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CONTENT

SCHOOLCHILDREN' KNOWLEDGE ABOUT ORAL DISEASE PREVENTION STUDY

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Annotation

The aim of the study is to assess and compare the schoolchildren's, living in different towns of Lithuania, knowledge about the prevention of oral diseases. A study was done in the three primary care centers in three cities of Lithuania. During the investigation were interviewed 313 schoolchildren from 10 to 18 years old who visited the primary care centers. The results of the study showed that schoolchildren' from the different towns of Lithuania knowledge about dental and oral care is weak.

Key words: *schoolchildren, dental caries, dental diseases, knowledge.*

Introduction

Oral disease - the most common illness in the any age of population often occurring in childhood. One of the most common causes of oral cavity diseases for schoolchildren – dental caries [3,7,2,16].

The rates of dental caries for schoolchildren reaches 98% in Lithuania [3,7]. The complications of dental caries is one of the main reasons of tooth loss for young people (43-63% grubbed teeth) [13,16]. The results of study by D. Drungilienė et al. (2011) showed that averages of school-age children 's dental caries intensity index range from 3,8 to 5,9. Dental caries and intensity – index EPI - D (dental caries and damaged, re-routed and grubbed tooth number on average per person) increases with age: between seven year-olds– 0,5, twelve year-olds – 3,42, and fifteen year-olds – 5,02 [15,20].

There is a trend that the prevalence and intensity of dental caries in the various countries are different [7,18]. The U.S., Scandinavia, Great Britain and Switzerland associated with a lower the prevalence of dental caries in schoolchildren, because they are very active in prevention programs, higher living standards, compared with the less developed countries, where living conditions are worse and dental care is not receiving enough attention [5,22].

The dental caries prevention programs that have started since 1982 in Lithuania helped to stabilize the prevalence of dental caries in schoolchildren in areas where it was installed [7]. However, when these indicators are compared with other European countries, the prevalence rates of oral and dental diseases remains high in Lithuania [15]. It might be related to the fact that prevention of oral diseases in Western countries is implemented through the education of schoolchildren, their parents and development of available preventive programs [17]. Meanwhile, there is a lack of schoolchildren, parents and general public interest and involvement in schoolchildren's' oral health maintenance and improvement processes. The treatment of schoolchildren oral cavity diseases is still viewed as a short-term process, during which the current disease is treated. The schoolchildren usually visit the dentists because of pain caused by dental caries. These visits are usually accompanied by the fear of dentists and their procedures.

Maybe we can say that, in order to improve the quality of schoolchildren' oral prophylaxis program results, schoolchildren' education on this subject must be carried out not only in a dental office, but also in the primary health care centers. On 2013 may 16 the Minister of Health of Lithuanian Republic order No. V-507, declares that the condition of child's teeth and jaws must be assessed, and this information should be available in the "Child's Health Certificate "form No 027-1/a [10].

Therefore, the nurses and doctors working in primary health care centers should also provide knowledge about dental care and dental caries prevention programs to schoolchildren and their parents.

The aim of the study - is to assess and compare the schoolchildren's from different regions of Lithuania knowledge about the prevention of oral diseases.

Methodology

The study was undertaken from January to October 2014, at primary health care centers (PHCC) in three towns of Lithuania: PI Kaunas Dainavos PHCC, PI Utena PHCC and PI Kedainiai PHCC. The medical settings have been selected from a list of institutions using the

common treatment method by the way of comfortable selection. The investigation started after consents from the heads of PHCC and Lithuanian University of Health Sciences Bioethics Center Commission's authorization were obtained. Research method - the single – moment anonymous questionnaire-based survey.

Investigation sample. During the investigation by targeted nonsampling selection way 313 schoolchildren aging from 10 to 18 years and visiting PI Kaunas Dainavos PHCC, PI Utena PHCC and PI Kedainiai PHCC were interviewed. Investigation sample – stochastic comfortable. There were interviewed 139 schoolchildren who visited general practitioner doctors (6835 students 10 to 18 years old have chosen this medical institution) in Kaunas PI Dainavos PHCC. There were interviewed 74 schoolchildren, who visited the primary care center general practitioner doctors (4506 students 10 to 18 years old have chosen this medical institution) in PI Kedainiai PHCC. There were interviewed 100 schoolchildren who visited the general practitioner doctors (5410 students 10 to18 year old have chosen this medical institution In PI Utena PSPC) (Table 1).

Table 1

Schoolchildren sample, involved in the study, change before and after the demand survey

Primary health care centers	Handed out questionnaires for analyses	Returned questionnaires after polls	Frequency of responses
PI Kaunas Dainavos PHCC	364	139	38,2 %
PI Kedainiai PHCC	354	74	20,9 %
PI Utena PHCC	359	100	27,9 %

Research ethics. The investigation was the observed with ethical principles. The leaders of the health care institutions, investigative and their parents had the right to decide on participation in the investigation. Each respondent before the questioning was introduced with the purpose of the research and the trial. The investigation and analysis of the collected data have been followed by the principle of confidentiality not to disclose the identity of the persons involved in the survey.

Instrument of survey. The researchers created questionnaire "Assessment of students ' dental and oral care knowledge" was used for the study. The purpose of this questionnaire was to reveal schoolchildren' knowledge on the care of teeth and oral cavity.

The questionnaire consists of two parts. The aim of the questions in the first part was to assess the sociodemographic data (sex, age), the subjective state of the schoolchildren' oral cavity, how many teeth was harmed by dental caries at that time. Moreover, this part of questionnaire elucidates the main reasons what disturb to see a dental doctor and people who give knowledge about the dental and oral care and teeth cleaning skills.

In the second part of the questionnaire there were submitted 10 questions, with aim to evaluate the schoolchildren' knowledge their skills in the oral cavity care. Each question contained a number of response options with the only one correct. The answers of each respondent were evaluated in the framework of ten points (10 points - excellent; 9 points – very well; 8 points - well; 7 points - well enough; 6 points - satisfactory; 5 points - weak; 1-4 points - very weak).

The questionnaire was tested before the investigation trial in order to assess its reliability and comprehensibility, interviewing 30 students. After the evaluation of the pilot questionnaire were adjusted a few questions.

The statistical analysis of data. Quantitative data analysis was performed by SPSS (Statistical Package for Social Sciences) statistical package, version 21.0 . To verify hypotheses, there were used descriptive statistics, Kruskal – Wallis test and take χ^2 criteria for independent samples. We have selected singnificance level of 0,05.

Study results and discussion

The characteristics of the sample

The study involved 313 schoolchildren aging from 10 to 18. There were 228 boys (72,8 %) and 85 girls (27,2 %). Schoolchildren distribution according to sex and age are presented in table 2.

Table 2

The characteristic of schoolchildren who participated in the study

Factors	PRIMARY HEALTH CARE CENTERS		
	PI Kaunas Dainavos PHCC *n (%)*	**PI Kedainiai PHCC** *n (%)*	**PI Utena PHCC** *n (%)*
Sex:			
Boy	96 (69,1)	56 (75,7)	76 (76)
Girls	43 (30,9)	18 (24,3)	24 (24)
Age (year):			
10-13 year	41 (29,5)	33 (44,6)	37 (37)
14-18 year	98 (70,5)	41 (55,4)	63 (63)

The difference of distribution by sex and age of enrolled schoolchildren was not statistically significant (p>0,05).

Dental and oral health care of secondary school students in different cities of Lithuania

At the beginning of the study we were aiming to figure out how schoolchildren rate their oral health and dental condition by themselves. Table 3 depicts the subjective self-assessment of oral cavity by schoolchildren in the different cities of Lithuania.

Table 3

A subjective evaluation of the status of mouth, schoolchildren in three towns of Lithuania

Oral health status	Kaunas n=139	Kedainiai n=74	Utena n=100	p
	n (%)			
Very good	0 (0)	1 (1,4)	0 (0)	0,401
Good	109 (78,4)	55 (74,3)	81 (81,0)	
Satisfactory	30 (21,6)	18 (24,3)	19 (19,0)	

The results of the study showed that the vast majority of all regions - Utena, Kaunas, Kedainiai schoolchildren the condition of the oral cavity rated as “good”. The lesser part rated as “satisfactory” and the only one student rated it as “very good” (Table 3).

The results of the study showed that the vast majority of enrolled schoolchildren have had dental caries with the number of affected tooth rating from 1 to 4-5 (Table 4).

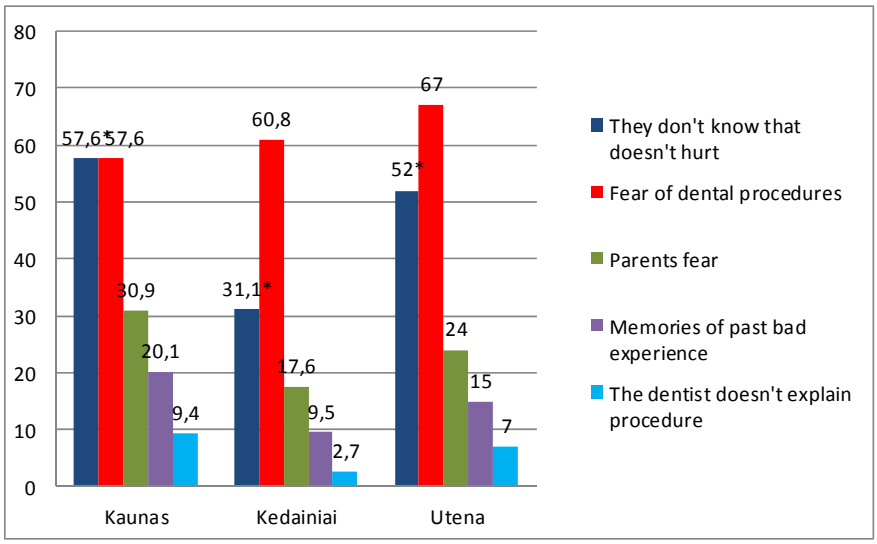
Table 4

Damaged dental caries and tooth number of students in three towns of Lithuania

The number of decayed teeth	Kaunas n=139	Kedainiai n=74	Utena n=100
	n (%)		
4-5	30 (21,6)	12 (16,2)	16 (16,0)
2-3	81 (58,3)	23 (31,1)	54 (54,0)
One	28 (20,1)	28 (37,8)	24 (24,0)
All teeth are healthy	0 (0)	10 (13,5)	6 (6,0)
Don’t know	0 (0)	1 (1,4)	0 (0)

Only the minor part of schoolchildren in Kedainiai (13,5 %) and Utena (6 %) pointed that they have all healthy teeth. Any student in Kaunas marked as having all healthy teeth (table 4). Our study showed that despite evaluation of the condition of oral cavity as “good” or “satisfactory” students have dental caries. Our study confirms observations of other researchers stating that up to 98% of school aged students in Lithuania have dental caries [3,7,13,15].

In order for students to maintain healthy teeth for as long as possible, it is necessary to visit dentists at least twice a year even if toothache is absent [27]. According to researchers, the main reason for schoolchildren to visit the dentists is toothache, rather than preventive dental examination [19]. We aimed to clarify the reasons of secondary school students’ retardation to visit the dentist. The results of the study showed that the main reason of retardation is fear of painful dental procedures (Figure 1). Schoolchildren of Utena and Kaunas significantly less than Kedainiai schoolchildren know that modern odonthology procedures are painless (p<0,05) (Figure 1).



*- *statistically significant difference*

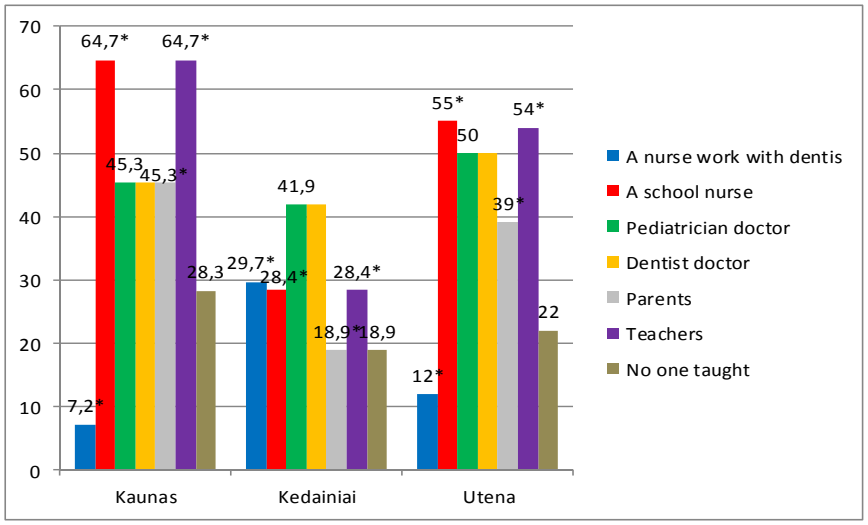
Fig. 1. The main reasons of schoolchildren's retardation to visit the dentist in three towns of Lithuania

Study of R. Raciene (2009) demonstrated that fear and anxiety of dental therapy is widely spread between schoolchildren of 12–15 years. De Jongh et al. (1995) has found that fear of dental treatment occupies fifth place in overall list of fears. There are many signs of evidence that indicators of oral health are weaker of those children that are afraid of dental therapy in comparison than those are not [2]. Children who are afraid more often miss visits to the dentist. Usually they visit dentists in case of toothache and necessary aid [23].

Our study showed that schoolchildren of Kedainiai had fewer unpleasant experiences and has less negative beliefs about dental treatment comparing with Utena and Kaunas students. This finding may suggest that dentist in Kedainiai are paying more attention to the training/education process of the patient. Parents are less fearful of dental procedures and their experience is passed on to the children. There are studies, showing that children from families that emphasize the importance of oral hygiene have better oral hygiene skills than children whose families are not focused on oral hygiene [12,8].

One of the objectives of the study was to reveal the main source of knowledge on dental and oral cavity care.

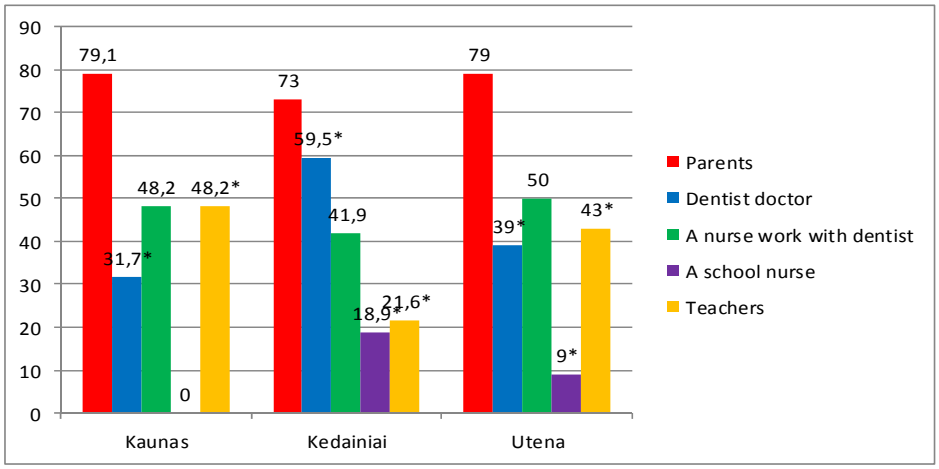
We have revealed that the most effective information on dental care was provided by teachers and school nurses in Kaunas and Utena. Most information about dental and oral care Kedainiai city schoolchildren gave them a pediatrician doctor and dentist (below 41,9%) (Figure 2).



*- *statistically significant difference*

Fig. 2. Persons who have gave information of dental and oral care, among schoolchildren of different Lithuanian cities

There is a tendency that schoolchildren involved in our study were taught on dental cleaning skills mainly by parents (Kaunas 79,1%, Kedainiai 73%, Utena 79%) rather than professionals (Figure 3).



*- *statistically significant difference*

Fig. 3. The persons' educated schoolchildren to brush their teeth of different cities of Lithuania

The results of the study showed that schoolchildren of Kedainiai were taught on dental cleaning skills by dental doctor significantly more when compared to the schoolchildren from Kaunas and Utena ($p<0,05$) (Figure 3).

Analysis of schoolchildren' knowledge in the different towns of the dental and oral care

E. Smyth, etc. (2007) study showed that education of oral hygiene is an important factor leading to reduce of incidence of caries. In order to assess schoolchildren' knowledge and their skills on dental and oral cavity care, the questionnaire of 10 questions have been constructed.

Each correct answer was evaluated by one point. The maximum number of points - ten (perfect knowledge), and the minimum score - zero (no knowledge). The minimum number of points collected by students involved in the study was 2, and a maximum - 8 (average - 4.75 point (SD ± 1.32) (Figure 4).

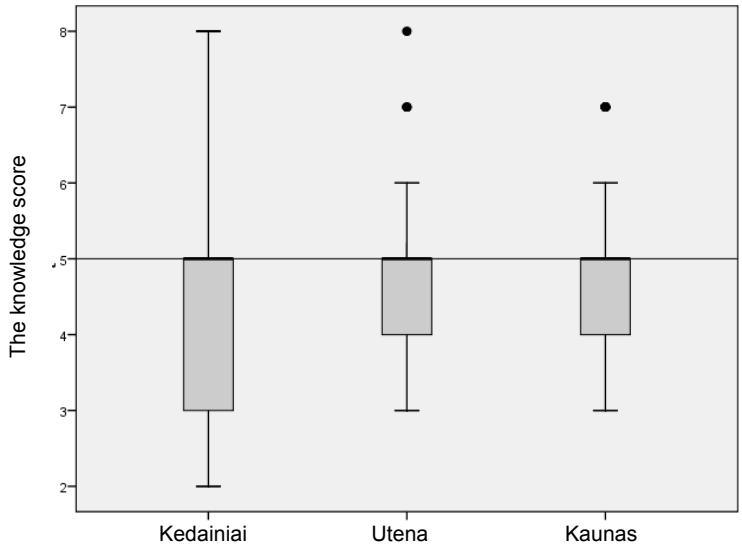


Fig. 4. General evaluation of schoolchildren' knowledge on dental and oral cavity care in three towns of Lithuania

The results of the study showed that general knowledge on dental and oral cavity care of Kaunas schoolchildren is 4.47 points (SD ± 1,45). It was worse than knowledge of schoolchildren from other towns, as knowledge of schoolchildren living in Kedainiai was assessed in 4.75 points (SD ± 1.20), and Utena - 4.89 points (SD ± 1.33). We have revealed

that main skills and knowledge of dental and oral cavity care are mainly obtained from parents rather than specialists. Therefore, we speculate that it is the main reason of inadequate level of schoolchildren' knowledge. J. Andriulienė (2014) also states that diseases of schoolchildren's oral cavity are potentially linked to parents' inability to take care of child's teeth, and deficiency of knowledge of the proper oral cavity hygiene in Lithuania.

Moreover, we have found that schoolchildren in the different towns of Lithuania responses to questions submitted to test, between the towns were different (Table 5).

Table 5

The percentage of students in the different towns of Lithuania, by a distribution based on correct answers about dental and oral care

Test questions	**Kedainiai n=74**	**Utena n=100**	**Kaunas n=139**	**p**
	Incorrect *n (%)*	Incorrect *n (%)*	Incorrect *n (%)*	
Frequency visits to dental doctor	74 (100,0)	100 (100,0)	139 (100,0)	-
Regular teeth cleaning	13 (17,6)	5 (5,0)	0 (0)	0,0001
The frequency of teeth cleaning	31 (41,9)	32 (32,0)	44 (31,7)	0,278
The duration of teeth cleaning	41 (55,4)	33 (33,0)	29 (20,9)	0,0001
The exchange rate for dental brush	34 (45,9)	29 (29,0)	29 (20,9)	0,0001
The end of the teeth cleaning	59 (79,7)	92 (92,0)	139 (100,0)	0,0001
The quantity of toothpaste	54 (73,0)	68 (68,0)	82 (59,0)	0,197
Toothpaste choice	46 (62,2)	76 (76,0)	111 (79,9)	0,017
Suitable food products	0 (0)	0 (0)	0 (0)	-
Dental care following consumption of sweets	57 (77,0)	90 (90,0)	136 (97,8)	0,0001

The results of the study showed that schoolchildren still have lack of knowledge in dental and oral care. Possibly the schoolchildren dentist visit too rarely, because none of the schoolchildren did not specify that they must visit a dentist twice a year for preventive examination (Table 5). However, in order to prevent early childhood tooth caries and its later complications, experts recommend to visit a dentist doctor regularly, twice a year, and in an emergency, according to an individual plan of the visit [24].

We have revealed that more than half of respondents in all studied regions (Kedainiai, Utena, Kaunas) failed to answer the questions regarding end of the teeth cleaning, the quantity of toothpaste when brushing a teeth, the suitable toothpaste choice and dental care follows consumption of sweets (Table 5). Schoolchildren of Kedainiai have significantly less knowledge on duration of teeth cleaning and exchange rate for dental brush when compared to Kaunas and Utena regions where correct answers were obtained in satisfactory level of 70-80 percent ($p<0.05$) (Table 5).

The literature emphasizes that in order to remove the plaque from the tooth surface and not to reproduce the conditions for micro-organisms to evolve the oral cavity diseases, one need to brush teeth up to 3 minutes and more [14]. When cleaning the teeth it is necessary to clean all tooth surfaces: the sequence of cleaning is from one edge to the other edge of jaw, followed by another jaw in the direction from the side of vestibule to lingual sides, proceeding with occlusive surfaces. After cleaning the teeth, it is recommended to clean the tongue and cheeks, because a lot of bacteria and plaque is formed on the tongue. Cleaning the tongue and cheeks leads to improvement of mouth smell as the bacteria, producing sulphur compounds, accumulate mainly on the tongue and cheek [14].

The results of our study showed that students still prefer inadequate tooth-pastes with no fluorine or other healing properties, although the researchers have proven the anticaries effects of fluoride pastes for the students' oral cavity diseases prevention [11]. Fluoride is necessary for children dental tissue mineralization and dental caries prophylaxis – for strengthening tooth enamel, and may protect against mouth diseases in school-age period up to 50% [26].

The results of our study showed that the schoolchildren (especially in Kaunas town) do not know how to care for the teeth following consumption of sweets (Table 5). The lack of such knowledge could be related to the occurrence of dental caries in the near future. The literature indicates that the basic products that are capable to activate or to promote the oral cavity

diseases – sugar, food and drinks rich in carbohydrates. It is recommended to clean the teeth with the tooth paste and tooth brush following the consumption of sweeties and sweet drinks [1,9,17].

In summary we can declare that schoolchildren in Lithuania have lack of knowledge about teeth and oral cavity care, so providing of such knowledge must be carried out not only at school or in the dental doctor's office, but also in PHCC centers, where mandatory "health certificate for the child" with evaluated condition of schoolchildren' teeth and jaws are issued.

Conclusions

1. Knowledge of teeth and oral cavity care for schoolchildren' from Kaunas and Utena towns mainly gave a school nurses and the teachers. Schoolchildren of Kedainiai city - pediatrician doctor and a dentist doctor.
2. Schoolchildren from different towns of Lithuania, tooth brushing skills the mostly taught by the parents and schoolchildren of the Kedainiai town significantly more often were taught by dentist doctor.
3. Lithuanian schoolchildren's knowledge about the teeth and oral cavity care are weak. More than half of respondents in all studied regions failed to answer the questions regarding end of the teeth cleaning, the quantity of toothpaste when brushing a teeth, the suitable toothpaste choice and dental care follows consumption of sweets. Schoolchildren of Kedainiai have significantly less knowledge on duration of teeth cleaning and exchange rate for dental brush when compared to Kaunas and Utena towns.

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POSITIVE EMOTIONALITY EXPRESSION IN THE PRACTICE OF HIGH SCHOOL LECTURERS AND ITS RELATION TO STUDENT SATISFACTION WITH STUDIES

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Annotation
The article analyzes the high school lecturers' expression of positive emotions in the academic practice and its relation to student satisfaction with studies. The analysis of the research data found that there is a direct link between lecturers' positive emotions and student satisfaction with studies. Positive emotionality expression in the practice of lecturers occurs in different ways: in some cases, through the external aspects of the work (working conditions, salary, career and so on.), in other cases – through the internal aspects of the work (responsibility, independence, achievement and so on.). The main factors determining student satisfaction of studies are: motivation, relationships with lecturers and the cooperation with the group friends.

Key words: *positive emotionality, high school, lecturer, expression, satisfaction with studies.*

Introduction

Relevance of the topic. Knowledge of common human valuables and respect them, self-knowledge, adequate assessment of the own strength and a positive assessment of the achievements, self-esteem, self-confidence towards achieving the objectives dignity and purposeful, operating responsibly, appropriate choice of strategies to achieve the objectives and to overcome the difficulties etc. - it's just a few list of positive emotions factors facilitating long and complex studies in higher education. Therefore, it is important for a high school lecturer to provide proactive activities that encourage students to adequately assess their strength and to look positively to their achievements in the process of self-creation (Jatkauskienė, Andriekienė, 2013). Expression of positive emotionality is inseparable from:

- lifelong learning and the desire to better understand his own self (respect yourself, spirituality, humanity, positive self-esteem) (Ashkanasy et al., 2002);
- learning to understand others (tolerance, respect, understanding, acceptance and recognition of their value), prediction of the perspectives (consciousness, independence, openness, overcoming obstacles) (Cohen et al., 2006);
- learning to understand the justice (equality, honesty, peacefulness, responsibility, accountability, democracy), healthy lifestyle (Seligman, 2001).

The phenomenon of positive emotionality has interested not only psychologists, but also biologists, genetics, people in management, education and other scientists. This interest in positive emotionality may be explained by a wide range of positive emotions correlations of other phenomena: satisfaction of their activities, studies, and effectiveness (Avey et al., 2008), which proves the relevance of the chosen topic.

Study problem. Foreign countries have done a lot of research analyzing different areas of the character positive emotions and their interfaces with other phenomena. Some of the work has laid conceptual foundations of the positive and negative emotions (Bowling et al., 2008; Mahoney et al., 2002). Some authors have shown correlations with positive emotionality and job satisfaction (De Loach, 2003; Ladhari, 2005). M.E.P. Seligman (2001) positive emotionality associated with the learning optimism and so on. M. Smith (2009) studied the administration and academic staff satisfaction of promotion opportunities and working conditions.

There are not many Lithuanian authors who analyzed positive emotionality. Possibly could mention master's thesis of Berčiūnaitė D. (2007), and Šilinskas G. et al. (2004) study, in which questions of positive emotionality were analyzed indirectly. Recently, the concept and the phenomenon of positive emotionality analyzes Diržytė A. (2014). Andrašiūnienė M. et al. (2006) they studied motivation of the choice of study program and satisfaction with the studies. Bakanauskienė I. et al. (2010) conducted a satisfaction study with university groups. Pociūtė B. et al. (2012) studied the university lecturers and students satisfaction with work/studies. Rupšienė L. (2000) studied the unwillingness to learn. Kraniauskienė S. et al. (2011) analyzed the students' satisfaction with the quality of the study. Samašonok K. et al. (2010) investigated the reasons for the choice of study and satisfaction with studies. However, studies devoted to high school lecturers positivity expression, is not recorded. This presupposed **scientific**

problem – how positive emotionality are expressed in the work of high school lecturers and how it is related to student satisfaction with studies?

Study object – lecturers' positive emotionality expression.

Hypothesis. Positive emotionality expression increases lecturers' job satisfaction and effectiveness of performance, and thereby influences student satisfaction with studies.

The aim of the study – to reveal the expression of positive emotionality in the professional activities of university lecturers.

The main objectives of the study:

1. To establish factors of the expression of positive emotionality in the professional activities of university lecturers.
2. To reveal the expression of positive emotionality in the high school lecturers' practice, in conjunction with positive emotions and job satisfaction.
3. To explore the key variables of the positive emotionality expression and its interfaces with satisfaction with studies.

Methodology and organization of the study. The study was performed in two stages: at first stage was chosen a qualitative interview method, which enables to measure the direct link between lecturers' positive emotionality and students' satisfaction with studies. Interview questionnaires focused on the expression of positive emotionality in the professional activities of university lecturers and attitude to analyzing the interfaces of the satisfaction with studies. 10 randomly selected Klaipeda State College (KSC) and Klaipeda University (KU) 1-3 year bachelor-master's graduate students were interviewed, whose age range of 22-41 years. In the second stage has been selected quantitative questionnaire method, in which used these instruments: PANAS questionnaire (*Positive Affect and Negative Affect Schedule*) - lecturers and students of the positive and negative emotions assessment; Minnesota satisfaction questionnaire (*Minnesota Satisfaction Questionnaire*) - determination of lecturers' job satisfaction; an adapted Minnesota Job Satisfaction Questionnaire - to measure student satisfaction with studies. In the inquiry attended 447 informants, of which 224 -students, 223 - lecturers. Mykolas Romeris University was represented by 38.6 percent subjects, 61.4 percent subjects formed KSC. Since it is impossible to ensure one hundred percent reversibility, each questionnaire has its own number of informants. PANAS questionnaire interviewed 125 participants, of which 63 (50.4 percent) were lecturers, 62 (49.6 percent) - students. Minnesota satisfaction questionnaire estimated 77 lecturers, while satisfaction with studies - 67 students.

Methods. Theoretical review of scientific literature; analysis of documents; a survey in order to measure a positive emotionality of lecturers and students, lecturers' job satisfaction, student satisfaction with studies; interview, the purpose of which - to reveal the key variables of the expression of positive emotionality and satisfaction with studies interfaces; data processing with SPSS.

Novelty and practical significance. The novelty of this research project is the fact that this work revealed the expression of positive emotionality in the specific academic environment by combining it with other social phenomena, such as satisfaction with studies

Practical significance is expressed in the fact that empirical research could be useful in helping to consolidate real positive emotionality of lecturers in their professional activities.

The main features of high school lecturers' practice. Recently, more and more emphasis on the human education continued throughout a life - in the conditions of rapid scientific and technological progress absolutely necessary to regularly supplement existing knowledge; life also makes a person often rethink its approach to a variety of phenomena, rethink your values. According to the Lithuanian Minister of Education in 2011. 23 December. issued order (no. V-2538) high school lecturers main activities are: contact work with the students; non-contact work with the students; research and experimental development performance; publicity and popularization of academic activities; qualification improvement and organizational activities.

Often, lecturers and high schools one-sided perceive lecturer functions as simply lecturing, student counseling and scientific activities. However, it is obvious that in the present many lecturers spend time on organizing the study process itself, developing and updating programs of study, in cooperation with the social partners, in the preparation of monographs, textbooks, project applications and doing other activities at the University or outside (Jatkauskienė, Andriekienė, 2013).

It is said that "human activities carried out to meet his vocation, because only then he will feel the job satisfaction and self-satisfaction" (Adamonienė, Maknienė, 2001). The essence of vocational calling concept consists of individual self-awareness, knowing special requirements for particular profession and the perception of correct matching of these two factors, (Jurevičiūtė, 2004), which develops the ratio of professional activities, the ability to act purposefully and improve. Vocational disclosure and realization opens wider opportunities for fully personality growth, enhances the professional expression of fullness and significance

experience, increases the use of creative potential and improves performance quality, which leads to successful career (Tolutienė, 2012).

How does this relate to the lecturer positive emotionality? Directly, as if a lecturer has a vocation of their own work, the expression of positive emotionality will be stronger.

Positive emotionality relations to job satisfaction, satisfaction with studies.

P. Trivellas and D. Dargenidou (2009) argues that job satisfaction is an important factor in ensuring a high quality of education. From many studies done job satisfaction factors can be grouped into three main groups: *1) factors related to the working environment; 2) factors related to the specific aspects of the work (microclimate, staff requirements, internal rules);* 3*) factors associated with employees* (Kazakevičiūtė, 2010).

A. Jovarauskaitė and G. Tolutienė (2011) study shows that, according to importance of lecturers' job satisfaction factors that has influence to it can be arranged in a sequence: *psychological climate, working conditions, working relationships, cooperation, salary, opportunities for improvement, appreciation, self-realization opportunity, career opportunity, vocation, university reputation, participation in university activities*. The authors identified a vocation as a personality characteristic that affects lecturer job satisfaction, which promotes self-efficacy, which, in turn, strengthens the professional motivation.

Meanwhile, studies of student satisfaction with studies shows that the expression of positive emotionality in this case is slightly lower. Frequent investigation of study quality and satisfaction with studies is associated with a partial satisfaction in them. Same as lecturers' job satisfaction a lot of internal and external factors influence on students satisfaction with studies.

According L. Rupšienė (2000), satisfaction with studies is a part of the students' emotional satisfaction. When the needs met by an activity - creates positive feelings (joy, pleasure and so on), and these encourage human activity, self-confidence and activeness. If the person does not satisfy their emotional needs he has negative feelings (depending on the situation - fear, grief, dissatisfaction, and so on), and they inhibit an individual's activity, sometimes simply paralyzes his will, evoke resistance reactions and unwillingness to act (Kraniauskienė et al., 2011).

Results of the study.

An interview showed that positive lecturer in the eyes of students - is smiling, motivated, positive person, always in a good mood, person, who does his work with the passion, believe in what he does, trying to engage, motivate, include students in the ongoing activities. Such a lecturer evoke informants feel sympathy, trust and believe that "*such as lecturer and should be*". Otherwise, the information of lecturer remains inscrutable, uninteresting, and motiveless.

Lecturers' positive emotionality, in student opinion is expressed when dominates such personality features of lecturer as understanding, willingness to help, motivate, stimulate (Fig. 1). One informant said that his lecturer knowledge, the ability to attract the audience, to engage them receives feedback from students which are willing to attend lectures and invite others. In assessing this through the prism of positive emotionality, it can be said that the lecturer's expression of positive emotions in its activities, communication with students, directly decides the students' positivity.

Fig. 1. Lecturers' positive emotionality expression factors in academic activities

Factors influencing their satisfaction with studies, they identified as following (Fig. 2): respect for the student, a warm learning environment, motivated, self-confident, competent lecturer, study materials, tools, good time of lectures, the financial aspect. In addition, mood of the student was mentioned as well, which in most student's view occupies an important place in the educational process and can be adjusted by the lecturer, who is positively inclined and competent. "*Without a competent lecturer any process is impossible, any high-quality study process. If a lecturer already lacking the competence, the ability to engage the student, and the student, no matter how positive is will not be able to change anything*".

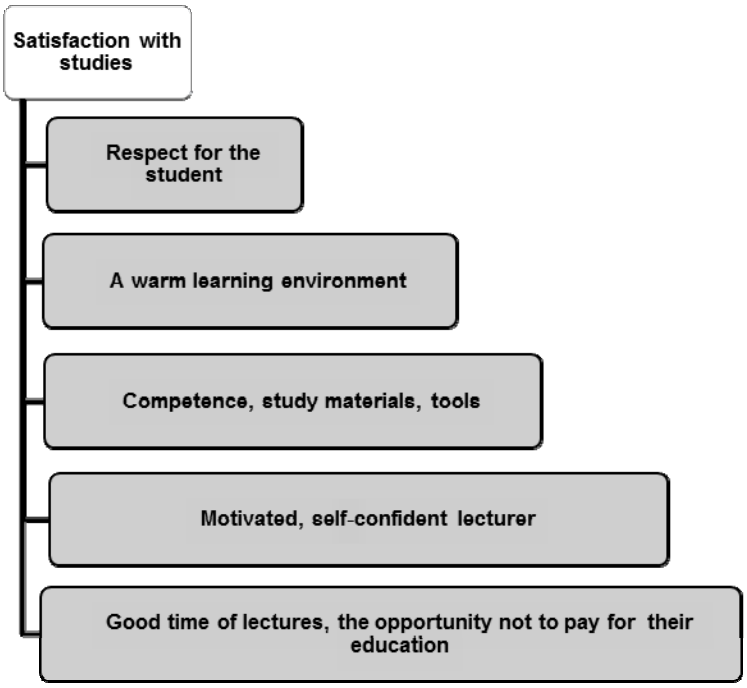

Fig. 2. Factors of satisfaction with studies

Students' relationship with lecturers and classmates is an important indicator of motivation and satisfaction with studies (Samašonok et al., 2010). Analysis of questionnaire showed that student satisfaction with studies is affected by the cooperation with classmates and relationships with lecturers (see Table 1). Based on the scale of correlation coefficient values, it can be said that the relationship with lecturers (0.622 - average correlation) more significant than the relationship with the classmates (0.419 - weak correlation). In addition, as Andrašiūnienė M. indicated, one of the main factors of satisfaction studies are relationships between students and lecturers and their study revealed that the vast majority of students are satisfied with studies and detailed the main factors leading to this satisfaction, - opening conditions for studies and corresponding the requirements of modern-day environment, positive relationships with lecturers and with friends of group.

Table 1

The main factors of satisfaction with studies

	Cooperation with classmates		**Relationships with lecturers**		**Motivation**	
Overall satisfaction with studies	Correlation coefficient	p	Correlation coefficient	p	Correlation coefficient	p
	0.419**	0.001	0.622**	0.001	0.690**	0.001

** p<0.01

Motivation is an integral part of studies, without which it would be impossible to achieve high learning outcomes, to prepare for their chosen profession. Of course, not all students are equally motivated. Therefore, it was good idea to examine the mutual importance of satisfaction with studies and motivation. The data suggests that student satisfaction with studies strongly correlated with student's motivation (Table 1). Thus, the more motivated students, the more they are satisfied with their studies. The same result showed analysis of Kraniauskienė S. et al. (2011), which showed that students satisfaction with studies leads to student's motivation. It can be assumed that these students chose right profession, career-oriented, and responsive to market needs students.

Often the authors of studies on job satisfaction classifies results into groups of influencing factors. Such grouping is important to find the problem, which reduces the overall job satisfaction. At this point, attention was drawn to the Minnesota questionnaire internal and external factors of job satisfaction. The data is showing that high school lecturers are the most satisfied with immediate superior competence to make decisions and their behavior with inferiors, as confirmed by A. Jovarauskaitė and G. Tolutienė (2011), that "cooperation improves the quality of work and is an important factor affecting lecturer job satisfaction (Fig. 3). None the less important aspect of job satisfaction - the opportunity to grow professionally.

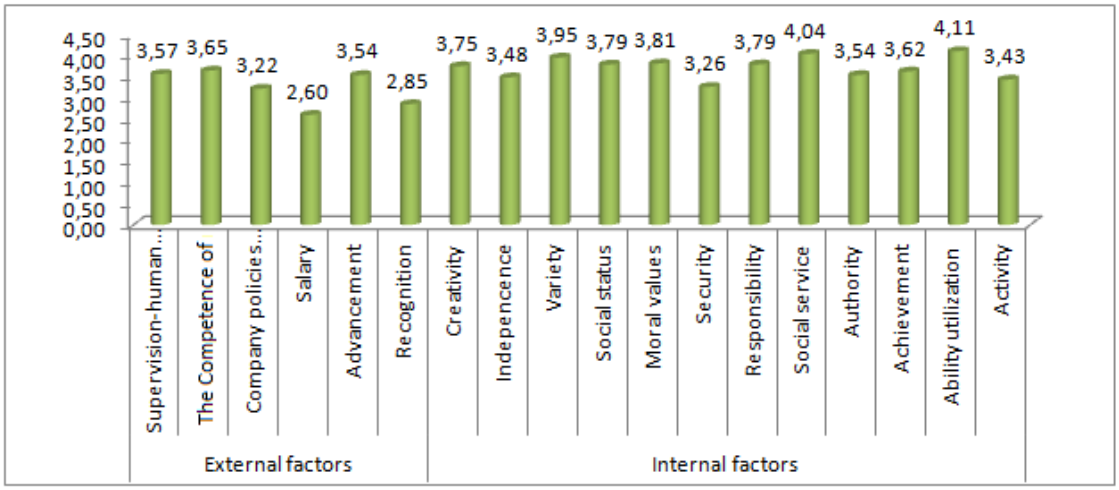

Fig. 3. Internal and external factors of job satisfaction

The most important inner factors of job satisfaction, which reflecting the higher level needs, such as respect, achievement, acceptance, responsibility and so on, are: the ability to perform tasks that expose the capabilities and competence; the opportunity to work in a job that provides benefits/joy to others; the opportunity to carry out different activities and to perform a various tasks; the possibility to carry out tasks which do not conflict with my beliefs, etc. Summarizing, it can be said that lecturers are satisfied with their work, carrying out activities when they are given opportunities to achieve their ambitions, do not limiting their freedom.
Accomplished analysis of positive emotions, job satisfaction and satisfaction with studies showed that there are no significant differences between the groups - lecturers and students ($p > 0.05$) (Table 2). Attention should be concentrated to the obtained mean values of positive emotionality and satisfaction with activities: both positive emotions (28.63 and 28.68, where max = 50) and job satisfaction, satisfaction with studies (71.57 and 67.84, where max = 100) is quite high.

Table 2

Job satisfaction, satisfaction with studies and positive emotionality differences between groups

Rate		Mean (±SD)	Mean Rank	p
Satisfaction with activities (N=144)	Lecturers (N=77)	71.57 (±9.726)	78.62	0.059
	Students (N=67)	67.84 (±9.602)	65.46	
Positive emotionality (N=125)	Lecturers (N=63)	28.63 (±3.695)	62.34	0.837
	Students (N=62)	28.68 (±3.887)	63.67	

Conclusions

1. The analysis of theoretical study assumptions and empirical research confirmed the study hypothesis "positive emotionality expression increases lecturers' job satisfaction and effectiveness of performance, and thereby influences student satisfaction with studies".

2. Positive emotionality expression in the practice of lecturers occurs in different ways: in some cases, through the external aspects of the work (working conditions, salary, career, acceptance, management), in other cases - through the internal aspects of the work (responsibilities, job significance, and independence, application of skills and knowledge, achievements). Positive emotionality also inseparable from the lecturers and students a positive and competent communication, thanks to which enriched both communicating sides are encouraged to create and develop productive relationships with others. This communication teaches them self-improvement, also to learn, to help others and to seek help for themselves.

3. Accomplished qualitative research suggests that lecturers' positive emotionality in academic activities expresses by: positive emotions, understanding, motivation and believe in

the benefits of what they teach, student's active involvement in the work, stimulating to improve, to learn, to life-long education and desire to achieve better results. The analysis of the obtained data showed that positive emotionality of lecturers and student satisfaction with studies is direct interfaces. According to the informants, satisfaction with studies influencing factors such as respect for the student, a warm learning environment, self-confident and competent andragogic / lecturer are one of the lecturer's positive emotional factors. As a result, originate a better quality of the learning process, and together increases student satisfaction with this process.

4. A quantitative study suggests that lecturers' positive emotionality (mean = 28.63) directly leads to their job satisfaction. It was found that most lecturers satisfied with competence of the principal, his behavior with colleagues and inferiors as well as the opportunity to express their capabilities. Students' positive emotionality (mean = 28.68) expression caused by their satisfaction with studies, where the most important contribution carry out motivation (r = 0.690), relationship with lecturers (r = 0.622) and the cooperation with the friends of group (r = 0.419).

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HOW THE ROLE OF A PHARMACIST HAS CHANGED - A COMPARISON OF THE ESTONIAN AND LITHUANIAN HEALTHCARE STUDENTS AND TEACHERS OPINIONS

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Annotation

Pharmacies and pharmacists are expected to provide quick and flexible service as well as good communication. Nowadays a pharmacist mainly offers medication information and health counselling, thus being an important link between the doctor and the patient. More and more attention is given to informing patients/clients about the side effects and contraindications of medications.

This presentation explores how the role of a pharmacist has changed and what is the direction of these developments.

The study was conducted in Tallinn Health Care College and Kaunas University of Applied Sciences, faculty of Medicine by applying quantitative method (questionnaire survey). The questionnaire in Estonian had 23 questions (first used by Daisy Volmer in 2003), including 4 questions concerning social-demographic background information and 19 questions about the pharmacy services and tasks of pharmacists. The questionnaire in Estonian was translated to Lithuanian and two questions concerning the differences between the services of a pharmacy technician and a licensed pharmacist were added. The survey was conducted in Estonia 28 November 2013 – 8 December 2013 and in Lithuania 14 March – 1 April 2014. In Estonia the questionnaire was filled in by 312 and in Lithuania by 327 respondents.

Over three-fourth of respondents (77%) considered pharmacists as competent counsellors in Estonia in 2013. As a positive example it should be brought out that almost half of participants (48%) considered pharmacists as health care workers, although during the period of conducting the survey pharmacists were not yet officially included among the health care workers in Estonia. Statistically significant differences occurred in the opinions of the respondents in Estonia and Lithuania in this regard, that in Estonia pharmacists were more often seen as health care workers, producers of medications, sellers and good communicators ($p<0.001$). Almost two-thirds of respondents (63%) reported that they turned to their family doctor in case of milder diseases in Lithuania in 2014. The respective number in Estonia was 37% smaller ($p<0.001$).

In the study were found statistically significant differences in the opinions of the respondents in Estonia and Lithuania. The possible reasons for the differences between two Baltic countries are explained by the differences in the healthcare and pharmaceutical systems. In Estonia the healthcare and pharmaceutical systems include: eHealth, e-Prescription and the responsibility of assistant pharmacists to work and make decisions independently. The study population covered a sample of Estonian and Lithuanian healthcare students and lecturers. The findings of the study may not be generalized to whole population of Estonia and Lithuania, as the environment and circumstances prevailing in the health care college and medical faculty may impact on responding. There is a possibility that the responses of participants may differ from those who did not participate.

Key words: *pharmacist, healthcare, education, counselling.*

Introduction

Throughout the last decades there have been several important changes in primary level health care to better meet the needs and expectations of service users. Quick changes have occurred also in the pharmacy system. In comparison with the past decades the competition has risen significantly. Pharmacies and pharmacists are expected to provide quick and smooth service as well as good communication. This has changed the role of a pharmacist towards concentrating on client/patient-centred service, which includes medicament counselling and promoting healthy lifestyle. Pharmacists are expected to turn more attention to their communication skills, empathy and professional knowledge that are all needed to provide service for the pharmacy clients. As the network of pharmacies in bigger cities is tense, clients always have a possibility to choose a pharmacy with better service, where for example medicament information, counselling on self-medication, pharmaceutical care and/or health

check are provided. The previously known role of a pharmacist as a professional who prepares and dispenses medicaments has changed over the decades. Nowadays a pharmacist mainly offers medication information and health counselling, thus being an important link between the doctor and the patient. More and more attention is given to informing patients/clients about the side effects and contraindications of medications (*Lill et al, 2014; Sepp, 2015*).

This article is mostly based on the research articles published in 2014-2015 (*Lill et al, 2014; Sepp, 2015; Daunys et al, 2015*). Current article explores how the role of a pharmacist has changes and what is the direction of these developments.

Pharmacists themselves have been interested in learning, how is their role and position perceived by the pharmacy clients in contemporary Estonia. Is a pharmacist considered as a counsellor, business person or just a salesperson? These are the main questions student of the Chair of Pharmacy of the Tallinn Health Care College Jana Jakovleva (alumna from June 2014) sought answers for in her course paper titled "The Change of the Role of a Pharmacist During 2003–2013". Her research paper was focused on what is the role of a pharmacist from the point of view of clients and how has this role changed over the last ten years. This research paper studied, if clients receive good quality medication information and counselling from pharmacies and how important is the role of a pharmacist in the point of view of the clients. At this stage of the research process a pharmacy student from the Kauno Kolegija, Lithuania Dovydas Daunys came to study at the Tallinn Health Care College and it came out that he had conducted a similar study in Lithuania (*Jakovleva, 2014; Daunys, 2014*). The next topic will be about pharmacist education in Tallinn and Kaunas.

Pharmacist education in Estonia and Lithuania

During the Soviet era pharmacist education was provided according to relatively unified programmes. Nowadays there is a lot in common in pharmacist education in Estonia and Lithuania, but there are also some rare differences. In Estonia as well as in Lithuania it is possible to study to become a pharmacist only in one higher education institution in the country: Tallinn Health Care College, Estonia offers 3 years long study programme (180 ECTS), Kauno Kolegija in Lithuania has exactly the *same* study period and volume. The volume of pharmacology in the study programme is also similar. In comparison to pharmacist education in Lithuania, the respective education in Estonia, concerning the main courses of pharmacist education, the volume of pharmaceutical chemistry is bigger by 4 ECTS, the volume of pharmacotherapy is bigger for 2 ECTS and the pharmacy practical training is longer for 8 ECTS. In Lithuania the volume of pharmaceutical technology is bigger by 4 ECTS and the volume of the final exam is bigger by 7 ECTS (*Tallinn Health Care College…, 2009; Kaunas University of Applied Science…, 2012*).

Comparison of pharmacy services in Estonia and Lithuania

The biggest difference between Estonian and Lithuanian pharmacies and pharmacy services was that in addition to preparing medications *ex tempore*, pharmacists in Lithuania are only allowed to sell medications under the supervision of a university-level pharmacist (*Daunys, 2014; Daunys et al, 2015*).

The comparison also brought out that services provided in Estonian and Lithuanian pharmacies are a bit different. In addition to selling medication and counselling clients, Estonian pharmacies offer different services that were not offered in Lithuania in 2014. The service provided in Estonia that was most interesting for Lithuanian colleagues was our digital prescription system. Furthermore, our e-pharmacy service with a possibility for counselling was new to Lithuanian colleagues and students. In addition to that, some Estonian pharmacies offer private counselling in a special counselling office. Pharmacies that have bigger number of clients regulate queue with a queue number machine and have different desks for selling non-prescription medications and prescription medications, thus offering quicker service to clients who buy only non-prescription medications or prescription medications. These pharmacy services that are widespread in Estonia and have developed quickly were not implemented in Lithuanian pharmacies in spring 2014 (*Daunys, 2014; Daunys et al, 2015*).

Research methods

This study was conducted in Estonia and Lithuania by applying quantitative method (questionnaire study). In addition to that comparative analysis was used by comparing the evaluations to pharmacy services by the pharmacy clients of Estonia and Lithuania. A questionnaire study was used because of the following: the researcher has no influence on the subject; the research process is simple and short in comparison to the interview method. As the

researchers were not able to be at two different places at the same time, they decided to use web-based method in *SurveyMonkey*® survey environment (*SurveyMonkey®, 2014*). This method and environment was used because it enabled conducting the research and collecting data in a more simple, cheap and fast way.

Questionnaire

The questionnaire in Estonian had 23 questions (first used by Daisy Volmer in 2003) (*Volmer et al*, 2007) including 4 questions concerning social-demographic background information and 19 questions about the pharmacy services and tasks of pharmacists. The questionnaire in Estonian was translated to Lithuanian and two questions concerning the differences between the services of a pharmacist and a university-level pharmacist were added.

Conducting the survey

The survey was conducted in Estonia 28 November 2013 – 8 December 2013 and in Lithuania 14 March – 1 April 2014. In Estonia the questionnaire was filled in by 312 and in Lithuania by 327 higher education institution students and lecturers.

Respondents

The respondents of the survey in Estonia were students and lecturers of the Tallinn Health Care College. The respondents in Lithuania were students and lecturers of the faculty of medicine of the *Kauno Kolegija*. The respondents were special in this regard, that they were all connected to the field of health care and medicine: lecturers and students of nursing, midwifery, dental technology, pharmacy etc. They all had wide experiences in the health care system, including the pharmacy system. They were all also clients of pharmacies, thus making them suitable respondents. Analysing the answers of these respondents it was possible to receive new information about how the role of pharmacists and the pharmacy services have changed in Estonia and Lithuania. It was also interesting that the number of respondents in both countries was very similar (see table 1). In order to calculate the sample and the respondent a theoretical model of *SurveyMonkey*® was applied. This model enables to calculate the confidence interval and the error rate. The questionnaire was sent to the respondents by e-mail and answers were collected in about two weeks*. IMB SPSS Statistics 19* programme was used for conducting the statistical analysis. The answers of the respondents of Estonia and Lithuania were used for conducting the comparative analysis. Cross tabulation and percentage frequency distribution were applied as method of analysis. Significant statistic differences were studied using the t-test and x^2 –test.

Table 1

The populations, samples and respondents in Estonia in 2013 and in Lithuania in 2014

Tallinn Health Care College	Kauno Kolegijos Medicinos fakultetas
Study population N=1740	Study population N=1740
Required number of respondents n=340 (Response rate 20%)	Required number of respondents n=340 (Response rate 20%)
*Confidence interval 90% (n=215) *Confidence interval 95% (n=278)	* Confidence interval 90% (n=215) * Confidence interval 95% (n=278)
*Error rate 10% (n=88) *Error rate 5% (n=278)	* Error rate 10% (n=88) * Error rate 5% (n=278)
Actual number of respondents n=312	Actual number of respondents n=327

*These numbers are hypothetical

Results and discussion

The results of the survey show that 41% of the respondents in Estonia in 2013 turned to pharmacists in case of milder diseases. In Lithuania the number of respondents in 2014 who turned to pharmacists concerning milder diseases was 6% smaller than that of Estonia. On the other hand, the number of respondents in Lithuania who turned to their family doctor was 37% bigger than the respective number in Estonia ($p<0.001$). Compared to the study of D. Volmer in 2003, in 2013 the number of people who search information from the internet concerning milder diseases has increased significantly. In 2003 only 6% of the respondents sought help from the internet (*Volmer et al, 2007; Volmer, 2010*), ten years later it is 31% of respondents. This change is connected to the wider use of search engines like *Google.* The amount of goods and services sold via the internet has increased, including pharmacy services and products. Thus it has nowadays become more common to search health-related information as well as products and services from the internet. This tendency is also confirmed by the fact that with ten years 25% less of all respondents turned for pharmacists for help and 21% less of the respondents

turned to their family doctor (see table 2) (*Jakovleva, 2014*). In contrast, in Lithuania it was most common to turn to a family doctor. 63% of the respondents in Lithuania turned to their family doctor and this number is statistically significantly different from the results collected from Estonia in 2013 ($p<0.001$).

Table 2

Responses of Estonian and Lithuanian healthcare students and teachers to the question: "Who do you turn to for help concerning milder diseases?"

	[1]2003 Estonia % (n=727)	[2]2013 Estonia % (n=312)	[3]2014 Lithuania % (n=327)
Pharmacist	**66**	41	35
Family doctor	47	26	**63**
I trust only myself	31	23	20
An acquaintant health professional	36	-*	-*
My family, acquaintances	24	44	41
I find information from the internet	6	**31**	23

*In 2013/2014 this question was not posed
The table is based on the following literary sources [1]Volmer 2007, [1]Volmer 2010, [2]Jakovleva 2014, [3]Daunys 2014.

Who is a pharmacist in the opinion of Estonian and Lithuanian healthcare students and teachers?

The biggest number of respondents in Estonia in 2013 considered pharmacists as competent counsellors (77%). 45% of the respondents considered pharmacists as specialists in the field of medications and diseases, but 41% of the respondents thought that pharmacists were ordinary sellers. As a positive example it should be brought out that 48% of the respondents considered pharmacists as health care workers, although during the period of conducting the survey pharmacists were not yet officially included among the health care workers (see Figure 1). Significant statistic differences occurred in the opinions of the respondents in Estonia and Lithuania in this regard, that in Estonia pharmacists were more often seen as health care workers, producers of medications, sellers and good communicators ($p<0.001$).

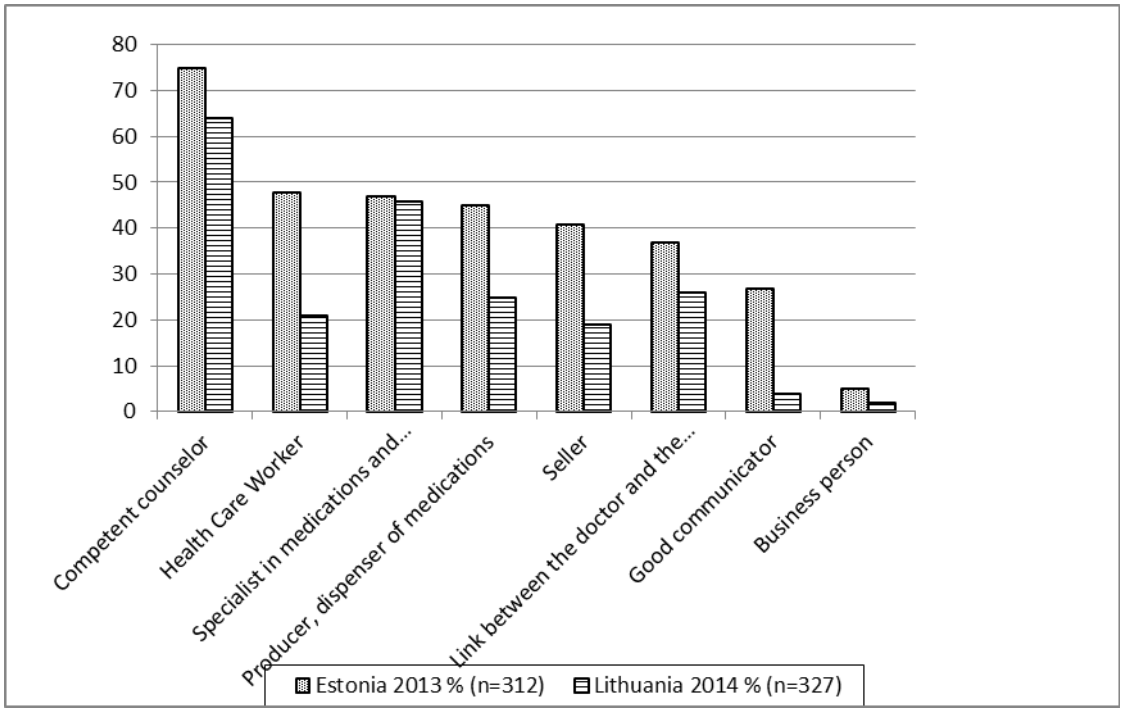

Fig. 1. This figure shows who is a pharmacist in the opinion of Estonian and Lithuanian healthcare students and teachers. This figure is based on the following literary sources: Jakovleva 2014 and Daunys 2014.

Collecting information about the over-the-counter selling

This survey shows that 59% from the respondents in Estonia who turned to pharmacists always received counselling by a pharmacist, 34% of the respondents answered that they

received counselling by a pharmacist sometimes. 7% of the respondents indicated that they received counselling rarely or not at all. 73% of the latter brought out the following reasons: there was no possibility for a private conversation, there were too many people in the pharmacy (*Jakovleva, 2014*). In Lithuania 48% of the respondents claimed that they always received counselling by a pharmacist, 38% answered that they received counselling sometimes. 14% of the respondents claimed that they received counselling rarely or not at all (*Daunys, 2014; Daunys et al, 2015*). Figure 2 provides an overview of collecting information concerning over-the-counter selling from Estonian and Lithuanian respondents.

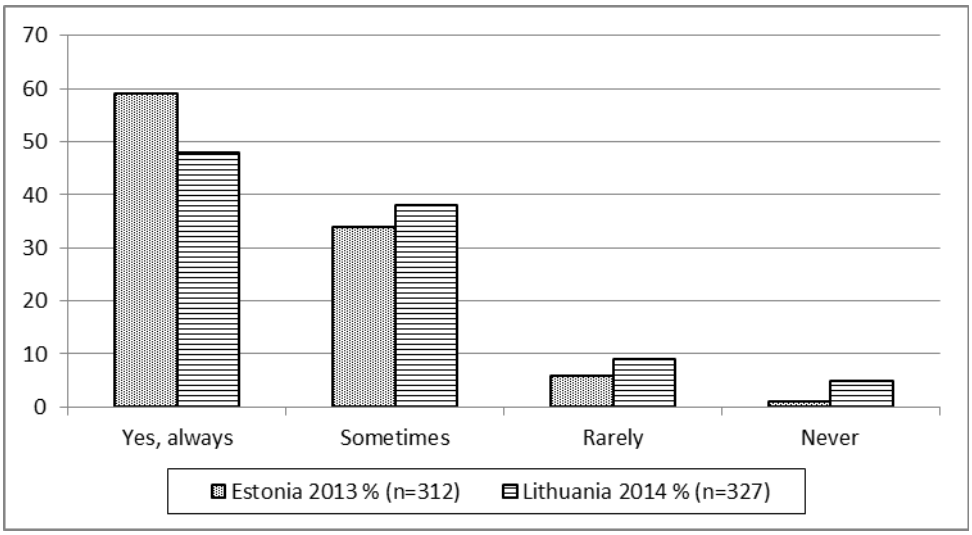

Fig. 2. This figure shows how the respondents evaluate counselling service by a pharmacist. This figure is based on the following literary sources: Jakovleva 2014 and Daunys 2014.

92% of the respondents in Estonia and Lithuania considered pharmacists' knowledge about over-the-counter medications to be very good or good. 36% of the respondents in Estonia answered that pharmacists' knowledge concerning over-the-counter medications was very good. In Lithuania the respective percentage was 27% (see table 3).

Table 3

Estonian and Lithuanian healthcare students and teachers evaluation for the pharmacists' knowledge about over-the-counter medications

	[1]2013 Estonia % (n=312)	[2]2014 Lithuania % (n=327)	Difference %
Very good	36	27	9
Good	56	65	-9
Weak	7	5	2
Very weak	1	3	-2

The table is based on the following literary sources [1]Jakovleva 2014, [2]Daunys 2014.

Conclusions

In the study were found statistically significant differences in the opinions of the respondents in Estonia and Lithuania. Pharmacist has an important role in the primary health care. Probably the importance of pharmacies will increase in the future, despite the fact that concerning milder diseases less people turned to pharmacists in 2013 than ten years earlier. Both in Estonia and Lithuania pharmacists are considered as competent counsellors, specialists in medications and diseases as well as health care workers.

The possible reasons for the differences between two Baltic countries are explained by the differences in the healthcare and pharmaceutical systems. In Estonia the healthcare and pharmaceutical systems include: eHealth, ePrescription and the responsibility of assistant pharmacists to work and make decisions independently. The study population covered a sample of Estonian and Lithuanian healthcare students and lecturers. The findings of the study may not be generalized to whole population of Estonia and Lithuania, as the environment and circumstances prevailing in the health care college and medical faculty may impact on responding. There is a possibility that the responses of participants may differ from those who did not participate.

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LEGAL REGULATION OF PHARMACEUTICAL WASTE MANAGEMENT IN LITHUANIA

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Annotation

Problems of pharmaceutical waste collecting and its management in Lithuania are discussed in paper. Experience of pharmaceutical waste management in United Kingdom is analysed. Analysis of acts relating with pharmaceutical waste management and valid in Lithuania republic is carried out. Methods of research publications, acts and statistics analysis were applied. Procedure of pharmaceutical waste collecting from inhabitants and its transfer to waste manager selected by Ministry of Health in public pharmacies of Lithuania Republic is described. Pharmaceutical waste belongs to hazardous waste category; therefore most safe method of its elimination is incineration in single-purpose waste incineration devices.

Key words: *medical waste, pharmaceutical waste, pharmaceutical waste management, pharmaceutical waste collecting*.

Introduction

Many of chemical materials and medicaments using in health care institutions are hazardous waste (toxic, infective, unhealthy, irritant, mordant, in contact with which could be destroyed live tissues, ecotoxic, and sensitive for shaking up. Toxic materials, heavy metals, including cadmium compounds, mercury and very specific agents of contamination (various microorganisms) could be found in these materials and medicaments (Valstybinio audito ataskaita, 2010). Mostly these materials in medical waste are found in small amounts, however major amounts of this type of waste are forming when expendable or chemical materials and medicaments of expired date are utilizing.

One group of medical waste – pharmaceutical waste – is excepting from medical waste stream because of its chemical and physical characteristics. Not a few of inhabitants, especially the elderly, which bought a stock of preparations in discount prices when their date of expire are over throw on they anywhere. Outdated impracticable preparations could be reason for intoxication, if they are throwing on to dustbin or sewerage. Pharmaceutical waste, in which could be antibiotics or another preparations, phenols, disinfectants and antiseptics as well when passed into sewerage could have negative impact for work of biological treatment stations of sewage waters or toxic impact for wild ecosystems, solid waste dumps and after passing into air, soil or groundwater are causing more or less negative impact to human, fauna and flora (Farmacinės atliekos..., 2012).

Antibiotics and cytostatics - preparations, which act on all cell of organism, but cells of cancer, are more sensitive for them - are particularly hazardous for environment. After these medicaments passed into environment, they act negatively a balance of microorganisms, contaminate water, soil and could return to human organism in this way (Daunoravičienė, Griškevičius, 2011; Mačiūnas, Budginaitė, Zurlytė, Juozulynas, 2009). On purpose to protect environment, human and animal health from possible risk, is relevance to warrant management of medical waste. Inappropriate management or unsafe utilisation, though small amount of medical waste characterising by infective or chemical features, possibility of many negative consequences is remaining: environment (air, soil, water) contamination, infections spreading with blood (hepatitis B and C, HIV), intoxications, freaks, allergies, zymotic diseases, etc.

Development of health and new technologies, upturn of health care services quality and well developed production of health care products determines the increase of medical waste amount. Appropriate management of medicinal waste and pharmaceutical waste as one of its category is necessary to protect community health and clean environment and to avoid a spread of zymotic diseases.

Research goal is to evaluate legal acts of Lithuania Republic, appealing on which pharmaceutical waste is managing in Lithuania.

Research aims are to analyse the experience in waste management using case of economically developed state (United Kingdom); to discuss the problems of pharmaceutical waste management in Lithuania; to characterise a process and result of pharmaceutical waste

management in Lithuania; to discuss legal acts warranting pharmaceutical waste management in Lithuania.

Research methods are analysis of research publications, statistics and acts concerned to pharmaceutical waste management.

Results

1. Pharmaceutical waste

According to definition given in Pharmacy Law (*Farmacijos įstatymas*, 2006), pharmaceutical waste is preparations and veterinary preparations for eliminating (not qualitatively, with expired date, forfeit, collected from inhabitants, adulterate). Pharmaceutical products, which are not qualitatively packed or tare of which is damaged are attributing to pharmaceutical waste too. Dissolvable preparations are preparations with expired data, not qualitatively, forfeit and collected from inhabitants, which can not be use for purposes of health care and veterinary.

In Waste management rules (*Atliekų tvarkymo taisyklės,* 2011) unusable (dissolvable) preparations and chemical are attributing to category of hazardous waste. According to 18 chapter of Waste code list of these rules pharmaceutical waste is one of significant group of medical waste, for which codes 18 01 08 and 18 01 09 are using (18 01 08 signifies cytotoxic (they are stopping development of cancer cells) or cytostatic (they are destroying cancer cells) preparations and 18 01 09 – preparations not indicated in 18 01 08). Hazardous health care or medical waste includes infected waste; not infected sharp goods; pharmaceutical waste (dissolvable preparations and chemicals); other hazardous medicinal waste.

2. Sources of pharmaceutical waste

Medical waste can form in various places where services of human and animal health care are providing: hospitals and other institutions of health care, odontological surgeries, care institutions, laboratories, pharmacies, enterprises of veterinary services, household and others (Valstybinio audito ataskaita, 2010).

Pharmaceutical waste is forming in pharmacies, health care institutions and households. There are not accurate data on amount of collected pharmaceutical waste. In Lithuania accounting of medical waste was not organized until 2005 (Mačiūnas et al., 2009). In Lithuania the increase of medical waste is stated: from 55 tons in 2010 to 107 tons in 2013 (Kisielienė, 2015). The facts given by State waste accounting suggest that in 2007-2011 following amounts of pharmaceutical waste were formed (in thousands of tons): 2007 - 0, 12; 2008 – 0, 06; 2009 – 0, 03; 2010 – 0, 08; 2011 – 0, 07 (Valstybinis atliekų ..., 2014). There were collected 198,18 tons of dissolvable preparations in 2013 (Grigaliūnienė, 2015). But is unknown, how many unused preparations inhabitants scrap to dust hole or sewerage.

3. Management of pharmaceutical waste

The best part of human activity is concerned with waste. Waste management is concurrent of any activity process. The system of waste management by legal, administrative, economical means and their applying is formed of waste system of industrial and other economical activity, the last includes medical waste too. One group of medical waste – pharmaceutical waste – is distinguished from medical waste flow because of their chemical and physical characteristics.

3.1 Experience of pharmaceutical waste management in economically developed state (United Kingdom)

Forming of waste, possible negative their impact to environment and human health is one of most actually environment protection problem in economically developed states. Every European Union member state is undertook to protect environment of harmful factors, including tackling the problems concerned with waste forming and their management. Waste management includes the activities of waste collecting, transporting, using and eliminating as well as control of waste management activity and control of waste eliminating zones after their closing. The part of this activity is management of hazardous waste, to which pharmaceutical waste management is ascribed too. With the intention of ensuring to analysing problem European context, we shortly reviewed how pharmaceutical waste is managing in one of economical developed state – United Kingdom (Banionytė, Motiekaitytė, 2014).

In United Kingdom (UK) waste of preparations on prescription is managing sticking to *Special Waste Regulation* (1996). This regulation reflects requirements of EU *Dangerous Substances Directive* (67/548/EEC) and is close related to *The Health and Safety at Work Act* (1974). This regulation defines the hazardous waste as waste under control, which are included in hazardous waste list and is distinguishing at least by one characteristic, which determines hazardousness and is enumerated in Annex III of *EU Hazardous Waste Directive*. Environment

protection agency is prepared practical method guide how to identify special waste. Environmental protection agency is responsible for hazardous waste management (Pavojingų atliekų perdirbimo ..., 2012).

In description of pharmaceutical and medical waste a definition of pharmaceutical waste is given: there are preparations of any form and their containers, which are not sharp, when they are not using or their expiry date is issued. Ampoules, needles, syringes must be discard into special boxes for sharp waste of this type. Elimination requirements of preparations under control are stated in *Misuse of Drugs Regulations* (1985). Narcotic and psychotropic preparations can collect only these pharmacies, which have licence to trade narcotic and psychotropic materials.

In England, Northern Ireland and Wales's medical, pharmaceutical waste must be burned in special, licensee waste incineration enterprises. In Scotland pharmaceutical waste classified as cytotoxic or cytostatic pharmaceutical waste must be burned in licensee waste incineration enterprises too, pharmaceutical waste of other kinds can be burned or eliminated by alternative methods and means (NetRegs, 2012).

In UK in contradistinction to Lithuania pharmaceutical and other medical waste management and elimination services are providing by many enterprises. They must obtain waste management licence, which enable to manage, transport, and eliminate waste harmlessly to environment and human health. Best-known are „PHS group", „Clinical Waste Collections Services", „SITA UK". In UK operate 13 enterprises, which eliminate pharmaceutical and medical waste in their own waste incineration devices, about 300 enterprises provide medical and pharmaceutical waste collecting service from health care and veterinary institutions and pharmacies and safe transportation service to waste incineration enterprises (Cylex, 2012).

Local government institutions are established effective management system of medical and pharmaceutical waste – well-run order of delivery of licensee for activity is warranting, local government collaborates with private sector constantly, through healthy conditions are capacitating for establishing and functioning of these enterprises, constant competition and better quality of offering services is promoting. When social and economic factors are changing permanently, companies, if they intend to hold down the market, must be flexible and innovative (Banionytė, Motiekaitytė, 2014).

Each pharmacy collecting waste must prepare the rule of pharmaceutical waste management, which includes all stage of waste management: collecting from inhabitants, storage and transfer to pharmaceutical waste eliminating enterprises. Marking, collecting, storage and accounting of pharmaceutical waste are describing in these rule. Particularly strict is keeping accounting of pharmaceutical waste, because real amount of emerging waste will be known (Pharmaceutical waste guide, 2012). On the basis of this data is possible to plan waste eliminating effectively and to assess necessity of new devices.

Permanent collaboration among inhabitants, pharmacies, preparation manufacturers and companies of pharmaceutical waste collecting and eliminating takes place in UK. Particularly strict attention is giving to public education and informing how to behave with unwanted or expired date preparations. Means of information are used – posters in pharmacies, advertisement in web sites of pharmacies. Companies managing pharmaceutical and other medical waste are warranting convenient collecting for inhabitants, institutions of health care, preparation manufacturers and provide them with due means: tight boxes, appropriate plastic cruets, marked bags. Pharmaceutical waste collecting from small institutions of health care, pharmacies in small towns, which collect preparations of inhabitants, is warranting, because a lot of small waste collecting enterprises are working and they are divided up in all territory.

Appropriate packing of pharmaceutical waste is main method of environment and human health protection, when waste is collecting, transporting and eliminating. In UK pharmaceutical waste is packing to tight boxes by these groups: yellow bags are using for empty plastic cruets; yellow boxes – for sharp pieces (styles, infected syringe, etc.); yellow boxes with violet cover – for sharp pieces, which interacted with cytotoxic substances (special label "cytotoxic substances" is using); yellow boxes with violet diagonal belt – for containers, tare, kids, which had contact with cytotoxic preparations; white boxes – for storage of hermetic containers of aerosols.

Thought development of health care and qualitative service determine growth of pharmaceutical waste, pharmaceutical waste management system in UK works effectively – pharmacies readily collects preparations from inhabitants, stores them in appropriate rooms and after transfer them to waste eliminating enterprises, which warrant safe eliminating. Pharmacies together with pharmaceutical waste eliminating enterprises are responsible for strict accounting of this waste. Hazardous pharmaceutical waste is incinerated in single-purpose medical and hazardous waste incineration devices.

3.2. Pharmaceutical waste management in Lithuania Republic

Hazardous waste forms separate group of waste. The main flows of this waste are waste of petrol products; waste contaminated by petrol products; hazardous waste of vehicles; waste contaminated by heavy metals; waste of chemicals; medical waste. One of most significant group of medical waste is pharmaceutical waste (Mačiūnas ir kt., 2012).

According to waste management system, stated in National waste management plan for 2014-2020, medical waste is attributed to waste management system of industrial and other economical activity. Most of pharmaceutical waste is hazardous, therefore must be collecting separately and managing according to demands of waste management and entirely hazardous waste management, so as not to menace for environment and human health. There is essential to own information on waste amount and structure classified by kinds on purpose to establish modern and effective medical waste management system.

Management of medical waste is medical waste batching in place of its formation, collecting, packing, marking, primary treatment (eliminating of noxiousness) and temporary storage in institution of health care. Management of pharmaceutical waste is activity of pharmaceutical waste collecting, treatment, transporting, using and eliminating.

Ministry of Health performs expertise of hazardous waste and its management activity impact to human and public health, determines requirements of waste batching in place of its formation, collecting, packing, marking, primary treatment and temporary storage in institutions of health care. Ministry regulates medical waste management in institutions of health care, coordinate's action of institutions of health care implementing capabilities of medical waste management.

Ministry of Environment regulates and administrates management of all waste, controls implementation of stated requirements and tasks. Ministry of Environment coordinates activity of others institutions and municipalities in waste management field.

Means of waste management, tools, and legal aspects are discussed in environment protection literature (Spruogis, Jaskelevičius, 2000; Bakas, 2008; Gritė, 2014, Venckus, 2008, 2015). Medical and pharmaceutical waste management and elimination are analysed in publications and research papers devoted to these problems (Mačiūnas et all., 2009; Daunoravičienė, Griškevičius, 2011; Jakaitienė, 2011; Grigaliūnienė, 2015).

It was began to talk about pharmaceutical waste, its collecting and eliminating importance till *Pharmacy Law* (2006) was become effective. Now, though valid acts regulating pharmaceutical waste management are enough, pharmaceutical waste emerging problems remains. One of them is irresponsible usage of preparations, when inhabitants obtain and entirely not use or used only partly compensatory preparations prescribed them. There are expensive preparations as often as not, which basic price is paid by state from bugged funds. Second, more or less management problem, is rarely obtainable preparations, which expire date ends, but they stay not sold, because former regular not buys their through various reasons.

3.3. Collecting of pharmaceutical waste

In 42 article of Pharmacy Law attitude is fixed: Public pharmacies must take dissolvable preparations from inhabitants free. Waste manager collects accepted dissolvable preparations from public pharmacies and pursues other activity of their managing according to order defined in Waste management Law of Lithuania Republic and other law. Government defines order of accepting of dissolvable preparations from inhabitants and reimbursement of their management.

For management of dissolvable preparations accepted from inhabitants and veterinary preparations is reimbursing to appropriate institutions, which are responsible for implementation of this law, from general vote confirmed in state bugged.

Body, in whose activity pharmaceutical waste is forming this pharmaceutical waste manages by order of Waste management Law of Lithuania republic and other law.

Inventory of order of dissolvable preparations accepting from inhabitants and reimbursing for their management (2012) ascertains order of dissolvable preparations accepting from inhabitants in public pharmacies and production public pharmacies, order of their registration and reimbursing for their management. Dissolvable preparations accepting from inhabitants are managing according to requirements of hazardous waste management and must be to release for management to waste managers selected by order of Inventory of Ministry of Health and having right to manage hazardous waste by order of Waste management Law and other law.

Head of pharmaceutical activity is responsible for dissolvable preparations accepting from inhabitants, accounting and releasing to waster manager having right to manage of them. Pharmacy must release dissolvable preparations accepting from inhabitants to waste manager selected by order of Inventory no latter than 6 month from their accepting day.

By order of *Waste management rule*, enterprise, which is using or eliminating waste, must have waste using or eliminating technical order. In technical order using and eliminating waste kinds and characteristics, procedures of waste accepting and control, waste transfer from site of collecting to site of its using or eliminating must be defined.

Head of enterprise, which owns public pharmacies and production public pharmacies, formulates interior document how to manage pharmaceutical waste in filial of enterprise. According to this document head of pharmaceutical activity of filial or pharmacy specialist appointed by order of head of pharmaceutical activity transfers pharmaceutical waste to enterprise of pharmaceutical waste management (V. Motiekaitytė pers. comm.). If enterprise, which owns pharmacy, is prepared *Quality guide of pharmaceutical activity*, head of pharmaceutical activity of filial is organizing pharmaceutical waste management by appropriate procedure described in this guide. Head of pharmaceutical activity warrants, that not pharmaceutical waste (food supplements of expired data, medical goods, cosmetic and others good of pharmacy assortment, not attributing to preparations) will not be collected. Only pharmaceutical waste (dissolvable preparations and unusable chemicals) formed in pharmacies and accepted from inhabitants is transferring to manage.

Procedure of transferring of pharmaceutical waste to enterprise of pharmaceutical waste management includes arrangement of pharmaceutical waste accumulated in pharmacy, correct processing of documents and transferring to store of enterprises or to waste manager. Pharmaceutical waste formed in pharmacies is discarding, after that they are transferring to storage site special site marked *Dissolvable preparations*, where it is keeping grouping (having narcotic materials, having psychotropic materials, having mercury; other dissolvable preparations, including not identified; preparations accepted from inhabitants); by dissolvable preparation groups accounting acts/assignments are preparing, dissolvable preparations accepted from inhabitants are registering in separate journal indicating datum of accepting of dissolvable preparations, kind of waste, code and weight. For transferring dissolvable preparations are putting to boxes by groups together with appropriate accounting acts/assignments, the labels of group marking are gluing on boxes. After transferring of pharmaceutical waste to carrier, head of pharmaceutical activity registers accounting acts/assignments in *Pharmaceutical waste accounting/ assignments journal* and in *Dissolvable preparations accepted from inhabitants accounting/ assignments journal.*

Primary health care institution, with witch pharmacy is compacted commission agreement concerning inhabitant's supply of preparations through primary health care institution situated in rural districts and with witch the same pharmacy is compacted agreement concerning accepting dissolvable preparations, can accept dissolvable preparations from inhabitants free and transfer them to pharmacy.

In Lithuania Republic dissolvable preparations are accepting from inhabitants free, though polluters (consumers) must reimburse all social and economical detriments arising from contamination and resource exploitation (Meškys, 2006).

State waste management plan for 2014-2020 years ascertains: public pharmacies and public production pharmacies according regulation order must accept preparations from inhabitants free. Government of Lithuania Republic or institution appointed by its order – Ministry of Health - ascertains order of accepting of preparations from inhabitants and payment of their management. For accepted preparations and veterinary preparations from inhabitants is paying from general subsidies approved in state budget. Ministry of Health from general subsidies approved to it in state budget is paying to selected managers of hazardous waste by real amount of accepted dissolvable preparations from inhabitants.

According to *Inventory of order of dissolvable preparations accepting from inhabitants and reimbursing for their management* (2012), pharmacy must transfer accepted dissolvable preparations from inhabitants to hazardous waste manager selected by Ministry of Health – company „Tekasta" only not later than 6 months from data of their accepting (Farmacines atliekas surinks..., 2012).

4. Acts regulating pharmaceutical waste management

Management of pharmaceutical waste is implementing according to General acts: Waste management law (*Atliekų tvarkymo įstatymas*. 2014), Waste management rule (*Atliekų tvarkymo taisyklės,* 2011) and acts of Health system: Pharmacy law (*Farmacijos įstatymas*, 2006*),* Hygiene rule HN 66:2013*2013* „ Safety requirements of medical waste management" (*Higienos norma HN 66:2013 "Medicininių atliekų tvarkymo saugos reikalavimai),* Inventory of order of dissolvable preparations accepting from inhabitants and reimbursing for their management (*Naikintinų vaistinių preparatų priėmimo iš gyventojų ir apmokėjimo už jų tvarkymą tvarkos aprašas"*, 2012).

According to *Waste management law*, enterprises, which collect, store, eliminate or use hazardous waste, must get licence, which certify Agency of Environment protection. Therefore enterprises has right to pursue pharmaceutical waste management activity only after obtaining two licences.

Waste management law obliges to manage waste not exceeding environment protection marks fixed in acts for water, air or soil pollution and not inducing significant negative impact to public health, animals or vegetation.

Basic requirement of *Waste management rules* is to collect, store and sort waste so as they not induce risk to human health and environment.

Pharmacy law regulate pharmaceutical and other activity related with preparations, research preparations, veterinary preparations, active and other medicinal materials and implement government and control of this activity too. *Pharmacy law* regulate management of pharmaceutical waste. This law allows that pharmaceutical waste management (except for eliminating) is pharmaceutical activity under licence, which is certificate by State drug control agency.

Pharmacy law ascertains that juridical person can manage pharmaceutical waste if it has pharmaceutical waste management (except for eliminating) licence certificated by determinate order only. This law obliges pharmaceutical waste managers to have appropriate premise, equipment, which will meet the requirements and to warranty: appropriate store of pharmaceutical waste and their management; that pharmaceutical waste will be manage by Technical regulation, which in detail characterizes how waste must be collected, sorted, stored and included to accounting. Juridical person, in whose activity pharmaceutical waste is forming, this pharmaceutical waste is manage according to Waste management law and other acts determinate order. Dissolvable preparations can not be using in human or animal health service.

Hygiene rule HN 66:2013 „Safety requirements of medical waste management" is prepared with aim to harmonize regulation of medical waste management in health care institutions with acts regulating general waste management system (*Atliekų tvarkymo įstatymas*, 1998), *Atliekų tvarkymo taisyklės,* 1999), *Atliekų susidarymo ir tvarkymo apskaitos ir ataskaitų teikimo taisyklės,* 2011) and to ascertain obligatory regulations of public health safety warranting appropriate medical waste management in health care institutions. This Hygiene rule ascertains requirements for medical waste (excluding radioactive medical waste) sorting in their forming places, collecting, packing, marking, primary treatment (noxiousness eliminating) and temporal storing in health care institutions.

Because of exceptional features of pharmaceutical waste its management requirements are very strict, therefore holder of pharmaceutical waste has to allocate a separate lockup place or premise to dissolvable preparations.

5. Pharmaceutical waste elimination

Waste or materials, which can not be used repeatedly and after to process or to use differently, is permitting to eliminate in waste eliminating devices tooled and exploiting according to requirements ascertained in acts.

In *Pharmacy law* eliminating of pharmaceutical waste is not ascertained. Eliminating pharmaceutical waste, it is processing. Physical (including sorting), chemical or biological processes are using, when characteristics of pharmaceutical waste are changing than its size or hazardousness will reduce and will be easy to manage it. Is forbidden to depose waste in landfills and to incinerate in devices not fulfilling requirements ascertained in environment protection and other acts.

EU practice shows that most medical and pharmaceutical waste is eliminating using incineration because of its human and environmental hazard (Atliekų deginimo aplinkosauginiai reikalavimai, 2003). Most popular elimination method of medical waste is its incineration. Incineration is one of main elimination method of most medical waste and widely using yet. It is possible to take out remains of incinerated waste to landfills. Hazardous pharmaceutical waste must be to incinerate in single-purpose incineration devices for medical or hazardous waste.

Incineration is high temperature dry oxidation process, which changes organic and easily ignitable waste to inorganic, flameproof and thus weight and size (amount) of waste very decreased. Modern incineration technologies decrease waste size and mass to 95 pct. There is incinerating this waste, which can not be repeatedly used, processed or deposited. In 2011 most (0,067 thousands of tons) pharmaceutical waste was exported to incinerate to single-purpose hazardous waste incineration devices in Germany (Valstybinis atliekų tvarkymo..., 2014).

Conclusions

Statistic data on amount of forming in pharmacies and collected from inhabitant's pharmaceutical waste is not published. *Pharmacy law* obliges pharmacies to collect, sort and appropriately store not only their own pharmaceutical waste, but to accept from inhabitant's inconsumable preparations. Management of pharmaceutical waste is pharmaceutical waste collecting, process, transport, use and eliminating activity.

Management of pharmaceutical waste is implementing according to Waste management law (*Atliekų tvarkymo įstatymas*, 2014), Pharmacy law *(Farmacijos įstatymas,* 2006), Waste management rules *(Atliekų tvarkymo taisyklės,* 2011), Inventory of order of dissolvable preparations accepting from inhabitants and reimbursing for their management (*Naikintinų vaistinių preparatų priėmimo iš gyventojų ir apmokėjimo už jų tvarkymą tvarkos aprašas*, 2012) , Hygiene rule HN 66:2013 „Safety requirements of medical waste management" (*Higienos normos HN 66:2013 "Medicininių atliekų tvarkymo saugos reikalavimai")* attitudes and requirements, following to interior documents of pharmacy enterprises. Management of pharmaceutical waste is regulating by Pharmacy law.

Dissolvable preparations are accepting from inhabitants for free in pharmacies. Ministry of Health from general subsidies approved to it in state budget is paying to selected managers of hazardous waste by real amount of accepted dissolvable preparations from inhabitants. Pharmacy must transfer accepted dissolvable preparations from inhabitants to hazardous waste manager selected by Ministry of Health – company „Tekasta" only not later than 6 months from data of their accepting.

Practice of economically developed states (United Kingdom) shows that most medical and pharmaceutical waste must be eliminating using burning in single-purpose medical or hazardous waste incinerating devices because of human and environmental hazards.

Analysis of law regulating pharmacy activity in public pharmacies related to pharmaceutical waste management allows to state that there are sufficient acts for management of pharmaceutical waste. However, was stated that the problem of pharmaceutical waste forming in households and partly in pharmacies own remains actually.

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EFFECT OF DIFFERENT METHODS OF PHYSICAL THERAPY FOR THE RESTORATION OF IMPAIRED SHOULDER JOINT FUNCTIONS AND AUTONOMY

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Annotation

The current article presents the effect of different methods of physical therapy for the restoration of impaired shoulder joint functions as well as autonomy. 1 male and 7 females (average age – 54.5±12.4 m) participated in the survey; four of them having the syndrome of the shoulder impingement syndrome and four with aII stage of the rheumatoid arthritis. Participants were divided into 4 experimental groups. ***IMPA^{SIS} group*** *– (N=2) – patients with the shoulder impingement syndrome,* ***IIMPA^{RA} group*** *– (N=2) – patients with a II stage of the rheumatoid arthritis; immobilisation of the shoulder join was applied to these groups as well as post-isometric relaxation and active physical therapy exercises.* ***IIIPP^{SIS} group*** *– (N=2) – patients with the shoulder impingement syndrome,* ***IVPP^{RA} group*** *– (N=2) – patients with aII stage of the rheumatoid arthritis; proprioceptive neuromuscular facilitation (PNF) method was applied for those patients as well as the passive stretching. Individual work was applied for all participants of the survey with 12 meetings with a 30 minutes duration offered to each of them.*

Key words: *joint immobilisation, PNF, shoulder impingement syndrome, rheumatoid arthritis.*

Relevance of the topic

Spread of the rheumatoid arthritis (RA) in the western countries is 0.5-1 percent of popular; it was defined that females tend to have this disease twice more often if compared to men (Žebrauskaitė, 2014). Over than one half of seniors in the United States of America (USA) experience joint pain and 21 percent of adult citizens of the US are diagnosed with arthritis (The Ministry of Health, 2013). Spread of RA in Lithuania reaches 0.55 percent of adults; RA is diagnosed to 0.3-1 percent of adults (Lithuanian Association of Rheumatology, 2014). According to L. Bayam et al. (2011) frequency of shoulder joint impairment within the human population varies from 7 to 36 percent. According to C. Braun et al. (2013), the most often shoulder joint impairments appear due to the pain that can be caused by pathology of different structures; pain and function impairment have a tight link. It was defined that a proprioceptive neuromuscular facilitation (PNF), stretching exercises, mobilisation are effective pain-reducing as well as function-improving aids (Braun et al., 2013; Lee et al., 2013). According to I. Düzgün et al. (2012), mobilisation has a positive effect upon improving the shoulder joint mobility and reducing the pain together increasing the muscular power. There is a sufficient amount of evidence, proving that mobilisation of joints and PNF effectively treat shoulder joint and respective muscular impairments. Implemented surveys confirm the premise that these procedures increase the amplitude of movement, reduce pain and improve muscular activity (Babu et al., 2013; Dajah, 2014; Dudonienė et al., 2012; Kisieliūtė, 2013; Mahendran, Chetia, 2013; Manske et al., 2012; Sharaf et al., 2013; Taragi et al., 2014).

No experiments were found that would compare such combination of methods. PNF method is matched with a passive starching and the shoulder mobilisation is matched with post-isometric relaxation as well as active physical therapy exercises. The end the survey shall define what combination of methods mentioned is the most effective upon the shoulder impingement syndrome and rheumatoid arthritis.

Aim of the survey is to assess the effect of different methods of physical therapy for the restoration of impaired shoulder joint functions and autonomy.

Object of the survey – changes in autonomy of the impaired shoulder joint functions after application of different Physical therapy methods.

Methods of the survey and respondents

Patients, corresponding to the following selection criterions, participated in the survey:

1. II stage of rheumatoid arthritis (RA) (reduced amplitude of movements, pain in the shoulder joint);
2. Shoulder impingement syndrome (SIS);
3. Subacute period of RA and SIS;
4. Age of respondents – 40-70 years.

1 male and 7 females (average age – 54.5±12.4 m) participated in the survey; four of them having the syndrome of the shoulder impingement syndrome and four with a II stage of the rheumatoid arthritis. Participants were divided into 4 experimental groups. **IMPA^{SIS} group** – (N=2) – patients with the shoulder impingement syndrome, **IIMPA^{RA} group** – (N=2) – patients with a II stage of the rheumatoid arthritis; immobilisation of the shoulder join was applied to these groups as well as post-isometric relaxation and active physical therapy exercises. **IIIPP^{SIS} group** – (N=2) – patients with the shoulder impingement syndrome, **IVPP^{RA} group** – (N=2) – patients with a II stage of the rheumatoid arthritis; proprioceptive neuromuscular facilitation (PNF) method was applied for those patients as well as the passive stretching. Individual work was applied for all participants of the survey with 12 meetings with a 30 minutes duration offered to each of them.

Increase of amplitude of the protraction movement was implemented with I-II grade joint surface protraction and I-III grade slide towards inferior from the freest bending position. Upon the limited interior upper arm rotation, I-II grade joint surface protraction and I-III grade slide towards posterior from the neutral interior upper arm rotation position were implemented. Post-isometric relaxation was applied to the upper arm stretchers, rotators towards interior and exterior. According to R. Kesminas (2006), active exercise was applied (stretching, amplitude, pendulous). PNF method and the passive stretching were applied to **IIIPP^{SIS}** and **IVPP^{RA}** groups. According to Z. Gültekin et al. (2006) and N. Nakra et al. (2013) as well as implemented surveys, all movements were done from the furthest towards the closest part of the limb.6 PNF movement models were used and they were repeated 10 times. Testing was implemented at the beginning of the survey and was repeated at its end; the gained results were compared.

Movement amplitude assessment

At the beginning and end of the survey, goniometer measured movement amplitudes of the shoulder joint bending, stretching, protraction, horizontal protraction and retraction as well as internal and external rotation.

Pain intensity assessment

Application of the digital analogue scale (DAS). The main ruler from 0 to 10 was applied to assess the shoulder joint pain upon the upper arm stretching, bending, hyperextension, protraction, retraction, internal and external rotation.

Autonomy assessment

Autonomy in everyday activities was assessed by aids of the Oxford questionnaire (OQ).

Muscular power assessment

Lovett scale was applied for the assessment of the muscular power of upper arm rotators inwards and outwards as well as stretchers, retractors and protractors.

Results of the survey

Picture 1 (Pic.1) presents changes of the active movement amplitudes (MA) in the shoulder joint prior physical therapy and after 4 weeks of physical therapy (PT).

Comparing IMPA^{SIS} and IIMPA^{RA} groups: at the beginning of the survey the MA average in IIMPA^{RA} group was 46^{o} bigger and significantly higher ($p < 0.05$) in compared to IMPA^{SIS} group. After PT, MA averages between IMPA^{SIS} and IIMPA^{RA} groups weren't significantly different (p=0.09), but 14^{o} higher change was in IMPA^{SIS} group. **Comparing IIIPP^{SIS} and IVPP^{RA} groups:** prior PT, MA average in IVPP^{RA} group was 22,5^{o} bigger, but wasn't significantly different (p=0.22) from MA average in IIIPP^{SIS} group. At the end of treatment MA averages between IIIPP^{SIS} and IVPP^{RA} groups weren't significantly different (p=0.12), but 15^{o} higher change was observed in IVPP^{RA} group.

Comparing IMPA^{SIS} and IIIPP^{SIS} groups: prior PT, MA average in IIIPP^{SIS} group was 41^{o} bigger, but wasn't significantly different (p=0.06) from the average in IMPA^{SIS} group. At the end of the survey MA averages between IMPA^{SIS} and IIIPP^{SIS} groups weren't significantly different (p=0.96), but 51^{o} higher change was observed in IMPA^{SIS} group. **Comparing IIMPA^{RA} and IVPP^{RA} groups:** prior PT, MA average in IVPP^{RA} group was 17,5^{o} bigger, but wasn't significantly different (p=0.39) from MA average in IIMPA^{RA} group. After PT, MA of both groups increased by 22^{o} each. Comparing separate groups prior and after PT in all groups. MA significantly increased ($p < 0.05$).

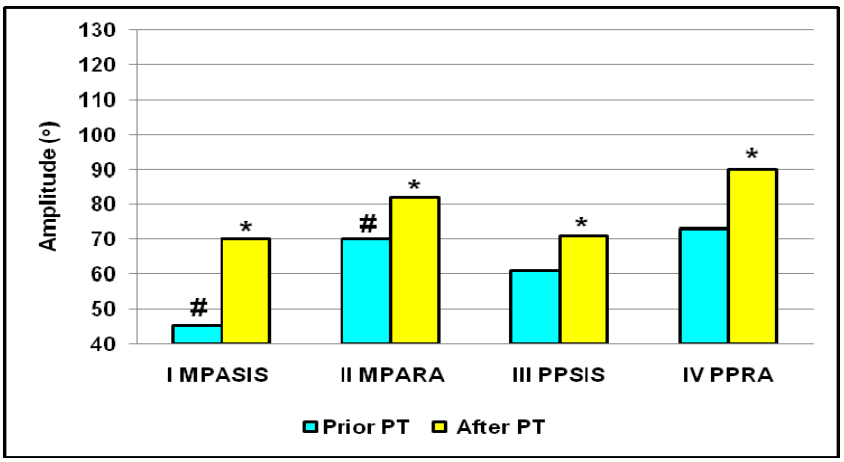

Fig. 1. Amplitude changes of active upper arm movements prior and after physical therapy (°)

Note: *p < 0,05 – in groups prior and after PT, #p < 0,05 – between IMPA^{SIS} and IIMPA^{RA} groups**.** For **IMPA^{SIS}** – for patients with shoulder impingement syndrome, **IIMPA^{RA}** – for patients with rheumatoid arthritis – joint mobilisation, post-isometric relaxation and active exercises were applied; for **IIIPP^{SIS}** – for patients with shoulder impingement syndrome, **IVPP^{RA}** – for patients with rheumatoid arthritis – PNF methods and a passive stretching were applied.

Picture (Pic. 2) presents changes of the passive movement amplitude (PMA) in the shoulder joint prior and after 4 weeks of physical therapy (PT).

Comparing IMPA^{SIS} and IIMPA^{RA} groups: prior PT, average of passive MA in IIMPA^{RA} group was 25^{o} bigger, but wasn't significantly different (p=0.06) from the passive MA average in IMPA^{SIS} group. At the end of the survey, averages of PMA between IMPA^{SIS} and IIMPA^{RA} groups weren't significantly different (p=0.09), but 10.5^{o} higher change was observed in IMPA^{SIS} group. **Comparing IIIPP^{SIS} and IVPP^{RA} groups:** prior PT, average of passive MA in IVPP^{RA} group was 16.7^{o} bigger, but wasn't significantly different (p=0.24) from the average in IIIPP^{SIS} group. At the end of the survey, averages of PMA between IIIPP^{SIS} and IVPP^{RA} groups weren't significantly different (p=0.12), but 1.3^{o} higher change was observed in IIIPP^{SIS} group. Groups with a lower primary mobility were identified a higher change; a premise can be offered that in case of a smaller primary amplitude, patients have greater possibilities.

Comparing IMPA^{SIS} and IIIPP^{SIS} groups: prior PT, average of passive MA in IIIPP^{SIS} group was 11.9^{o} bigger, but wasn't significantly different (p=0.08) from the average PMA in IMPA^{SIS} group. At the end of the survey, averages of PMA between IMPA^{SIS} and IIIPP^{SIS} groups weren't significantly different (p=0.53), but 8,2^{o} higher change was observed in IMPA^{SIS} group. **Comparing IIMPA^{RA} and IVPP^{RA} groups:** prior PT, average of passive MA in IVPP^{RA} group was 3.6^{o} bigger, but wasn't significantly different (p=0.68) from the average PMA in IIMPA^{RA} group. At the end of the survey, averages of PMA between IIMPA^{RA} and IVPP^{RA} groups weren't significantly different (p=0.49), but 1^{o} higher change was observed in IVPP^{RA} group. Comparing separate groups prior and after PT, IMPA^{SIS} and IIMPA^{RA} groups were identified with a significant (p < 0.05) improvement, while in IIIPP^{SIS} (p=0.12) and IVPP^{RA} (p=0.14) groups, passive MA wasn't significantly changed.

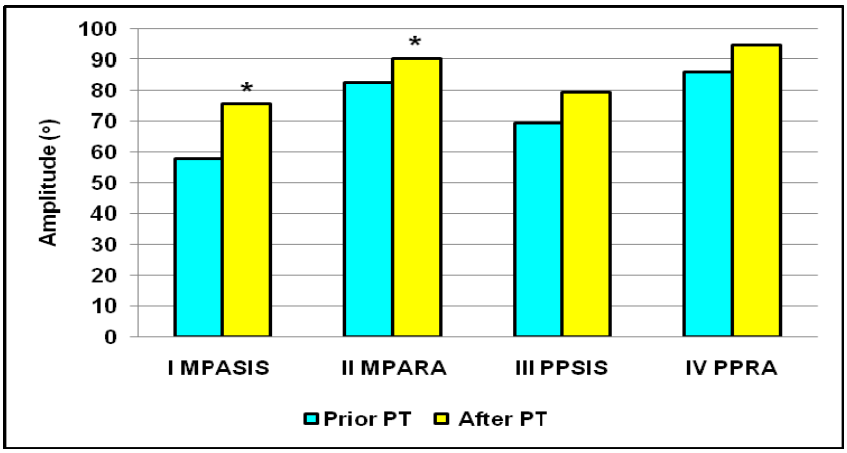

Fig. 2. Amplitude changes of passive upper arm movements prior and after physical therapy (°)

Note: *p < 0.05 – inside the group prior and after PT. For **IMPA^{SIS}** – for patients with shoulder impingement syndrome, **IIMPA^{RA}** – for patients with rheumatoid arthritis – joint mobilisation, post-isometric relaxation and active exercises were applied; for **IIIPP^{SIS}** – for patients with shoulder impingement syndrome, **IVPP^{RA}** – for patients with rheumatoid arthritis – PNF methods and a passive stretching were applied.

Picture (Pic. 3) presents pain dynamics in the shoulder joint during active movements of the shoulder joint.

Comparing IMPA^{SIS} and IIMPA^{RA} groups: at the beginning of the treatment the pain intensity average in IMPA^{SIS} group was 0.8 point higher, but wasn't significantly different (p=0.31) from the pain intensity average in IIMPA^{RA} group. As it was observed at the end of the treatment, the pain intensity averages between IMPA^{SIS} and IIMPA^{RA} groups weren't significantly different (p=0.07), but 0.3 point higher change was observed in IIMPA^{RA} group. **Comparing IIIPP^{SIS} and IVPP^{RA} groups:** prior PT the pain intensity average in these two groups weren't significantly different (p=0.49), but in IIIPP^{SIS} group, the pain intensity was 0.4 point higher. After PT the pain intensity change in IVPP^{RA} group was 2.9 point significantly (p < 0.05) higher than in IIIPP^{SIS} group.

Comparing IMPA^{SIS} and IIIPP^{SIS} groups: prior PT the pain intensity average during active shoulder joint movements in IIIPP^{SIS} group was 0,7 point higher, but wasn't significantly different (p=0.0.6) from the pain intensity average in IMPA^{SIS} group. After PT, 1.4 point significantly (p < 0.05) higher change was observed in IMPA^{SIS} group. **Comparing IIMPA^{RA} and IVPP^{RA} groups:** at the beginning of the treatment, the pain intensity average in IVPP^{RA} group was 1.1 point higher, but wasn't significantly different (p=0.06) from the pain intensity average in IIMPA^{RA} group. At the end of the survey pain intensity averages in IIMPA^{RA} and IVPP^{RA} groups weren't significantly different (p=0.59), but 1.2 point higher change was observed in IVPP^{RA} group. Comparing separate groups prior and after PT, the pain intensity in all groups after PT significantly (p < 0.05) reduced.

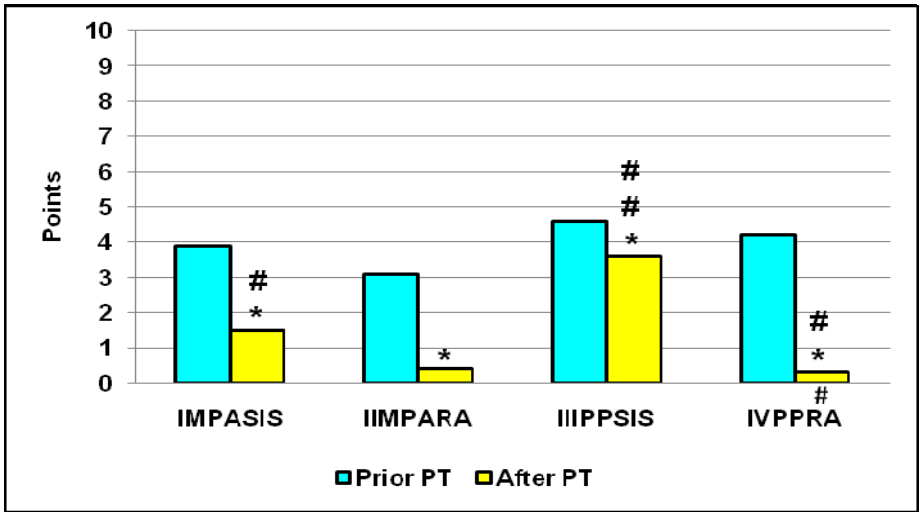

Fig.3. Pain intensity changes upon active shoulder joint movements (in points)

Note: *p < 0.05 – in group prior and after PT, #p < 0.05 – between IMPA^{SIS} and IIMPP^{RA} groups and IIIPP^{SIS} and IVPP^{RA} groups**.** For **IMPA^{SIS}** – for patients with shoulder impingement syndrome, **IIMPA^{RA}** – for patients with rheumatoid arthritis – joint mobilisation, post-isometric relaxation and active exercises were applied; for **IIIPP^{SIS}** – for patients with shoulder impingement syndrome, **IVPP^{RA}** – for patients with rheumatoid arthritis – PNF methods and a passive stretching were applied.

Picture (Pic. 4) presents the assessment of autonomy in everyday activity by aids of Oxford questionnaire (OQ).

Comparing IMPA^{SIS} and IIMPA^{RA} groups: prior PT, average of autonomy in everyday activity in IIMPA^{RA} group was 6 points higher, but wasn't significantly different (p=0.29) from the average in IMPA^{SIS} group. After PT, 7 points higher change of the autonomy in everyday activity was observed in IMPA^{SIS} group. **Comparing IIIPP^{SIS} and IVPP^{RA} groups:** prior PT, average of autonomy in everyday activity in IVPP^{RA} group was 5.5 points higher, but wasn't significantly different (p=0.50) from the average in IIIPP^{SIS} group. After PT 5.5 points higher change of the autonomy in everyday activity was observed in IIIPP^{SIS} group.

Comparing IMPA^{SIS} and IIIPP^{SIS} groups: prior PT, average of autonomy in everyday activity in IIIPP^{SIS} group was 7 points higher, but wasn't significantly different (p=0.75) from the average in IMPA^{SIS} group. After PT averages of levels of autonomy in everyday activity between IMPA^{SIS} and IIIPP^{SIS} groups weren't significantly different (p=0.93), but 5.5 points higher change was observed in IMPA^{SIS} group. **Comparing IIMPA^{RA} and IVPP^{RA} groups:** prior PT, average of autonomy in everyday activity in IVPP^{RA} group was 6.5 point higher, but wasn't significantly different (p=0.58) from the average in IIMPA^{RA} group. After PT, 4 point higher change of the autonomy in everyday activity was observed in IIMPA^{RA} group.

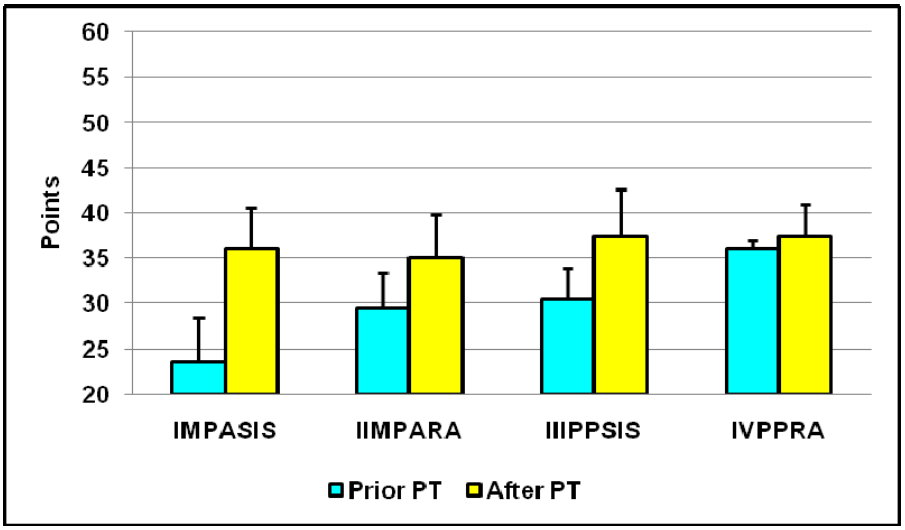

Fig. 4. Autonomy changes prior and after physical therapy (in points)

Note: For **IMPA^{SIS}** – for patients with shoulder impingement syndrome, **IIMPA^{RA}** – for patients with rheumatoid arthritis – joint mobilisation, post-isometric relaxation and active exercises were applied; for **IIIPP^{SIS}** – for patients with shoulder impingement syndrome, **IVPP^{RA}** – for patients with rheumatoid arthritis – PNF methods and a passive stretching were applied.

Table (Table 1) presents changes of the shoulder joint muscular power prior and after 4 weeks of physical therapy (PT). After generalisation of the gained results, it is possible to state that groups with joint mobilisation, post-isometric relaxation and active exercises, composed from patients with SIS (IMPA^{SIS}) experienced higher changes; here RJ statistically significantly ($p < 0.05$) increased. For groups where PNF methods and the passive stretching were applied, a higher, but not significant change was observed in the group, composed from patients with SIS (IIIPP^{SIS}).

Table 1

Changes of the shoulder joint muscular power during the course of survey (in points)

Groups	I MPA^{SIS}				II MPA^{RA}				III PP^{SIS}				IV PP^{RA}			
Respondents	I *		II		I		II		I		II		I		II	
Movement	Prior PT	After PT	Prior PT	After PT	Prior PT	After PT	Prior PT	After PT	Prior PT	After PT	Prior PT	After PT	Prior PT	After PT	Prior PT	After PT
Bending	2	3	4	4	4	4	4	5	3	4	4	4	4	4	3	3
Stretching	2	3	4	4	4	4	4	4	3	3	3	3	3	4	3	4
Protraction	2	3	4	4	4	4	4	4	3	4	3	3	4	4	3	4
Horizontal protraction	2	3	4	4	4	4	4	4	3	3	3	3	4	4	3	3
Horizontal retraction	2	3	5	5	4	5	4	4	3	3	4	4	4	4	3	3
External rotation	2	3	4	4	4	4	4	4	3	3	3	3	4	4	3	3
Internal rotation	2	3	4	4	4	4	4	4	3	3	3	3	4	4	3	3

Discussion of results

Summing changes of active shoulder joint movement amplitudes after physical therapy (PT), statistically significant ($p < 0.05$) improvement was observed in all groups (see Pic. 1).

After summing changes of the passive movement amplitudes, a significant improvement was observed in groups where a combination of joint mobilisation, post-isometric relaxation and active exercises was applied (see Pic. 2). In one of the newest studies, a joint mobilisation was applied for 40 respondents with adhesive capsulitis. One group was introduced and applied with general exercises while the other – exercises and joint mobilisation (oscillating movements – 2-3 slides per second for 30 seconds, total of 5 series). At the end of the survey, MA significantly increased in both groups, but in the group with joint mobilisation applied, the change was significantly higher (Kumar et al., 2012). This survey confirms a premise that joint mobilisation, implemented with exercises is more effective with increase of movement amplitudes. The similar survey by J. Wies (2005) analysed the effect of joint mobilisation and exercises, implemented at home. The survey lasted for 12 weeks and contained 8 respondents with a diagnosis of the adhesive capsulitis. After PT, researchers identified a significant increase in active movements. This survey also had 8 respondents and it lasted for 4 weeks, but MA significantly increased ($p < 0.05$), even though the duration of the survey was 3 times shorter if compared to the survey of J. Wies (2005). Active exercises (amplitude, stretching) as well as post-isometric relaxation were applied in this survey with mobilisation, therefore the MA increase was more rapid. The gained survey results can be compared to results of the survey, implemented by A. Narayan and V. Jagga (2014), where 30 respondents with a diagnosis of the adhesive capsulitis participated. The following procedures were compared: ultrasound therapy, wet warmth, movement amplitude, pendulous exercises and all the same procedures; moreover, the upper arm bending, protraction and external rotation were applied the post-isometric relaxation. At the end of the survey a premise can be offered that patients who were applied post-isometric relaxation next to other procedures, changes of the upper arm bending, protraction and external rotation amplitude was significantly higher. During the current survey, $IMPA^{SIS}$ and $IIMPA^{RA}$ groups were also applied with post-isometric relaxation for the upper arm stretchers and rotators internally inwards and outwards. MA change of these groups was higher than in those groups where post-isometric relaxation was not applied ($IIIPP^{SIS}$ and $IVPP^{RA}$). After PT, upper arm bending and external rotation MA change in $IMPA^{SIS}$ group was higher though the primary amplitude was lower than in $IIMPA^{RA}$ group. It is credible that change in $IMPA^{PSA}$ group is bigger, because upon smaller primary amplitudes, patients had higher possibilities. Generalising, it is possible to state that the combination of joint mobilisation, post-isometric relaxation and active exercises is more effective than PNF methods and passive stretching increasing the passive MA in the shoulder joint.

At the beginning of the survey, a subjective pain intensity assessment during active shoulder joint movements was implemented. After PT, a light pain remained in all groups (1-3 points), but it was significantly lower if compared to the one prior procedures (see Pic. 3); it is credible that in case of the continued survey, the shoulder joint pain may disappear. S. B. Al Dajah (2014), analysed effect of the soft tissue mobilisation and PNF upon reduction of the pain intensity for patients with SIS. 30 patients participated in the survey; in the group where PNF was applied together with mobilisation of soft tissues, the pain significantly decreased if compared to group that was treated by ultrasound procedures. In the similar study with a duration of 4 weeks (24 patients), effect of paraffin applications and soft tissue mobilisation as well as the effect of similar procedures and PNF on shoulder joint functions after arthroscopic shoulder joint surgery and RA. After PT, the pain intensity in the group where PNF was applied reduced by 5 points (Taragi et al., 2014). A similar survey compared the effect of joint mobilisation as well as joint mobilisation together with PNF. The control group was applied with joint mobilisation and the experimental group was treated by aids of combining both methods. After 4 weeks researchers defined that the joint mobilisation together with PNF is more effective upon the pain reduction for patients with adhesive capsulite (Mahendran, Chetia, 2013). Results of our survey match data and results gained by the mentioned foreign authors, because the pain intensity significantly decreased in all groups.

Generalising the gained results, it is possible to make a conclusion that combination of joint mobilisation, post-isometric relaxation and active exercises is significantly ($p < 0.05$) more effective than PNF method and passive stretching upon reduction of the pain intensity during active movements for patients with SIS. According to S. L. Edmond (2012), one theory states that the pain reduces due to the activation of pain blocking mechanisms or the pain management centres in the central of peripheral system of nerves or due to chemical changes in peripheral receptors. According to A. Kumar et al. (2012), oscillation may bear the blocking pain perception effect; these vibes move the joint fluid and improves the nutrition of the joint cartilage. Comparing the effect of PNF method and passive stretching, changes in group from patients with RA ($IVPP^{RA}$ group) after PT were significantly ($p < 0.05$) higher if compared to the group from patients with SIS ($IIIPP^{SIS}$ group).The gained results of our survey may be compared to results of the survey by M. Bang and G. Deyle (2000). 54 respondents participated in the

survey; muscle stretching and strengthening programmes were compared to those of muscle stretching and strengthening together with joint mobilisation. According to the results of the survey, the group that was applied with the joint mobilisation indicated a much better state of patients (the pain reduced, functions increased, the strength increased) if compared to those where the joint mobilisation was not applied. A similar study compared the ordinary treatment, composed from the shoulder joint and shoulder mobilisation, ultrasound, laser and TENS; the other group was applied with the same procedures as well as stretching and strengthening exercises. Pain significantly reduced for respondents in both groups, but a greater improvement was defined for respondents in the group where exercises were applied together with an ordinary treatment (Sharaf et al., 2013).

Upon assessment of the shoulder joint muscular power changes, we noticed that a statistically significant ($p < 0.05$) improvement was defined for respondents in $IMPA^{SIS}$ group; this group was offered a combination of joint mobilisation, post-isometric relaxation and active exercises. Muscular power in those groups where PNF method was applied together with a passive stretching also increased, but significant changes were not observed ($IIIPP^{SIS}$ and $IVPP^{RA}$). Primary muscular strength in $IMPA^{SIS}$ group (2 points) was two times lower than the primary muscular strength in $IIIPP^{SIS}$ and $IVPP^{RA}$ groups. In order for the muscular power to increase up to 3 points, it is necessary to increase the mobility of the joint and to strengthen muscles so that they could compete the gravitation. E. Kisieliūtė (2013) analysed effect of joint mobilisation and exercises on the shoulder joint functions. 26 respondents participated in the survey after arthroscopic rotator cuff repair surgery. 14 procedures were applied; during them, 20 min. were given for active exercise and 5 minutes – for the joint mobilisation. After PT the muscular power significantly increased.

Gained results of our survey may be explained that the pain, movement amplitude and the muscular power are interrelated. As it has already been mentioned, after PT, a minor pain remained in groups that blocks the activity of muscles around the impaired joint. According to S. L. Edmond (2012), this blocking reduced upon mobilisation and the normal joint mechanics is possibly to be restored. Our survey was shorter if compared to E. Kisieliūtės (2013); it is credible that there was a shortage of time for the restoration of the joint mechanics.

Conclusions

1. In groups where a combination of joint mobilisation, post-isometric relaxation and active exercises ($IMPA^{SIS}$ ir $IIMPA^{RA}$) was applied, active and passive shoulder joint MA significantly ($p < 0,05$) increased. The pain intensity during active shoulder joint movements reduced ($p < 0,05$). Muscular power significantly ($p < 0,05$) increased in $IMPA^{SIS}$ group.

2. In groups where PNF methods together with a passive stretching were applied ($IIIPP^{SIS}$ and $IVPP^{RA}$) active shoulder joint MA significantly ($p < 0,05$) increased. The pain intensity during active shoulder joint movements reduced ($p < 0,05$).

3. A combination of joint mobilisation, post-isometric relaxation and active exercises was more effective than PNF methods together with a passive stretching upon increasing the muscular power and the passive MA in the shoulder joint. Subjectively assessed shoulder joint muscular power as well as autonomy and functions haven't significantly improved in any of groups.

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ASSUMPTIONS OF WORKPLACE HEALTH PROMOTION IN PRIMARY HEALTH CARE

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Annotation

The aim of the study was to investigate assumptions of workplace health promotion in a primary health care (further PHC). The instruments were used for research: Work Experience Measurement Scale (WEMS) Salutogenic Health Indicator Scale (SHIS) and questions about the additional work factors. It was found that the positive experience of work and additional factors were associated with better health and well-being of their assessment, a positive significant correlation ($r=0.48$, $p<0.001$ and $r=0.65$, $p<0.001$) was found. A model was created, in which psychosocial work factors were suggested to be used as the resources for health promotion and maintenance of the PHC work sector, separately for doctors, nurses and other stuff.

Key words: *psychosocial work factors, health promotion at work, salutogenic, primary health care sector.*

Introduction

Today the work of human and society as a whole means much more than just securing financial prosperity. The work for person is an opportunity to take a position in society, feel acknowledged and respected and etc. The work determines human lifestyle, circle of friends and even the state of health (1). The work of human life has become a very important and significant, so that a growing body of research related to the work, working environment and human health impacts. Quality of life is associated with a positive psychosocial work environment (2). In Sweden a “good workplace” is one that has a positive impact on the working person. A "healthy workplace" is defined much more - this is a working place with a positive psychosocial work environment that positively affects not only the individual, but also the work done by the individual (3). Work psychology researchers says that positive workplace is than, when good health and energy is coming back (4, 5).

Health care is one of the largest economic sectors in the EU, which requires a lot of workforce. About 17 million people is working in the Health care’s sector. In the health sector needs to develop a better psychosocial working conditions, because of aging, polymorbidity and health care facilities demand is growing up (6).

Problem of the topic. Over the past two decades, the health care sector had a lot of organizational changes and the reasons of it were: increased staff workload, downsizing and etc. During that period, it was tested a range of health care management system, to change its function and purpose (7). 15 years ago, an extensive hospital staff downsizing PHC sector, and in particular, increased workload and increased working hours, due to the increased PHC employee disability (illness) and the number of "absenteeism" (8). Studies have found that more and more doctors, especially women, diagnosed mental disorders (9, 10, 11). Psychosocial work conditions need to be improved, as observed in the rapid development of health care stuff emigration from Lithuania. One reason is the low salaries, but also influenced by the dissatisfaction with working conditions and peer disagreements (12). The first steps in relation to the promotion of health at work, were taken in 1986. Ottawa conference, organized by the World Health Organization, at the time. And only then gradually evolved salutogenic thinking. Antonovsky salutogenic model helps to understand the factors that supports and enhances human health (13, 14, 15).

Relevance of the topic. However now there is little known about the positive work factors that strengthen and support the health of the work environment. Most of the studies and research work is about negative work factors and their causes, the working environment risk factors and health problems (16). In the workplace we need to look more positive factors that

promote employee health promotion or help to maintain existing health. Health promotion at work should be based on a holistic approach to the workplace, such as: work is organized, how peer relationships and so on. Employers should take interest in the type of work factors supports and enhances the health of workers (17). Health promotion must be concerned not only employers but also the workers themselves.

Research methodology is based not only salutogenic theory, but also other theories, its exploration of labor relations and health, such as a positive experience. Questionnaires on work experience (WEMS), additional work psychosocial factors and health status (SHIS) (18) have been developed, theoretically based, validated and psychometrically tested in Kristianstad University, Sweden (19, 20, 21). During the survey all these questionnaires were used in combination in order to determine the relationship between the work of psychosocial factors and health, and create a scientific basis for intervention, positive operational factors, assumptions, creating a health-enhancing PHC work environment for workers.

The object: primary health care work sector.

Aim of the work: to investigate assumptions of workplace health promotion in primary health care.

Research goals:

1. To describe the health promotion work salutogenic perspective.
2. To analyze the experience and organization of psychosocial factors and compare their manifestation depending on the level of employment of employees, gender, age and workload PSP sector.
3. Assess the health sector workers PSP salutogenic health indicators and compare their health assessment of the level of employment, age, gender and workload respects.
4. To establish the relationship between work experience psychosocial factors of expression and the PSP sector employees health status, assessed salutogenic health indicators.
5. Create the PSP sector employees positive psychosocial work factors model, which should be assumed to strengthen or maintain the PSP health, creating a positive work environment based on salutogenic health point of view and study the results.

Materials and methods

Work Experience Measurement Scale (WEMS) (22) The Salutogenic Health Indicator Scale (SHIS) (23), and questions about the additional work factors were used in this survey (22). The respondents rated the 25 statements of the questionnaire on a scale from 1 (strongly disagree) to 6 (strongly agree) or 7 (not relevant). The study included 8 PHC institutions of Klaipėda city, 3 public and 5 private. This PHC institutions was taken random selection from all Klaipėda city PHC institutions list. In total, 386 employees were questioned PHC (104 doctors, 191 nurse and 91 other staff (table 1)). The response rate was 83.9%. Quantitative data was standartizated. SPSS program, version 17 was used for analyzing quantitative data. Cronbach's alpha was used to test questionnaires' reliability, Student's t-test and ANOVA to compare averages, Pearson's correlation and the linear regression to set connections, $\chi 2$ to distribute frequency, multiple regression method to create a positive working model of psychosocial factors, which have assumption to promote health of PHC employees at work. Significance level was chosen $p<0.05$.

Results

Results of the study showed that in the public PHC institutions mostly works nurses (78.5%), on the contrary, in private PHC institutions mostly works other PHC workers. The group of nurses females took the greater part (100.0%) as compared with doctors (85.6%) or other PHC workers (96.7%). More than half of doctors (62.5%) were aged over 55, nurses was a little bit younger than doctors (nurses 57,7% were aged 35-54). Other PHC sector workers were mostly younger than 35 years (55,5%). The study showed that nurses works biggest workload (52.9%) as compared with doctors (27.0%) or other PHC workers (37.4%) (Table 1).

Table 1

Sociodemographic characteristics according to PHC sector working positions

Characteristics	Positions					
	Doctors		Nurses		Other PHC workers	
	n	%	n	%	n	%
In all	104	100,0	191	100,0	91	100,0
PHC type of institution						
Public PHC	65	62,5	150	78,5	49	53,8
Private PHC	39	37,5	41	21,5	42	46,2
(χ^2 = 19,7, lls = 2, p < 0,001)						

Characteristics	Positions					
	Doctors		Nurses		Other PHC workers	
	n	%	n	%	n	%
Gender						
Female	89	85,6	191	100,0	88	96,7
Male	15	14,4	0	0	3	3,3
(χ^2 = 32,0, df = 2, p < 0,001)						
Age (years):						
< 35	9	8,7	11	24,4	25	55,5
35 - 54	30	28,8	109	57,7	50	26,4
≥ 55	65	62,5	71	46,7	16	10,6
(χ^2 = 63,2, df = 4, p < 0,001)						
Workload (posts) in PHC institution						
≤ 0,5	7	6,7	6	3,1	10	11,0
> 0,5 – 1	69	66,3	84	44,0	47	51,6
> 1	28	27,0	101	52,9	34	37,4
(χ^2 = 24,4, df = 4, p < 0,001)						

Doctors had more positive attitude in evaluating autonomy at work than nurses or other PHC workers. Meanwhile, most nurses positively assessed the time experience at work. Other PHC workers evaluated positively supportive working conditions and reorganization. All PHC sector working positions with the highest averages in all areas of experience, evaluated the management of work (table 2).

Table 2

Work experience assessment in accordance with the position in the PHC work sector

WEMS domains	Positions			ANOVA	
	Doctors	Nurses	Other PHC workers	F test	*p*-value
	m (95% CI)	m (95% CI)	m (95% CI)		
Supportive working conditions	76,4 (72,7 – 80,0)	77,0 (74,4 – 79,7)	79,9 (76,6 – 83,2)	1,062	0,347
Internal working experience	78,1 (74,8 – 81,5)	77,9 (75,6 – 80,2)	78,2 (75,0 – 81,4)	0,011	0,989
Autonomy	71,5 (66,4 – 76,7)	64,0 (60,2 – 67,7)	65,8 (60,6 – 70,9)	2,900	0,056
Time experience	65,3 (59,7 – 70,9)	75,0 (71,8 – 78,1)	74,5 (70,8 – 78,2)	6,365	**0,002**
Management	81,8 (78,1 – 85,4)	83,1 (80,8 – 85,5)	83,2 (79,6 – 86,7)	0,241	0,786
Reorganization	61,2 (55,8 – 66,6)	62,6 (58,8 – 66,4)	68,3 (63,7 – 72,9)	2,081	0,126

Results of the study showed (table 3) that there were statistically significant differences in terms of time experience (p = 0.003) and internal working experience (p = 0.040) in areas under the PHC sector employees workload. The most positively assessed time experience at work PHC sector employees who working >1 workload. Autonomy, internal working experience and reorganization at work most positively assessed employees who working ≤0,5 workload. The results were very similar speaking about management and supportive working conditions for all employees working in different workload (table 3).

Table 3

Work experience in the assessment by the PHC sector staff workload

WEMS domains	Workload (posts)			ANOVA	
	≤ 0,5	> 0,5 – 1	> 1	F test	*p*-value
	m (95% CI)	m (95% CI)	m (95% CI)		
Supportive working conditions	81,0 (73,7 – 88,3)	76,7 (74,1 – 79,2)	78,1 (75,3 – 80,9)	0,724	0,485
Internal working experience	81,0 (75,0 – 87,0)	76,0 (73,7 – 78,4)	80,1 (77,7 – 82,5)	3,242	**0,040**
Autonomy	70,4 (60,9 – 80,0)	64,5 (60,9 – 68,1)	68,3 (64,1 – 72,4)	1,247	0,288
Time experience	73,6 (65,4 – 81,9)	68,4 (64,9 – 71,8)	76,9 (73,5 – 80,2)	6,017	**0,003**
Management	84,5 (77,1 – 91,9)	81,8 (79,4 – 84,1)	83,7 (81,0 – 86,4)	0,696	0,499
Reorganization	71,0 (60,4 – 81,6)	62,0 (58,3 – 65,7)	64,4 (60,4 – 68,3)	1,375	0,254

PHC sector workers health was analyzed by salutogenic health indicators. Statistically significant differences in the health assessment according to their work position, age, gender, and workload has not been found. However, nurses, other PHC staff, younger than 54 years, employees who working ≤0,5 workload and women most positively assessed their health and well-being (table 4).

Table 4

PHC health assessment salutogenic health indicators in the current position, age, gender and workload

Variables	SHIS		F test	*p*-value
	m	(95% CI)		
Working position				
Doctors	65,5	62,0 – 69,1	0,691	0,502
Nurses	68,0	65,3 – 70,7		
Other PHC workers	68,1	64,3 – 71,9		
Age (years)				
< 35	67,6	62,6 – 72,5	2,186	0,114
35 - 54	69,2	66,7 – 71,8		
≥ 55	65,0	61,8 – 68,2		
Gender				
Female	67,4	65,5 – 69,3		0,708
Male	65,7	55,5 – 76,0		
Workload (posts)				
≤ 0,5	70,9	65,0 – 76,9	1,125	0,326
> 0,5 – 1	66,1	63,5 – 68,7		
> 1	68,4	65,3 – 71,4		

The positive experience at work was related to better health and well-being. A positive moderate correlation (r = 0.48, p <0.001) between the experience of psychosocial factors and health was assessed by salutogenic health indicators. It can be assumed that the improvement of work experience factors would strengthen workers' health in PHC (picture 1).

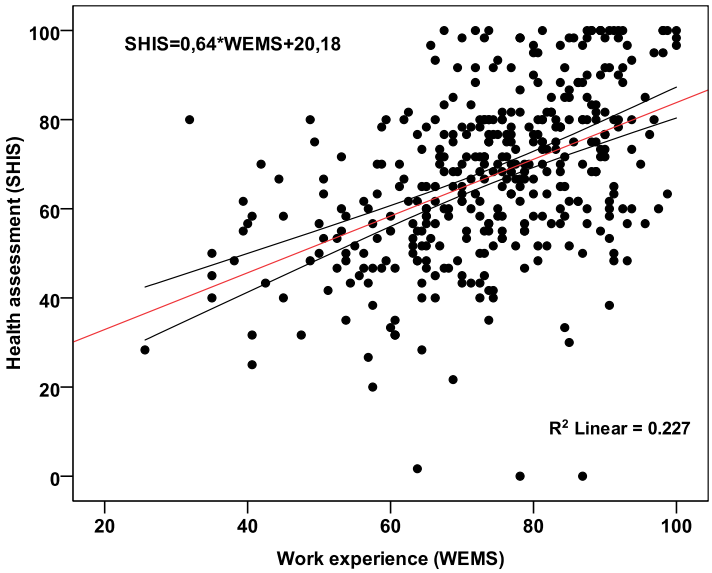
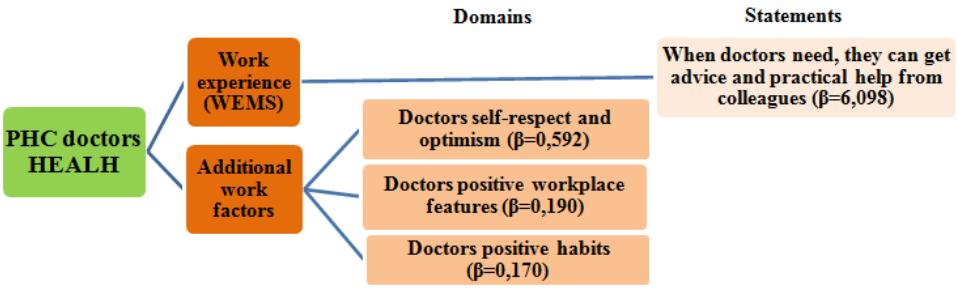


Fig 1. Linear regression PHC health assessment dependence on work experience

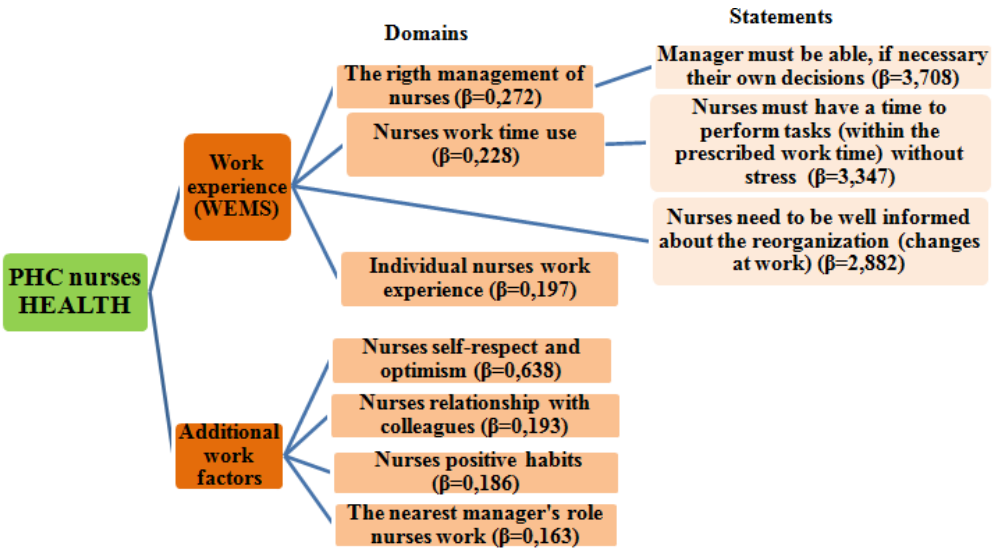
According to salutogenic approach and study results, a model in which the work of psychosocial factors was suggested to use the PHC as a means to their health or to enhance or maintain (separately for doctors, nurses and other staff). Doctors health promotion can be a source of labor relations, based on the collegiate, the opportunity to consult with colleagues (β = 6.098), in particular in circumstances of extraordinarily situations (picture 2).



Remark: When β-coefficient is bigger than other, it means that this work factor is more important for PHC doctors health.

Fig. 2. Positive psychosocial work factors model for PHC doctors

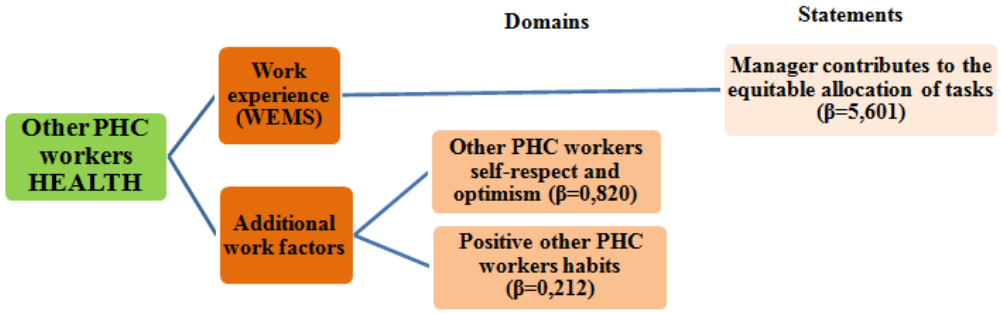
According to a model developed by nurses in health promotion could become a source of leadership style when the leader makes its own decisions (β = 3,708). Nurses work should be organized so that they keep up without stress (in time) to perform tasks within the prescribed time (β = 3.347) and to be well-informed about the changes at work (β = 2,882) (picture 3).



Remark: When β-coefficient is bigger than other, it means that this work factor is more important for PHC nurses health.

Fig. 3. Positive psychosocial work factors model for PHC nurses

Meanwhile, another PHC staff health promotion resource could become the head of the contribution of a fair distribution of tasks to employees (β = 5.601) (picture 4).



Remark: When β-coefficient is bigger than other, it means that this work factor is more important for PHC other workers health.

Fig. 4. Positive psychosocial work factors model for PHC other workers

Discussion

Discussing the results were compared to Lithuania PHC and Swedish hospital labor sector studies. Comparison showed that the assessment of work experience both in their position, both age groups, the Lithuanian health care workers, almost all labor practice areas evaluated more positively than in the Swedish health care workers. With the exception of the Swedish hospital doctors, who are just a little bit more positive assessment of individual experience and changes in work than Lithuania PHC staff. Compared with the Swedish hospital data Lithuania PHC doctors had nearly doubled the next time use at work.

Conclusions

1. Research and salutogenic theory based on work experience and health assessment scale helps to identify the working environment, organization and management aspects, which positively operates health. Work environment research is oriented to a positive work environment factors that are more acceptable to employers and employees. The results provide valuable information for employers on how to improve the health of workers at the same time increase productivity and improve service quality, which is especially important in the health care sector.

2. The analysis showed that doctors were more positive mood, talking about personal responsibility at work than nurses or other staff. Meanwhile, most nurses positively assessed the time experience at work. Other PHC workers evaluated positively supportive working relationships and reorganization. All PHC-sector workers positions with the highest averages in all areas assessed the management of work.

3. Identified by doctors, nurses and other staff groups, the interface between the experience of psychosocial factors and health, health indicators evaluated salutogenic PHC sector. The positive experience was related to better their health and well-being assessment. A positive moderate correlation ($r = 0.48$, $p < 0.001$) between the experience of psychosocial factors and health, assessed salutogenic health indicators. To establish that the increase WEMS growing and SHIS, so it can be assumed that the improvement of work experience factors that strengthened workers' health and PHC.

4. The model in which the work of psychosocial factors is suggested to use the PHC as a means to their health or to enhance or maintain (separately for doctors, nurses and other workers). Doctors health promotion can be a source of labor relations, based on the collegiate, the opportunity to consult with colleagues, in particular in circumstances extraordinarily situations. Nurses health promotion could become a source of leadership style when the leader makes its own decisions. Other workers (administration, receptionists, technicians and etc.) health promotion resource could become the head of the contribution of a fair distribution of tasks to employees.

Recommendations

Examination of the positive work of psychosocial factors on the PHC to workers' health, to identify differences that could have practical implications health promoting working environment. Create models can be put into practice and use the PHC health strengthening management level. It would be beneficial to all organizations in the PHC, because not only improve health, but also efficiency.

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ANALYSIS OF PROFESSIONAL ADAPTATION PROBLEMS OF SOCIAL WORKERS

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Annotation

This article presents the adaptation problems of social workers who start their employment. Coming to work in a new place is a challenge for all employees, even for those who already have some experience: a new work place, colleagues, new order and "unwritten" rules among employees. A constant development of knowledge and skills is expected from young specialists. Therefore, in the process of getting employment general competences gain significant importance. These competences give basis for knowledge development and successful adaptation to constantly changing labour market requirements, i.e. adaptation in the work environment. The research results have revealed that the most common problems of professional adaptation are the lack of practical knowledge, the negative attitude of clients towards employees, workload which does not correspond to the remuneration.

Key words: *professional adaptation, social workers, motivation.*

Introduction

The relevance of the theme. The professional adaptation of social workers is relevant because an employee in this field is being assessed not only from the professional side. This occupation is based on communication and cooperation, creation of relations. Thus, the personality of the employee is of great importance. The process of adaptation is being aggravated by the lack of practical experience because the skills gained while studying are not enough to work in a professional manner. Social workers can work in different organisations, institutions, companies. In order to avoid the mismatch of definitions further in this article the concept of organisation will be used. There is a popular opinion among employers that a new employee will get acquainted and clarify new things by himself / herself. New employees apply the method of trial and error. In this way more time and energy is being wasted. It is highly likely that in organisations where the training of new employees is treated as their own responsibility, the staff turnover will be higher and the motivation of employees to work in such organisation due to everyday stress will be lower (Genys, Baltrušaitis, 2009). In order to improve work conditions and the ability to adapt in a new environment it is important to identify problems a person who has just started his / her professional career encounters. It is also necessary to create appropriate conditions for the employee to adapt in a new place.

The object of the research – professional adaptation problems of social workers.

The aim of the research – identify the problems of social workers' professional adaptation. **Research methods and organisation**. In this research there have been eight informants (seven women and one man) who finished their studies not earlier than five years ago and presently work as social workers. The population of the research – targeted, people have been chosen based on the aim of the research. *Research methods*: semi-structured interview; qualitative content analysis.

Analysis of professional adaptation. There are a lot of definitions and types of adaptation (in Latin *adaptio* – adjustment). The concept of adaptation is used in different fields, nature and social sciences. Baranauskienė (2002) claims that staff adaptation / orientation is a process when a newly employed or transferred from another functional place person gets acquainted with his / her new responsibilities and colleagues. According to Leliūgienė (2003), adaptation is the ability of an organism to adapt to environment conditions. According to the scientist, adaptation determines normal development, optimal working capacity and maximum existence of the organism, the longevity under different conditions.

Authors Jonušaitė, Žydžiūnaitė, Merkys (2005) note that the professional adaptation is in progress when a person starts to understand his / her new role. It is acquiring new skills and competences, development of personal traits relevant for the profession in order to formulate a positive attitude towards one's profession, increase motivation to work and alleviate person's

identification with a concrete professional activity. It is possible to speak about the professional adaptation in a broader and narrower sense. In a broader sense it is understood as continuous socialisation of an individual. In a narrower sense – these are processes happening only during the period of a certain activity. The successful professional adaptation in the workplace has an impact on a productive work, implementation of the pursued aims, good interpersonal relations in the team. The unsuccessful professional adaptation manifests as dissatisfaction with work, truancy, negative social - psychological climate in the team; as a consequence of that, work effectiveness reduces (Robbins, 2006).

Scientists Martinkus, Sakalas, Savanevičienė (2006) claim that work has to be pleasant for a person, give him / her satisfaction, match his / her needs, allow to use his / her abilities to learn, reveal one's abilities. An employed person has to adapt to new environment conditions. If he / she is successful in adapting to new workplace and its members, the employee's mental health is affected in a positive way and the productivity increases.

The following types of adaptation are distinguished in the scientific literature: biological, social, psychological, personal and professional adaptation. Based on the aim of the research the article analyses professional adaptation. Stankevičienė and Lobanova (2006) state that the professional adaptation is a process allowing / creating conditions for new employees to adapt more quickly and easier in the organisation. According to Butkus (2008), the period of professional adaptation usually takes one year. Three stages of professional adaptation are distinguished:

- *Anticipatory socialisation* which starts during the selection process when the candidate can discuss expectations and doubts related to work performance, organisation's public image, present his / her competences, abilities and knowledge possessed.
- *Adaptation or encounter.* The aim of this stage is to help a novice employee enter the new work environment, reduce the usual "shock of the first work day", get acquainted with the work procedure, organisational goals, provide prerequisites for successful work in the future. This stage comprises professional orientation and social-psychological adaptation.
- *Integration or change.* The aim of this stage is to use management, social and technical measures to make personal and team interests compatible, acquire new competences, actively participate in the decision-making process and become a part of the organisation (Gražulis, Valickas, Dačiulytė, Sudnickas, 2012).

The adaptation process is individual and its duration for each employee is different. In order to shorten the duration of adaptation process, it is purposeful to apply certain measures. According to Stankevičienė, Lobanova (2006), these are the methods describing what support could be provided for a new employee:

- *Selection and induction.* This method comprises the assessment of employee's motivation, expectations, professional knowledge, provision of information about the organisational structure. The induction also includes the preparation of the workplace, showing around the premises, provision of the means / supplies necessary for work. During the adaptation process it is recommended to appoint a mentor for the novice who could help to solve any issues. It is advisable to show interest in how the new person is performing his / her duties, whether he / she has got necessary work equipment and everything is clear. The mentor should work together with the new employee at least for several weeks after the admission, help him engage into work, explain all difficulties and indicate where to go with one or another question (Osland, Joyce, 2007). Mathis, Jackso (2004) call this adaptation method orientation. According to scientists, orientation is a planned introduction of new employees to work, colleagues and organisation.
- *Concluding psychological contract*. Psychological contract – discussion and coordination of mutual expectations between an employer and an employee (Stankevičienė, Lobanova, 2006). Psychological contract means that each employee has an informal agreement with the employer. It is unwritten, informal agreement, subjective and dynamic, partially or completely indefinite (certain things may remain unspoken or uncertain), cover material and intangible things. The agreement continues as long as the employee is a part of the organisation. It is important because if its obligations are being implemented, the reconciliation of expectations help the employee to work more effectively. If conditions are not fulfilled the motivation of the employee decreases, he / she may leave the job. The psychological contract is concluded during the selection process or at the beginning of adaptation: exchange of expectations between the two parties, negotiations.
- *Motivation of employees.* According to the scientists, motivation is an important factor determining work productivity, profit, technical and organisational level, development rate and competitive capacity. Sakalas and Šilingienė (2000) claim that people are motivated not only by material reward but also by a lot of other social and psychological factors. Three main measures of employees' motivation are suggested: indirect motivation – the responsibilities of a new

employee are vaguely defined and only a minimal support is provided. In this case the employee has to learn by himself / herself using the method of trial and error. Direct motivation and the realisation of employee's expectations – rewards and punishments are used, the psychological contract which is being implemented not only by the employee but also by the employer. The training of employees – it is believed that a constantly learning employee learns what has been entrusted to him / her more rapidly. The learning employee helps not only himself / herself but also to the head of the organisation because the latter has an opportunity to deepen one's professional knowledge, analyse his / her behaviour in communicating with employees. Learning employees understand their tasks in a broader sense, gain new skills. They become more valuable for their employer. In order to have a good employee it is necessary to invest in him / her. Thus, by providing conditions for employees to learn, the level of their motivation is also increased. Consequently, the image and competitiveness of the organisation in the market is also improved (Šadrakov, 2004).

During the process of adaptation, the head of the organisation, the novice and the whole team should seek a common goal – a positive adaptation of the new person. It is undoubtedly more pleasant to work in the organisation where new employees are cared for, they are provided with good working conditions (Šadrakov, 2004). The author distinguishes typical mistakes which pose obstacles for the novice to fully adapt in the new workplace:

- It is not taken into consideration whether the new employee has adapted to the team. The author notes that the attention should be paid to the compatibility of the employee and the team. The colleagues may ignore the new person who in this situation does not feel full-fledged and this prevents from becoming a part of the team.
- The new employee is left stranded. There are quite often the cases when the head of organisation having introduced the new employee to the workplace and team, intentionally or not intentionally forgets him / her. The head of the organisation assumes that when needed the employee will come to him / her. In the author's opinion, the head of the organisation should devote enough time and attention to the new employee if he / she seeks positive adaptation.
- Too much attention the same as the insufficient attention may also be an adaptation problem. Too much pressure and the pursuit of quick results may also induce stress. The head of the organisation has to understand that in order to fulfil some tasks a new person needs more time than other employees.
- Insufficient competence of the head of organisation managing and organising work. The head of organisation has to know not only the aspects of the work done but also to create a positive atmosphere, devote some time for employees, improve relations among colleagues. The attention given to the new employee usually induces loyalty to the organisation, greater inner motivation and reaching high results (Rancova, 2004).

Research results.

Job interview. According to Butkus (2008), the first stage of professional adaptation – anticipatory socialisation – already determines the success of further work. The participants of the research were asked about their job interview, feelings they felt and what was discussed. It has been observed that the job interview induces stress, anxiety and fear. Questions asked by the head of the organisation, not knowing what to say are being feared the most. Often the head of the organisation decides to check their knowledge, speaks about personal traits which are necessary seeking professional results. Almost in all cases the heads of organisations explained to employees the provisions of employment contract, concrete responsibilities especially emphasizing the responsibility of the employee ("*...clearly stated what is expected from me." [I – 2], "I was introduced with the working time, duties, responsibility and remuneration." [I – 1]*). It was also observed that very often the heads of organisations while discussing the conditions of employment contract do not mention remuneration which is very important for the employee or during the interview they do not discuss the provisions of employment contract ("*The remuneration was not discussed, only duties and responsibility." [I – 7]*, "*...remuneration was not discussed..." [I – 8], "...the work conditions and work specifics were discussed." [I – 8]).* It is possible to make an assumption that social workers during their first job interview are so nervous that they do not ask about details related to work which are important for them.

First work days. The aim of adaptation or encounter is to help the new employee to enter into new work environment and reduce the stress felt during the first days (Butkus, 2008). The research results show that a brave person experiences positive feelings whereas a person to whom it is difficult to adapt to innovations it is more difficult to adapt in the new environment. Only a small portion of the interviewed felt good and confident during the first days, other respondents felt stress, tension and unconfident. The first days of the work cause negative feelings, some respondents felt unwanted in the work place, felt sceptical attitude from

colleagues *("I knew I was unwanted, they looked at me sceptically*..." *[I – 3])*. The adaptation in the new environment was aggravated because the practical work was completely different from the knowledge gained while studying *("...everything what I studied was different from the reality..." [I - 8])*. During the research it has been observed that social workers experience difficulties regarding the separate working place. Heads of organisations not always understand that for effective and quality work with clients a safe, separate room is necessary for social workers to communicate with clients.

Working conditions. A working place is important for all employees. It is useful that the employee would find a prepared working place. Then he / she would feel welcomed in the new environment. The results achieved by the employee and whether it will be pleasant for him / her to work in the new place depend on the environment. The results of the research implicate that working conditions depend from the type of work. Some social workers claimed that they are not satisfied with working conditions but this depends from the type of work. Other employees state that they are not satisfied with their working place because their office hasn't been finished yet, but they have all necessary work equipment. It has also been claimed that appropriate working conditions are not created, there is a shortage of work equipment, therefore, it is necessary to work at home using personal computer. More than a half of respondents claim that they are satisfied with their working place, are glad that there are no difficulties related to that.

Provision of information. The provision of information in the stage of professional adaptation is very important factor determining employee's adaptation (Dainytė, 2005). The information for the employee has to be provided in a clear manner, the optimal amount of information is also of great importance because too much or not enough information becomes a burden for the employee, causes confusion. Analysing the research results it has been noticed that the information is usually provided not by the head of the organisation but is heard from colleagues. Social workers claim that when they started to work the provided information was inadequate *("...it was not mentioned what exactly I will have to do." [I – 8])*. The main information was provided but its excess made the beginning of employment relationships complicated *("...there was so much of everything (...) I thought how not to forget anything*." *[I – 3])*. Thus the heads of organisations providing information make one of the most essential mistakes – provide too much information which the employee cannot process. Too much information conditions the fact that the employee is afraid to forget important things, fear to make a mistake.

Employee's expectations. Each person upon starting a new activity has expectations and doubts. When expectations are not a newly employed employee can lose the motivation which determines his / her work effectiveness (refer to Table No. 1).

Table 1

Employee's Expectations

Subcategory	No. of statements	Statements
Expectations have been met	3	"So far all my expectations have been met." [I – 1] "...all my expectations have been met..." [I – 2] "...more or less my expectations have been met " [I – 5]
Expectations have not been met	4	"I thought I will be more successful here ..." [I – 3] "I wanted more rapid results..." [I – 4] "...I have neither possibilities nor competences to solve all clients' problems." [I – 6] "The salary is quite small..." [I – 8]

Less than a half of graduates who participated in the research have claimed that their expectations in work have been met. Others expected more rapid results, higher salary, felt disappointed that they had insufficient competence. Summarising it is possible to state that expectations related to work usually are not met rather then met.

Motivation to reach higher results. There are various motives to start employment – a possibility to express oneself, be financially independent, responsible for oneself. Very often graduates when starting to work are motivated and try to reach the highest results possible (refer to Table No. 2).

Table 2

Motivation to Reach Higher Results

Category	Subcategory	No. of statements	Statements
Motivating factors	Salary	4	"...higher salary would motivate to reach higher results" [I – 2] "...salary would motivate more..." [I – 4] "Higher salary would motivate..." [I – 7] "Higher salary would motivate to reach higher results." [I – 8]

Analysing research results it has been observed that the most important motive to work is remuneration (salary). Most social workers mentioned that higher salary would motivate them to seek higher work results. Upon the encounter with more difficult practical tasks their motivation does not decrease *("Motivation for work has not decreased..." [I – 1], „Motivation has not decreased; on the contrary, it increased…" [I – 6], "Motivation has not decreased, it even increased" [I – 8])*. Despite the fact that the salary is comparatively low, they try to do their best to perform their duties. A small percentage of respondents claimed that their motivation decreased because they are not encouraged to seek higher results. Thus, it is possible to make an assumption that the motivation system within the organisation is mandatory so that employees would seek higher work results, would like to learn and develop.

The attitude of the head of the organisation towards mistakes. For a newly employed person it is important not only how other employees and the head of the organisation react towards well-performed tasks but also towards the mistakes. A possibility to make mistakes and learn from them contributes to employee's motivation. The head of the organisation has to understand that the novice has to walk a long way of trials and errors in order to become the employee who is able to work effectively. It is very important that a new person would not be afraid to try because then he / she can express oneself, prove one's abilities. According to most respondents, the reaction of the head of the organisation was positive, the attitude was calm, they were allowed to correct they work, were explained and advised how to avoid mistakes. An opportunity to make mistakes and learn is a prerequisite for gaining skills necessary in the practical work. Other respondents claimed that the attitude of the head of the organisation was negative, employees were criticised, felt pressure and moralisation (refer to Table No. 3).

Table 3

The Attitude of the Head of the Organisation towards Mistakes

Category	Subcategory	No. of statements	Substantiating statements
Reaction towards mistakes	Positive feedback	6	"No one is infallible. He who makes no mistakes, makes nothing." [I – 1] „...the reaction was calm. I was given an opportunity to correct my mistake…" [I – 2] "...there was always a possibility to correct mistakes…" [I – 4] "The head of the organisation is very understanding – she is not angry about my mistakes." [I – 5] "The head of the organisation responded well – asked me to improve my performance…" [I – 6] "The head of the organisation gives a piece of advice..." [I – 8]
	Negative feedback	6	"...Of course, I was not given a pat on the back..." [I – 3] "...it seems that you are doing them on purpose..." [I – 3] "...you also get some critics." [I – 3] "Mistakes have been spotted" [I – 4] "... I had to listen to moralisations..." [I – 7] „The pressure from the head of the organisation could be felt" [I – 7]

Social workers have claimed to have addressed to the following persons: specialists from other fields, colleagues, an organiser of social care services, an organiser of social work in the eldership, a deputy director, a coordinator of social services, employees from the Department of Children's Rights Protection. Here it is important to point out that employees when difficulties or mistakes arise try to avoid the contact with the head of the organisation and find other ways to resolve a delicate situation.

Workspace atmosphere. The atmosphere in the organisation and informal relationships with colleagues help the novice to become a part of the team and integrate easier into organisation's activity. This constitutes the basis of psychological-professional adaptation stage. Most respondents have claimed that the workplace atmosphere is friendly and warm, they are contented ("*No pressure is felt…" [I – 8], "I am very satisfied with the relationships with my colleagues [I – 2])*. Whereas others state that the atmosphere in the workplace is tense and that the head of the organisation is to blame *("If the management was different, maybe the relationships would be better." [I – 3], "The atmosphere is tense when the head of the organization is around…" [I – 7], "...relationships are not developed" [I – 4])*.

Employee and client interaction. The professional adaptation of social workers is different because it is happening not only on the organisational level but also in the interaction with clients. The results of the research have revealed that most employees constantly face clients' problems and their troubles, experience negative feelings before first meetings – anxiety, fear, lack of self-confidence. In most cases at the beginning they felt mistrust from the client's side, clients have been indifferent and not interested to achieve positive changes. How the work is

performed, whether positive relations are going to be established depends highly on the clients – social workers' relations (refer to Table No. 4).

Table 4

Employee and Client Interaction

Category	Subcategory	No. of statements	Statements
Contact with clients	Feelings	6	"A feeling of worry..." [I – 1] "...I was anxious because a new person was coming..." [I – 2] "At first I was worried..." [I – 3] "..I was worried how I will be accepted and that I will not be able to provide proper help." [I – 5] "The thing I feared the most was that I would not know what to say." [I – 6] "I was worried because there were so many problems and I did not know how to help to solve them." [I – 7]
Clients' attitude	Negative attitude of clients	5	"Young, does not have children of her own, knows nothing about upbringing and etc., weak and pliable." [I – 1] "...they were worried about letting in a person whom they don't know..." [I – 2] "...She's new, doesn't know anything, we will be able to do whatever we want." [I – 3] "...How young I am (...), what do I know about a complicated life of adults?" [I – 4] "...they used to say, "Although I can see that you are young...." [I – 7]

To sum it up, it is possible to claim that the biggest problem social work graduates encounter is interaction with clients. Clients' attitude, mistrust regarding employee's age, negative attitude towards the social worker, attempts of manipulation – are essential problems preventing social workers from adaptation in a new workplace and working effectively.

Knowledge that was missing. The higher education system is committed to provide theoretical as well as practical knowledge necessary for a concrete job. It is more and more discussed whether graduates have enough knowledge for a successful start of the employment relationship (refer to Table No. 5).

Table 5

Knowledge which Was Missing at the Start of the Work

Subcategory	No. of statements	Statements
Practical knowledge	7	"Practical knowledge." [I – 1] "How to behave in one or another situation." [I – 1] "...Lack of knowledge about a concrete job, what we are going to do, what awaits us." [I – 1] "... To develop practical skills not in a single organisation..." [I – 2] "Maybe practical knowledge was missing (...), it wasn't clear what and how to do." [I – 3] "...Practice was still missing..." [I – 5] "Mainly the lack of practice..." [I – 8]
Filling in documents	1	"How to fill in documents, forms, analyse laws..." [I – 1]
Psychological knowledge	3	"...psychological knowledge was and still is missing..." [I – 2] "Conflict management, stress management, recognition of emotions." [I – 4] "...How to communicate with certain types of clients. How to communicate with aggressive clients." [I – 6]
Legal knowledge	1	"Legal knowledge, insufficient knowledge of laws." [I – 7]
Knowledge about different disabilities	1	"Lack of information about certain disabilities…" [I – 6]

Most respondents mentioned that when they started their first employment they learned they were missing some practical knowledge, did not know what to do in one or another situation. The results of the research have revealed that they lacked practical knowledge which would enable to work faster and more effectively. Also very important subcategory is *"Psychological knowledge".* Despite the fact that higher education system provides some psychological knowledge, upon encounter with concrete situations they prove to be insufficient. A smaller proportion of respondents mentioned that they do not have enough skills to fill in various documents, forms, to work with laws, legal knowledge is missing as well as lack of knowledge about different disabilities. Having analysed the results of the research it is possible to make an assumption that higher education system should be adjusted and seek to provide their students with enough practical knowledge. None of the respondents mentioned that theoretical knowledge was missing. Therefore, it is assumed that theoretical knowledge is sufficient.

Conclusions

1. Professional adaptation has been achieved when a person begins to understand his / her new professional role, successful adaptation has a positive impact on a person's mental health, increases work effectiveness. The professional adaptation is alleviated by the applied adaptation methods – selection and induction within the organisation, concluding psychological contract, motivation of employees. The adaptation process is burdened by the most common adaptation mistakes: it is not taken into consideration whether an employee has become a part of the team, employee is left alone, too much or not enough attention from the head of the organisation, insufficient competence of the leader in organising work.

2. In the research it has been determined that the main problems encountered by social workers during the period of adaptation are as follows: negative attitude from clients towards a young employee, lack of practical knowledge, dissatisfaction with the remuneration obtained and workload. Successful professional adaptation depends on a positive interaction between the novice and workplace. The attitude of clients, competences of the head of the organisation, optimal amount of information, ability to learn and develop create conditions for the employee to become a part of the organisation and work successfully.

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