

## **SIMULATION TEACHING METHODS IN IMPROVING THE QUALITY OF MEDICAL TRAINING OF HIGHER EDUCATION STUDENTS**

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Problem-oriented teaching methods include supply of a deep and comprehensive understanding of educational material and development of analytical, creative thinking. These methods intensify provision of the main and additional possibilities under conditions of application of information-communication technologies [1, 2]. Students acquire new knowledge, skills and abilities individually working in a team and solving a special set of tasks and questions, using subjective-activity and individual-creative approaches. It is an instrument to create motivation and stimulate cognitive activity of students [3, 4]. Traditional teaching methods focus on the reasons of a direct perception and reproduction of educational information. Increase of motivation activity of students, mastering methods of research and project-making activity, intellectual search for knowledge are leading directions in the problem-oriented teaching methods [5].

Objective: to assess the efficacy of problem-oriented learning applying different case-methods in order to improve the quality of training of graduating students on specialty «Pediatrics, Children Infections».

Basic part. A comparative assessment of effective training of 41 six-year students on specialty «General Medicine», subject «Pediatrics, Children Infections», was made on the base of the Department of Pediatrics and Children Infectious Diseases at the Higher State Educational Establishment of Ukraine «Bukovinian State Medical University». The students studied according to the credit-module system with the use of elements of problem-oriented learning and certain case-methods within the frame of TAME (Training Against Medical Error) project with the assistance of the European Union Program ERASMUS+. The total duration of the learning cycle for the six-year students was 20 days (106 academic hours). In the course of learning certain classes were implemented according to the problem-oriented teaching methods using virtual patient in the form of certain cases. The classes were held twice a week in the groups of 6–8 students. The groups of observation were formed depending on the plan of clinical cases: I group included 21 six-year students on specialty «General Medicine» who worked with ramified cases (with possibility to choose the variants of the following steps suggested by the authors 89 of the case); II group included 20 six-year students on specialty «General Medicine» who decided non-ramified linear clinical cases (with

necessity to make one's own choice of the following steps by means of an optimal variant without possibility to choose the variants of the following tactics suggested by the authors of the case). All the students answered the questions of the anonymous questionnaire containing 23 questions concerning assessment of the problem-oriented teaching methods, the attitude of students to learning, realizing the value of the acquired professional knowledge and quality of professional competence. The results obtained were statistically processed on a personal computer using a package of the applied programs «Statistica 5.0». Analysis of the results of the questionnaire enabled to find that 100 % students from I group and 85,5 % ( $p > 0,05$ ) representatives from II group liked the problem-oriented teaching methods. They would further like to learn clinical subjects using virtual patients. Further analysis determined that learning according to case methods enables to become more profound in diagnostic and therapeutic processes, that was mentioned by 25 % students from I group and 33,3 % ( $p > 0,05$ ) students from II group. In the process of learning independent decision-making was mastered by 35 % and 9,4 % ( $p < 0,05$ ) respondents from I and II groups respectively. A detailed analysis at the end of the case enabled to see and realize the consequences of decision-making that was indicated by 10 % and 33,3 % ( $p < 0,05$ ) students from I and II groups respectively. Every fifth respondent from I group was stimulated by the method of virtual patients to learn the material independently, and 7,7 % of students from II group considered the lack of violation of rights and safety of patients optimal. The data obtained coincide with the results of educational progress of the students participating in the poll. Thus, a part of students having the grades «excellent», «excellent and good», «good and satisfactory», «satisfactory», in II group was 4,7 %, 42,8 %, 52,3 % and 0 %. Among the representatives from I group these indices were the following: 0 % ( $p < 0,05$ ), 30 % ( $p > 0,05$ ), 55 % ( $p > 0,05$ ) and 15 % ( $p < 0,05$ ) respectively. Therefore, a part of students who possess higher grades of knowledge and skills and who can critically evaluate their essential level of ability for independent work was reliably higher among the students from II group. Thus, 14,3 % respondents from II group and 25 % ( $p < 0,05$ ) students from I group evaluated their level of ability for independent cognitive activity as high. An average level of their own abilities for independent cognitive activity was indicated by 65 % and 85,7 % ( $p > 0,05$ ) students from I and II groups. And every tenth representative from I group indicated low ability for self-cognition. 4,7 % students from II group spent less than an hour for self-training for classes. 1 hour for self-training was spent by 25 % and 23,7 % ( $p > 0,05$ ) students from I and II 90 groups respectively. Longer self-training for classes (from 1 hour to 4 hours) was indicated by 75 % and 71,4 % ( $p > 0,05$ ) respondents from I and II groups.

Conclusion. Therefore, it should be noted that on the whole students liked problem oriented teaching methods. They learnt to work in a team, to analyze and synthesize new information, to make decisions in different clinical situations and become able to identify and avoid medical errors.

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## **REALITIES AND PROSPECTS OF THE SIMULATION TRAINING IN THE MEDICAL EDUCATION**

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Healthcare and medical training have no immunity to universal, rapidly changing technology. In medical education, advances like simulations, virtual patients, and e-learning have evolved as pedagogical strategies to facilitate an active, learner-centered teaching approach [2, 3]. The medical educators need to rapidly evolve the methods of teaching to minimize the onslaught of disrupted medical education, while also building innovative systems to accommodate the medical student cohorts stuck in the time of this SARS-CoV-2 pandemic.

The current situation demands use and furthering of these pedagogical innovations. Use of e-learning modules (flash multimedia and digitized images), patient surrogates such as virtual patients (to teach clinical examination, procedural, diagnostic skills and communication skills) and virtual-reality simulators (to teach