

PROFESSIONAL EDUCATION AND TRAINING OF FAMILY PHYSICIANS AT THE LITHUANIAN UNIVERSITY OF HEALTH SCIENCES

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Abstract

The changing approach to a physician's profession brings about changes in the professional education and training of family physicians as well as in their continuous qualification improvement. For this reason, during the reformation of Lithuania's primary healthcare system, not only alterations in family physicians' activity, but also the changes in their education and training and the updating and improvement of their curriculum were seen as priority areas.

The aim of the study was to reveal and compare resident physicians' attitude to the peculiarities of the professional education and training of family physicians based on the traditional and problem-based learning systems at the Lithuanian University of Health Sciences (subsequently, LSMU).

The study on the professional education and training of family physicians was conducted in 2005 and in 2015. The quantitative study was carried out via a written questionnaire survey. The studied population consisted of resident physicians who were studying family medicine at the LSMU.

The analysis of the peculiarities of the professional education and training of family physicians showed that resident physicians acquired sufficient knowledge and skills in the fields of disease diagnostics and treatment, qualification improvement, disease prevention, and teamwork organization. Resident physicians had insufficient skills to adapt to new conditions of activity, and their studies did not develop creative thinking. The problem-based learning (PBL) system helps future family physicians to develop essential competences and to acquire knowledge and skills required for the career of a family physician.

Keywords: Competence; Family physician; Problem-based learning; Professional education; Resident physician.

Background

In Lithuania, beside economic interests, educational issues are also attracting increasing attention. In higher education, the best study programs in the fields of medicine, education science, etc. are multidisciplinary ones, integrating theory and practice, stimulating independent learning and problem solving, encouraging the students to formulate and emphasize the reasons for their actions, presupposing conditions for students' collective work in

groups, and involving students into activity through which socially important moral and competence-related problems are solved (Barnett, 1990).

In this respect, of special importance is knowledge that is differentiated into two broad types – “stabilization knowledge” and “possibility knowledge” (Engestrom et al., 2006). Stabilization knowledge is applied in order to turn problematic things into closed phenomena that cannot be transformed, while the possibility knowledge destabilizes, mobilizes the knowledge, and opens up new possibilities. Thus, it could be stated that possibility knowledge is knowledge of action, a means of functioning in a physician’s professional activity.

Accordingly, this entails changes in the activity of healthcare specialists – psychological and social functions of health-related problem-solving are increasingly emphasized along with therapeutic functions. Thus, a significant part of physicians’ professional activity is comprised of problematic situations whose solution requires more than biomedicine-oriented competence alone – psychosocial, managerial, and pedagogical competences become highly important (Stutsky, 1995).

When educating and training highly qualified healthcare professionals, universities strive to help their students to acquire various advanced scientific knowledge and to develop the ability to apply it when solving a variety of health-related problems (WHO, 2016). In addition, prospective family physicians need to be taught to solve problems promoting the formation of critical thinking, effective communication, group work, and problem-solving skills.

Currently, education and training of physicians based on the PBL system is attracting increasing attention in foreign countries. Most researchers focus on the physicians’ professional activity, their fields of expertise, their functions, and the required competences. Various authors analyze the peculiarities of professional education and training of physicians in the PBL system. However, in Lithuania, there have been no detailed studies analyzing professional activity as well as education and training of physicians in the PBL system.

The aim of this study was to reveal and compare resident physicians’ opinion about the peculiarities of traditional and PBL-based professional education and training of family physicians at the Lithuanian University of Health Sciences.

Theoretical aspects of the professional education and training of family physicians

The globalization process affects all spheres of life, including the education system, and clearly influences professional education and training. Naturally, these processes also affect the professional education and training of family physicians, and thus require the updating and improvement of its curriculum. Since the amount of knowledge in biomedical sciences is continuously increasing – along with patients’ requirements – medical training has started to fall behind. It has been noticed that differences in competence between family physicians and specialists are increasing as well (Mundinger, 1994), and thus all European countries devote significant attention to the education and training of physicians by specialties. It is especially important to maintain the

suitable proportion of highly qualified medical specialists, less resource-demanding assisting specialists operating outside the field of medicine, and family physicians and physicians of other specialties (*European Health Care Reform. Analysis of current strategies*, 1999). Education and training of public health specialists, family physicians, and nursing and management specialists have recently increased in significance. However, the greatest attention is focused on successful education and training of family physicians for professional activity (Jankauskienė, 2012). Valius (2000) emphasized that family physicians' competence is to ensure patients' treatment and disease prevention at primary healthcare institutions. Thus, education and training of family physicians should focus on the analysis of the problem that may cause this or that symptom rather than on a specific manifestation of the disease. Assal (1996) stated that education and training of family physicians should avoid learning based on the memorization of facts, but instead should encourage understanding in problem solving.

In the learning process, attitude changes, understanding, and integration of theory and practice are more important than memorizing factual information (Ramsden, 2000). Some researchers (Margetson, 1994, 2015; Woods, 1994) propose solving the situation by introducing the PBL system. According to Šveikauskas (2005), the need for PBL arises from the recently emerged clash between tradition and a modern approach in the system of studies. Studies at universities that educate and train family physicians are based on the traditional approach to learning, and are subject-oriented. The acquired theoretical knowledge is only applied in typical situations. Students can learn the same subjects only if they have the same basic knowledge, and they see learning as accumulation of the required knowledge. Students are motivated for learning by student grants, diplomas, fear of failure, etc. Being passive participants of the system of studies, the students cannot coherently search for solutions to problems or answers to questions. The students' activity oriented towards the reproduction of knowledge characteristic of the traditional teaching fails to provide the students with skills required for an independent search of information or solutions to problems. For this reason, the suitability and the value of the information accumulated by the students may be questionable. Thus, traditional teaching fails to develop independent thinking, to form the learning and information-gathering experience, and to stimulate students' pro-activeness or willingness to acquire the maximum available knowledge and to share it.

It is noteworthy that the integration of the activity is the most important factor for the successful practice of family physicians. In disease treatment, functional integration involves not only the patient and the physician, but also the patient's family members, the community, and the healthcare team – all of them participate in the patient's recovery. From the organizational point of view, family physicians' activity should involve not only healthcare, but also social and other multidisciplinary services. For this reason, this activity integrates multiple competences – medical, managerial, scientific, socio-psychological, pedagogical, and communicative ones. In the world of activity, these competences have variable manifestations depending on the field of activity, yet all of them have greater or lesser importance in all the fields of activity of family physicians. According to

Jankauskienė (2012), in the broad sense, family physicians' knowledge, experience, and worldview in no case should be limited to the field of medicine. This means that the result of family physicians' professional activity – good health of people and the society – depends on the integrative character of that activity.

When educating and training highly qualified healthcare professionals, universities strive to help their students to acquire various advanced scientific knowledge and to develop the ability to apply it when solving a variety of health-related problems (WHO, 2016). In addition, prospective family physicians need to be taught to solve problems promoting the formation of critical thinking, effective communication, group work, and problem-solving skills. The core of problem-based learning is a specific learning technique, and this type of learning has a multitude of individual components that students encounter when working in small groups and analyzing the selected problems (Dolmans, 2005). According to Woods (1994), problem-based learning is an integrated type of learning based on the interaction between students and the teacher (tutor) and characterized by systematic independent cognitive activity – the acquisition of new knowledge and modes of activity when solving practical problems. Teresevičienė et al. (2004) emphasized that this is a learner-oriented system whose precondition is active participation – and this, in turn, is possible when the students try to perceive the essence of the learning material through active thinking and creative solution of cognitive and practical tasks. According to Baron (1997), the principal aim of the education and training of physicians is to enable the healthcare professionals to solve health-related problems. Thus, students have to acquire both knowledge and the ability to apply this knowledge in practice. They need to be able to think effectively, to reconstruct knowledge, and to apply it in patient care. Unfortunately, there is no university that would provide all the knowledge, concepts, and skills a person may need in his or her life. Even if that was possible, a significant part of knowledge is quickly forgotten. For this reason, self-teaching skills after graduation are essential to help physicians maintain their competence and work effectively (Šveikauskas, 2005).

Physicians can hardly benefit from storing large amounts of encyclopedic information in their memory – instead, problem-solving skills are significantly more important, as they are required for an appropriate and effective use of the available information for patient care (Dahlgren, 2002). The “clinical causality process” is a term that is commonly used to define the general skills in medicine (Barrows, 1985). It encompasses skills required for the evaluation of patients' problems, the identification of problems, and the planning of the appropriate course of action. The model of the clinical causality process (see Figure 8) is useful for the coherent organization of PBL for the acquisition of these skills and the selection of measures for their evaluation (Barrows, 1985). Thus, when applying the PBL system, it is not the subject that lies at the center of the *curriculum* of family medicine, but rather the patient and his or her concrete problem whose solution requires an integrated and holistic approach. The most important aim of family physicians is to be able to tackle the encountered problems without preliminary preparation, to identify the causes of the problems, and to consider what knowledge and skills are required to ensure successful decisions. The integral quality of family physicians' activity requires fundamental

and specific knowledge, the ability to apply it, and the synergy of practical skills (Šveikauskas, 2005). The education and training of family physicians capable of accepting changes in the primary healthcare system and providing effective solutions to their patients' problems requires the creation of conditions for prospective family physicians to learn how to solve personal and public health problems.

In general, one could state that the PBL system is a modern yet complex learner-oriented learning system where the learner acquires knowledge and skills through problem solving. This system is especially suitable for the education and training of highly qualified health professionals because problem-solving practice during the studies helps the learners to acquire scientific knowledge and abilities promoting the development of critical thinking, effective communication, and group work skills.

Methodology

Process

The study on the professional education and training of family physicians at the Lithuanian University of Health Sciences (subsequently, LSMU) was conducted in 2005. The problem-based learning (PBL) system was implemented at the faculty of Medicine at the beginning of the academic year of 2007/2008, and thus we decided to repeat the study in 2015 and to compare the aspects of the professional education and training of family physicians.

Sample

The research population consisted of resident physicians who were studying family medicine at the LSMU. In 2005, 22 resident physicians participated in the study, and in 2015, the study included 88 resident physicians. The study was organized on the principle of the participants' voluntary participation – this principle had to be observed for ethical reasons. This was one of the factors that prevented us from using randomized samples. This study was carried out observing the respondent anonymity principle. The respondents' anonymity was ensured to acquire honest responses. The aforementioned conditions created a situation where the random sampling principle could not be implemented.

In order to reveal and compare resident physicians' opinion about the peculiarities of the traditional and PBL-based professional education and training of family physicians at the LSMU, we conducted a study whose relevance is based on the fact that no similar studies have so far been conducted in Lithuania. The respondents were of similar age – the majority of them (82.2%) were 25 - 30 years old. By sex, all the respondents (100%) were females. All the studied resident physicians (100%) received grants, and many of them (62.5%) were living in rented apartments.

Methods

The collected data were stored in a database. Statistical analysis was performed using SPSS software package. During data analysis, we calculated descriptive statistics and verified statistical hypotheses about differences between frequencies of mean values and the interdependence between attributes. When verifying statistical hypotheses, the level of significance was set at 0.05. Interdependence between qualitative attributes was evaluated by applying the chi-squared (χ^2) criterion. Depending on the sample size, either exact (for small samples) or asymptotic χ^2 criterion was applied. The normality of the distribution of quantitative variables was verified by applying the Kolmogorov-Smirnov test. The comparison of the mean values between two groups was performed by applying Student's *t*-test and the non-parametric Mann-Whitney test.

Tool

The quantitative study was performed by applying a written survey using a questionnaire consisting of 25 questions (Kirikova, 2006). In this study, we used structured questions, questions with the nominal scale format, and open-ended questions. The questions were divided into three blocks: *the demographic block* (7 questions – e. g., age, place of residence), *the evaluation of students' competence* (11 questions – e. g., the evaluation of one's medical competence, computer literacy), and *the evaluation of problem solving and group work* (7 questions – e. g., whether during the studies the respondents acquired problem-solving skills, whether in a group everyone fends for himself/herself).

Findings

The study of the respondents' attitude towards the adequacy of their knowledge and skills showed that most respondents (71.5%) thought that they had sufficient knowledge and skills, while 17.4% of them stated that during their current studies, they were not sure whether they were acquiring sufficient knowledge and skills (see Figure 1). The comparison of the results obtained in 2005 and in 2015 showed a statistically significant difference ($p=0.025$), which indicates that in 2005, a greater percentage (25%) of the respondents thought that they would not acquire sufficient knowledge and skills, compared to the respective percentage (11%) observed in 2015.

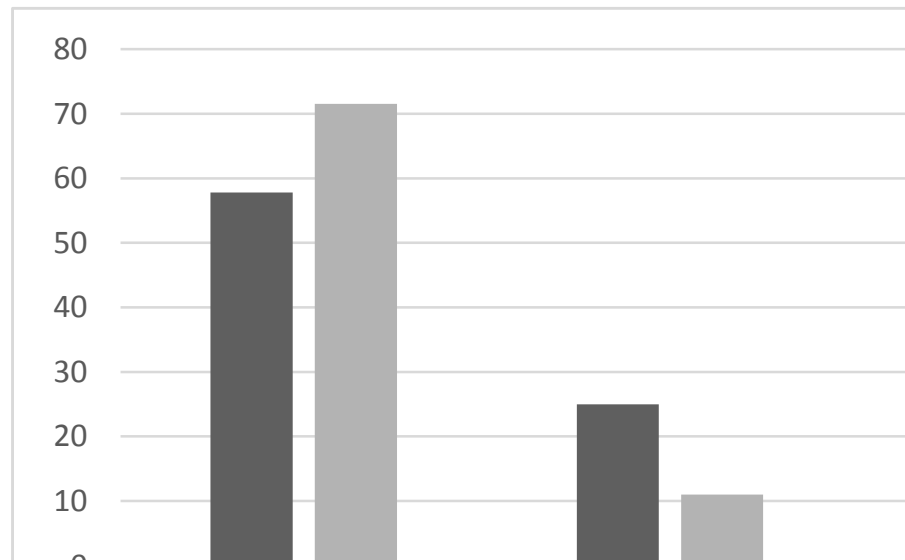


Figure 1. *Adequacy of knowledge and skills acquired during the studies*

Further, the authors of this research analyzed the knowledge and skills, which are required for an effective clinical practice. The resident physicians currently undergoing education and training were lacking. For this purpose, the respondents were asked to indicate whether during their university studies they acquired the main competences of a family physician.

The obtained responses showed that the majority of the respondents (85.2%) thought that they acquired knowledge and skills necessary for disease diagnostics and treatment. As seen in Figure 2, a large proportion of the respondents acquired qualification improvement competences (78.4%) as well as competences necessary for disease prevention (67%) and teamwork organization (55.7%). The lowest percentage of the respondents stated that they acquired competences necessary for educational activity (17%) and the research and evaluation of their professional activity (12.5%). The analysis of the data on the competences in the most important fields of a physician's activity acquired during university studies by the respondent groups (in 2005 and 2015) revealed 2 statistically significant differences ($p < 0.000$) – in the fields of research activity and teamwork organization. These results show that in 2015, resident physicians more positively evaluated their competences required in the most important fields of a physician's activity.

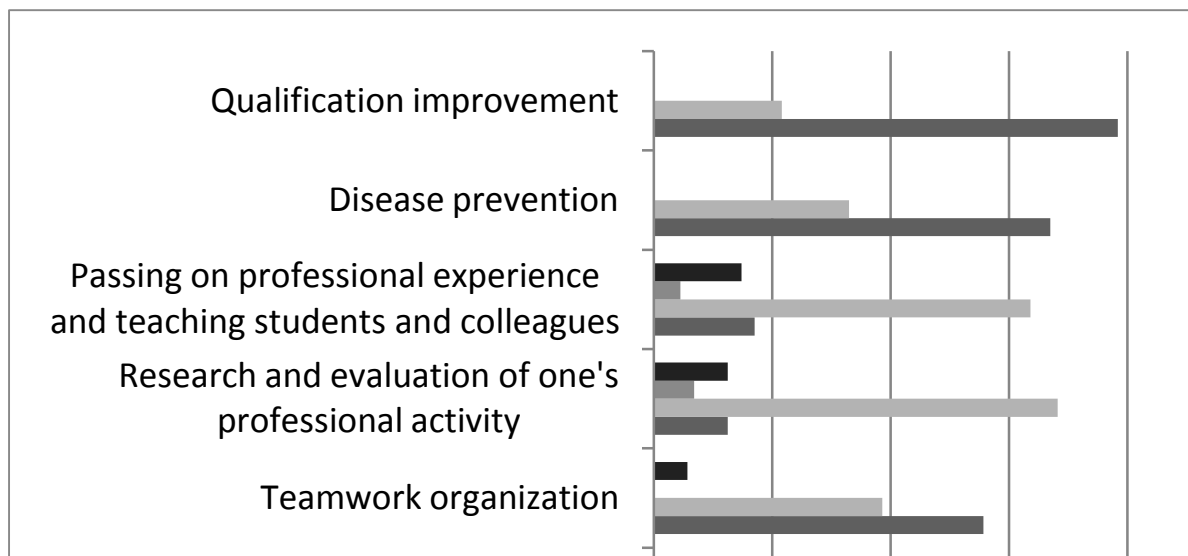


Figure 2. *Evaluation of competences required in the most important fields of physicians' activity*

In this study, the researchers also tried to determine whether the respondents, having acquired and developing their knowledge and skills, were capable of using them as a whole in their most important activity – the solution of their patients' problems. The obtained data showed that the majority of the respondents (60.5%) did acquire problem-solving skills during their studies. As seen in Fig. 3, 39.8% of the respondents indicated that they acquired knowledge systematization and analysis skills, and 37.5% of them improved their research technique application skills. The lowest percentage of the respondents stated that they improved their abilities to adapt to new conditions of activity (12.5%) and that their studies improved their creative thinking (2.3%).

The comparison of the results obtained in 2005 and in 2015 revealed 6 statistically significant differences ($p < 0.005$) – in the evaluation of problem-solving skills, group work skills, research technique application skills, observation and data collection and analysis skills, the importance of the study content for a student's personal development, and the resident physicians' ability to adapt to new conditions of activity. Even though more respondents stated that they could solve problems, work in groups, and adapt to new conditions of activity in 2015 than in 2005, but one statistically significantly decreasing difference was observed – i.e. in the resident physicians' ability to adapt to new conditions of activity.

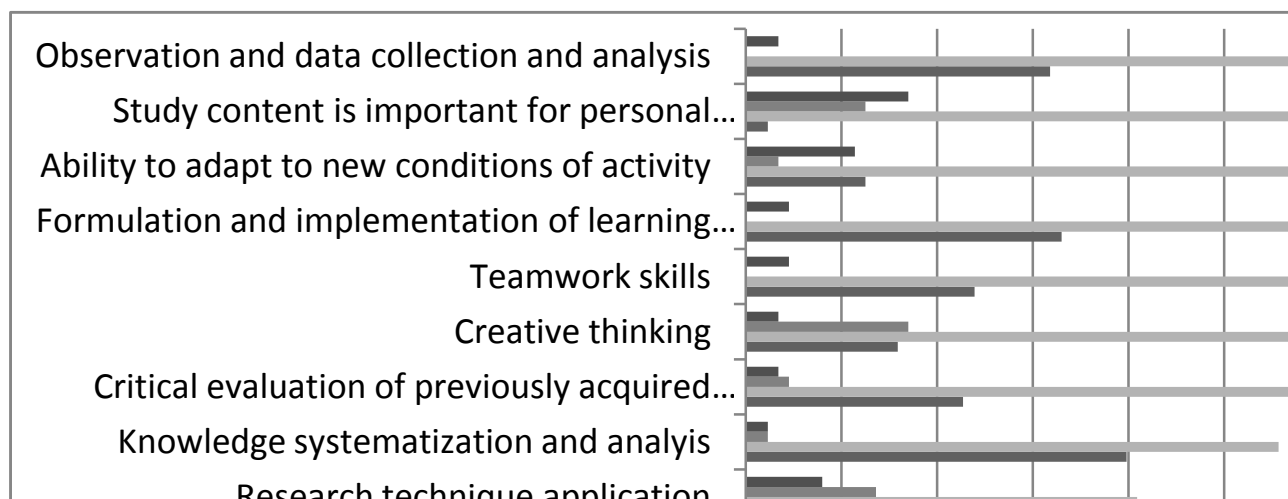


Figure 3. Evaluation of problem-solving skills

The analysis aimed at determining whether medical studies were based on learning factual knowledge showed that the majority of the respondents (79.5%) thought that their studies were not based on that, while 9.1% of the respondents held the opposite view. The results obtained in 2005 and 2015 differed. In 2005, the majority of the studied resident physicians (95.5%) thought that their medical studies were based on learning factual knowledge. The comparison of the two studied groups of the respondents concerning their opinion on whether their studies were based on learning factual knowledge revealed a statistically significant difference ($p=0.000$).

Discussion

The results of the study showed that a greater part of the respondents thought that their current studies at the LSMU provided them sufficient knowledge and skills. A large part of the respondents positively evaluated their knowledge and skills required for disease diagnostics and treatment, qualification improvement, disease prevention, and teamwork organization. Statistically significant differences between the groups (in 2005 and in 2015) indicate that in 2015, resident physicians more positively evaluated their competences required in the main fields of a physician's activity.

The results of the study also showed that the studying resident physicians acquired problem-solving skills and knowledge systematization and analysis skills, and also improved their skills of the application of scientific research methods. However, according to the studied resident physicians, they did not acquire skills of adapting to new conditions of activity, and their studies did not develop creative thinking. Statistically significant differences found between the groups (in 2005 and in 2015) indicate that in 2015, resident physicians more positively evaluated their problem-solving skills, group work skills, research technique application skills, and observation and data collection and analysis skills. However, one statistically significantly decreasing difference was observed – i.e. in the resident physicians' ability to adapt to new conditions of activity evaluated in 2015.

The resident physicians currently undergoing education and training thought that their studies were not based on learning factual knowledge. Statistically significant differences found between the groups (in 2005 and in 2015) suggest that the currently applied PBL system is not based on learning factual knowledge, and it helps resident physicians to improve their knowledge and skills required for the work of a family physician.

Conclusions

The changing professional activity of family physicians involves the solution of patients' problems through the integration of biomedical, psychological, sociological, and pedagogical knowledge as well as skills based on this knowledge. The problem-based learning system is considered to be most suitable for the implementation of the aims of modern medical education.

The analysis of the peculiarities of the education and training of family physicians showed that the studying resident physicians acquired sufficient knowledge and skills in the fields of disease diagnostics and treatment, qualification improvement, disease prevention, and teamwork organization. The resident physicians acquired problem-solving skills and improved their knowledge systematization and analysis skills and the skills of the application of scientific research methods. However, their studies contributed little to the improvement of competences required for educational activity and the evaluation of one's professional activity. The resident physicians were insufficiently capable of adapting to the new conditions of activity, and the studies did not develop their creative thinking. The problem-based learning system develops competences that are essential for future family physicians, and helps to improve the relevant knowledge and skills.

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