

After asking the respondents which factors determine the amount of the student's apprenticeship allowance (Fig. 5), the main aspect is the amount of work done (36,5%), the duration of the apprenticeship (17,6%) and the enterprise apprenticeship allowance (2%).

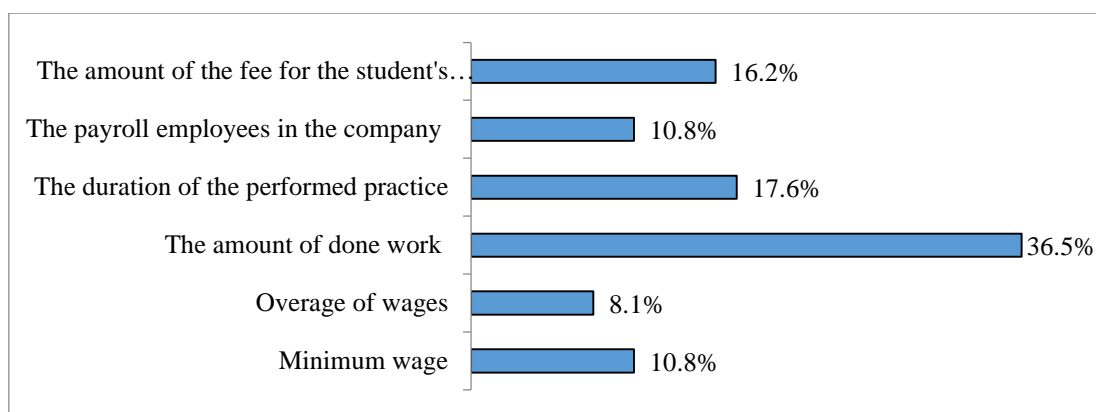


Figure 5 *Factors influencing student internship pay* (created by the authors)

For a long time, there has been a debate between higher education institutions and businesses about allocating funds to companies for practical student training in companies. Corporate executives say that practice tutors are distracted by unemployment and companies incur additional costs due to student practical training. Respondents' responses to the need for corporate funding for student placements differed in two opposing camps.

Conclusions

1. The need for dual training and its benefits for all three stakeholders: higher education, enterprise and student has been established.
2. The legal acts of the Republic of Lithuania provide for a minimum of 30% of practical training and 30 credits of practical training (16,7% of the study program). Nor should be gone beyond 80% boundaries of the practical training part.
3. The analysis of the application of dual training at the University of Szeged, Hungary shows the interest of employers in the growth of dual training.

Correspondingly, there is an increase in the number of students enrolled in 2015-2019 from 6 to 84 students.

4. A survey of managers of transport and storage companies showed the need for dual training in the Transport Logistics study program at Vilnius College of Technology and Design.

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PUBLIC ADMINISTRATION IN DEVELOPMENT OF THE PROCEDURE OF THE SECURING A CLAIM

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Abstract. *The Ministry of Justice of the Republic of Latvia is a leading public administration in the justice sectors and plays an important role in the development of the procedure of the securing a claim. Topicality and novelty of the research are reflected in the fact that until now in the legal doctrine weren't made depth and extensive researches of the role of public administration in solving problems of the securing a claim. The aim of the research is to carry out an assessment of the activities of the Ministry of Justice in the development of the securing a claim. In the present research, using the analytical, descriptive and deduction/induction method, were analysed the normative acts, legal policy planning documents, annotations of draft amendments to the Civil Procedure Law, etc. Results: actions of the Ministry of Justice to develop the securing a claim sometimes are chaotic. Conclusions: in order to achieve the defined objectives of the institute of the securing a claim, the state should pay attention to the systematic improvement of current civil procedural regulation.*

Keywords: *civil procedure law, government, Ministry of Justice, securing a claim.*

Introduction

Within the framework of his scientific activity, the author conducts a research on the problematic aspects of the process of the securing a claim to allow finding potential solutions and to make the process of the securing a claim more efficient. The Ministry of Justice of the Republic of Latvia is the leading state authority in the field of law, which among other things also develops, organizes and coordinates the state policy in the sphere of procedural rights (By-laws of the Ministry of Justice, 2017), therefore, it undoubtedly plays an important role in the development of the institute of the securing a claim. In the research, topicality and novelty arise from the fact that until now the legal doctrine has not dealt with in-depth and extensive problems of the institute of the securing a claim, including the role of public administration in solving these problems.

Aim, Materials and Methods

The purpose of the research is to evaluate the activity of the Ministry of Justice of the Republic of Latvia in the development of the institute of the securing

a claim in order to determine its conformity to the purpose and tasks of the legal framework of the securing a claim. Using analytical, descriptive and deduction/induction method, in the present research were analysed the normative acts, legal policy planning documents, annotation of the drafts of the amendments to the Civil Procedure Law (Civil Procedure Law [CPL], 1998), etc.

Historical development of the institute of law – the securing a claim

The institute of law of the securing a claim has been known already in ancient Roman legal system, where the defendant was required to deposit a guarantee of wealthy persons (*cautio judicatum solvi*); the defendant had to swear an oath for performance (*cautio jurataria*) (Bukovskis, 1933).

In the legal system of the Republic of Latvia this institute of law is known since the 1914 Civil Procedure Regulations, which were effective in the Republic of Latvia, based on the Law of the Republic of Latvia “Temporary regulations on the courts of Latvia and procedure of prosecution” of December 6, 1918, pursuant to which Latvian courts had to operate according to the local Russian laws, which were effective in the current territory of Latvia until October 24, 1917 and specified the procedure of the securing a claim to allow the plaintiff to gain satisfaction in the case of satisfying of the claim (Bukovskis, 1933).

The 1914 Civil Procedure Regulations stipulated that the court may ensure securing a claim only on the basis of the request of the involved party during the entire prosecution of the case even in the second instance, but not in the third; the court ruling on claim security could have been appealed with ancillary complaint, which, nevertheless, did not stop the execution of the appealed decision, while the appeal against the decision, which revoked the securing a claim, on the other hand, stopped the execution of this decision on the securing a claim, and the defendant had the rights to reimbursement of damage, if the claim was dismissed and/or if the security was revoked (Bukovskis, 1933).

In 1938 the Civil Procedure Law came into effect in Latvia, where Section 174-177 of the Chapter 6 “Ancillary procedures” stipulated the rights of the plaintiff to submit request for the securing a claim, compliance with which depended on the magistrate, except for the securing a claim based on a duly endorsed bill or protest bill, the magistrate was not entitled to refuse such requests (Civilprocesa likums, 1938).

It follows from the regulatory content of the 1914 Civil Procedure Regulations and the 1938 Civil Procedure Law that the matter on claim security was resolved in a similar manner and with the purpose to protect the plaintiff from the illegal activities of the defendant and to ensure the possibility to gain satisfaction from the defendant’s property in case of satisfaction of the claim.

When comparing the legal framework of the securing a claim of the first Republic of Latvia and the current one, it is clear that a lot has been adopted in the current legal framework from the 1914 Civil Procedure Regulations and the 1938 Civil Procedure Law, except for the archaic forms of claim security such as court guarantee and signature on non-changing of place of residence, but, considering that both the society and the awareness of the people have changed and the legal relations have become more complex, considering the era of the digitalized information, the issue of the development of the institute of the securing a claim to make it an efficient and contemporary one is still valid.

Role of the Ministry of Justice of the Republic of Latvia in the development of the legal framework of the securing a claim

On October 14, 1998 the Saeima of the Republic of Latvia adopted the new Civil Procedure Law (CPL, 1998), which has come into effect on March 1, 1999 and is still valid with several amendments.

Basic edition of Section 137 of the CPL stipulated that if there are reasonable grounds to believe that enforcement of the court judgment in the case may become problematic or impossible, the court or judge may upon a reasoned application of the plaintiff take a decision to secure a claim. The means of the securing a claim shall be specified in the application of the securing a claim. Claims can be secured only in claims of a financial nature. The securing of a claim is permissible at any stage of the proceedings, as well as before the action is brought in court (CPL, 1998). Such definition of the securing a claim remains unchanged from the date of entry into effect of the CPL. Since the entry into effect of the CPL, the provisions on the securing a claim have been amended and supplemented fifteen times, namely by amendments to the CPL adopted by the Saeima on October 31, 2003, June 19, 2003, February 12, 2004, September 7, 2006, February 5, 2009, August 4, 2011, September 8, 2011 November 29, 2015, April 23, 2015, May 23, 2016, June 1, 2017, March 1, 2018, and once the regulations on the securing a claim were amended by the judgement in the case No 2009-85-01, made by the Constitutional Court on March 30, 2010. Mainly these amendments to the CPL were developed and submitted to Saeima for consideration by the Ministry of Justice of the Republic of Latvia. The purpose of the research was to identify conditions that caused such frequent amending of the legal norms of the securing a claim and to analyse whether such amendments eventually made the institute of the securing a claim as efficient means of procedural protection, therefore attention was paid, in author opinion, to the most significant amendments to the regulations of the securing a claim.

So, in September 7, 2006 the Saeima adopted extensive amendments to the CPL, which came into effect on October 11, 2006, expressing Paragraph 3 of

Section 137 as follows: "(3) Examination of the issue of securing of a claim may be allowed at any stage of the proceedings, as well as prior to the bringing of court action", excluding Sections 144, 145 and 146, which defined withdrawal, termination and appeal of the securing a claim in the basic version of the CPL, and also expressing Sections 138, 139, 140, 141 and 142 of the CPL in a new edition, therefore determining forms of means of securing of the claim, conditions of securing a claim before bringing of the court action, procedure of consideration of the application for the securing a claim by the court, appeal of the securing a claim and procedure of execution of the decision on claim security (Grozījumi Civilprocesa likumā, 2006). Upon submitting proposals for these amendments to the Civil Procedure Law, the Ministry of Justice specified that Chapter 19 (Securing a Claim) of the Civil Procedure Law currently fails to have a coordinated used terms, for example, "change of the means of the securing" and "replacement of the means of the securing", as well as terms "withdrawal of the securing a claim" and "termination of the securing a claim". To resolve the issues related to the securing a claim, Chapter 19 of the Civil Procedure Law has been reprocessed in the bill, providing that the court will be given rights at any stage of the proceedings to both secure the claim and to substitute one form of the securing a claim by other ones, and to withdraw the securing a claim (Likumprojekts "Grozījumi Civilprocesa likumā" 3571, 2005).

Considering the judgements of the Constitutional Court that followed these amendments of the Civil Procedure Law, which declared some of the amendments as not conforming to the Constitution, it has to be concluded that the resolution of the issues, related to the securing a claim, intended by the Ministry of Justice, has not succeeded in full, but, considering that these amendments to the Civil Procedure Law are still effective with minor corrections and additions, the issue of improvement of the regulations of the securing a claim is still valid.

On February 5, 2009 the Saeima adopted amendments to the Civil Procedure Law, which came into effect on March 1, 2009 (Grozījumi Civilprocesa likumā, 2009), expressing Article 6 of Paragraph 6 of Section 138 in a new edition, namely, stipulating that the means by which a claim may be secured are "seizure of those payments, which are due from third persons, including monetary funds in credit institutions and other financial authorities", replacing first sentence of Paragraph 4 of Section 140 of the CPL and determining a procedure, in which the court may substitute the means of securing a claim with the seizure of monetary funds, paid into the depositary account of the court bailiff, and also making amendments to the sections of the CPL, which specify appeal of the court rulings, related to the securing a claim: stipulating in Paragraph 5 of Section 140 that securing a claim may be revoked on the grounds of the motivated application of the plaintiff both by the court, which adjudicates the case on the basis of the merits, and specifying in Paragraph 1 of Section 141 that ancillary complaint may

be filed only in regards to the court decision, by which the means of the securing a claim is substituted by other means of the securing a claim, regards to the court decision, by which the application on the securing a claim is dismissed, and in regards to the court decision, by which the plaintiff has to reimburse the losses, whereas in Paragraph 2 of Section 141 of the CPL is it specified that if the decision on the securing a claim is made in the absence of the party of the case, then the term for the submission of ancillary complaint shall be counted from the day of issuing of the decision, instead of the day of receiving of the decision. Paragraph 1 of Section 142 of the CPL was supplemented with the regulation, that a decision to secure a claim and a decision to withdraw securing a claim shall be enforced immediately after it is made. Taking into account the aforementioned new regulation in Paragraph 1 of Section 142 of the CPL, the sentence of Paragraph 1 of Section 142 of the CPL, which specified that submitting of ancillary claim on this decision shall not stop its enforcement, was excluded. By expressing Paragraph 5 of Section 142 of the CPL in a new edition, the Saeima has determined that, by seizing the payments, those payments, which are due from third persons to the defendant, these amounts shall be seized in the amount of the claim, in compliance with the restriction, specified in Article 3 of Annex 1 of this Law in regards to the debtor, i.e., money in the amount of the minimum monthly wage for the debtor, each member of his or her family and persons dependent on the debtor, but in cases regarding the recovery of maintenance for the support of minor children or for the benefit of the Administration of Maintenance Guarantee Fund administration - money in the amount of 50 per cent of the minimum monthly wage for the debtor, each member of his or her family and persons dependent on the debtor shall not be subject to recovery. Whereas Paragraph 9 of Section 142 of the CPL was supplemented with the sentence that “the sum that has been paid into the bailiff’s deposit account as means of securing a claim shall be repaid by the bailiff only on the basis of a court ruling”. Section 568 of the CPL was supplemented with Paragraph 6, specifying that costs related to the decision of the court to secure a claim, to specify means of provisional remedy shall be covered by the plaintiff (Grozījumi Civilprocesa likumā, 2009). Upon submitting of the proposals for these amendments of the law, the Ministry of Justice specified in the annotation of the bill that the question of the rights of the defendant to file an ancillary complaint of the court decision on the securing a claim is still valid in the legal practice; by different interpretation of the existing regulations (second sentence of Paragraph 1 of Section 142, Paragraph 1 of Section 141 in relation to Paragraph 2 of Section 140 of the CPL) different courts decide differently whether a defendant can appeal against a court decision granting an application for security. This results in inequality and violates the right of individuals to a fair trial, which is unacceptable (Likumprojekts “Grozījumi Civilprocesa likumā” Nr: 826/Lp9, 2008).

As can be seen from the amendments made to the Civil Procedure Law, the possibility of appeal against ancillary claim and related issues has been significantly reduced, and the Ministry of Justice's objective of eliminating inequalities in the rights of the parties to appeal the court decision related to the securing a claim was not achieved.

On March 30, 2010 the Constitutional court Of the Republic of Latvia made a decision in the case No 2009-85-01 "Conformity of Paragraph 1 of Section 141 of the Civil Procedure Law, to the extent as it does not provide for the right to submit an ancillary complaint regarding the compliance of the decision satisfying the application for securing a claim, to Section 91 of the Constitution, which determines, that: "all human beings in Latvia shall be equal before the law and the courts. Human rights shall be realised without discrimination of any kind", Section 92 of the Constitution, which determines, that: "everyone has the right to defend his or her rights and lawful interests in a fair court. Everyone shall be presumed innocent until his or her guilt has been established in accordance with law. Everyone, where his or her rights are violated without basis, has a right to commensurate compensation. Everyone has a right to the assistance of counsel" and Section 105 of the Constitution, which determines, that: "everyone has the right to own property. Property shall not be used contrary to the interests of the public. Property rights may be restricted only in accordance with law. Expropriation of property for public purposes shall be allowed only in exceptional cases on the basis of a specific law and in return for fair compensation" (Latvijas Republikas Satversme, 1922), where among other things it was established, that:

- The right to have a claim secured is an important procedural right that can be exercised by the plaintiff at any stage of the proceedings, as well as before any action is brought in court. Securing of a claim and resolution of issues related thereto is an essential part of civil procedure, which, like civil procedure as a whole, must comply with the requirements of Section 92 of the Constitution. Consequently, the court must take decisions on issues of the securing a claim in accordance with the procedural order, which complies with Section 92 of the Constitution.
- Equality of procedural rights is an essential element of the right to a fair trial and a specific expression of the principle of legal equality.
- As the legal proceedings may last for several years, the right to claim damages after the judgment has become effective may often prove ineffective.
- The view that the defendant's right under Paragraph 5 of Section 140 of the Civil Procedure Law to apply for withdrawal of the securing a claim

to the court that has granted the securing a claim is equivalent to the right to file an ancillary complaint, cannot be accepted either.

- The plaintiff and the defendant are not set in an unequal situation in the proceedings, adjudicating the securing a claim. This limits the equality of procedural rights inherent in the right to a fair trial.
- In order for the restriction of fundamental rights to comply with the Constitution, it must be established by law, justified by a legitimate aim, as well as proportionate or commensurate to this aim. It is also stated in the scientific literature that derogations from the principle of equality between the parties are permissible only if they are objectively and reasonably justified (Torgāns, 2006).
- According to the Constitutional Court, the current legal framework, which prohibits the defendant from appealing against the decision granting the application for securing the claim or the decision rejecting the application for the withdrawal of the claim, does not balance two essential and interrelated elements of Section 92 of the Constitution - procedural economy and equality of procedural rights.

On the basis of the above-mentioned reasoning, the Constitutional Court has, inter alia, ruled: to declare Paragraph 1 of Section 141 of the Civil Procedure Law to the to the extent as it does not provide for the right to submit an ancillary complaint regarding the compliance of the decision satisfying the application for securing the claim, as non-compliant with Section 92 of the Constitution of the Republic of Latvia (Satversmes tiesas spriedums lietā Nr. 2009-85-01, 2010).

On August 4, 2011 the Saeima adopted amendments to the Civil Procedure Law, which came into effect on October 1, 2011, expressing title of Section 137 (Grounds for Securing a Claim and Contents of an Application) and first paragraph in new edition, specifying the details of the application for the securing a claim. In addition Paragraph 1 of Section 140 was supplemented with the following sentence: "In deciding an issue regarding securing of a claim, a court or judge shall take into account prima facie formal legal grounds" and first sentence of Paragraph 1 of Section 141 was expressed as follows: "An ancillary complaint may be submitted regarding the decision referred to in Section 140, Paragraph three of this Law, decision by which the application for withdrawal of securing a claim is refused, and also for the court decision to secure losses which could be incurred by the defendant in relation to securing a claim"; Section 143 was supplemented, specifying that the defendant is entitled to demand compensation for losses he or she has incurred due to the securing of the claim if securing of the claim has been withdrawn in the case laid down in Section 140, Paragraph eight of this Law" (Grozījumi Civilprocesa likumā, 2011).

Upon submitting of the proposals for these amendments of the law, the Ministry of Justice specified that a term should be defined in the Civil Procedure Law, when the day of the court hearing is due to be scheduled for the deciding on the applications, specified in Paragraph 3 and 5 of Section 140 of the Civil Procedure Law. Section 143 of the Civil Procedure Law states that the defendant is entitled to demand compensation for losses he or she has incurred due to the securing of the claim if securing of the claim raised against him has been dismissed. Therefore Section 243 of the Civil Procedure Law shall be supplemented with a regulation, which specifies the rights to claim reimbursement of losses, which have resulted due to the securing a claim also in cases, if the claim has been left without adjudication or if the legal proceedings have been suspended (Likumprojekts "Grozījumi Civilprocesa likumā" Nr.:11/Lp10, 2010).

On September 11, 2014 the Saeima adopted amendments to the Civil Procedure Law, which came into effect on November 1, 2014, supplementing Section 138 with Paragraph 7.¹ as follows: "(7¹) seizing of those payments, which are due from third persons, including monetary funds in credit institutions and other financial authorities, shall not be permissible in claims where the compensation, which is to be determined on the basis of the discretion of the court, is claimed", updating the form of arbitration court in Section 139 as "permanent, therefore determining that if the parties have agreed to submit the dispute to a permanent arbitration court, an application shall be submitted to a court based on the location of the debtor or his or her property (Paragraph 2 of Section 139 of the CPL), and also in satisfying an application for securing a claim before an action is brought, a judge shall set a time period for the plaintiff within which he or she must submit a statement of claim to the court or permanent arbitration court (Paragraph 3 of Section 139 of the CPL). Paragraph 1 of Section 140 of the Civil Procedure Law was supplemented with the claim for the court, in deciding an issue regarding securing of a claim, to take into account also the proportionality between legal interests of the parties, whereas Paragraph 5 of Section 140 of the Civil Procedure Law was supplemented with the sentence that "when deciding an issue regarding withdrawal of the securing a claim, the court or judge shall evaluate the conditions indicated in Paragraph one of this Section, taking into account evidence and justification submitted by the party", i.e., the prima facie formal legal grounds of the claim and the proportionality between legal interests of the parties (Grozījumi Civilprocesa likumā, 2014).

Upon submitting of the proposals for these amendments of the law, the Ministry of Justice has not indicated the necessity to amend the sections of the Civil Procedure Law, which concern the securing a claim (Likumprojekts "Grozījumi Civilprocesa likumā" Nr: 1038/Lp11, 2013), but these amendments were developed and submitted for approval during the consideration of the bill

draft by the Legal Commission of the Saeima (Likumprojekts "Grozījumi Civilprocesa likumā" Nr: 1038/Lp11, 2014).

On April 23, 2015 the Saeima adopted amendments to the Civil Procedure Law, which came into effect on May 26, 2015, supplementing Section 140 with Paragraph 3.¹ as follows: "(3¹) When satisfying an application for the replacement of means for securing a claim with other means, the court may repeatedly take a decision on the obligations imposed on the plaintiff in accordance with Paragraphs two and 5.1 of this Section."; supplementing Paragraph 5 of Section 140 of the CPL with the sentence as follows: "In the application the defendant may include a justification for losses incurred due to the means applied for securing a claim or which might be incurred, if the means for securing a claim is not withdrawn."; supplementing Paragraph 5.¹ of Section 140 of the CPL as follows: "(5¹) In rejecting an application for the withdrawal of the securing of a claim, the court or judge may concurrently impose an obligation on the plaintiff to ensure the losses referred to in Paragraph five of this Section, by paying the amount laid down by the court in the deposit account of the bailiff within 20 days after the day of taking a decision."; supplementing Section 140 of the CPL with Paragraph 10 as follows: "(10) If in a decision, which is taken regarding an application for withdrawal of the securing of a claim, the fulfilment of obligation laid down in Paragraph 5.1 of this Section is assigned to the plaintiff, however it has not been fulfilled and the plaintiff has not submitted to the court a certification issued by the bailiff regarding payment of the amount into his deposit account, the court or judge shall take a decision to withdraw means for securing a claim."; expressing title of Section 141 of the Civil Procedure Law as follows: "Section 141. Notification and Appeal of Decisions Taken Regarding Securing of Claim Issues"; supplementing Paragraph 1 of Section 141 of the Civil Procedure Law with words and numbers "and also for the court decision to secure losses which could be incurred by the defendant in relation to securing a claim (Section 140, Paragraphs two, 3.1 and 5.1)"; excluding the second sentence of Paragraph 1 of Section 141 of the CPL 141 (In the case, specified in Paragraph 2 of Section 140 of this Law ancillary complaint may be submitted for the court decision in the part, in which the plaintiff is required to reimburse the losses.); supplementing Section 141 of the Civil Procedure Law with Paragraph 1.¹ as follows: "(1¹) A decision, which is taken regarding securing of losses that the defendant might incur in relation to securing of a claim, shall be notified to the defendant after the plaintiff has paid the amount laid down by the court or judge to the deposit account of the bailiff" (Grozījumi Civilprocesa likumā, 2015).

Upon submitting of the proposals for these amendments of the law, the Ministry of Justice did not indicate in the annotation of the bill the necessity to amend the sections of the \ Civil Procedure Law related to the regulations on the securing a claim (Likumprojekts "Grozījumi Civilprocesa likumā" Nr: 129/Lp12,

2014), the aforementioned amendments of the Civil Procedure Law have appeared only during the during the passing of the bill for the second reading of the Saeima (Likumprojekts “Grozījumi Civilprocesa likumā” Nr: 129/Lp12, 2015).

Conclusions

As can be seen, the institute of the securing a claim is constantly being supplemented and amended, both systematically when the bill is drafted and submitted by the Ministry of Justice, and by supplementing another Civil Procedure Law bill submitted by the Ministry of Justice with amendments to the institute of the securing a claim already while the bill is being considered by the Saeima, and often the bills were submitted by the Ministry of Justice without annotations, despite extensive and substantial amendments to the regulations on the securing a claim, which do not indicate that the bill is serious and prepared in accordance with the principle of good legislation, if the bill is referred to the Saeima without appropriate annotation and explanation. Such sometimes chaotic action to modify the institute of the securing a claim raises a logical issue whether the state in the person of the Ministry of Justice is aware of the current issue of the institute of the securing a claim and purposefully plans to develop the institute of the securing a claim or merely responds to secondary casus. For example, there is still ineffective regulation whereby the defendant has the right to apply for the securing a claim to be filed with the court which made the decision on the securing a claim and, if the application is dismissed, to file an ancillary complaint against it. Such arrangements do not contribute to procedural economy as a two-step appeal system is in place to foreclose the claim, but this process can be reduced to one instance dealing with an ancillary appeal against the decision granting the claim. The Action strategy 2018-2020 of the Ministry of Justice (Tieslietu ministrijas darbības stratēģija 2018-2020.gadiem, 2018) contain no indications that any improvements of the legal framework will be made in this issue. As a result, due to constant amending the regulations of the securing a claim are heavy and contradicting, therefore the activity of the Ministry of Justice in the development of the institute of the securing a claim cannot be rated as successful and satisfying, and the question of the modernization of the legal framework of the securing a claim is still valid.

In order to achieve the defined objectives of the institute of the securing a claim, the state should pay particular attention to the systematic improvement of current civil procedural regulation in order to the securing a claim become genuine procedural protection mean.

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LAULĪBAS FENOMENS SABIEDRĪBAS ILGTSPĒJĪGAS ATTĪSTĪBAS KONTEKSTĀ

The Phenomenon of Marriage in the Context of Sustainable Development

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Abstract. *The marital relationship has been changing over time. The institution of marriage has become more democratic, following societal development. Marriage and divorce have lost their bureaucratic and moral obstacles. However, marriage has retained its role in the welfare of spouses and the evolution of society. Law protects the moral and economic rights of spouses. It should be noted, however, that the safeguarding of spouses' rights and interests a priori concerns the rights and interests of third parties. This is the phenomenon of marriage. In a legal relationship, spouses are recognised as special right holders by default, which refers, for example, to insolvency proceedings, matrimonial property regimes and social rights. The research analyses the correlation between the trends of the institution of marriage and third-party rights in the context of the welfare of society. The objective of the research is to analyse the institution of marriage in order to trace its development in the modern world and establish how it affects third-party rights and public interests in general. The research employs methods of legal interpretation to analyse legislation and the inductive and deductive method to draw conclusions and formulate suggestions. Based on the results of the research, the institution of marriage is undergoing transformation. Marriage is losing its initial importance. Unmarried cohabitation is becoming increasingly prevalent. The biggest challenge is to balance the right to self-determination of a person choosing cohabitation and the public interest in legal stability and predictability, which are essential for the sustainable development of society.*

Keywords: *cohabitation, marriage development, marriage, matrimonial rights, society.*

Ievads

Introduction

Cilvēks ir sociāla būtne, kas presumē tā dzīvošanu sabiedrībā. Tas nozīmē, ka sākot jau no pirmatnējās sabiedrības, kad kopīga saimniecība un savstarpēja palīdzība bija izdzīvošanas jautājums, līdz mūsdienām, kad tam ir vairāk nemateriāla nozīme, cilvēki dzīvo kopienās. Viena no cilvēku sociālās dzīves formām ir laulība. Laulība ir attiecības, kas zināmas ikvienam cilvēkam. Laulībai kā sociālai parādībai ir vairākas šķautnes – tas ir tiesību institūts, tā ir kopdzīves forma, tā ir morāla atbildība, cieņa, mīlestība pret savu partneri. Katrs ir tiesīgs savu laulības izpratnes saturu paplašināt vai sašaurināt. Taču nenoliedzami, ka

laulība ir būtiska sabiedrībai kopumā. Tāpēc laulība, tās noslēgšana, šķiršana, laulāto personīgās un mantiskās attiecības tiek regulētas ar tiesību aktiem. Primāri ar laulību ar jāsaprot likumā noteiktajā kārtībā noslēgta sievietes un vīrieša savienība. Nevis ikviena kopdzīves forma. Tas izriet no tiesību normām, kas ietvertas Civillikuma Pirmās daļas Otrajā apakšnodaļā “Laulības noslēgšana un izbeigšanās” (Civillikums, 1937). Tiesiskais regulējums nodrošina ne tikai pašu laulāto tiesību aizsardzību, bet sekundāri atstāj iespaidu arī uz trešo personu tiesību aizsardzību. To varētu saukt par laulības kā sociālas parādības fenomenu. Lai arī juridiski laulātie nav patstāvīgs tiesību subjekts, tomēr tiesiskajās attiecībās tie tiek par tādiem uzskatīti. Tā tas ir piemēram, maksātspējas procesā, laulāto mantiskajās attiecībās, sociālajās tiesībās. Netieši to apliecina arī ģimenes jēdziena lietošana, apzīmējot laulātos, un, saprotot ar to divu patstāvīgu subjektu uztveršanu kā vienu veselu. Tomēr mūsdienās laulības kā tiesību institūta nozīme samazinās. Aizvien vairāk ar laulību un attiecīgi - laulātajiem tiek identificēta jebkura kopdzīves forma, kurai raksturīga kopīga saimniecība. Proti, laulības kā juridiska fakta robežas tiek paplašinātas. Tas iespaido ne tikai šos individuālos subjektus, kas izvēlas kopdzīvi bez laulības, bet arī sabiedrību kopumā. Pētījumā analizēta laulības institūta attīstības tendenču ietekme uz trešo personu tiesībām kontekstā ar sabiedrības labklājību. Pētījuma mērķis ir laulības institūta analīze, lai konstatētu tā attīstību modernajā pasaulē un rastu atbildi uz jautājumu, kā laulības institūts ietekmē trešo personu tiesības un sabiedrības intereses kopumā. Pētījumā izmantotas vispārzinātniskās pētījuma metodes un juridiskajā zinātnē pielietojamās pētījuma metodes - tiesību normu interpretācijas metodes.

Iegūtie rezultāti ļauj secināt, ka modernajā pasaulē ir tendence vienkāršot laulības tiesisko regulējumu, līdztekus laulībai atzīt citas kopdzīves formas, kas noved pie laulības institūta sociālās bāzes un laulības vērtību transformācijas. Ilgtspējīgas attīstības kontekstā tas var mazināt laulāto un trešo personu tiesību un interešu aizsardzību un destabilizēt tiesisko stabilitāti jomās, kur būtisks tiesību realizācijas priekšnoteikums ir laulības fakts – bērnu tiesībās, īpašuma tiesībās, sociālajās tiesībās.

Laulība kā sociāla parādība un kā tiesību institūts *Marriage as a social phenomenon and as an institution of law*

Sabiedrības skatījumā laulībai vienmēr būs divas šķautnes – sociālā un tiesiskā. Sociālā ietver morāles kategorijas – cieņu, rūpes, mīlestību. Saturu, ko ar tiesību aktiem nav iespējams regulēt. Savukārt, tiesiskā kategorija - tas ir darījums starp divām personām, ko caur apliecināšanu, reģistrējot laulību, atzīst un aizsargā valsts. Tas izriet no Latvijas Republikas Satversmes 110.panta (Latvijas Republikas Satversme [LRS], 1922), un attiecīgi pakārtotiem tiesību aktiem.

Laulības aizsardzības nostiprināšana juridiski augstākā spēka tiesību aktā pats par sevi ir apliecinājums šī institūta nozīmīgumam. Analizējot tiesību aktus, ir redzams, ka laulības definīcija ir ļoti lakoniska. Laulība ir savienība starp vīrieti un sievieti (LRS, 1922). Laulības noslēgšanas mērķis nav reglamentēts. Tas ir saprotams, jo mērķis kā darījuma sastāvdaļa nav paredzēts arī citiem darījumiem. Tā ir darījuma dalībnieku brīvas gribas izpausme, kas izriet no personas pašnoteikšanās tiesībām. Tiesiskajā regulējumā mērķi aizstāj tiesisko attiecību saturu. Laulības tiesisko attiecību saturs ir likumā paredzēto personīgo un mantisko attiecību nodibināšana starp diviem tiesību subjektiem. To regulē Civillikuma ģimenes tiesību daļa (Civillikums. Pirmā daļa. Ģimenes tiesības, 1937). Jāuzsver, ka laulības noslēgšana laulātajiem rada ne tikai savstarpējās privāttiesiskās personīgās un mantiskās tiesības, bet arī atzīšanu un aizsardzību attiecībās ar trešajām personām attiecībās, kas nodibinātas publisko tiesību reglamentējošās jomās. Piemēram, Civilprocesa likuma 107.panta pirmās daļas 1.punkts paredz laulāto tiesības atteikties liecināt (Civilprocesa likums, 1999), Valsts sociālo pabalstu likuma 17.panta piektā daļa paredz tiesības pārdzīvojušajam laulātajam saņemt mirušajam laulātajam aprēķinātos, bet neizmaksātos sociālos pabalstus (Valsts sociālo pabalstu likums, 2003), Pacientu tiesību likums paredz laulātajam tiesības saņemt informāciju par jautājumiem saistītiem ar laulātā ārstēšanu (Pacientu tiesību likums, 2010). Trešajām personām – institūcijām, citu privāttiesisko attiecību dalībniekiem, ārstniecības personām, sociālā dienesta darbiniekiem u.tml., izvērtējot nodibināmo tiesisko attiecību būtiskos apstākļus, ir izšķiroši zināt personu ģimenes stāvokli. No tā, vai tiesību subjekts ir vai nav laulībā, ir atkarīga tiesisko attiecību attīstība un attiecīgi piemērojamas tiesību normas. Ir redzams, ka laulības tvērums ir daudz plašāks kā tikai laulāto privāttiesisko attiecību noregulēšana.

Laulība kā darījums tomēr atšķiras no citiem civiltiesiskiem darījumiem. Laulībai nav saistītu pastiprināšanas un piespiedu izpildīšanas mehānismu. Laulātajiem savi pienākumi - būt savstarpēji uzticīgiem, kopā dzīvot, vienam par otru gādāt un kopīgi gādāt par ģimenes labklājību, kā to nosaka Civillikuma 84.pants (Civillikums. Pirmā daļa. Ģimenes tiesības, 1937), jāizpilda labprātīgi, vadoties no morāles un ētikas apsvērumiem. Tikai atsevišķu saistību, galvenokārt izrietošu no laulāto mantiskajām attiecībām, izpilde iespējama piespiedu kārtā, piemēram, prasība par laulāto mantas kopības izbeigšanu (Civillikums. Pirmā daļa. Ģimenes tiesības, 1937, 134.panta otrā daļa).

Augstākminētais norāda uz to, ka laulības attiecību regulējums balstās ne tikai tiesiskajā regulējumā, bet arī morāles normās. Šī iemesla dēļ ir grūti sniegt laulības legāldefinīciju. Raksta autore jau iepriekš norādījusi, ka vēsturiski laulības institūts ir veidojies kā sociālekonomisks viensums, kas laika gaitā piedzīvojis transformāciju un ieguvis zināmu satura duālismu (Kudeikina, 2015). Psihologijas zinātnieki definē, ka laulība ir process, kurā pāris savas attiecības

padara publiski un oficiāli atzītas. Laulība savā būtībā var tikt raksturota kā sabiedrības morāles un civilizācijas pamats (Fincham & Bradbury, 1990). Vispārinot var definēt, ka laulību raksturo divu personu brīvas gribas apliecinājums, kas veikts leģitīmā reģistrācijas procesā ar mērķi nodibināt juridisku statusu. To apliecina arī tiesu prakses atziņa, no kuras izriet, ka laulība ir divu pretēja dzimuma personu līgums par kopdzīvi. Lai šāds līgums gūtu tiesisku spēku, Civillikums nosaka tā noslēgšanas kārtību, šāda līguma publiski tiesiskās sekas un nozīmi (Latvijas Republikas Augstākās tiesas Civillietu departaments, 2012).

Autoresprāt, mūsdienās laulības attiecību attīstība liecina par šo attiecību demokratizāciju, kas lielai sabiedrības daļai asociējas tieši ar reģistrācijas atcelšanu. No 2015.gadā veiktā pētījuma par laulības neregistrēšanas problemātiku secināms, ka, cilvēkiem būtiskāka ir attiecību kvalitāte nevis to oficiālais statuss (Putniņa, Dupate, Mileiko, & Brants, 2015). Ar to kopā dzīvojoši pāri motivē laulības neregistrēšanu. Bet tieši reģistrācija ir tas būtiskais juridiskais fakts, kas laulību atšķir no faktiskas kopdzīves. Var secināt, ka cilvēku izpratnē laulības noslēgšana, tās reģistrācija pati par sevi nenodrošina attiecību kvalitāti. Šāda pieeja nozīmē, ka cilvēkiem vairāk svarīgas ir savstarpējās attiecības, ne tā tiesiskā aizsardzība, ko nodrošina valsts, un zināmās privilēģijas, kas rodas pēc laulības noslēgšanas. Laulībā cilvēki primāri uztver un uzsver tās emocionālo un ētisko pusi. Protams, pienākumu savstarpēji rūpēties, cienīt vienu otru, būt uzticīgiem nevar izpildīt piespiedu ceļā. Tiesisko regulējumu šajā aspektā var uzskatīt par deklaratīvu, jo valsts iespējas nodrošināt tā izpildi ir ierobežotas. Līdz ar ko var secināt, ka zināma sabiedrības daļa, kas dzīvo faktiskajā kopdzīvē un to atbalsta, laulībā kā tiesību institūtā nesaskata jēgu. Neatkarīgi no attiecību statusa personīgās attiecības regulē tikai morāles normas. Mantisko attiecību regulējumam un tā atšķirībām atkarībā no personas ģimenes stāvokļa sabiedrības izpratnē ir sekundāra nozīme. Tomēr vienlaikus jāuzsver, ka atšķirību ignorēšana notiek līdz brīdim, kad iestājas tādi apstākļi, tādi jautājumi, kuru risinājums ir atkarīgs no saistītās personas ģimenes stāvokļa. Publiskajā informācijas telpā regulāri tiek atspoguļoti cilvēku stāsti par nespēju mantot pēc likuma pēc kopdzīves partnera nāves, par nespēju saņemt apbedīšanas pabalstu, par neaizsargātību kopdzīvi izbeidzot, par aizliegumu saņemt informāciju par partnera ārstēšanos, t.i., par to, kas pienākas laulātajiem un kas netiek nodrošināt kopdzīves partneriem. Daļā sabiedrības šāda nostāja, proti, partnerattiecību tiesiska neatzīšana, tiek uzskatīta par diskriminējošu. Šādam viedoklim nevar piekrist. Kā iepriekš minēts, mantiskie apsvērumi pārsvarā netiek vērtēti kā izšķiroši, izvēloties kopdzīves formu. Tādējādi cilvēki apzināti izvēlas laulību neregistrēt. No tiesiskās stabilitātes viedokļa nebūtu pieļaujams katrai kopdzīves formai noteikt savu tiesisko regulējumu, jo privāttiesiskajās attiecībās cilvēki ir brīvi izvēlēties un veidot dažādas kopdzīves formas, kas radītu nepieciešamību

katreiz pieņemt jaunu tiesisko regulējumu. Izvēloties līdztekus laulībai leģitimizēt kaut vienu no pastāvošajām kopdzīves formām, nebūtu pamata to atteikt attiecībā uz visām, kas pastāv vai pastāvēs.

Saturiski līdzīga atziņa ir sniegta arī tiesu praksē. Latvijas Republikas Augstākās tiesas Senāta Civillietu departaments 2012.gada 1.februāra spriedumā lietā Nr.SKC-4/2012 ir atzinis, ka “pie partnerattiecību tiesiskā regulējuma neesības tiesa nav kompetenta tiesību tālākveidošanas ceļā divu personu faktisko kopdzīvi pielīdzināt laulībai un kopdzīves partnerim noteikt tādas pašas tiesības kā laulātajam” (Latvijas Republikas Augstākās tiesas Senāta Civillietu departaments, 2012). Kopumā tas apliecina laulības ekskluzivitāti.

Vienlaikus jāatzīmē, ka mazinot laulības kā juridiska fakta nozīmi, sabiedrībā tiek devalvēta laulības nozīme kopējā sabiedrības labuma nodrošināšanā. Uztverot laulību, kā savu iekšējo lietu, cilvēki nepiešķir laulības ārpus personīgo nozīmīgumu. Tas var liecināt par tiesiskās apziņas kritumu, kad laulībai kā tiesiski regulētai kopdzīves organizācijas formai netiek piešķirta prioritāra nozīme. Tiesību akti laulību atzīst par vienīgo leģitīmo kopdzīves formu. Sabiedrības daļa šo tiesisko regulējumu neievēro. Bet uz šo problēmu jau 1939.gadā norādīja mirtiesnesis Teodors Strelerts, rakstot, ka „lai cik arī stingri un noteikti būtu likumu noteikumi par dažāda veida līgumu noslēgšanas kārtību, veidu un formu, dzīve vienmēr rada izņēmumus – vienmēr rodas cilvēki ar vājāku tiesisku apziņu, kas savu darbību negrib pakļaut tiesisko normu noteikumiem [...]” (Strelerts, 1939).

Laulības kā parādības duālais raksturs izpaužas tās iekšējās un ārējās organizācijas mijiedarbībā. Laulība iekšēji ir divu personu, laulāto iekšēja lieta, laulība ārēji tas ir laulības sniegtais labums sabiedrībai, kas galvenokārt tiek izpaužas kā bērnu radīšana un audzināšana. Piemēram, tiesību zinātnieks M. Gordejuks uzsver, ka laulības mērķis ir radīt un audzināt bērnus (Gordejuks, 2017). No jau minētā pētījuma par laulības neregistrēšanas problēmām ir redzams, ka statistikas dati liecina, par to, ka laulība kopumā ir saistīta ar lielāku bērnu skaitu ģimenē (Putniņa et al., 2015). Tādējādi uzskatāms, ka laulība ne tikai organizē pašu laulāto tiesiskās attiecības, bet atzīstama par būtisku instrumentu sabiedrības ilgtspējīgai attīstībai.

Laulības attīstības sociālie un tiesiskie aspekti *Social and legal aspects of marriage development*

Mūsdienās laulību iezīmē gan tiesiskā regulējuma, gan tās nozīmes sabiedrībā transformācijas. Sabiedrības viedokli raksturo nepieciešamība pēc laulības atvērtības, norādot uz birokrātiskā sloga samazināšanu, kas galvenokārt tiek uztverts kā laulības reģistrācijas atcelšana. Tiesiskā regulējuma attīstība liecina par to, ka tas pēdējās desmitgadēs jau ir redīgēts, virzoties laulības

noslēgšanas procesuālo prasību samazināšanas virzienā. Kā pirmais solis var tikt minēta izsludināšanas atcelšana. Tiesību institūts, kas paredzēja publiskot informāciju par plānoto laulību, tika atcelts 2013.gadā (Grozījumi Civillikumā, 2012). Tādējādi būtiski tika samazināts laika periods, kas pagāja no nodoma noslēgt laulību līdz tās noslēgšanai. Šobrīd tiesiskais regulējums nosaka minimālas prasības, kas saistītas ar objektīviem apstākļiem, proti, nepieciešamību pārbaudīt laulības noslēgšanas tiesiskumu (Civiltāvokļa aktu reģistrācijas likums, 2013, 17.pants). Dzimtsarakstu nodaļa iesniegto dokumentu pārbaudi veic ne ilgāk kā viena mēneša laikā, pie kam šo termiņu pēc motivēta iesnieguma var saīsināt (Civillikums. Pirmā daļa. Ģimenes tiesības, 1937). Tādējādi jāatzīst, ka minimālais termiņš principā nav noteikts. Dokumentu pārbaudes termiņš nevar tikt uzskatīts par birokrātisku šķērslī laulības noslēgšanai. Laulības noslēgšanai no personām, kas iepriekš nav bijušas laulībā, nepieciešams tikai pieteikums, ko no 2018.gada 1.jūnija var iesniegt arī elektroniski, ja personām ir drošs elektroniskais paraksts un laika zīmogs (Civiltāvokļa aktu reģistrācijas likums, 2013). Personām, kuras ir bijušas laulībā, papildus nepieciešams iesniegt tikai dokumentu, kas apliecina iepriekšējās laulības izbeigšanos vai šķiršanu (Civiltāvokļa aktu reģistrācijas likums, 2013). Nākamais solis, ko likumdevējs veica, laulības noslēgšanas procesa demokratizācijā, ir atļauja noslēgt laulību jebkurā tam piemērotā vietā, ne tikai dzimtsarakstu nodaļā, kā tas bija vēsturiski. Laulājamie var izvēlēties laulības noslēgšanas vietu, kas nav piesaistīta nedz viņu deklarētajai dzīves vietai, nedz dzimtsarakstu nodaļas telpām (Civillikums. Pirmā daļa. Ģimenes tiesības, 1937). Privātpersonām ir rīcības brīvība, izvēloties laulības noslēgšanas vietu un ceremoniju. Formālās prasības laulības noslēgšanai ir minimālas, to izpilde nav saistīta ar būtisku materiālu vai laika ieguldījumu. Iesniegto dokumentu pārbaudi patstāvīgi veic valsts institūcijas. Valsts nodeva par laulības reģistrāciju ir 14 EUR, bez tam atsevišķas iedzīvotāju grupas – personas ar I vai II pakāpes invaliditātes grupu, personas, kas atrodas pilnā valsts vai pašvaldības apgādībā, personas, kuras normatīvajos aktos noteiktajā kārtībā ir atzītas par trūcīgām, bāreņi vai bez vecāku gādības palikušie bērni pēc pilngadības sasniegšanas līdz 24 gadu vecumam, daudz bērnu ģimene, ja tai un vismaz trim tās aprūpē esošiem bērniem, tai skaitā audžuģimenē ievietotiem un aizbildnībā esošiem, ir noteikta viena deklarētā dzīvesvieta vai papildu adrese, ir atbrīvotas no valsts nodevas samaksas (Noteikumi par civiltāvokļa aktu valsts reģistrācijas samaksu, 2013).

Kopsakarā izvērtējot minēto, secināms, ka likumdevējs ir mērķtiecīgi mazinājis laulības noslēgšanas procesa šķēršļus, padarot procesu efektīvu un pieejamu ikvienam. Nav pamata laulības neslēgšanu, izvēloties faktisko kopdzīvi, motivēt ar procesa sarežģītību vai dārdzību. Šādi argumenti nav pamatoti.

Secinājumi **Conclusions**

Cilvēks ir sociāla būtne un, neraugoties uz iespēju patstāvīgi gūt iztikas līdzekļus, uz nodrošinātu sociālo palīdzību, kas sniedz atbalstu darba nespējas gadījumā vai vecumā, cilvēkiem piemīt nepieciešamība pēc saskarsmes, pēc komunikācijas. Šīs objektīvi noteiktās vajadzības nosaka cilvēku sadzīves veidošanu primāri sabiedrībā. Mazākā kopdzīves organizācijas forma izsenis ir bijusi ģimene, kas balstīta laulībā. Laulība no garīga institūta laika gaitā kļuvusi par laicīgu parādību, kad laulātajiem rodas pienākumi ne tikai attiecībā vienam pret otru, bet arī attiecībā pret trešajām personām un sabiedrību kopumā. Laulību un tās noslēgšanu regulējot ar tiesību aktiem tiek nodrošināta laulības publiskā ticamība, laulāto tiesiskā statusa prognozējamība, kas īpaši būtiska ir sabiedrības attīstības kontekstā. Vienlaikus laulība rada ne tikai pienākumus, bet arī tiesības, ko valsts nodrošina tieši laulātajiem kā īpašiem tiesību subjektiem. Būt apveltītiem ar laulātā subjektīvajām tiesībām ir laulības atšķirība no citām kopdzīves formām. Nenoliedzot cilvēku tiesības organizēt savu privāto dzīvi ārpus laulības, jāuzsver, ka privāttiesiskajās attiecībās nav pamata prasīt tādu pašu tiesību aizsardzības līmeni, kāds tas ir publiski ticamās attiecībās, proti, laulībā.

Mūsdienās laulības kā divu personu kopdzīves organizācijas formas popularitāte piedzīvo zināmu kritumu. Var pieļaut, ka tam pamatā ir zināma morāles vērtību maiņa. Vēsturiski laulība saistīta ar ģimeni, ar pēcnācēju radīšanu, ar materiālā labuma, mantas uzkrāšanu ģimenē, dzimtā. Mūsdienu sabiedrībā tas ir iespējams bez formālā statusa – laulības. Materiālā interese pakāpeniski zaudē savu nozīmi. Tiesību speciālistu vadošās atziņas norāda uz to, ka jēdziens „ģimene” neaprobežojas tikai ar laulībā balstītu savienību, bet ir attiecināms arī uz citām faktiskām ģimenes saitēm (Eiropas Cilvēktiesību tiesa, 1994). Šī izpratne nostiprinās arī cilvēku apziņā un kā laulības noslēgšanas motīvs bieži paliek tikai tradīcijas. Mūsdienu pasaulē gan pašas tradīcijas ir mainījušās, gan mazinājusies to nozīme.

Laulības transformācijas saskatāmas vairāk tās tiesiskajā regulējumā. Laulība kā sociāla parādība, kā personīgo attiecību izpausmes forma ir palikusi nemainīga un to vēl aizvien var atzīt par stabilu vērtību sabiedrībā.

Raksta autore uzskata, ka laulībai kā juridiskam faktam ir nozīme sabiedrības ilgtspējīgas attīstības nodrošināšanā, tāpēc sabiedrisko procesu pētnieku un tiesību zinātnieku izaicinājums ir analizēt laulības neslēgšanas motīvus, lai veicinātu laulības noslēgšanu.

Summary

The legal scope of marriage is defined in the Constitution of the Republic of Latvia, according to which the State protects the union between a woman and a man. Hence, it is a union primarily. A long-lasting link for the attainment of a common goal is characteristic for a union, and it is the aspect that is essential for societal development. Society needs human resources, which are characterised by both quantity and quality, for its existence and development. Care and support provided by spouses to each other are no longer particularly important as a goal of marriage in the modern world owing to the availability of social assistance, whenever needed; however, the birth of children and teaching them how to become good members of society are still as relevant today. It is evident that personal interests clash with public interests. Personal freedom stretches as far as the boundaries of public interests. And it is in the public interest to gain a common good from every member of society who lives in society and takes advantage of common benefits (for example, social assistance). From a legal viewpoint, marriage should be regarded as a transaction. A transaction whose goal, historically, has been to ensure political stability, promote prosperity of families and care for members of the community. Nowadays, the goal of marriage is losing its relevance owing to the improvement of the general level of prosperity. Any individual can receive necessary support through common benefits provided by the State (society), without involving his/her family or spouse. This view, however, is quite misleading. The common good does not come about by itself. Indeed, it is formed by members of society. And marriage is a significant tool here because common things can be reached through individual things. The well-being of spouses (a family) contributes to the prosperity of society. Can any form of life together have the same effect as marriage? Based on the existing principles of civil law, cohabitation cannot be treated as a transaction that would be binding on third parties (i.e. society) because it is not registered publicly and it can therefore be binding only on partners involved. That is why this practice endangers the sustainability of legal relationships because the State has no legal tools available for dealing with unofficial transactions (not registered and not involving the State). Accordingly, this situation affects also the stability of legal relationships both between partners concerned and in respect of the entire society, thereby adversely impacting development prospects. Marriage is unjustifiably devalued today as a social and legal institution. Unmarried cohabitation is less predictable and less important for societal development. It cannot be regarded that the mandatory registration of marriage infringes on an individual's rights because an individual living in society and enjoying common benefits provided by society must be aware of legal restrictions imposed for the common good. The development of registered cohabitation as an alternative to marriage having its own legal framework could become a challenge for the future.

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ИЗМЕНЕНИЕ БИЗНЕС-СРЕДЫ РОССИЙСКО-БЕЛОРУССКОГО ПРИГРАНИЧЬЯ В УСЛОВИЯХ МЕЖГОСУДАРСТВЕННОЙ ИНТЕГРАЦИИ

The Business Environment of the Russian-Belarusian Border in the Context of Interstate Integration

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Abstract. *The problem considered in the article is expressed in contradiction. On the one hand, the border position of the regions provides additional opportunities for the implementation of business ideas of international trade and cooperation. On the other hand, it can significantly change the business environment in comparison with other regions of the state, increasing competition and creating additional risks for entrepreneurs. The analysis explains the reason for the lag in the level of economic development of these regions from the national one. The aim of the study is to find evidence of hypothesis that the inter-metropolitan and at the same time border position of the regions of the two states engaged in political and economic integration negatively affects the economic development and business climate of these territories, stimulates the outflow of capital and labor resources - key factors of production. To achieve the goal, various methods are used, such as in-depth interviewing, questions from entrepreneurs, a retrospective analysis of historical facts of interstate interaction, but this article describes the results of the study obtained in the course of statistical analysis. This article discusses the elements of the business environment that directly or indirectly affect the behavior of economic and their desire to build and develop business in the border areas of Russia and Belarus. It is shown that over the years of integration, the economic growth rates of the Russian-Belarusian border regions lagged behind the national ones. Wages remained lower than the national average. This provokes the outflow of intellectual capital - the most important element of the business environment. Thus, the article shows that the integration of Russia and Belarus, despite the overall positive effect for the two states, limits the rate of economic growth in the border zone.*

Keywords: *border areas, business environment, Dnieper-Dvina region, economic growth, integration.*

Введение **Introduction**

На динамику экономического роста региональной экономики в современном мире влияет множество факторов. Одним из этих факторов является внешнеполитическая конъюнктура, повышающая риски для

видения бизнеса в условиях конфронтации и предоставляющая новые возможности в период роста добрососедских настроений.

Приграничные регионы в первую очередь подвергаются воздействию межгосударственных политических перемен. Изменение нормативно-правовой базы или другими словами институциональной среды для ведения бизнеса в условиях интеграции государств изменяют уровень конкуренции, провоцируют миграцию рабочей силы, снижают издержки кооперации и т.д. Подобные процессы изменяют финансовый результат резидентов приграничных регионов и, как следствие отражаются на динамике ВРП.

Описанный процесс актуален на сегодняшний день для российско-белорусского приграничья, развивающегося в условиях строительства Союзного государства России и Беларуси. Поэтому исследование итогов 20-ти летней истории межгосударственной интеграции для приграничных регионов будет полезным как для учёных и управленцев, так и для студентов, изучающих экономику регионов, региональную безопасность и другие дисциплины экономического профиля.

Целью исследования является выявление закономерностей формирования и трансформации бизнес-среды, а также оценка экономических результатов интеграционного процесса в приграничных регионах России и Беларуси. Указанную цель в рамках исследования предполагается достичь с использованием диверсифицированного инструментария: интервьюирования, опросов, анализа и синтеза событий и нормативно-правовых изменений и т.д. Но в рамках данной статьи будет уделено внимание анализу статистических данных, характеризующих изменение экономических характеристик регионов в российско-белорусском приграничье.

Обзор литературы *Literature review*

Наибольшее число работ по изучению российско-белорусского приграничья проводится А.П. Катровским и Г.В. Ридевским, особенно для смоленско-могилевского участка границы. В одной из публикаций авторов рассмотрено становление российско-белорусского трансграничного региона после заключения Таможенного союза. А.П. Катровский и Г.В. Ридевский впервые приходят к выводу, что приграничные регионы России и Беларуси развиваются более медленно по сравнению с экономиками своих стран (Katrovskij & Ridevskij, 2013). Также работы А.П. Катровского описывают особенности современного экономического и социального развития регионов российско-белорусского приграничья. Особое внимание в его работах уделено центр-периферийным отношениям, выявлены ведущие проблемы развития региона, дана оценка перспективам

развития российско-белорусского приграничья как единого трансграничного региона (Ridevsky, Shadrakov, Katrovsky, & Kovalev, 2016). Большое внимание исследованию трансформации институциональной среды регионов российско-белорусского приграничья уделено работам К.А. Морачевской (Morachevskaya & Karpenko, 2018). В её работах рассмотрены ключевые последствия государственных интеграционных процессов для экономического развития российско-белорусского приграничья. Раскрыты примеры положительных и отрицательных последствий для различных сфер – внешней торговли, агропромышленного комплекса, малого предпринимательства.

Значительный вклад в исследование внешнеэкономической деятельности приграничных регионов постсоветского пространства вносят работы Л.Б. Вардомского. Им подробно изучены экономические параметры развития приграничных регионов России, предпринята попытка их анализа в системе международных экономических отношений. Л.Б. Вардомский выделяет две модели приграничного сотрудничества – институциональную (многоотраслевое сотрудничество с высокой степенью интеграции, закреплённой институционально) и торговую. (традиционную) (Vardomsky, 2009). Он отмечает, что для развитых приграничных регионов характерно преобладание институциональной модели, для российских же регионов нового приграничья свойственно по-прежнему преобладание более узкой торговой модели.

Изучением опыта приграничного сотрудничества, его принципов и анализом транснациональных связей занимается ряд зарубежных учёных. Среди них: А. Нейбур (Niebuhr & Stiller, 2002), П. Гауве (Grauwe, 2013), С. Брахман (Brakman, Garretsen, Van Marrewijk, & Oumer, 2012) и др. Так, в частности, С. Брахман в своих работах уделяет внимание вопросам, связанным с перемещением и концентрацией человеческих ресурсов в приграничных регионах Европейского Союза (Brakman, Garretsen, Van Marrewijk, & Oumer, 2012).

Методология *Methodology*

Под методологией исследования понимается изучение трудов российских и зарубежных ученых по исследованию социальных и экономических показателей развития приграничных регионов. Для исследования использовалось регистровое наблюдение на основе статистических данных. Временные рамки исследования и набор исследуемых экономических показателей ограничены материалами из

статистических сборников. Проводится анализ динамики изменения показателей при сопоставлении с общестрановыми значениями.

Результаты исследования *Research results*

Рассмотрим изменение экономической ситуации в регионах российско-белорусского приграничья в период интеграции России и Беларуси.

Сопоставим темпы роста реального ВРП отдельно для регионов РБ и ЦФО РФ за доступный для анализа период (для РБ с 2008 по 2017 год и для РФ с 1996 по 2017 год). Цель сопоставления – выявить разницу между темпами экономического развития регионов российско-белорусского приграничья, и темпами роста других регионов государства. Рассмотрим индекс динамики ВРП регионов РБ в ценах 2008 года (Табл. 1).

Таблица 1. Динамика индекса ВРП регионов РБ в сопоставимых ценах относительно уровня 2008 года, % (рассчитано через индекс физического объёма)
Table 1 The dynamics of the regional GRP index in comparable prices relative to the level of 2008, % (calculated through the real volume index)

Область	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Брестская	100,0	100,6	112,0	114,2	115,6	117,5	119,9	114,1	113,3	117,3	120,7
Витебская	100,0	98,0	102,5	108,6	115,1	113,0	116,8	110,2	103,5	104,8	107,8
Гомельская	100,0	101,2	107,4	112,3	114,4	115,1	118,4	113,0	107,6	110,9	113,4
Гродненская	100,0	101,4	108,4	114,6	118,8	123,1	128,8	121,3	119,3	122,6	127,5
г. Минск	100,0	97,7	106,4	122,4	117,5	119,6	119,9	114,5	110,5	114,2	119,4
Минская	100,0	100,6	120,9	129,4	137,5	143,3	150,5	148,1	147,2	154,4	158,3
Могилёвская	100,0	97,4	108,5	114,8	118,4	116,0	113,4	109,4	106,6	107,4	109,1
ВРП РБ	100,0	99,4	109,7	118,3	120,3	122,2	125,0	119,9	116,6	120,3	124,1

По данным Национального статистического комитета Республики Беларусь (далее НСК РБ)

Compiled by the author according to the data of the National Statistical Committee of the Republic of Belarus (hereinafter NSC RB)

Анализ динамики реального ВРП показывает отставание в экономическом росте регионов расположенных в приграничной к России зоне. Витебская область имеет наименьший прирост ВРП в сопоставимых ценах к 2018 году (107,8%), при этом он оставался ниже среднего по Беларуси значения на всём рассматриваемом периоде. Также низкие значения прироста ВРП у двух других приграничных с Россией регионов – Могилёвской (109,1%) и Гомельской (113,4%). При этом, в периоды общего по экономике Беларуси спада больше всего проседали отстающие регионы российского участка приграничья. Наибольший рост реального ВРП к 2018

году среди регионов Беларуси наблюдается в Минской области – 58,3% к уровню 2008 года. На втором месте Гродненская область (рост на 27,5%), третья – Брестская область (рост на 20,7%).

Рассмотрим индекс динамики ВРП регионов РФ в ценах 1996 года. (Табл. 2). Российская статистика по ВРП выходит с заметным опозданием относительно белорусской, что не позволяет учесть 2018 год.

Таблица 2. Динамика индекса ВРП регионов РФ в сопоставимых ценах относительно уровня 1996 года, % (рассчитано через индекс физического объёма), % (составлено автором по данным Федеральной службы государственной статистики (далее Росстат))

Table 2 The dynamics of the regional GRP index in comparable prices relative to the level of 2008, % (calculated through the real volume index), % (compiled by the author according to the Federal State Statistics Service (hereinafter Rosstat))

Область	1996	1998	2000	2005	2008	2010	2012	2014	2016	2017
Белгородская	100,0	101,1	127,5	165,4	234,0	260,8	305,4	323,4	344,4	357,2
Брянская	100,0	95,8	105,7	138,3	174,8	166,6	195,3	204,1	207,8	217,6
Владимирская	100,0	95,5	114,3	135,0	166,9	168,8	177,6	181,5	179,6	180,4
Воронежская	100,0	96,8	112,5	136,9	179,6	175,0	213,1	230,6	235,0	240,9
Ивановская	100,0	83,1	98,1	120,4	144,5	137,1	133,0	125,7	122,7	122,1
Калужская	100,0	88,9	96,9	129,2	179,8	185,3	229,3	229,8	223,2	235,7
Костромская	100,0	96,2	108,3	127,9	150,5	144,3	156,1	160,3	153,0	156,1
Курская	100,0	103,9	116,8	153,8	184,1	182,1	206,6	225,0	240,6	246,6
Липецкая	100,0	90,4	101,1	134,5	162,8	158,3	168,9	183,5	188,3	190,4
Московская	100,0	105,7	118,2	181,6	236,1	229,8	260,4	266,4	282,3	286,0
Орловская	100,0	109,1	129,3	166,9	195,5	173,4	204,1	210,7	211,2	208,7
Рязанская	100,0	96,4	111,9	140,7	164,7	161,1	183,7	186,4	181,2	184,1
Смоленская	100,0	91,6	119,3	144,2	179,6	184,1	200,8	210,7	204,0	209,9
Тамбовская	100,0	100,4	122,9	164,6	206,2	199,2	244,7	282,5	287,2	290,1
Тверская	100,0	93,5	104,7	131,9	168,9	159,8	168,9	168,7	170,2	172,1
Тульская	100,0	90,3	99,5	124,3	163,2	157,4	169,9	187,7	206,3	214,4
Ярославская	100,0	96,6	116,0	157,7	187,6	177,6	198,8	207,8	211,1	216,0
г. Москва	100,0	103,2	131,1	194,8	251,6	222,5	235,5	238,4	235,7	240,2
ЦФО	100,0	95,0	115,9	165,7	213,1	195,8	212,8	217,9	219,2	223,4
Псковская	100,0	82,2	102,5	118,3	135,1	133,8	142,7	142,7	140,8	141,9
ВРП РФ	100,0	94,6	110,5	153,7	190,5	184,1	200,1	206,3	206,7	210,5

По данным Федеральной службы государственной статистики (далее Росстат)

Compiled by the author according to the Federal State Statistics Service (hereinafter Rosstat)

Наименьший прирост ВРП среди регионов представленных в Табл. 2 имеет Псковская область самый северный регион российско-белорусского приграничья. Далее темпы прироста ВРП за период с 1996 по 2017 год

снижаются при движении с севера на юг по российско-белорусской границе – Смоленская область (209,9%); Брянская область (217,6%). Эта тенденция продолжается и в российско-украинском приграничье. Она объясняется развитием сельского хозяйства в России в период действия контрсанкций, которые страна ввела в ответ экономической агрессии западных партнёров. Помимо приграничного положения значительное влияние а развитие регионов ЦФО оказали и иные факторы. Значительное влияние оказывает пристольичное положение регионов. Соседство регионов с разным уровнем доходов и уровнем социально-экономического развития неминуемо отражается на миграции трудовых ресурсов (Mikhailenko, 2014). Вымывание интеллектуального капитала из регионов неспособных конкурировать по уровню оплаты труда снижает предпринимательскую активность на их территории. Это обусловлено проблемами найма квалифицированных сотрудников, количество которых в описанных условиях резко сокращается, и снижением количества людей, обладающих способностями к организации и управлению собственным бизнесом. Это по цепочке влечёт замедление темпов экономического роста пристольичных регионов и в последствии создаёт региональную дифференциацию колоссальных масштабов, которая сейчас наблюдается в РФ.

Эффект «столичной тени», сказавшийся на ряде регионов ЦФО РФ, а именно, Тверской, Рязанская, Костромская, Владимирская области имеет место и в российско-белорусском приграничье. Прошедшая за 20 лет интеграция сохранила самобытность и самостоятельность моделей экономического развития России и Беларуси. Если у первой преобладает частая собственности и рыночные механизмы, то во второй они сочетаются со значительной долей государственного участия в структуре капитала организаций и инструментов экономического регулирования. В результате складывается разный уровень экономического и социального развития в российских и белорусских регионах. В приграничье эти дисбалансы сочетающиеся с решениями по межгосударственной интеграции снимают ограничения для миграции рабочей силы в сторону регионов с более высокой оплатой труда (Naumenkov, A.V., 2018). Это можно наглядно проиллюстрировать рассмотрев структуру трудовых ресурсов некоторых областей российско-белорусского приграничья (Табл. 3).

Таблица 3. Анализ рынка труда российско-белорусского приграничья
 Table 3 Analysis of the labor market of the Russian-Belarusian border region

	2010	2013	2014	2015	2016	2017
Смоленская область						
Численность населения Смоленской области, тыс человек	993	975,2	967,9	964,8	958,6	953,2
Численность трудовых ресурсов Смоленской области – всего, тыс человек	622,7	605,2	591,6	591,5	568,5	554,6
Численность рабочей силы Смоленской области, тыс. человек	549,2	539,3	527,8	530,1	518,8	520,6
Разница между трудовыми ресурсами и рабочей силой , тыс. человек	73,5	65,9	63,8	61,4	49,7	34
Доля свободных трудовых ресурсов в экономике региона , в %	11,8	10,9	10,8	10,4	8,7	6,1
Доля свободных трудовых ресурсов в общей численности жителей региона , в %	7,4	6,8	6,6	6,4	5,2	3,6
Могилёвская область						
Численность населения Могилёвской области, тыс человек	1097,3	1076,5	1072,5	1070,7	1067,6	1064,4
Численность трудовые ресурсы Могилёвская область – всего, тыс человек	684,8	655,2	647,7	636,1	621,7	620,1
Численность рабочей силы Могилёвской области, тыс человек	515,8	488,8	479,8	476,8	466,9	455,6
Разница между трудовыми ресурсами и рабочей силой , тыс человек	169	166,4	167,9	159,3	154,8	164,5
Доля свободных трудовых ресурсов в экономике региона , в %	24,7	25,4	25,9	25,0	24,9	26,5
Доля свободных трудовых ресурсов в численности жителей региона , в %	15,4	15,5	15,7	14,9	14,5	15,5
Витебская область						
Численность населения Витебской области, тыс. человек	1229,5	1208,0	1202,1	1198,5	1193,6	1188,0
Численность трудовых ресурсов Витебской области – всего, тыс человек	765,8	740,9	736,4	723,4	705,8	692
Численность рабочей силы Витебской области, тыс человек	581,5	542,2	539,9	530,9	512,2	499,5
Разница между трудовыми ресурсами и рабочей силой , тыс человек	184,3	198,7	196,5	192,5	193,6	192,5
Доля свободных трудовых ресурсов в экономике региона , в %	24,1	26,8	26,7	26,6	27,4	27,8
Доля свободных трудовых ресурсов в численности жителей региона , в %	15,0	16,4	16,3	16,1	16,2	16,2

Составлено автором по данным НСК РБ и Росстат

Compiled by the author according to the NSC RB and Rosstat

Если сопоставить свободные трудовые ресурсы в анализируемых регионах (Табл. 1), то в Смоленской области на всём протяжении рассматриваемого периода доля свободных трудовых ресурсов в экономике региона уменьшается с 11,8% в 2010 году до 6,1% в 2017 году. Это может свидетельствовать о нескольких возможных тенденциях:

- экономика региона вовлекает в экономический процесс всё большую долю трудоспособного населения из числа экономически неактивного;
- уменьшается доля незарегистрированных samozanyatykh граждан в структуре трудоспособного населения;
- снижается доля неформально занятых в экономике трудоспособных граждан.

Тем не менее, по-прежнему 34 тысячи смолян числятся официально экономически неактивным населением. Данная часть населения может представлять собой различные слои населения: домохозяек; неформально занятых граждан; лиц, которым нет необходимости работать и др. Некоторая часть данного населения может ездить для ведения трудовой деятельности в соседние регионы, в частности в Московскую область. Столичный регион оттягивает высококвалифицированные мотивированные на интенсивный труд кадры более высокой стоимостью оплаты труда, чем ухудшает бизнес-среду в Смоленской области. Средняя ежемесячная номинальная заработная плата на 2018 год в городе Москва 1336,4 доллара США, против 460,1 доллара США в Смоленской области (Табл. 4).

В Витебской и Могилёвской областях таких граждан гораздо больше как в абсолютном, так и в относительном выражении. В Витебской области – 192,5 тыс. человек (27,8% от трудовых ресурсов). В Могилёвской области – 164,5 тыс. человек (26,5% от трудовых ресурсов). Скорее всего, большая часть данных граждан работает в России неформально, других вариантов относительно рода занятий каждого четвёртого жителя данных регионов представить сложно. Конечно, также есть определённая доля домохозяек и samozanyatykh, но она гораздо меньше, чем в Смоленской области, в силу более низких доходов и уровня жизни населения, а также меньшего платёжеспособного спроса. Незанятые трудоспособные жители Витебской и Могилёвской областей в большинстве своём мигрируют в поисках работы либо в Минск или Москву, либо в Смоленскую область.

Таблица 4. Средняя номинальная заработная плата в российско-белорусском приграничье, в долларах США

Table 4 Average nominal wages in the Russian-Belarusian border area, in US dollars

Год	Витебская область, в \$	В % к з/п по РБ	Могилёвская область, в \$	В % к з/п по РБ	Беларусь	Смоленская область, в \$	В % к з/п по РФ	РФ
1992	9,33	99,5	10,32	110,0	9,38	-		-
1995	60,13	91,6	62,14	94,6	65,66	67,04	64,7	103,63
1998	60,61	90,0	61,64	91,5	67,38	79,10	73,7	107,31
2001	172,74	91,0	168,91	88,9	189,92	81,71	73,6	111,05
2004	148,08	91,4	143,44	88,5	162,05	173,98	91,9	189,36
2007	292,23	89,6	299,78	91,9	326,27	373,83	66,3	563,78
2010	366,00	89,5	366,00	89,5	408,75	477,77	69,3	689,74
2013	507,82	88,2	511,01	88,8	575,67	642,02	68,6	935,44
2014	522,51	87,6	586,09	98,3	596,42	579,85	68,6	845,75
2015	365,93	86,4	365,02	86,2	423,35	385,00	69,0	558,25
2016	308,47	85,0	306,41	84,4	363,05	413,74	68,4	605,19
2017	355,78	84,4	357,39	84,8	421,69	450,18	67,1	671,21
2018	398,31	84,7	394,24	83,9	470,09	460,07	66,4	692,98

Составлено автором по данным НСК РБ и Росстат

Compiled by the author according to the NSC RB and Rosstat

По данным Табл. 4 заметно небольшое различие между заработной платой в Витебской и Могилевской областях и достаточно весомое – между этими регионами и заработной платой в среднем по Беларуси. Причем данное различие увеличивается: в 1995 г. разница в заработной плате в Могилевской и Витебской областях по сравнению со средней по стране составляла около 9%, в 2010 – 11,7%, в 2018 – 18%.

Отставание уровня заработной платы в Смоленской области от среднего по стране сохранилось на уровне 1995 года, и составляет 66,4% на 2018 год.

Дифференциация заработных плат в Смоленской области и белорусском приграничье в условиях отсутствия барьеров приводит к трудовой миграции белорусов на российскую территорию. Как показал опрос предпринимателей и топ-менеджеров организаций в Смоленской области, проведенный авторами статьи в 2019 году, белорусы присутствуют в структуре персонала практически каждой средней и крупной организации.

Выводы *Conclusions*

Проведенное исследование свидетельствует, что регионы российско-белорусского приграничья отстают по темпам экономического роста от других регионов России и Беларуси. Изначально, на этапе распада СССР, более низкий экономический потенциал этих регионов относительно других территорий двух независимых государств так и не был повышен в результате создания Союзного государства. Наоборот интеграция спровоцировала трудовую миграцию из белорусских регионов на российскую территорию в условиях нарастающих между странами экономических диспропорций. В таких условиях бизнес-среда приграничных регионов не стала более привлекательной для развития предпринимательства за рассмотренный период.

Благодарности *Acknowledgements*

Публикация подготовлена в рамках поддержанного *Советом по грантам Президента Российской Федерации для государственной поддержки молодых российских ученых - кандидатов наук* научного проекта МК-883.2019.6 «Выявление закономерностей формирования и трансформации бизнес-среды регионов российско-белорусского приграничья в условиях межгосударственной интеграции (Смоленской, Витебской и Могилёвской областей - Днепро-Двинского региона)».

Summary

A review of the literature on the development of border areas in the context of interstate integration is carried out. The changes in the economic situation in the regions of the Russian-Belarusian border region during the integration of Russia and Belarus are analyzed. An analysis of the dynamics of real GRP shows a lag in the economic growth of the regions located in the border zone with Russia; therefore, changes in the business environment in the context of integration did not contribute to an increase in the economic growth of these territories in comparison with the national rate. The largest increase in real GRP by 2018 among the regions of Belarus is observed in the Minsk region - 58.3% compared to the level of 2008. Grodno region is on the second place (growth by 27.5%), Brest region is the third (growth by 20.7%). The smallest increase in GRP among the regions of the Central Federal District of the Russian Federation is in the Pskov region, the northernmost region of the Russian-Belarusian border region. Further, the growth rate of GRP for the period from 1996 to 2017 decreases when moving from north to south along the Russian-Belarusian border - Smolensk region (209.9%); Bryansk region (217.6%). It was revealed that this is due to the development of agriculture in the Russian Federation, which receives significant state support.

In the Smolensk region, there is an outflow of personnel to the capital region, while in the Mogilev and Vitebsk regions a significant part of the population travels outside Belarus in search of work (about 25% of the able-bodied population). As a result, the business environment of the border region, especially on the Belarusian side, is deprived of human resources. This is facilitated by a lower level of remuneration in the border area in comparison with the national level.

The presented research results can be used in the educational process as a practical case on the regional economy. Students can identify the logical links between the issue of interstate integration and changes in the business environment of border regions.

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ИССЛЕДОВАНИЕ СОВРЕМЕННЫХ ПРОЦЕССОВ В ПРИСТОЛИЧНЫХ РЕГИОНАХ РОССИЙСКО БЕЛОРУССКОГО ПРИГРАНИЧЬЯ ДЛЯ ОБРАЗОВАТЕЛЬНЫХ ЦЕЛЕЙ

Research of Modern Processes in the Russian-Belarusian Border for Educational Purposes

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Abstract. *One of the most important goals of the integration of Russia and Belarus is to pursue a consistent social policy and common economic space. Increased connectivity in border regions (Smolensk, Vitebsk and Mogilev regions) was expected as a result of the integration process. But young people do not see the benefits of creating a Union State. The aim of the research study is to compare the socio-economic indicators of the border regions of Russia and Belarus, to identify current trends in the development of innovations and digitalization in the field of education and in the economy. The following methods were used to achieve the goal: survey, descriptive statistics, time series analysis, comparison, correlation analysis. The main base of the research study is official statistical information. The boundaries of the research study cover the period from 2000 to 2018. As a result of the research study, it was found that GRP growth rates were highest in the Smolensk region. These regions faced problems, including demographic ones. The novelty of the research study lies in identifying the causes of differences in these regions and predicting the prospects for their development.*

Keywords: *development of education, economic processes, Mogilev region, Russian-Belarusian border area, Smolensk region, social processes, Vitebsk region.*

Введение

Introduction

Современными трендами развития мировой экономики являются использование информационных технологий во всех областях знаний, цифровизация экономики, использование мировых денег, взаимосвязь национальных финансовых систем, общий рынок.

Наряду с общемировыми тенденциями каждая страна имеет свои национальные особенности развития. Такие особенности могут

прослеживаться между регионами разных стран, которые исторически, культурно и экономически связаны между собой.

Взаимодействие России и Беларуси насчитывает 20-ти летнюю историю Союзного государства, о котором знают далеко не все жители данных стран. Между тем данное взаимодействие в экономической и социальной сферах может иметь ряд преимуществ для жителей двух стран и приграничных регионов, в частности Смоленской, Витебской и Могилевской областей. Особенно актуально взаимодействие в сфере применения инновационных технологий в экономике, в частности в области цифровизации экономики.

В исследовании поставлена цель: выявить современные тенденции развития новаций и цифровизации в области экономики и образования пристоличных и трансграничных регионов России и Беларуси (Смоленская, Витебская и Могилевская области).

Основными методами исследования являются: описательная статистика, исследование динамических рядов, сравнение. Основной базой исследования является официальная статистическая информация. Границы исследования охватывают период с 2002 по 2018 год.

Обзор литературы *Literature review*

Взаимодействие регионов разных стран исследуется в публикациях ученых всего мира. Рассматриваются опыт приграничного сотрудничества, его принципы и анализ транснациональных связей, влияние данных связей на развитие отдельных регионов и их объединений.

Неравномерное развитие регионов Европейского Союза (ЕС) отмечают в своих работах многие ученые. Исследуются проблемы пристоличных и приграничных регионов ЕС (Brakman, Garretsen, Marrewijk, & Oumer, 2012). Авторы считают, что теоретически, приграничные города или регионы в большей степени подвержены влиянию процесса интеграции в ЕС, чем более центральные районы, так как данный процесс более сильно влияет на их операционные издержки и рыночный потенциал. Авторы наряду с положительным эффектом расширения ЕС, отмечают, неравномерность экономического развития в его приграничных регионах. К аналогичному выводу приходит П. де Грауве, который делает вывод о поляризации регионального развития ЕС (Grauwe, 2013).

Исследуется влияние интеграционных процессов на развитие различных территорий Германии (западной и восточной), для выявления и описания тенденции экономического развития разных регионов (Niebuhr & Stiller, 2002). Ученые прослеживают взаимосвязь между разрывом в

экономическом развитии регионов при объединении Германии и разрывами при объединении разных стран в ЕС.

Региональные исследования Южной и Юго-Восточной Азии также выделяют их в отдельный регион, с делением на более мелкие территориальные образования (Kher, 2012). В каждом регионе выделяются определенные проблемы развития экономики.

В США проводятся исследования вопросов экономики отдельных штатов и городов Америки в рамках ее конвергенции (Barro, 2000).

Региональное развитие России и Беларуси также неравномерно. Так столичные регионы развиваются наиболее быстрыми темпами, более активно внедряют в экономику новые технологии. Разные вопросы развития российско-белорусского приграничья волнуют ученых, которые, проживают в Смоленской, Витебской и Могилевской областях. В настоящее время сформировалась научная школа, которая занимается социально-экономическими аспектами российско-белорусского приграничья. Так, по мнению А.Н. Михайленко, тенденции развития российско-белорусского приграничья скорее отрицательные (Mihajlenko, 2014), Автор считает, что данный регион отстает в своем развитии от среднестатистических российских и белорусских территорий. На это влияет периферийность областей региона их политическая, географическая, демографическая и социально-экономическая периферийность. Особенно отстают в своем развитии сельские территории российско-белорусского приграничья, для которых важна государственная поддержка и совместное решение проблем со стороны региональных властей российско-белорусского приграничья (Blohin, 2014). Более поздние работы автора касаются разных аспектов развития сельских территорий: экологического (Blohin, 2017), культурного, институционального, туристического и других. С другой стороны нельзя отрицать восстановительные процессы в сельском хозяйстве российско-белорусского приграничья (Katrovskij & Ridevskij, 2017) после экономических кризисов. Восстановление сельского хозяйства началось в Беларуси в 2005 г, и в приграничных регионах России в 2010 г., причем в настоящее время темпы развития сельского хозяйства в российских приграничных регионах выше, чем в белорусских.

Необходимыми условиями повышения инвестиционного потенциала Смоленской, Могилевской и Витебской областей являются рациональное использование природно-ресурсного потенциала, модернизация производства на основе инновационных технологий, развитие инфраструктуры для поддержания трудовых ресурсов (Naumenkov, 2018).

Обзор публикаций не выявил сравнений современных процессов в трансграничных и пристольных регионах России и Беларуси, связанных с развитием инноваций, научных исследований, информационного общества.

Между тем, политика стран направлена на развитие инноваций на основе информационных технологий: начиная с 2011 года актуальными является тренды на развитие информационного общества, что регламентируется в соответствующих указах президентов данных стран. Поэтому предлагаемое исследование современных тенденций развития экономики и социальной сферы для просветительных целей обладает актуальностью и новизной.

Методология *Methodology*

Методологию исследования составляют труды российских и зарубежных ученых по исследованию социальных и экономических показателей регионального развития. Для исследования использовалось регистровое наблюдение на основе статистических данных. Для анализа данных использованы методы средних показателей, сопоставимых показателей, динамические ряды, корреляционный анализ (коэффициент Пирсона). Выборка данных представляет собой статистические показатели инновационного развития экономики пристоличных трансграничных регионов России и Беларуси (Смоленской, Витебской и Могилевской областей) начиная с 2002 года.

Результаты исследования *Research results*

В качестве современных тенденций развития экономики Смоленской, Витебской и Могилевской областей будем рассматривать соответствующие показатели мониторинга развития информационного общества в Российской Федерации, инновационного и научного развития областей Республики Беларусь и их влияние на социально-экономические показатели регионов.

Смоленская, Витебская и Могилевская области граничат друг с другом, являются пристоличными и соизмеримы по численности населения и по площади. Так площадь Смоленской области составляет 49.8 тыс. км², площадь Витебской области – 40.1 тыс. км², площадь Могилевской области – 29.1 тыс. км². Смоленская область имеет наибольшую площадь, но меньшую численность населения, по сравнению с другими исследуемыми областями. На 2019 год население Смоленской области составляло 942.4 тыс. чел, население Могилевской области – 1052.9 тыс. чел, и Витебской – 1171.5 тыс. чел. Население ДДР имеет тенденцию к снижению. Темп снижения примерно одинаков для всех областей ДДР и составляет 1–1.5% ежегодно.

Соответственно валовой региональный продукт Витебской области в 2018 году больше, чем в Могилевской на 20.7% и меньше, чем в Смоленской на 4% (в абсолютном выражении).

При рассмотрении показателей интенсивности использования информационно-коммуникационных технологий в деятельности организаций и в частности использования цифровых технологий по данным официальной статистики в Смоленской, Могилевской и Витебской областях (Nacional'nyj statisticheskiy komitet Respubliki Belarus' (NSK RB), 2020; Federal'naja sluzhba gosudarstvennoj statistiki RF (Rosstat), 2020), можно отметить наличие потенциала (Табл. 1).

Таблица 1. Использование информационных технологий организациями Смоленской, Витебской и Могилевской областей в 2018 году, % (составлено авторами по данным НСК РБ и Росстат)

Table 1 Use of information technologies by companies of Smolensk, Vitebsk and Mogilev regions in 2018, % (compiled by the authors according to NSK RB, Rosstat)

Показатель	Смоленская область	Витебская область	Могилевская область
Доля организаций, имеющих возможность использовать в работе Интернет	94.6	98.7	97.8
Доля организаций, имеющих возможность использовать в работе локальные сети	61.6	78.3	84.3
Доля организаций, имеющих возможность использовать в работе Интранет	44.4	25.5	17.9
Доля организаций, имеющих веб-сайт	49.7	59.2	60.2
Доля организаций - пользователей сервисов облачных вычислений	-	18.6	17.1

Рассмотрим количество человек, которые заняты в научных исследованиях и разработках (Табл. 2).

Таблица 2. Списочная численность работников, выполнявших научные исследования и разработки, человек (составлено авторами по данным НСК РБ и Росстат)

Table 2 The number of employees performing research and development, people (compiled by the author according to NSK RB, Rosstat)

Область	2002	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018
Смоленская	-	-	410	420	463	381	420	387	422	468	517
Витебская	1062	1246	1094	1064	911	815	774	663	688	643	628
Могилёвская	574	528	733	581	635	594	619	674	726	809	803

Данные таблицы 2 показывают, что в Витебской области начиная с 2002 года региональная власть заинтересована в инновационном развитии, поскольку число занятых в данной сфере достаточно велико: в процентном соотношении в 2005 году оно составляет около 10%; в настоящее время это около 5.3% занятых. В Могилевской области в последнее время (начиная с 2014 года) растет количество занятых в инновационной сфере экономики, оно составляет в 2018 году около 7.6%, что больше чем в 2005 году на 3%. Для Смоленской области официальная статистика инновационного развития располагает данными, начиная с 2010 года. В регионе недостаточное количество занятых в инновационной экономике, около 5,4% от общего количества занятых.

Рассматривая инновационное образование в указанных регионах, отметим, что оно более развито в Беларуси. В республике по данным Академии постдипломного образования, начиная с 2010 года, реализуются инновационные проекты: в 2010 году начато 5 проектов в сфере инновационного образования, в 2019 году – 16 проектов. До 2025 года дополненная реальность и искусственный интеллект должны стать обычными инструментами педагогов при проведении занятий.

В Смоленской области внедрение инноваций в образование, в том числе цифровых технологий только начинается. Например, в Смоленском государственном университете с 2019 года осуществляется подготовка кадров для цифровой экономики. В 2020 году на базе Смоленской областной технологической академии запускается проект центра цифрового образования «IT-куб» В области объявлен ежегодный конкурс по формированию образовательной среды, направленной на создание базы развития цифровой экономики. Очевидно, что подготовка кадров для инновационной экономики сегодня даст свои результаты через несколько лет. Поэтому число научных работников и инновационных организаций в Смоленской области меньше, чем в Витебской и Могилевской (Табл. 3).

*Таблица 3. Доля организаций, осуществлявших технологические инновации, %
(составлено авторами по данным НСК РБ и Росстат)*

Table 3 The share of companies engaged in technological innovation, % (compiled by the authors according to NSK RB, Rosstat)

Область	2002	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018
Смоленская	-	-	5.2	5.8	5.7	5.6	5.9	6.2	6.2	5.8	-
Витебская	10.7	9.6	17.1	35.3	29.5	30.3	27.4	28.1	22.2	23.9	23.9
Могилёвская	7.7	9.7	12.4	15.3	16.9	17.1	16.3	16.6	16.0	15.7	17.9

Данные таблицы 3 показывают, что доля организаций, осуществляющих технологические инновации наибольшая в Витебской области, что показывает связь с данными таблицы 2. Максимальным показателем был в 2011 году (35.3%), в настоящее время 23.9%. Это значительно больше аналогичного показателя Смоленской области (более чем в 4 раза). Доля организаций, осуществляющих технологические инновации, в Могилевской области занимает среднее значение (17.9%).

Экономическая политика Витебской области направлена на исследование и производство инновационных видов строительных материалов, энерго- и ресурсосбережение, продукции текстильной отрасли, сельскохозяйственной продукции, модернизацию нефтехимического комплекса. Для финансирования данных направлений в регионе создан инновационный фонд. В области создана свободная экономическая зона, куда входят на начало 2020 года 49 компаний.

Начиная с 2007 года в Витебской области применяются инновационные технологии при производстве кабельной продукции («Энергокомплект»); в производстве сыров (Верхнедвинский маслосырзавод); при разработке и производстве панельных материалов («КБ «Дисплей»); в производстве ветеринарных препаратов («Витебская биофабрика»); при разработке и производстве трубчатых охладительных установок («НПП «Термопасс»).

В Витебском государственном технологическом университете при поддержке инновационного фонда создано инновационное предприятие «Научно-технологический парк Витебского государственного технологического университета». Имеются центр испытаний и сертификации, центр коллективного пользования научным оборудованием, учебно-научно-производственная лаборатория аддитивных технологий. Данные организации используют цифровые технологии для прототипирования и 3D-печати, оказывают услуги 3D-сканирования и реверс-инжиниринга, проводят испытание полимерных материалов.

Также в Витебской области в 2019 году создано предприятие «Линия Сноса», которое будет реализовывать инвестиционный проект по сбору и переработке вторичных ресурсов с последующим применением их в строительстве. Начинает реализовываться проект по инновационной технологии сортировки и упаковки яйца («Птицефабрика Городок»). Новые виды продукции будут производить на Обольском керамическом заводе. Сроки реализации двух проектов – до 2022 года.

В Могилевской области в 2017 году создан технопарк Горки, в структуре которого предприятие «БелАгроРобот» планирует наладить производство роботизированных комплексов и малых универсальных сельскохозяйственных роботов в течение 2020-2022 гг. В области создан филиал научно-технологического парка ООО «ИнКата», его уникальность

заключается в объединении собственного конструкторского бюро, исследовательского инженерного центра, центра прототипирования.

Среди инновационных предприятий, которые действуют довольно давно в Могилевской области выделим ОАО «Белшина»; ОАО «Форелевое хозяйство «Лохва», занимающееся разведением и охлаждением рыбы; холдинг «Группа компаний «Протос», которые производят инновационные конструкции на базе композитных несущих элементов.

Для Смоленской области наибольший интерес представляется развитие следующих кластеров: льняного, информационного, туристического и композитного. Инновационное развитие данных кластеров получает поддержку государства. В настоящее время инновационными предприятиями являются ПАО Дорогобуж», выпускающее химические удобрения; ООО «ЭГГЕР Древпродукт Гагарин», выпускающий фанеру и древесные плиты; АО «Авангард», производящее композитные материалы и др.

Наблюдается связь количества инновационных предприятий с долей отгруженной инновационной продукции (Табл. 4).

Таблица 4. Удельный вес отгруженной инновационной продукции (работ, услуг) в общем объеме отгруженной продукции (работ, услуг), % (составлено авторами по данным НСК РБ и Росстат)

Table 4 The share of shipped innovative products (goods, services) in the total volume of shipped products (goods, services), % (compiled by the authors according to NSK RB, Rosstat)

Область	2002	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018
Смоленская	-	-	4.8	6.3	8.0	9.2	8.7	8.4	8.5	7.2	-
Витебская	8.2	5.6	21.6	9.6	24.7	31.2	27.8	33.1	32.9	29.8	28.8
Могилёвская	8.2	6.4	14.3	13.2	12.6	17.4	17.0	14.6	11.9	7.8	6.9

Данные таблицы 3 и 4 коррелируют между собой. Так коэффициент корреляции Пирсона для Смоленской области равен 0,63, для Витебской области 0.56, для Могилевской – 0,4. То есть существует зависимость между удельным весом отгруженной инновационной продукции и долей организаций в данной сфере.

Рассмотрим влияние инноваций на валовой региональный продукт (ВРП) регионов (Табл. 5).

Таблица 5. Динамика ВРП на душу населения регионов, в долларах США (составлено авторами по данным НСК РБ и Росстат)

Table 5 GRP dynamics per capita of regions, in US dollars (compiled by the authors according to NSK RB, Rosstat)

Область	2008	2010	2011	2012	2014	2015	2016	2017	2018
Смоленская	4845	5180	6270	6661	6308	4368	4132	5088	-
Витебская	4286	3996	4182	5030	5382	3787	3162	3501	3787
Могилевская	4251	3974	3877	4299	5110	3626	3177	3651	3932

В таблице 5 показатели рассчитаны по среднегодовому курсу рубля России и Республики Беларусь к доллару США. Как видно из данной таблицы, рост показателей ВРП в областях Беларуси заметен в 2012-2014 гг. В этот же период имеется рост показателей доли организаций, осуществляющих технологические инновации и удельного веса отгруженной инновационной продукции в этих регионах. То есть путем сравнения параллельных рядов можно заметить связь трех показателей, представленных в таблицах 3, 4 и 5 для Витебской и Могилевской областей, по Смоленской области такой тенденции не прослеживается ввиду незначительной динамики данных в таблицах 3 и 4.

Из таблицы 5 следует, что возможной причиной неактивного инновационного развития Смоленской области является относительно устойчивый рост ВРП, что не стимулирует искать новые пути развития экономики региона.

Выводы Conclusions

Подготовка кадров для инновационной экономики и развитие инновационных отраслей производства показывает результаты в виде выпуска инновационной продукции, что особенно заметно на примере Витебской области, лидера среди исследуемых трансграничных пристоличных регионов по инновационному развитию экономики.

В Витебской и Могилевской областях имеются перспективы для роста инновационной продукции и применения цифровых технологий, поскольку в настоящее время в регионах приступили к реализации ряда проектов в данных направлениях. Кроме того в регионах около 10 лет существует подготовка кадров для инновационной экономики, то есть в Витебской и Могилевской областях достаточно устойчивыми являются тенденции инновационного образования.

Установлено влияние развития инновационных технологий на валовой региональный продукт, что особенно заметно по Витебской и Могилевской

областям. При увеличении доли предприятий, занимающихся выпуском инновационной продукции и использующих цифровые технологии в управлении производством, и доли выпускаемой инновационной продукции наблюдается рост ВРП на душу населения.

Смоленская область по производству ВРП несколько превосходит Витебскую и Могилевскую области, но развитие инновационных отраслей экономики в области недостаточно. Возможной причиной неактивного инновационного развития Смоленской области является относительно устойчивый рост ВРП, а также отставание по инновационному образованию для развития цифровой экономики, что может в дальнейшем негативно сказаться на конкурентных преимуществах региона по сравнению с пристоличными и трансграничными областями Беларуси.

Для развития Смоленской области следует проводить образовательную политику ориентации молодежи на развитие предпринимательства в поддерживаемых государством кластерах: льняном, информационном, туристическом и композитном. Открывать новые предприятия и модернизировать старые с учетом требований информационного общества.

Summary

Russia and Belarus celebrate 20 years of the creation of the Union State in 2019. An important goal of integration is the pursuit of a coherent social policy and common economic space. An increase in the connectedness of the border regions (Smolensk, Vitebsk and Mogilev regions) as a result of the integration process was expected. But surveys of students from Russia showed that most of them (70%) did not even know about the existence of the Union State. As a result, young people do not see the benefits of its creation. It is unclear to the younger generation – what is the Union State giving to the population of the border regions? What benefits do entrepreneurs have for developing a business? How is the interaction of the border regions in the social sphere?

The goal of the research study is to compare the economic indicators of the border regions of Russia and Belarus, to identify current trends in the development of the economy. To achieve the goal, the following methods were used: survey, descriptive statistics, time series analysis, comparison, correlation analysis. The main base of the research study is official statistical information. The boundaries of the research study cover the period from 2000 to 2018.

As a result of the research study, it was found that GRP growth rates were highest in the Smolensk region. These regions faced problems, including demographic ones. The novelty of the research study lies in determining the causes of differences in these regions and forecasting the prospects for their development. The influence of the development of innovative technologies on the gross regional product is established, which is especially noticeable in the Vitebsk and Mogilev regions. The Smolensk region, in terms of GRP, is slightly superior to the Vitebsk and Mogilev regions, but the development of innovative industries in the region is not sufficient. A possible reason is a relatively steady increase in GRP, which may further negatively affect the competitive advantages of the region. For the development of the Smolensk region, an educational policy should be pursued to orient young people towards the development of entrepreneurship in state-supported clusters: linen, information, tourism and

composite. It is necessary to open new enterprises and upgrade old ones, taking into account the requirements of the information society.

Благодарности *Acknowledgements*

Публикация подготовлена в рамках поддержанного РФФИ научного проекта 19-410-670006 «Влияние цифровизации экономических и социальных процессов на развитие трансграничного пристоличного региона (на примере Смоленской области)». Авторы выражают благодарность Смоленскому государственному университету в лице ректора М.Н. Артеменкова за предоставление условий реализации проекта.

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INTERACTIVE TOOLS FOR LINEAR ALGEBRA: GEOUNIUD

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Abstract. *GeoUniud is a user-friendly platform built-in interactive tutors which allow students to investigate specific tasks by selecting their own input values and working through a problem in a step-by-step fashion together with immediate feedback at each step. Lessons and exercises are stored and organized with a careful use of randomized controlled contents as exercises, geometrical pictures and abstract reasoning. The lessons are augmented by a virtually infinite collection of examples, and by interactive representations of concepts. As example we show the design of two interactive tools about linear transformation and change of basis in order to develop students' sense-making in a dynamic geometry environment (DGE) within the perspective of semiotic mediation.*

Keywords: *dynamic geometry environment, linear algebra, semiotic mediation, technology.*

Introduction

The Bologna Declaration and the creation of the European Higher Education Area (European Commission, 2009) have promoted a structural change in the European universities. This change, which has been increasingly addressed in recent years, has not been limited to a mere restructuring of the academic curriculum but has served to change the paradigm of university teaching. In this new scenario, the advance of constructivist methods in teaching practices seems to have become the hegemonic method. Some of the characteristics of such methods that are currently being imposed in general, not only within the field of mathematics, are as follow: student-focused teaching; an increase in participation by the students themselves, favouring discussion between students and instructors and departing from the traditional method of teaching through lectures; the use of educational technology.

But integration of technology into existing pedagogy is not easy and requires careful thought as to the redesign of classroom instruction. Advocates of technology use note that technology tools should “serve as intellectual partners during activities requiring problem solving or critical thinking” (Ertmer & Ottenbreit-Leftwich, 2013, 176). As online learning requires the use of technology to access and interact with instructors and materials, the design and implementation of online instruction brings new and more complex issues to light. Research in mathematics education has long highlighted the complex and systemic nature of mathematics teaching/learning situations, which requires, even in the case of e-learning, a specificity in the production and organization of the learning environment (Albano & Ferrari, 2008).

The theory of semiotic mediation (TSM), proposed by Bartolini Bussi & Mariotti (2008), considers that in a mathematics class, when using an artefact for accomplishing a mathematical task, students can be led to produce personal signs which can be put in relationship with mathematical signs. The construction of such relationship should be assumed as an explicit educational aim by the teacher, who can intentionally orient her/his own action towards promoting the evolution of signs expressing the relationship between the artefact and the tasks into signs expressing the relationship between the artefact and the knowledge at stake. The semiotic potential of an artefact consists of a twofold relationship “... (1) between a tool and meanings emerging in the accomplishment of the task and (2) between the tool and meanings related to specific mathematical content evoked by that use and recognizable by an expert” (Mariotti, 2014, p. 157).

About dynamic geometry environment (DGE) Leung, Chan & Lopez-Real, 2006 write: “A key feature of DGE is its ability to visually represent geometrical invariants amidst simultaneous variations induced by dragging activities. This dynamic tool – dragging – induces potential dialectic between the conceptual realm (abstraction) of mathematical entities and the world of virtual empirical objects. Because of this possibility, dragging has been a major focus of research in DGE resulting in fruitful discussions on promising dragging modalities and strategies that seem to be conducive to knowledge construction”.

Literature review

Problems in teaching and learning of linear algebra have a long history in many countries (Dorier & Sierpinska, 2001). Frequently, the abstract character and the formalism of mathematics that students have not been exposed to in school before is named as a central obstacle (a variety of studies are outlined and evaluated in Dorier, Robert, Robinet, & Rogalski, 2000). In addition to these general reasons of conceptual difficulty, some researchers (Dorier et al., 2000; Hillel, 2000) reveal the reasons for the difficulties that are specific to linear

algebra. One reason is that the course on linear algebra includes many concepts that students have limited (if any) experiences in, such as vector space, subspace, span, linear independence, basis, and dimension (Dorier et al., 2000; Hillel, 2000). Another issue is that students in linear algebra courses conducted at the university level (Hillel, 2000) are required to think and question these concepts and their related procedures not only in specific situations (\mathbb{R}^2 , \mathbb{R}^3 , 2×2 , 3×3 type matrices, etc.) but also in general situations (V vector space, algebraic structures, etc.). This situation causes students to make high-level abstractions while struggling to understand many new concepts for them.

In a linear algebra course, linear transformations are introduced via algebraic rules and are usually associated with matrices, and matrix multiplication, as they appear in many textbooks, and after this, a number of geometric applications follow, such as reflection and rotation (Kolman & Hill, 2007). Therefore, the existing knowledge of undergraduate students concerning functions is often neglected, and linear transformations, on the one hand, are introduced as ready-made mathematics, and, on the other hand, applications of the topic are introduced in a static way. Research results from the related literature show that students are not fully aware of the mathematical relationship between the notions of function and linear transformation (Bagley, Rasmussen, & Zandieh, 2015). This situation leads to the following question: How may we best facilitate students' connection of the notions of function, matrix and transformation matrix? In this paper, the focus is on a dynamic view, and interactive tools are presented with the aim of introducing students to geometric transformations and their relationship with function; specifically, with linear functions and their matrix representation.

Several studies emphasized the use of DGE for the visualization, especially in Geometer's Sketchpad (Gol Tabaghi, 2014; Caglayan, 2015) and GeoGebra (Beltrán-Meneu, Murillo-Arcila, & Albarracín, 2016; Turgut, 2019). Cooley et al. (2014) availed themselves of the affordances of GeoGebra to aid students' visualization of the ways in which points on polygons are transformed. Turgut (2019) presents a careful analysis of students' use of the dragging tool in GeoGebra to make sense of transformations matrix, using a lens of semiotic mediation. Another study (Martin, Loch, Cooley, Dexter, & Vidakovic, 2010) used software such as Photoshop or GIMP for image manipulation to support students' visualization of linear transformations. Dominiquez-Garcia, Garcia-Plana, & Taberna (2016) highlighted the use of MatLab as a tool for teaching linear algebra to engineers through mathematical modelling. Many of these studies leverage existing software to support visualization efforts. In contrast, Dogan (2018) developed an interactive web-based module to visualize vectors geometrically in \mathbb{R}^3 .

Anyone using a DGE may experience dynamic visualisation, based on perceiving variation through dragging, which may contribute to the user making a conjecture about the geometric properties of the figures (Mariotti, 2014). Following this idea, we can hypothesize that specific tools and functions of a DGE, may be exploited to foster the transition from function to a matrix representation of geometric transformation in \mathbb{R}^2 .

In this research, a TSM perspective having two interrelated components is considered. On the one hand, the TSM is specific to the integration of digital tools in the teaching and learning of mathematics. On the other hand, an elaboration of the semiotic potential of an artefact guides an instructor by providing a possible learning route regarding didactic goals. We design interactive tools in order to develop students' sense-making regarding matrix representation of geometric transformations in a DGE within the perspective of semiotic mediation. In particular, the focus is on students' reasoning on the transition from the notion of function to transformation and to matrix representation of geometric transformations in \mathbb{R}^2 and \mathbb{R}^3 . Along these lines, the theory of semiotic mediation is referred to as a theoretical framework in the design of a teaching and learning environment for the emergence of mathematical thinking. Innovative digital materials will be created in relation to the needs of single course teachers and taking into account the difficulties of the students documented both by currently research studies and teacher experience.

Methodology

The proposed tools fit into the context of asynchronous and blended learning, moving from a teacher-centered approach to a student-centered approach. The teacher therefore has the most complex task of guiding and facilitating. The aim is to promote the widening of the "horizontal" dimension of student preparation, putting at his disposal innovative didactic material supported by self-evaluation tools, in familiar format for students. The contents will be structured by degrees of difficulty that will progressively prepare the user not only to solve exercises but also to produce well-constructed formal proofs. The material is suitable for use in a flipped learning classroom.

The platform, under the name GeoUniud, was organized according to a modular structure, to guarantee maximum flexibility and accessibility. Naturally, it was implemented in order to guarantee compatibility with the University's current e-learning Moodle platform. It is neither economically nor culturally productive to try to replace the teacher's function with a virtual copy of it, inevitably destined to a rigid as well as rapid obsolescence. In fact, one of the objectives of the project is to support teachers without usurping their role, but rather assist them in the creation of innovative content and thus freeing them

from the heavy commitment of acquiring technical skills often not relevant to their assignment, yet requires a modern teaching. GeoUniud has the possibility to integrate the work “in vertical mode”, carried out in class through a frontal lesson, with work done independently, in “horizontal mode”, controlled indirectly by the teacher by means of adaptive self-regulation criteria entered in the platform.

We construct interactive tools in order to strengthen student sense-making regarding matrix representation of geometric transformations in a DGE environment within the perspective of semiotic mediation. In particular, the focus is on helping the students' reasoning on the transition from the notion of function to transformation and to matrix representation of geometric transformations in \mathbb{R}^2 and \mathbb{R}^3 . Along these lines, the theory of semiotic mediation is used as a theoretical structure in the design of the teaching and learning environment to bring out the mathematical thinking of students.

When producing materials for a class, the tool chosen comes with some unavoidable compromises: the notation available can be slightly different from the one used by the teacher and the students, the range and quality of examples and exercises could be narrow and lacking, or suitable only for a small part of the whole course. This can result in choosing different tools during different learning periods and requires some commitment from students and teacher alike to adapt and reach some level of proficiency. Moreover, a narrow selection of tools or a limited experience in bending them to more creative uses can shape courses and teaching styles. A prime example of this last dynamic may in our opinion be MOOC courses: widely participated and “only online”, they are built around three kind of resources, i.e. video lessons, static html/pdf pages and quizzes, and present a distinct teaching style. These tools can be very useful, but they surely can't be the most suitable for every subject, nor reach the heights promised by the latest technological innovations.

Speaking of more complex and innovative tools, well established software available today come from an era where an application was self-sufficient and somewhat rigid and are adapting quickly to a new reality where flexibility and accessibility are of utmost importance. GeoGebra offers its “GeoGebra materials” for the classroom, with a wide range of applications a teacher can arrange and release to students during a course, but all these applications are separated and often written by different developers with different aims.

Maple established a new language to write applications and Maplesoft, the software house behind it, sells products and services written with it. But as of today, we could not find a tool, be it a language or an application, that offers the means to build a course with a consistent quota of interactive elements with consistent quality, and readily adaptable to different teachers and subjects. Premium offers of ad hoc development are pricy and impose at least a basic

rigid notation and some limitations, and support can depend on the future commercial success of specific languages or firms.

The natural solution is to start from scratch, choosing languages that grant accessibility and are nowhere at risk of being abandoned, i.e. html/JavaScript. Lot of resources are available that are maintained by universities and open source communities, and this means they are already learning-oriented and free from the stiffness that an already well-developed software can have. Writing in html/JavaScript forces one to circumvent some obstacles but is rewarding in that a random generated example fits perfectly in the flow of a page, without forcing the reader to open a different window. The pages with exercises offer all the perks of a self-standing application, but can be hosted anywhere, from a simple amateurish server to a university's Moodle platform, without requiring special setups or plugins not without security implications. What's more important, GeoUniud let students flow seamlessly from theoretical to training pages, interacting all the way with random generated examples and building a record of their performances. This record lets the platform adapt the difficulty of other training pages, unlock new exercises or even entire modules of the course.

Research results

GeoUniud has a number of user-friendly built-in interactive tutors which allow students to investigate specific tasks by selecting their own input values and working through a problem in a step-by-step fashion together with immediate feedback at each step. Students can avoid having to use specific syntax by using this point-and-click interface allowing them to concentrate more specifically on a given problem. The performance at each step requires the student to make a cognitive decision where the thinking process reinforces the concept involved.

The students are not fully aware of the mathematical relationship between the notions of function and linear transformation and we may facilitate students' connection of the notions of function, matrix and transformation matrix with a dynamic view, interactive tools with the aim of introducing students to geometric transformations and their relationship with function; specifically, with linear functions and their matrix representation. For other interactive tools, concerning systems of linear equations, see Lepellere et al. (2020).

Exercise1: The student should specify coefficients for the matrix representation of a linear transformation from \mathbb{R}^2 , where the vector space's basis is known, to \mathbb{R}^3 , with the canonical basis (Figure 1). The exercise shows the two spaces with representations of a vector element and its image, but any explicit expression of the linear map is omitted.

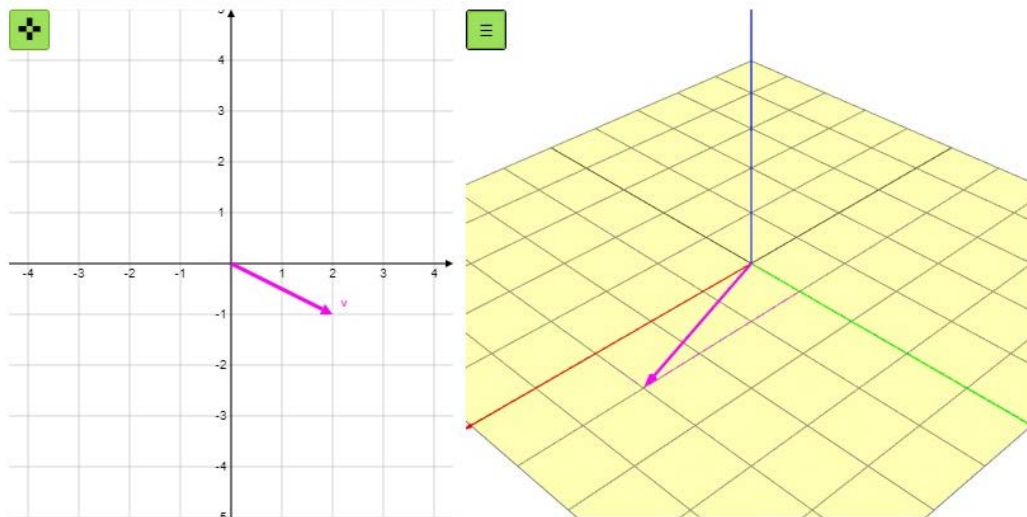
Exercise 1

Consider a linear map $f : \mathbb{R}^2 \rightarrow \mathbb{R}^3$. In the leftmost graphic you can see a generic vector v belonging to the domain of f , while the rightmost graphic shows its image $f(v)$. Dragging v and seeing how $f(v)$ changes, find the coefficients of $M_{\mathcal{E},\mathcal{B}}(f)$, where

$$\mathcal{B} = \left\{ \begin{pmatrix} 2 \\ -1 \end{pmatrix}, \begin{pmatrix} 3 \\ 2 \end{pmatrix} \right\}$$

and insert them in the empty fields below.

In the 3D graphic, the following colors are associated to the 3 axes: x -axis- y -axis- z -axis



$$M_{\mathcal{E},\mathcal{B}}(f) = \begin{pmatrix} \square & \square \\ \square & \square \\ \square & \square \end{pmatrix} \text{ Verify}$$

Figure 1 Exercise 1

The student can manipulate the bidimensional vector by dragging and observe in the parallel dynamic three-dimensional space the image through the linear map (Figure 2), enriched by projections and other visual helpers to make depth perception easier. If the student is well prepared for this activity, he/she can aim at finding the images of the two basis vectors to determine the requested transformation matrix and input the coefficients in the specific grid of fields.

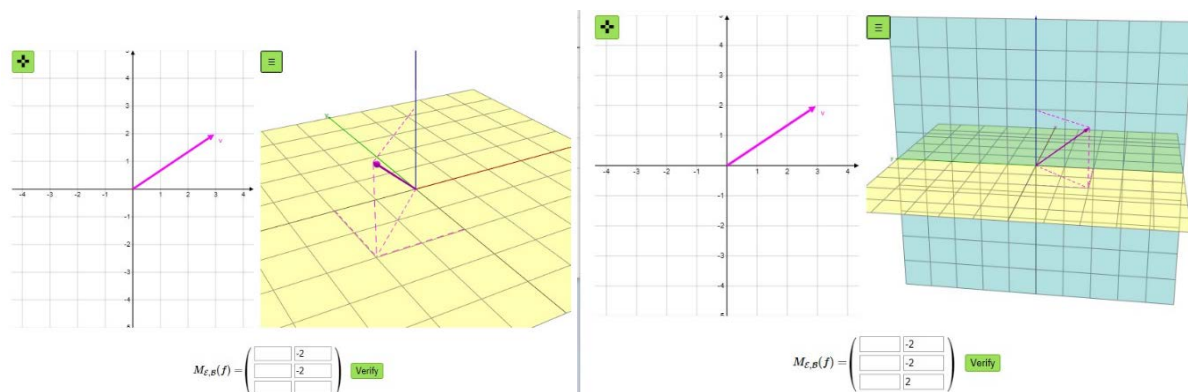


Figure 2 The image of the linear map

When the fields are filled and the result is submitted, the page gives feedback with eventually simple messages, when not all the fields are filled or the input themselves are of an invalid nature (Figure 3), or give a colorimetric feedback, filling the grid with green where the result is the right one, or red where it is incorrect.

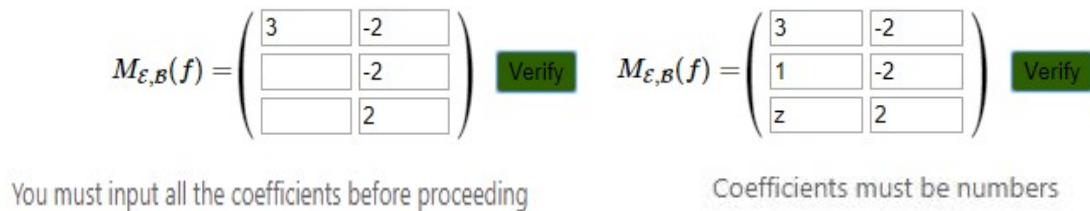


Figure 3 Feedback

Exercise 2. The student must determine the coefficients of the matrices of transition from a basis \mathcal{B} to a basis \mathcal{C} and vice versa. To find the values of the various coefficients the student can help himself with a 2D whiteboard (Figure 4). By using the “Basis represented” input field and the “canonical”/“basis” buttons, the student can see the following types of visualization:

Exercise 2

Dragging the vector v on the graphic below, determine both change of basis matrices $M_{\mathcal{B},\mathcal{C}}$ and $M_{\mathcal{C},\mathcal{B}}$, where

$$\mathcal{B} = \left\{ \begin{pmatrix} 1 \\ -1 \end{pmatrix}, \begin{pmatrix} 2 \\ 1 \end{pmatrix} \right\}, \quad \mathcal{C} = \left\{ \begin{pmatrix} 3 \\ 0 \end{pmatrix}, \begin{pmatrix} -2 \\ 2 \end{pmatrix} \right\}$$

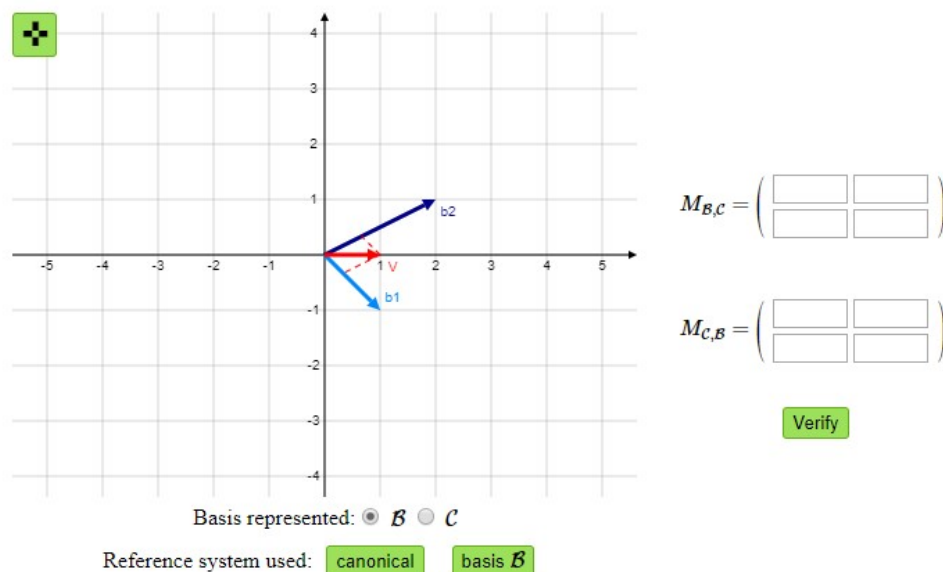


Figure 4 Exercise 2

- 1) Vectors of basis B and canonical reference system (used to set the red vector so that it matches c_1 or c_2).
- 2) Reference system of basis B (used to display the coordinates of the red vector with respect to basis B).
- 3) Vectors of basis C and canonical reference system (used to set the red vector so that it matches b_1 or b_2).
- 4) Reference system of basis C (used to display the coordinates of the red vector with respect to basis C).

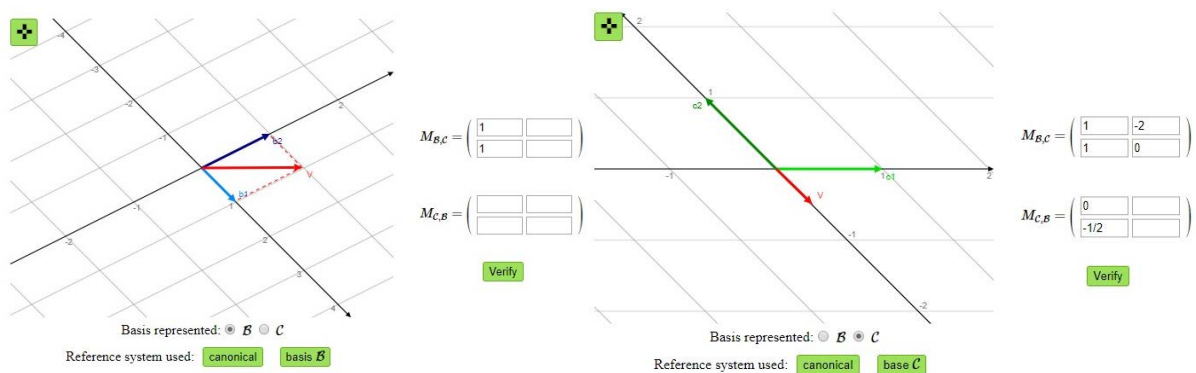


Figure 5 On the left step 2: the red vector represents c_1 and its projections show its coordinates with respect to basis B. On the right step 4: the red vector represents b_1 and its projections show its coordinates with respect to basis C

As before, at the end of the exercise, the boxes are highlighted in green or in red to indicate the right and wrong values (Figure 6). The platform also provides feedback if some boxes had been left empty or had non-numeric values

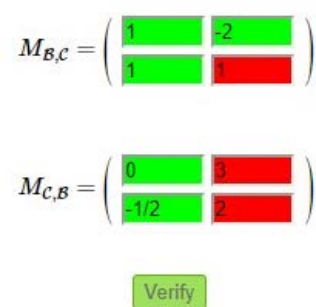


Figure 6 Feedbacks

Conclusion and discussion

GeoUniud is a user-friendly platform, where lessons and exercises are stored and organized with a careful use of randomized controlled contents as exercises, geometrical pictures and abstract reasoning. The lessons are

augmented by a virtually infinite collection of examples, and by interactive representations of concepts.

In this paper we have described two interactive tools; one is designed to enhance the understanding of the interplay between the concept of function, linear transformation and its matrix representation. The other is on the mutual relation between the process of change of basis and its matrix presentation. The creation of a specific DGE environment provides a context for students' sense-making on matrix representation of geometric transformation and change of basis. However, this designed context can be considered as a heuristic tool for the preparation of students to enter abstract vector spaces. Moreover, as emphasized in the TSM, classroom discussion dynamics play an effective role in the transformation of personal meanings into mathematical meanings. Interpersonal exchanges in classroom discussion may be helpful to students in the construction of a bridge between the output linearity of equations and representing them as matrices or other interplays.

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PERSONU PROFILĒTĀJU ATLASE UN PROFESIONĀLĀ SAGATAVOŠANA VALSTS ROBEŽSARDZĒ

Selection and Professional Training of Person Profilers in the State Border Guard of the Republic of Latvia

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Abstract. *The effectiveness of profiling depends directly on the professional skills of the employee – profiler. The special attention should be paid to the selection and training of profilers. Profiling is a matter of state, public or company security and it is not acceptable that accidental person enters the profilers' community.*

The aim of the paper is to identify the possibilities of improving the profiler candidates selection system and their professional preparedness in line with current socio-economic, political and migration trends in Europe and in the world. The research was done in the State Border Guard College of the Republic of Latvia. For this purpose analysis and evaluation of documents, scientific, pedagogical and psychological literature was performed and conclusions about the necessity of profiler selection and preparedness processes development were summarized.

The author brought forward conclusion that with strict selection criteria and future qualification raising possibility - the special position held – profiler, should be established.

Keywords: *border, college, guard, profiling, profiler, selection, training.*

Ievads

Introduction

Profilēšanas efektivitāte ir tieši atkarīga no darbinieka – profilētāja profesionālajām prasmēm, tāpēc īpaša uzmanība ir jāpievērš profilētāju atlases un apmācības jautājumiem. Sakarā ar to, ka profilēšana ir saistīta ar valsts un sabiedrības drošības jautājumiem, nav pieļaujama nejaušu cilvēku iekļūšana profilētāju vidū.

Referāta mērķis: izvērtēt, atbilstoši šī brīža sociālekonomiskajām, politiskajām un migrācijas tendencēm Eiropā un pasaulē, profilētāju amata kandidātu atlases un profesionālās sagatavotības sistēmu Valsts robežsardzē. Šī mērķa sasniegšanai tika veikta dokumentu, zinātniskās, pedagoģiskās un psiholoģiskās literatūras analīze un izvērtēšana. Pamatojoties uz analīzi, tika

apkopoti secinājumi par profilētāju amata kandidātu atlases un profesionālās sagatavotības sistēmas pilnveidošanas iespējām Valsts robežsardzē.

Literatūras apskats *Literature review*

Obligātās atlases prasības dienestam Valsts robežsardzē nosaka Iekšlietu ministrijas sistēmas iestāžu un Ieslodzījuma vietu pārvaldes amatpersonu ar speciālajām dienesta pakāpēm dienesta gaitas likums, bet prasības konkrētām amatam – amata apraksts. Valsts robežsardzes koledžas Padome ar savu lēmumu, katra mācību gada sākumā, apstiprina “Uzņemšanas noteikumus Valsts robežsardzes koledžā mācību gadam profesionālās tālākizglītības programmā „Robežapsardze””.

Vērtējot Valsts robežsardzes koledžas atlases un uzņemšanas kārtības noteikumus, autors secina, ka:

- kandidātam stājoties dienestā ir obligāti jāiziet veselības pārbaudi Iekšlietu Ministrijas Centrālā medicīniskā ekspertīzes komisijā. Kandidāta veselības stāvoklim ir jāatbilst I (II3) amatu grupai saskaņā ar Ministru kabineta 21.11.2006. noteikumos Nr.970 „Noteikumi par Iekšlietu ministrijas sistēmas iestāžu un Ieslodzījuma vietu pārvaldes amatpersonām ar speciālajām dienesta pakāpēm un amatpersonu amatu kandidātiem nepieciešamo veselības stāvokli un psiholoģiskajām īpašībām un veselības stāvokļa un psiholoģisko īpašību pārbaudes kārtību” noteiktajām prasībām. Pārbaudes laikā ir paredzēta arī kandidāta psiho-emocionāla stāvokļa testēšana (testa veidā);
- kandidāts nedrīkst būt sodīts par tīšu noziedzīgu nodarījumu;
- kandidāta izglītības dokumentā nedrīkst būt nesekmīgs vērtējums.

Kandidātiem secīgi jākārt atlasē pārbaudījumi:

- svešvalodas (angļu) zināšanu tests (ja nav kārtots centralizētais eksāmens angļu valodā);
- fiziskās sagatavotības pārbaude saskaņā ar Ministru kabineta 2013.gada 28.maija noteikumiem Nr.288 „Fiziskās sagatavotības prasības Iekšlietu ministrijas sistēmas iestāžu un Ieslodzījuma vietu pārvaldes amatpersonām ar speciālajām dienesta pakāpēm”;
- jāpiedalās pārrunās: tiek vērtēta kandidātu izvēlētajā profesijā izpratne, atbilstība dienestam Valsts robežsardzē un mācībām Koledžā. Diemžēl skrupuloza kandidāta pārbaude (t.sk. profilētāja amatam) netiek veikta. Problēmu Valsts robežsardzē veicina tas, ka potenciālajam kandidātam profilētāja amatam, iestājoties Valsts robežsardzē, ir jāapgūst Valsts robežsardzes koledžas izglītības programma un turpmākā dienesta vieta

kandidātiem nav zināma. Veiktie pētījumi (Dormidontov & Semenova, 2011) parāda nepieciešamību pārrunu (anketēšanu) laikā noskaidrot:

- motivāciju (ļauj noraidīt gadījuma kandidātus);
- intereses, ieradumus, noslieces (īpaši uz alkoholismu). Vismazākās aizdomas vai pierādījumi, ka personai ir tieksme alkohola dzērienu lietošanai, vajadzētu būt par nopietnu iemeslu viņa kandidatūras noraidīšanai;
- sakarus ar reliģiskām sektām, ekstrēmistu grupām vai citām apšaubāmām asociācijām.

Pēc autora domām, atlases un uzņemšanas kārtību ir nepieciešams pilnveidot. Nedrīkst aizmirst, ka robežsargu darbs, īpaši robežšķērsošanas vietās, ir saistīts ar nervu sistēmas un psihs pārslodzi, sakarā ar ko, vērtējot topošā robežsarga kandidatūru, ir nepieciešams saprast, ko sagaidīt no jaunā darbinieka, t.i. viņa galvenie motīvi, uzvedības modelis ar dažādu kategoriju personām, prognozēt viņa uzvedību ārkārtas situācijās, kā arī saprast kā un kāpēc kandidāts melo. Diemžēl uzņemšanas komisija nav spējīga patstāvīgi to izvērtēt. Palīgā var tikt iesaistīti psihologi, bet lielākā mērā tas nozīmē vienkāršu kandidāta testēšanu, izmantojot ieteicamo paņēmieni/ metožu kopumu.

Pētījumā (Dormidontov & Semenova, 2011) ir norādīts, ka tradicionāli, darbinieku atlasei dažādās profesijās, tiek izmantotas professiogrammas (profesionāli nozīmīgu kritēriju, īpašību un prasmju analīzes kopums), kuru izvērtēšana paredz, ka atlasītā kandidāta profesionālās spējas būs ļoti ticamas. Eksistē vairāki professiogrammu sastādīšanas modeļi, piemēram:

1. profesijas objektīvās iezīmes (vispārīga informācija, izmaiņas, kas ir saistītas ar zinātnes un tehnoloģijas progresa attīstību, attīstības perspektīvas);
2. darba procesa apraksts (darbības joma un darba veids, produkcija, darba instrumenti, profesionālie pienākumi);
3. sanitāri higiēniskie darba apstākļi (darbs telpās vai ārā, troksnis, vibrācija, apgaismojums, darba režīms un atpūta, vienveidīgums un darba temps, medicīniskās indikācijas, ieguvumi un kompensācijas);
4. psiho fizioloģiskās prasības darbiniekam (uztveres, domāšanas, uzmanības, atmiņas īpatnības, cilvēka emocionālās un gribas īpašības, prasības pret profesionālām prasmēm);
5. profesionālās zināšanas un prasmes;
6. prasības personāla pamata apmācībai un kvalifikācijas celšanai (profesionālās izglītības formas, metodes un termini, profesionālās izaugsmes izredzes).

Professiogrammu kopuma definēšanai ir nepieciešams profesionālo īpašību sarežģīts un ilgstošs izpētes process. Ņemot vērā, ka profilētāja profesija vēl nav

guvusi popularitāti Latvijas uzņēmumos, bet valsts dienestos (Valsts policijā, Valsts robežsardzē, avio drošībā) profilētāja amata pienākumi ir sadalīti starp vairākiem norīkojuma veidiem un atsevišķs amats nav paredzēts, autors uzskata, ka zūd nepieciešamība pēc professiogrammu izmantošanas profilētāju atlasei. Problēmu saasina kvalificēta personāla trūkums.

Profilēšana ir saistīta ar valsts un sabiedrības drošības jautājumiem un nav pieļaujama neatbilstošu cilvēku iekļūšana profilētāju vidū. Problēmu saasina 2017.gada 23.maija Ministru kabineta noteikumi Nr.264 "Noteikumi par Profesiju klasifikatoru, profesijai atbilstošiem pamatuzdevumiem un kvalifikācijas pamatprasībām", kuri neparedz profilētāja profesiju Latvijā. Nosacīti profilētājus var attiecināt atsevišķā grupā:

- personāla un karjeras, kvalitātes vadības sistēmu un risku vadības vecākie speciālisti (Riska vai nodarbinātības analītiķis);
- vadības un organizācijas analītiķi;
- sociologi, antropologi un tiem radniecīgu profesiju vecākie speciālisti;
- psihologi.

Pamatojoties uz augstākminēto, rodas jautājums: kas ir profilētājs? Profilētājs ir speciāli apmācīts cilvēks, kurš prot ne tikai uzreiz izveidot personas emocionālo un psiholoģisko portretu, bet arī prognozēt cilvēka uzvedību un prognozēt tās rīcību pēc mīmikas, žestiem, pozas, intonācijas un balss tembra, acu skatiena virziena utt. (izmantojot ķermeņa valodu). Profilēšanas metodoloģijas pamatlicēji ir P. Ekman, V. Frīzens, K. Šerers (Ekman, Friesen, & Scherer, 1976), M. Cukermans, B. DePaulo (Zuckerman, DePaulo, & Rosenthal, 1981), A. Pīzs (Pease, 1981) un citi.

Professiogrammu vietā, autors piedāvā, caur amata pienākumu analīzi, noteikt nepieciešamo personisko īpašību un profesionālo prasmju klāstu. Šī pieeja zināmā mērā ir aptuvena, bet, pēc autora domām, tā ļautu noteikt galvenos kritērijus, uz kuriem var atsaukties atlases procesā. Referāta izstrādē autors izmantoja kvalitatīvo metodi – gadījumu izpēti. Tika analizēta Eiropas un Centrālās Āzijas valstu prasības profilētāja amata kandidātam. Pamatojoties uz pētījumu, profilētājam ir jāatbilst noteiktām prasībām. Pirmkārt, būtu vajadzīga augstākā izglītība. Bieži uzdotais jautājums par to, vai profilētājam obligāti vajadzētu būt psiholoģiskai pamatizglītībai, nenozīmē skaidru atbildi, lai gan dažu valstu lidostās šis nosacījums kļūst obligāts. Neapšaubāmi pastāv saikne starp interesi par psiholoģiju un veiksmīgu profilētāja darbu. Autors uzskata, ka psihologa izglītības neesamību var kompensēt darba devēja pareizi izstrādātie riska indikatori un organizētie kvalifikācijas celšanas kursi psiholoģijas vai profilēšanas jomā. Prasīt obligātu psiholoģisko izglītību profilētājam nav obligāti, jo kā rāda (Dormidontov & Semenova, 2011) pētījums – psiholoģiskais komponents profilēšanā ir ne vairāk par ceturto daļu.

Profilētāja saruna ar katru cilvēku ir individuāla un intervēšanas standarta formu izmantošana nav iespējama. Dažreiz ir nepieciešams izmantot nestandarta metodes un papildus zināšanas, tajā skaitā juridiskajā jomā. Gadījumā, ja pārrunu (testēšanas) laikā, kandidātam tiek atklātas antisociālas un patoloģiskas noslieces – nepārprotami tas ir iemesls kandidāta noraidīšanai.

Profilētāja amata kandidātam ir svarīga pozitīva motivācija šāda veida aktivitāšu veikšanā, proti, vēlme strādāt tieši drošības jomā, precīzi pildot savus amata pienākumus. Personai, kas gatavojas strādāt par profilētāju, ir jābūt spēcīgai pilsoniskajai nostājai, augstām morālām īpašībām.

Nosacīti profilētāja darbībā var izšķirt sekojošas galvenās darba sastāvdaļas: komunikācija ar personām, viņu uzvedības novērošana un darbs ar dokumentiem.

Komunikācijā ar personām par jautājumiem, kas nav tieši saistīti ar dokumentu un bagāžas pārbaudi, profilētājam ir nepieciešams labi attīstīts intelekts un pietiekami augsta erudīcija. Profilētājam ir “jārada” labvēlīgs iespaids. To var veicināt akurāts ārējais izskats – lietišķs apģērbs (vai forma), atbilstošs matu griezumam un aksesuāri.

Profilētājam vajadzētu būt tādām komunikatīvām īpašībām, kas ļautu iegūt sarunu biedru labvēlību, piemēram, nevainojama runa, skaidra dikcija, patīkamas manieres, godīgums. Prasme klausīties, pareizi izvēlēties vārdus, mājienu un uzvedinošus jautājumus tiek atzīta par priekšrocību. Darbā ar cilvēkiem, profilētājam ir jābūt atturīgam savās emocijās, lai svešais viedoklis neietekmētu viņa lēmumu. Saskarsmi (intervēšanu) ar cilvēkiem var veicināt profilētāja pacietība un cieņa. Profilētājam ir jābūt pieklājīgam. Komunicējot ar personām, nedrīkst būt rupjam, augstprātīgam, lišķīgam un nedrošam. Nestandarta situāciju rašanās (nopratināšana, bagāžas pārbaude), reizēm rada pasažieros dabisku negatīvu psiholoģisku reakciju, kas savukārt nosaka profilētāja uzvedību – delikātums un takts. Profilētājam ir jābūt vēlmei iegūt pilnīgu un objektīvu informāciju, bet ir jāprot izvairīties no pārsteidzīgiem un liekiem pieņēmumiem.

Konflikta situāciju un citu stresa momentu rašanās profilētāja ikdienas darbā, stresa noturību padara par profesionāli nozīmīgu kvalitāti.

Neskatoties uz profilēšanas pamatuzskatu par katras personas (pasažiera, apmeklētāja) iespējamo iesaistīšanos pretlikumīgās darbībās, tas nekādā veidā nedrīkst ietekmēt profesionālo saziņu. Potenciālajam viltvārdim (pārkāpējam, teroristam) nevajadzētu pamanīt, ka viņš tiek turēts aizdomās, un personu nevajadzētu atklāti pakļaut neuzticībai, jo tas var nelabvēlīgi ietekmēt profilēšanas rezultātus kopumā.

Aizdomīgu pazīmju (identifikatoru) konstatēšana personas izskatā un uzvedībā, kā arī viltoto dokumentu atklāšana, pēc autora domām, nav iespējama bez novērošanas prasmju attīstības. Profilētāja darbība, kas ir saistīta ar dokumentu pārbaudi, paredz tādas profesionāli nozīmīgas īpašības kā uzmanība, spēja labi koncentrēties īpaši uz tekstu un nenovērst uzmanību uz ārējiem

kairinātājiem. Profilētāja darbs ir ļoti intensīvs, attiecīgi ir nepieciešama spēja efektīvi darboties ierobežotā laikā, ātri analizēt lielu informācijas apjomu un īsā laikā izdarīt pareizus loģiskus secinājumus.

Profilētājam ir jāatšķiras ar domāšanas skaidrību, spēju objektīvi analizēt faktus un izdarīt loģiski pareizus secinājumus un pārbaudīt pretrunīgu informāciju. Intuīcijas esamība, kas balstās uz pieredzi, ļauj profilētājam, ja iespējams, pieņemt vienīgo pareizo lēmumu katrā konkrētajā situācijā. Profilētāja spēja noteikt nozīmīgas un nebūtiskas subjekta pazīmes, ļauj ātri analizēt katru iespējamo nestandarta situāciju. Šajā sakarā, kā nepieciešamās īpašības var papildus atzīmēt izturību pret stresu un trokšņiem.

Saskarsmē ar naidīgiem pasažieriem, profilētājam ir jāparāda neatlaidība, griba, rakstura spēks. Nedrīkst pieļaut manipulācijas ar sevi. Ņemot vērā to, ka saziņā viltvārži var psiholoģiski ietekmēt profilētāju, profilētājam ir jāspēj pretoties slēptai iedarbībai. Tā kā profilētāja darbā pastāv iespēja saziņai ar potenciāli bīstamām personām, profilētājam ir jāprot viņus ietekmēt. Pētījumā (Dormidontov & Semenova, 2011) norādīja, ka profilētājs var ietekmēt personu ar savu:

- personību: vecumu, izglītību, amatu, veicamām aktivitātēm, laipnību; paša ieinteresētību, pievilcīgumu u.c.;
- sociālo piederību: rasi, valodu, dzimumu, stāvokli sabiedrībā, reliģiju utt.;
- sagatavošanās līmeni intervijai un savu pieredzi;
- attieksmes maiņu, pakļaujoties stereotipiem vai pirmā maldinošā iespaida faktoram;
- jautājumiem.

Lai identificētu personas, kuras atrodas meklēšanā vai atkāpjas no uzvedības normām, profilētājam ir jābūt labi attīstītai redzes atmiņai, kā arī ņemot vērā to, ka profilētāja darbs ir ārkārtīgi atbildīgs un var būt saistīts ar nervu sistēmas pārslodzi, viņam ir jābūt stabilai nervu sistēmai, bez neiropsihiskām slimībām.

Profilētājs ir sociāls darbinieks, tāpēc psihopātisko īpašību klātbūtne šai profesijai nav pieņemama. Psihopātija bieži tiek saistīta ar antisociālām tieksmēm un izsaka vispārēju emocionālo nestabilitāti. Profilētāja darbs paredz emocionālā stāvokļa stabilitāti, nedrīkst būt noslieces uz paaugstinātu trauksmainību.

Darbs ar dokumentiem un cilvēku neverbālo mīmiku izvirza augstas prasības attiecībā uz redzi un redzes traucējumiem. Laika trūkums un oficiālās saziņas specifika neļauj profilētājam pārjautāt personai vēlreiz, tāpēc dzirdei ir jābūt labai. Ožai un krāsu uztverei arī ir jābūt bez izteiktām patoloģijām.

Profilētāja darbs nav ieteicams cilvēkiem, kuri cieš no smagiem asinsrites traucējumiem, jo šī profesija ir saistīta ar ilgstošu stāvēšanu.

Ir svarīgi, lai profilētājam nebūtu atkarības no narkotisko vielu, alkohola, narkotisko un citu psihotropo līdzekļu lietošanas.

Profilētāja galvenais uzdevums ir identificēt personas ar pretlikumīgiem nodomiem. Šajā sakarā pastiprināta novērošanas (uzmanības) spēja un aizdomīgums, tiek uzskatīti par būtiskākām iezīmēm, ja vien aizdomīguma nopietnība nav pārspīlēta.

Iekšējās disciplīnas/ paškontroles esamība, kas izpaužas ārējā izskatā, punktualitātē, stingrā amata apraksta ievērošanā nodrošinās augstu darba kvalitāti. Augsta paškontrole un atbildīgums pozitīvi ietekmē profilētāja pienākumu izpildi.

Pārlicības trūkums, neorganizētība atstāj atbilstošu iespaidu par cilvēku, bet profilētāja gadījumā šo īpašību esamība nav pieļaujama. Profilētāja darbam var pievienot specifiskas prasības tādas kā piesardzība, spēja neizpaust informāciju, spēja darba laikā nenovērst uzmanību uz pretējā dzimuma pārstāvjiem.

Secinājums par kandidāta piemērotību profilētāja amatam tiek izdarīts, pamatojoties uz datiem, kas ir iegūti intervijas, anketēšanas, biogrāfisko datu pārbaudes un analīzes laikā.

Personāldaļas vadītājs analizē atlases laikā saņemto informāciju un iesniedz vadībai savus priekšlikumus par kandidāta piemērotību profilētāja darbam.

Ņemot vērā iepriekš minēto, autors secina, ka profilētāju amatu izveide (t.sk. arī uzņēmumos) un to atlase pēc noteiktiem kritērijiem, ievērojami palielinās profilēšanas izmantošanas efektivitāti jebkurā nozarē.

Profilētāja sagatavošana *Profiler preparedness*

Pētījumā (Madžuls, 2019) norādīja, ka profilētāju apmācība ir svarīgs moments viltvāržu atklāšanā. Tehniskais aprīkojums nevar aizstāt cilvēka zināšanas cita cilvēka psiholoģijā un prasmes atšķirt melus no taisnības.

Citu valstu pieredze liecina, ka profilētāja sagatavošana ilgst 2–3 nedēļas, pēc tam vismaz divu mēnešu gara prakse darba vietā pieredzējušu darbinieku vadībā. Apmācības programmā ietilpst profilēšanas teorijas izpēte, mūsdienu terorisma aktualitātes, teroristu profili.

Īpaša uzmanība tiek pievērsta dokumentu pārbaudes metodikai un dokumentu viltojumu atklāšanai. Programma ietver tēmas “novērošana” un “intervēšana” Aviācijas drošības dienesta darbības kontekstā. Apmācību laikā izmanto lomu spēles un psiholoģiskās nodarbības. Pēc apmācībām profilētājs sāk patstāvīgu darbu tiešo priekšnieku uzraudzībā, bet nākotnē visi darbinieki iziet kvalifikācijas paaugstināšanas apmācības.

Profilēšanu var mācīt jau strādājošajiem drošības dienestu darbiniekiem (robežsargiem, policistiem, muitniekiem, karavīriem, apsargiem). Ir iespējams veidot profilētāju grupas no cilvēkiem, kas īpaši izvēlēti šim darbam.

Profilētājam ir jāzina:

- cilvēka psiholoģija un fizioloģija (emocionāla);

- maldināšanas tipoloģija un metodes;
- maldināšanas pazīmes runā, sejas izteiksmē (mīmika), kā arī kustībās;
- maldināšanas noteikšanas paņēmieni un metodes;
- profilēšanas teorētiskie pamatjautājumi;
- pārbaužu noteikumi un procedūras;
- informāciju par esošajām teroristu organizācijām;
- ceļošanas dokumentus (veidus, noformēšanas un izsniegšanas nosacījumus, aizsardzības elementus) un to pārbaudes metodiku;
- citus dokumentus (lidmašīnas biļetes, vīzas, viltošanas paņēmienus);
- aizliegtas un bīstamas lietas;
- personas pārmeklēšanas metodiku;
- svešvaloda tādā apjomā, kāda ir nepieciešama saziņai ar pasažieriem;
- metodes un paņēmieni informācijas iegūšanai.

Profilētājam ir jāprot:

- izmantot dokumentu pārbaudes tehniskos līdzekļus;
- atpazīt šaujammieročus, aizdedzināšanas, sprādzienbīstamas un citus bīstamus priekšmetus un to sastāvdaļas.

Profilētājam ir jābūt priekšstatam par:

- melu psiholoģiju; viltus uzvedības pazīmēm; maldinošo verbālo un neverbālo pazīmju identificēšanu;
- subjekta psiho fizioloģiskiem apstākļiem, kuri varētu norādīt uz iespējamu nelikumīgu nodomu klātbūtni.

Profilētājs ir atbildīgs par:

- novērojumu organizēšanu un veikšanu;
- personas psihotipa noteikšanu;
- melu un patiesības identificēšanu, pamatojoties uz izteikumiem un runu;
- mikro izteiksmju atrašanu sarunu biedram;
- neskaidru emocionālo izpausmju atšķirību;
- žestu – emblēmu un žestu – ilustratoru (ķermeņa valodā) atšķirību;
- uzticamas informācijas noplūdes avotu atrašanu;
- melu atpazīšanas metožu izmantošanu.

Valsts robežsardzes koledža realizē kvalifikācijas paaugstināšanas programmu “Profilēšana, intervēšana un identifikācija” (22 stundas). Programma ir paredzēta Valsts robežsardzes amatpersonām, kuras ir iesaistītas robežpārbaudē (1.līnijā), imigrācijas kontrolē, kā arī robežuzraudzībā un veic personu (ceļotāju) profilēšanu, intervēšanu un uzradīto dokumentu pārbaudi, ar mērķi nošķirt tās personas, kurām nepieciešams veikt papildu pārbaudes vai pieņemt lēmumu par viņu aizturēšanu. Atsevišķu tēmu ietvaros programma tiek realizēta Valsts ieņēmuma un Nacionālo bruņoto spēku amatpersonām. Programmas galvenais mērķis ir pilnveidot amatpersonu zināšanas un praktiskās iemaņas personu,

transportlīdzekļu, mantu un priekšmetu novērtēšanā reālajā laikā esošās taktiskās situācijas kontekstā, riska indikatoru un riska profilu noteikšanā, personu intervēšanā un informācijas iegūšanā, kā arī sejas atpazīšanas tehnikā.

Pēc programmas apguves amatpersonām:

- jāsaprot profilēšanas, intervēšanas un identifikācijas nepieciešamība;
- jāzina profilēšanas indikatori un metodika;
- jāzina personu, transportlīdzekļu un bagāžas riska rādītāji;
- jāzina augsta riska personu, kas var būt saistītas ar noteiktu noziedzīgu rīcību (terorista, kontrabandista, cilvēktirdzniecības upura un organizētāja, narkotiku kurjera, u.c.)”, profili (pazīmes);
- efektīvi jāveic dokumentu pārbaude;
- jāzina un jāprot pielietot intervēšanas noteikumus un tehniku;
- jābūt iemaņām noteikt personas izcelsmes vietu pēc valodas, līdzpaņemtām mantām, priekšmetiem u.c.;
- jāzina un jāprot pielietot sejas atpazīšanas tehniku, identificējot personu.

Programmas apguves rezultātā amatpersonas pilnveido šādas „Eiropas Nozares kvalifikāciju ietvarstruktūras robežapsardzībai” (European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union, 2013) 4.līmenim atbilstošās kompetences:

- efektīvi un precīzi sazināties ar indivīdiem un grupām paredzamās robežu un krasta apsardzības situācijās;
- balstīt lēmumus un darbības, kuras tiek veiktas pamatojoties uz dokumentu pārbaudes rezultātiem, uz noteiktām procedūrām un ziņot noteiktajā kārtībā;
- rīkoties, ievērojot organizācijas vērtības, profesionālos standartus un uzvedības kodeksa pamatnostādnes gan parastās, gan kritiskās situācijās, veicot robežu un krasta apsardzes darbības;
- veikt intervēšanu uz robežas vienkāršos ikdienas apstākļos;
- pielietot noteiktas profilēšanas metodes robežkontroles darbībās;
- apkopot informāciju ar mērķi veikt sākotnējo profilēšanas analīzi, lai novērstu un atklātu pārrobežu kriminālās darbības un administratīvos pārkāpumus.

Analizējot Programmas saturu, autors uzskata, ka to ir nepieciešams papildināt ar robežsargu prasmēm:

- aprakstīt personas rakstura iezīmes;
- aprakstīt noziedzīgu izturēšanos;
- izdarīt pieņēmumu par personas vecumu, rasi, ģimenes, sociālo stāvokli un profesiju;

- nosaukt personas ieradumus, tieksmes, kā arī aprakstīt personas uzvedību ikdienā un saziņā ar citiem.

Attīstot profilēšanas iemaņas, nākotnē būs iespēja Valsts robežsardzes struktūrvienību priekšniekus apmācīt profilēšanas metožu pielietojumam personāla atlasei un vadībai.

Secinājumi **Conclusions**

1. Norīkojuma veida – Profilēšanas veicēja ieviešana prasīs Valsts robežsardzei papildus personāla štata vietu izveidi.
2. Valsts robežsardzei un Valsts robežsardzes koledžai ir jāveic grozījumi normatīvajā regulējumā paredzot kandidāta personisko īpašību un profesionālo prasmju analīzi. Šāda analīze ļautu saprast kandidātam piemērotāko darba jomu un vēlamu turpmāko darba vietu.
3. Šobrīd Valsts robežsardzes izglītības sistēma paredz robežsarga sagatavošanu darbam jebkurā inspektora vai jaunākā virsnieka amatā. Veicot grozījumus Valsts robežsardzes koledžas izglītības programmās, nosakot jomu (piemēram, robežpārbaudes, robežuzraudzība, imigrācijas kontrole, kinoloģija, speciālo uzdevumu veikšana, jūrnieks, pilots, u.c.) ir iespēja vai samazināt kandidāta studiju laiku mācību iestādē, vai sniegt papildus zināšanas darbam tieši konkrētajā vietā.
4. Valsts robežsardzes koledžas kvalifikācijas paaugstināšanas programmas “Profilēšana, intervēšana un identifikācija” (22 stundas) apjoms nav pietiekams, lai apmācītu robežsargus profilētāja darbam. Ir nepieciešams sadalīt programmu citosursos (piemēram, Personas uzvedības novērošana; Personas ārējā izskata novērtēšana; Līdzpaņemto mantu / priekšmetu (t.sk. transportlīdzekļa) atbilstības novērtēšana; Ceļotāju intervēšana; Iesniegto dokumentu novērtēšana) vai pagarināt to īstenošanas laiku.

Summary

The author of the paper recommends the establishment of persons' profiler selection and professional training system, that does not require investment of significant financial resources, which in turn is an absolute advantage facing the system which is based only on the use of expensive equipment instead of human resources. The development of such system can increase the chance to prevent the possible violations in the future.

At the present moment, in the State Border Guard there is no separate border guard duty – profiler. The tasks and obligations of duty – profiler are divided among other duties in the shift. The creation of the profiler position will require increasing the number of State Border Guard personnel.

The State Border Guard and the State Border Guard College must amend the regulatory framework envisaging the analysis of the candidate's personal qualities and professional skills.

Such analysis would allow the candidate to understand the most appropriate field of work and the position he/she would like to take after graduation, and effectively adjust the State Border Guard College training programmes to the candidate's needs.

At present, the length of the training programme for profiler (22 hours) is not sufficient and needs to be split into a number of courses (e.g. Observation of Person`s Behaviour; Assessing the Person`s Appearance; Conformity assessment of personal belongings (including the vehicle); Interviewing travellers; Assessment of submitted documents, or extended.

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АНАЛИЗ КОНТЕКСТНЫХ ДАННЫХ В РЕГИОНАЛЬНОМ МОНИТОРИНГЕ КАЧЕСТВА ЗНАНИЙ

Analysis of Context Data in the Regional Monitoring of Knowledge Quality

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Abstract. Ensuring high quality education is an important priority of state educational policy in the Russian Federation. Recently, the quality of education, which directly depends on many factors, has been widely discussed. The aim of the study is a statistical analysis of the results of regional qualimetric monitoring of the quality of knowledge based on contextual indicators that affect the educational results of students. As the main tools used correlation and regression analysis. The described technique was tested in the Pskov region. The results of the study provide relevant information to all interested parties: state and municipal levels of education management, heads and teachers of educational institutions, parents and students.

Keywords: contextual data, educational policy, education quality assessment.

Введение

Introduction

Сегодня отмечается повышенный интерес к проблемам качества образования. Оценка качества образования является достаточно сложной задачей вследствие огромного числа влияющих на него величин с неизвестным характером влияния. Для получения объективной информации о результатах обучения чаще всего проводится независимый мониторинг знаний. Основная цель мониторинга – обеспечить всех заинтересованных участников образовательного процесса обратной связью для совершенствования образовательного процесса.

Региональный квалиметрический мониторинг (РКМ) качества знаний учащихся Псковской области наряду с аналогичными исследованиями на федеральном уровне является элементом стабильно действующей региональной системы оценки качества образования.

Проблема оценки качества образования в школе определила главную цель нашего исследования - построение и экспериментальная апробация модели статистического анализа результатов РКМ на основе показателей, влияющих на образовательные результаты учащихся.

В качестве основного инструментария использован корреляционно-регрессионный анализ дополнительной контекстной информации РКМ.

Анализ контекстных данных *Analysis of contextual data*

О необходимости учёта контекстных показателей при сравнении эффективности образовательных систем активно пишут известные отечественные специалисты (Bochenkov & Valdman, 2013; Bolotov & Valdman, 2013). Имеются работы (Yastrebov, Pinskaya, & Kosaretsky, 2014; Melnik & Vanin, 2019), в которых предлагается для оценки эффективности школ использовать индекс социального благополучия школы.

Хорошо известны и международные измерения качества образования, в частности международные исследования *PISA (Programme for International Student Assessment)*, *TIMSS (Trends in Mathematics and Science Study)*, *CIVIC (Civic Education)*, *PIRLS (Progress in International Reading Literacy Study)*. Эти исследования указывают доминирующую роль надпредметных умений, компетентностей в различных областях жизнедеятельности школьника. Для конкретного образовательного учреждения эти исследования интересны в плане использования заданий для оценки качества образования.

На протяжении многих лет исследователи (Kellagan, Grini, & Murrey, 2014), говоря об учебной деятельности школьника и её успешности, прежде всего, подразумевали ведущую роль интеллектуального уровня личности. Безусловно, значение этого фактора нельзя недооценивать. Однако успеваемость учащихся зависит от множества факторов социально-педагогического порядка и социально-психического, а также от психофизических характеристик самой личности учащегося. Многомерность этого явления предполагает необходимость применения многомерных методов, в частности приемов, корреляционно-регрессионного анализа.

Независимые переменные в регрессионных моделях, как правило, имеют непрерывные области изменения. Однако в исследовании успеваемости требуется принимать во внимание качественные признаки, которые могут принимать всего два значения или дискретное множество значений. В связи с этим в предлагаемой ниже модели были использованы фиктивные переменные.

В качестве зависимой переменной, характеризующей уровень учебной успеваемость (Y_i) был выбран – средний балл по всем предметам последней четверти, предшествующей РКМ. В качестве независимых переменных были отобраны:

X_1 - тестовый балл РКМ по математике;

X_2 - интерес к учёбе (значение 1, если ответ – «да», иначе 0);

X_3 - место проживания город (значение 1, если ответ – «да», иначе 0);

X_4 - регулярность выполнения домашних заданий (значение 1, если ответ – «да», иначе 0);

X_5 - занятие в кружках и секциях (значение 1, если ответ – «да», иначе 0);

X_6 - индекс социального благополучия школы;

X_7 - наказывают ли родители за плохие отметки (значение 1, если ответ – «да», иначе 0);

X_8 - число братьев или сестер в семье;

X_9 - здоровье учащегося (значение 1, если ответ – «да», иначе 0);

X_{10} - число учеников в классе;

В качестве используемой модели предлагается уравнение множественной регрессии формула 1:

$$Y_i = \beta_0 + \sum_{k=1}^{10} X_{ki} \beta_k + \varepsilon_i, \quad (1)$$

где i – номер учащегося,

$\beta_k, k = 0, 1, \dots, 10$ неизвестные параметры модели, которые оцениваются методом наименьших квадратов,

ε_i – остаток, или «шум», характеризующий разброс показателей Y_i между учащимися, который не может быть объяснен с помощью включенных в модель факторов.

Эмпирическое исследование *Empirical research*

Эмпирическое исследование проводилось в рамках РКМ Псковской области в 2018 году. Для формирования экспериментальных данных использовался метод формирования простой случайной выборки. На первом этапе была сделана выборка 130 школ отобранных из генеральной совокупности 253 школ Псковской области таким образом, чтобы каждый элемент этой совокупности имел бы равные возможности (равную вероятность) попасть в выборку. На втором этапе в полученной выборке

школ наблюдению подвергались все учащиеся 4-х классов. Объём выборки составил 5598 учащихся начальной школы. Генеральная совокупность, на которую предполагается распространить результаты исследования, составляет 23645 учащихся начальной школы Псковской области.

Все вычисления в работе проводились с помощью компьютерной программы анализа данных *Statistica (v10.0) StatSoft, Inc.* На первом шаге была построена матрицы парных корреляций (см. Таблицу 1), которая позволила установить, взаимосвязь между переменными.

Таблица 1. Частные коэффициенты корреляции между переменными
Table 1 Partial correlation coefficients between variables

	Y	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈	X ₉
Y	1,00									
X ₁	0,52**	1,00								
X ₂	0,05**	0,12**	1,00							
X ₃	0,12**	0,05**	-0,04**	1,00						
X ₄	0,14**	0,14**	0,09**	0,02	1,00					
X ₅	0,10**	0,11**	0,10**	0,04**	0,06**	1,00				
X ₆	0,16**	0,06**	-0,01	0,31**	0,03*	0,06**	1,00			
X ₇	-0,11**	-0,11**	0,03*	-0,03*	-0,02	0,05**	-0,02	1,00		
X ₈	-0,16**	-0,18**	-0,02	-0,11**	-0,09**	-0,02	-0,05**	0,07**	1,00	
X ₉	0,04**	0,05**	0,05**	0,001	0,03*	0,01	-0,01	0,02	-0,00	1,00
X ₁₀	0,18**	0,08**	-0,06**	0,63**	0,03*	0,06**	0,39**	-0,05**	-0,12**	-0,00

Примечание: * значимо на 5%-ном уровне; ** значимо на 1%-ном уровне.

Ни один из элементов матрицы корреляций не имеет значения больше 0,8, значит – мультиколлинеарности нет. На втором шаге на основе существующих данных был использован метод пошаговой регрессии, который позволил из множества независимых переменных отобрать только те, которые значимы для адекватного описания многопараметрической регрессии. Итоговые оценки параметров регрессионной модели (1) представлены в Таблице 2.

Результаты анализа позволяют констатировать, что академическая успеваемость учащихся значимо (на 5%-ом уровне) зависит от следующих факторов:

- умственные способности (высокий тестовый балл РКМ по математике);
- мотивация (регулярность выполнения домашних, занятие в кружках и секциях, отсутствие наказаний родителей за плохие отметки);

- характеристика среды (высокий индекс социального благополучия школы, небольшое число братьев или сестер в семье, близкое к нормативному число учеников в классе).

Таблица 2. *Параметры регрессионной модели*
Table 2 *Parameters of regression model*

Параметры модели	Коэффициенты β_k для успеваемости
Тестовый балл РКМ по математике	0,48*(0,01)
Регулярность выполнения домашних	0,063*(0,01)
Занятие в кружках и секциях	0,035*(0,01)
Индекс социального благополучия школы	0,083*(0,01)
Наказывают ли родители за плохие отметки	-0,05*(0,01)
Число братьев или сестер в семье	-0,05*(0,01)
Число учеников в классе	0,103*(0,15)
Точность (объясняющая сила) модели	
Коэффициент детерминации (R^2)	0,30

Примечание: В скобках приведены стандартные ошибки коэффициентов регрессии;

* значимо на 5%-ном уровне.

В целом полученная регрессионная модель значима по критерию Фишера при $\alpha=0,05$. При этом полученная модель на 30% объясняет вариацию успеваемости, указанными в Таблице 2 факторами. Судя по β -коэффициентам, наибольшее прямое влияние на академическую успеваемость оказывает фактор «высокий тестовый балл РКМ по математике».

Выводы Conclusions

Предложенная в работе модель анализа образовательных результатов на основе дополнительной контекстной информации регионального квалиметрического мониторинга позволяет определять значимые факторы, которые влияют на успешность обучения.

Для того, чтобы процесс РКМ был эффективным, он должен соответствовать цели, с которой предпринимается. Анализ контекстных данных в РКМ может помочь распознать и более точно определить проблемы во всей образовательной системе и может способствовать разработке конкретных мер или реформ.

Кроме того, применение статистических методов в РКМ позволяет значительно расширить информационную базу для принятия решений в системе управления образования по разработке стратегии и тактики

поведения школ на рынке образовательных услуг и повышения качества образования.

Summary

The lack of necessary contextual information, namely the social characteristics of students and their families, the staffing and material support of the educational process, is a fundamental problem that needs to be solved before any models of school efficiency assessment can be used.

If additional contextual information is available, such as from regional qualimetric monitoring (RCM) of knowledge quality, it is necessary to have a model for the use of this information. As such a model, the use of a correlation-regression model is proposed in the work. This model enables you to:

- Determining correlation of academic school results with test results within RCM, social characteristics, living conditions, characteristics of learning environment, etc.;
- Identifying dominant factors affecting academic school outcomes.

At the same time, regression models do not identify causal relationships, that is, they do not suggest that explanatory variables affect the explained variable - they only make it possible to establish the existence and nature of this relationship.

An empirical study was conducted to demonstrate the use of contextual data in the proposed model. As a result, indicators were established that are steadily and statistically significant related to the academic performance of schoolchildren.

These results are not a reflection of the nationwide situation, as the study sample is limited to one region. However, they may be considered as grounds for contextualization within the RCM.

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FINANŠU KOMPETENCES NOVĒRTĒŠANAS PROBLĒMUZDEVUMI LATVIJAS SKOLĒNIEM

Problem Items of Financial Literacy Assessment for Students in Latvia

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Abstract. *Considering the financial situation in Latvia it is very important not only to realize how effectively students could deal with situations relating to financial issues, but to understand what kind of PISA Financial items exactly bring difficulties. It is necessary to realize how to improve students' financial literacy. The main of the research is to find out what kind of PISA 2018 financial items are difficult for students and which students' answers are marked as incorrect. To reach the aim the methods of content analysis. The research data show that students are very good at dealing with tasks similar to their everyday situations and requiring mathematical skills. In their turn, tasks related to investments and topics not related to everyday life are found difficult. Students are not good at tasks which require deep data or situation analysis and judgements made on reasoning even if they could be based on personal experience.*

Keywords: *financial items, financial literacy, incorrect answers in financial items, PISA.*

Ievads

Introduction

Finanšu izglītība pēdējos gados ir ļoti aktuāla tēma visā pasaulē, jo finanses ir neatņemama ikdienas dzīves sastāvdaļa. Cilvēki ikdienā lieto dažādus banku pakalpojumus sākot no banku karšu lietošanas, rēķinu apmaksas internetā, iepērkas, plāno pirkumus un veic citas darbības, kas saistītas ar naudu. Ņemot vērā, ka vairākas valstis viena pēc otras piedzīvojušas finanšu krīzes, ko lielā mērā izraisīja arī neprasmīga rīcība ar naudu, neapdomājot sekas, liek domāt par sabiedrības finanšu kompetences līmeni.

Apzinoties, ka finanšu kompetence ir viena no galvenajām kompetencēm, kas nepieciešama modernas sabiedrības pārstāvim, bet valstu nacionālie pētījumi rādīja, ka tieši jaunajiem cilvēkiem ir visvājākās zināšanas finanšu jautājumos salīdzinot ar pārējo sabiedrību, OECD (*Organisation for Economic Cooperation and Development*) sāka pievērst pastiprinātu uzmanību finanšu izglītībai skolā. Sākot ar 2012.gadu Starptautiskajā skolēnu novērtēšanas programmā (PISA jeb *Programme for International Student Assessment*) tika iekļauts finanšu

kompetences modulis, kurā piedalījās arī Latvijas skolēni. Kaut arī rezultāti tika publiskoti tikai 2014.gada vasarā (Latvijas skolēnu sasniegumi OECD PISA Finanšu kompetences novērtēšanas modulī, statistiski nozīmīgi neatšķīrās no OECD valstu vidējā rādītāja, Latvijas skolēnu vidējie sasniegumi bija 501 punkti), jau ar 2012.gadu Latvijā sāk pievērst uzmanību (aktualizēt problēmas) finanšu izglītībai skolā. Līdz 2014.gada februārī tika parakstīts memorands par "Latvijas iedzīvotāju finanšu pratības stratēģijas 2014–2020" ieviešanu, lai veicinātu iedzīvotāju finanšu pratības līmeņa pakāpenisku paaugstināšanu. Par turpmāku sadarbību vienojās – Finanšu un kapitāla tirgus komisija (FKTK), Izglītības un zinātnes ministrija (IZM), Valsts izglītības satura centrs (VISC), Banku augstskola (BA), Patērētāju tiesību aizsardzības centrs (PTAC), kā arī finanšu pakalpojumu sniedzēju profesionālās asociācijas – Latvijas Komerčbanku asociācija (LKA) un Latvijas Apdrošinātāju asociācija (LAA). Memorands paredz, ka IZM uzņemas (IZM, 2014):

- 1) pilnveidot vispārējās izglītības mācību priekšmetu programmu paraugu saturu par finanšu pratības jautājumiem;
- 2) veicināt finanšu pratības apmācības pedagoģu, kā arī citās studiju programmās augstākās izglītības mācību iestādēs.

Latvija arī 2018.gada PISA pētījumā ņēma dalību finanšu modulī. Tas palīdzēs noskaidrot, vai šo sešu gadu laikā ir vērojami uzlabojumi tieši skolēnu finanšu kompetencē. Bet pirms šī salīdzinājuma ir vērts izanalizēt, kāda veida, satura, konteksta un prasmju uzdevumi PISA 2018 Finanšu kompetences novērtēšanas modulī Latvijas skolēniem sagādāja lielākās grūtības, savukārt kādi padodas viegli. Šī pētījuma mērķis ir noskaidrot, kādas prasmes nepieciešams attīstīt Latvijas skolēniem, lai uzlabotos finanšu kompetences līmeni. Pētījumā tiek izmantota kontentanalīze.

Literatūras apskats

Literature review

Literatūrā finanšu kompetence tiek saistīta ar indivīda spējām pielietot savas zināšanas un prasmes pieņemot lēmumus, kas ietekmē viņa finansiālo labklājību. Ir definīcijas, kurās lielāks uzsvars ir uz finanšu koncepciju izpratni vai naudas pārvaldīšanu. Visprecīzākā finanšu kompetences definīcija, pēc autores domām, ir OECD piedāvātā, kas ir vispilnīgākā un atklāj visas finanšu kompetences aspektus. Tātad "Finanšu kompetence – zināšanas un izpratne par finanšu jēdzieniem un prasme, motivācija un pārliecība šīs zināšanas un izpratni pielietot, lai pieņemtu efektīvus lēmumus dažādās ar finansēm saistītās situācijās, lai uzlabotu indivīda un sabiedrības finansiālo labklājību un lai varētu piedalīties ekonomiskajā dzīvē" (OECD 2014a; OECD, 2014b; Kangro, 2014).

Analizējot pētnieku teikto, var secināt, ka lielai daļai ir līdzīgi uzskati par to, kādas zināšanas un prasmes ietver finanšu kompetence. Pētnieki uzskata, ka skolā attiecībā uz finanšu jautājumiem lielāks uzsvars jāliek uz praktiskām iemaņām, ne teorētiskām. Skolēniem jāizprot kāpēc, piemēram, ir jākrāj, nevis, kas ir krāšana (Akdag, 2013; Putniņa u.c., 2012; Williams, Grizzell, & Burrell, 2011; United States Department of the Treasury Office of Financial Education, 2002). Pētnieki uzskata, ka ir svarīgi, lai skolēnu izglītošanās procesā iesaistītos ne tikai kompetenti skolotāji, bet arī vecāki ar savu piemēru un paraugu un skolēnu iesaistīšanu ikdienas pasākumos, kas saistīti ar finanšu plānošanu, tēriņiem un lēmumu pieņemšanu, kā arī dažādas ar finanšu jomu saistītas organizācijas un iestādes (Avard, Manton, English, & Walker, 2005; Lusardi, Mitchell, & Curto, 2010; Koenig, 2007).

Metodoloģija *Methodology*

Pētījumā tika izmantoti OECD PISA 2018 dati. PISA ir OECD Starptautiskā skolēnu novērtēšanas programma, kurā ik pēc trim gadiem lasīšanas, matemātikas un dabaszinātņu jomās tiek testēti 15 gadus veci skolēni visā pasaulē. Testi ir veidoti tā, lai izmērītu, cik labi skolēni pārvalda galvenos priekšmetus un spēj savas zināšanas pielietot dažādu ar reālas dzīves situāciju saistītu problēmu risināšanā un ir gatavi pieaugušu cilvēku dzīvei. Šis vecums izvēlēts apzināti, jo lielākajā daļā valstu šis ir vecums, kad skolēni beidz pamatizglītību. Papildus šīm pamatjomām valstīm ir iespēja izvēlēties novērtēt savus skolēnus arī citās jomās, piemēram, kā finanšu kompetence. PISA 2018 pamatpētījuma ģenerālkopu veidoja 2003. gada dzimušie. Kopumā finanšu modulī piedalījās 1402 Latvijas skolēni no visas Latvijas, gan no lielajām pilsētām, gan no laukiem, gan no vidusskolām, gan no pamatskolām, gan no ģimnāzijām.

PISA Finanšu kompetences novērtēšanas elementi

PISA 2018 ietvaros finanšu kompetence tiek novērtēta, pamatojoties uz trīs elementiem – saturu, procesu un kontekstu.

Saturs. Zināšanas uz izpratne, kas nepieciešamas, lai spētu atbildēt uz jautājumiem par finanšu jomas problēmām/situācijām: nauda un darījumi (transakcijas), finanšu plānošana un pārvalde, riski un ieguvumi un finanšu vide.

Process. Finanšu jautājuma atrisināšanai nepieciešamās prasmes - spēja atpazīt un piemērot finanšu jomas jēdzienus, saprast, analizēt, spriest, izvērtēt un ieteikt risinājumus. PISA finanšu kompetencē tiek definētas četras galvenās prasmes: finanšu informācijas identificēšana, informācijas analizēšana finanšu kontekstā, ar finansēm saistītu problēmu izvērtēšana un zināšanu un izpratnes par finansēm pielietošana.

Konteksts. Jautājumos iekļautās situācijas, ar kurām skolēni, iespējams, varētu reāli saskarties: izglītība un darbs, mājas un ģimene, privātās situācijas un sabiedrības dzīves situācijas.

PISA 2018 finanšu uzdevumu veidi

Finanšu uzdevumi ir izveidoti, ievērojot visus iepriekš aprakstītos elementus: kontekstu, saturu, procesu. Katram uzdevumam ir savs īpašs saturs, kas ietver noteiktu prasmju un zināšanu jomu. Uzdevuma saturs atklāts rosinošā materiālā, kas parasti ir kāda teksta fragments, tabula, diagramma, fotogrāfija, shēma u.c.

Lai saprastu kāda veida uzdevumi tiek ietverti PISA 2018 pētījumā, lai noskaidrotu skolēnu finanšu kompetenci, tad 1.tabulā dots PISA 2018 finanšu uzdevumu sadalījums gan pēc satura, konteksta formāta, aspekta un situācijas, gan pēc uzdevuma veida.

*1.tabula. PISA 2018 finanšu uzdevumu sadalījums
Table 1 PISA 2018 financial item breakdown*

	Uzdevumu skaits kopā	Vairāk atbilžu izvēļu uzdevumi	Kompleksi vairāk atbilžu izvēļu uzdevumi	Brīvo atbilžu uzdevumi	Īso brīvo atbilžu uzdevumi
<i>Finanšu uzdevumu sadalījums pēc satura</i>					
Nauda un darījumi (transakcijas)	11	7	1	2	1
Finanšu plānošana un pārvalde	16	3	3	6	4
Riski un ieguvumi	11	2	4	3	2
Finanšu vide	5	0	3	2	0
Kopā	43	12	11	13	7
<i>Finanšu uzdevumu sadalījums pēc prasmēm</i>					
Analizēt informāciju finanšu kontekstā	11	1	4	2	4
Pielietot zināšanas un izpratni par finansēm	11	6	1	1	3
Izvērtēt ar finansēm saistītu problēmu	14	1	4	9	0
Identificēt finanšu informāciju	7	4	2	1	0
Kopā	43	12	11	13	7
<i>Finanšu uzdevumu sadalījums pēc konteksta</i>					
Izglītība un darbs	5	0	2	3	0
Mājas un ģimene	14	4	2	3	5
Privātās situācijas	21	8	6	5	2
Sabiedrības dzīves situācijas	3	0	1	2	0
Kopā	43	12	11	13	7

Avots: PISA, 2018

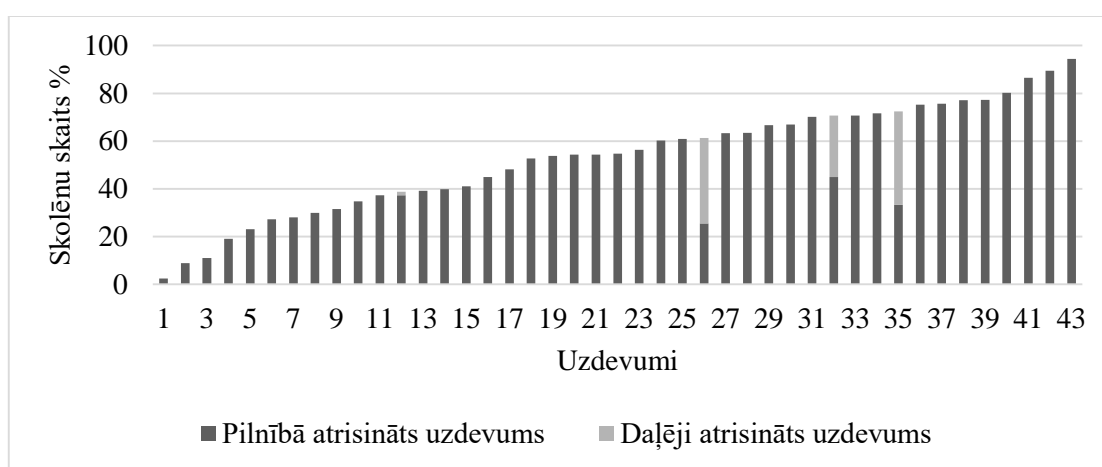
Source: PISA, 2018

Pētījuma rezultāti

Research results

1.attēlā finanšu moduļa uzdevumi sakārtoti pēc Latvijas skolēnu skaita procentos, kas spējuši konkrēto uzdevumu atrisināt. Kā redzams, tad ir bijuši tādi uzdevumi, kurus lielākā daļa Latvijas skolēnu spēja atrisināt un arī tādi uzdevumi, ko atrisināt nav spējusi pat trešā daļa skolēnu.

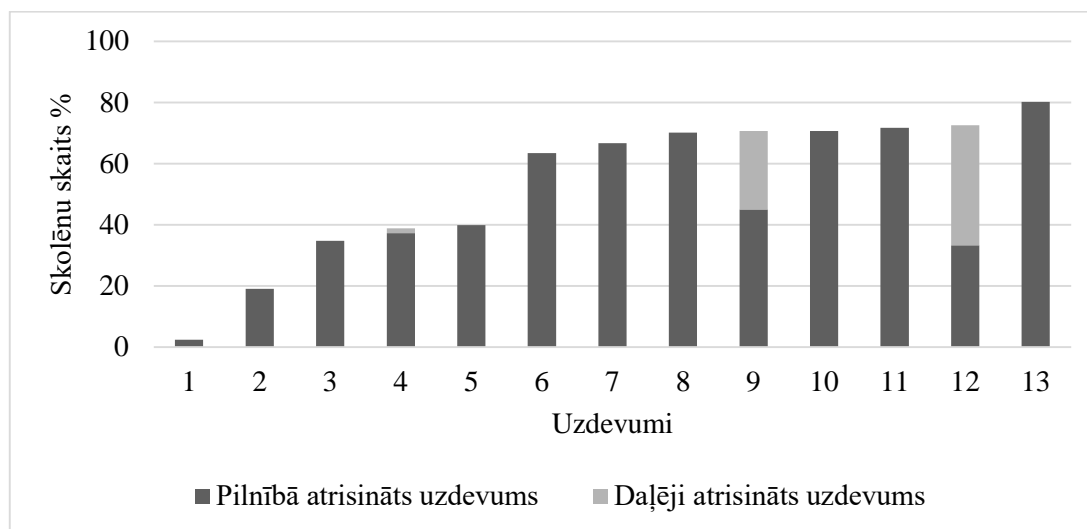
Analizējot skolēnu pareizo atbilžu sadalījumu dažādos uzdevumos, nākas secināt, ka nav kāda konkrēta konteksta, satura, procesa vai veida uzdevumi, kas īpaši viegli vai īpaši grūti veiktos Latvijas skolēniem. Līdz ar to bija nozīmīgi saprast, kādas kļūdas pieļauj skolēni un kas skolēniem sagādā problēmas.



1.attēls. *Finanšu moduļa uzdevumus atrisinājušo skolēnu skaits procentos*
 Figure 1 *Percentage of students who had solved financial tasks*

Finanšu moduļa uzdevumus var iedalīt automātiski jeb datorizēti vērtētajos uzdevumos un uzdevumos, kuru atbildi vērtē cilvēks. Cilvēka vērtētie uzdevumi jeb brīvo atbilžu uzdevumi (skat.1.tabulā) ir tie, kas tika izmantoti tālākai analīzei. Šie uzdevumi izvēlēti, jo tie ir uzdevumi, kuros skolēniem jāsniedz garākas atbildes, jāpamato savi viedokļi, jādemonstrē savas zināšanas un izpratne par situācijām.

Kā redzams, 2.attēlā, tad kopumā šādi bijuši 13 uzdevumi, no kuriem 5 uzdevumus pareizi nav spējuši atrisināt teju lielākā daļa Latvijas skolēnu. Savukārt ir tikai 4 tādi uzdevumi, kurus pareizi spējuši atrisināt vairāk kā 70% skolēnu. Trijiem no uzdevumiem tika ieskaitītas arī skolēnu daļēji pareizi sniegtās atbildes. Kā redzams, tad 2 uzdevumos to skolēnu īpatsvars, kas snieguši pilnīgi pareizu atbildi ir lielāks, nekā to skolēnu skaits, kas snieguši daļēji pareizu atbildi.



2.attēls. *Brīvo atbilžu uzdevumu skolēnu pareizo atbilžu skaits (%)*
Figure 2 *Percentage of Correct answers of Constructed-response items (%)*

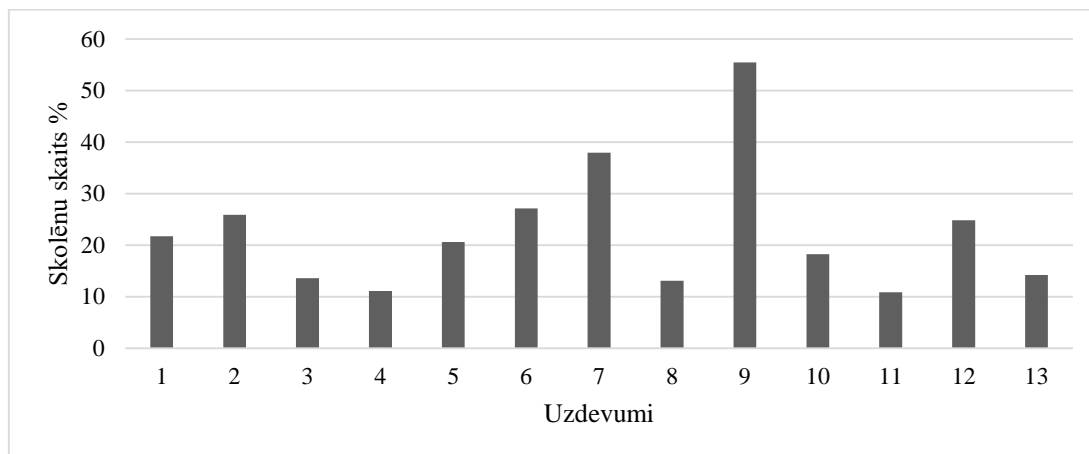
Kontentanalīzei tika izmantotas tikai tās skolēnu sniegtās atbildes, ko vērtētāji bija atzinuši par nepareizām vai nepietiekamām atbildēm. Visas nepareizas vai nepietiekamās atbildes tika klasificētas pēc atbildē ietvertās pamatidejas. Rezultātā iegūstot grupas, pēc kurām iespējams analizēt skolēnu nepareizas atbildes.

Ņemot vērā PISA konfidencialitātes politiku, šie uzdevumi netiks tiešā veidā publicēti, bet tiks sniegts ieskats uzdevumu būtībā un mērķī, kā arī vispārīgs uzdevumu apraksts. Uzdevumu saturs, pārbaudāmās prasmes un konteksts, kā arī uzdevumu veids aplūkojams 1.tabulā.

Analizējot nepareizas atbildes kopumā, nākas secināt, ka liela daļa skolēnu, iespējams, nojauš vai zina pareizo atbildi, bet viņi neprot to paskaidrot vai izteikties pietiekami saprotami, lai tā tiktu ieskaitīta. Tāpat teju katrā uzdevumā daļa skolēnu (11%-55%), kas snieguši nepareizas atbildes, ir tādi, kas vienkārši ierakstījuši kādas muļķības - nesakarīgus skaitļus vai burtu virknējumus, dažādus simbolus, kā arī atbildi “nezinu” vai citas tai līdzīgas atbildes (turpmāk, negrupējamas atbildes).

Arī 3.attēlā redzams, ka vienlīdz daudz negrupējamas atbildes skolēni snieguši gan uz tiem uzdevumiem, kas lielākajai daļai skolēnu nesagādāja grūtības, gan uz tiem, kas sagādāja.

Tālākai analīzei tika izvēlēti pieci tādi finanšu uzdevumi, kur vismazāk skolēnu sniegtās atbildes tika ieskaitītas kā pareizas un trīs tādi finanšu uzdevumi, kur visvairāk skolēnu atbildes ieskaitītas kā pareizas.



Piezīme: uzdevumi sakārtoti augošā secībā atbilstoši skolēnu pareizi atrisināto uzdevumu sadalījumam (2.att.).

Note: items sorted in ascending order with distribution of students correct answers (Figure 2).

3.attēls. Skolēnu negrupējamo atbilžu skaits procentos no nepareizajām atbildēm
Figure 3 Percentage of non-grouped student responses from incorrect answers

Skolēniem viens no sarežģītākajiem uzdevumiem bijis jautājums, kas saistīts ar finanšu plānošanu un pārvaldību, lai izvērtētu finanšu problēmas izglītības un darba kontekstā. Šajā uzdevumā skolēniem bija jāprot izskaidrot nodokļu piemērošanu saistībā ar algu, nolasot informāciju no sniegtās tabulas un jauniešu sarunas. Kā rāda dati, tad nedaudz vairāk kā 97% no Latvijas skolēniem nespēja sniegt pareizu atbildi uz šo uzdevumu. Dziļāka datu analīze rāda, ka 31% no šiem skolēniem nespēja sniegt nekādu sakarīgu atbildi. Skolēni nespēja nolasīt un analizēt tabulā sniegto informāciju, lai pamatotu nodokļu piemērošanas principus. Liela daļa skolēnu, 24%, no tiem, kas sniedza nepareizu atbildi, apgalvoja, ka lielāka alga nozīmē lielākus nodokļus, ar uzsvaru, ka nav izdevīgi saņemt lielāku algu, jo būs arī jādod vairāk prom. Šeit jaušama nostāja, ka nodokļus maksāt ir naudas zaudēšana, ka tas nav izdevīgi. Vairāk kā 30% no skolēniem, kas snieguši nepareizu atbildi, spēja tikai nolasīt informāciju no tabulas, bet nepamatoja savu izvēlēto atbildi, respektīvi, nesniedza skaidrojumus, kas parādītu, ka skolēni izpratuši kā nodokļi tiek aprēķināti. Skaidri jūtama sabiedrībā valdošā uzskata, ka maksājot nodokļus mēs uzturam valsts ierēdņus, tāpēc labāk tos nemaksāt un principu – *jo lielāka alga, jo lielāki nodokļi* – ietekme uz skolēnu sniegtajām atbildēm. Šo signālu nevar atstāt bez ievērības, jo šāda skolēnu nostāja var veicināt ēnu ekonomiku, nevis samazināt to.

Otrs uzdevums, kas skolēniem sagādāja problēmas, ir uzdevums, kas saistīts ar finanšu riskiem un ieguvumiem, finanšu problēmu vērtēšanu individuālā kontekstā, kura galvenais mērķis ir noskaidrot skolēnu prasmi paskaidrot finansiālu ieguvumu no risku diversifikācijas. Galvenais uzdevums skolēniem

bija parādīt izpratni par risku sadalīšanu, nepieciešamību ieguldījumus sadalīt dažādos ieguldījumu plānos. 81% skolēnu nespēja šo uzdevumu atrisināt pareizi. No skolēniem, kas snieguši nepareizas atbildes, 26% bija tādi, kas apgalvoja, ka, jo vairāk iegulda, jo lielāka peļņa. Šīs skolēnu atbildes pierāda, ka skolēni nedomā par riskiem, kas tos sagaida, ja investīcija nav veiksmīga vai kāds no investīciju plāniem neizdodas. Iespējams, ka šīs skolēnu sniegtās atbildes ir skolēnu interpretācija uzskatam – *jo vairāk noguldīsi, jo vairāk nopelnīsi*. Tāds uzskats var būt maldinošs, jo netiek analizēti riski, pareizāk būtu – *jo gudrāk ieguldīsi, jo lielāka peļņa*.

Trešais sarežģītais uzdevums – saistīts ar finanšu plānošanu un finanšu pārvaldību, vērtējot finanšu problēmas izglītības un darba kontekstā. Šo uzdevumu pareizi nevarēja atrisināt 65 % Latvijas skolēnu. Uzdevuma mērķis ir noskaidrot skolēnu izpratni par ilgtermiņa finansiālajiem ieguvumiem, kas saistīti ar darba devēja investīcijām kvalifikācijas paaugstināšanai. Skolēnu uzdevums bija norādīt uz vienu no sekojošajiem ieguvumiem: darba samaksas pieaugumu ilgtermiņā vai ar finansēm saistītām iespējām, kuras kopumā izriet no tā, ka darbiniekam ir augstāka kvalifikācija, vai uzlabotas darba stabilitātes iespējamības. Lielākā daļa skolēnu nespēja saskatīt ilgtermiņa finansiālu ieguvumu, ko varētu nodrošināt kvalifikācijas paaugstināšana, bet saskatīja tikai īslaicīgus ieguvumus, kas saistīti ar darba devēja iesaisti kvalifikācijas paaugstināšanas kursu apmaksā. Tas, iespējams, saistīts ar izglītības zemo prestižu sabiedrībā, ar to, ka pastāv uzskats, ka izglītība nespēj nodrošināt labi apmaksātu darbu un līdz ar to skolēni nesaskata iespējamus ieguvumus ilgtermiņā.

Vēl sarežģīts skolēniem bijis uzdevums, kas saistīts ar finanšu vidi, finanšu problēmu izvērtēšanu individuālā kontekstā, uzdevuma mērķis noskaidrot skolēnu zināšanas par faktoriem, kas ietekmē piekļūšanu kredītlīdzekļiem. Skolēnu uzdevums bija parādīt izpratni par faktoriem, kurus banka varētu apsvērt, novērtējot kredīta pieteicējus. Pārsteidzoši, ka lielākā daļa skolēnu, 61%, nespēja uz šo uzdevumu atbildēt pareizi, lai gan 37% skolēnu tomēr spēja sniegt pilnībā pareizu atbildi un tikai teju 2% skolēnu sniedza daļēji pareizu atbildi. Visbiežākās skolēnu nepareizās atbildes (50% skolēnu, kas snieguši nepareizās atbildes) bija saistītas ar to, ka skolēni sniedza atbildi, kas ir pretrunā faktam, ka bankas pārbauda personu apliecinājumus dokumentus. Masu medijos nereti nākas dzirdēt par dažādiem krāpniecības mēģinājumiem, izkrāpšanas gadījumiem, kas tieši saistīti ar cilvēku personības nepārbaudīšanu. Iespējams, skolēni pieņem, ka līdzīgas situācijas var gadīties arī bankās. Šajā pašā uzdevumā skolēni bieži apgalvojuši arī, ka banka nepiešķir kredītu, jo iespējams attiecīgā persona ir jau kādam galvotājs vai šajā ģimenē jau kādam ir kredīts vai arī tāpēc, ka attiecīgajam kredītņēmējam kredīts nemaz nav vajadzīgs. Šīs skolēnu atbildes demonstrē

skolēnu negatīvo attieksmi pret banku izsniegtajiem kredītiem. Tas ir saprotams, jo, iespējams, šo skolēnu vecāki šobrīd atmaksā kādu kredītu.

Gandrīz tik pat neatrisināms skolēniem bija uzdevums, kas saistīts ar naudu un transakcijām, lai izvērtētu finanšu problēmas individuālās situācijās. Uzdevuma mērķis ir paskaidrot viltus ietaupījumu jēdzienu, iegādājoties nevajadzīgas preces. Kā rāda dati, tad 60% skolēnu nav tikuši galā ar šo uzdevumu. Analizējot skolēnu sniegtās atbildes nākas secināt, ka 60% no skolēniem, kas snieguši nepareizas atbildes, nepamatoja savu atbildi vai sniedza vispārīgus apgalvojumus, no kuriem nevar izdarīt secinājumus par skolēnu izpratni. Skolēni neprot izteikt savu viedokli, pamatot to, kā arī vērojamas stereotipiskas atbildes, kas saistītas ar akcijām veikalos – *pērkot akciju laikā var ietaupīt naudu*.

Uzdevums, kuru lielākā daļa Latvijas skolēnu spējuši atrisināt, bija saistīts ar riskiem un ieguvumiem, lai vērtētu finanšu problēmas sabiedriskā kontekstā. Uzdevuma mērķis – paskaidrot PIN koda būtību. Lai arī lielākā daļa spēja sniegt pareizu atbildi, tomēr teju 21% skolēnu neapzinās PIN koda vajadzību un nozīmi, kas liek domāt, ka šie skolēni varētu vieglprātīgi izturēties pret tā drošību. Lielākā daļa skolēnu spēja tikai atkārtot jau uzdevumā sniegto informāciju, tāpat bija salīdzinoši daudz skolēnu, kam ir nedaudz maldīgs priekšstats par karšu lietošanu un tās drošības pasākumiem. Iespējams, tie ir skolēni, kuriem pašiem savas kartes vēl nav. Aptaujas dati rāda, ka gandrīz 60% skolēnu nav sava debetkarte (salīdzinot ar 2012. gada datiem, tad 2018. gadā jau vairāk skolēniem ir sava debetkarte), līdz ar to ir saprotams, ka skolēni neapzinās PIN koda nozīmi un drošības pasākumu ievērošanas nepieciešamību.

Otrs uzdevums ar salīdzinoši maz nepareizajām atbildēm saistīts ar riskiem un ieguvumiem, kur jāpielieto finanšu zināšanas un izpratne par šīm zināšanām mājas un ģimenes kontekstā, bija salīdzinoši vienkāršs Latvijas skolēniem. Uzdevuma mērķis ir identificēt un paskaidrot valūtas maiņas kursa izmaiņu efektu. Šo uzdevumu pilnībā pareizi izpildīja 33% skolēnu, bet daļēji pareizi – 39% skolēnu, tomēr gandrīz 28% skolēnu nespēja šo uzdevumu atrisināt. Skolēnu galvenais uzdevums bija pareizi interpretēt valūtas kursa izmaiņas. Liela daļa skolēnu neizprot valūtas svārstības un naudas zudumu draudus, kas var rasties naudas maiņas rezultātā.

Arī uzdevums, kas bija saistīts ar finanšu plānošanu un pārvaldību kontekstā izglītība un darbs, izvērtējot finanšu problēmas. Uzdevuma mērķis – parādīt izpratni par finansiālajiem ieguvumiem nomājot, pretstatā pirkšanai. Skolēnu uzdevums bija saskatīt ieguvumus, kādi ir precīzi nomājot, nevis pērkot, ja to nepieciešams lietot īslaicīgi. Tomēr 29% skolēnu jeb teju viena trešā daļa nespēja sniegt atbildi, ko varētu uzskatīt par pareizu, lielākā daļa no tām bija nekorektas atbildes, ar neatbilstošiem paskaidrojumiem, dažkārt skolēnu sniegtā atbilde bija pretrunā ar paskaidrojumu vai sagrozītiem faktiem, kas minēti uzdevumā.

Analizējot skolēnu sniegtās atbildes, kopumā rodas pārlicība, ka skolēni neiedziļinās uzdevuma nosacījumos, neievēro svarīgas nianšes, līdz ar to sniedz nepareizas un pat absurdas atbildes. Līdzīga tendence vērojama arī citu PISA jomu uzdevumos, kas liek domāt, ka skolēni ne tikai nespēj sniegt paskaidrojumus, bet arī neiepazīstas ne ar uzdevuma nosacījumiem, ne izlasa sniegtos faktus un informāciju, kas var noderēt, lai sniegtu korektu atbildi. Var secināt, ka Latvijas skolēniem ir vāji attīstīta kritiskā domāšana un problēmrisināšanas kompetence, kas nepieciešama šādu uzdevumu un problēmu risināšanai.

Secinājumi **Conclusions**

Ņemot vērā pētījuma rezultātus, finanšu kompetences attīstībai ir jāpievērš uzmanība un atbildīgajām institūcijām ir jāveicina finanšu izglītības nodrošināšana skolēniem jau pamatskolas līmenī.

Pastāv bažas, ka skolēnu atbildes iespējams ietekmē sabiedrībā valdošie uzskati vai izteikumi. Tas liek domāt, ka skolēniem nav zināšanas finanšu jomā pietiekamā līmenī, lai spētu paši izteikt savu viedokli, kas balstīts uz zināšanām. Tāpat skolēni izvairās pildīt uzdevumus, kur atbildei nepieciešams izteikt pamatojumu, paskaidrot viedokli. Analizējot skolēnu nepareizās atbildes nākas secināt, ka skolēni, iespējams, pavirši izlasa uzdevumu nosacījumus, dažkārt pat neizlasa tos, bet sniedz atbildes paša izdomātam jautājumam.

Lai uzlabotu sabiedrības finanšu kompetenci kopumā, ir būtiski uzlabot skolēnu zināšanas finanšu jomā. Skolēni dažkārt ne tikai mācas no saviem vecākiem, bet var arī skolā iegūtās zināšanas nodot vecākiem, savā ziņā tos izglītojot par finanšu jautājumiem.

Ir jāpārdomā mācību saturs un tā īstenošanai piedāvātie risinājumi, lai veicinātu finanšu kompetences attīstību. Pētījums pierāda, ka Latvijas skolēniem finanšu uzdevumi sagādā grūtības, it īpaši tie, kur jāizsaka savs viedoklis, kas jāpamato ar savām zināšanām un pieredzi. Līdz ar to ir pamats uzskatīt, ka ir svarīgi ir ne tikai skolēniem sniegt teorētiskas zināšanas par finanšu jautājumiem, bet arī palīdzēt praktiski izprast dažādas dzīves situācijas, kas saistītas ar finanšu jomu. Nepieciešams attīstīt skolēnu prasmi izteikt savu viedokli, spējas analizēt tekstu un tā saturu, kas uzlabotu skolēnu kompetenci arī citās jomās.

Summary

Financial literacy is one of the main competences that a representative of the modern society needs. Since 2012 OECD PISA study has included also the financial literacy assessment and Latvia has participated in it both in 2012 and 2018 PISA study.

The current research uses the OECD PISA 2018 data in order to find out what type, content, context and skills items cause problems to students of Latvia and which, in turn, students find easy.

Analyzing the distribution of students' correct answers in different items, it is possible to conclude that there is no particular context, content, process or type of items that are especially difficult or easy for students of Latvia. However, it has been revealed that the opinions or statements dominating in the society affect students' answers, which means that students lack knowledge. Besides, they are unable to give explanations, they do not get familiar with the conditions of doing the task, and they do not read the provided facts and information that could be useful for giving the correct answer. This allows concluding that Latvian students have poorly developed critical thinking and problem – solving competence that is needed for solving such tasks and problems.

In order to improve the society's financial literacy in general, it is important to improve students' knowledge in the field of finances. It is equally important to develop students' skills to express their personal opinion, the skills to analyze a text and its content that could improve also students' literacy in other fields.

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CREATING INTRAPRENEURSHIP AS AN AREA OF CORPORATE ENTREPRENEURSHIP

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Abstract. *The article focuses on the characteristics of intrapreneurship as an area of corporate entrepreneurship. Attention was paid to the essence and importance of intrapreneurship in the organization. Then, based on the analysis of activities supporting intrapreneurship undertaken in an international corporation of the banking sector and literature research on this subject, a model was developed to stimulate the creation of intrapreneurship within large organizations. The tools used in the model are divided into tools from the category of people management (soft) and tools related to working methods.*

Keywords: *intrapreneurship, management, organization.*

Introduction

A corporation is a form of enterprise with a defined internal organization with well-defined procedures and relations between its members. The main features of the corporation are: large size and sales, well-organized structures, a large number of employees, state-of-the-art products, advanced technology, and significant capital. In order to grow in a difficult competitive market, a modern corporation should be characterized by innovation, the flexibility of action, and the ability to introduce changes that guarantee success. For this to be possible, various forms of activities supporting entrepreneurship should be introduced, both at the level of organizational structure, creation of procedures, forms of organized action of people in the corporation, as well as at the level of the entity itself. Such a solution seems to be the introduction of corporate entrepreneurship based on company strategy.

Corporate entrepreneurship is understood as “initiatives with entrepreneurial features undertaken within existing, usually large organizations” (Cieślak, 2014, 75). The initiatives were taken and the solutions applied are related to three areas

(Cieślik, 2014):

- the sphere of strategic management – shaping the so-called entrepreneurial orientation of an organization by, e.g., appointing leaders showing entrepreneurial qualities to essential positions, promoting proactive, innovative actions, accepting risk;
- creating organizational framework, as well as procedures, functional rules that encourage quasi-business projects within the organization, mainly concerning the implementation of new technologies, new products or services, and opening new markets;
- the shaping of intrapreneurship attitudes among employees and changes in the sphere of corporate culture related to the promotion of intra-entrepreneurs – leaders of new initiatives and ideas, and rewarding such attitudes.

This study aims to characterize intrapreneurship, its essence, and importance for the development of the enterprise and to present a model containing tools supporting intrapreneurship in large organizations. The analysis of domestic and foreign literature was carried out, as well as interviews with the managers of one of the companies belonging to the international banking sector corporation. The research allows us to determine whether and how large corporate enterprises support or can support intrapreneurship.

The essence and sources of intrapreneurship

Intrapreneurship can be understood as one of the areas of corporate entrepreneurship.

According to S.A. Zahra, corporate entrepreneurship “is a set of actions aimed at increasing the corporate capacity to innovate, take risks, and take advantage of opportunities” (Zahra, 1993).

J. Cieślik, on the other hand, stresses that corporate entrepreneurship consists in the fact that “within the existing structures of large organizations, conditions are created for the functioning of quasi-independent organizational units, set up *on an ad hoc basis* to carry out separate tasks and projects” (Cieślik, 2014, p. 76).

Some authors, based on D. Miller, P.H. Friesen, point out that corporate entrepreneurship is an effort to innovate within an already existing, complex corporate structure. Using the definition of entrepreneurship by K.M. Eisenhardt, S.L. Brown, H.M. Neck, they understand corporate entrepreneurship as a set of measures to increase a company's ability to innovate, take risks, and seize opportunities (Piecuch, 2018, p. 71-85).

According to T. Piecuch, corporate entrepreneurship is “a long-term concept that should include a strategic dimension. (...) The inclusion of a strategic

dimension in the entrepreneurial process enriches the enterprise, contributes to real, long-term, sustainable development, (...) in which strategic thinking and action, competitiveness, social capital, flexibility and mobility, organizational learning, and comprehensive problem-solving are the primary sources of generating values” (Piecuch, 2018, p. 75).

The cited definitions of corporate entrepreneurship allow to define its most important aspects, as shown in Fig. 1.

Intrapreneurship is used to implement the idea of corporate entrepreneurship in order to effectively implement the “entrepreneurial spirit” through employees acting with passion and commitment, who are not afraid to take unconventional and risky actions (Cieślik, 2014).



Figure 1 *Characteristic aspects of corporate entrepreneurship* (own elaboration)

Intrapreneurship is a process that takes place within existing organizations and leads not only to business ventures but also to other innovative solutions and is a critical element of organizational and economic development (Pinchot, 1985). Intrapreneurship can also be interpreted, following R. Jepperson and J. Mayer, as “a belief in individual autonomy as well as an organizational culture that supports the individual in creating new activities” or, following B. Antonicic and R.D. Hisrich, as a process that “leads not only to new business ventures but also to other activities and orientations, such as the development of new products, services, technologies, administrative techniques and strategies” (Liczmańska-Kopcewicz, 2017).

Intrapreneurship is a response to rapidly changing environmental conditions, new customer expectations, and innovative actions of the competition. It allows to fully utilize the potential of employees, their innovative ideas and solutions, and perceive every change as a new opportunity.

The main activities related to intrapreneurship (which concerns individuals working at all levels of the organization) are: capturing opportunities, taking risks, being proactive, generating new, innovative ideas by creative combining various resources available at a given time.

The intrapreneurship potential is built through the creation of structures and organizational cultures that facilitate trust and cooperation (Liczmańska-Kopcewicz, 2017), but also through a democratic and participatory steering system, creating a climate for change, an efficient system of communication and information flow.

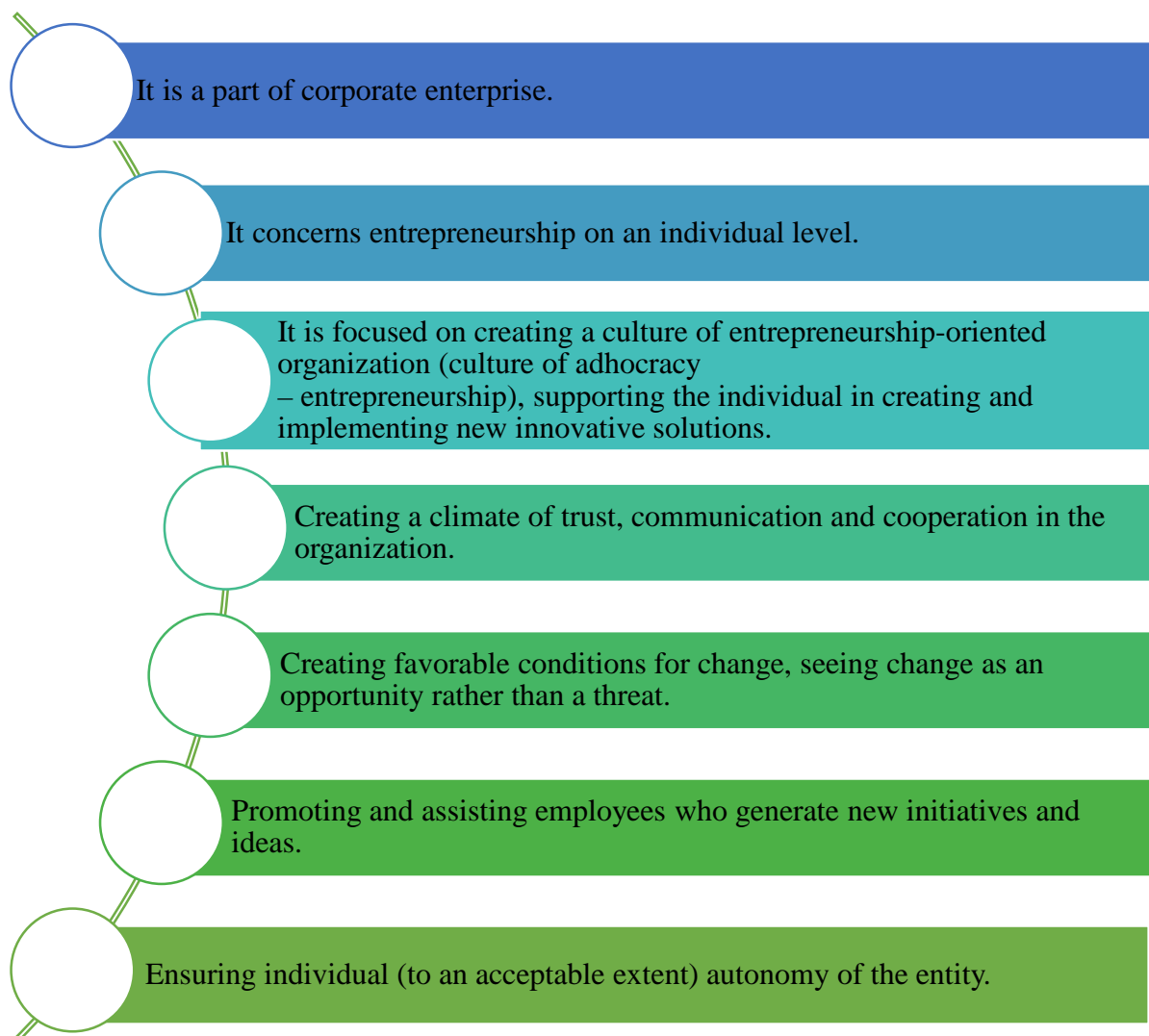


Figure 2 *Characteristic aspects of intrapreneurship* (own elaboration)

The concept of intrapreneurship is often identified in the literature as corporate entrepreneurship, but it is a narrower concept referring only to the creation of conditions and stimulation of entrepreneurial attitudes at the individual

level, which means that the central figure of the intra-entrepreneurial process is the intra-entrepreneur. An intra-entrepreneur is a proactive person employed in a large enterprise, characterized by the ability to use and develop their entrepreneurial qualities, distinguished by specific patterns of behavior, including creativity, creative thinking, and the ability to take challenges and initiate change. The most important aspects of intrapreneurship are presented in Fig. 2:

To sum up, the intrapreneurship in the conditions of a challenging, competitive market is a critical success factor, leads to the effective generation and implementation of new innovative solutions, and, at the same time, influences the individual development of employees who are satisfied with their professional work.

Methodology

The research included studies of domestic and foreign literature and interviews with the managers of all levels of the organizational hierarchy in an enterprise belonging to an international banking sector corporation operating in Poland. The research aimed to determine whether and how large corporate enterprises support or how they can support intrapreneurship, and to provide information to build a model that presents tools to stimulate intrapreneurship in large organizations.

The research was conducted in April-October 2019. The average duration of the interview was 1-1.5 hours. The interview was conducted with 19 managers (including 10 front line managers, 6 – middle level managers and 3 – top-level).

The purpose of an interview as a method of qualitative research is exploration, which consists in collecting and evaluating relevant data on both the existing theory and empirical reality in order to use the results of research to develop the theory. The research allowed us to identify methods and ways of shaping intrapreneurship and to generate and present proposals to use existing and new tools/categories to create intrapreneurship in large organizations.

The choice of the in-depth individual interview as a research method was not accidental, because it was not possible to obtain detailed opinions and information, to establish facts about the actual activities taking place in the company concerning intrapreneurship through other research techniques such as a questionnaire. Moreover, in the case of respondents with difficult access (persons with a significant professional position, e.g., middle and senior managers), the time and place of the interview had to be adjusted to the preferences of individual respondents (which would not be accessible in the case of a group interview).

Data acquisition using a direct interview was carefully prepared; a list of questions was established, which constituted the main content of the interview.

The questions concerned, among others, the following: Does the company, in its action strategy in a formalized way, have specific tools/methods stimulating intrapreneurship?; What are these tools?; Which of the methods/tools are most frequently used in the company?; Which of the tools are rated highest when it comes to stimulating intrapreneurial attitudes among employees?; How does the company motivate employees to be intrapreneurial?; What are the most considerable difficulties in the process of implementing these tools/methods?; Do employees' individual social and professional competences influence the choice of techniques/methods for creating entrepreneurship, if so, which ones?; How does the company manage resistance to change?

Due to the limitations of the article's volume, and the extensive material collected as a result of the research, the article focuses only on generating techniques and methods influencing the creation of intrapreneurship in a large organization. The information collected as a result of the research will be used to prepare further articles.

The analysis of the conducted interviews shows, among others, that the surveyed company has implemented and implements a formal system of supporting intrapreneurship behavior, including the following tools and working methods: 1:1 meetings, communication through results, development of cross-area competences, safety culture, CI model, ITIL Guiding Principles or “coding festival”.

Analysis of research results

The analysis of research results allowed us to build a model presenting tools that stimulate intrapreneurship in large organizations.

Ways of dealing with employees, especially the methods influencing the formation of certain attitudes, behaviors, motivation to change the way of work used by managers include both soft and hard management techniques. It is worth using various techniques; therefore, the model presented below includes aspects derived from both soft and hard management techniques.

The essential attribute of soft management is treating people as the most important capital of the organization. It boils down to creating an appropriate atmosphere at work, so that it is as friendly as possible, even family-like, i.e., taking care of the employee's needs and his/her well-being. An employee is an entity, co-creator, the most crucial link in the organization, and his or her knowledge and skills are the source of competitive advantage and value of the organization.

Hard management methods consist in creating a feeling in the employee that he or she has to fulfill the tasks and point out possible ways of achieving them. Then the employer becomes instead a kind of a person who controls and enforces

the completion of tasks, etc. In the article, some formalized methods of work have been chosen, understood as conduct based on research principles, which aims at solving organizational problems and, at the same time, has a significant impact on stimulating intrapreneurship development in large corporate enterprises. Moreover, using only soft techniques is not the right solution because there are employees who simply need to be shown what their duties are when they should be fulfilled, what methods they have at their disposal, etc., which is also confirmed by analyses of conducted interviews.

The rational use of different aspects of soft and hard management depends on the situation, personal and leadership skills of the manager. Undoubtedly, a well-thought-out combination of these two different approaches gives the manager great flexibility and more excellent opportunities to influence individual employees in the company in order to create intrapreneurial attitudes.

The tools used in the model were divided into tools from the category of human management (soft) and tools related to working methods (Fig. 3).

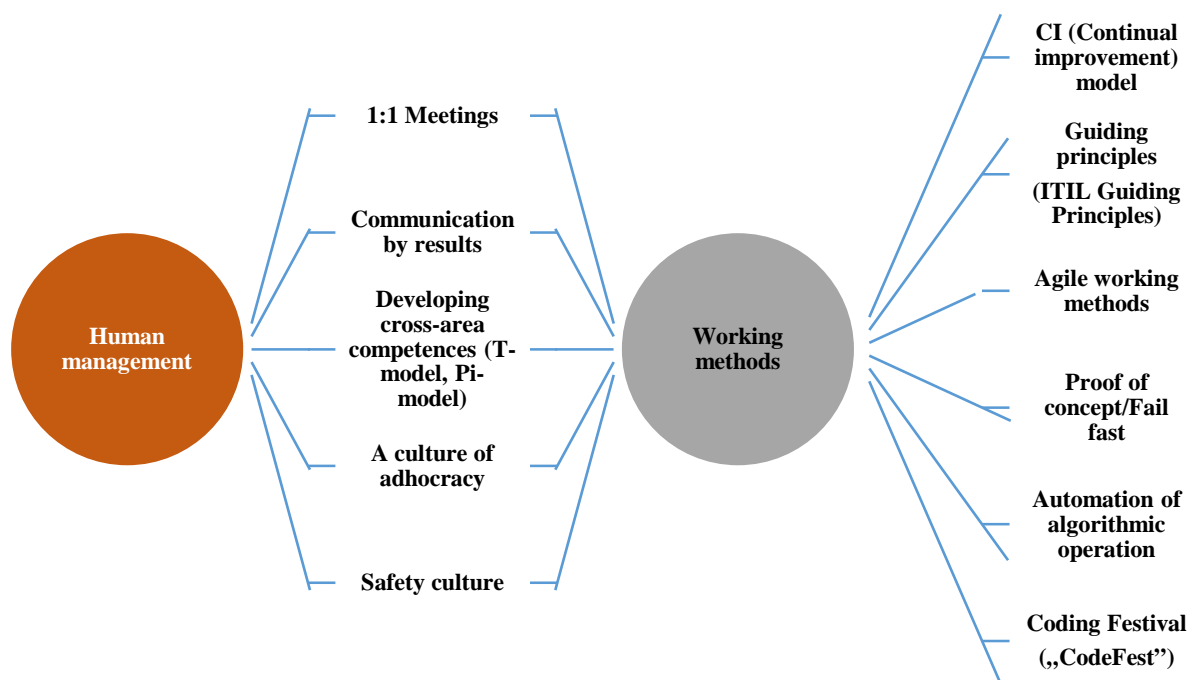


Figure 3 Model presenting tools creating intrapreneurship in large organizations (own elaboration)

Tools from the human management category – “soft”:

- a. **1:1/face-to-face meetings** – allow the employee to share their problems and ideas with their immediate supervisor. The manager should support the employee by eliminating barriers to achieving objectives and

support development initiatives. Such a tool promotes and appreciates employees who generate new initiatives and ideas and shows the way and helps in the implementation of new projects (Belker, Cormick, & Topchik, 2018).

- b. **Communication by results** – one of the good practices is to set goals for employees in the form of results to be achieved, not in the form of work to be done. This tool leaves room for innovation and creativity, and thus supports the development of intrapreneurship (ITIL 4, 2020).
- c. **Developing cross-area competences (T-model, Pi-model)** – broad competences of employees lead to a better understanding of the value stream and developing solutions addressing the needs not only of a single team but of the entire organization.

As recently as a dozen or so years ago, the most popular knowledge models were horizontal (*broad knowledge on various subjects, but not in-depth*) or vertical (*area-based, in-depth knowledge on a given subject*) – Fig. 4a.

Currently, companies are looking for people with broad general knowledge specialized in one (T-model) – Fig.4b or several (Pi-model) – Fig.4c fields (ITIL 4, 2020).

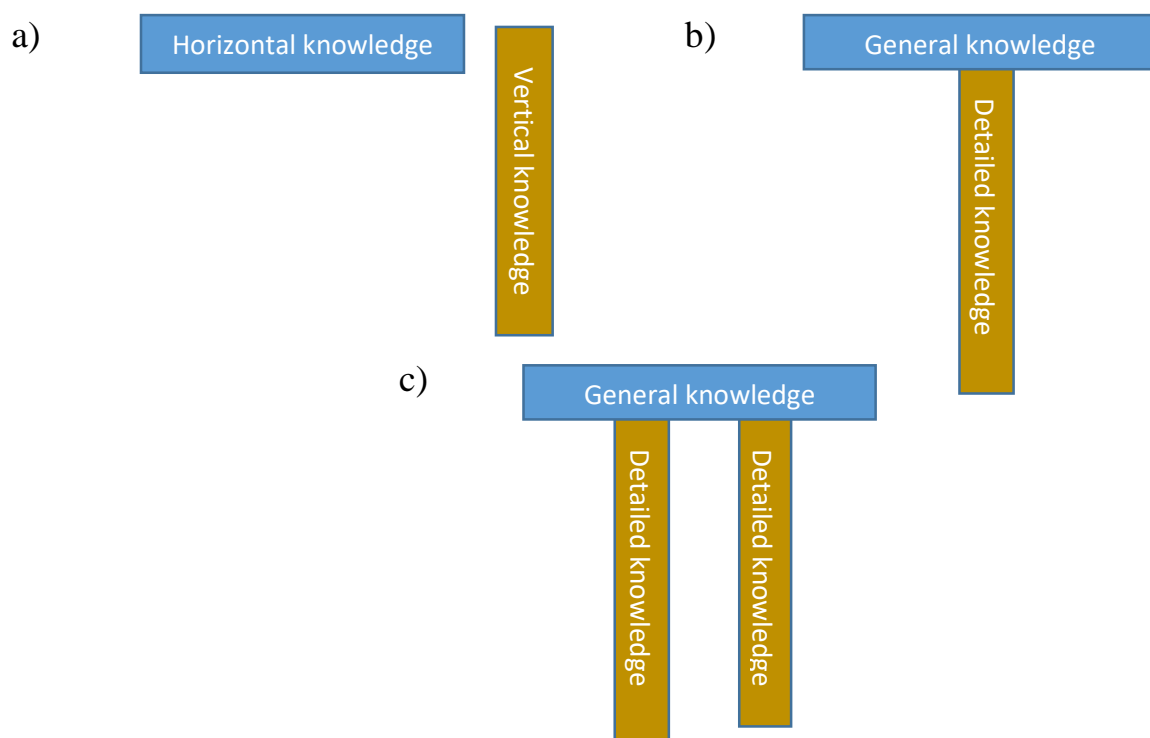


Figure 4 Developing cross-area competences: a) horizontal and vertical model, b) T-model, c) Pi-model (own elaboration)

- d. **A culture of adhocracy** – is associated with the existence of a dynamic and creative working environment. Employees take risks, and leaders introduce innovative solutions. Experiments and innovations allow for development. The success is in running new products and services. Freedom and individual initiative are appreciated values. It is a culture that characterizes innovative organizations, which are focused on fluidity and constant change. It is often used in companies that are focused on continuous development, dynamics, and adaptation to changing reality. In the culture of adhocracy, power is exercised by those who know the issue best: often, depending on the project, a completely different team can be formed, with other leaders and managers. Companies with a predominantly adhocratic culture stand out from the competition with their high adaptability and pro-innovative and non-stereotypical way of operating (Świtłała & Mościcki, 2016; Olszewska, 2014).
- e. **Safety culture** – current organizations are continually trying to improve their services. It puts pressure on employees and often results in professional burnout. Promoting a culture where making a mistake is the ordinary course of action allows the employee to do the job with less stress and, therefore, usually a better one. It helps to promote a culture of addressing the systemic cause of errors, not looking for guilty ones. With such a culture, employees are willing to take risks and try new solutions, increasing the organizational maturity of the company (Crutchfield & Roughton, 2013). It allows the company to create a climate based on trust, effective communication, and cooperation and creates favorable conditions for change and perception of change as an opportunity rather than a threat.

Working methods:

- a. **CI (Continual improvement) model** – the model described in the ITIL Practitioner (ITIL ®, 2011) publication is showing how to improve processes, products, and services continuously. Continuous improvement should take place in all areas and at every level of the organization, from strategic to operational ones. In the company analyzed in the research, in order to maximize the effectiveness of services, every person who contributes to service delivery should be aware of the need for continuous improvement and continuously look for opportunities to improve working methods, processes, products, and services.

The *ITIL Continual Improvement* model (Fig. 5) is based on the Deming Cycle (PDCA) and can be used as a high-level guide to managing improvement initiatives. Using the model increases the likelihood of

successful improvement initiatives, puts the customer's value at the heart of the initiatives, and at the same time, ensures that improvement activities are in line with the organization's vision.

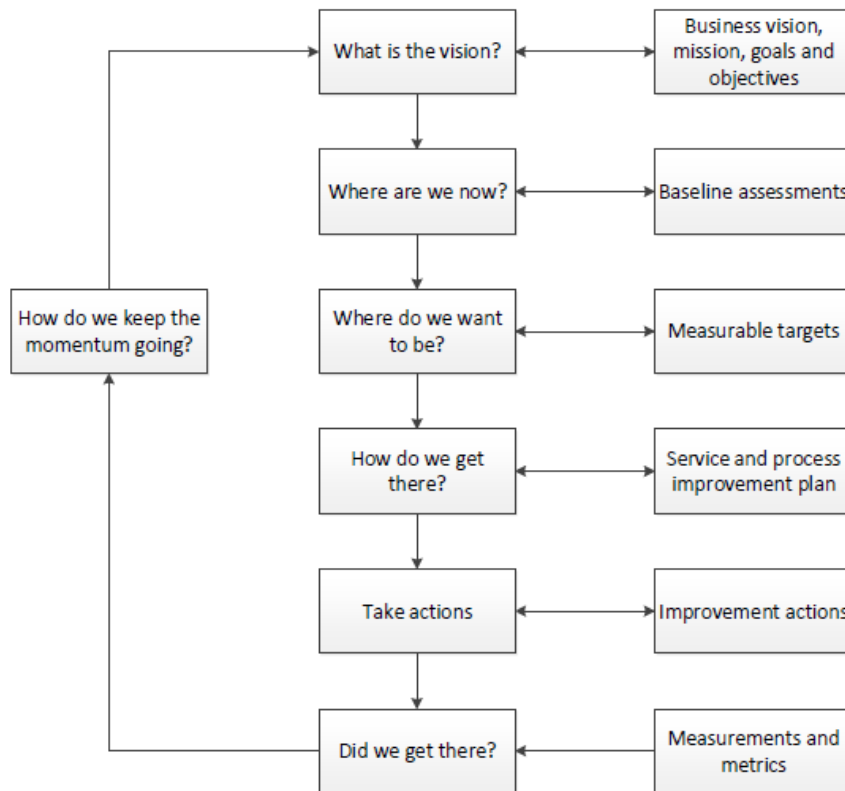


Figure 5 ITIL CI (Continual improvement) model (ITIL ®, 2011)

The model consists of seven steps:

- 1) What is the vision? – Agree on a vision for a streamlining initiative by understanding the objectives and needs of the business. The vision should be consistent with the organization's strategy.
- 2) Where are we now? – assess the current situation measurably. It will help to set the objectives of the initiative at a later stage and assess the success or failure of the initiative.
- 3) Where do we want to be? – set measurable targets for the vision set out in the first point. The objectives should be consistent with the concept of formulating SMART objectives – the objective should be specific, measurable, achievable, relevant, and on time.
- 4) How do we get there? – create an accurate plan to reach the goals set out in point three.
- 5) Take action – follow the plan created in point four.

- 6) Did we get there? – assess the measurable effects of the initiative and compare the effects with the baseline (the second point) and the objectives to be achieved by the initiative (the third point).
- 7) What are we going to do to keep it going? – ensure that the results achieved by the initiative will be sustained (*that the organization will not go backward*), draw lessons from the improvement initiative, and ensure continuity in improvement – move on to forming a vision for the next improvement initiative.

The model strongly supports activities related to intrapreneurship, ensuring that individual improvement actions are tailored to the objectives of the entire organization, setting specific objectives to be achieved, measuring the level of achievement of these objectives, and ensuring that the organization continues to improve.

- b. **The ITIL Guiding Principles** – a set of principles that an organization should consider in all situations. The set of principles was first published in the ITIL Practitioner publication and improved in the next version of ITIL Good Practice – ITIL 4 (ITIL 4, 2019).

The Guiding principle constitutes recommendations that guide the organization under all circumstances, regardless of changes in the organization's objectives, strategy, type of work, or management structure. The Guiding principles are universal and durable.

ITIL 4 proposed seven primary principles:

- 1) Focus on values – everything an organization does must be mapped (directly or indirectly) to the value for its stakeholders. Every employee should know how their work translates into the value the organization wants to achieve.
- 2) Start where you are – do not start from scratch and do not build it all over again, without evaluating what works well in the current approach and can be used in a new solution.
- 3) Progress iteratively with feedback – do not try to do everything right away. Primarily large initiatives should be carried out iteratively. By dividing the work into smaller parts, it is easier to manage the initiative, and we can get feedback faster and use it for further iterations.
- 4) Collaborate and promote visibility – storm the silos between teams and promote the visibility of work.
- 5) Think and work holistically – results, both to internal and external customers, are delivered through effective management and dynamic integration of information, technology, organizations, people, practices, and partners. All elements should be coordinated to provide a defined value.

- 6) Keep it simple and practical – if a process, service, the action does not provide any value – eliminate it. Always use the smallest number of steps to reach the goal.
- 7) Optimize and automate – optimize and automate everything that makes sense. Use people to do creative work. First, optimize, then automate. Automated chaos is still chaos.

The primary principles ensure that intrapreneurship activities always provide value for the organization and help the individual to maintain the framework within which they should operate.

- c. **Agile working methods** – Agile (*e.g., Scrum, Kanban*) – Agile working methods allow for faster delivery of business value and faster feedback to the originator (intra-entrepreneur). It makes it easier to adapt new or improved products and services to the ever-changing needs of the business.

In the case of intrapreneurship, it is vital to quickly verify whether ideas that improve the organization add real value for stakeholders. Agile methods promote large dividing initiatives into smaller parts and performing the work iteratively, with compression back after each iteration (Kniberg & Skarin, 2010, Layton, 2012).

- d. **Proof of concept/Fails fast** – creating mechanisms in which employees can test their ideas (*Proof of concept*) and creating the culture in which quick information that we are going in the wrong direction is the key. An essential element is the promotion of “quick failures.” If we are to fail, it is better to do it at the earliest possible stage of the project than to continue a project that will not deliver business value (*fail fast*) (Babineaux & Krumboltz, 2013). Such mechanisms ensure the individual autonomy of the individual and reduce the risk for both the innovative employee (intra-entrepreneur) and the whole organization.
- e. **Algorithmic work automation** – good practice is to automate as much as possible the algorithmic work (*process, repetitive*) in order to free up human resources for more creative work (*heuristic work*). Instead of performing repetitive tasks, employees may focus on improving the organization and developing intrapreneurship in the organization (ITIL 4, 2019).
- f. **The Coding Festival ("CodeFest")** – in many organizations – including the surveyed corporate enterprise – devotes time for employees to a common (IT and business) definition of the problem and to work out the best solution (*not necessarily in the area in which the employee works*). It builds an intrapreneurship culture and helps focus on initiatives that are valuable to the organization. An important

element here is the recognition of employees for initiatives to improve organizations.

Conclusions

Corporate entrepreneurship, including intrapreneurship, are essential aspects of modern corporations that want to take a leading position on the market and sometimes also a condition for their survival. The larger the enterprise, the more difficult it is to provide an environment conducive to the development of intrapreneurship, if only because of the higher number of procedures, formal, bureaucratic rules to be followed, which often make it difficult or even impossible to introduce changes and reduce flexibility. Intrapreneurship is a prerequisite for increasing a corporation's ability to innovate.

The presented model is only a proposal containing selected tools and working methods, both described in the literature and results from practical solutions used in corporate enterprises to stimulate intrapreneurship.

Through the use of the tools and working methods listed in the model, it becomes possible to put in place an internal "entrepreneurial spirit" within hierarchical, formalized structures. It promotes proactive, innovative, and risks accepting activities and, at the same time, strengthens employees' activity and ensures that their commitment is appreciated. As a result, it also leads to the perception of such corporations as attractive employers and makes it possible to acquire the most valuable employees who derive satisfaction from professional work (Cieślik, 2014).

Although the issues of corporate and intra-company entrepreneurship have been discussed in the literature for a long time, the changes caused by the processes of globalization and the development of new concepts in the sphere of management still emerge as new opportunities and solutions that serve one purpose – to succeed in a demanding, competitive market.

The considerations presented in the publication do not fully cover the subject matter, they are only a proposal, and a starting point for further research carried out on the examples of large organizations which, using these or other mutually reinforcing and complementary tools, create an environment of intrapreneurship, without which it is impossible to implement innovations that are the basis for the development of corporate enterprises.

Summary

To sum up, it should be stated that intrapreneurship rarely occurs naturally in enterprises and usually requires actions that will stimulate and develop them. Activities leading to the creation of intrapreneurship attitudes are most often focused on one or several selected aspects, e.g., practical and straightforward promoting the ideas of employees, or creating a climate based

on trust, cooperation, creating favorable conditions for change, or ensuring autonomy and freedom of action of an individual. The tools and working methods proposed in the article are complementary and permeate each other, and it depends on the company and its strategy to select them and implement a specific, coherent system supporting intrapreneurship.

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LĪDERĪBAS UN MOTIVĀCIJAS IETEKMES ANALĪZE UZ PERSONĀLA IESAISTĪŠANOS DARBĀ

The Interaction Analysis of Leadership, Motivation and Job Engagement

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Abstract. *The purpose of the research is to investigate the relationship between the leadership and job engagement. The study is built on research activities and there are used both theoretical and empirical methods. Qualitative and quantitative methods in the form of questionnaires are used during the study. Transformational leadership is the independent variable in this study and the instrument used to measure leadership is the Multifactor Leadership Questionnaire (Bass & Avolio, 1997). Questionnaire A Great Place To Work – What Makes Some Employers So Good And Most So Bad? (Bakingems & Kofmans, 2005) as an instrument has been used to explain what makes a company a good place to work and offers specific strategies for fostering a positive work environment and the instrument used to. The statistical programme used for the analyses and presentation of data in this research is the Statistical Package for the Social Sciences (SPSS) version 23. In conclusion: transformational leadership is more likely to increase the levels of job engagement as opposed to transactional leadership, the results from this study support interesting directions for future research.*

Keywords: *extrinsic motivation, intrinsic motivation, job engagement, leader, leadership styles.*

Ievads

Introduction

Līderības nozares pētnieki ir vienisprātis, ka līderībai ir nozīmīga loma mūsdienu veiksmīgu organizāciju izveidē, kas balstās uz kvalitatīvu un kontrolētu darbu. Līderība rada visus priekšnosacījumus, lai uzņēmums gūtu panākumus un izcilību (Fiedler, 1967; Bass, 1997).

Pētījumu rezultāti norāda, ka vadītājs, kas veic gan ar vadīšanu, gan ar līderību saistītās funkcijas, organizē darbību noteiktā virzienā, uz noteiktu mērķi, viņš plāno un organizē darba procesu, kontrolē, vada personālu, uzņemas atbildību par vadīšanas procesa rezultātiem, tāpēc vadītājam katrai ikdienas darba situācijai ir jāpielāgo savs līderības stils. Tiek atzīts, ka svarīgas ir līderības funkcijas, kas veicina personāla iedvesmošanu, motivēšanu darbam, sekmējošas

vides radīšanu, personāla tālāk attīstības veicināšanu, pārliecināšanu (Alimo-Metcalfe & Alban-Metcalfe, 2002; Bass & Avolio, 1994 u.c.).

Līderība un motivācija ir tieši saistīta ar personāla iesaistīšanos darbā (job engagement). Personāla iesaistīšanās darbā ir pozitīvs, piepildāms un ar darbu saistīts prāta stāvoklis, ko raksturo darbinieka ieguldītā enerģija, ieguldījums un iedziļināšanās darbā (Judge & Church, 2000; Judge, Heller, & Mount, 2002).

Tieši līderības, motivācijas un personāla iesaistīšanās darbā savstarpējās attiecības ir viens no noteicošajiem organizācijas efektivitātes rādītājiem.

Pētījuma mērķis ir analizēt pētnieciski konstatējamās kopsakarības starp līderības un motivācijas ietekmi uz personāla iesaistīšanos darbā organizācijā A.

Pētījuma mērķa sasniegšanai apzinātas un analizētas teorētiskās nostādes par līderību, motivāciju un personāla iesaistīšanos darbā. Izmantotas kvantitatīvās un kvalitatīvās pētniecības metodes un sekojoši instrumenti: Multifaktoriālās līderības aptaujas anketa (Multifactor Leadership Questionnaire) (Bass & Avolio, 1997) un Labas darba vietas raksturojošo rādītāju aptaujas anketa (A Great Place To Work – What Makes Some Employers So Good And Most So Bad?) (Bakingsems & Kofmans, 2005).

Teorētiskās literatūras analīze *Theoretical analysis of literature*

Vadības zinātnes teorijā pastiprināta uzmanība ir pievērsta līderībai un vadīšanai. Cilvēku prātus tās ir nodarbinājušas jau izsenis, bet plašāk vadības zinātnes nozare tika pētīta 20 gadsimta sākumā, kad pētnieki definēja pirmās līderības teorijas. Mūsdienu vadības zinātnes literatūrā ir atrodamī daudzi pētījumi, kuri galvenokārt fokusējas uz līderību, tomēr pētniecībā nav vienota viedokļa par to, kas tad ir efektīva līderība (McCaffery, 2004).

Mūsdienās jebkuru uzņēmēju nodarbina jautājums, kā veiksmīgi un efektīvi strādāt ilgtermiņā. Kā nepieciešamākais aspekts organizācijas veiksmīgai pastāvēšanai tiek minēta vadīšana.

Līderība saglabā izšķirošu lomu šī brīža veiksmīgāko uzņēmējdarbības modeļu izstrādē. Šie modeļi galvenokārt balstās uz kvalitātes celšanu un resursu efektīvu izmantošanu. Līderība ir kā norāde organizācijai, kas skaidro panākumu gūšanas ceļu un iespējas.

Līderības un līderības stila izpratnei ir nozīmīga loma vairāku teorētiku skatījumā. Apzinātās teorētiskās atziņas vadības zinātnē ļauj līderības teorijas iedalīt vairākās grupās:

- līdera iezīmju pieejas (train approach),
- līdera uzvedības pieejas teorijas (behavioral approach),
- situatīvās un nejaušību (iespēju) pieeju teorijas (situational and contingency approach) (Alimo – Metcalfe & Alban – Metcalfe, 2002).

Zinātniskajā literatūrā tiek izšķirtas arī teorijas, kuras vairāk tiek asociētas ar darījumu procesu. Tās lielā mērā akcentē vadīšanas un līderības nozīmi organizācijas pārmaiņu laikā, kur vadītājs tiek atspoguļots kā iedvesmotājs un motivētājs. Saskaņā ar pētnieku P. Makkaferiju (P. McCaffery) var izdalīt:

- pārveidojošās līderības teorijas,
- jaunās līderības teorijas (McCaffery, 2004).

Pārveidojošās līderības teorijas nošķir tradicionālo izpratni par līderību kā darījuma procesu, ko vēlāk sāka asociēt ar vadīšanu, un līderību kā pārveidošanas procesu, kur līderis ir kā iedvesmotājs un motivētājs.

Mūsdienu līderības teorijas vieno pieņēmums, ka līderības fenomenam ir jāmainās, tas savukārt tiek saistīts ar organizācijas funkcionēšanu un pārmaiņām tajā globalizētās pasaules apstākļos (McCaffery, 2004).

Pētījumam saistoša ir viena no populārākajām mūsdienu teorijām – transformatīvās (pārveidojošās) līderības teorija, kurā ir aprakstītas līdera uzvedības pieejas. Teorijas pamatā ir cilvēka vēlme izprast notiekošā nozīmīgumu un uzsvērt personīgās komunikācijas lomu, individuālās pieejas un uzmanības nepieciešamību. Šai līderībai ir svarīga loma uzņēmuma pārmaiņu laikā.

Transformatīvā līderība akcentē jaunu zinātnisko pieeju līderības izpratnē, uzsverot līdera darbību kopumā, līdera personības un komunikācijas spēju ietekmi uz sekotājiem. Organizācijas pamatdarbības efektivitātē tiek akcentēts personāla resursu nozīmīgums. Transformatīvā līdera efektivitāti raksturo līdera uzvedība, kas nepieļauj nevērīgu vadīšanas stilu. Transformatīvs līderis prot izmantot organizācijas kultūru mērķu sasniegšanai (Bass, 1997).

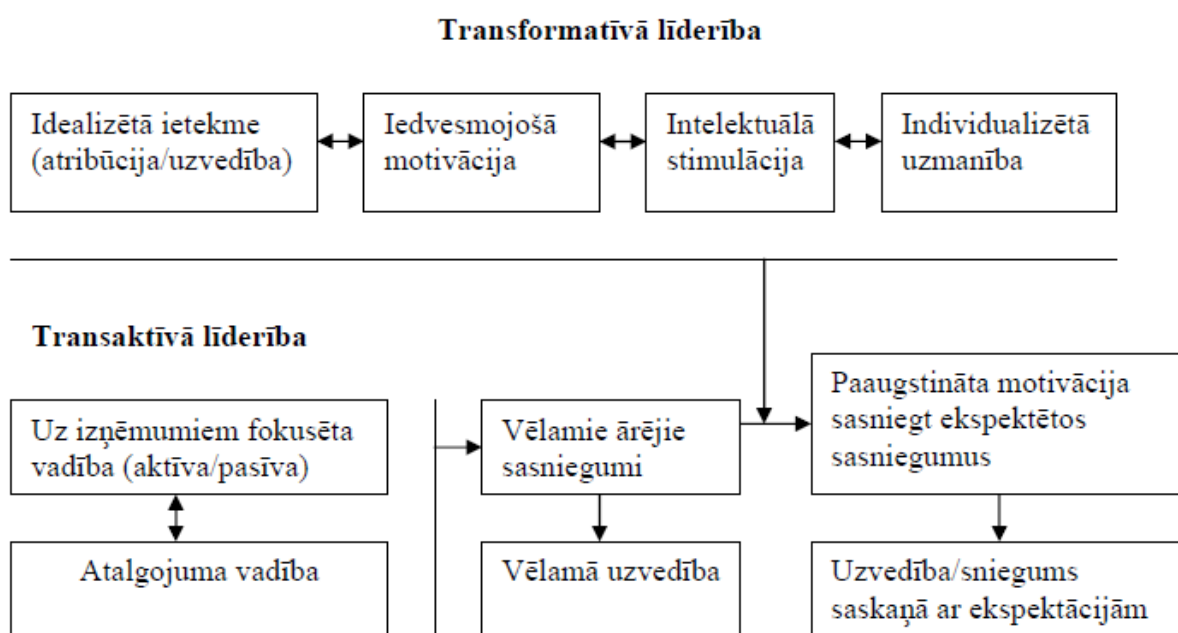
Mūsdienu harismātiskās līderības teorijas pārstāvis B. Bass ir formulējis savu, praktiskāk lietojamu teoriju. Autors izdala transaktīvo un transformatīvo līderības stilu. Saskaņā ar B. Basa teoriju transaktīvā līderība palīdz sasniegt vadītāja vēlamu rezultātu, bet ar transformatīvo līderību vadītājs var paveikt vairāk un tās nedrīkst pretnostatīt vienu otram. Transaktīvs līderis liek personālam strādāt tieši tā, kā to vēlas pats vadītājs, par to labi atalgojot personālu. Šādi spēles noteikumi turpinās tik ilgi, kamēr abas puses ir apmierinātas. Savukārt transformatīvs līderis vairāk ieklausās personālā, sniedz nākotnes redzējumu, kas sola labāku un jēgpilnāku dzīvi, apelē pie padoto augstākajām vērtībām. Šī modeļa uzbūve ir apkopota 1. attēlā.

Saskaņā ar šo koncepciju transformatīvās līderības modeļa uzbūves pamatā ir četri to veidojošie faktori:

1. Idealizētā ietekme (harisma). Līderis, kurš vēlas personālam būt kā paraugs. Darbinieki sevi identificē ar līderi un cenšas sevi pilnveidot, lai viņu pārspētu. Līderu uzvedībā ir spēcīgi izteikti morālie principu un viņi savā darbā rīkojas ētiski. Līderu grupa viņu ciena un uzticas viņam. Līderi nodrošina misijas izjūtu un virzību uz mērķi;

2. Iedvesmojošā motivācija (iedvesma). Līderi motivē personālu būt par organizācijas noteikto mērķu sasniedzējiem. Vadītājs sekmē komandas garu, liela ietekme ir iekšējai motivācijai;
3. Intelektuālā stimulācija. Līderis motivē personālu būt radoši domājošiem un inovatīviem, ticēt līderu un organizācijas vērtībām. Darbinieki viens otru atbalsta, viņi palīdz līderim risināt problēmas, aktīvi iesaistoties atbilstošākā risinājuma izstrādē;
4. Individualizēta uzmanība. Līderis rada labvēlīgu mikroklimatu, uzklausa savu sekotāju individuālās vajadzības. Līderi darbojas kā sekotāju uzticības persona, palīdzot risināt radušās problēmas (Bass, 1998).

Galvenais transformatīvās līderības teorijas aspekts ir harizma un idealizētāja ietekmes izmantošana, kaut gan no praktiskā viedokļa cilvēkam nevar iemācīt būt izredzētam. Teorijā B. Bass formulē, ka šāda personība spēj motivēt un virzīt savus kolēģus pretī organizācijas definēto mērķu sasniegšanai, viņš iet tālāk par pamatvajadzību apmierināšanu un palīdz veidot labu psiholoģisko klimatu organizācijā (Bass, 1998).



Iattēls. Transaktīvās un transformatīvās līderības modelis (pēc Avolio & Bass, 1990)

Figure 1 The transformational-transactional leadership model

(adapted from Avolio & Bass, 1990)

Savukārt transaktīvajai līderībai piemīt sekojošas pazīmes:

1. izņēmuma vadība (aktīvā/pasīvā). Izņēmuma vadība (aktīvā) – vadītājs izvērtē darbinieku veikumu, lai atklātu pārmaiņas izpildījumā. Viņš kontrolē personāla veikumu, kuri par organizācijas mērķu sasniegšanu

saņem apbalvojumus, bet ja uzdevumi netiek izpildīti, tiek veikti nepieciešamie uzlabošanas pasākumi. Izņēmuma vadība (pasīvā) – vadītājs padotos var ietekmēt, izmantojot draudus, ka viņi tiks sodīti par uzdevumu neizpildi;

2. atalgojuma vadība – tiek izmantoti stimuli, lai pārliecinātu personālu izpildīt uzdevumu, jo par papildu pūlēm tiks piešķirti papildu bonusi;
3. pasīvi izvairīgajai vadībai piemīt bezvadības faktors, kur vadītājs nevada personālu, bet delegē viņus, neņemot vērā radušās problēmas. Šāds vadītājs darbiniekiem neatklāj skaidru vīziju un mērķus, bet ļauj personālam pašam pieņemt lēmumus (Clawson, 2008).

Tā kā darbs mūsdienās paliek daudz dinamiskāks, liela nozīme ir tam, kā vadītājs motivē savus darbiniekus, tāpēc pētījumam ir saistoša motivācijas teorija. Zinātniski pētnieciskā literatūrā tiek izšķirti divi motivācijas veidi – iekšējā un ārējā motivācija.

Abas šīs motivācijas atšķiras ar veidu, kā tās ietekmē cilvēku sasniegt konkrētu mērķi:

- persona, kuru rezultātu sasniegt motivē iekšējā motivācija, vienmēr vēlēšies apgūt jaunas zināšanas, izbaudīs darba procesu, darbs viņam šķitīs interesants, izaicinošs,
- persona, kuru rezultātu sasniegt motivē ārējā motivācija, vienmēr veicot darba pienākumus domās par savu personisko labumu un par bonusiem, kurus viņš saņems par labi padarītu darbu (Amabile, 1997).

Iekšējo motivāciju var skaidrot kā paša cilvēka ieinteresētību veikt darbu, un tā nav saistīta ar saņemtajiem labumiem un balvām par veikto darbu. Tas nozīmē, ka iekšēji motivētam personālam ir svarīga viņa darba jēga. Ja darbinieks savam darbam redz jēgu, tad viņš strādās neatkarīgi no dažādiem materiālajiem labumiem, kurus viņš saņems. Iekšēji motivēts darbinieks atzinīgi novērtēs iespēju risināt grūtas problēmas, iespēju apgūt jaunas zināšanas, pašam atrast problēmu risinājumus, darīt to, ko mīl visvairāk, aizraujošu darbu, risināt sarežģītas problēmas, iespēju izteikt savas domas, iespēju izzināt savu spēju robežas (Amabile, 1997).

Ārējo motivāciju var skaidrot kā pilnīgu pretstatu iekšējai motivācijai. Ārējā motivācija balstās uz iespēju par labi padarītu darbu saņemt atalgojumu. Ārējās motivācijas veidu nosaka paša personāla psiholoģiskās īpašības. Ārēji motivētu darbinieku veikt darba pienākumus motivēs citu cilvēku viedoklis, vadības izvirzīto mērķu sasniegšana, vadības novērtējums, saņemtais darba atalgojums, mazāk strādāt, ja neviens to nezina, sajūta, ka par savu darbu pelna (Amabile, 1997).

Galvenā atšķirība starp iekšējo un ārējo motivāciju ir tāda, ka iekšējā motivācija bez dažādiem ārējiem motivātoriem var pastāvēt ļoti ilgi. Savukārt ārējā motivācija izzūdīs, kad pazudīs ārējais motivātors. Iekšējā un ārējā

motivācija ir savstarpēji komplimentāras. Iekšējās un ārējās motivācijas teorijas autore norāda, ka personāls var būt vienlaicīgi gan iekšēji, gan arī ārēji motivēts, un abos gadījumos viņš būs motivēts veikt savu darbu, bet katrā savādāk. Šādi tiek sasniegti arī labākie rezultāti.

Viens no nozīmīgākajiem ārējiem motivātoriem ir iekšējie, darba vietas faktori. R. Leverings izdala sekojošus galvenos faktoros, kas raksturo darba vietu:

- ticība un uzticēšanās – darbinieki uzticas vadītājiem, dara savu darbu tā, lai sasniegtu organizācijas mērķus,
- cieņa – līderi un sekotāji viens otru ciena, kopīgi veido kompetentu komandu,
- taisnīgums – ir taisnīga attieksme pret ikvienu komandas biedru, tiek noteiktas gan balvas, gan iespējamie sodi,
- lepnums – par katru paveikto darbu priecāties kopā, jo panākumi veidojas no mazām uzvarām,
- draudzīgums – komandas gars organizācijā palīdz ne tikai kopīgi attīstīties un augt, bet sasniegt labākos rezultātus,
- orientācija uz klientu – svarīgākais organizācijas pastāvēšanas elements, jo organizācijas pastāvēšana bez klienta būs neiespējama,
- kvalitāte – augsta produkta vērtība palīdzēs uzlabot uzņēmuma vērtību un motivēs komandu veikt savus darba pienākumus labāk,
- darbinieku iesaistīšana lēmumu pieņemšanā – darbinieki novērtēs, ja līderi ar viņu domām darba vietā rēķināsies,
- snieguma izrunāšana ar darbiniekiem – darbinieki pozitīvi uztvers, ja līderi izrunās ar viņiem katra individuālo un kolektīvo sniegumu,
- komanda – svarīga ir darbinieku sadarbība un tās veicināšana ikdienas darba procesā,
- darba pienākumu veikšana ar gandarījuma sajūtu (Levering, 1998).

R. Leveringa teorijā īpaši izcelta loma pozitīvi motivējošas darba vietas veidošanā. Teorijas autors uzsver, ka jebkurš uzņēmums var radīt labu darba vietu. Tomēr savos pētījumos autors ir nonācis pie secinājuma, ka katrai organizācijai ir individuāli jāizvērtē, vai tā var pielietot konkrēto sistēmu. Dažām organizācijām tas izdodas un tiek sasniegti gaidītie rezultāti, bet daudziem uzņēmumiem neizdodas ieviest šo sistēmu vai tā nerasniedz gaidītos rezultātus, un rezultātā līdera sekotāji pieņem lēmumu mainīt darba vietu (Levering, 1998).

Analizējot zinātniski pētniecisko literatūru, var secināt, ka personāla iesaistīšanos darbā tieši veicina pats uzņēmums ar savu iekšēji izstrādāto kultūru, darba procesa organizāciju, kontroles mehānismiem un uzņēmuma atšķirīgajām pazīmēm no citiem līdzīga profila uzņēmumiem. Atbilstoši teorijām, viens no vadības uzdevumiem ir sakārtot visus procesus, kas nepieciešami personālam, lai viņi varētu koncentrēties tikai uz pašu svarīgāko – produktīvu darba procesu (Hillman et al., 2008; Kreiner et al., 2006).

Teorētisko atziņu izklāsts saistībā ar pētījumā izvirzīto mērķi – analizēt pētnieciski konstatējamās kopsakarības starp līderības un motivācijas ietekmi uz personāla iesaistīšanos darbā organizācijā A, tiek atspoguļots 2. attēlā.



2.attēls. **Pētnieciski metodoloģiskais modelis** (V. Prudņikovs)

Figure 2 **Research Methodology Model** (V. Prudņikovs)

Attēlā atspoguļotas līderības, iekšējās un ārējās motivācijas, personāla iesaistīšanās darbā savstarpējās sakarības. Iekšējā un ārējā motivācija savstarpēji papildina viena otru. Ir iespējams runāt tikai par kāda motivācijas veida dominanti organizācijā, vai tās struktūrvienībā. Šī dominante vadības zinātnes pētnieciskajā praksē nav faktiski nozīmīgi izteikta. Personāla iesaistīšanās darbā pozitīvi ietekmē transformatīvā līderība un iekšējā motivācija. Vienlaikus nav noliedzama arī transakcīvās līderības dimensiju un ārējās motivācijas pozitīvā ietekme.

Pētījuma organizācija **Research organization**

Lai sasniegtu pētījumā izvirzīto mērķi, līderības analīzei organizācijā A tiek izmantota *Multifaktoriālās līderības aptaujas anketa* (Bass & Avolio, 1997) un motivācijas analīzei uzņēmumā tiek izmantotas *Labas darba vietas raksturojošo rādītāju aptaujas anketa* (Bakingems & Kofmans, 2005).

Kopumā organizācijā aptaujas anketas aizpildīja visi A organizācijas X un Y nodaļu darbinieki un nodaļu vadība. Personāla un vadības aizpildītās aptaujas anketas bija anonīmas.

Visas divi simti trīsdesmit trīs aptaujas anketas tika aizpildītas pareizi. Rezultātu analīzei tika izmantotas visas aizpildītās anketas, par nederīgu netika atzīta neviena anketa.

Saskaņā ar *Multifaktoriālās līderības aptaujas anketas* analīzes metodiku tika noteikts vadības un personāla viedoklis par izvēlēto līderības stilu.

Personāla un vadības aizpildīto anketu analīze tika veikta veica atbilstoši anketas autoru izstrādātajai metodikai, un atbildes tika analizētas septiņās vērtību skalās: idealizētā ietekme, inspirētā (iedvesmojošā) motivācija, intelektuālā stimulācija, individuālā pieeja, individuālā atlīdzība, individuālie standarti, neiejaukšanās, formālā līderība.

Multifaktoriālās līderības aptaujas anketa sastāvēja no 21 apgalvojuma. Aizpildītās aptaujas anketas tika analizētas atbilstoši anketas autoru izstrādātajai metodikai – vērtību skalā no 0 līdz 4. Vērtību skala vadības un personāla novērtējumam bija sekojoša: 0 – nekad, 1 – reti, 2 – reizēm, 3 – samērā bieži, 4 – bieži vai vienmēr.

Labas darba vietas raksturojošo rādītāju aptaujas anketa darbiniekiem tika izdalīta ar mērķi noskaidrot, vai vadība nodrošina labu darba vietu.

Labas darba vietas raksturojošo rādītāju aptaujas anketā aptaujas dalībniekiem tika piedāvāti 12 apgalvojumi. Aptaujas anketas tika analizētas atbilstoši aptaujas autoru izstrādātajai vērtību skalai.

Kopumā organizācijā aptaujas anketas aizpildīja visi darbinieki un nodaļas vadība. Rezultātu analīzei tika izmantotas visas anketas, par nederīgu netika atzīta neviena anketa. Aizpildītās aptaujas anketas tika analizētas atbilstoši anketas autoru izstrādātajai metodikai vērtību skalā no 1 līdz 5. Vērtību skala vadītājas un darbinieku novērtējumam bija sekojoša: 1 – ārkārtīgi neapmierināts, 2 – neapmierināts, 3 – samērā bieži, 4 – apmierināts, 5 – ārkārtīgi apmierināts.

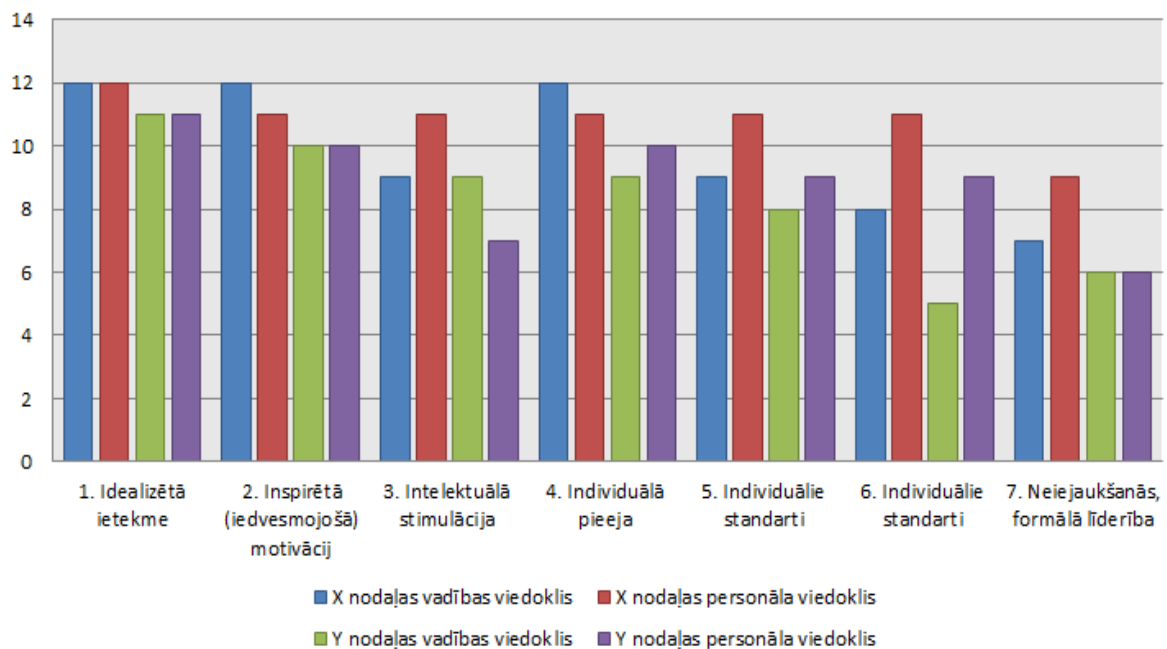
Aizpildītās aptaujas anketas, pēc pētījumā iegūto datu apstrādes, tika analizētas četros faktoros: 1. Bāzes nometne *Ko es iegūšu*; 2. Pirmā nometne *Ko es sniedzu pretī*; 3. Otrā nometne *Vai es šeit iederos*; 4. Trešā nometne *Kā mēs visi varētu augt?*

Pētījuma rezultāti

Results

Pētniecībā iegūtie rezultāti ir apstrādāti izmantojot Microsoft Excel 2010 datu apstrādes programmu un Statistisko datu apstrādes SPSS (Statistical package for Social Science) 23.0 versijas datu apstrādes datorprogrammā, izmantojot Frekvenču (biežuma) sadalījumu, aprakstošo statistiku.

Organizācijas X un Y nodaļu vadības un personāla rezultāti apkopoti 2.attēlā.



3.attēls. *Dominējošais līderības stils (V. Prudņikovs)*
 Figure 3 *Prevailing Leadership Styles (V. Prudņikovs)*

Aplūkojot 3. attēlā apkopoto informāciju, var secināt, ka rezultātu atšķirības nav būtiskas. Nodaļu vadības aptaujas anketu rezultāti liecina, ka vadības dominējošais līderības stils ir transformatīvā līderība, kas vairāk izteikta ir X nodaļas vadībai salīdzinājumā ar Y nodaļas vadību, un personāls pozitīvi vērtē vadības līderības stilu. Abu nodaļu vadība savam personālam ir kā paraugi, vadība ikdienā uztur labas attiecības ar savu personālu. Vadība arī kontrolē un no sava personāla pieprasa rezultātu par paveikto darbu. Ir izveidotas labas savstarpējās attiecības, un personāls nebaidās savai vadībai jautāt padomu nepieciešamības gadījumā.

Izmantojot SPSS 23.0 frekvenču (biežuma) sadalījumu darbinieku aizpildītajām aptaujas anketām var secināt, ka relatīvās frekvences sakrīt ar derīgiem procentiem.

Personāla un vadības aptaujas anketu rezultāti apkopoti 1.tabulā.

Apkopojot personāla aizpildītās *Multifaktoriālās līderības aptaujas anketas*, var secināt, ka X un Y nodaļu personālam viņu personībās ir izteikta transformatīvā līderība. X nodaļas personālam, lai nostiprinātu līderības dominanci viņu personībās, uzmanību vajadzētu pievērst faktoram *neiejaukšanās formālā līderība*. Savukārt Y nodaļas personālam uzmanību vajadzētu pievērst tādiem faktoriem kā *neiejaukšanās/ formālā līderība* un *individuālie standarti*.

1.tabula. *Aptaujas anketu rezultāti* (autoru veidota)
 Table 1 *The results of a questionnaire survey* (created by the authors)

Aptaujas anketu rezultāti personālam			Aptaujas anketu rezultāti vadībai
	Līderība	Motivācija	Līderība
Struktūrvienība	<i>Multifaktoriālās līderības aptaujas anketa</i>	<i>Labas darba vides raksturojošo rādītāju aptaujas anketa</i>	<i>Multifaktoriālās līderības aptaujas anketa</i>
X nodaļas personāls	Dominē transformatīvā līderība. Tās dominante personāla personības ir 59,68% .	Ar personālu pārrunā progresu, lai veicinātu labas darba vietas sajūtu	Dominēt transformatīvā līderība. Tās dominante vadības personībās ir 52,17%, savukārt transaktīvā līderība ir izteikta ar 47,83%.
Y nodaļas personāls	Dominēt transformatīvā līderība. Tās dominante personāla personības ir 57,68%	Personālam ir viss nepieciešamais, lai veiktu darbu kvalitatīvi	Dominēt transformatīvā līderība. Tās dominante vadības personībās ir 51,7%, savukārt transaktīvās līderības dominance ir 48,3%

Apkopojot X un Y nodaļu personāla aizpildītās *Labas darba vietas raksturojošo rādītāju aptaujas anketas*, var secināt, ka personāls organizāciju uzskata par labu darba vietu. Personāls savā starpā ir saliedēti un draudzīgi. Personāls atzinīgi novērtē vadības spēju viņus uz klausīt. Personāls atzinīgi vērtē potenciālās izaugsmes iespējas.

Apkopojot vadības aizpildīto Multifaktoriālās aptaujas anketas, var secināt, ka X nodaļas vadības izvēlētais līderības stils ir transformatīvā līderība. Lai palielinātu šī līderības stila dominanci vadības personībā, vadībai būtu ieteicams pievērst uzmanību viszemāk novērtētajam faktoram – neiejaukšanās/ formālā līderība, tādējādi vadība palielinātu transformatīvās līderības nostiprināšanos viņas personībā. Lai to paveiktu, būtu ieteicams mazāk kontrolēt personālu un ļaut viņam pašam vairāk pieņemt patstāvīgus lēmumus un vairāk patstāvīgi rast risinājumus.

Apkopojot Y nodaļas vadītāja aizpildīto Multifaktoriālās aptaujas anketu, var secināt, ka vadības izvēlētais līderības stils arī ir transformatīvā līderība. Vadības zemākais punktu skaits bija apakšskalās individuālā pieeja, neiejaukšanās/ formālā līderība un iedvesmojošā motivācija. Lai uzlabotu šo faktoru nostiprināšanos vadības personībā, būtu ieteicams vairāk rūpēties par personāla labsajūtu, ļaut personālam vairāk pieņemt pašiem lēmumus, tad tos kopā ar viņiem izanalizēt.

Secinājumi **Conclusions**

Apkopojot teorētiskās atziņas par līderību, var secināt, ka līderība ir četru faktoru kopums – līderība ir citu ietekmēšana, līderībai ir konkrēts mērķis, līderība ir process, līderība ir grupas fenomens.

Apkopojot teorētiskās atziņas par motivāciju, var secināt, ka, neskatoties uz lielo teoriju skaitu, visās teorijās tiek izšķirtas – iekšējā un ārējā motivācija.

Daudzi mūsdienu vadības zinātnes pētnieki ir identificējuši atšķirīgus labas darba vietas apstākļus, kuri konkrētos apstākļos var motivēt vai demotivēt darbiniekus. Līderības galvenais uzdevums ir ievērot šos faktorus, tādējādi jebkura darba vieta var kļūt par labu.

Apkopojot teorētiskās atziņas par personāla iesaistīšanos darbā, var secināt, ka tā ir salīdzinoši jauna teorija. Teorijas autori to definē kā pozitīvu, papildāmu un ar darbu saistītu prāta stāvokli, ko raksturo darbinieka enerģija, ieguldījums un iedziļināšanās darbā. Iesaistīšanās darbā attiecas tikai uz īslaicīgu un specifisku stāvokli, kas nav vērsts uz nevienu konkrētu objektu vai notikumu. Personāla iesaistīšanās darbā vēl tiek definēta kā uzņēmuma darbinieku izmantošana tā definēto mērķu sasniegšanai. Izšķirtajās divas teorijās nav konstatējama būtiska atšķirība, tomēr organizācijas darbības efektivitāte ir atkarīga no vadītāju izvēlēta līderības stila.

Pētījuma rezultāti apstiprina, ka uzņēmuma X un Y nodaļas dominējošais līderības stils ir transformatīvā līderība.

Summary

The authors chose this topic to conduct a study on what leadership style is, or whether it needs to be developed and/ or improved so that the company can work more effectively and efficiently in the long term.

Aim of the research is to investigate the relationship between the leadership and job engagement.

The study is built on research activities and there are used both theoretical and empirical methods. Qualitative and quantitative methods in the form of questionnaires are used during the study.

Participants of the research: the sample of the study consisted of 33 people.

Summarizing theoretical insights of leadership, can define that leadership is a combination of four factors – leadership is the influence, leadership has a specific purpose, leadership is a process, leadership is a group phenomenon.

Summarizing the theoretical statements on motivation, it can be concluded that, despite the large number of theories, all theories distinguish between internal and external motivation.

Summing up the theoretical findings on staff engagement, this is a relatively new theory. Theory is defined by the theory as a positive, fulfilling, and work-related state of mind characterized by the employee's energy, commitment, and insight into the work.

Involvement in work refers only to a temporary and specific condition that is not focused on any particular object or event. Employee engagement is further defined as the use of company employees to achieve its defined goals. There is no significant difference between the two theories, but the effectiveness of the organization depends on the leadership style chosen by the managers.

The results of the study confirm that the dominant leadership style of company X and Y divisions is transformational leadership.

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TOURISM POLICY IN LATVIA - FROM A TOP-DOWN TO A COLLABORATIVE APPROACH

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Abstract. *In 2019, Latvia drafted a National Development Plan [NDP 2027] for the next period, which also comprises actions for the development of the tourism sector. Unlike previous practices, approaches to drafting a common plan and developing and implementing tourism policy have changed significantly.*

The aim of the research is to describe the process of developing a tourism development plan, analyse the use of the latest planning and policy implementation approaches and evaluate the framework of the plan.

A qualitative research strategy - a case study was used. The main research methods are document analysis, in-depth interviews and participatory observations.

The process of drafting a new tourism policy and action plan, its main stages, tasks, methods, key stakeholders and discussions and the various documents elaborated has been summarized as a result of the research. The main problems related to the implementation of a bottom-up collaborative approach - lack of competencies of individual stakeholders, dominance of municipal interests, conviction that problems can only be solved from above, centrally, using state budget resources - have been identified.

The document analysis shows that the tourism policy document drafted differs significantly from previous documents. It incorporates the need for collaboration between tourism destinations, local municipal organizations and defines productivity as a transversal criterion for action.

Keywords: *collaborative approach, destination cooperation, implementation, tourism policy.*

Introduction

The tourism industry is a sector in which change is taking place very rapidly, both because of its internal complexity and its very close links to various external, including global, processes. Any country wishing to remain internationally competitive must develop a long term tourism development policy. 2018-2020 in Latvia was marked by the development of several important development documents, including *The National Development Plan 2021-2027 [NDP 2027]*.

The plan is being developed in the context of the projection of the European Union's financial and investment needs for the next period. In parallel, work was begun on administrative-territorial reform. In order to ensure the effective implementation of NDP 2027, development policies of sectoral ministries are also being developed. Already at the end of 2018, the Ministry of Economics [MoE] started developing the draft *Tourism Development Plan* [TDP]. Unlike previous tourism policy development processes (e.g. *The Tourism Development Guidelines 2014-2020* (MoE, 2013), the structure of the intended document, the approaches used and the degree and order of stakeholder involvement in the development process differed.

The aim of the research is to describe the process of developing a tourism development plan, analyse the use of the latest planning and policy implementation approaches and evaluate the framework of the plan. New knowledge in tourism planning and policies are developed not just by analysing documents. They are formed depending on how problems are identified, what approaches and methods are used, and what guidelines are developed (Hall, 2011; Dredge & Jamal, 2015). Defining the most appropriate tourism policy is a major challenge for politicians, private and public actors alike, considering tourism as an economic phenomenon and the number of players involved in it (Manente, Minghetti, & Montaguti, 2013).

The qualitative research strategy was chosen to carry out the research - the analysis of the development process in one case, i.e. the *Tourism Development Plan*. As the authors of the research participated in the planning process, this research uses the participatory action approach. The document analysis, a semi-structured interviews were used as the main methods for obtaining primary data.

Literature review

Approaches to tourism planning and implementation

Although the implementation of tourism policy development and plans is extremely important, relatively little research has been conducted on it (Hall, 2008). Policy implementation is perceived as a process, an interaction between policy, set goals and actions to achieve the goals. They are a multi-layered process that distinguishes three different approaches: 'top down' or 'top down rational', 'bottom up' and 'interactive' (Hall, 2008; Hall, 2009). The interactive approach is also described as the 'collaborative', 'cooperative' approach (Panyik & Anastasiadou, 2013). The top down approach is the implementation of policies where decision-makers are at a higher level of hierarchy and those implementing at lower levels. This approach is criticized, as policy makers do not see what is happening at the lower level. In such cases, there is a clear distinction between policy making and implementation. The bottom-up approach involves those who

really implement policies - stakeholders, non-governmental organizations and the public - and stresses the importance of public-private partnerships. It seeks policy tools and instruments to address the problems of lower level implementers. The disadvantage of the bottom-up approach is that the policies pursued do not always achieve the goals that should be achieved at the strategic level. The third, interactive or collaborative approach, is described as a complex process of negotiation and bargaining between political actors and planning and policymaking at all levels. Such an approach is the closest to real processes, where both formal and informal networks are used and involved in policy-making, and where political forces manifest themselves. Though it is acknowledged that the outcome of the policy depends on the outcome of the agreement and a continuous process. As a result, it is more difficult to objectively measure achievement, and not always possible to clearly define the outcome (Hall, 2008).

Tourism policy and state governance

Tourism governance (Hall, 2011) is described as a means of addressing the social, economic, political and environmental challenges of tourism development at a time when the role of the state is changing, dominated by neo - liberal ideas, supranational structures (e.g. the European Union, UN World Tourism Organization) and the increasing role of various non-governmental organizations. New governance is the adjustment of a country to the economic and political environment and how it operates. These are administrative measures that do not occur solely in state institutions. New forms of governance are evolving, characterized by diversity and decentralization, deliberation, flexibility and revisability, experimentation and knowledge creation (Hall, 2011). Hall's concept of governance is defined as: "The core concept of governance in public policy terms is the relationship between state intervention (public authority) and societal autonomy (self-regulation)" (Hall, 2011, 442).

State intervention in tourism industry development focuses on strengthening demand, supply and tourist destinations in the national economy. Public authorities manage tourism through regulatory documents and direct oversight of real processes. An important area today is public-private partnerships, which combine economic (financial) activities and organizational relationships between public and private organizations. Panasiuk (2019) emphasizes that one of the more modern forms of governance is regional and local tourism organizations. The importance of deregulation in tourism governance is growing with less regulatory documents and more management freedom. The role of the state has changed in the last decade, moving from a simple model of public administration to a model that emphasizes efficiency, return on investment, and the role of markets and stakeholders (Liu, Tzeng, & Lee, 2012).

The main principles of the European Union's [EU] tourism policy were defined in 2010 (EC, 2010). Principles such as maximizing the potential of

financial resources and instruments, and product innovation are important in the new planning period as well. The new European Parliament and Council Regulation (EC, 2018) defines five policy objectives aimed at making Europe greener, smarter, more connected, more socially responsible and closer to its citizens. A European policy closer to the citizen means the sustainable and integrated development of urban, rural and coastal areas through local initiatives.

The EU tourism policy is dominated by the principle of subsidiarity (decisions at the closest level possible; synchronization of actions). Not only can it be used at lower levels, but also to coordinate actions, resources and stakeholders at different levels, both horizontally i.e. within destinations, and vertically - in tourism product development, as well as in cross-border cooperation (Panyik & Anastasiadou, 2013).

The national tourism policy is reflected in organizational tools such as development plans, programmes, strategies that identify key challenges and directions (Panasiuk, 2019).

Methodology

This research uses a qualitative approach. The research strategy is based on a single case study where multiple sources of evidence are used. Case study is an appropriate method for empirical research, as the method helps reveal “real – life complexities of managing organisations and destinations” (Altinay & Paraskevas, 2008, 77). In this case, the choice of a single case study and not a multiple-case study relates to the fact that researchers had the opportunity to participate and observe processes themselves and access to data, which is most often restricted.

As the authors of the paper participated in the development of the tourism development plan, the research uses the action or participatory action research approach, which Winter & Munn-Giddings (2001, 8) define as “the study of a social situation carried out by those involved in that situation in order to improve both their practice and the quality of their understanding”. Using this approach, researchers are members of a group (Altinay & Paraskevas, 2008) using a practice-based and “experiential learning approach” (O’leary, 2004, p. 141) and “orientation and purpose is on enquiry rather than a research methodology” (Koshy, Koshy, & Waterman, 2010, 4).

Various types of data were used in the research – document analysis, participatory observations and formal and informal interviews.

Document analysis of the tourism development plan included documents related to planning process organisation (invitations, lists of participants), transcripts and visual materials of focus groups, meeting minutes, reports produced during planning process, previous tourism development plans and drafts and the final version of new tourism development plan.

Semi - structured face-to-face and phone interviews were conducted with researchers/ planning experts (n=3) and tourism representatives from a governmental institution (n=2) responsible for tourism planning.

Research Results

NDP 2027 and tourism policy

The *National Development Plan 2021-2027* will be the main national mid-term policy document in Latvia. It has been developed within the framework of the *Sustainable Development Strategy of Latvia until 2030* (Saeima, 2010) and the *2030 Agenda for Sustainable Development Goals* (UN, 2015). NDP 2027 sets strategic goals that Latvia expects to achieve by 2027, outlines sectoral policies and key reforms. It sets out investment areas for the state budget, EU funds and other financial instruments in Latvia.

The development of NDP 2027 was started in 2017 with detailed analytical work to assess the current situation, global trends and the previous plan. During the development process, it was found that the existing development policy (policy documents) system does not meet the strategic objectives set by the priority sectoral policies. The fragmentation and separation of the policy document from processes influencing them does not ensure balanced development, especially in the regions. The tourism industry with its multidisciplinary nature requires cross sectoral solutions. *The Tourism Development Guidelines 2014-2020* (MoE, 2014) focused on actions to be implemented primarily within the scope of the MoE. A major challenge for tourism policy makers is the observance of principles of coherence and continuity.

According to the Cross-Sectoral Coordination Centre [CSCC], the institution responsible for NDP 2027, a smaller set of high-level documents can provide more effective and coherent planning for the new period. This new approach also concerns tourism policy. The principle of the sectoral approach was abolished and economic growth is measured using factors increasing values in the country. *The Conclusions of the Council of the European Union* (Council, 2019) on the tourism sector as a driver for sustainable growth, jobs and social cohesion for the next decade were also taken into account in the development of the new tourism policy.

In cooperation with CSCC experts, tourism policy has been integrated into the National Industrial Policy [NIP] framework at the strategic level, and a *Tourism Development Plan* is being developed to define specific policy implementation actions.

Analysing the previous tourism guidelines implementation results (MoE, 2017), it has been observed that the average daily expenditure of a foreign overnight traveller has decreased significantly despite the increase in the number of tourists. It was concluded that there is a need to promote the competitiveness

and quality of Latvian tourism products and to create new and innovative high value added tourism products to ensure a longer stay and higher tourist receipts. Business tourism, health tourism (including exports of medical services) and cultural and nature tourism are still defined as the most competitive types of tourism.

The Latvian regional tourism offer is fragmented, homogeneous and includes the satisfaction of needs basically unrelated to tourism. It is often offered not as a comprehensive offer and does not cover a larger scale - tourist destination. Therefore the tourists are not interested in staying for a longer period. The development of regional tourism requires, firstly, the optimization of tourism management, tailored to the needs of tourist destinations, and, secondly, the promotion of new products for export and domestic tourists.

The use of various technological solutions in tourism product development is a topical issue in the industry. Development trends in new technologies show that smart tourism is becoming a necessity. It is therefore essential to promote the development of tourism in the following areas: smart solutions for tourism and destination development, digitalisation of tourism enterprises, digital solutions for global integration of the tourism industry and production of tourism statistics.

Planning process and results

In the second half of 2018, the MoE started the tourism planning process for the new planning period. It was implemented in four phases: (1) Situation analysis or pre-research phase; (2) Discussion of issues and development of proposals with industry stakeholders; (3) Elaboration, debate and improvement of the tourism development plan; (4) Coordination of the tourism development plan with other governmental bodies. Table 1 shows the planning process, the activities carried out, the actors involved and the main results.

The pre-research phase was done by engaging tourism researchers to carry out desk research. It used international and local statistics, studies, policy documents, forecasts, etc. Four thematic blocks were identified for the research by the MoE - enhancement of Latvian tourism supply for international markets, including development of health, business and cultural tourism in the context of higher added value; development of domestic and international tourism, regional tourism development; technological and digital solutions in tourism; tourism governance at the national and regional level. The pre-research phase resulted in an analytical report on tourism industry development (MoE, 2019a), which described the current situation, highlighted the strengths, development potential, weaknesses and possible solutions for each area. It highlighted areas and issues requiring stakeholder input and deeper discussion. Due to limited funding, only

one primary research on the impact and results of state support instruments on tourism was carried out during the pre-research phase.

*Table 1 Planning Process of the Tourism Development Plan 2021-2027
(created by the authors)*

Planning phase and duration	Activities and methods	Participants (stakeholders)	Results
Phase 1. Pre-research– situational analysis (18 weeks)	1) Situational analysis in four themes: tourism development in regions and domestic tourism; tourism export; tourism governance; technologies and digitalisation (desk research; secondary data)	Tourism researchers	1) Report on situational analysis of tourism development in Latvia 2) Methodology for stakeholders` involvement in tourism planning
	2) Analysis of the governmental support system and tools in tourism (desk research; secondary and primary data)	Tourism researchers	Report on the governmental support system on tourism
Phase 2. Discussion of issues and development of proposals with industry stakeholders (6 weeks)	1) Discussions on challenging issues in tourism (strengths and weaknesses) and future developments (4 regional and 6 thematic focus groups) 2) aggregation of focus group results (transcripts and visual working material)	Tourism researchers, representatives of tourism related governmental bodies, other ministries, planning regions, municipalities, professional and regional tourism associations, NGOs, tourism related clusters, entrepreneurs and others.	164 participants in discussions representing various tourism stakeholder groups. Proposals for the tourism development plan.
Phase 3. Elaboration, debate and improvement of development plan (23 weeks)	Work on priorities, main development directions and activities for the tourism development plan (based on results of focus groups and research)	Tourism researchers, planning experts and representatives of the Ministry of Economics	Draft of the tourism development plan 2021-2027.
	Debate on tourism development priorities, directions, activities, responsible bodies and performance measurements	Tourism researchers, planning experts and representatives of the Ministry of Economics and main tourism stakeholders (planning regions,	Proposals (n=5) to improve the plan

		municipalities, professional and regional tourism associations, NGOs, tourism related clusters, entrepreneurs and others.	
	Work on improvements	Researchers and planning experts	Final versions of tourism development plan
Phase 4. Coordination of the tourism development plan with other governmental bodies	Debate on concerted actions	Representatives of the Ministry of Economics (with 9 ministries e.g. The Ministry of Environmental Protection and Regional Development, Ministry of Transport, Ministry of Culture; Ministry of Health, Ministry of Education etc.)	Agreement on concerted actions and incorporation of activities related to tourism development in policy documents of other institutions and the National Industry Development Plan.

Researchers noted the following weaknesses of the pre-research phase: strictly defined research topics that limited the work of the researchers; a too short time frame for the implementation of primary research and a too broad field of study; lack of funding for primary research.

The pre-research phase enabled the aggregation and effective use of existing research results, identified a wider range of issues to be discussed and provided a good basis for developing proposals for the tourism development plan as well.

The interviewed representatives of the relevant public authorities evaluated the pre-research results as a significant complementary contribution to the process of developing and discussing the development plan, providing a sufficiently in-depth situational analysis and a summary of trends. After the planning process, the report was appended as a supplement to the policy documents that justifies the need for the actions planned.

Evaluating the support mechanisms (MoE, 2019b), the state representatives emphasized that the scope and depth of the study was influenced by the lack of time, the fragmented information provided by the state institutions themselves and the lack of cooperation among institutions of different sectors. As a result, access to all necessary data was not provided. They also underlined the lack of a comprehensive impact assessment system of support mechanisms at national, regional and local level.

In the second phase of planning, in order to provide a bottom-up planning approach, the views of the stakeholders on the four issues raised were identified and ideas for tourism development actions for the next planning period were gathered. Over a period of six weeks 10 focus groups were organised with a total of 164 participants - representatives of tourism enterprises, regional and

professional tourism associations, planning regions and municipalities, representatives of responsible and related ministries and public administration organizations such as the Latvian Association of Municipalities, the Ministry of Culture, the Ministry of Environmental Protection and Regional Development, the Latvian Investment Development Agency, the Nature Protection Board, etc.

Focus groups on regional tourism development issues were organised in the cities of four regions of Latvia - Kuldiga, Rezekne, Valmiera and Bauska. 162 participants were invited to participate in the focus groups, but 79 participants (attendance rate 48%) representing the region's main tourism actors participated - representatives of the planning region, regional tourism associations and the tourism network, municipal tourism specialists, managers of the most popular tourist attractions and the tourism industry. Researchers participating in these discussions noted that almost half of the participants invited came to the discussions, even though the discussion was organised at the beginning of the tourist season. The high participation rate was explained by the level of involvement of local actors in tourism and the fact that the tourism planning period coincided with the launch of the country's regional reform.

The discussions were also conducted in six thematic focus groups - business tourism, health tourism, cultural and nature tourism, technological solutions and tourism development, which took place in the capital Riga. 141 representatives of the tourism sector and other stakeholders were invited and 85 (attendance rate 60%) participated. The participants in business tourism group represented key stakeholders such as the Latvian and Riga Convention Offices, key organizers of international meetings, events and conventions, convention infrastructure providers, representatives of government institutions representing business tourism and other stakeholders. The health tourism group included representatives of the health tourism cluster, major exporters of medical services, representatives of the Ministry of Health and other stakeholders.

Analysing the transcripts of the regional and thematic focus groups, it is noted that the participants were successful in identifying the factors hindering the development of the tourism industry, pointing both to those directly related to the tourism industry and those indirectly, but vitally important for tourism development such as road quality, the bicycle path network, labour shortage and education, cross-sectoral cooperation, etc. However, some of the proposals were traditional, local and short-term in nature. The stance that tourism development was driven from above with state support could also be observed, which could be explained by the dominance of local governments in these discussions, the lack of leadership from companies and the lack of a business approach from tourism stakeholders. In one region, a clear stance could be noted that only state institutions were responsible for the failure of tourism development.

The lowest participation rate was in the culture, nature and technology / digitization focus groups. These groups also had the fewest practical proposals for the development plan. This could be explained by the fact that the focus group was represented by players from different levels of the industry (from enterprise to ministry representatives), and that neither nature tourism nor cultural tourism has a strong industry lobby. The technology and digitization group was represented only by tourism enterprises, so the proposals focused on the micro level of the industry, which is explained both by the level of digitalisation of the enterprises themselves and the lack of knowledge about the development potential of smart destinations.

A state institution representative rated the industry's contribution to action development as mediocre, noting that, while the focus groups sought to involve the broadest possible range of industry stakeholders, the proposed solutions and future development directions lacked a comprehensive, strategic and innovative vision. Tourism governance at the regional and local level and the digitalisation of the sector were emphasised as the most significant issues. Digitization must be seen in the broader context of cross-sectoral and national digitalisation. It should be stressed that the focus groups did not raise the issue of sustainability.

During the third planning phase researchers in cooperation with MoE representatives responsible for tourism worked out a tourism development plan (2021-2027) (MoE, 2019c). It identified three development priorities: (1) strengthening the tourism industry's international competitiveness and promotion of exports (with 11 action directions); (2) development of attractive tourism offers in the context of local values and lifestyle, promotion of local tourism (6 action directions); (3) improving tourism management, education and research (3 action directions). All in all the action directions (total 20), activities to be implemented (total 101), institutions/organizations responsible, key cooperation partners, deadlines for implementing the activities, sources of resources needed and results to be achieved were identified for all priorities. The MoE in charge of tourism and the Latvian Investment Development Agency are responsible for the implementation of 69 activities and other parties are involved in 32 activities, such as the ministries (22 activities) - the Ministry of Environmental Protection and Regional Development (9 activities), Ministry of Culture, Ministry of Transport, Ministry of Education, professional associations, municipalities, the Riga international airport, the national airline. It illustrates the importance in tourism development of non-tourism institutions, which usually do not have tourism-related issues in their policy documents and agendas.

The development plan was discussed in the Tourism Committee of the Economic Council of the MoE and was accessible to all stakeholders for four weeks in the e-environment for discussion. Comments and suggestions were subsequently received in writing. It should be noted that no substantive proposals

for improvements were made. One piece of feedback strongly criticized the plan without any proposals for improvements. As the authors of the plan noted, such a negative reaction was due to the fact that the plan published did not include the situation analysis research of the sector causing difficulty in understanding of the need for particular action directions and activities. Difference in understanding (non-understanding) of some tourism related terms, such as tourism cluster, micro-clusters, health tourism, business tourism, etc. also cropped up during this phase.

The fourth phase of the plan involved the coordination of defined actions with the plans of other ministries by MoE staff, as a result of which these activities were incorporated into the medium-term plans of these institutions. The MoE spokeswoman noted that "due to the timely development of the tourism sector development plan and a detailed work plan, we were able to very precisely and specifically discuss with each institution the tourism industry needs and what we expect from them... We actively represent the interests of the tourism industry, which to majority of these institutions is alien. In this process, we realized the need for closer collaboration and communication between the institutions, also regarding the implementation of what was planned."

Evaluating the tourism planning process, the researchers involved in the process noted that it was generally viewed positively because, according to planning theory, the views of the various groups involved were clarified. However, given the profile, scale and interests of the various tourism enterprises and organizations involved, it should be borne in mind that sometimes there was no same-level discussion or solutions that positively affected the development of the whole sector. Tourism industry representatives, however, were not able to make any significant proposals for development in the fields of innovation, technology and digitalisation, which require a comprehensive approach and specific knowledge.

The MoE representative noted that this planning process clearly showed that how much contribution is made in the tourism sector at the national or local government level is unclear. It is therefore not possible to assess the potential returns of different actions. Productivity assessment must be one of the priorities when putting a development plan into practice. Cooperation between ministries and other institutions is essential for the successful development of the tourism industry. Experience shows that tourism authorities at the national level should proactively engage in dialogue with other institutions. On the other hand, tourism entrepreneurs and representatives of related institutions do not always have the competence to find the best solutions not only at the enterprise level but also in the long-term development of tourism at the national level. These areas need to be identified and solutions sought outside the industry.

A deeper analysis of the document shows that not only traditional tourism development directions and activities are included, but new aspects of Latvian tourism development are highlighted as well. These are: targeted cooperation between destinations and their actors, strengthening the competitiveness of regional destinations; changes in the tourism management system, with a stronger role to be played at regional level, ensuring more effective communication and cooperation at local and national level; a focus on creating higher added value to the tourism products and strengthening export capacity not only at the enterprise but also at the industry level. For example, focus on medical and conference tourism or the creation of new, innovative tourism products. With regard to the introduction of technological solutions in enterprises and smart tourism destinations, enhancement of the level of digitalisation of companies is a direction that has so far been neglected by the industry.

Conclusions

The analysis of the process and content of the Latvian tourism development plan clearly reflects the use of an interactive or collaborative approach. Both the discussions during the development of the plan as well as the development directions and activities planned are based on the results of the cooperation among industry actors, which were based on the real environment and situation, and did not use a top-down approach, setting utopian, unattainable goals for the stakeholders.

Involving actors from the tourism industry at different levels in the planning process, it should be borne in mind that their competences in certain areas may be insufficient to provide strategic development solutions not only at enterprise or municipal level but also at national level. Therefore, it is important to involve both researchers and other experts in the planning process who can offer research and best practice based solutions. These consultants from other sectors and areas may be more neutral and reduce the dominance of the individual actors involved.

The tourism development plan has been developed in accordance with the principles of a collaborative approach, taking into account not only local interests but also EU guidelines (Manente et al., 2013).

Co-operation and competitiveness are the main development directions for the sector, but a transversal approach is directly in line with the shift in tourism development priorities in the EU (Panyik & Anastasiadou, 2013). However, it should be noted that sustainability and productivity are not directly reflected in the activities included in the plan. This is to be ensured by selecting the projects to be supported and prioritizing the activities.

As a result of the tourism planning process, a logical and coherent tourism policy and proper implementation programme has been developed that avoids the

overlapping of decision-making, fragmentation of actions and takes into account decisions and actions in other areas and purposefully integrates actions significant for tourism development in the policy documents of other institutions.

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THE ROLE OF PROFESSIONAL TOURISM ASSOCIATIONS IN LATVIA

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***Abstract.** After regaining independence in 1991, various sectors of the tourism industry in Latvia are united in professional associations. They represent various stakeholders of the industry in all processes important for tourism development and are part of the tourism management system of Latvia. So far, there has been no specific research conducted on the role of professional tourism organisations in Latvia. Therefore, the aim of this paper is to evaluate the achievements and future prospects of the activities performed by the national level professional tourism associations of Latvia. The empirical part of the research is based on the qualitative research methods – document analysis and structured interviews with board members and members of associations, as well as with a senior official at the Ministry of Economy of the Republic of Latvia. Research results reveal that the role of those organisations in Latvia is valuable and bring about a positive impact on the tourism industry. Despite the variety of opinions, the majority of interviewees believe that in the course of the next 5 years there will be an increasingly strong influence of associations on the development of tourism in Latvia.*

***Keywords:** Latvia, NGO, professional tourism associations, tourism management.*

Introduction

After regaining of independence in 1991, tourism management in Latvia was started afresh and along with governmental institutions responsible for tourism, it is also important to create a system ensuring the representation and participation of tourism companies in it. Therefore, with the development of various areas of the tourism industry and the subsequent problematic issues in need for resolution, companies of various sectors united in professional associations. In accordance with Latvian legislation, they were formed as non-governmental organisations – associations. An association is a voluntary union of persons founded to achieve the goal specified in the articles of association, which shall not have a profit-making nature (Saeima of the Republic of Latvia, 2003). The associations have become defenders of the interests of their sectors, as well as active partners of state and municipal institutions for tourism planning and administration. Despite their sufficiently long period of activities, no summarising, comprehensive studies have been performed on their actions in Latvia.

Thus, the current study has been carried out with the aim of evaluating the achievements and future prospects of the activities performed by the national level professional tourism associations of Latvia.

Literature review

Over the past twenty-five years, there has been a growing body of tourism research on stakeholder engagement in successful tourism planning and development. This emphasises the importance of collaboration between stakeholders, due to the composite nature of tourism destinations. UNWTO has identified stakeholders in the tourism industry as tourism professionals, public authorities, professional associations as well as press and other media. Stakeholders in a tourism destination may refer to tourists (as the demand), industries (as the supplier) and hosts (the local community and environment). Sustainable tourism development requires the informed participation of all relevant stakeholders, as well as strong political leadership to ensure wide participation and consensus-building. Stakeholders in sustainable tourism development are divided into three categories: the tourism industry, environmental support and the local community/local government. According to UNWTO the term “stakeholders in tourism development” among others like national and local governments, tourists, etc., includes tourism establishments and enterprises, including their associations. All stakeholders have a different impact and contribution to the development of the tourism industry (UNEP & UNWTO, 2005). The impact of professional associations and NGO-s frequently play a role, which might otherwise be played by governmental bodies. In some contexts, associations can be seen as part of the public sector while in other instances they are closer to the private sector, and this varies from country to country (Veal, 2010). There are quite many organisations of this type, which are composed of tourism stakeholders. In most cases, such associations are non-profit organisations. Non-profit organisations are institutions placed between the public and private sectors; they provide services for the public good on condition that they cannot make a profit. Such associations can be local, regional, national or international. Non-profit organisations are also commonly called voluntary associations. The first voluntary tourism associations were created in the nineteenth century in France, Switzerland and Austria with different denominations to dedicate their activity to the promotion of the destination (Candela, 2012). Voluntary organizations include pressure groups, voluntary trusts, some of which have charitable status, and industry associations. They can be further subdivided into those, whose membership is primarily public and those, whose members come largely from within the tourism industry (Mason, 2008). The need for government - business cooperation on tourism

planning is the equal need for them to cooperate with non-profit organizations as they plan and make decisions on different objects and events (Gunn, 2002).

Despite the fact that there have not been many kinds of research conducted on the role and contribution of professional associations outside Latvia either, several authors have addressed, for instance, the role of Associations of Event Producers in the introduction of new technologies, as well as in promoting sustainable event practice, relationship marketing, membership behaviours in professional associations et al. A number of research initiatives on professional associations have been implemented by Arcodia & Reid. As a result, the authors have concluded that the exchange of information and the opportunities of members of gaining additional education and training for raising their overall qualification represent the most important mission statement of professional associations. In a different research, the same authors conclude that “the six most commonly occurring categories of services offered by professional associations were educational services, communication, business, community and buying power advocacy services and buying power improvements” (Dickson & Arcodia, 2010).

Taking into account that the area of tourism is often closely linked with events organisation as well as the fact that in most of the cases the idea behind the creation of professional associations is similar, the operations of the respective associations bare a lot of similarities and can be comparable in terms of research results.

Muzio et al. in their own turn (as cited in Rhodri & Huw, 2013) have stressed a set of formal qualifications allied to occupation, membership system, legitimacy claims, as well as the shift from national to international orientation as aspects important to professional associations. Those aspects are also topical to the professional tourism associations of Latvia engaged in research of this issue.

Methodology

Research has been conducted by employing the qualitative research methods - document analysis (web-pages, internal regulations of associations, planning documents) and interviews. Document analysis was mostly based on the information available on the web-pages of associations, which in most of the cases was limited or not unavailable. Therefore, it was possible to collect only a limited scope of information while characterising the activities of the association. 15 structured interviews were conducted involving the board members of 11 associations, 10 interviews with associations members (8 questions) of 7 various associations and 1 representative of a governmental institution (10 questions) – the Ministry of Economy of Latvia, which is directly

responsible for the development of the tourism industry in Latvia. For the purpose of comparing various opinions of all parties, parts of the questions were similar or identical. The method of content analysis was employed in analysing the interviews. The research was carried out over the period from January to May 2018.

Research Results

In order to provide a comprehensive overview of the national tourism associations of Latvia, the basic information on the actual operating associations has been summarised in Table 1.

Table 1 The characterisation of the professional tourism associations of Latvia in 2019 (AHRL, ALTA, ALPG, LRTA, LACPM, LMB, LHTC & LYHA, 2019)

Name	Characterisation
Association of Hotels and Restaurants of Latvia (AHRL)	Founded in 1993, members ~ 300 accommodation companies, restaurants, education institutions, service companies; member of the International Hotel and Restaurant Association HOTREC
Association of Latvian Travel Agents and Tour operators (ALTA)	Founded in 1991, members - 60 travel agents and tour operators + 9 associated members; member of the European Travel Agents` and Tour Operators` Associations (ECTAA)
Latvian Rural Tourism Association “Lauku ceļotājs” (Eng. <i>Rural Traveller</i>)	Founded in 1993, members ~300 rural tourism companies; member of the European Federation of Rural Tourism EuroGites
Latvian Association of Castles, Palaces and Manors	Founded in 2000, members – 105 private or public companies managing castles, palaces, manor houses for public access
Latvian Association of Tourism Information Organisations LATTUR-INFO (LATTURINFO)	Founded in 1996, members - 46 municipalities and municipal bodies representing tourism information providers and individuals; member of the European Union of Tourism Officers (EUTO) from 2002 till 2014
Latvian Restaurant Association	Founded in 2018, members ~ 60 restaurants
Latvian Museums Association	Founded in 1992, members – 106 museums
Association of Latvian Professional Guides	Founded in 2002, members- tourist guides; member of the European Federation of Tourist Guide Associations (FEG).
Latvian Tourist Guide Association	Tourist guides
Latvian Camping Association	Camping sites
Latvia Resort Association	Founded in 2008, members- 8 municipalities + 50 associated members or merchants
Hostelling Latvia, Latvian Youth Hostel Association	Founded in 2006, members – youth hostels

Based on the summarised information, it can be seen that the associations comprise all the major tourism and hospitality companies, the majority of which have been operating already for almost 20 years. Many associations are members of the corresponding international organisations by representing Latvia and by participating in discussions on a range of substantial industry-related decisions in the European Union, as well as in the implementation of various international activities in the field of tourism. In the framework of the national system of tourism administration of Latvia, associations are represented in two consultative councils: The Tourism Committee at the National Economy Council of the Ministry of Economy and the Advisory Council of the Investment and Development Agency of Latvia - the state institutions directly responsible for the development of tourism in Latvia - as well as in various working groups where they substantially implement their objectives and tasks. As depicted in Table 1, there are two organisations representing the industry in some areas, which for a country of the size of Latvia sometimes poses additional challenges.

In order to understand the operational principles of the various associations, the study analysed the objectives and tasks of associations by means of the content analysis method. The objectives and tasks represent the idea and purpose of the association and help to attract members to the association even if few researchers have admitted (Helming, Ingerfurh, & Pinz, 2013), that publicly communicated goals sometimes may differ from actual ones. The results of this research show that, despite their differences, the objectives of the 11 associations analysed still have one common trait: all of them name the promotion of the tourism industry in Latvia.

Apart from the main objective, associations have also defined tasks, which help to reach their aims. Despite the fact that the tasks are different, some of them are common or similar for all associations. The keywords, which appear in the defined tasks are *represented* (their area, industry and companies/members) and *be the voice, cooperate* (they are open to working with others and feel that it can be beneficial for the industry) and *promote* (members and the tourism industry of Latvia). The fact that some organisations have listed in their tasks *to participate in members training, to consult and support enterprises if needed* represents another important point. It shows that professional associations pay attention to the level of proficiency and qualification of employees within the industry. The specific activities testifying of the fulfilment of this task have been made available on the web pages of the associations (however, not all of those listed in the research) and have been acquired during interviews. The key educational activities and undertakings for the purpose of raising the qualification of employees involve the development of study and methodological materials, organising of training and seminars, cooperation with education institutions in conducting industry-significant research, guest-lectures

and participation in state examination commissions in education institutions of various levels engaged in the preparation of tourism industry experts. Representatives of the associations have participated in the development of the respective professional standards of the industry and nominate their representatives for working in the accreditation commissions of tourism and hospitality education programmes.

Other tasks in most cases are specific and related to a particular area, for example: to monitor the supply and demand in the country tourism, etc. Tasks like these help associations to introduce greater clarity in their future plans establishes ways to operate and helps to evaluate their progress.

The interviews with 11 different members of the board of associations (8) established their vision on the role of professional associations, their achievements and challenges facing them. Each interviewee had to answer to 8 previously prepared questions, which were slightly modified according to the situation.

The relationship between professional associations and governmental institutions, combining volunteer work in an association with the main objective and personal life, recruitment of new members, etc., were all named as the main challenges. All interviewees were positive about the issue of cooperation with international organisations seeing a number of benefits, while also mentioning the extra costs this cooperation puts, particularly on smaller associations. The participation in discussions with governmental institutions, working groups, advisory boards and promotion in different media were named as the main activities for representing of professional interests, while less attention is paid to the promotion of the associations themselves in the media. On the issue of activity of members, all interviewees admitted that although membership fees were duly paid, only the smallest part of official members actively engaged in the activities of associations, including with proposing of ideas. Therefore, this issue represents one of the challenges for all associations. Since the assessment of the role of any organisation requires substantial understanding of its achievements, the interviewees named the key achievements of their organisations. They included positive changes in legislation, including taxation policy, cooperation with and respect from governmental institutions, support programmes from the national government and EU projects, successful marketing and travel campaigns/ events, training and various activities targeted at raising the quality of services. Answering the question about the main failure, only a few representatives of associations delivered specific answers and those few spoke about wrong actions, inefficient spending of money and personalities of their leaders. Overall, it seems good but on the other hand, knowing the weak points and failures can help for the development in future.

10 members of 7 different associations were asked quite similar questions during the interviews. The main findings from these interviews are as follows: Representation of companies and the industry in general and lobbying its interests with governmental institutions were named as substantial factors in defining the role of professional associations. These activities include participation in the development of regulatory acts, support to the activities of companies, “keeping the industry together”, exchanges of experience, training, addressing the issues of quality as well as representation of the Latvian tourism industry internationally. Assessing the international cooperation, all members agreed that in general international cooperation and unions bring positive impact, but not all of them saw tangible results and were not aware their exact benefits and the gains from the membership fees paid. Addressing the issue of support provided by associations to their members, the majority of respondents have received it in the areas of marketing, training, information provision and in the implementation of the EU projects. However, it has been noted that not everyone has asked for assistance or used it and there were opportunities for significant improvements in this area. On the issue of the main factors limiting the work of associations, human resources (appropriate persons on management boards and more active members, the lack of time) and funding (fees are quite high for smaller enterprises) were singled out. Many enterprises are also interested only in their own business or do not see the benefit of being a member of associations. In a few cases, specific requirements for members and competition among enterprises were also mentioned. Quality requirements, favourable taxation and visa issuing support policies, as well as the organisation of the international tourism fair BATLLTUR in Riga were pointed out as the main achievements of the national associations by their members. Addressing the issue of the future role of associations, the respondents provided mixed responses. Some argued that their role would increase while some others opposed this optimism, stressing however that their future would depend on their board.

Whereas during the interview with an official of the Ministry of Economy of Latvia responsible for tourism it was pointed out that the role of associations was to act as intermediaries between the government and the industry since the majority of enterprises in tourism and hospitality were too small to defend themselves and their interests alone. Associations bring positive impact by helping the government understand the industry more clearly in terms of their needs and preferences. The positive impact of international cooperation was also mentioned as it provides a more global perspective of the situation in the industry. A good professional association should be willing to collaborate and listen to both: the government and companies. It is only in this way that the best solutions for all engaged parties could be found. The official thinks, that so far

cooperation has been good, particularly if associations see the benefit of such cooperation for their interests. It is a two-way street and good relationships are highly important. Communication and information flow among the members of associations were mentioned as one of the main challenges, especially if there is more than one association in the same field. On some occasions, there has been a discrepancy between public messages and actual deeds. During the work process representatives of association might say one thing, but when issues become public suddenly they change their position. Looking ahead, it was stressed that the role of professional associations might grow as it becomes more prestigious for the public sector to work closely with the industry. In the case of Latvia, many regulations have been changed based on the initiative and pressure of professional associations. It shows that the influence is already quite strong and it might become even stronger in future.

The role of professional tourism associations in the development of the industry for the upcoming years is also characterised by the proposals of the Ministry of Economy developed in 2019 for the action plan 2020 – 2027 where professional associations as stakeholders have been included in the implementation of 18 (out of 93) activities and sub-activities, thus testifying of their role as important partners. The said activities can be grouped in the following directions: training of entrepreneurs and tourism education, cooperation and networking, the development of products and the overall market offer, the promotion of sales, resolution of labour issues, support for the implementation of new technologies and research (the Ministry of Economics of the Republic of Latvia, 2019), which largely overlap with research reflected in the overview of literature.

The forward-looking planning document has listed the future tasks of the associations for the development of sustainable tourism education, research and raising the qualification of employees occupied in the industry (7 out of 18 specific activities), including the organisation of training events, the engagement of professionals in the implementation of study programmes, participation in the campaign of the role of education in the tourism sector, the development of study programmes of various levels, the creation of content and in defining tourism research topics (the Ministry of Economics of the Republic of Latvia, 2019).

Conclusions

The following main conclusions can be drawn from the research results: Although on some issues the opinions of interviewees differ, all the respondents stress the positive role of national professional tourism organisations in the development of the tourism industry of Latvia. It proves that the key objective of

associations is being achieved. The importance of the representation of specific interests of the industry, tangible input in the development of industry-favourable regulatory acts and implementation of support activities was particularly stressed. Although international cooperation is generally viewed positively, not all of the members have understood the gains it brings to the table. There are different opinions on cooperation between the top management of associations and regular members. Sometimes each side sees the deficiencies of others while ignoring one's own contribution. The practical assistance to members on issues like qualification and marketing are held in high regard by all parties. The creation of the feeling of community and exchange of experience is also valued highly. For the purpose of further improvement of the operation of associations, it is highly important to resolve the issue of insufficient internal communication, as well as to attract new members and more financing, which would allow to recruit paid employees and take away the burden on volunteers.

Speaking of the issue of the future of professional associations in Latvia, regardless of the negative opinions of some members, a majority of respondents believe that they will retain an important role. Therefore, the current situation in Latvia and the interests of all parties require strengthening of associations, including their merger.

Acknowledgement

The author of the article would like to thank Ms Yelaziveta Bulava for her outstanding contribution to the practical implementation of this research.

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KVALITĀTES VADĪBAS SISTĒMAS IEKŠĒJĀS KONTROLES ELEMENTU IZVĒRTĒŠANA TIESĪBSARGĀJOŠO INSTITŪCIJU IZGLĪTĪBAS IESTĀDĒS

The Evaluation of Internal Control Elements in the Quality Management System of Education Establishments at Law Enforcement Institutions

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Abstract. *Under the conditions of a growing competition in the field of educational services and the increasing demands of the labor market for well-educated and highly qualified workforce, the quality of professional efficiency assumes a particular significance. Taking into consideration the present situation concerning the security of the EU borders and problems created by the migration as well as the challenges they pose, the quality management systems and their effectiveness are vital also for educational institutions training specialists for the needs of the departments of the Ministry of the Interior. The research is aimed at establishing the most effective principles for working out the quality management system of vocational training in regard to one of the basic elements of the quality system: the resource of internal quality in an educational institution. The paper reflects and provides the analysis of the research process and outcomes that have been obtained from the interviews conducted among twenty Baltic State experts in the field of professional training of border guards and police employees, and by evaluating the resources and elements of quality management system according to the criterion “Impact on the study process quality”. The obtained research and empirical data provide scientifically valid frame for the actions of education establishments of law enforcement institutions on defining the principles at working out the quality management system.*

Keywords: *internal control; quality management system; vocational education.*

Ievads *Introduction*

Mūsdienu apstākļos, kad nemitīgi pieaug visaptveroša konkurence izglītības pakalpojumu jomā, ko no vienas puses stimulē nelabvēlīgās demogrāfiskas situācijas tendences, bet no otrās puses – darba tirgus augstās prasības pēc izglītota un augsti kvalificēta darba spēka, arvien pieaug profesionālās sagatavošanas kvalitātes izglītības iestādēs nozīme.

Profesionālās sagatavošanas kvalitātes vadības sistēmu esamība un efektivitāte, ņemot vērā pašreizējo situāciju Eiropas Savienības (turpmāk – ES) robežu drošības un migrācijas problemātikas griezumā un no tās izrietošos izaicinājumus, ir vitāli aktuāla arī izglītības iestādēm kas sagatavo personālu tiesībsargājošo institūciju vajadzībām (turpmāk - tiesībsargājošo institūciju izglītības iestādes).

Profesionālo kompetenču kvalitātes jautājumu aktualitāte tiesībsargājošo institūciju personāla sagatavošanas jomā, jauno, augstāko prasību ES valstu robežu drošības sistēmām, institūcijām, personālam apstākļos, kas izriet no noteiktajā Eiropas Parlamenta un Padomes (ES) regulā 2016/1624 “Par Eiropas Robežu un krasta apsardzi” (ES, 2016), ar ko, reaģējot uz nepieciešamību risināt sarežģītās situācijas pie ārējām robežām un stiprināt minēto robežu kontroli, tiek izveidota Eiropas Robežu un krasta apsardzes aģentūra (FRONTEX), kuras funkcijās un uzdevumos, tostarp, paredzēti ES robežu pārvaldības standartu īstenošana un atbalsta sniegšana dalībvalstīm nacionālā līmeņa apmācību un izglītības veicināšanā, ieviešot kopējus apmācības standartus ES līmenī.

Praktiskā pieredze liecina, ka izglītības iestādes Baltijā, t.sk. Latvijā, un lielākā mērā tās, kuras atrodas tiešās valsts pārvaldes hierarhiskajā struktūrā, piemēro dažādas, atšķirīgas, lielā mērā uz administratīviem vai subjektīviem lēmumiem balstītas, kvalitātes vadības sistēmas (turpmāk – KVS) izstrādes metodes un pamatprincipus. Līdz ar to KVS izstrādē tiek praktizēti atšķirīgi dažāda veida resursu iesaistes un izmantošanas modeļi, kas, savukārt, nenodrošinot pēc samērīgi līdzīgiem principiem un kritērijiem veidotu KVS pielietošanu, rezultātā veido mācību procesa īstenošanas un profesionālās izglītības kvalitātes valstī ilgspējības riskus. Arī attiecībā uz iekšējās kontroles sistēmas lomu un tās praktisko pienesumu mācību procesa īstenošanas kvalitātes nodrošināšanā izglītības iestādēs pastāv un tiek praktizēta atšķirīga, bieži vien formāla rakstura, attieksme un izpratne.

Pētījuma mērķis: noteikt visefektīvākos profesionālās sagatavošanas kvalitātes vadības sistēmas izstrādes pamatprincipus attiecībā uz vienu no KVS pamatelementiem - izglītības iestādes iekšējās kontroles sistēmas resursu.

Mācību procesa kvalitātes vadības sistēmas izglītības iestādē hierarhiskais modelis

Hierarchical model of the study process quality assurance management system in an educational institution

Profesionālās izglītības kvalitātes nodrošināšanu un novērtēšanu kā prioritāti izvirza gan starptautiskie (Eiropas Parlamenta un Padomes Ieteikums “Par Eiropas kvalitātes nodrošināšanas pamatprincipu ietvarstruktūras izveidošanu profesionālajai izglītībai un apmācībām”, 2009; Eiropas asociācijas kvalitātes nodrošināšanai augstākajā izglītībā ziņojums “Standarti un vadlīnijas kvalitātes nodrošināšanai Eiropas augstākās izglītības telpā”, 2015), gan nacionālie normatīvie dokumenti (Izglītības attīstības pamatnostādnes 2014.–2020.gadam, 2014), kuros konsekventi tiek aktualizēti jautājumi attiecībā uz profesionālās izglītības kvalitātes nodrošināšanu, novērtēšanu un pilnveidošanu.

Profesionālās izglītības procesu kvalitātes jautājumu problemātika iepriekš ir detalizēti pētīta gan ES un Latvijas valsts līmenī projektu ietvaros (Phare Daudzvalstu augstākās izglītības programma - Kristofersena, Sursoka, & Vesterheidens, 1998; Nacionālā programmas projekts, 2007; u.c.), gan zinātnieku aprindās (Štalbergs, 1999; Morley, 2003; Zaļaiskalne, 2011; u.c.). Vairāki pētījumi ir veltīti iekšējās kontroles aspektiem, tajā skaitā izglītības jomā (Granichina, 2006; Kalvāns, 2011; Verdiņa, 2012; Shibaev, 2013; u.c.). Analīzes veikšanai un lēmumu pieņemšanai attiecībā uz alternatīvām izglītības kvalitātes jautājumos arvien biežāk tiek pielietota hierarhiju analīzes metode (Eglītis, 2003; Cibizova & Karpunin, 2015 u.c.).

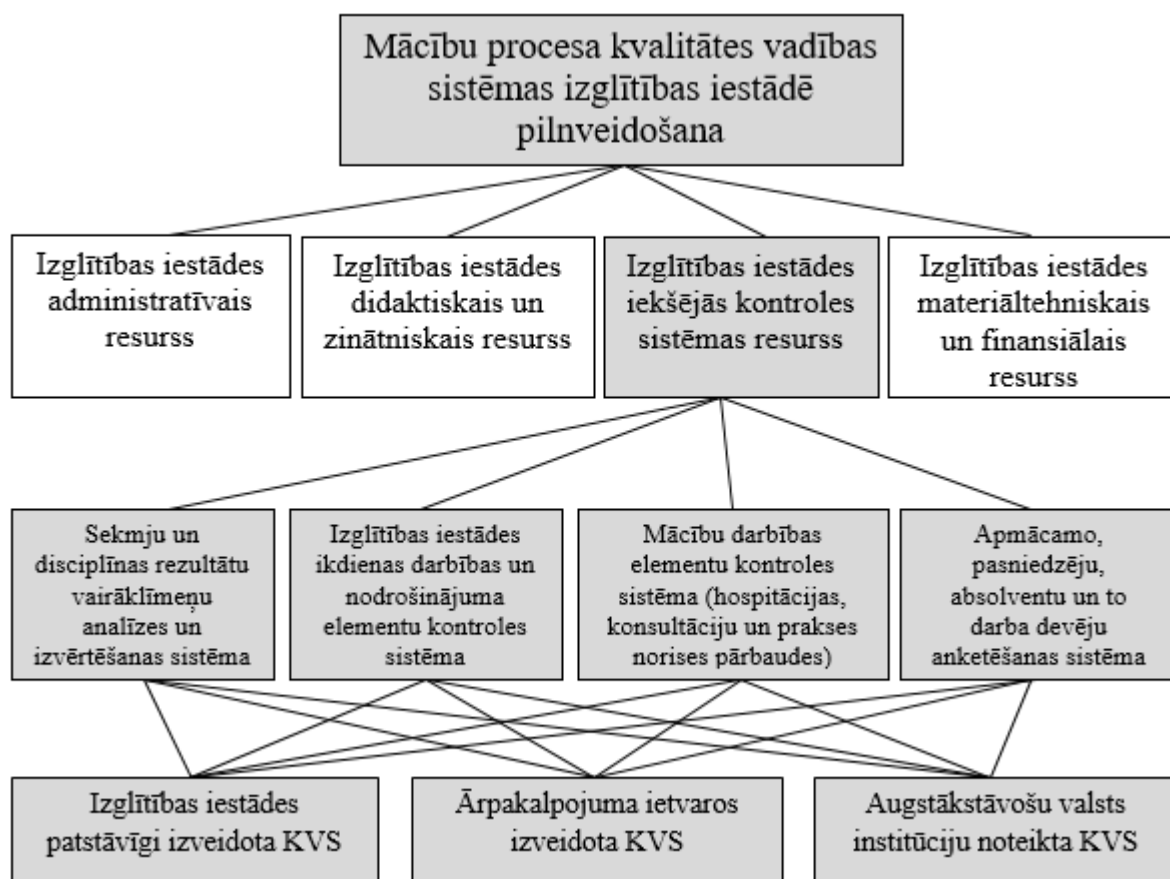
Vadoties no tā, ka hierarhijas analīzes metode sastāv no problēmas hierarhiskas sadalīšanas arvien vienkāršākajās sastāvdaļās un eksperta spriedumu virknes turpmākās apstrādes salīdzinājumos pa pāriem, izvēlētās datu analīzes metodes korektai un efektīvai piemērošanai, pētījuma mērķu sasniegšanai un optimālas pētnieciskās darbības procesa sekmīgai īstenošanai pētījuma ietvaros tika izveidota mācību procesa izglītības iestādē, kā profesionālās sagatavošanas satura nozīmīgas komponentes, kvalitātes vadības sistēmas hierarhiska modeļa struktūrshēma, raksta ietvaros izmantojot tās fragmentu attiecībā uz izglītības iestādes iekšējās kontroles sistēmas pamatelementiem (1.attēls). Izveidotās struktūras ietvaros noteikti un definēti: vispārējais mērķis, četri mācību procesa izglītības iestādē kvalitātes vadības sistēmas pamatresursi (kā kritēriji), pa četri pamatelementi (kā apakškritēriji) katrā no resursiem, kas reprezentē attiecīgā resursa visu elementu kopu, un trīs KVS izglītības iestādē izstrādes pamatprincipu varianti (kā alternatīvas).

Ņemot vērā iekšējās kontroles jēdziena un satura plašu un daudzveidīgu interpretāciju piemērošanu zinātnieku pētījumos, jautājumu interventiem būtības pilnvērtīgākai izpratnei, interviju un raksta ietvaros iekšējās kontroles sistēmas

resursa jēdziens tika apzināti sašaurināts un definēts kā izglītības iestādes visu procesu kvalitātes monitoringa, kontroles un analīzes sistēmas resurss.

Alternatīvas, kā kvalitātes vadības sistēmas izglītības iestādē izstrādes pamatprincipu varianti, tika formulētas trijās versijās:

- 1) Izglītības iestādes patstāvīgi, metodiski neatkarīgi, izveidota kvalitātes vadības sistēma;
- 2) Ārpakalpojuma ietvaros izveidota kvalitātes vadības sistēma (piemēram, izmantojot ISO sēriju standartus, vai citus);
- 3) Augstākstāvošu valsts institūciju noteiktā kvalitātes vadības sistēma (piemēram, pēc valdības, attiecīgas ministrijas vai hierarhiski augstākas valsts pārvaldes iestādes nosacījumiem izveidota KVS vai tās elementi - struktūra, saturs, procesi).



1.attēls. Mācību procesa kvalitātes vadības sistēmas hierarhiska modeļa struktūrshēmas fragments
 Figure 1 A fragment of schema of the hierarchical model of the study process quality management system

Metodoloģija *Methodology*

Kvalitatīva rakstura, uz empīrisma principiem balstīta pētījuma, kura ietvaros ir iegūti un apstrādāti arī kvantitatīvie dati, ietvaros, lai nodrošinātu definēto mērķu sasniegšanu, tika izvirzīti šādi uzdevumi:

- 1) pētīt KVS resursu un to elementu ietekmi uz mācību procesa kvalitāti tiesībsargājošo institūciju izglītības iestādēs;
- 2) analizēt iegūtos datus un veikt to interpretāciju nosakot KVS visefektīvākos elementus un aktuālākos izstrādes pamatprincipus attiecībā uz izglītības iestādes iekšējās kontroles sistēmas resursu;
- 3) izstrādāt zinātnisku pamatojumu rekomendāciju sniegšanai tiesībsargājošo institūciju un citām, ar sabiedrības un cilvēku drošību programmu realizēšanu saistītājām, izglītības iestādēm rīcībai nosakot KVS izstrādes pamatprincipus.

Lai nodrošinātu pētījuma uzdevumu izpildi tika noformulēti šādi pētnieciskie jautājumi:

- *Kāds ir KVS resursu, kā kritēriju, ekspertu novērtējums vadoties pēc svarīguma pakāpes, efektivitātes un ietekmes uz mācību procesa kvalitāti?*
- *Kuriem KVS iekšējās kontroles sistēmas resursa elementiem, kā apakškritērijiem, ir augstāks ekspertu novērtējums pēc svarīguma pakāpes, efektivitātes un ietekmes uz mācību procesa kvalitāti izglītības iestādē?*
- *Kuriem no KVS izstrādes pamatprincipiem ir konstatējama pozitīvāka ietekmes pakāpe uz iekšējās kontroles sistēmas resursu un tā elementiem kvalitatīva mācību procesa nodrošināšanas izglītības iestādē kontekstā?*

Kā galvenais pētījuma instrumentārijs izmantota ekspertu tiesībsargājošo institūciju darbinieku profesionālās sagatavošanas jautājumos strukturēta intervija ar mērķi noteikt un analizēt uz praktisko pieredzi balstītos ekspertu viedokļus attiecībā uz izglītības iestādēs, kas sagatavo personālu tiesībsargājošām institūcijām, KVS resursu un elementu vērtējumu gradāciju mācību procesa kvalitātes nodrošināšanas kontekstā.

Pētījuma bāze: pētījumā tika iesaistīti četrus kategoriju divdesmit eksperti tiesībsargājošo institūciju darbinieku profesionālās sagatavošanas jautājumos:

- pārstāvji no piecām Baltijas valstu izglītības iestādēm, kurās gatavo darbiniekus tiesībsargājošām institūcijām (Latvijas Republikas Valsts robežsardzes koledža, Latvijas Republikas Valsts policijas koledža, Igaunijas Republikas Drošības zinātņu akadēmija (t.sk. Policijas un robežsardzes koledža), Lietuvas Republikas Mīkola Romera

universitāte (Sabiedriskās drošības fakultāte, Kauņa), Lietuvas Republikas Iekšlietu ministrijas Robežsargu skola (Medininkai):

- 1) kuri izglītības iestādes mērogā ir tiesīgi pieņemt stratēģiska līmeņa lēmumus;
 - 2) kuri izglītības iestādes mērogā ir tiesīgi pieņemt taktiska līmeņa lēmumus;
- pārstāvji no Latvijas, Lietuvas un Igaunijas institūcijām, kuru vajadzībām augstākminētās izglītības iestādes apmāca un sagatavo personālu:
- 3) kuri attiecīgās tiesībsargājošās valsts iestādes mērogā ir tiesīgi pieņemt stratēģiska līmeņa lēmumus;
 - 4) kuri attiecīgās tiesībsargājošās valsts iestādes mērogā ir tiesīgi pieņemt taktiska līmeņa lēmumus.

Augstākminēto ekspertu tiesībsargājošo institūciju darbinieku sagatavošanas jautājumos kandidatūras tika atlasītas un rekrutētas pēc attiecīgo institūciju un izglītības iestāžu vadību rekomendācijas, vadoties no ekspertu kandidātu profesionālās kompetences un personīgās dienesta un darba pieredzes personāla profesionālās sagatavošanas jautājumos. Stratēģisko lēmumu pieņēmēju kategorijā, kā interventi tika aptaujāti eksperti iestāžu vadītāju vietnieku vai departamentu vadītāju līmenī, bet taktisko lēmumu pieņēmēju kategorijā – iestāžu speciālisti, kuru amata pienākumi ir nepastarpināti saistīti ar personāla profesionālās sagatavošanas un to kvalitātes jautājumiem. Atlasot ekspertus tika nodrošināta maksimāli iespējama proporcionalitātes ievērošana starp ekspertu kategorijām.

Pētījuma gaitā veiktas ekspertu strukturētā tipa intervijas personīgā veidā, to gaita apspriežot un izdiskutējot intervijas jautājumos atspoguļoto problemātiku un fiksējot uz praktisko pieredzi balstītos ekspertu viedokļus un vērtējumus, aizpildot iepriekš sagatavotās interviju protokolu veidlapas.

Interviju datu fiksēšanai un analīzei pētījuma gaitā tika izveidota strukturēta anketa ar trim jautājumu blokiem. Anketas pirmais jautājumu bloks tika paredzēts mācību procesa kvalitātes vadības sistēmas resursu izglītības iestādē, kā kritēriju, novērtēšanai pēc svarīguma pakāpes, efektivitātes un ietekmes uz mācību procesa kvalitāti. Otrais jautājumu bloks bija veltīts KVS elementu, kā apakškritēriju, novērtējumam pēc svarīguma pakāpes, efektivitātes un ietekmes uz mācību procesa kvalitāti izglītības iestādē attiecīga resursa ietvaros. Trešais jautājumu bloks tika izveidots ar mērķi noskaidrot, kādiem KVS izstrādes pamatprincipiem, kā alternatīvām, ir konstatējama pozitīvāka ietekmes pakāpe uz kvalitātes vadības sistēmas elementiem kvalitatīva mācību procesa nodrošināšanas izglītības iestādē kontekstā.

Balstoties uz ekspertu atzinumiem intervēšanas gaitā, katrā kritēriju līmenī tika izveidotas pāra salīdzinājumu matricas. Salīdzinot secīgi alternatīvās pa

pāriem, eksperti izmantoja iepriekš noteiktu deviņu punktu skalu. Rezultātā visiem izveidotās hierarhiskā modeļa struktūras elementiem tika noteikta pētāmo alternatīvu relatīvā vērtība.

Pētījuma intervijās iegūtie dati apkopoti izmantojot Microsoft Excel programmatūras rīkus un veikta to analīze izmantojot SPSS (“Statistical Package for the Social Sciences”) programmatūras paketes 23.versiju un amerikāņu matemātiķa profesora T. Saaty izstrādāto hierarhiju analīzes metodi (Saaty, 1980), t.i. pāru salīdzināšanas metodi, kura pētījuma ietvaros tika pielietota saskaņā ar šādu rīcības kārtību:

- definētās problēmas strukturēšana hierarhiskas struktūras veidā;
- kritēriju prioritāšu noteikšana un katras alternatīvas novērtējums pēc kritērijiem;
- katra līmeņa elementu vērtību koeficientu noteikšana;
- kombinētā vērtības koeficienta aprēķins un labākās alternatīvas noteikšana (Saaty, 2008).

Pētījuma rezultāti ***Research results***

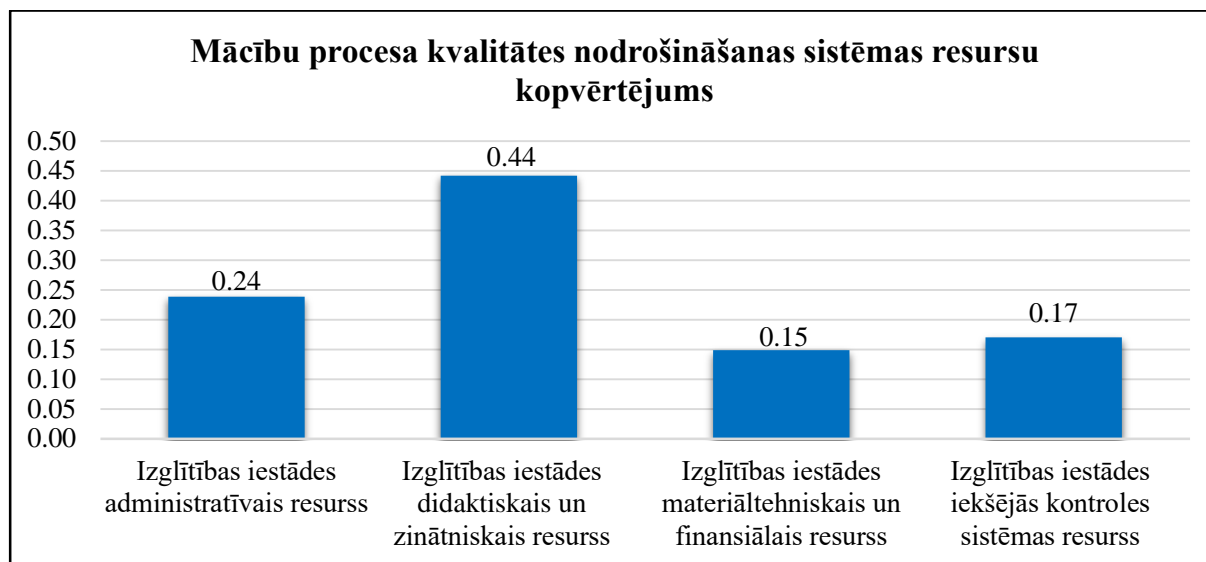
Pēc vērtēšanas kritēriju hierarhijas izveidošanas, pāru salīdzināšanas matricu aizpildīšanas interviju laikā atbilstoši katra eksperta pozicionētam individuālajam vērtējumam un intervēšanas datu apstrādes tika aprēķināti kritēriju (izglītības iestādes KVS resursu) (1.tabula) un apakškritēriju (KVS pamatelementu) vērtību koeficienti. Iegūto aprēķinu rezultāti nosaka vērtību koeficientus, kas nodrošina rādītāju noteikšanu ieguldījumam vispārējā mērķa sasniegšanā.

1.tabula. Mācību procesa kvalitātes vadības sistēmas resursu novērtēšanas matrica (viena eksperta vērtējumā, kā piemērs)

Table 1 Study process quality management system resource assessment matrix (by one expert as an example)

Izglītības iestādes KVS resursi	Administratīvais resurss	Didaktiskais un zinātniskais resurss	Materiāl-tehniskais resurss	Iekšējās kontroles sistēmas resurss	KVS resursu vērtības koeficients
Administratīvais resurss	1	0,20	1,00	0,33	0,11
Didaktiskais un zinātniskais resurss	5,00	1	3,00	1,00	0,43
Materiāl-tehniskais resurss	1,00	0,33	1	1,00	0,17
Iekšējās kontroles sistēmas resurss	3,00	1,00	1,00	1	0,29

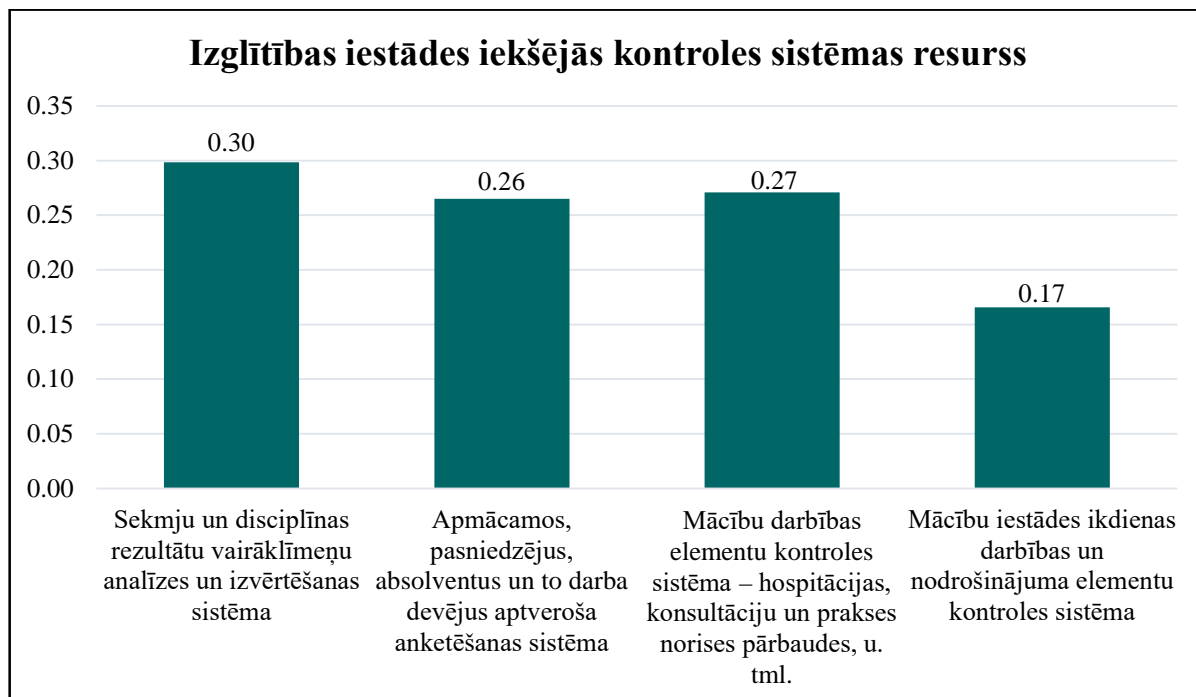
Aprēķinu rezultātā augstāks kopējais ekspertu vērtējums pēc svarīguma pakāpes, efektivitātes un ietekmes uz mācību procesa kvalitāti izglītības iestādē konstatēts izglītības iestādes didaktiskajam un zinātniskajam resursam (2. attēls).



2.attēls. *Mācību procesa kvalitātes vadības sistēmas resursu kopvērtējums*
Figure 2 *Evaluation of the resources of the study process quality management system*

Iekšējās kontroles sistēmas resursa kritērijs aprēķina rezultātā ieguvis trešo pēc gradācijas vērtējumu, kas zināmā mērā apliecina praktiskās pieredzes atziņas par iekšējās kontroles lomas kvalitatīva mācību procesa nodrošināšanā pienācīgu nenovērtēšanu izglītības iestādēs.

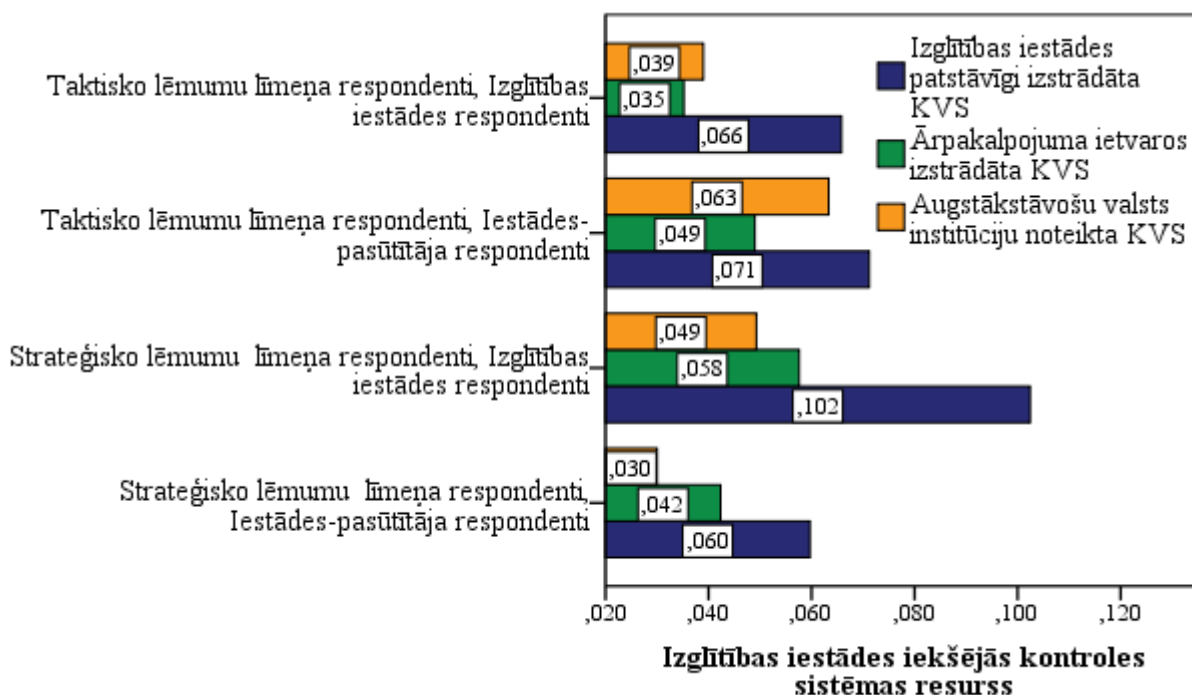
Aprēķinot un nosakot izglītības iestādes iekšējās kontroles sistēmas resursa pamatelementu, kā apakškritēriju, vērtību koeficientus (3.attēls), konstatēts, ka pie relatīvi līdzīgiem triju elementu rādītājiem, krasi zemāks novērtējums ietekmes ziņā uz mācību procesa kvalitāti ir izglītības iestādes ikdienas darbības un nodrošinājuma elementu kontroles sistēmas faktoram, kas vienlaikus ar objektīvo elementa novērtējumu, varētu būt skaidrojams arī ar to, ka kontroles pasākumi ikdienas darbības un nodrošinājuma jomā ir izteikti mazāk aktuāli universitāšu tipa izglītības iestādēm, kurās attiecībā uz tiesībsargājošo iestāžu izglītojamajiem tiek attiecināti atšķirīgi no zemāka līmeņa profesionālās izglītības iestādēm, brīvāki, dienas kārtības un režīma noteikumi. Līdz ar to, vairākām izglītības iestādes ikdienas darbības un nodrošinājuma elementu kontroles sistēmas aktivitātēm augstskolu tipa izglītības iestādēs varētu būt ievērojami zemāka praktiskās aktualitātes pakāpe, kas arī, secināms, ietekmēja dotā kritērija novērtējumu.



3.attēls. *Iekšējās kontroles sistēmas resursa pamatelementu vērtību koeficienti*
Figure 3 *Value coefficients for key elements of an internal control system resource*

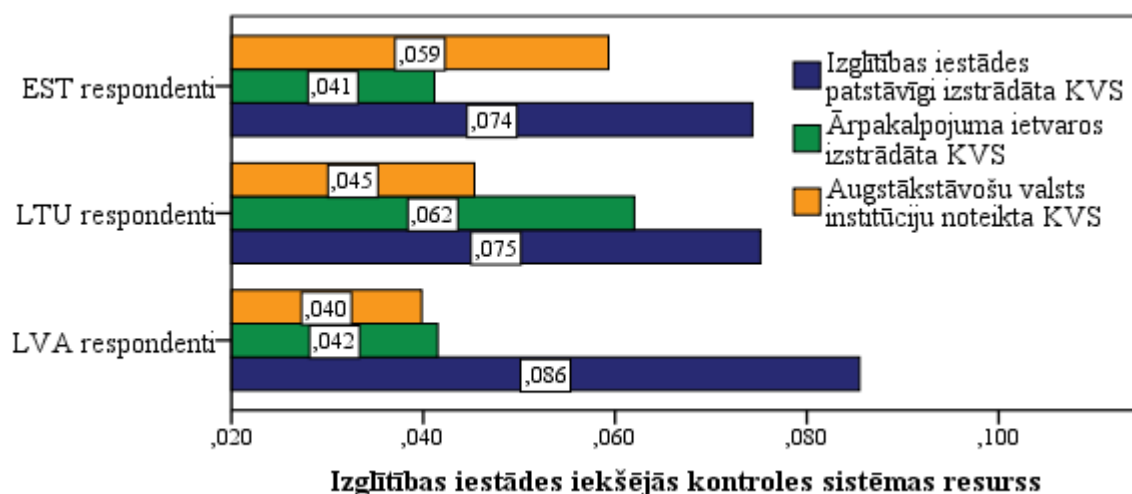
Analizējot apkopotos ekspertu vērtējumus attiecībā uz pētījuma pamatalternatīvām – aktuālāko, attiecībā uz sekmīgāko un efektīvāko iekšējās kontroles sistēmas funkcionēšanas nodrošināšanu, KVS izstrādes pamatprincipu, secināts, ka visas četras interventu kategorijas novērtēja, kā visatbilstošāko, pamatprincipu, vadoties pēc kura izglītības iestāde, kas nodrošina darbinieku tiesībsargājošo iestāžu vajadzībām profesionālo sagatavošanu, izstrādā KVS patstāvīgi, neatkarīgi no kāda ārējas ietekmes faktora (4.attēls).

Izdarītā secinājuma augsto validitāti apliecina interventu kategorijas ar visaugstāko personāla vadības menedžmenta kapacitāti – ekspertu, kas pārstāv institūcijas, kuru vajadzībām izglītības iestādes tiek īstenots profesionālās sagatavošanas process (tiek izglītots personāls) un ir tiesīgi pieņemt stratēģiska līmeņa lēmumus – akceptējošs viedoklis par izglītības iestāžu kompetences pašpietiekamību un efektivitāti kvalitātes politikas noteikšanā attiecībā uz iekšējās kontroles sistēmas izveidi.



4.attēls. Alternatīvu izvērtējuma salīdzinošie rezultāti, kuri diferencēti visu četru ekspertu kategoriju viedokļu griezumā
 Figure 4 Comparative results of the evaluation of alternatives, which differentiated by the views of all four expert categories

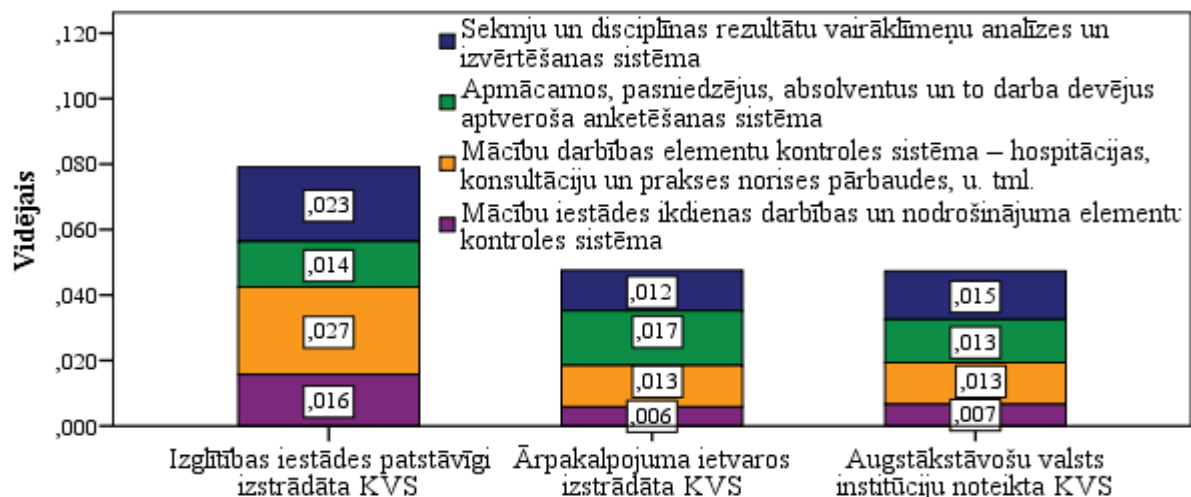
Identiski vērtējuma rezultāti konstatējami analizējot interventu atziņas valstiskās piederības griezumā (5.attēls).



5.attēls. Alternatīvu izvērtējuma salīdzinošie rezultāti ekspertu valstiskās piederības griezumā
 Figure 5 Comparative results of the evaluation of alternatives by experts' nationality

Latvijas ekspertu viedoklis ir viskategoriskākais, kas, visticamāk, ir saistīts ar Latvijā nereti īstenojamo, neviennozīmīgi vērtējamo praksi, kad iepriekš normatīvajos aktos noteiktā izglītības iestāžu autonomija atsevišķās kompetences sfērās tiek neievērota vai mazināta balstoties uz, ne vienmēr ar praktisko lietderību pamatotiem, politiskās vai administratīvās varas apsvērumiem. Par papildus pamatojumu konstatētajam vērtējumam atzīstams faktors, ka Latvijā profesionālā sagatavošana ievērojamākai daļai darbinieku tiesībsargājošo institūciju vajadzībām tiek nodrošināta ne-universitātes līmeņa izglītības iestādēs, t.i. koledžās, kuru statuss un pakļautības kārtība apriori paredz salīdzinoši zemāka līmeņa autonomiju un patstāvīgumu.

Kauzālā sakarībā arī kopējais ekspertu atzinumu aprēķins apliecina izglītības iestādes patstāvīgi un neatkarīgi izstrādātas KVS alternatīvas relatīvi izteikti augstāku prognozējamās efektivitātes, attiecībā uz iekšējās kontroles sistēmas resursu, vērtējumu (6.attēls).



6.attēls. *Alternatīvu izvērtējuma kopsavilkums*
 Figure 6 *Summary of the assessment of alternatives*

Izteikta pirmās alternatīvas dominance analizējamo alternatīvu aprēķināto vērtību rādītāju savstarpēja korelācijā ir izskaidrojama ar apsvērumiem, kas tika arī sadzirdēti no vairākiem ekspertiem diskusijās intervēšanas laikā, ka attiecībā uz iekšējās kontroles sistēmu vispozitīvāko efektu rādīs izglītības iestādes patstāvīgi un neatkarīgi izstrādātās KVS paredzamā sākotnējā piemērotība tieši konkrētās izglītības iestādes specifikai un prognozējamās minētās sistēmas pilnveidošanas fleksibilitātes iespējas.

Analizējot ekspertu vērtējuma kopsavilkuma struktūru secināms, ka izvēloties alternatīvu, kura paredz pamatprincipu patstāvīgi un neatkarīgi izstrādāt izglītības iestādes KVS, vispozitīvākie ietekmes efekti ir prognozējami attiecībā uz trim no četriem iekšējās kontroles sistēmas resursiem. Vienīgi attiecībā uz

apmācāmos, pasniedzējus, absolventus un to darba devējus aptverošo anketēšanas sistēmu nedaudz pozitīvākas ietekmes efekts ir sagaidāms pieturoties pie pamatprincipa veidot izglītības iestādes KVS ārpalpojuma ietvaros. Lai gan attiecībā uz šo elementu rādītāji aprēķinos ir ļoti līdzīgi, augstākminētā ekspertu izvēles nosliece pamatojama ar apsvērumu, ka izglītības iestāžu patstāvīgi izveidotajai anketēšanas sistēmai nebūs pietiekama administratīvā svara, lai panāktu optimālu atsaucību tiesībsargājošo iestāžu struktūrvienībās un personāla vidū, toties augstākstāvošu valsts institūciju izstrādātās KVS ietvaros, anketēšanas sistēmai varētu pietrūkt izstrādes metodiskās pieredzes un pilnveidošanas fleksibilitātes.

Secinājumi **Conclusions**

1. Kvalitātes vadības sistēmu izstrādes un to pielietošanas prakse Baltijas, t.sk. Latvijas, izglītības iestādēs ir diferencēta, uz atšķirīgiem pamatprincipiem un metodēm, nereti ar administratīviem vai politiskiem lēmumiem angažētiem, balstīta, kas veido riskus gan resursu nelietderīgai iesaistei un izmantošanai, gan arī profesionālās izglītības kvalitātes ilgtspējībai kopumā. Pētījumā ietvertajās izglītības iestādēs netiek pievērsta augstas prioritātes uzmanība iekšējās kontroles sistēmas pilnvērtīgai funkcionēšanai KVS darbības kontekstā un tās iespējamajam pienesumam mācību procesa kvalitātes nodrošināšanai.
2. Aprēķinot un novērtējot izglītības iestādes iekšējās kontroles sistēmas resursa pamatelementus pēc svarīguma pakāpes un efektivitātes atbilstoši kritērijam “Ietekme uz mācību procesa kvalitāti” konstatēts, ka pie relatīvi līdzīgiem pārējo triju elementu rādītājiem, izteikti zemāks novērtējums ir izglītības iestādes ikdienas darbības un nodrošinājuma elementu kontroles sistēmas faktoram, kam vairākās augstskolu tipa izglītības iestādēs varētu būt zemāka praktiskās aktualitātes pakāpe.
3. Pētījuma gaitā īstenoto aktivitāšu rezultātā jautājumu par kvalitātes vadības sistēmu izstrādes pamatprincipu apzināšanu, objektīvo esamību un darbības efektivitāti izglītības iestādēs, kas sagatavo personālu tiesībsargājošām institūcijām, aktualizācija rosināja attiecīgas diskusijas un pārdomas stratēģiskā un taktiskā līmeņu menedžmenta aprindās, kas ir, prognozējams, stimulējošs faktors profesionālās izglītības kvalitāti veicinošas vides izveidei perspektīvā.
4. Saskaņā ar pētījuma rezultātiem izglītības iestādes patstāvīgi, neatkarīgi no ārējas administratīvās vai politiskās ietekmes izstrādātā kvalitātes vadības sistēma ar ievērojamu ticamības pakāpi būs visefektīvākā attiecībā uz vienu no tās pamatelementiem - izglītības iestādes iekšējās kontroles sistēmas

resursu, kas tiek pamatots ar izstrādātās KVS paredzamo sākotnējo piemērotību tieši konkrētās izglītības iestādes specifikai un prognozējamām pilnveidošanas fleksibilitātes iespējām.

Iegūtie pētniecības un pieredzes dati dod zinātniski pamatotu ietvaru tiesībsargājošo institūciju, un citu, ar sabiedrības un cilvēku drošību programmu realizēšanu saistīto, izglītības iestāžu rīcībai, nosakot KVS izstrādes pamatprincipus un prioritāros virzienus izglītības iestādes darbības organizācijā un attīstībā.

Summary

The article reflects and analyzes the progress and results of the research conducted within the framework of the doctoral thesis “Quality Management of Border Guards Vocational Training” and obtained by interviewing twenty Baltic law enforcement experts in the field of vocational training, as well as by evaluating according to their importance and effectiveness the basic resources and elements of management systems, applying the criterion 'Impact on the Quality of the Learning Process'.

The results of the research activities were:

- raising the awareness about the issue and promoting the discussion about the principles of quality management system development, objective existence and efficiency of educational institutions training personnel for law enforcement institutions;
- development of research tools for the evaluation of resources and elements of quality management systems according to the impact on quality of a study process;
- the scientific basis for the provision of recommendations for law enforcement agencies and other institutions involved in the implementation of public and human security programs for educational institutions by choosing appropriate and effective basic principles for the development of a quality management system;
- It is concluded that a quality assurance management system with a high degree of confidence, developed independently by an educational institution, will be most effective in relation to one of the key elements of the quality system - the internal control resource of the educational institution.

The obtained research and experience data provide a scientifically grounded framework for the action of educational institutions of law enforcement institutions, defining the basic principles and priority directions of the development of the quality management system for organizing work of the educational institution.

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