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MEDICAL EDUCATION: FEATURES OF THE COURSE "SIMULATION EDUCATION"

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ABSTRACT

The research includes the study and analysis of the implementation of simulation training. The effectiveness of the integration of distance and simulation education. Creation of a center for simulation training and the work done in the process of teaching students. **The objective of the study** is to provide data on simulation education, on the features and problems of the implementation of simulation education and the main tasks assigned to teachers. Also, the purpose of the study is to determine the features of the organization of the theoretical content and methods of teaching influences of the online course "Simulation Education". **Material and methods.** The research materials are based on the experience of creating and teaching the course (in the MOODLE system) "Simulation Education" at the Tashkent Medical Academy, on the results of research work related to finding ways to modernize modern higher medical education, as well as on a sociological survey of students.

The object of the research was the undergraduate and graduate students of TMA. The study involved 192 students: 80 students studying in the specialty "General Medicine", and 67 students of the medical and pedagogical faculty, 45 graduate students studying in various specialties. **Conclusion.** Thus, the experience of creating a course in simulation education indicates that the distance teaching format does not always contribute to the achievement of the set goals for the development of practical skills, the formation of competencies related to knowledge and skills in using modern international and legal documents, as well as principles, rules, approaches to solving urgent problems in the field of medicine.

Keywords: Simulation education, online courses, simulation center, problems, tasks.

INTRODUCTION

In modern conditions, with an increasing demand for medical services using the latest approaches and methods, the state faces an acute task of training personnel who can use modern achievements of world medicine and treatment methods in medical practice.

Over the years of independence in the Republic of Uzbekistan, a huge amount of work has been done to reform the entire education system, including the health care personnel infrastructure. At the same time, an extremely important role in improving the quality of medical care and the formation of a highly qualified specialist is assigned to the issues of advanced training and retraining of doctors, the introduction of new pedagogical technologies and innovations, modern technical teaching aids using information technologies.

In order to solve such problems, in many countries there have been global changes in priorities in medical education: from structure to process, and in the last decade - to educational result. This was characterized by the active introduction of new learning technologies, such as simulation, problem-based, electronic, blended, command and others [2,7, 16]

The quality of medical care for patients directly depends on the level of training of medical specialists who are proficient in modern methods of diagnosis and treatment of diseases, and are able to apply the latest achievements of medical science in practice. Therefore, it is natural that one of the main directions in the field of higher medical education is the need to significantly strengthen the practical aspect of training future doctors while maintaining the proper level of theoretical knowledge [4,9,15,21].

In the last decade, there have been major changes in teaching technologies, simulators and simulators have appeared that allow you to work out both independent and coordinated group actions.

It became clear that traditional medical education, which implied the training of specialists with medical education in the form of lectures, practical exercises with practicing manipulations on the simplest phantoms and simulators, seminars, the participation of students in medical activities under the supervision of general and immediate supervisors during industrial practices requires a thorough revision. Along with this, I would like to note that the effectiveness of practical training is inextricably linked with the methodology of conducting practical classes, their educational and methodological support. The material and technical support of the educational process is a prerequisite for high-quality training of specialists in accordance with the requirements of curricula and programs. When it comes to the training of general practitioners, it is necessary to realize the fact that along with great success in the process of international integration, there are problems in the material and technical equipment of medical universities. Today it is impossible to train doctors without simulation centers. Undoubtedly, in every medical university of our republic there are phantoms, dummies, simulators for practicing practical

skills. But together it should be recognized that these devices are morally outdated and do not meet international standards [6,9,17,25].

At the present stage of development of higher medical education, it is relevant to use modern phantoms and simulators in the educational process. This is due to the fact that it is not always possible to show certain pathological conditions at the clinical bases of departments. In some cases, students do not have the opportunity, including from the point of view of deontology, to work out certain methods of medical manipulations: cardiopulmonary resuscitation, intravenous, intramuscular injections, etc. To solve this problem, it is optimal to organize centers of simulation medicine on the basis of higher educational institutions [1,3, 11,18].

In simulation training, the main thing is to acquire the necessary theoretical knowledge and practical skills without harming human health, while maintaining the completeness and realism of the simulation.

A lot of experience has already been accumulated, proving the effectiveness of simulation training. Numerous evidences have been obtained indicating the successful transfer of the skills of work acquired by the doctor to the patient, which could not but lead to the extensive development of the network of simulation centers [5,8,14,22].

Only within the framework of simulation training, it is possible by repeated repetitions to bring to automatism not only the ability to perform an action, but also to work out the method of performing complex actions, provided by a combination of knowledge and skills.

In order to develop such personal qualities of a university graduate, it is necessary to introduce new innovative teaching technologies based on modern scientific achievements and aimed at the formation and development of a university graduate with a wide range of competencies in the educational process [2,4,9]. The new challenges facing higher education raise the issue of the need to rethink the methodological and technological approaches to teaching university disciplines. At present, there is an active introduction into the sphere of higher education of information, communication and distance educational technologies, which provide for the modification of methods of organizing educational material, teacher-student communication, and the entire structure of the educational process [3,5].

In March 2019, a simulation training center was created at the Tashkent Medical Academy and purchased ADAM.ALS robot patient, patient care dummies, intravenous injection simulator, laparoscope, hysteroscope, Baby SIM, etc. The center has rooms such as "Patient Care", "Cardiopulmonary Resuscitation", "Surgical Manipulations", "Obstetrics and Pediatrics", "Briefing Room" (Fig-1,2).



Several teachers were sent for an internship at a leading Russian center for simulation training (Kazan). Over the period of two years seminars and trainings were held for the teaching staff. Students of 1-6 courses were trained at the center on a schedule. 1st year students were mainly trained in patient care skills. On the 2-3 course, they were trained in such medical manipulations as the technique of performing intramuscular and intravenous injections. 4-6 year students are trained in cardiopulmonary resuscitation skills. In addition, there is an opportunity to develop the clinical thinking of students using the "virtual patient" simulator. The degree of mastering of practical skills is constantly monitored (Fig. 3,4).



Unfortunately, during the pandemic, students did not have the opportunity to study in the simulation center, but electronic handouts were created for them to master practical skills and a heading was organized on the MOODLE platform - a course of simulation education, where students could get answers to their questions and learn online.

The purpose of the study is to determine the features of the organization of the theoretical content and methods of teaching influences of the online course "Simulation education". The course "Simulation Education" opens up rich opportunities for access to knowledge, mastering educational material in the mode of individual approaches, stimulating further reflection on the results of specific practical activities in the field of medicine.

The aim of this course is approximation of imitation of professional activity to real working conditions with a high degree of reliability. The implementation of this process will help to improve the development of practical skills, abilities and competencies at various levels of professional training of specialists, as well as to further improve the system of simulation training.

The research materials are based on the experience of creating and teaching the course (in the MOODLE system) "Simulation Education" at the Tashkent Medical Academy, on the results of research work related to finding ways to modernize modern higher medical education, as well as on a sociological survey of students.

The objects of the research were the undergraduate and graduate students of TMA. The study involved 192 students: 80 students studying in the specialty "General Medicine", and 67 students of the medical and pedagogical faculty, 45 graduate students studying in various specialties. 192 questionnaires (100%) were processed, of which 147 were bachelor's students (76.5%) and 45 master's students (23.5%).

Participants of the project "Improving the educational process using innovative imitation technologies" and teachers of the departments of clinical disciplines of the Academy have developed the course "Simulation education".

The research methods are theoretical (study of primary sources and modern scientific literature on teaching; systematization, analysis, synthesis, generalization of the obtained materials); empirical (questioning, analysis of performance results), organizational (comparison), methods of mathematical and statistical analysis of data.

The Simulation Education course was created using modular technology and problem-based learning. The modular technology, which has received wide application in the educational process, makes it possible to more widely realize the possibilities of independent work of students with modules. The student is given the opportunity to master the theoretical basis of practical skills by himself, to control the level of mastering knowledge, to make self-assessment and analyze situations.

When creating the course, problem learning was implemented using simulators. The effectiveness of this type of training lies in the systematically created problem situations and in the organization of students' activities to resolve problems, which ensures the combination of the student's independent search activity with the assimilation of professional knowledge, skills and abilities. Problematic technology makes it possible not to present knowledge in a finished form, but to pose educational tasks, questions, practical tasks to students that should interest him, awaken the desire to find a solution. It is the cognitive interest in the subject and professional motivation that ensure the effectiveness of learning.

The main idea of the online course, as evidenced by the results of the survey, has achieved its result.

Thus, 28% of the students who participated in the survey answered that in a decision-making situation they would prefer to choose the study of simulation learning in the MOODLE system. The opinions of the rest of the respondents were divided: 14% of students expressed a desire to listen to the theoretical part in the classroom, and to study practical skills using video lessons and perform tasks remotely, the other 59% of students, on the contrary, would like to study materials remotely, and would prefer practical skills in a simulation center (Diagram 1.).

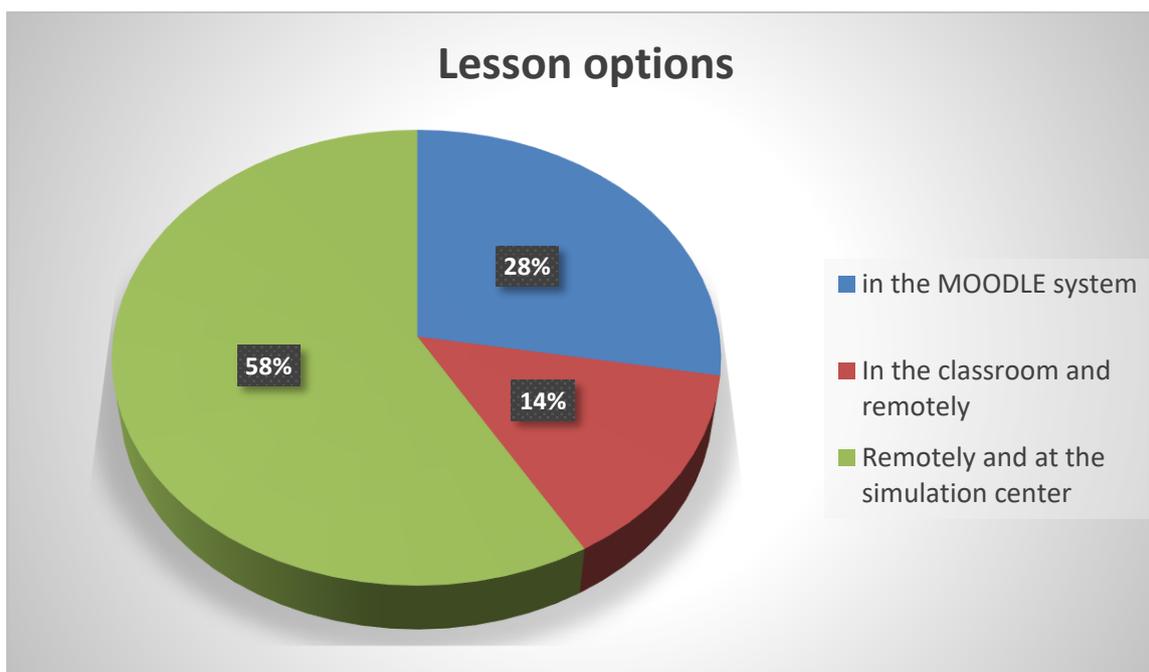


Diagram 1

When distributing the forms of the training course according to the degree of their importance, 53% of respondents noted the videos of practical skills in general as important (very important, important, rather important), 23% - situational tasks, 14% - presentations, 46% - practical tasks with examples, 15% - tests, 9% - independent work (Diagram 2).

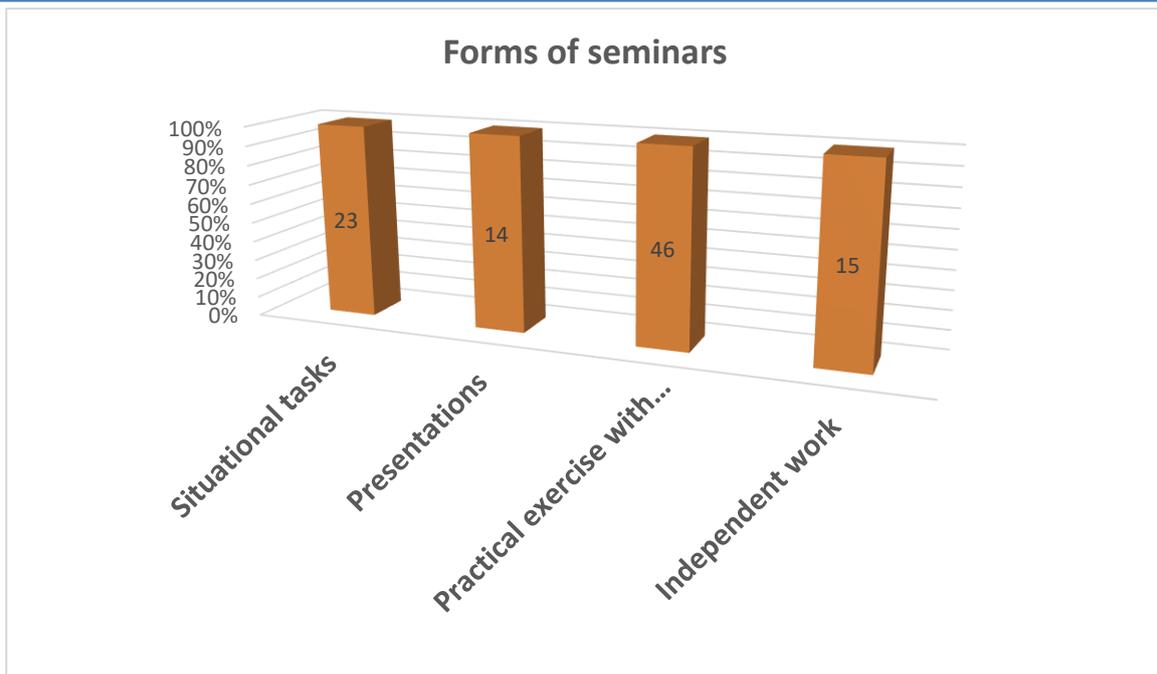


Diagram 2

The greatest difficulties, according to the students' answers, were caused by the following topics: "Intensive therapy" (62% of undergraduate students and 38% of graduate students), "Emergency medical care" (67% of undergraduate students and 33% of graduate students), "Surgical manipulations" (58% of undergraduate students and 42% of graduate students). (Diagram 3.).

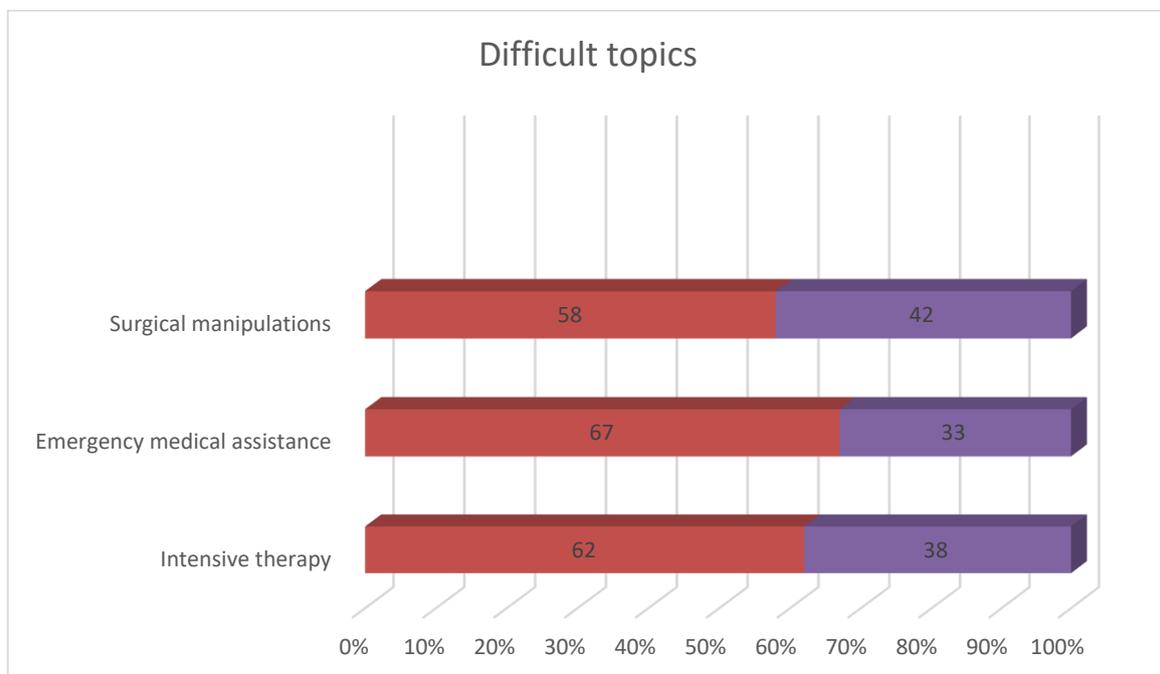


Diagram 3

Thus, the experience of creating a course in simulation education indicates that the distance teaching format does not always contribute to the achievement of

the set goals for the development of practical skills, the formation of competencies related to knowledge and skills in using modern international and legal documents, as well as principles, rules, approaches to solving urgent problems in the field of medicine.

When improving the methods of simulation training, it is also necessary to foresee the problems that may arise in connection with ensuring the process of full implementation of the future specialist.

The existing advantages of this course are providing great opportunities for medical education in working on improving the quality of medical care, reducing the number of possible complications and medical errors, and also allows for certification of students, objectively determining the level of their professional qualifications, increasing the level of internal motivation for further self-education, rather than the level of external motivations, i.e. .to. a real environment is created that a student can face in his future professional activity.

The disadvantages and problems of introducing and modernizing the curriculum are: the complexity of creating an integrated simulation center that provides a systematic improvement in the quality of medical education; high cost of creating a simulation center that meets international requirements; psychological barriers in the operation of innovative educational technologies on the part of the teaching staff; the need to adapt traditional educational processes (programs) to the conditions of the created simulation centers.

To date, the following tasks have been set for the teaching staff of the Tashkent Medical Academy:

1. Create and implement a simulation training program for the preparation of students, masters, clinical residents.
2. To study the influence of simulation training on the quality of mastering practical skills.
3. Develop a rating system of assessment and check list.
4. To study the characteristics of the survival of practical skills after passing the simulation training.

Thus, the introduction of simulation technologies into the practical training of students of medical universities will make it possible to bring all the skills to the degree of automatism and in the future to reduce the level of medical errors.

In our opinion, simulation training is not opposed to traditional training at the patient's bedside. No matter how high-tech the patient simulator is, it cannot replace a real patient. Education obtained only with the use of simulation technologies will be one-sided, since the multifaceted "patient treatment" will be replaced by the implementation of a limited set of practical skills, albeit worked out in detail. Simulation and bedside learning are complementary parts of modern medical education.

Opportunities for the future: positive results of the pilot project - the course can be adapted to the conditions of the educational process in other medical higher educational institutions. Further development of international cooperation.

Implementation of international standards for the quality of medical education.
Raising the rating of a medical educational institution.

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