

3.2 Peculiarities of medical education in the conditions of martial law in Ukraine

The system of medical education in Ukraine, as in the whole world, was formed around higher medical institutions. Currently, the main institutions of medical education in Ukraine are medical universities and medical colleges.

The purpose of the review is to determine the main trends in the development of the medical education system of Ukraine during the period of martial law, introduced as a result of russian aggression against Ukraine. To achieve this goal, it is necessary to perform the following tasks: firstly, it is necessary to analyze and systematize the development of the network of medical institutions of Ukraine during the specified time, secondly, it is necessary to conduct an analysis of the management of medical educational institutions, as well as the state policy regarding it.

An important task of medical education is the preparation of highly qualified and experienced doctors capable of independent activity, but this goal cannot be fully achieved when it is properly considered as one of the important aspects of education. The independent activity of a doctor is an important factor in the education of students, and it is also considered as a means of achieving professional excellence.

The result of the given analysis is a holistic picture of relevant aspects of changes in the medical education system of Ukraine. This picture is based on the appropriate factual base regarding the development of the organizational structure, geography, functions, public administration, dynamics of medical education, which can be considered an advantage of the study. The achieved result can be useful for the further reconstruction of the medical education system in Ukraine. It can also be used in the educational process in medical schools.

3.2.1 Concept and structure of medical education in Ukraine

Medical education in Ukraine is an integral part of the national system of education and health care. This system is considered one of the best in the world, which is why every year it attracts thousands of not only Ukrainian, but also foreign students.

Graduates of Ukrainian higher medical educational institutions are in demand due to their fundamental knowledge and excellent practical skills. Thanks to the latest data, the medical educational potential of Ukraine allowed us to enter the top ten countries in the field of international medical education, as evidenced by the current demand for higher education in Ukraine among citizens of other countries.

After the adoption and approval of the Bologna process, Ukraine reformed its medical education system, adapting it to the standards of the European Union. Today, medical and pharmaceutical specialists are trained by higher educational institutions of I-IV levels of accreditation, which include 64 medical schools, 47 medical colleges and their branches, 2 nursing institutes, 12 medical universities, 2 medical academies, 1 national pharmaceutical university and 3 academy of postgraduate education. Six medical universities and one postgraduate medical academy have national status.

It should be noted that today the Ukrainian diploma has wide international recognition, and the level of professional training of Ukrainian medical university graduates is highly appreciated by foreign employers.

Medical universities of the Ministry of Health of Ukraine offer the best value for money in the field of medical education for students from all over the world. The good conditions and history of high-quality medical education provide a suitable environment for the formation of students as experienced doctors of international standards. Ukrainian universities are recognized by all medical councils of the world.

Medical students in Ukraine are eligible to apply for international licensure exams such as USMLE (USA), PLAB (UK), MCI Screening Test and all other licensure exams worldwide.

We continue to improve the educational process in order to reach the level of the European Union. For this reason, the organization of the educational process is divided into:

- ensuring the system activity of the student and the teacher during the entire module;
- increasing objectivity in student assessment;
- formation of skills and foundations of "learning for the whole life" concept;
- stimulation of students' ability to analyze and think logically;

- creation of a modern educational, as well as material and technical base;
- unification of approaches to knowledge control.

The structure of medical education in Ukraine is based on the education systems of leading countries in the world in accordance with the recommendations of the European Union, UNESCO, the United Nations and other international organizations. Given that medical education is an integral part of the education system of Ukraine, it is regulated by the Law "On Higher Education", the Regulation "On Specialization (Internship)" and the Regulation "On Clinical Residency". The four-level educational system provides high-quality education followed by the awarding of junior specialist (2-3 years), bachelor's (3-4 years), master's (6 years) qualification levels.

Medical education can be obtained in higher educational institutions of the appropriate certification level. In order to obtain a medical education, an applicant must have a certificate of complete general secondary education or the qualification of a junior specialist/bachelor. To obtain a postgraduate education, a candidate must have a document confirming the qualification of a specialist or a master's degree.

The multi-level structure of higher medical education means that after completing a certain level of education, students can continue their studies further. Ukrainian medical graduates are required to complete an internship and master's degree or clinical research (optional), while foreign students who have obtained a specialist qualification can only complete a master's degree or clinical residency [148].

The Ukrainian system of medical education is considered one of the highest quality and relatively affordable in the world, and therefore attracts thousands of domestic and foreign medical students every year. Medical bachelors begin their studies immediately after high school and spend six years at one of the country's 14 medical universities and academies to earn a specialist degree (equivalent to an MD/MBBS). The diploma reflects a high level of professionalism, and its holders have the right to pass international medical licensing exams in Great Britain, the United States and other advanced health care systems, or to stay in Ukraine to start clinical practice and primary specialization. As in most other countries, medical education in Ukraine has been deeply undermined by the COVID-19 pandemic. During much of

2020 and 2021, direct patient contact and clinical teaching was suspended, student learning was conducted virtually, and summative assessments were primarily conducted online. The detrimental effects of these failures on the acquisition of knowledge, skills and professional development in all countries at the training stage are widespread, long-lasting and detrimental to the preparation of students for the transition to clinical practice. Now, for many medical students studying in Ukraine, these consequences are repeated and exacerbated by the ongoing russian military aggression. Since the beginning of the russian invasion, Ukrainian medical education has once again shifted to providing services online, while clinical meetings and formal evaluations have been largely suspended or canceled entirely [149].

As a result, many international medical students have returned to their home countries, while those who have completed their sixth year of study will receive their degrees and enter clinical practice, forgoing the experiential learning opportunities that are central to medicine. There is a huge need for additional doctors, especially those working as family doctors in primary care, which means that the next cohort of medical graduates in Ukraine will be eagerly awaited, despite the impact of the recent pandemic and ongoing war on their medical education.

3.2.2 Obtaining a medical education in the conditions of martial law in Ukraine

The ongoing Russian invasion of Ukraine has caused enormous damage to the physical and mental well-being of the Ukrainian people. Accordingly, medical trainees and institutions must adapt to a high degree of uncertainty and upheaval.

Medical diplomas obtained in Ukrainian institutions are recognized all over the world, in particular by the World Health Organization (WHO) and the European Council. Ukraine has accepted many foreign medical students who could not gain entry to their countries for political reasons, as well as those who could not afford the high price of studying medicine in their country. In addition, Ukrainian medical institutions, which already accept a variety of interns, have had to adapt to the ongoing COVID-19 pandemic, which has negatively affected medical education around the world. Medical schools are resorting to virtual education, and many students are being removed from

in-hospital care for long periods of time. In the realities of war, stress lability increases for all students of higher education [150].

Many domestic and foreign medical students are now refugees seeking to emigrate to Western Europe or their country of origin. Even after escaping the ongoing conflict, it remains an open question how many of these students will complete their medical education and deal with the psycho-emotional trauma. Regarding individual health care systems that exist in the world, in particular, representatives of medical universities in India have said that adjustments will be made, but there is no concrete plan at this time.

The careers of thousands of medical students remain in question, and the prospects are uncertain. Although many students were able to obtain refugee status, many are still waiting for passes at the border of neighboring countries. They have to worry not only about education and careers, but also about the safety of their peers and families. Because of the ongoing aggression, many of these international students are likely to pursue medical degrees in other countries such as Italy, Spain and Germany. Unfortunately, there are reports that some of these new representatives of medicine ended their lives prematurely as a result of the ongoing shelling of Ukrainian cities.

It is a true tragedy and loss for the medical community that these young students who have dedicated themselves to helping others will now never be able to fulfill their potential. Numerous bombings and shelling destroyed the key infrastructure of medical universities throughout Ukraine. The long-term consequences for medical education in Ukraine are catastrophic due to the lack of resources and infrastructure to support it. The consequences of the mentioned war can be classified into four categories: physical injuries and consequences for the mental health of Ukrainians (not only military, but also civilians); destruction of health care facilities; destruction of critical non-health infrastructure; and environmental impact (due to the use of toxins and/or nuclear radiation during wartime) [151].

It is likely that many medical students will be dismissed from their studies in favor of work aimed at the defense of their country, and their medical education will be suspended in Ukraine indefinitely. As Russian military aggression continues, the

medical education that does take place may be limited to online classes and will have a negative academic impact on students. Creating an environment in which medical students have stable Internet connections and resources to access their courses is a critical challenge facing medical education institutions. An example of such a scenario occurred in Iraq 18 years ago. The political unrest in Iraq in 2003 had a significant negative impact on medical education. Frequent threats and attacks, accompanied by the deterioration of the social order, led to the emigration of most medical professors from Iraq. This forced migration of the scientific elite had a great negative impact on the leadership of the medical education system.

The International Federation of Medical Student Associations (IFMSA) and medical students from around the world are asking the whole world to join the immediate end of violence and restoration of peace in Ukraine. The potential for massive fatalities, physical harm and displacement of citizens is of extreme concern. As the Russian invasion of Ukraine approaches its ninth month, the Ukrainian medical system is unprecedented in terms of providing quality educational services. For the functioning of the system at the proper level, critical intervention is necessary, since the lack of extremely important personnel, including doctors and scientists, the education system is in a threatening state. It should be taken into account that there is a large number of willing medical students who choose to serve on the front line in Ukrainian hospitals. Displaced Ukrainian medical students can also study and work in a safer environment by organizing relief efforts in the neighboring countries of Romania, Poland, and Hungary, where many refugees have moved. Adherence to the principles of humanity, neutrality and impartiality in their work and communication on the part of citizens, scientists and medical workers of the countries that grant asylum to students acquire great importance [152].

The editors of the International Journal of Medical Students commented on the political conflict as follows: “During our stay, we realized that medical students and their education around the world are affected by many factors, including global warming and conflict. We used to raise our voices in favor of action to prevent climate change. We are adding our voice in support of those suffering from political unrest and

acts of violence around the world, with a particular focus on Ukraine. The path of war and revenge is easy compared to political dialogue and cooperation. We, the new generation of scientists of the world, assert that for the safety of us all and to promote progress throughout the world, we use reason over emotion.”

In the conditions of martial law, the military medical doctrine of Ukraine is gaining popularity, namely, a set of scientifically based provisions that determine the system and methods, forms, and medical support of military operations in specific historical conditions, which includes the means and methods of combat, the level of development of medical science and practices, forces and means, and features of theaters of military operations. The legal basis for its development is the Constitution of Ukraine, the Laws of Ukraine, the Military Doctrine of Ukraine and other normative legal acts on health protection in Ukraine, state defense and the use of the Armed Forces of Ukraine. The military medical doctrine of Ukraine reflects the general provisions, principles and requirements for the organization of medical care for troops and the civilian population and does not detail its individual components and clinical aspects. The provision of the Military Medical Doctrine of Ukraine applies to the medical support of the Armed Forces of Ukraine and other structures of the state security sector in peacetime and wartime and is the basis for the creation of other normative legal acts and methodological recommendations on the medical support of the Armed Forces of Ukraine and other power structures of the state security sector . In addition, legal regulation of the main aspects of medical education in wartime conditions is necessary, taking into account both the current situation and the experience of the previous months of a full-scale invasion.

Medical education in Ukraine has its own history of formation and evolution, and these changes were accompanied by a change in the public perception of the role of the state, including now, in a difficult time for Ukraine. Even during martial law, Ukrainian society has high hopes for the state and its services. In different societies, the role of the state is not the same, even in different periods in Ukraine for 100 years, we have different examples. In Europe, the idea of mass medicine appeared at the beginning of the 20th century, especially after the epidemic of the Spanish flu strain.

Then it became clear that individual strategies for survival, treatment and life are impossible, a centralized system is needed. Medicine, like education, is a part of it. Therefore, in order to improve medical education, it is necessary to create a psychological service to help students of various levels of medical education overcome the impact of traumatic events on the mental development of students. The above provides both the improvement of the qualifications of practical psychologists of medical educational institutions in this direction, and the introduction of problematic psychological educational courses for the general population; establishment of systematic work with students who missed a significant part of their education due to military actions, which requires targeted financial, legal, and scientific-methodical support.

The creation of a targeted educational program for war-affected medical education students, the generalization and popularization of the experience of working with the medical category of practitioner education students, as well as the consolidation of relevant scientific research, which will contribute to the training of personnel, in particular for military medical workers, are urgent.

Prospects for further research are aimed at studying the experience and summarizing the needs of the medical educational community, taking into account different life experiences under martial law: changing the place of stay (in another city of Ukraine, abroad), staying in places of active hostilities in relatively safe places. It is important to study the needs of teachers, parents, students for their material and technical problems, as well as the necessary tools, methodological, software for the educational process as a whole and psychological support for students and teachers to provide quality medical education. So, at present, people with medical education or studying in medical schools can work in the following areas: humanitarian headquarters, in sorting and dispensing medicines to the military and the population, help in territorial heating stations. Many local territorial headquarters need volunteer medics who are ready to help defenders in critical situations. In addition to providing direct assistance in the field, people with medical education can also teach others the basic principles of first aid.