

Article Classification:
Original article

DYNAMICS OF PHYSICAL ACTIVITY AND LIFESTYLE OF STUDENTS DURING THE WAR PERIOD IN UKRAINE

Iryna Skrypchenko¹, Olena Dorofieieva²,
Kseniia Yarymbash², Yevhenii Strykalenko¹,
Valeria Tyshchenko³

¹ Kherson State Agrarian and Economic University, Kherson, Ukraine

² Bogomolets National Medical University, Kyiv, Ukraine

³ Zaporizhzhia National University, Zaporizhzhia, Ukraine

OPEN ACCESS

Submitted: 20 February 2025

Accepted: 28 June 2025

Published: 14 July 2025

ORCID

Iryna Skrypchenko

<https://orcid.org/0000-0001-5895-3099>

Olena Dorofieieva

<https://orcid.org/0000-0003-2602-1873>

Kseniia Yarymbash

<https://orcid.org/0000-0003-4694-291X>

Valeria Tyshchenko

<https://orcid.org/0000-0002-9540-9612>

Cite this article as:

Skrypchenko, I., Dorofieieva, O.,
Yarymbash, K., Strykalenko, Y.,
Tyshchenko, V. (2025).

Dynamics of physical activity
and lifestyle of students during
the war period in Ukraine.

Journal of Applied Sports Sciences,

9(1), pp. 137 - 152.

DOI: 10.37393/JASS.2025.09.01.11



This work is licensed under
a Attribution-Non

Commercial-ShareAlike 4.0

International (CC BY-NC-SA 4.0)

ABSTRACT

Maintaining a healthy lifestyle and engaging in sufficient physical activity contribute to the preservation of health and personal growth in young students. These issues are very relevant today for Ukrainian society, due to the long quarantine and Russian military aggression, which have significantly changed the way of life of young people and limited the opportunity to maintain a healthy lifestyle.

The purpose of our study was to determine the lifestyle profile and physical activity of students in adverse ecological and psychological conditions during the war.

Materials and Methods: The research, conducted over a three-year period (2021-2024), involved 84 students from three universities in Ukraine. We employed a method that involved analyzing scientific literature, synthesizing and systematizing the findings, generalizing the results, surveying applicants (online using the Google Forms application), testing the profile for a healthy lifestyle, and applying mathematical statistics.

The results of the test showed that during the year, under the influence of the change in the socio-ecological state of the environment caused by military actions in Ukraine, five indicators changed among students: Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, and Stress Management. The use of modified and adjusted physical education methods for distance learning contributed to a gradual increase in students' physical activity.

Conclusion: It was determined that the behavioral constructs (responsibility for health, physical activity, and nutrition) and the cognitive-emotional component of young students (spiritual growth, interpersonal relationships, and stress management) were above average and changed as a result of the environmental factors and long-term military environmental factors ($p \leq 0.01$). The choice of physical activity is determined by the availability of financial resources, the availability of sports infrastructure, conditions for independent training at home, employment, and motivation for a healthy lifestyle. The existence of significant relationships between physical activity and all indicators of a healthy lifestyle has been mathematically proven ($r = .514 - .796$).

Keywords: physical activity, dynamics of change, healthy lifestyle, stress, the socio-ecological state, wartime conditions.

INTRODUCTION

Preserving and restoring the health of young people is becoming increasingly relevant in modern society. Many negative factors in the external environment have a permanent effect on the health of society. It is known that

one of the most effective means of improving health is the observance of the principles of a healthy lifestyle, which provide for a dose increase in the level of physical activity (Griban et al., 2020; Shashlov, 2020; Skrypchenko & Bilohur, 2023; Babachuk et al., 2024; Otraven-

ko et al., 2024). Unfortunately, due to difficult conditions (in particular, Russia's military aggression), the educational process of a modern student in Ukraine is filled with stressful situations. The ability to successfully overcome such difficulties ensures the student's improvement in both professional and personal aspects. However, the inability of the future specialist to face these challenges in the process of preparing for professional activity, as well as to quickly and effectively solve difficult situations, and find the necessary resources to combat the consequences of prolonged stress, has a negative effect on both the learning process and the ability to qualitatively perform their professional duties responsibilities in the future.

Scientists have proven that the impact of traumatic war events can lead to a decrease in the quality of life for many years even after the end of actual combat events because wars and armed conflicts cause lasting changes in social conditions due to increased poverty, unemployment, violence in society, inadequate living conditions and changes in social contacts (Sharanova, 2023; Strnadová et al., 2023; Kurapov et al., 2023).

In addition to the general causes of stress associated with war, young students face further challenges, including changes in education and work, the transition to independent adult life, and the need to make decisions. As a result, the body's resistance and endurance decrease, leading to a deterioration in overall quality of life. Physical exercises are considered the primary non-drug and effective means of improving the body, calming the mind, and mitigating the effects of stress (Putrov, 2017; Fuchko, 2023; Potop et al., 2024). The use of physical culture is most relevant for young people, as individuals of student age are the most active, seeking new sensations. At the same time, they can engage in activities independently and consciously, striving to achieve a specific goal.

Scientists worldwide are concerned about the challenges of promoting a healthy lifestyle among young people today, as reflected in research by von Bothmer & Fridlund (2005), Algahtani (2020), and García-Pérez et al. (2023). It is also relevant in Ukrainian society because the formation of healthy lifestyle habits will make an invaluable contribution to solving the problem of health and physical potential of the nation, the normal functioning of its economy, and the provision of all components of state security, etc. (Golubeva et al, 2022; Kurapov et al., 2024).

According to the National Doctrine of the Development of Physical Culture and Sports, the formation of stable traditions and motivations among the population regarding physical education and mass sports is a crucial factor in ensuring a healthy lifestyle. It is one of the main tasks of state policy in this area. Modern scientists have developed a single holistic view of the concept of "health", which integrates four components: physical, mental, spiritual, and social (Zhelezniak et al., 2024; Bjelica et al., 2024). Scientists have proven that human health is influenced by various social, economic, and environmental factors (Mekhed & Nosko, 2021; Martsenkovskiy et al., 2024; Skrypchenko et al., 2024).

The physical education system in Ukraine has made significant progress in changing students' attitudes toward a healthy lifestyle, promoting physical activity through independent classes, and enhancing students' physical qualities. In today's conditions, Ukrainian specialists have attempted to reform the physical education system in institutions of higher and higher professional education, focusing on the advantages of online learning, which is relevant for nearly 30% of all institutions. To increase the volume of students' physical activity and effectively spend their leisure time, the latest, effective, and useful forms of physical and health activi-

ties are rapidly developing. At the initial stages of the development of new types of physical activity, mainly those aimed at improving the level of physical condition and those types of activity that can improve the psycho-emotional state were developed (Dorofieieva et al., 2019; Dorofieieva et al., 2021; Kozlova & Boyko, 2022; Vovk et al., 2022; Skrypchenko & Badicu, 2023; Havrylova et al., 2023).

Since 2023, many territories of eastern Ukraine, which are subject to regular bombing, have faced a deterioration in the environmental situation (air and soil pollution, water poisoning, field mining, toxic smog, chemical rain, etc.), which negatively affects the health of young people.

With the beginning of the full-scale phase of the Ukrainian-Russian war, the entire population of Ukraine has experienced some stress in one way or another. The authors note in their work that stress, especially chronic stress, can lead to a number of health problems, such as an increased risk of developing cardiovascular diseases and problems with excess weight, which is primarily associated with long-term cortisol production (Yuryeva et al., 2022). Additionally, constant stress can overburden the nervous system, potentially interfering with work, study, and daily activities (Limone et al., 2022; Eremenko et al., 2023). Thus, the maladaptation that has occurred as a result of the war since 2014 has led to significant mental exhaustion and a deterioration in the population's productivity.

An analysis of the literature revealed the significance and relevance of the chosen problem not only for Ukraine but also for many regions of the world where military actions are ongoing, and young students are limited in their opportunities to access education, a quality lifestyle, including physical activity and sports.

The purpose of our study was to determine the lifestyle profile and physical activity of stu-

dents in adverse ecological and psychological conditions during the war.

METHODOLOGY

Participants

The work was carried out within the framework of the approved National strategy for healthy physical activity in Ukraine for the period until 2025: "Physical activity - healthy lifestyle - healthy nation", on the premises of Dnipro State University of Internal Affairs (DSUIA Dnipro), Bogomolets National medical university (NMU, Kyiv), Kherson State Agrarian and Economic University (KSAEU, Kherson-Kropyvnytskyi) in the period from 2021 to 2023. At the preliminary stage of the study, 440 students from 3 regions of Ukraine (Dnipro, Kyiv, Kherson) were tested. Subsequently, 28 participants were randomly selected from each region in which the universities were located. Thus, the study involved 28 first-year students from each university who studied remotely in the 2021-2022 academic year (during the COVID-19 pandemic). The average age of the first-year students was 18.9 ± 1.9 years.

Similar studies were continued in the 2022-2023 and 2023-2024 academic years (during the introduction of martial law as a result of Russia's military aggression), when the students were already in their second and third years. Twenty-four percent of the respondents in the 2022-2024 academic year were in war zones, de-occupied and temporarily occupied territories, where they continued their studies in a distance form.

Design study

The work employed a complex array of general scientific theoretical methods, including the analysis of scientific literature, synthesis, systematization, generalization, surveying applicants (online via the Google Forms application), testing the profile of a healthy life-

style, and methods of mathematical statistics.

The research was carried out within the framework of the COST (European Cooperation in Science and Technology) project “European Observatory for Healthy Lifestyles of Children and Adolescents (ROPE4Life)” (led by Dr. Stevo Popovic).

The testing was anonymous and was conducted according to the Health-Promoting Lifestyle Profile (HPLP-II) questionnaire, Petrash et al. (2018), which was developed to measure the multicomponent structure of a healthy lifestyle and is widely used by foreign researchers for ego assessment, both among healthy people and in the context of certain diseases. The approach proposed by the authors enables the assessment of factors that influence behavior aimed at preserving and strengthening health. The authors of the methodology refer to the first three scales as constructs that examine observed behavior (responsibility for health, physical activity, and nutrition), and the remaining three (spiritual growth, interpersonal relationships, and stress management) as cognitive and emotional components of well-being, collectively referring to them as psychosocial well-being.

High scale values indicate the formation of behavior aimed at strengthening health. The maximum values are 32 and 36 points. Cronbach's α was calculated for all proposed scales of behavior research and scales for assessing the cognitive and emotional components of well-being.

• **Scale of Health Responsibility (Health Responsibility / HR)** - is associated with attention to one's health, including an understanding of the importance of improving health. A positive connection with the “vitality” parameter indicates a high level of vital activity when a person takes responsibility for their health. ($\alpha = .86$).

• **Scale of Physical Activity (Physical Activity / PA)** – implies compliance with a certain regimen of regular physical exercises. Positive

relationships with the parameters of physical functioning, general health, vital activity, and mental health indicate that physical activity improves health, allows you to accumulate strength and energy, and also avoids depressive and anxiety states, while maintaining a positive emotional state. ($\alpha = .82$).

• **Scale Nutrition (Nutrition / N)** – includes knowledge and selection of food products necessary for maintaining health, as well as creation of a nutrition system. The relationship between the emotional and volitional characteristics of the personality and the parameters of psychological well-being is shown. The fact that direct connections exist between the psychological and physical components of health confirms the positive contribution of the nutritional factor to the overall state of health. ($\alpha = .84$)

• **Scale of Spiritual Growth (SG)** - means striving for the development of internal resources, achieving self-realization, and having goals in life. A pronounced volitional component of the personality, the desire for creation and self-improvement, the ability to resist social pressure, think and behave independently, the desire for new things, the realization of one's potential, the presence of goals in life - these are all things that reflect the factor of internal growth. ($\alpha = .86$)

• **The Interpersonal Relations (IR) scale** reflects how well a person can use communication to maintain relationships and a sense of closeness with others. The desire for an active social life, a benevolent and understanding attitude towards others, the ability to derive satisfaction from communication with people, and high emotional stability are key to forming favorable interpersonal relationships. This fact can be a reflection of favorable physical and psychological health.

• **Stress Management scale (Stress Management / SM)** - includes recognition of stress sources, taking measures to counteract stress, as

well as the use of special techniques that help relieve stress. In the event of health problems, a person with strong stress management skills will consult a doctor and carry out appropriate appointments. Direct connections with mental health reflect the absence of anxiety and depression, with vitality / vital activity, characterizing the presence of strength and energy. Additionally, stress management has a positive correlation with the scale of emotional stability, which in itself indicates high emotional control and mental well-being, as well as with the scales of psychological well-being, including competence, personal growth, and self-acceptance. ($\alpha=.87$)

The method of surveying applicants (online via the Google Forms application) was used to clarify the obtained test results regarding the determination of motor activity in students across different social and ecological environments during distance learning.

Statistical analysis

Statistical analysis included the determination of the mean, standard deviation (SD),

kurtosis, correlations, and differences in mean values using Student’s *t*-test. A significance level of $p = .01$ was applied.

RESULTS

The results of the test showed that during three years, under the influence of the change in the epidemiological and ecological state of the environment caused by military actions in Ukraine, five indicators of students changed reliably (beneficially): Health Responsibility, Physical Activity, Nutrition, Spiritual Growth and Stress Management ($p < .01$).

Throughout the entire research period, only the Interpersonal Relationships indicator ($p < .01$) remained unchanged, decreasing by 1 point. However, from Table 1, we see that it is at a fairly high level (out of 36 possible points), indicating the importance of communication skills in supporting one another, showing kindness, compassion, and high emotional stability, which is especially important in wartime, given daily contact with human tragedies.

Table 1. Results Health-Promoting Lifestyle Profile of Students ($n=84$ students).

Scale	2021 – 2022			2022 – 2023			<i>t</i> -test <i>p</i> -value (1-2)	2023 – 2024			<i>t</i> -test <i>p</i> -value (2-3)	<i>t</i> -test <i>p</i> -value (1-3)
	Mean	SD	Kurt.	Mean	SD	Kurt.		Mean	SD	Kurt.		
Health Responsibility	25.4	4.6	-.757	28.7	3.9	-1.12	$\leq .01$	29.4	2.31	-.551	$\leq .05$	$\leq .01$
Physical Activity	21.6	5.2	-.730	18.2	3.2	.123	$\leq .01$	27.8	2.5	2.753	$\leq .01$	$\leq .01$
Nutrition	25.2	3.8	-1.05	22.9	3.6	-.281	$\leq .01$	22.6	2.7	-1.036	$> .01$	$\leq .01$
Spiritual Growth	29.0	4.5	.536	26.1	3.7	-.626	$\leq .01$	26.1	3.7	-.717	$> .01$	$\leq .01$
Interpersonal Relations	31.4	3.9	.399	30.4	3.3	2.62	$> .01$	30.1	3.3	-.327	$> .01$	$> .01$
Stress Management	23.5	3.2	.052	18.7	2.7	-.707	$\leq .01$	28.6	1.7	-.010	$\leq .01$	$\leq .01$

It can be stated that, under the conditions of military conflict, students’ value priorities have shifted, and their understanding of the significance and importance of health has strengthened in their minds. The Health Responsibility indicator increased by 6 points.

In wartime, the population of Ukraine experiences significant distress, which affects the mental state and can lead to a loss of control over nutrition. Consumption of poor-quality food and the reduced purchasing power of young people are the leading factors that prevent them from

adhering to a healthy lifestyle during wartime. This is confirmed by the data in Table 1, where the attitude towards “Nutrition” is at the lowest

level among all, with a score of 22-25 points. The frequency of consumption of fatty foods and fast food increases during wartime.

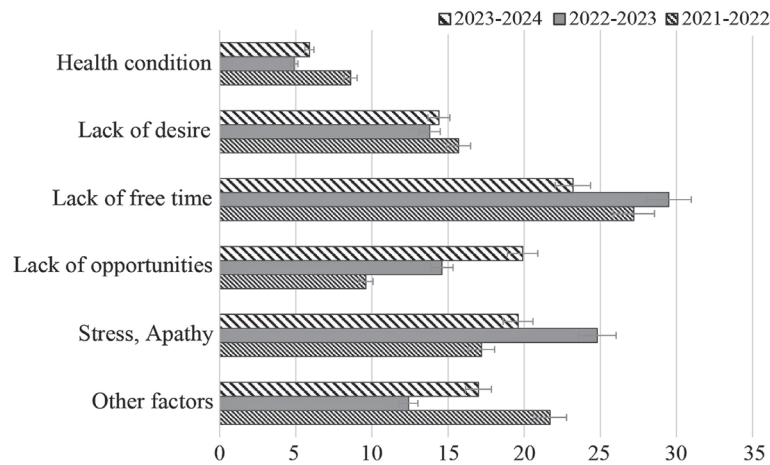


Figure 1. What prevents you from engaging in physical activity - the results of a student survey ($n = 84$ students).

From the data in Table 1, we identified a decrease in the physical activity of young students in 2022 (by 3.4 points), a decrease in control over nutrition (by 2.3 points), and a decrease in work related to spiritual condition (by 2.9 points). A year later (in 2023), we recorded minor changes in relation to the previous indicators of Nutrition, Spiritual Growth, and Interpersonal Relations ($>.01$).

The survey revealed that a lack of free time continues to be one of the factors hindering physical activity, with 23% to 29% of respondents (Figure 1). While students have learned to cope with stress, the decline in financial and economic opportunities has limited opportunities for active physical activity (from 10% to 20%). At the same time, the level of physical activity, which had a tendency to decrease due to scientific and technological progress, fell even lower due to the pandemic and the subsequent introduction of martial law, resulting in restrictions on movement and the adoption of distance learning.

Every person in the process of life is exposed to stress factors. If the surrounding conditions are stable, the body adapts to them and

the impact of these factors is minimized. Under the current conditions that have developed in our country, stress factors have become more influential on the internal state of people and their daily activities. A significant stressor was also the decrease in the family’s economic well-being and the feeling of danger, which, unfortunately, did not decrease during the two-year state of war but underwent an adaptive process.

As a result of the research, it was found that under quarantine conditions, 37.7% of applicants fulfilled the minimum physical activity requirements per week, 30.7% of applicants engaged in physical activity only during on-line physical training classes, and 31.6% exhibited a low level of physical activity. Under martial law, the situation was slightly different. A quarter (25.6%) of applicants fulfilled the requirements for minimum physical activity per week, 18.7% of applicants engaged in physical activity only during online physical training classes (if the necessary conditions were present: availability of the Internet, light, absence of air alarms, etc.), and 55.7% had a low level of physical activity.

The long war has led to adjustments in the understanding of the importance of physical fitness for both young men and women. It has become clear that physically fit young people are needed to serve in the Ukrainian Armed Forces to protect their homeland. Compared to

the pandemic period, students have found an opportunity to increase the number of classes from the required 2-4 hours in the educational process to 6-7 hours due to independent classes in their favorite type of physical activity (Figure 2).

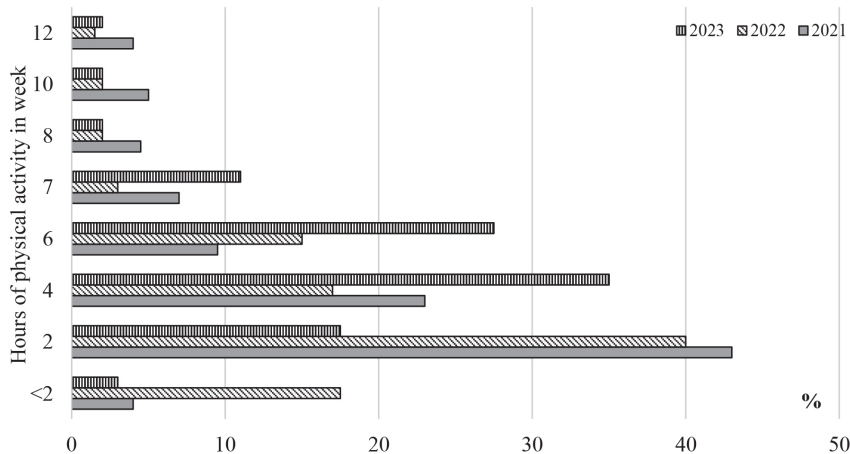


Figure 2. Hours of physical activity of students in one week (n=84 students).

The primary reason for low physical activity was the lack of free time due to a large academic load, which is associated with a significant number of theoretical tasks that required completion using IT technologies (47.9%). The current economic and quarantine conditions in the country have affected the number of students (up to 24.6%) who started working in their first year to support their studies at the university. Previously, this figure did

not exceed 10%. Additionally, a significant percentage of students (15.5%) expressed a reluctance to participate in physical education independently. This category of students is extremely necessary for the sake of setting an example for others, the presence of friends, competition, instructions, and guidance from the teacher. Without these incentives, they would not realize the need for physical exercise.

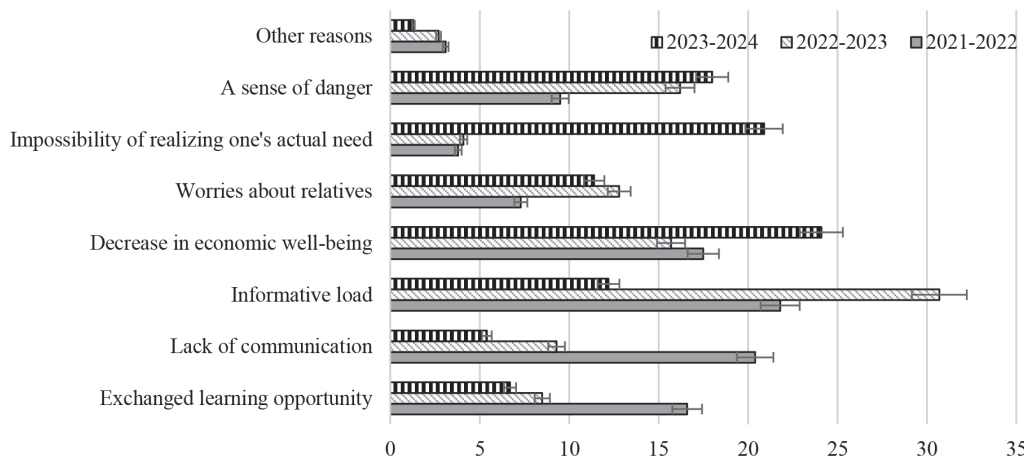


Figure 3. The causes of the stressful situation, as identified by the results of the student survey (n = 84 students).

It is worth noting that stress is a natural mechanism by which the body adapts to a stressful situation. Objective causes of stress can be the conditions of existence, the people with whom we interact, and social factors. These can be large amounts of information during study, life away from family, without their support, and relationships with other students and teachers. Subjective - psychological characteristics of the individual himself, his personal adaptive potential. Depending on this, people perceive stress factors differently and interact with others accordingly.

In the mental sphere, negative symptoms arise: irritability, anxiety, feelings of fear, restlessness, insomnia, decreased working capacity, and the inability to feel pleasure. Important learning processes, such as memorization,

were disrupted, and poor concentration was observed, leading to slowed mental processes. This led to physical manifestations, including muscle tension, which resulted in pain in various locations. Students who were forced to change their place of residence and their usual rhythm of life experienced additional mental stress due to the need to process large amounts of information and concentrate on studying, while simultaneously worrying about their loved ones. Most students complained about a lack of time (Figure 3).

According to the study's results, we observed a variation in anxiety levels, highlighting the importance and diversity of individual reactions to surrounding events. Most likely, the respondent's personal experience and skills in overcoming crises played a significant role.

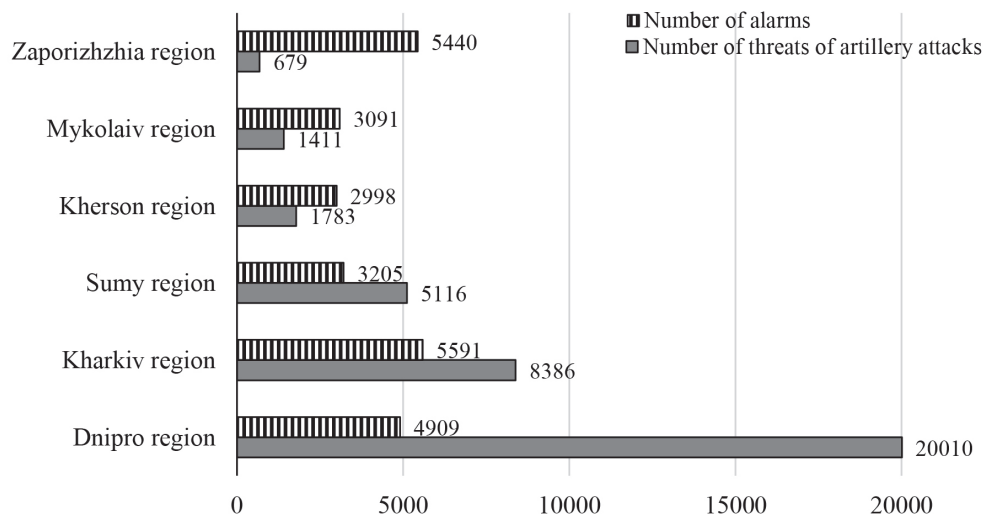


Figure 4. Number of threats of artillery attacks and Air Alerts in Ukraine by region (2022-2024). (<https://air-alarms.in.ua/en#statistic>)

The increase in the level of stress in 2022-2023 is explained by the greater number of shelling, air raids, and destruction (Figure 4). However, later, the students experienced a period of adaptation during the war, as well as changes in tactical and strategic situations. Nevertheless, the results show that this difference in perception remained (Table 1).

While stressors are usually impossible

to eliminate, we have suggested that they be managed. Technically, Ukrainian education was well-prepared for distance learning, as on March 12, 2020, the Cabinet of Ministers of Ukraine issued a resolution in response to the COVID-19 pandemic, transferring training in all educational institutions to an online mode. The experience of organizing the educational process during the COVID-19 pandemic made

it possible to establish distance learning, and there were even advantages for students and teachers. For example, students were able to combine work and study more easily, thereby receiving practical application of the knowledge they acquired from various disciplines, while also gaining theoretical knowledge in educational institutions. Additionally, the time previously spent traveling to the educational institution can now be used for hobbies or recreation. However, there is always a percentage of students who understand the need for physical activity but lack the desire or willpower to tear themselves away from their gadgets.

Among those who engage in physical activity independently or by visiting gyms, students prefer aerobic exercises. Aerobic exercise (low-intensity exercise), which includes walking or hiking (biking), running, skating, rollerblading, stair climbing, and dancing, has lost some of its popularity.

Among the types of physical activity, the winners prefer various types of fitness (aerobics (aqua aerobics), shaping, fitness dances, fitball, gyms, and workouts). During the waxing phase, stretching exercises (such as Callanetics, Pilates, breathing exercises, and body flex) and yoga have become more popular because they can help reduce stress and control panic attacks. Therefore, mastering breathing exercises has become a top priority for all segments of the population, including young people.

Among the sports games, football was undoubtedly the most popular, with the majority of male respondents expressing a preference for it. Due to the fact that, under martial law conditions, all sports facilities and educational and sports schools must be equipped with bomb shelters, otherwise, the number of participants significantly decreases.

Taking into account the experience of many foreign and Ukrainian specialists, we offered students various types of physical ac-

tivity for independent learning (Kosheleva et al., 2021). The main requirements for organizing independent classes were: performing all exercises in aerobic mode, focusing on heart rate indicators; starting training gradually and periodically increasing the load; and trying to engage all muscle groups. For those who had the opportunity to move freely and exercise in the fresh air, we offered brisk walking, running, cycling, rollerblading, sports games, dancing, and swimming as aerobic exercises (Ovcharenko, 2023; Horodetska et al., 2023). When exercising on sports simulators, moderate loads were recommended to strengthen muscles (Skrypchenko, 2023). Such classes also include working in the garden or vegetable garden (for residents of rural areas). For classes held at home or in a limited space, we offered breathing exercises, yoga exercises, static stretches, Pilates, and dynamic exercises, including running in place, running up stairs, and various jumping exercises. Following intensive classes, we provided relaxation exercises and psycho-muscular training. The main requirements for choosing and conducting classes: use the type of activity that brings pleasure; during the performance, focus on the correctness of the performance, abstract from negative thoughts; try to conduct classes daily; record the content of the training, well-being, pulse indicators, and emotional state in a self-monitoring diary; consult with teachers about all negative moments.

The use of online platforms offering free educational courses, which we provide to students, is, in our opinion, a novel approach that enables Ukrainian students to integrate into the international educational environment, enhance their physical education awareness, and improve their communication skills by engaging in English language communication. However, the attitude towards such proposals was not unambiguous. Students who found learning

interesting and in demand adapted perfectly to the distance format. However, those students who went to the educational institution for other reasons preferred other things (work, communication, or went into a state of depression).

Every week, students met online with teachers, discussed classes, and received new tasks and methodological instructions. Cases were recorded when students had not participated in physical education for a long time. We recommended daily loads at a pulse of 110-115 beats per minute. For 1-2 months, focus on walking, after which they can progress to short runs. Breathing exercises and static stretches were recommended for everyone, including those with health issues.

According to scientists, regular aerobic ex-

ercise reduces overall stress levels, improves and stabilizes mood, enhances sleep quality, and boosts self-esteem. The ways in which physical exercise affects stress are: reducing the level of hormones responsible for the physiological stress response; and stimulating the production of neurotransmitters, which are natural painkillers and are responsible for improving mood: with the help of exercise, a person is distracted from negative thoughts, maintains calm and clarity of mind; exercises help get rid of muscle tension caused by stress hormones. Through regular physical activity, students physically improve themselves, which contributes to increased awareness of their power over their body and their situation, as well as pride and self-confidence.

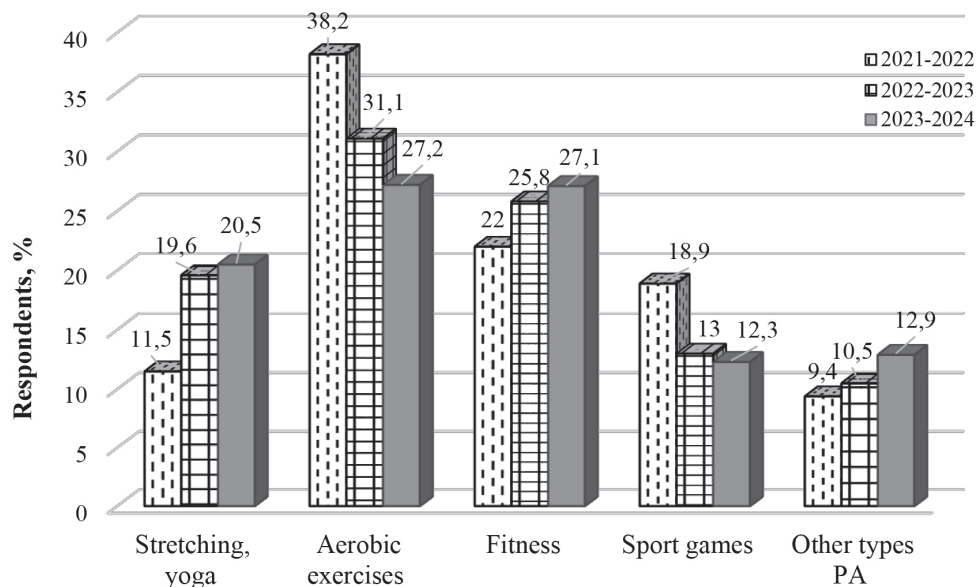


Figure 5. What types of physical activity are priorities for young students? Survey results ($n = 84$ students).

From Figure 5, we noted that the priority of physical activity included aerobic exercises (approximately 30%). However, yoga, stretching (from 11.5% to 20.5%), and fitness classes (from 22% to 27.1%) have recently gained popularity – classes that were pretty easy to do at home. For example, during wartime, the demand for martial arts classes among cadets in-

creased. They considered these types of sports to be the most useful in that situation.

Positive relationships with scales of psychological well-being, including personal growth, life goals, and self-acceptance, reflect a positive attitude towards oneself, one's life, and an understanding and acceptance of strengths and weaknesses, as well as a striving

for development and the realization of one's potential. This enables you to treat your health responsibly and address problems, including by leveraging external resources. The determination of the correlation relationship between Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Stress Management, and Interpersonal Relations revealed a close relationship between Spiritual Growth and Interpersonal Relations ($r = .796$). It was found that physical activity has an average relationship with four parameters ($r = .51 - .65$) and has a positive effect on both the nutritional system and the stress state. The ability to manage a stressful situation also exhibits the most significant number of medium and weak correlations with all the studied indicators, indicating how the external and internal environment affects the mental properties of student youth.

DISCUSSION

The problem of promoting an active lifestyle in the youth environment falls into the category of issues that currently determine Ukraine's national security level. If we consider the promotion of a healthy lifestyle from a social perspective, then it can be considered as measures that should contribute to health promotion and the implementation of programs to ensure the formation of a responsible attitude of people to their health. Among the factors that determine a healthy lifestyle are rational nutrition, adherence to a daily routine, avoidance of stress, prevention of the development of bad habits (such as alcohol consumption, unhealthy food and drink consumption, and smoking), as well as adherence to an optimal physical activity regimen. Therefore, it should be noted that lifestyle covers many areas of human life, including work and everyday life, social life and culture, lifestyle (behavior), and spiritual and moral values of the individual. In this aspect, it is precisely a person's lifestyle

that is an important element and the main guarantee of maintaining a healthy lifestyle.

Millions of Ukrainians now feel stressed, eat poorly, do little physical activity, and have poor sleep. All these are risk factors that can affect health in the future and cause non-communicable diseases such as diabetes, cardiovascular diseases, mental disorders, binge eating disorders, etc.

Studies have shown that lifestyle and mental health are highly dependent on each other.

The results of our research confirmed the transformation of areas of physical activity, with an emphasis on those varieties that are aimed at improving the level of physical and psycho-emotional state of students, which are emphasized in the following works by Havrylova et al. (2023), Ovcharenko (2023), Mokhun-ko et al. (2023), and Chobotko et al. (2023).

We found that a significant stressor is a decline in the family's economic well-being and the feeling of danger, which, although gradually increasing during a prolonged state of martial law, undergoes an adaptive process.

Young students are often able to cope with this type of stress successfully. The young students have adapted to this type of stress. Our research confirmed the data obtained by Kurapov et al. (2023), and Eremenko et al. (2023) that, in contrast to the indicators of pre-war life, after many months of full-scale military actions on the territory of Ukraine, the influence of stress factors began to affect deeper structures of the students' psyche, which caused them to experience emotional burnout and psychological exhaustion.

Considering that most students at the time of filling out the questionnaire were in the territory of Ukraine, where active military actions are underway, constant air raids occur, and online learning takes place, we did not note any traumatization of their mental state. The results we obtained were similar to those of

Limone et al. (2022) and Potop et al. (2024), which showed that students adapted to wartime conditions without negative consequences for themselves.

Nowadays, physical activity is especially important because it helps decrease the level of the stress hormone cortisol. The vast majority of students were aware of the rules of nutrition, but many had poor eating habits. In wartime, these problems were compounded by violations of the food regime due to the inability to prepare food, to purchase quality goods because they were unavailable for sale, or the inability to purchase them due to their high cost (prices increased by 80-220%). However, rational nutrition is an important factor in the prevention of various diseases, which in turn contributes to increased work capacity and longer life expectancy.

In our research, we ascertained that, under the conditions of military conflict, students' value priorities changed, as well as their understanding of the importance of health strengthened in their consciousness.

Our studies have confirmed the existence of a close relationship between the physical activity of young students and healthy nutrition, which helps to maintain optimal weight indicators, as noted in the works of Yuryeva et al. (2022). Our research confirmed a correlation between physical activity and personal responsibility for one's health and chosen lifestyle ($r = .514$), as reported by Mohunko et al. (2023). Independent physical exercises, with a weekly volume of 3 to 6 hours or more, as recommended by scientists Griban et al. (2020) and Golubeva et al. (2022), contribute to mitigating the negative impact of a sedentary lifestyle on students during distance learning. Therefore, students who avoided physical activity for various reasons experienced health problems, which was noted as a factor that prevented them from engaging in physical exercise.

Regarding inner spiritual growth, our results coincide with the studies of Zabolotska et al (2023). It has been confirmed that the Ukrainian youth is increasingly valuing freedom and spiritual values, taking direct, selfless participation in helping society and the army, and rarely exhibiting egocentric markers of such activity. Young people have undergone a leap in mental maturation. However, priorities regarding their lifestyle and self-realization through sports activities in this period took a back seat. We explain the phenomenon of inattention to one's health in the conditions of martial law by the switching of deep-value subject-centric mental mechanisms. It has been confirmed that physical exercise is a non-drug and effective means of improving the body, calming the mind, and alleviating the effects of stress. Our work has established that readiness for self-organization of educational activities, and mastering the basic techniques of its implementation, is a significant condition for effective adaptation to unusual conditions, self-realization, and self-fulfillment during educational activities, as well as the acquisition of important professional competencies in any situation and external influences.

CONCLUSIONS

The conducted studies revealed changes in students' attitudes toward a healthy lifestyle during distance learning in institutions of higher education in Ukraine during the COVID-19 pandemic and martial law, and also identified changes in subject-centric values. It was determined that the behavioral constructs (responsibility for health, physical activity, and nutrition) and the cognitive-emotional component of young students (spiritual growth, interpersonal relationships, and stress management) are above average and tend to change as a result of the adverse ecological and socioeconomic environment. Based on the

study's results, a fixed increase was observed in the contingent that, during martial law, participated in specially organized physical activity classes. When choosing physical activity, preference is given to aerobic exercises, which have a positive effect on relieving a stressful situation, and breathing exercises from yoga when overcoming panic attacks. The presence of significant interrelations of physical activity between all components of a healthy lifestyle has been mathematically proven ($r = .514 - .796$). Respondents also confirmed that physical education classes under martial law effectively influence the improvement of their psycho-emotional state, the formation of character, and resistance to unfavorable factors.

REFERENCE

- Algahtani, F. D. (2020). Healthy lifestyle among Ha'il University students, Saudi Arabia. *International Journal of Pharmaceutical Research and Allied Sciences*, 9(1), 160–167.
- Babachuk, Y., Mysiv, V., Rodikov, V., Ivanenko, O., & Koshliak, M. (2024). Physical education of students in the conditions of distance education. *Amazonia Investiga*, 13(75), 185–196. <https://doi.org/10.34069/AI/2024.75.03.16>
- Bjelica, B., Quintero, A. M., Karimi, A., Skrypchenko, I., & Abdullah, N. M. (2024). Emerging trends in physical education and inclusive education: A scientometric analysis. *Edu Sportivo: Indonesian Journal of Physical Education*, 5(1), 39–53. [https://doi.org/10.25299/es:ijope.2024.vol5\(1\).16298](https://doi.org/10.25299/es:ijope.2024.vol5(1).16298)
- Chobotko, I. I., Skrypchenko, I. T., & Rozhechenko, V. M. (2023). Methods of organizing classes in special physical training in the system of physical education and sports. In *Promising areas for the development of physical culture, sports, fitness and recreation: Scientific monograph* (pp. 409–418). Baltija Publishing. <https://doi.org/10.30525/978-9934-26-314-9-17>
- Dorofieieva, O., Yarymbash, K., Skrypchenko, I., Joksimović, M., Mytsak, A., & Nesterenko, N. (2021). Peculiarities and perspectives of physical rehabilitation within high school system: Oral presentation. In *Proceedings of the International Conference of Sports Science – AESA* (4). Retrieved from <https://journal.aesasport.com/index.php/AESA-Conf/article/view/192>
- Dorofieieva, O., Yarymbash, K., Skrypchenko, I., Pavlović, R., & Badicu, G. (2019). The effect of recreational swimming on the health of students with poor somatic health in physical education classes at university. *Journal of Functional Morphology and Kinesiology*, 4(3), 59. <https://doi.org/10.3390/jfmk4030059>
- Eremenko, N. P., Kovaleva, N. V., & Uzhvenko, V. A. (2023). The mental health of young students of Ukraine during the war. In *Trends and prospects of the development of science and education in the conditions of globalization: Collection of scientific papers* (pp. 90–93). Pereyaslav Ave.
- Fuchko, O. L. (2023). Study of psycho-emotional states of pedagogical workers and students of higher education in the period of pandemic and war. *Scientific Journal of the National Pedagogical University named after M. P. Drahomanov*, 4(163), 221–225.
- García-Pérez, L., Villodres, G. C., & Muros, J. J. (2023). Differences in healthy lifestyle habits in university students as a function of academic area. *Journal of Public Health*, 45(2), 513–522.
- Golubeva, V., Uskova, S., & Prus, N. (2022). Physical education as a means of forming a culture of health in students of higher education institutions. *Scientific Journal of the National Pedagogical Dragomanov University*, 8(153), 7–9. [https://doi.org/10.31392/NPU-nc.series15.2022.8\(153\).01](https://doi.org/10.31392/NPU-nc.series15.2022.8(153).01)

- Griban, G. P., Yavorska, T. Ye., Tkachenko, P. P., Kuvaldina, O. V., Dikhtiarenko, Z. M., Yeromenko, E. A., Lytvynenko, A. M., Hresa, N. V., Okhrimenko, I. M., & Ovcharuk, I. S., & Prontenko, K. V. (2020). Motor activity as the basis of a healthy lifestyle of student youth. *Wiadomości Lekarskie*, 73(6), 1199–1206. <https://doi.org/10.36740/WLek202006123>
- Havrylova, N. M., et al. (2023). Independent physical exercises as the main means of maintaining students' health during their distance learning. *Acta Balneologica*, 65(2), 115–119. <https://doi.org/10.36740/abal202302109>
- Horodetska, O. O., et al. (2023). Ways of forming a healthy lifestyle in higher education students. *Scientific Journal of the National Pedagogical Dragomanov University*, 6(166), 32–36.
- Khizhnyak, A., Myroshnichenko, V., & Kostenko, M. (2023). The Effect of Stressogenic Factors on the Psychological State and Educational Productivity of Physical Education and Sports Specialty Students in War Conditions. *Scientific Journal of the National Pedagogical Dragomanov University*, 3(161), 149–154. [https://doi.org/10.31392/NPU-nc.series15.2023.03\(161\).35](https://doi.org/10.31392/NPU-nc.series15.2023.03(161).35)
- Kosheleva, O., Skrypchenko, I., Singh, R. M., Porohnyavyi, A., Schastlyvets, V., & Lastovkin, V. (2021). Curricular analysis and student engagement as an indicator of the efficiency of the physical education system in university. *Scientific Bulletin of the Dnipropetrovsk State University of Internal Affairs*, 2, 415–427. <https://doi.org/10.31733/2078-3566-2021-6-415-427>
- Kozlova, T. G., & Boyko, G. L. (2022). The influence of independent physical exercises on the formation of student health culture. *Scientific Journal of the National Pedagogical Dragomanov University*, 10(155): 15–17. [https://doi.org/10.31392/NPU-nc.series15.2022.10\(155\).03](https://doi.org/10.31392/NPU-nc.series15.2022.10(155).03)
- Kurapov, A., Danyliuk, I., Loboda, A., Kalaitzaki, A., Kowatsch, T., Klimash, T., & Predko, V. (2023). Six months into the war: A first-wave study of stress, anxiety, and depression among [people] in Ukraine. *Frontiers in Psychiatry*, 14, 1190465. <https://doi.org/10.3389/fpsyt.2023.1190465>
- Kurapov, A., Pavlenko, V., Drozdov, A., Korchakova, N., & Pavlova, I. (2024). Impact of War on Ukrainian University Students and Personnel: Repeated Cross-Sectional Study. *Journal of Loss and Trauma*, 1–17. <https://doi.org/10.1080/15325024.2024.2433990>
- Limone, P., Toto, G. A., & Messina, G. (2022). Impact of the COVID-19 pandemic and the Russia-Ukraine war on stress and anxiety in students: A systematic review. *Frontiers in Psychiatry*, 13, 1081013.
- Martsenkovskiy, D., Shevlin, M., Ben-Ezra, M., Bondjers, K., Fox, R., Karatzias, T., Martsenkovska, I., Martsenkovsky, I., Pfeiffer, E., Sachser, C., Vallières, F., & Hyland, P. (2024). Mental health in Ukraine in 2023. *European Psychiatry*, 67(1), e27, 1–8. <https://doi.org/10.1192/j.eurpsy.2024.12>
- Mekhed, O., & Nosko, M. (2021). The biological and social fundamentals of healthy living of participants of the educational process. In A. Krynski, G. K. Tebug, & S. Voloshanska (Eds.), *Bioresources and human health* (pp. 143–154). Publishing House of Polonia University “Educator”.
- Mokhunko, T. M., Havrylova, N. Ye., & Sabirov, O. S. (2023). The influence of physical and health activities on the lifestyle of students. *Scientific Journal of the National Pedagogical Dragomanov University*, 3K(162), 290–293.
- National Doctrine for the Development of Physical Culture and Sports. URL: <https://zakon.rada.gov.ua/>
- Otravenko, O. V., Shkola, O. M., Zhamardiy, V. O., Pavliuk, O. M., Radchenko, A. V., Donchenko, V. I., & Myronenko, S.

- G. (2024). Method of physical improvement of higher education students using functional training in the aspect of health preservation. *Acta Balneologica*, 66(1), 40–48 <https://doi.org/10.36740/ABAL202401107>
- Ovcharenko, O. Y. (2023). The influence of modern distance education technologies on the formation of students' stress resistance during the war. In *International scientific conference "Research activities and achievements in pedagogy and psychology": Conference proceedings* (April 5–6, 2023, Częstochowa, the Republic of Poland) (pp. 141–145). Baltija Publishing. <https://doi.org/10.30525/978-9934-26-312-5-36>
- Petrash, M. D., Strizhitskaya, O. Y., & Mur-tazina, I. R. (2018). Validation of the questionnaire «Health-Promoting Lifestyle Profile» in the Russian sample. *Counseling Psychology and Psychotherapy*, 26(3), 164–190. <https://doi.org/10.17759/cpp.2018260309>
- Potop, V., Vypasniak, I., Ivanyshyn, I., Lutskyi, V., Kryventsova, I., Shesterova, L., & Prusik, K. (2024). Assessment of stress and health conditions among students in the context of the war in Ukraine. *Physical Culture, Recreation and Rehabilitation*, 3(2), 58–69. <https://doi.org/10.15561/physcult.2024.0203>
- Putrov, S. Y. (2017). Valeological discourse on formation, strengthening, and preservation of human health. *Scientific Journal of the National Pedagogical Dragomanov University*, 3K(84), 398–401.
- Sharanova, Y. V. (2023). Educational Process during Wartime. The Experience of Overcoming Stress by Students of the American University in Beirut. *Modern Information Technologies and Innovation Methodologies of Education in Professional Training Methodology Theory Experience Problems*, 67, 172–185. <https://doi.org/10.31652/2412-1142-2023-67-172-185>
- Skrypchenko, I. T. (2023). Students' experience of using ergometer «Concept-2» during independent physical education in the process of education in university. In *Physical culture in university education: World practice and modern trends: A collection of materials from the international scientific and practical conference* (Dnipro, April 13, 2023) (pp. 90–95). DSUIA.
- Skrypchenko, I., & Badicu, G. (2023). Innovative approach to the physical education of students using an interactive climbing wall. In *Physical culture in university education: World practice and modern trends: A collection of materials from the international scientific and practical conference* (Dnipro, April 13, 2023) (pp. 86–90). DSUIA.
- Skrypchenko, I., & Bilohur, V. (2023). New approaches to the organization of physical culture in the modern system of higher education in Ukraine. *Sport ilm-fanining dolzarb muammolari*, 1(1), 87–91.
- Skrypchenko, I., Morhunov, O., Pavlovic, R., Yarymbash, K., & Bilohur, V. (2024). A healthy lifestyle of young students in the context of a dangerous social and environmental environment in Ukraine. *Turkish Journal of Kinesiology*, 10(2), 68–78. <https://doi.org/10.31459/turkjin.1437393>
- Strnadová, V., Voborník, P., & Provazníková, K. (2023). Research on the symptoms of civilizational stress among university students during the COVID-19 pandemic, the war in Ukraine, and the ongoing economic crisis in the European region. In *EDULEARN23 proceedings* (pp. 2878–2888). IATED.
- von Bothmer, M. I., & Fridlund, B. (2005). Gender differences in health habits and motivation for a healthy lifestyle among Swedish university students. *Nursing & Health Sciences*, 7(2), 107–118.
- Vovk, I., Nezgod, S., & Taranenko, M. (2022). Independent classes on physical education of students in the realities of the edu-

cational process of the COVID-19 pandemic. *Scientific Journal of the National Pedagogical Dragomanov University. Series 15: Scientific and pedagogical problems of physical culture (physical culture and sports)*, 4(149), 39–43. [https://doi.org/10.31392/NPU-nc.series15.2022.4\(149\).09](https://doi.org/10.31392/NPU-nc.series15.2022.4(149).09)

Yuryeva, L., Ogorenko, B., Shornikov, A., & Kokashynskyi, B. (2022). Relationships between binge eating disorder, anxiety, and depression in medical students during military conflict. *Psychosomatic Medicine and General Practice*, 7(1), e0701355. <https://doi.org/10.26766/pmgrp.v7i1.355>

Zabolotska, S., Zamishchak, M., Savchyn, M., Vasylenko, L., Zymianskyi, A., Bilozerska, S., & Mashchak, S. (2023). Subjective attitude to the health of Ukrainian youth during the war. *Broad Research in Artificial Intelligence and Neuroscience*, 14(1), 75–87.

Zhelezniak, M., Ishchenko, O., Kozina, Z., & Pavlović, R. (2024). Sport and physical activities: Actual Ukraine's strategic narrative (in terms of encyclopedias). *Health, Sport, Rehabilitation*, 10(3), 105–114. <https://doi.org/10.58962/HSR.2024.10.3.105-114>

Corresponding author:

Iryna Skrypchenko

Kherson State Agrarian and Economic University,

Kherson, Ukraine

Email: sit71@ukr.net