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RISK FACTORS AFFECTING HEALTH OF MODERN SPECIALISTS IN VOCATIONAL AND PSYCHOLOGICAL TRAINING

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ABSTRACT

The health of people in Ukraine has become particularly relevant in recent years, as Ukrainian society is exposed to unprecedented external threats, such as the war with Russia, that negatively affect plans, goals and quality of life, and the increases psychological tensions that lead to the deterioration of people's physical, mental and social health. This also applies equilly to participants in the educational environment.

Today, in light of the military actions in Ukraine, it is necessary in higher educational institutions to address new and non-standard tasks challenge students' health and their personal resources in the process of education.

A complex combination of new and unpredictable challenges and risks resulting from challenges to the socio-political situation in the country such as the Covid pandemic, the war with Russia, and the growing presence of

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digital technologies in the educational space, actualizes the deployment of a series of studies about risk factors affecting students' health.

*The **purpose** of this article is to study the particular risk factors affecting the health status of today's students distinctive in order to help develop a better system of protective measures to prevent morbidity in the process of their education.*

*The **methodology** in this article is based on the fundamental methodological principles of consistency and interdisciplinary approach and includes the use of a collection of general scientific (explanation, comparison, classification, generalization, systematization) and empirical (observation, conversation, description, analysis, experiment) methods. Based upon these, we have formulated a set of practical recommendations for providing appropriate conditions for maintaining students' health in modern learning conditions.*

*Within the framework of our study, the following **results** were achieved: the views of scientists on the definition of factors affecting the level of youth health were summarized; the risk factors influencing the health indicators of students are considered; the results of a study about the prevalence of diseases among students in a special medical group from the National Technical University "Kharkiv Polytechnic Institute" are given, the recommendations are formulated for the prevention of morbidity among students in higher educational institutions in the process of vocational training in war conditions.*

*The **conclusions** allow us to state that in order to preserve the health of modern specialists in current conditions, it is necessary to identify the main groups of risk factors, understand the mechanisms of their action to a specialist and apply timely appropriate measures and techniques to prevent them, depending on the current situation.*

KEYWORDS: *Students' Health, Healthy Lifestyle, Risk Factors, Specialists' Training, Preventive Measures, Disease Prevention.*

INTRODUCTION

The health problems of the country's population, in particular young people, have become especially relevant in recent years due to the pandemic, and the subsequent Russian military operations in Ukraine. The whole set of factors affecting the health of the population can be divided into three main groups: biological, environmental, and socio-economic.

The group of biological factors should primarily include unfavorable heredity and developmental anomalies.

In the group of environmental factors, the leading role should be given to the characteristics of the influence of the environment on the human body, in particular the degree of environmental pollution by harmful chemical, radioactive, biological substances.

Among the socio-economic factors that negatively affect the health of the population, the most significant are hypokinesia (a state of insufficient motor activity of the body with limitation of the pace and amplitude of movements), improper nutrition, physical overload, prolonged stay at the computer or mobile phone, sleep disorders and insomnia, short-term stay in the fresh air, lack of body hardening skills, bad habits, stress etc. (Kostikova et al., 2023).

The question is repeatedly raised about the need to introduce nationwide measures for the health care of young people in Ukraine, providing for the solution of not only medical, social, pedagogical, environmental problems, but also health-improving and preventive issues. (Howard et al., 2020).

Despite the difficult conditions that have developed in Ukraine since the beginning of the war, the educational process in higher educational institutions (Hornostaieva, & Kravchenko, 2021) has been resumed and takes place in a distance or mixed form.

The **purpose** of the article is to study of risk factors that can affect the health status of students in today's conditions to develop a system of protective measures to prevent morbidity.

THEORETICAL FRAMEWORK

In modern conditions of the educational process in educational institutions, there has been a transformation of the communicative space of students, an increase in the communicative distance, a virtual way of communicating with the outside world via the Internet (social networks Skype, Facebook, Discord, Steam, online games, life in blogs, virtual entertainment) devalue the meaning of live communication (Bzdok & Dunbar, 2020). Psychologically, this affects the nature of interaction with the teacher and fellow students; manifests itself at the level of complexity of the formation of psychological neoplasms (self-esteem and self-control), social competence; there are problems of the motivational-value sphere (formation of digital addictions) and the emotional sphere (lack of skills for emotional experience of situations, feeling of loneliness). (Yanguas et al., 2018), confusion, emotional discomfort, difficulties in interpreting emotional aspects of behavior strategies, formation of neuroses), etc. (Pietrabissa & Simpson, 2020).

In addition, chemical, radioactive and bacteriological pollution of air, water, soil, food, noise, vibration, electromagnetic fields, ionizing radiation and the like cause pathological phenomena and genetic changes in the human body. As a result, the level of morbidity of the population increases. For example, people living in cities, due to environmental pollution by industrial and automobile emissions, are more likely to suffer from various forms of allergic manifestations (rash, dermatitis, rhinitis, asthma, allergic edema). (Andrusyshyna & Barykin, 2022).

It is impossible to ignore the influence of the biotic component of the environment in the form of waste products of plants and microorganisms, pathogenic microorganisms (viruses, bacteria, fungi, etc.), toxic substances, insects and other animals dangerous to humans.

Taking into account the state of the national system health care system, as well as only the initial stage of its reform, which concerns, first of all, the primary link of providing medical care and changes in the system of financing medicine, young people do not

turn to health care institutions for every need. The entire set of factors affecting the health of the population can be divided into favorable and unfavorable (risk factors).

The following are favorable factors:

- a rational mode of everyday activity;
- full and balanced nutrition;
- compliance of the environment with hygienic requirements;
- optimal driving mode;
- hardening;
- hygienic habits and a healthy lifestyle.

The group of unfavorable factors includes:

- violation of the daily schedule and educational process;
- shortcomings in the organization of food;
- violation of hygienic requirements for the conditions of activity;
- insufficient or excessive physical activity;
- loneliness;
- unfavorable psychological climate in the family and team;
- absence of hygienic habits;
- presence of bad habits.

In turn, scientists K. Puka, Ch. Buckley, N. Mulia, A. Lasserre, J. Rehm and C. Probst (2022) divide the risk factors in the educational process into three more groups: hygienic factors (summarize all the real conditions of the educational process), educational and organizational factors (reflect the informational side of the educational process, the process and organization of education), and psychological-pedagogical factors (generalize the style of relations between the teacher and the student, including the assessment of his educational activity).

METHODOLOGY

To achieve the goal, general scientific (explanation, comparison, classification, generalization, systematization) and empirical methods (observation, conversation, description, analysis, experiment) were applied. Based on them, we formulated practical recommendations for ensuring appropriate conditions for preserving the health of students in the process of professional training in modern educational conditions.

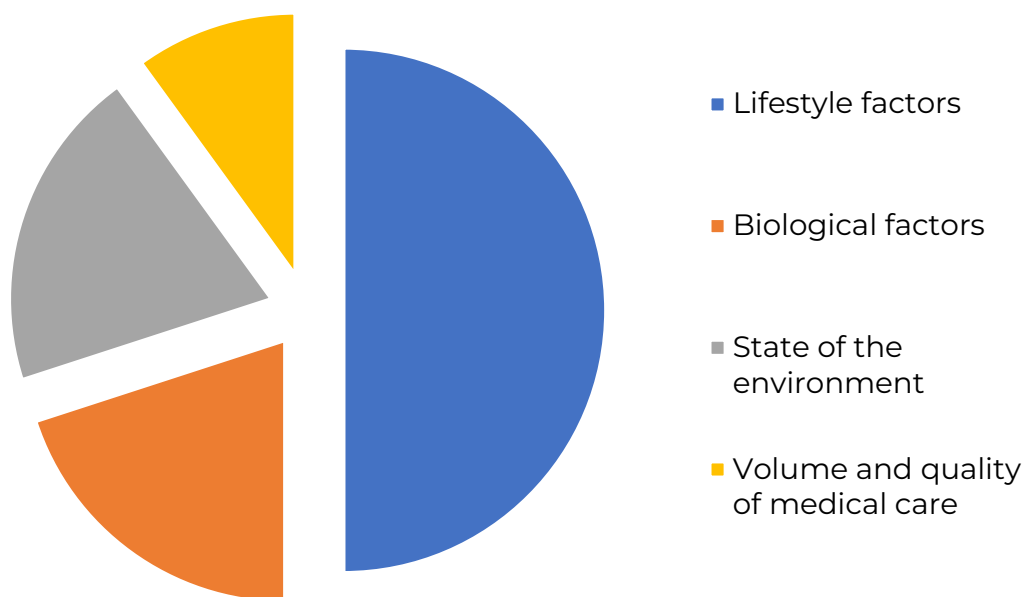
RESULTS

All factors affecting the health of the population, including young people, can be divided into 4 groups (Fig. 1):

- Lifestyle factors (50%);
- Biological factors (20%);
- State of the environment (20%);
- Volume and quality of medical care (10%).

Figure 1

Factors influencing the state of health of the population



Medical factors (vaccination against infection, clinical examination, quality of treatment, and others). In the structure of the factors that shape the health of the population, they occupy only 10%, since medicine is more focused on identifying diseases and gross defects of the body and treating them. It should be noted that all factors are interconnected and reinforce each other's action both in a positive and negative direction.

According to the content, factors can be divided into socio-economic (for example, family income, unemployment), environmental (state of environmental pollution), medical (hereditary genetic diseases, access to medical institutions, pandemic) and socio-political (military operations in the country).

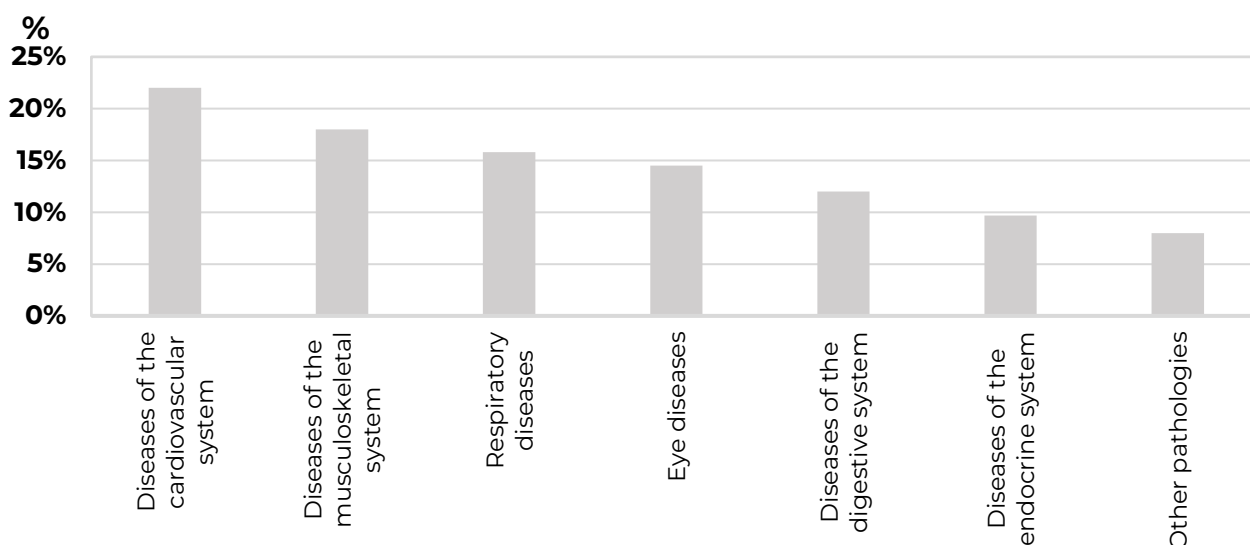
These factors can arise at the level of the state (macrofactors), the region (mesofactors) and at the level of an individual family and a person in particular (microfactors); have a positive or negative direction of influence (favorable and unfavorable factors) and a short or long-term influence on the formation of the health of students; have a direct or indirect effect.

Recently, the health situation of students has reached a critical level: the level of general morbidity and the prevalence of diseases of individual organs and systems are growing. This is facilitated by an increase in the intensity of the impact of environmental and medical and social risk factors on health, a deterioration in the composition of the diet, and a decrease in the effectiveness of traditional preventive measures (Kaunda, 2020).

According to the results of the study, among the students of the special medical group of the National Technical University "Kharkiv Polytechnic Institute" (145 people), the following diseases were detected (Fig. 2).

Figure 2

The prevalence of diseases among students of a special medical group



22% of students suffer from diseases of the cardiovascular system; 18% – musculoskeletal system; 15.8% – respiratory diseases; 14.5% – eye diseases; 12% – a disease of the digestive system; 9.7% – endocrine system; 8% – other pathologies.

According to the results of research carried out at universities, statistical data for Ukraine and the Kharkiv region have been confirmed, the most common are diseases of the cardiovascular system (up to 24%), eye diseases (up to 18%), diseases of the musculoskeletal system (up to 18%), diseases of the respiratory system (up to 16%), digestion (up to 12%), endocrine system (up to 10%) (Rubin, 2022). The main risk factors that can affect the state of health in the process of professional and psychological training of students include:

- a high level of stress associated with study requirements, tests and challenges, which can negatively affect the student's mental and physical health. Negative stress can cause increased anxiety, depression, insomnia and other problems;
- excessive workload can cause overload, which can lead to deterioration of health;
- a disordered daily routine (insufficient amount of sleep, irregular diet and insufficient physical activity) can have a negative effect on the functioning of the body and the state of health;
- lack of social support from teachers, group mates or family can make learning more difficult and increase the risk of psychological problems;
- insufficient control over one's time, emotions and stress can lead to a loss of effectiveness in learning.

It should be noted that the difficult conditions in which modern youth find themselves cause them psychological and emotional tension (Leigh-Hunt et al., 2017). As a consequence, in one case this is accompanied by the mobilization of internal vital resources: in the other – a decrease or even a breakdown in working capacity, deterioration in health, physiological and psychological stressful phenomena. It depends on the individual characteristics of the organism, living conditions, awareness of ongoing events and understanding of the degree of danger. Thus, the factors that generate

mental tension can in some cases have a positive effect on the person mobilizing him, and in others – a negative impact (Tverdokhliebova et al. 2023).

By prevention we mean science-based and timely actions aimed at preventing possible physical, psychological or socio-cultural collisions; preservation, maintenance and protection of the normal standard of living and health of students in wartime; assistance in achieving the set goals and revealing their internal potentials.

Preventive measures which reduce the incidence among youth are the observance of a healthy lifestyle and culture. Proper physical education strengthens and hardens the body, increases resistance to negative environmental factors, is the most effective means of non-specific prevention and the most important stimulator of harmonious growth and development of a person.

Let us formulate general recommendations for students on maintaining health in the extremely difficult conditions of war:

1. Support from family, friends, psychologists, or other professionals during times of mental stress.
2. A routine and a stable schedule, including restful sleep and regular physical activity, will help reduce stress and restore balance.
3. Develop and use your own self-protection strategies to reduce stress (hobbies, meditation, deep breathing, yoga, etc.).
4. Setting limits and defining times for receiving current news on social networks to prevent excessive consumption of negative or violent information.
5. Creating and maintaining a healthy and safe environment around you (avoiding negative people or situations that can increase stress, etc.).
6. Volunteering, activities at charity events can help to feel useful and active.

It is necessary to remember that each person has different mechanisms that help him maintain mental health. Obtaining support and creating a healthy environment is an important step in the direction of psychological well-being in the conditions of war.

It should be noted that for the development of personal potential and abilities, it is important for a person to be in a safe and stable environment. A safe environment around the personality is the most important condition for its development. The Institute of Education is a psychological and pedagogical environment where specially organized conditions are developed for the development of a personality, included in the spatial, subject, and social environment, the essence of which is a set of communicative actions and relationships between participants in the educational process (Tverdokhliebova, & Yevtushenko, 2022).

In the conditions of war, the organization of students' educational activities is difficult due to the influence of danger, stress, and changes in learning conditions. However, some dominants can help students organize their learning activities in such a way that they can be productive and maintain mental health:

1. Creating a schedule, setting goals and a plan for the day, week and month. This will help you have a stable structure and feel in control of your learning.
2. Development of a conscious strategy for managing your own time and energy, immersion in the learning process and responsibility for your results. Concentration and responsibility.

3. Flexibility – willingness to change and adapt to new circumstances in order to achieve one's goals (new methods, resources, or even place of learning).
4. Self-management, including the development of self-control and self-reflection for a better understanding of one's own needs, progress and achievements. Identify the methods, strategies or resources that work best and then use them for effective learning.
5. Social support with groupmates and teachers, which can help you feel less isolated and build a strong learning community.
6. Flexible access to resources, which involves the use of technology to gain access to the necessary learning resources (virtual platforms, online courses, digital libraries, etc.).

The psychological safety of the educational environment is based on the quality of the interaction process, which:

- leads to the actualization of the student's personality, the formation of his professional competence and satisfaction with training.
- contributes to the formation of a healthy, creative, and socially adapted personality of a student, reduction of neuropsychic stress.
- increases the ability to self-regulation.
- contributes to the improvement of the mental health of the participants in the pedagogical process.

DISCUSSION

We agree with the opinion of scientists A. Shkodina, H. Chopra, I. Singh, Sh. Ahmad and D. Boiko (2022), that in recent years there has been a steady trend towards the deterioration of the health of young people. Students are the most vulnerable segment of society to the negative impact of social factors on health (OECD / European Union, 2020).

The adaptation of students, especially junior students, to study in higher educational institutions in modern conditions is a complex, lengthy process and places high demands on the plasticity of the psyche and the physiological functions of the body of young people.

To date, there are not enough practical developments aimed at creating special conditions for maintaining the health of today's youth in the process of obtaining vocational education in war conditions. Accordingly, this study is devoted to the actual problem of processing risk factors that affect the health of a modern specialist and determining the main dominants that can help students organize their own learning activities in such a way as to be productive and maintain physical and mental health.

CONCLUSIONS

The study of risk factors affecting the state of health in the process of professional psychological training of students is important for understanding and preventing their psychological problems, anxiety, and stress.

Psychological security characterizes the degree of protection of the individual from various negative and destructive factors of the outside world. The psychology of personal

security determines the level of a comfortable mental state that a person needs to perform professional and social functions without fear for life and without fear of possible negative consequences of the development of the current situation.

Taking into account the peculiarities of each specific situation, participants in the educational process can develop an individual plan of strategies and actions that will help them effectively organize educational activities in modern conditions.

CONFLICT OF INTERESTS

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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REFERENCES

- Andrusyshyna, I.M., & Barykin, M.A. (2022). Lithium as a risk factor for human health and modern environmental pollution sources (literature review). *Ukrainian Journal of Occupational Health*, 18(3), 253–262. <https://doi.org/10.33573/ujoh2022.03.253>
- Bzdok, D., & Dunbar, R. I. M. (2020). The Neurobiology of Social Distance. *Trends in cognitive sciences*, 24(9), 717–733. <https://doi.org/10.1016/j.tics.2020.05.016>
- Hornostaieva, O., & Kravchenko, H. (2021). Special Aspects of Professional Activity of Motor Transport Profile Teaching Engineers. *Educational Challenges*, 26(1), 51-63. <https://doi.org/10.34142/2709-7986.2021.26.1.05>
- Howard, J.B, Anthony, L., Bulchis, A., Chen, C., Chapin, A., Lomsadze, L., Mokdad, A., Millard, F., & Dieleman, J. (2020). Health-care spending attributable to modifiable risk factors in the USA: an economic attribution analysis. *The Lancet Public Health*, 5(10), 525-535. [https://doi.org/10.1016/S2468-2667\(20\)30203-6](https://doi.org/10.1016/S2468-2667(20)30203-6)
- Kaunda, R.B. (2020). Potential environmental impacts of lithium mining. *Journal of Energy & Natural Resources Law*, 38(3), 237-244. <https://doi.org/10.1080/02646811.2020.1754596>
- Kostikova, I., Holubnycha, L., Sytnykova, Y., Shchokina, T., Soroka, N., & Tarasova, S. (2023). University Teachers' Psychological State During the Stress of Online Education after Pandemic in Wartime in Ukraine. *International Journal of Emerging Technologies in Learning (IJET)*, 18(13), 152–162. <https://doi.org/10.3991/ijet.v18i13.39825>
- Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public health*, 152, 157–171. <https://doi.org/10.1016/j.puhe.2017.07.035>
- OECD / European Union. (2020). *Health at a Glance: Europe 2020: State of Health in the EU Cycle*. OECD Publishing. <https://doi.org/10.1787/82129230-en>

- Pietrabissa, G., & Simpson, S. G. (2020). Psychological Consequences of Social Isolation during COVID-19 Outbreak. *Frontiers in Psychology*, 11, Article 2201. <https://doi.org/10.3389/fpsyg.2020.02201>
- Puka, K., Buckley, C., Mulia, N., Lasserre, A. M., Rehm, J., & Probst, C. (2022). Educational Attainment and Lifestyle Risk Factors Associated with All-Cause Mortality in the US. *JAMA Health Forum*, 3(4), Article e220401. <https://doi.org/10.1001/jamahealthforum.2022.0401>
- Rubin R. (2022). Clinical Trials Disrupted During War in Ukraine. *JAMA*, 327(16), 1535–1536. <https://doi.org/10.1001/jama.2022.5571>
- Shkodina, A. D., Chopra, H., Singh, I., Ahmad, S., & Boiko, D. I. (2022). Healthcare system amidst the war in Ukraine. *Annals of medicine and surgery (2012)*, 80, Article 104271. <https://doi.org/10.1016/j.amsu.2022.104271>
- Tverdokhliebova, N., & Yevtushenko, N. (2022). Formuvannia psikhologichnoi bezpeky studentiv u suchasnykh umovakh navchannia [Formation of psychological safety of students in modern minds of education]. *Actual nutrition in modern science (Series "History", "Pedagogy", "Law", "Economics", "State Management", "Technology")*, 1(1), 421-428. [https://doi.org/10.52058/2786-6300-2022-1\(1\)-421-428](https://doi.org/10.52058/2786-6300-2022-1(1)-421-428) [in Ukrainian].
- Tverdokhliebova, N.Ye., Yevtushenko, N.S., & Makarenko, O.M. (2023). Doslidzhennia kopinh-povedinky liudei dlia podolannia stresu v umovakh viiny [Study of people's coping behavior to overcome stress in war conditions]. *Prospects and innovations of science (Rubric "Medicine")*, 2(20), 76-84. [https://doi.org/10.52058/2786-4952-2023-2\(20\)-76-84](https://doi.org/10.52058/2786-4952-2023-2(20)-76-84) [in Ukrainian].
- Yanguas, J., Pinazo-Henandis, S., & Tarazona-Santabalbina, F. J. (2018). The complexity of loneliness. *Acta bio-medica: Atenei Parmensis*, 89(2), 302–314. <https://doi.org/10.23750/abm.v89i2.7404>

АНОТАЦІЯ / ABSTRACT [in Ukrainian]:**ДОСЛІДЖЕННЯ ФАКТОРІВ РИЗИКУ, ЩО ВПЛИВАЮТЬ НА ЗДОРОВ'Я У ПРОЦЕСІ ПРОФЕСІЙНО-ПСИХОЛОГІЧНОЇ ПІДГОТОВКИ СУЧАСНОГО ФАХІВЦЯ**

Проблема здоров'я населення України набула особливої актуальності в останні роки, оскільки українське суспільство зазнає зовнішніх загроз від війни з Росією, що негативно відбивається на планах, цілях і якості життя, підвищує психологічну напруженість і призводить до погіршення фізичного, психічного та соціального здоров'я людей. Це стосується й учасників освітнього середовища.

На сьогодні, незважаючи на воєнні дії в Україні, необхідним у вищих навчальних закладах є розв'язання нових і нестандартних завдань, які вимагають збереження здоров'я студентів та їх особистісних ресурсів у процесі професійної підготовки.

Комплекс різнорівневих непередбачуваних викликів і ризиків, які зосереджені навколо соціально-політичної ситуації в країні в умовах спочатку пандемії, а тепер війни та дедалі більшої присутності цифрових

технологій в освітньому просторі вищих навчальних закладів, актуалізує розгортання серії досліджень факторів ризику, що впливають на стан здоров'я студентів для профілактики захворювань молоді.

Метою даної статті є дослідження факторів ризику, що можуть впливати на стан здоров'я студентів в умовах сьогодення для розробки системи профілактичних заходів попередження захворюваності в процесі їх професійної підготовки.

Методологія, на яку спирається ця стаття, базується на основоположних методологічних принципах системності та міждисциплінарного підходу і включає використання комплексу загальнонаукових (пояснення, порівняння, класифікація, узагальнення, систематизація) та емпіричних (спостереження, бесіда, опис, аналіз, експеримент) методів. Спираючись на них, ми сформулювали практичні рекомендації щодо забезпечення відповідних умов для збереження здоров'я студентів в сучасних умовах навчання.

У межах нашого дослідження було досягнуто наступних **результатів**: узагальнено погляди науковців до визначення факторів, що впливають на рівень здоров'я молоді; розглянуто фактори ризику, що впливають на показники здоров'я студентів; надано результати дослідження поширеності захворювань у студентів спеціальної медичної групи Національного технічного університету «Харківський політехнічний інститут», сформульовано рекомендації щодо профілактики захворюваності серед студентів вищих навчальних закладів у процесі професійної підготовки в умовах війни.

Висновки дозволяють стверджувати, що для збереження здоров'я сучасного фахівця в сучасних умовах необхідно визначити основні групи факторів ризику, зрозуміти механізми їх дії на фахівця і своєчасно застосувати відповідні заходи і прийоми для їх запобігання залежно від ситуації, яка склалася.

КЛЮЧОВІ СЛОВА: здоров'я студентів, здоровий спосіб життя, фактори ризику, підготовка фахівців, профілактичні заходи, попередження захворюваності.

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