Contemporary teaching and research in Ukraine's universities:

challenges, solutions, and perspectives

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Features of teaching and forming professional competencies among medical students in Ukraine

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ABSTRACT

The aim of this paper is to substantiate the system of formation of professional competencies in the preparation of specialists in Pharmacy at the University. Materials: The materials for the study were the normative base of the educational process in the preparation of students-pharmacists and international experience in preventive medicine. Methods: content analysis, system analysis, logical generalisation, medical and statistical, Delphi. Results: The main goal of the university is to train highly competent specialists who have good health potential and are able to long-term support professional activities at a high level. The system of formation of professional competencies in preventive medicine is aimed at logistical management of activities in the process of training and ensuring the selectivity of healthcare management.

KEYWORDS

professional competencies, students-pharmacists, preventive medicine

Introduction

The integration of the state into a single world educational space is accompanied by the reform of high school which is to bring education in different countries to unified standards. At the same time, the priority of the system of higher pharmaceutical education is training in medical and pharmaceutical universities of highly competent and highly qualified specialists (Minyaeva et al., 2015). Due to the constant increase in the amount of scientific information, the task of the higher school is to find new methodological techniques that provide each student

with deep knowledge, skills and abilities, and reveal before them ways to implement individual tasks and resources.

Modern pedagogical paradigm is based on the formation of professional competencies. According to modern views, professional competencies are an integral characteristic of the business and personal qualities of specialists in the form of knowledge, skills and ability necessary for effective professional activity (Araslanova and Burmistrova, 2017; Bogdanov et al., 2014; Dyomina, 2015, Minyaeva et al., 2015; Nesterova, 2017). The implementation of a competent approach is associated with the stimulation of the transformation of the educational process and qualitative changes in educational activity. At the forefront is the training of highly competent specialists who have good health, high capacity, and are able to maintain their professional activities for a long time at a high level and with good health potential. The concept of health includes the ability to provide optimal life and the ability to perform general and production functions.

At the same time, a sufficient supply of health, high levels of mental and physical performance are the basis of effective mastery of the system of professional knowledge, skills and abilities during study at the university. The fundamental provisions of the formation of a specialist are determined by its correct assessment of its activity. Since, first of all, in the process of vocational education and at the beginning of the work biography, a stereotype of activity, habits, inertia of behaviour and attitude to their duties is formed. Miscalculations at this stage of formation of professional competence and social adaptation can imply their impression on the whole future. In this regard, the training of pharmacists comes to the fore in training specialists who have new approaches in theory and practice in health care, and are able to independently solve professional and life problems.

The purpose of the work was to substantiate the approaches to the formation of professional competencies in preventive medicine in the preparation of preparation of future pharmacy specialists.

Materials and methods

The materials for the study were: the regulatory framework of the educational process for the training of pharmacists, documents on reforming healthcare, international experience in healthcare. Used content analysis, system analysis, logical generalisation medical-statistical and Delphi methods. The essence of the Delphi method was that the experts expressed their opinion in the question-

naires, without informing other experts about it. 12 highly qualified specialists with more than 10 years of experience took part as experts. After the first stage, the opinions of the experts were summarised, and each of them got acquainted with the results. If necessary, he could change his mind to reach a consensus (Hrabovetskyi, 2010; Dalkey, 1969). Statistical processing was performed using the STATISTICA 6 analysis software.

Research results and discussion

In the training of qualified specialists, the leading place belongs to a systematic approach to the formation and development of professional competence of pharmacists. The essence of the approach is that all educational activities for the formation of professional competencies in students are considered as a holistic education with a complex structure (cognitive process, vocational training, industrial practice and professional self-determination against the background of a personal lifestyle). The system for the formation of professional competencies in the discipline «Hygiene in Pharmacy and Ecology» consists of 9 blocks (Figure 1).

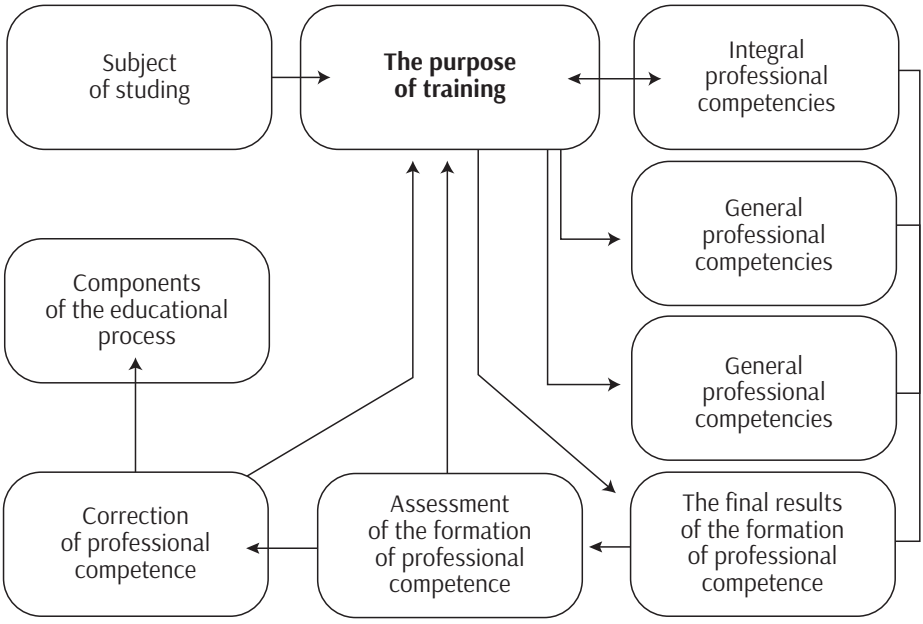

Figure 1. The system of formation of professional competencies in pharmacy students

The subject of study is public and individual human health in relation to environmental factors and preventive measures for health and the environment. The educational process is based on 4 components: motivational (the need and desire to master general educational and professional components), cognitive (mastering the system of definitions and concepts), activity (practical application of knowledge, skills and abilities to perform professional tasks), personal (the importance of personal and self-improvement in order to form professional skills and abilities).

The system-forming factor is the goal of education – the formation of the necessary knowledge, skills, and readiness for students to take preventive measures to improve human health and protect the environment from pollution. The basis of the preventive component of the professional worldview of specialists from «Pharmacy» is the discipline «Hygiene».

In ensuring effective professional activity, an important role belongs to the following competencies: integral, general and special / subject competences.

Integral competences provide the following opportunities: critical analysis and assessment of modern scientific achievements in solving search and practical problems of ensuring favourable working conditions in pharmacies and pharmaceutical enterprises; solving typical and complex specialised tasks and practical problems in professional pharmaceutical activity and healthcare; design and implementation of comprehensive research; introduction of innovations characterised by insufficient information and uncertainty of conditions and requirements; environmental protection.

General competencies are differentiated into research, project, and documentary, social and personal, communication, organisational. Research competencies include: organising research; methodological support of research; analysis of the information received; using a systematic approach to solving problems; strategic planning of activities; finding non-standard solutions in activities; presentation of the results of activities, publications; ability for abstract thinking, analysis and synthesis; the ability to learn and be modernly trained. In the project, professional competencies consist of the following skills: substantiation of new technologies; design and modelling of technological processes; circuit design; development of technical design tasks. Documentary competencies include: record keeping; development of technical documentation; possession of regulatory legal acts on labour protection and safety; preparation and examination of documentation.

Social and personal competencies consist of the ability to act in a socially responsible and conscious manner; the desire to protect the environment and act on the basis of moral motives; the ability to plan and solve problems of their own

professional development; ability to adapt and act in a new situation. Communicative competencies include the ability to: communicate in the state language, as well as in a foreign language; skills of using information and communication technologies, listening and taking into account the views of other people, discussing and defending their views on problems; tolerance and positive consensus with an individual or a collective. Organisational competencies consist of the ability to use knowledge in practical situations, the ability to work in a team; transfer knowledge to others in their professional field; organisation of cooperation and commonwealth in a team.

The main special competences in preventive medicine are: to know the basic methods of protection staff of pharmacy institutions and pharmaceutical enterprises from possible adverse working conditions; to know the basic methods of preserving the environment in their interaction with pharmaceutical production; to know methods of complex formation of health by pharmaceutical support and alimentary support of the body; the ability to carry out sanitary and preventive measures in conditions of pharmaceutical enterprises, including the provision of the technological process. Special competencies are designed in the form of a matrix, which indicates specific knowledge, skills, communication and autonomy and responsibility

The efficiency of the educational process is determined by the final results of the formation of professional competence. The identification of future professional activity as socially significant for the health of the population; knowledge about methods of hygienic assessment, its factors, environmental conditions and their impact on human health; determination of risk factors for health of employees of the pharmaceutical industry and pharmacies, compliance with sanitary and hygienic standards in professional activities; substantiation of measures to improve working conditions and prevention of non-infectious and infectious diseases are basic educational components in this process.

Assessment of the formation of professional competence should be carried out at three levels. High – knowledge of basic laws and definitions in the field of hygiene and medical ecology, the ability to solve problems in unusual situations. High motivation for professional development. Medium – knowledge of most basic laws and definitions of hygiene and medical ecology, with minor errors in their formulation. Motivation for professional activity is unstable. Low – superficial and fragmentary nature of knowledge in hygiene and medical ecology. Quite significant difficulties in their application to solve practical professional problems. Skills are poorly developed, there is no need to solve professional problems on a practical level.

Standardised forms of assessment of professional competence include test tasks of A-5 format. The complexity index and the discrimination index are analysed. The complexity index determines the complexity of specific test tasks for students. Its value characterises the proportion of students who correctly answered a particular test. The most informative for assessing students are test tasks with a complexity index of 0.36–0.84. The discrimination index determines the resolution of test tasks on strong and weak students. The values of the discrimination index in the range from 0.20 to 0.90 are optimal.

Thus, the proposed system of formation of professional competencies of pharmacists in preventive medicine allows to reveal the essence of social and hygienic optimization of public health on the basis of determinants of education and work. From a practical point of view, it is aimed at systematising the management of numerous activities in the process of training and employment and to ensure the selectivity of corrective measures for health care.

Conclusions

1. Optimisation of professional development of students in the process of educational activities in preventive medicine is based on the formation of professional competencies that aim at improving personal health potential and conducting selective activities to protect the industrial and environmental environment.
2. The formation of professional competencies in preventive medicine for students of pharmacy consists of 9 blocks: ‘The purpose of training’, ‘Subject of study’, ‘Components of the educational process’, ‘Integral professional competencies’, ‘General professional competencies’, ‘Special professional competencies’ , ‘Correction of professional competence’, ‘Assessment of the formation of professional competence’, ‘Final results of the formation of professional competence’.

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