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DISTANCE LEARNING SATISFACTION AS A PREVENTIVE FACTOR OF BURNOUT IN MEDICAL STUDENTS DURING COVID-19 PANDEMIC

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ABSTRACT

The article presents the results of the study of satisfaction with distance learning among medical students during the COVID-19 pandemic as a preventive factor of emotional burnout. The COVID-19 pandemic had a negative impact on the mental state of medical students, the prevalence of anxiety and depressive disorders in them was 22,4%. The study of learning satisfaction was one of the stages of prevention of emotional burnout in medical students. The study has found that good living conditions were an independent factor related to the level of students' satisfaction with distance learning during the COVID-19 pandemic. Socio-domestic characteristics, including stability of Internet communication, quality of Internet communication, device for Internet access, subjective advantage of teaching method (traditional/distant), levels of anxiety and depression (according to The Patient Health Questionnaire-4) and subjective assessment of quality of life were not the factors that significantly affected distance learning satisfaction. Burnout prevention in medical students has consisted of educational and informational components. Thus, the primary prevention of burnout syndrome in healthcare workers should begin while still studying at a medical university, which is especially important in the context of the COVID-19 pandemic.

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Introduction. The COVID-19 pandemic, in which the world has been already living for the second year, and repeated quarantines on this occasion have caused titanic changes in the educational process in all countries, including Ukraine. Due to the restrictions imposed on the pandemic, educational institutions were forced to switch to distance learning, including in specialties for which this form of education had not previously been used. The effectiveness of distance learning in higher educational institutions depends on many factors. There are skills in the use of digital technologies, the adaptation of curricula that designed to work "at the patient's bedside" to the conditions of distance learning, motivation of students to acquire knowledge, interaction between students and teachers in the informational space (Yuryeva et al., 2020; Shornikov et al., 2020; Zis et al., 2021; Yang et al., 2021).

The factors that affect the quality of education include the accessibility and comprehensibility of the distant education procedure, the availability of telecommunications and devices necessary for classes (Khanyukov et al., 2020; Rebenko et al., 2021). The health status of students, their satisfaction with distance learning, on which the educational outcomes significantly depend, is also important (Yuryeva, 2020; Yuryeva & Shornikov, 2021).

The study of student satisfaction with distance learning in clinical specialties is especially important to determine the weaknesses of the activities of medical universities in this new direction for them and improve the pedagogical process.

Thus, according to the survey of Ukrainian and Polish students, regarding the assessment of distance learning, 41% of students in Poland and 46% in Ukraine assessed distance learning positively; 35% in Poland and 38% in Ukraine – average; 24% in Poland and 16% in Ukraine – poor (Długosz & Kryvachuk, 2021).

However, the introduction of distance learning in connection with the COVID-19 pandemic has significantly complicated teaching of clinical disciplines. Due to the practical impossibility of working at the patient's bedside, the form of the training has changed somewhat. Emotional burnout syndrome is an important component that affects students' satisfaction with the quality of the education they receive, and, as a result, the level of training, which is reflected in academic performance.

The study of Spanish entrants during a lockdown on the COVID-19 pandemic has found a link between increased anxiety and higher burnout levels (Fernández-Castillo, 2021). According to the Cypriot Medical School, burnout occurs in almost one out of five medical students, with a higher level occurring in the clinical years (4-6 years of studying) (Zis et al., 2021), with an uneven increase depending on the studying year during COVID-19 pandemic.

The primary prevention of burnout syndrome in health care workers should start while still at the medical university. This type of prevention should include two main components: educational and informational (Yuryeva, 2019).

Materials and Methods. 205 students of III-IV courses of medical faculty who studied on a specialty 222 "Medicine" have been examined, average age was 20 [20; 21], there were 142 females (69,3%) and 63 males (30,7%) among them. The survey has been conducted using an online questionnaire via GoogleForms platform, which included questions about socio-demographic characteristics, distance learning and The Patient Health Questionnaire-4 (PHQ-4). This questionnaire performed itself very well in screening for anxiety and depression, with a cut-off score of 6 (the recommended health/disease limit for The Patient Health Questionnaire-2 (PHQ-2) and The Generalized Anxiety Disorder 2-item (GAD-2) was defined as 3 points to each one) (Kroenke et al., 2009; Löwe et al., 2010).

Statistical analysis procedures were performed using the statistical package STATISTICA 6.1 (StatSoftInc., Serial № AGAR909E415822FA). Verification of the normality of the distribution of indicators was performed using the Shapiro-Wilk criterion. Descriptive statistics in the text has been presented in the form of median (Me) and interquartile range (IQR) - Q1 (25th percentile) and Q3 (75th percentile) because most indicators had a different type of distribution (Ivanchuk & Polishchuk, 2020).

Results. Due to transition to a distant mode of working, the Department of Psychiatry, Narcology and Medical Psychology of Dnipro State Medical University (DSMU) trained students with a help of synchronous component of distance learning via GoogleMeet service (Alphabet Inc.) and asynchronous component via platform Moodle (Moodle Pty Ltd) in the 2020-2021 academic year (Nakaz DZ DMA #158-OD from 12-10-2020).

During the asynchronous component of the lesson, students have been answering to test questions on the lesson's topic in STEP-2 format and solving clinical tasks (cases, including video cases). During the synchronous component of the lesson that was provided via video conferencing (GoogleMeet) students not only answered the teacher's questions, according to the topic of the lesson, but also formed communication skills.

Using the developed questionnaire based on GoogleForm (Alphabet Inc.) the following results have been obtained (table 1).

Table 1. Respondents' distribution according to their socio-demographic, socio-domestic and psychological characteristics

Characteristics	n=205	
	#	%
Gender		
Male	63	30,7
Female	142	69,3
Age		
- Median (Q1;Q3)	20 (20; 21)	
- Range	18–28	
Living conditions		
Good	144	70,2
Satisfactory	61	29,8
Internet connection quality		
Stable, among them:	95	46,4
low	11	11,6
average	31	32,6
high	53	55,8
Unstable	110	53,6
The preferred device used for distance learning		
Personal computer	34	16,6
Laptop	111	54,1
Tablet	1	0,5
Smartphone	56	27,3
Other	3	1,5
Which teaching method do you prefer?		
Traditional	174	84,9
Distant	31	15,1
PHQ-4		
6 and below	159	77,6
Above 6	46	22,4
Satisfaction with own learning outcomes in distance learning		
Absolutely not satisfied	16	7,8
Not satisfied	25	12,2
Average satisfaction	61	29,8
Satisfied	71	34,6
Completely satisfied	32	15,6

Considering the need to prevent burnout syndrome in medical students, especially in conditions of distance learning and quarantine restrictions, when communication skills were significantly deteriorating, dissatisfaction with their own learning outcomes was widespread, our preventive measures were intensified, primarily for students with high PHQ-4 scores.

Based on a two-component preventive system, we had been caring out:

1. Informational component. At the department during studying of the discipline "Medical psychology", students were provided with all necessary information about the requirements for the mental state that was necessary for the best mastery of a certain medical specialty. Separately the main emotional problems, which in the future could lead to the formation of the emotional burnout syndrome, were highlighted. In the relevant topics, knowledge about the features of psychoprophylaxis, including emotional burnout, was given. Particular emphasis on the formation of healthy lifestyle skills as an integral part of professional thinking was placed, because only being mentally and physically healthy it is possible to withstand the unfavorable factors of the medical profession successfully.

2. Educational component of preventive programs had been applied not to all students, but only as an individual consultation, including during meetings of the student scientific society of the department. At that stage, the skills of professional communication, psychological protection, self-help and mutual assistance had been worked out.

In addition, as a training component of psychoprophylactic programs aimed at preventing of emotional burnout, we have used simulation of real communication with the patient using business

(role-playing) games. Adapting to the requirements of the time, we have slightly changed the format of the business game on the topic of "Neurotic disorders", which we previously used in classroom studies (Spirina et al., 2018). In a variant adapted to distance education, this business game has acquired the following form. The teacher has been thinking of a disease, which was included in the list of studied ones on the topic, and the student, modeling a clinical conversation, had to determine the disease based on International Statistical Classification of Diseases and Related Health Problems 10th Revision diagnostic criteria. Not only the correctness of the preliminary diagnosis has been assessed, but also the correctness of the conversation, the skills of using the criteria, etc.

At the end of the lesson, the debriefing was necessarily carried out, at which the teacher pointed out the strengths of each student that they have shown during the lesson, as well he/she gave general non-personalized indications of the main mistakes that were made.

Using multifactor logistic regression analysis, it has been found that good living conditions (OR: 2,282; 95% [CI]: 1,013-5,141; $p < 0,05$) were an independent factor related to the level of satisfaction of students with distance learning during COVID-19 pandemic. At the same time, the stability of Internet communication, its quality, the device from which the Internet was accessed, the subjective advantage of the learning method, levels of anxiety and depression and subjective assessment of quality of life were not the factors that significantly affected the satisfaction with distance learning.

Discussion. The obtained results require further study and research, in particular on a larger sample. It is likely that good household, well-organized life, being at home, in own family, give a sense of emotional security, reducing anxiety and depression. Then, in an emotionally stable state, it becomes easier for students to perform the tasks offered in the form of distance learning.

Regarding the mental state of the surveyed students, it should be noted that about a quarter of respondents (46 out of 205) had a high score on the screening questionnaire of anxiety and depression PHQ-4. It is known that the presence of anxiety and / or depression has a negative impact on both quality of life and physical condition, thus becoming a risk factor for student's dissatisfaction and, ultimately, emotional burnout.

Our own results of dissatisfaction with students' own learning outcomes is comparable to the study of Długosz et al. who found a general dissatisfaction of 14% among Ukrainian and 20% among Polish students (Długosz et al., 2021), with the level of satisfaction correlated with the assessment of financial situation (living conditions). The severity of neurotic symptoms also depends on living conditions, increasing the risk of psychosomatic disorders (Długosz & Kryvachuk, 2021).

According to the study of Polish and Ukrainian youth, it was found that against the background of COVID-19 pandemic, poor assessment of distance learning leads to a higher level of neuroticism (Długosz & Kryvachuk, 2021). But our study found no link between distance learning and level of anxiety/depression. It can be explained by the peculiarities of the samples (in our study – medical students, and in Długosz's one - students of pedagogical higher education institutions), as medical students study such disciplines as microbiology, infectious diseases, which make them more aware of pandemic and less psychologically sensitive to impact of these factors.

According to the survey, 71% (138/195 of respondents) of college students in the United States of America indicated that their stress and anxiety were exacerbated by the COVID-19 pandemic (Son et al., 2020), while in our study such individuals were only 22,4% (46/205 respondents). At the same time, in the study of 69054 French students 16,1% of students reported depression and 27,5% - anxiety (Wathelet et al., 2020).

Conclusions. Thus, in summary it can be noted that the COVID-19 pandemic had a negative impact on the students' mental state. It should be noted that medical students have been less affected by the changed form of learning than other students. The prevalence of anxiety and depressive disorders in our study was 22,4%.

The study of satisfaction with learning is one of the stages of prevention of emotional burnout in medical students. The study found that good living conditions (OR: 2,282; 95% [CI]: 1,013-5,141; $p < 0,05$) were an independent factor related to the level of students' satisfaction with distance learning during the COVID-19 pandemic. It should be noted that socio-domestic characteristics such as the stability of Internet communication, the quality of Internet communication, the device for Internet access, the subjective preference of the learning method (traditional/distant), levels of anxiety and depression (according to PHQ- 4) and subjective assessment of quality of life are not the factors that significantly affect the satisfaction with distance learning.

Declaration of Interest Statement. The authors declare no conflict of interest.

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