

**DETERMINATION OF THE PSYCHO-EMOTIONAL STATE OF STUDENTS OF 2-ND YEAR STUDENTS OF IVANO-FRANKIVSK NATIONAL MEDICAL UNIVERSITY DURING DISTANCE LEARNING BASED ON A QUESTIONNAIRE**

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*One of today's important problems is the Covid-19 pandemic, which has caused a disturbance in people's lives, in particular among students. As a result, students of universities were transferred to distance learning. The problem of studying is the psycho-emotional state of students in the conditions of distance learning, somatic and behavioural manifestations of anxiety has become relevant to us.*

*Aim: to assess the psycho-emotional state, somatic and behavioural manifestations of anxiety in medical students during the period of distance learning.*

*Methods. 76 students of the 2nd year studying were interviewed by means of an anonymous questionnaire. An online questionnaire based on Google-Forms was used for the examination, which included questions to identify psycho-emotional and somatic manifestations of anxiety.*

*In order to achieve the objective, the following tasks were set: identify the emotional and behavioural reactions of students and investigate the somatic manifestations of anxiety using the developed questionnaires. Based on analysis of questionnaire responses, we found that the worldwide Covid-19 pandemic is a significant social factor affecting the functioning of the body and behavioural responses of students, but most of them have learned to control their emotions and behaviours. Only 19.7% of respondents reported an increase of negative emotions in daily life during distance learning, while 40.8% reported a de-*

*creased interest in distance learning compared to live learning, and frequent feeling of anxiety and apathy. The emotional state of about 25% of the participants decreased during the period of distance learning.*

*After studying the manifestations of anxiety at the somatic level, we found that most of the students didn't show signs of somatic manifestations of anxiety, 63.2% of students never felt dizziness or headache during the period of distance learning, 75% of students never felt tremor. In fact, 71.1% of them never experienced an increase in heart rate or arterial blood pressure during distance learning, but most of the respondents (56.6%) often feel tired or drowsy during distance learning.*

*Conclusion. Our research has show that the worldwide pandemic has a significant impact on the functioning of the body and behavioural reactions of students. However, during the period of distance learning, students have developed the resistance to stress and have the ability to respond appropriately to the social challenges facing humanity beginning in 2019.*

**Key words:** *distance learning, students, psycho-emotional state, a questionnaire.*

The world we live in constantly affects the human body. The conditions and environment which person lives and works in determine his behavior. Human behaviour is regarded as a type of human activity, a manifestation of the organism's vital activity, a way in which a person adapts to his environment and meets his needs. People's behaviour is influenced by society with its attitudes, rules, values, resulting emotions - both positive and negative. Emotions affect processes of perception, memory and the overall functioning of the body [1].

One of the important social factors having a significant impact on functioning of body and behavioural responses is the worldwide pandemic which has imposed quarantine requirements. According to our research, these factors significantly affect the emotional and behavioral reactions of students. Quite often they experience psychological problems and difficulties due to distance learning and the inability to communicate freely with friends. There is a fear for themselves and their relatives due to the saturation of the information space with reports of a pandemic of coronavirus infection, the unpredictability of COVID-19.

In 2019-2022, humanity faced the spread of a new type of virus, Covid-19, which was later recognized as a pandemic that posed new challenges to the mental, economic and physical spheres of human life. During the quarantine, restaurants, gyms, shops and public events were closed. In addition, the pandemic has made a number of demands, such as wearing and frequently changing masks, using different types of antiseptics, and maintaining social distance. Quite a few families have lost relatives due to the death from coronavirus disease. Depression and various stress disorders have been reported in recovering people during the post-CoV syndrome [2].

Studying the individual characteristics of students' psychological qualities is extremely important in practical terms - in education and vocational guidance.

We found a problem of studying the psycho-emotional state of students in distance learning conditions, somatic and behavioural manifestations of anxiety relevant, because this problem is generated by the presence of negative emotions because of COVID-19.

Subject of study - psycho-emotional state of 2nd year students during distance learning.

Object of the study - second-year students of IFNMMU during distance learning.

Aim of the study - to assess the psycho-emotional state, somatic and behavioural manifestations of anxiety in medical students during the period of distance learning.

To achieve this goal, the following tasks were identified:

1. to investigate emotional and behavioural reactions to the questions we have developed;

2. to study the somatic manifestations of anxiety in 2nd year students with the help of an anonymous questionnaire;

Research categories:

The first group were students whose families did not have COVID-19 (11%).

The second group consisted of students whose families were found to have COVID-19 (confirmed by PCR tests) (89%).

Scientific novelty - the main factors affecting the psycho-emotional state of students in the process of distance learning have been identified.

Practical relevance - based on the results of the questionnaire, practical recommendations for lifestyle changes, more time spent outdoors, more walks, increased healthy eating (eating fruits and vegetables), communication with friends and relatives, replacing e-textbooks with printed books and much more can be developed.

#### **Formulation of problem.** Physiological basis of people's behavior

The quality of the brain to reflect the outside world in the form of feelings, ideas, thoughts and volitional actions is the human psyche. It is with the human psyche that the specificity of human perception of the world is connected. The adaptation of the body to the different conditions is possible because of the constant flow of information to the human brain about changes in the external and internal environment. This information is received, transmitted to the appropriate areas of the cerebral cortex, and analysed by the sensory systems. Information from a large number of receptors about the same thing reaches the brain in a number of ways. This ensures the reliability and accuracy of its delivery to the higher analysis centres, where only the information that is important to the body is received. This is where it comes together, which ensures the integrity of

the display of phenomena by the nervous system. The behaviour of the body is determined by the conditions and environment in which people live and work. It is seen as a specific human activity, a manifestation of the body's vitality, a way in which the individual adapts to his or her environment and satisfies his or her needs. Human behaviour is significantly influenced by the totality of psychophysiological changes in the body, which are influenced by external and internal factors related to human activity and communication. Also manifestations of behaviour are actions - consciously planned and purposeful actions of a person which cause a certain reaction of the people involved, and habits - characteristic actions of a person which have become a requirement of the person. They are socially important and relate to behavioural norms, self-esteem, etc [3].

A strong personal (subjective) attitude towards reality and oneself is expressed through emotions. The hypothalamus, limbic system, and frontal lobes of the cortex of the large hemispheres play an important role in shaping emotions. Positive emotions have a positive impact on neurophysiological processes in the body, the display of positive emotions removes the feeling of exhaustion, improves mental creativity, increases pulse rate and breathing. Positive emotions contribute to the development of skills and talents and positively influence the functioning of organs and systems [4].

A distant psychological consequence can be the formation of a traumatised person. Such a person is unable to build good relationships with others, is difficult to adapt to society and is prone to depression and other neurological disorders [3].

The European Credit Transfer and Accumulation System, which has been implemented in Ukraine's higher education institutions, imposes high demands on students who have started their studies at the university. The student's adaptation to higher education is a complex socio-psychological process and is guided by the activation of the body's compensatory-adaptive systems. The transition to new social conditions, especially in the first years of study, has been found to result in active mobilization and then in the depletion of the mental and physical reserves of the student body, leading to a deterioration of health [2].

Yur'ieva L.M. studied the psychological state of prospective doctors during distance learning and found that, during the COVID-19 pandemic lockdown, a significant percentage of future physicians experienced anxiety, during the COVID-19 pandemic lockdown, a significant percentage of future physicians experienced anxiety and depression, which may be related to the fear of being infected with a coronavirus infection [6].

With the transition to distance learning, the approach to learning has also changed. The emotional state of participants in the education process in Ukraine was generally characterised by emotions of anxiety, fear, aggression and dissatisfaction. There were signs of emotional burnout, asthenic reactions, symptoms of negative stress, lack of computer skills and difficulties in organizing online learning.

It is worth mentioning that a research study was conducted at the Ter-nopil National Pedagogical University to determine students' attitudes towards distance learning. It was found that in distance learning, a third of the students had a high level of anxiety. They feel the distress and anxiety associated with online learning, virtual interaction and prolonged social isolation. It was found that students are emotionally affected before the examination and often feel fear and insecurity about themselves and their knowledge [5].

In Italy, a questionnaire was administered to students at the Università Cattolica del Sacro Cuore, with 501 respondents. The study showed that 35.33% of disorders were classified as anxious and 72.93% as depressive. Over 70% suffered from not being able to meet friends and partners physically. Nearly 40% of students were worried about whether the pandemic would be controlled, and more than 60% said they feared an increase in the number of cases and deaths. More than 60% wanted to return to full-time education, while 21% did not [3].

Somatic and behavioral manifestations of student's behaviour

Students' adaptation to the learning environment shows a complicated socio-psychological process and is accompanied by an activation of the compensatory and supervised capacities of the body. It has been reported that the transition to new social conditions activates the mobilization of the autonomic nervous system, and in the long run the mental and physical reserves of the students' body, which leads to a degradation of the general state.

Research shows that there is a significant increase in the number of hypochondriacs and depressives in the process of students' psychological adaptation to the new learning environment. It has been found that excessive anxiety can lead to disruption of autonomic nervous activity both at rest and under the influence of various stimuli (stress, mental strain), which can lead to the development of a psycho-autonomic syndrome.

Anxiety is a negative emotional state that is accompanied by an unreasonable expectation of an uncomfortable course of life situations and nervous tension. It is an individual-psychological characteristic with the following main manifestations: a specific feeling of unpleasantness; awareness of this feeling; corresponding somatic reactions manifested by physiological symptoms.

The student age is the most sensitive for the development of people's basic communicative skills. During studying at the university, students develop their individuality and personal qualities. One of the relevant indicators of a student's emotional sphere is the level of anxiety. Research suggests that a high level of anxiety can have a negative impact on the educational pathway of an aspiring specialist.

The reasons for anxiety are mainly biologic factors such as adversity, health and social factors: negative life experiences, disrupted relationships with parents and friends.

The students' anxiety is the most often manifested in the first and last year of



the course. This is because first-year students are just adapting to the new learning environment and are not comfortable in a new team. The increased anxiety may prevent the achievement of the goals and make the student uncompetitive. Students who have an increased level of anxiety are often withdrawn, insecure, uncommunicative and nervous.

Stressful conditions associated with prolonged anxiety can lead to decreased immunity, exacerbation of chronic pathologies, or the development of immunodeficiencies [2].

### **Research methodology**

Methods of researches of emotional and behavioral reactions

76 medical and dental students of the 2nd year studying in speciality 222 “Medicine” and 221 “Dentistry” were examined. An online questionnaire based on GoogleForms was used for the examination, which included questions to identify psycho-emotional and somatic manifestations of anxiety.

Presenting of main material. Researches of emotional and behavioral reactions of medical students

According to official data, as of February 7, the number of residents of Ivano-Frankivsk region who were diagnosed with Covid-19 coronavirus since the beginning of the pandemic - 171,969 (+779 for the previous day). New cases in Ivano-Frankivsk - 109. As of 7.07.22, 4,307,437 (+23,378) people fell ill in Ukraine, 101,392 (+115) died, 3,681,092 (+5,024) were cured [7]. However, these are only individuals who have done appropriate tests, suffered severe illness, and received inpatient treatment. This does not take into account the family members of these individuals, most of whom were also infected (according to our information), however, because the disease was mild, tests for COVID-19 were not performed (for reasons of cost savings). In adults, the obvious symptoms of COVID-19 infection are loss of smell and taste (not seen with other colds), severe sore throat, fever, and so on. Moreover, these residual phenomena persist for a long time, in the elderly - several months [6,7].

To determine the extent of the pandemic's impact on student development and behavior, in the first phase of our research, we conducted an anonymous questionnaire of the surveyed categories of respondents on our questions.

After analysing the results of the questionnaire, we obtained the following interesting facts. 89% of respondents say that their relatives had a coronavirus infection, which is officially confirmed (positive PCR test). We compared the results of an anonymous survey of students in the studied categories. It turned out that the attitudes to many problems related to the pandemic in these categories of respondents differ significantly.

If our respondents had the opportunity to visit a place where there are crowds of people during the “orange” or “red” zones, their decision would be positive in

less than half of respondents, ie 44.7% of respondents and still 55.3% their classmates would find the strength to give up. These data show that in a long-term pandemic, about half of students are not ready to change their lifestyle and refuse friends, despite the possibility of contact and spread of pathogen transmission. Among the negatives of visiting crowds, students put the following factors in the first place: a) constant experience due to the possibility of infection; b) the need to comply with quarantine restrictions for the safety of elderly relatives (66%). At the same time, students whose relatives have become ill (in mild form) have almost no negative emotions about visiting crowded places, as it is believed that re-infection is less likely due to lack of negative experiences (Figure 1).

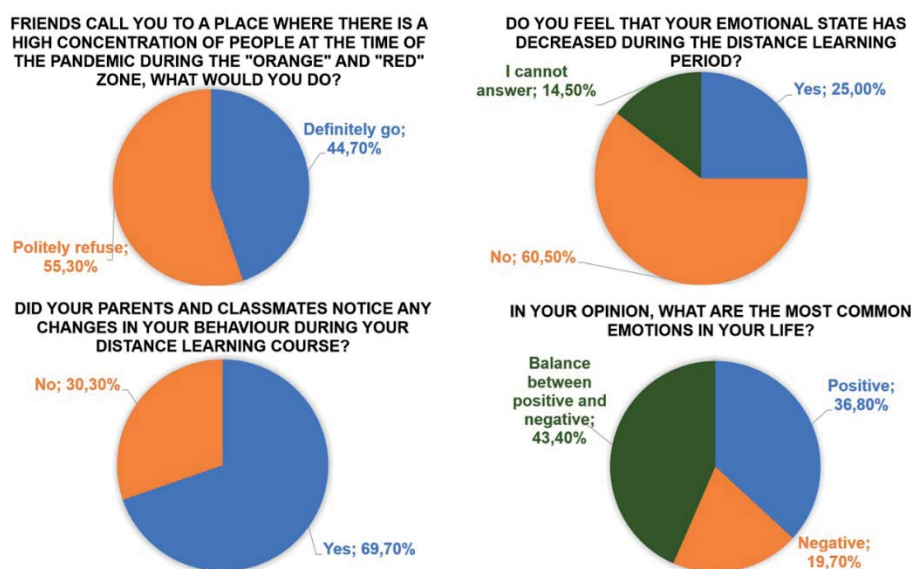


Fig. 1. Emotional and behavioral state of medical students during distance learning.

Among 76 respondents during distance learning, 60.5% do not experience deterioration of emotional state, which indicates the adaptation of life-style in a prolonged pandemic. However, almost a quarter of the surveyed students (25%) noted the deterioration of emotional state, which could be manifested by sadness, unwillingness to learn, irritability, anxiety. Although 14.5% of students have not yet been able to answer this question. Prolonged information campaign in the media, social networks, the Internet leads to the fact that students who have knowledge of disease prevention, vaccination, prevention and compliance with anti-epidemic measures are stressed. Therefore, only a third of respondents (30.3%) said that changes in their behavior during distance learning could be noticed by relatives and classmates. Thus, the majority of students (69.7%) did not show changes in behavioral re-sponses to certain stressors (Figure 1).

Obviously, this is why almost half of the surveyed students note a balance between positive and negative emotions (43.4%), positive emotions predomi-

nate in 36.8% of students during distance learning, it should be noted that 19.7% of respondents, in whose life, in their opinion, negative emotions prevail. Not only group curators and close relatives, but also practical psychologists should work with this category of students (Figure 1).

Thus, based on the analysis of the results of the survey, we found that the global pandemic COVID-19 is a significant social factor influencing the functioning of the body and behavioral reactions of students, but most students have learned to control their emotions and behavior. Thus, only 19.7% of respondents identified the predominance of negative emotions in every-day life during distance learning, 40.8% of students noted a decrease in interest in distance learning compared to full-time, often experienced fatigue, apathy. In 25% of students found a deterioration in emotional state during distance learning. One third of the students said that the change in their behavior during distance learning was noticed by close people around them.

#### **Researches of somatic manifestations of anxiety in students with results from anonymous questionnaire**

Somatic manifestations of anxiety relate to functional changes in internal organs, systems of the human body, manifested by heartbeat acceleration, difficulty in breathing, tremors of the extremities, stiffness, increased blood pressure and functional disorders of the digestive system [7]. To study the somatic manifestations of anxiety, an anonymous survey of respondents on the developed questions was conducted № (6-10). It turned out that the majority of respondents (56.6%) often experience fatigue, drowsiness, lack of desire to do something. During distance learning, the causes of fatigue can be factors such as prolonged stay in front of the monitor in one static position, increased load on the visual analyzer, and so on. At the same time, fatigue is a protective mechanism through which the body can rest and recover. 39.5% of surveyed students rarely feel tired. It should be noted that students were sufficiently physically fit, as 71.1% of them did not experience an increase in heart rate or increase in blood pressure during distance learning. Of course, at a young age, changes in these indicators may indicate not only physiological but also structural changes in the cardiovascular and nervous systems, so it is obvious that 14.5% of students who experienced rapid heartbeat or changes in pressure need to control the data indicators (Figure 2).

Stiffness, tremor and insecurity, apathy during distance learning were felt by 25% of students, but 75% of students did not experience somatic manifestations of anxiety. The percentage of students who experienced dizziness or headaches during distance learning was 36.6% (Figure 2).



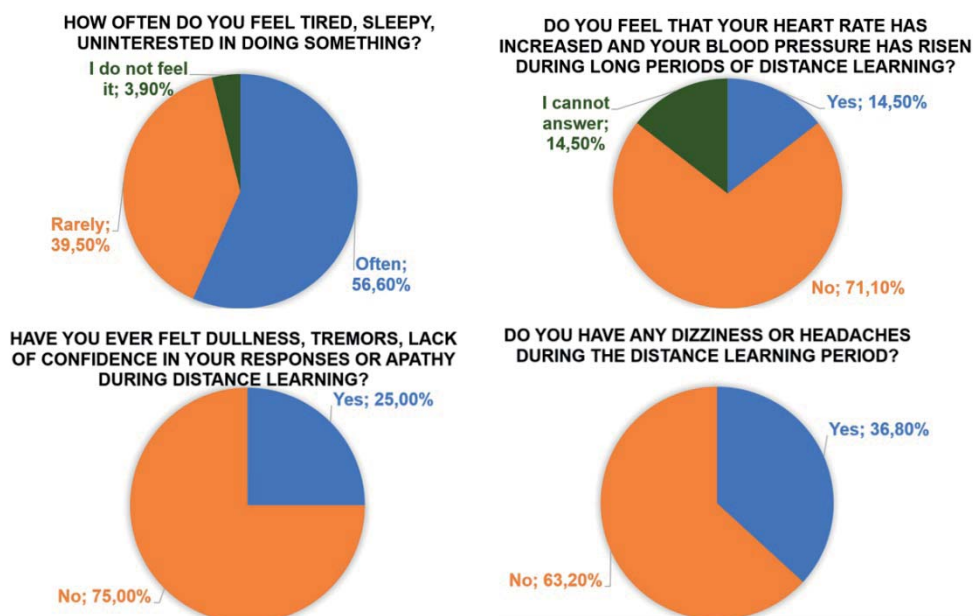


Fig. 2. Psycho-somatic reactions of medical students during distance learning.

Characteristic of students' psycho-emotional state or its violation can be considered the level of success, which can potentially decrease during fatigue or other stressors. The majority of respondents did not observe a decrease of their performance compared to full-time education, and only 13.2% of students noted that their level of success during distance learning decreased slightly. During distance learning, 40.8% of respondents noted a decrease in interest in the learning process, which is due to the impossibility of practical training in distance learning, but the majority of respondents (59.2%) do not see any difference between distance and full-time study. This testifies to the effectiveness of the use of teaching aids, in particular the Teams platform, which allows video conferencing to be in touch with the teacher, to take online testing on the sites test.if.ua and pmk.ifnmu.edu.ua (Figure 3).

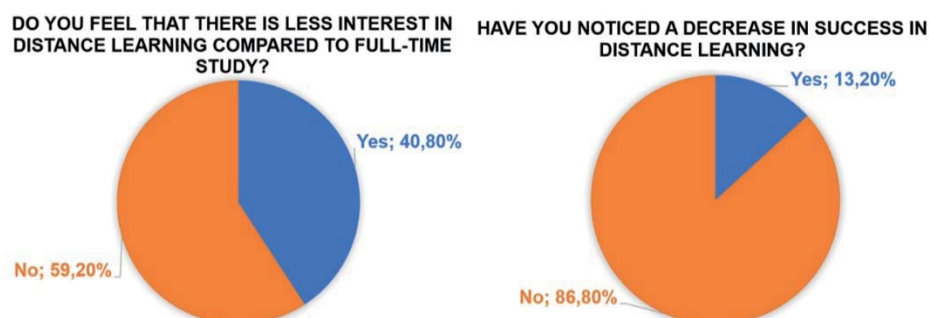


Fig. 3. Interest to the educational process of medical students during distance learning.

Conclusion 2. Examining the manifestations of anxiety in 2nd year students at the somatic level, we found that the most respondents showed no signs of somatic manifestations of anxiety, so 63.2% never experienced dizziness or headache during distance learning, 75% of students never showed tremor, insecurity, 71.1% of them never experienced rapid heartbeat or high blood pressure during distance learning, but the majority of respondents during distance learning (56.6%) often experience fatigue, drowsiness. Special attention should be paid to students with signs of anxiety at the somatic level, who should be recommended to spend more time outdoors, modify life-style, diet and more.

### Conclusions

1. Human behaviour is influenced by society with its attitudes, rules and values, generating emotions - positive or negative. Emotions affect perception, memory and the overall performance of the body. One of the major societal factors that significantly affect bodily function and behavioural responses is the worldwide pandemic. According to our researches, students with a family history of coronavirus infection account for 89% of the total number of respondents.

2. According to our research, the most students have learned to control their emotions and behaviour. Only 19.7% of respondents reported an increase in negative emotions in daily life during distance learning, and 40.8% of students reported a decreased interest in distance learning compared to full-time, often feeling apathy. 25% of students were found to have an impaired emotional state during the distance learning period. A third of the students reported that the change in their behaviour during distance learning was noticed by people close to them.

3. After studying the manifestations of anxiety in students at the somatic level, we found that the majority of the students had no somatic manifestations of anxiety during distance learning. However, it should be mentioned that 14.5% of the students often have an increased heart rate, while at the same time, 56.6% of the students often feel tired and drowsy, 25% of students experienced dullness, tremor and insomnia, apathy during distance learning, 36.8% of students sometimes had headaches and dizziness. These symptoms could also have an impact on success during the distance learning period, with 13.2% of the second year students noticing an decrease in their success.

4. Our research has shown that the worldwide pandemic has a significant impact on the functioning of the body and behavioural reactions of students. However, during the period of distance learning, students have developed the resistance to stress and the ability to respond appropriately to the social challenges facing humanity beginning in 2019.

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**ВИЗНАЧЕННЯ ПСИХО-ЕМОЦІЙНОГО СТАНУ СТУДЕНТІВ  
2-ГО КУРСУ ІВАНО-ФРАНКІВСЬКОГО НАЦІОНАЛЬНОГО  
МЕДИЧНОГО УНІВЕРСИТЕТУ ПІД ЧАС ДИСТАНЦІЙНОГО  
НАВЧАННЯ НА ОСНОВІ АНКЕТУВАННЯ****В.М. Федорак<sup>1</sup>, О. Р. Іванців<sup>2</sup>, І. І. Білінський<sup>3</sup>, В. В. Федорак<sup>4</sup>**

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*Однією з важливих проблем сьогодення була пандемія Covid-19, яка сколихнула життя людей, зокрема вплинула і на навчання студентів. У результаті чого студентів вишів з початком пандемії перевели на дистанційне навчання. Актуальною для нас стала проблема вивчення психо-емоційного стану студентів в умовах дистанційного навчання, соматичних і поведінкових проявів їхньої тривожності.*

*Метою статті є оцінити психоемоційний стан, соматичні та поведінкові прояви тривожності у студентів-медиків впродовж дистанційного навчання.*

*Методи дослідження. Опитано 76 студентів 2 курсу шляхом анонімного анкетування. Для обстеження було використано онлайн-анкету на базі Google Forms, яка включала запитання з метою виявлення психоемоційних та соматичних проявів тривожності. Для досягнення поставленої мети були поставлені наступні завдання: виявити емоційно-поведінкові реакції студентів та дослідити соматичні прояви тривожності за допомогою розроблених опитувальників.*

*На основі аналізу результатів анкетування виявлено, що всесвітня пандемія Covid-19 була значним соціальним фактором, який впливав на функціонування організму та поведінкові реакції студентів, але більшість із них навчилися контролювати свої емоції та поведінку. Тільки 19,7% респондентів повідомили про збільшення негативних емоцій у повсякденному житті під час дистанційного навчання, тоді як 40,8% повідомили про зниження інтересу до дистанційного навчання порівняно з навчанням*

офлайн, відмічали часте відчуття тривоги та апатію. Впродовж дистанційного навчання психоемоційний стан погіршився у близько 25% респондентів.

Вивчивши прояви тривожності на соматичному рівні, ми виявили, що більшість студентів не мали ознак соматичних проявів тривожності, 63,2% студентів ніколи не відчували запаморочення чи головного болю впродовж дистанційного навчання, 75% студентів ніколи не відчували тремору. Фактично, 71,1% з них не відмічали підвищення частоти серцевих скорочень або підвищеного артеріального тиску впродовж дистанційного навчання, але більшість респондентів (56,6%) часто відчували втому або сонливість.

Наші дослідження показали, що світова пандемія мала негативний вплив на функціонування організму та поведінкові реакції студентів. Проте за період дистанційного навчання студенти виробили стресостійкість і навчилися адекватно реагувати на соціальні виклики, які постають перед людством, починаючи з 2019 року.

**Ключові слова:** дистанційне навчання, студенти, психо-емоційний стан, анкетування.