

FEATURES OF STUDENTS MENTAL HEALTH INDICATORS DURING THE ACADEMIC YEAR UNDER PANDEMIC CONDITIONS OF COVID-19

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Abstract

The coronavirus disease 2019 (COVID-19) outbreak has rapidly transitioned into a worldwide pandemic. This development has had serious implications for public institutions and raises particular questions for medical universities.

The article presented the results of original study the effect of distance learning during COVID-19 pandemic period in the psychological and physical indicators of students who study in medical university. Conducting survey in the pre-session period, which is characterized by the relative stability of the psychoemotional state of students and moderate mental and physical stress, established that the physical and psychological state of the studied group is satisfactory. The study showed that during the session period and quarantine, many students faced a number of negative factors affecting their normal mental health is an increase in the level of stress, anxiety, anxiety, which in turn led to the development of sleep problems in some of the students, which also contributed to decrease in attention, memory, general performance, strengthening, emotional lability.

We can assume that distance learning during the COVID-19 pandemic period has led to an increase in the stress effect on the nervous system, which in the future may cause the development of diseases of various genesis.

All human studies were conducted in compliance with the rules of the Helsinki Declaration of the World Medical Association "Ethical principles of medical research with human participation as an object of study". Informed consent was obtained from all participants.

Keywords: COVID-19, psychoemotional status, mental and physical condition

Introduction

The COVID-19 global pandemic presents a challenge to medical education. Most governments around the world have temporarily closed educational institutions in an attempt to contain the spread of COVID-19 pandemic [1, 2]. These nationwide closures are impacting over 91 % of world's student population. It was somewhere announced in the second week of March as a temporary measure to avoid the crowd. Initially, for a month closure of schools was announced by the government but gradually the time of closure was extended and it is uncertain when they will reopen. During this period, there are various activities take place which are very crucial such as competitive exams and entrance tests of various universities, board examination and semester examinations in universities etc. In order to stop the outbreak of COVID-19, no immediate solution is found out [3, 4].

Examination stress caused by distance form learning during COVID-19 pandemic period can lead to significant changes in the functioning of the autonomic nervous system, increasing the activity of the sympathetic division of the autonomic nervous system and, at the same time, decreasing the activity of the parasympathetic division. At this moment, there is a restructuring of the control function of the nerve centers that coordinate the work of the cardiovascular system, which is accompanied by decrease of the absolute power of the entire heart rate spectrum and change in the ratio of individual spectral components [5].

A number of scientists identify the "seven" psychosomatic diseases that arise by the effect of stress factors: hypertension (HT), coronary heart disease (CHD); peptic ulcer of the stomach and duodenum; ulcerative colitis, bronchial asthma, neurodermatitis and hyperthyroidism, among which hypertension and ischemic heart disease are more important [7].

The aim of our work is to identify changes in the psychophysiological state and pathophysiological status of medical students who had to continue distance education during COVID-19 epidemic disease period.

Methods

The study was carried out in the period 2020-2021 on the basis of the Odessa National Medical University. The study involved 85 students (average age $23 \pm 4,5$) of 3rd course.

For the investigation of psychophysiological state and pathophysiological status of students we used such test methods as questionnaire for elucidating subjective sensations in the last time, modified questionnaires for students' course 1 and 2, A. M. Wayne's questionnaire, the WHO scale of well-being, hopelessness, and characteristics of anger [5, 6, 8].

The research during the distance form learning was carried out in two stages. At the first stage, questioning was carried out in the pre-session period, which is characterized by the relative stability of psychoemotional state of students and moderate mental and physical load. At the second stage we investigated the psychoemotional state in the end of educational year.

Results

In the begging of our investigation we established that in all students were no complaints in the health, exactly in the nervous system. All students felt good, they were in a good mood, sleep, lack of gastrointestinal disorders.

The research results are presented in tables 1.

The frequency of occurrence among students of indicators on the scales of sleep disorders (46 %), cognitive impairment (32 %) and emotional instability (35 %) is due to such peculiarities of the academic loads of medical university students as large volumes of the studied material, the number of pairs per day (on average 3,5 pairs per day; average total working day – 7.5 hours) (table 2).

At the second stage, the studied group of students showed results reflecting a tendency for the general physical and psychological condition to deteriorate. The average score obtained at the second stage of the study according to the methodology "Study of vegetative changes" A.M. Wayne (27.94) indicates an increased risk of developing vegetative-vascular dystonia.

The frequency of occurrence of indicators on the sleep disturbance scale has doubled, which confirms the negative stressful effect of the session. At the

same time, in the cognitive sphere, there are small positive changes, reflecting the work of adaptation processes.

The mean score on the WHO Well-Being Scale decreased by 1.1 time (average 12 during the session), the average score changed slightly on the Anger scale (21 during the session), while the score on the Hopelessness Scale increased significantly (0.85 during the session). Such results indicate some deterioration in the general psychoemotional state.

At the first and second stage, the students were re-surveyed during the session (as a stressful period). The results are characterized by relative instability of the psychoemotional state, high mental and increased physical exertion during the distance learning form. The obtained results are presented in Fig. 1 and 2.

By the results of fig.1 and 2 we can assume that distance learning during the COVID-19 pandemic period has led to an increase in the stress effect on the nervous system, which in the future may cause the development of diseases of various genesis.

Conclusions

1. The studied complex research of the dynamics of students psychological and physical state changes during the COVID-19 pandemic period (as a period of stressful effect) can be as a fundamental basis for further research.

2. Conducting survey in the pre-session period, which is characterized by the relative stability of the psychoemotional state of students and moderate mental and physical stress, established that the physical and psychological state of the studied group is satisfactory.

3. The study showed that during the session period and quarantine, many students faced a number of negative factors affecting their normal mental health is an increase in the level of stress, anxiety, anxiety, which in turn led to the development of sleep problems in some of the students, which also contributed to decrease in attention, memory, general performance, strengthening, emotional lability.

We can assume that distance learning during the COVID-19 pandemic period has led to an increase in the stress effect on the nervous system, which in the future may cause the development of diseases of various genesis.

Acknowledgments

The authors declare that there are no conflicts of interest.

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Table 1. The results of the students psychological and physical state according to the methods in the beginning of study (total points; n=85)

Inquirer name	$X_{aver.}$	Min	Max
Questionnaire No. 1	4,48	0	12
Questionnaire No. 2	17,66	5	25
Questionnaire A.M. Wayne	24,31	0	71
Subjective sensations	10,64	0	36
Well-being scale	13,1	0	25
Hopelessness scale	0,02	0	4
Anger scale	21,2	10	40

Notes:

1. $X_{aver.}$ - average score for the sample;
2. min – the minimum possible score for the questionnaire;
3. max – the maximum possible score for the questionnaire.

Table 2. The results of the students psychological and physical state according to the "Subjective sensations" method in the beginning of study (n=85)

№	Sign	Frequency among students (in% of the total)			
		Absent	More often absent	More often present	Constantly
1.	General weakness	43	21	26	10
2.	Muscle weakness	60	21	14	2
3.	Sleep disturbances	25	14	46	15
4.	Visual disturbances	76	12	8	4
5.	Dizziness	65	20	15	0
6.	Digestive disorders	68	15	13	4
7.	Temperature increase	70	14	10	6
8.	Sore throat	59	21	10	10
9.	Arrhythmia attacks	52	28	12	8
10.	Cognitive impairment	25	35	32	17
11.	Emotional instability	13	28	35	24
12.	Apathy, depression	28	34	28	10

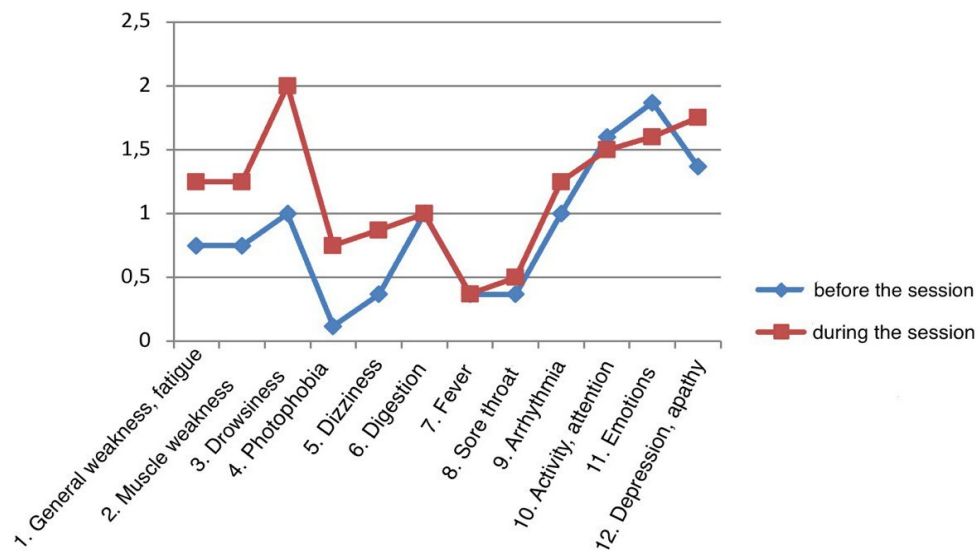


Figure 1. Dynamics of indicators changes of the psychological and physical state of students before and during the session according to the methodology "Subjective sensations" (n=85)

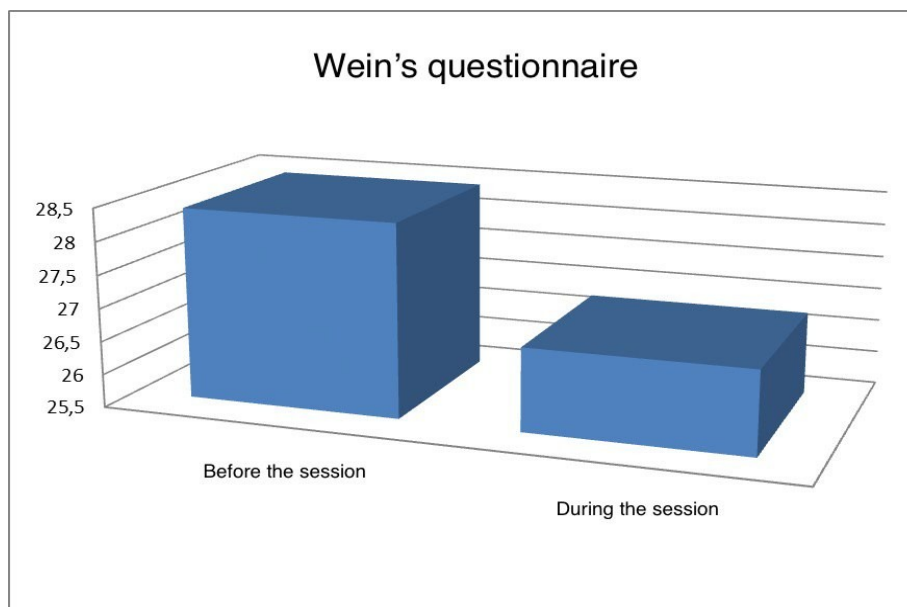


Figure 2. Dynamics of indicators changes of the psychological and physical state of students before and during the session according to A. Wein's questionnaire (n=85)