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STUDY OF PROFESSIONAL HEALTH OF HIGHER EDUCATION TEACHERS IN UKRAINE UNDER QUARANTINE

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ABSTRACT

The problem of changes in educators' various health aspects in the context of transition to distance learning during the COVID-19 pandemic, caused by changes in professional activities, is not sufficiently studied. This study aimed to identify and analyze physiological, psychological, and professional changes in scientific and pedagogical staff of Ukrainian higher education institutions, associated with the transition to distance learning under quarantine, which affected social, psychological, physical, and mental aspects of their health. A total of 254 educators of Ukrainian higher education institutions were surveyed and their responses analysed. The study revealed certain physiological, psychological, and psychosomatic indicators showing that online work leads to health deterioration. The survey showed that educators consider online learning to be ineffective, opting for a mixed form of education under quarantine. It was found that scientific and pedagogical staff is divided into two clusters according to their state of health as a result of new conditions of professional activity due to the COVID-19 pandemic. Two-thirds of educators coped with the challenges quite well, while the remaining third felt severe aftereffects on their physiological and psychological health. The distinct features that differentiate these two clusters were identified and discussed. Most of scientific and pedagogical staff of Ukrainian higher education institutions pointed out that the lockdown and quarantine measures and the consequent transition to distance teaching had a significant impact on their social, psychological, physical, and mental health. Though the majority of educators confirmed their adaptation to the new working conditions, there was a cluster of teachers for whom the process of adjustment was quite psychologically traumatic.

KEY WORDS

COVID-19 pandemic, teaching and research staff of higher education institutions, physiological changes, psychological changes, professional changes

CLASSIFICATION

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INTRODUCTION

In the context of the forced transition to online learning and remote work caused by the COVID-19 pandemic, various aspects of the physiological, psychological and professional well-being of higher education teachers are of particular importance. The restructuring of life and professional rhythms, the situation of uncertainty and the general information saturation have greatly influenced various health disorders of scientific and pedagogical staff. Such changes are characteristic not just for higher education teachers, however, the teaching specifics contribute to a more acute development of the above changes.

Lockdown during COVID-19 undoubtedly affected professional activities, but to a greater extent it affected the employees, who continued working during the pandemic, including higher education teachers. The COVID-19 pandemic has led educators to an unpredictable scenario where the lockdown situation has accelerated the transition from traditional teaching methods to the Internet, and relationships have changed by avoiding direct contact with other people, which has significant aftereffects on their health.

According to research in Spain, the situation of lockdown has led to serious problems in the personal and professional life of teachers, in particular due to the pressure exerted on them by online educational methods: many hours of work and difficulties due to lack of physical contact or obstacles to reconciling personal life with family. On the other hand, the situation caused by the COVID-19 pandemic has demonstrated the advantages and disadvantages of online learning, as it can help to expand borders and provide education to every house [1].

The COVID 19 crisis has also exacerbated risk factors, that are usually associated with deteriorating mental health – financial insecurity, unemployment, fear, while protective factors – social ties, employment and education, access to exercise, routine day, access to medical services – fell sharply [2]. The Health Survey circulated by Kaiser Family Foundation in July 2020 also found that most adults report some negative effects on their mental health and well-being, such as sleep problems (36 %) or eating disorders (32 %), exacerbation of chronic diseases (12 %) due to anxiety and stress caused by coronavirus infection.

A large number of people who continue working during a pandemic face a problem that is caused by a higher risk of coronavirus infection compared to those who do not work during lockdown. In contrast to employees whose work is suspended during this period, employees who provide vital communications are more likely to report symptoms of anxiety or depressive disorder (42 % vs. 30 %) during a pandemic [3].

In present research, we are focused on the professional teachers' activities. Teachers were found to be concerned about the uncertainty of their professional activity during the COVID-19 pandemic. The rapid transition to online learning has led to a significant increase in the teachers' workload, as they work not only on the creation and placement of teaching materials on the Internet, but also on the development of skills in using the necessary software. However, for a large number of educational institutions, the transition to the Internet is a significant challenge, as teachers try to adapt to forced working conditions in a relatively short time, while this may be a completely "new normal" phenomenon if it occurs over a long period of time [4].

Because lockdown during the COVID-19 pandemic affected almost every aspect of society, people had to learn to organize communication and interaction in a new way. In May-June 2020, a study was conducted in Germany that raised the question of how teachers in the quarantine restrictions early stages caused by COVID-19 adapted to teaching via the Internet. Most teachers noted that they updated the curriculum and supplemented it by providing feedback to their students. However, problems that clearly require the integration of information and

communication technologies, such as teaching and assessment on the Internet, have been mastered to a lesser extent [5].

The situation with the COVID-19 pandemic has made significant demands on teachers. In the USA, researches of the teachers' needs were conducted during the first months of the pandemic. On average, teachers experienced seven stressors (out of 18 suggested in the survey) and four protective factors (out of six suggested in the survey). Teachers who have been exposed to more stressors have reported on deterioration in mental health due to difficulties in teaching and learning. On the other hand, the feeling of more protective factors among the respondents was due to the fact that they do not have difficulties in teaching and learning. The results of the study showed that teachers experienced significant stress as a result of the COVID-19 pandemic, which was associated with deterioration in mental health, coping and learning [6].

According to the analysis of scientific publications in Ukraine and Russia on the COVID-19 pandemic impact on the higher education sector, it was found that the main issues studied by scientists concerned with the higher education institutions orientation to the distance learning technologies development; the level of educational process participants' satisfaction with the remote work technologies used in the universities; identifying distance learning opportunities; organization of the educational process by distance learning technologies and its impact on the psyche of students and teachers, etc. [7-12].

However, along with a wide range of issues related to the educational process organization in higher education institutions in the COVID-19 pandemic context, the deformations problem in various teachers' health aspects caused by changes in professional activities is not sufficiently covered.

The purpose of this study was to identify and analyze teachers' physiological, psychological and professional changes, which are associated with the educators' transition to distance learning during quarantine and solving a wide range of professional problems, and which in some way affected various aspects of their health (social, psychological, physical and mental).

METHODS

The following theoretical and empirical research methods were used in the study: theoretical analysis and literature data generalization on the research problem, survey method using the Google Forms cloud service. Statistical methods of survey results analysis included determining the significance of differences in frequency tables and $r \times c$-contingency tables using Pearson's χ^2 test. When comparing two proportions, the Z-test was used. The Cramer's V correlation coefficient was used to estimate the relationship between qualitative variables in $r \times c$-contingency tables. Hierarchical methods of cluster analysis were used to determine homogeneous groups in the survey data, namely, Ward's method was used as a linkage rule with (1 % of disagreement) metric, which is most acceptable for clustering qualitative data. When comparing the two clusters by ordinal variables (stressors number, quantity of distance learning advantages/disadvantages, etc.), the Wilcoxon-Mann-Whitney test was calculated. All calculations were made at 95 % confidence level.

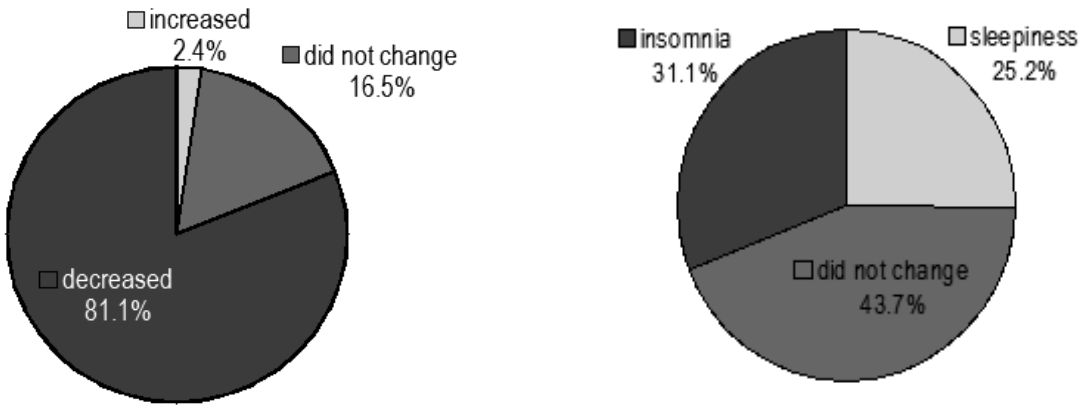
RESULTS

The survey of teachers was conducted during January-February 2021 using a questionnaire created by the Google Forms service. The survey was held among research and teaching staff of 42 Ukrainian institutions of higher and professional education. The main part of the questionnaire contained 30 questions, 10 of which concerned with teachers' physiological changes, 10 – with psychological changes and 10 – with changes in the pedagogical process.

254 teachers took part in the survey, among which 36,6 % there are researchers and teachers aged from 41 to 50 years, 24,8 % – from 31 to 40 years and 21,3 % from 51 to 60 years. The scientific and pedagogical experience of teachers who took part in the survey is from 5 to 20 years (44,5 %) and over 20 years (44,1 %). Thus, we covered an audience of different ages of educators with different teaching experience. This allows us to more objectively analyze the changes that teachers have experienced during online studying.

To study ***the physiological state*** of health the objects were weight, sleeping, appetite, the presence of headaches, feelings of stress and fatigue, changes in physical activity, work and repose. Respondents' changes observations in general health, as indicated by the state of nails, hair, skin, and self-care, were studied separately.

It was found that in quarantine conditions 50 % of teachers noted appetite disorders (χ^2 = 3,5433, p = 0,0598 > 0,05), and more than half-weight fluctuations (χ^2 = 5,1024, p = 0,0239 < 0,05). The vast majority of respondents (81,1 %) indicated a significant decrease in physical activity (χ^2 = 98,2835, p = 0,0000 < 0,05, Figure 1a). Sleep disorders were detected in more than half of teachers (χ^2 = 4,0315, p = 0,0447 < 0,05), while insomnia and cases of drowsiness were presented in equal proportions (χ^2 = 1,5734, p = 0,2097 > 0,05, Figure 1b).



(a) **(b)**

Figure 1. Change in physical activity (a) and sleep disturbances (b) during quarantine.

Analysis of the contingency tables of weight fluctuations with the above factors showed that weight gain was not statistically significantly associated with sleep disorders (χ^2 = 8,899665, p = 0,06366 > 0,05). At the same time, there was a very strong relationship between weight fluctuations and changes in appetite (χ^2 = 70,56832, Cramer's V = 0,3727, $p = 1{,}7219\times10^{-14} < 0{,}05$) and a fairly strong correlation between weight gain and changes in physical activity due to quarantine (χ^2 = 22,98413, Cramer's V = 0,2127, p = 0,00012755 < 0,05).

The presence of headache was noted by half of the respondents (χ^2 = 0,7717, p = 0,3797 > 0,05), however the vast majority (χ^2 = 19,2, p < 0,0001) do not associate it with quarantine, but with other reasons, such as large amount of work at the computer during online classes, weather conditions, anxiety, etc.

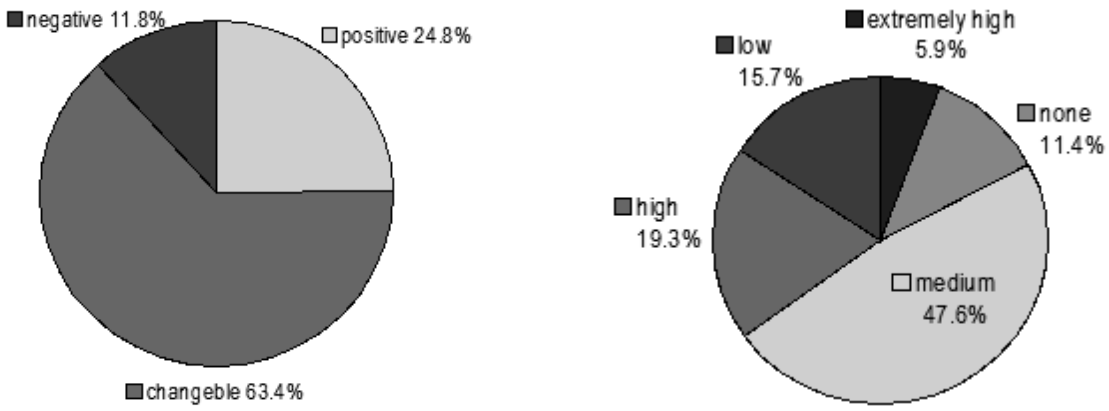
Analysis of survey data on changes in work and repose suggests that only less than 15 % of teachers (Z = 2,1262, p = 0,033483 < 0,05) followed the same distribution of time for work and repose, as before the quarantine restrictions. Among the majority in the same proportions were those who noted a decrease in free time, and those who recognized the loss of the boundary between work and rest (Z = 1,7456, p = 0,0809 > 0,05). The reason for this

phenomenon is the necessity to work at home, which blurs the balance of work and repose. The introduction of quarantine restrictions and the transition to online learning significantly affected the leisure of most teachers (χ^2 = 60,5354, p < 0,0001), significantly reducing their time to communicate with family and friends (Z = 3,147046, p = 0,0008246 < 0,05).

Thus, working online increases the time a teacher spends working at the computer, which in turn leads to increased stress, fatigue, anxiety, and disruption to work and repose.

The obtained data indicates that half of the teachers did not experience changes in general health and well-being (χ^2 = 1,9055, p = 0,1675 > 0,05), but at the same time more than 50 % noted changes in self-care (χ^2 = 6,2992, p = 0,0121 < 0,05). Deterioration of health was recognized by the majority of those who noted changes (Z = 7,3362, p = $1{,}099\times10^{-13}$ < 0,05), as well as the majority indicated deterioration in self-care (Z = 4,0918, p = $2{,}1405\times10^{-5}$ < 0,05). Our data show a strong direct significant relationship between changes in health and changes in self-care (χ^2 = 53,20654, Cramer's V = 0,32363, p = $7{,}7145\times10^{-11}$ < 0,05), confirming the conclusion that work online reduces the responsibility for one's own appearance.

The study of teachers' ***psychological changes*** was aimed at self-assessment of emotional state, the emotional stress level and means to seize it, the features of adaptation to changing conditions of professional activity and communication. The survey showed that most respondents rated their emotional state as changeable (χ^2 = 109,6614, p = 0,0000), Figure 2a, declared the feeling of psychological stress by assessing its level as medium (χ^2 = 133,9528, p = 0,0000) (Fig. 2b), a slight increase in anxiety was also observed in most of the interviewed teachers (χ^2 = 33,3622, p < 0,0001).



(a) **(b)**

Figure 2. The results of the study of the respondents' emotional state (a) and of respondents' self-assessment of the level of psychological stress (b).

In the survey, respondents were asked to choose the strongest stressors for them during quarantine due to the COVID-19 pandemic. On average, higher education teachers indicated 3 stress factors out of 8 proposed options, which is consistent with the data of the study [6], in which US teachers noted 7 stress factors out of 18 on average (Z = 0,0674, p = 0,473143 > 0,05). According to the results of the survey, possible stress factors are sorted by frequency of choice by teachers, and the significance of differences in the frequency of their occurrence is determined (Table 1 and Figure 3), which allowed to rank stress factors from the most significant to the least significant. Thus, the leading stress factor during the pandemic, according to the study, was fear for the health of close people, the second important factor

Table 1. Frequency of occurrence of stress factors during quarantine measures due to the COVID-19 pandemic according to the results of a survey of higher education teachers.

Stress factor	Count	%	Rank	Statistical significance of differences compared to the previous (larger) percentage
Fear for the health of close people	175	68,90	1	–
Uncertainty of the situation	133	52,36	2	$Z = 3{,}8699$, $p = 5{,}44397\times10^{-5} < 0{,}05$
Lack of treatment system	102	40,16	3	$Z = 2{,}7794$, $p = 0{,}0027227 < 0{,}05$
Danger to the own health	90	35,43		$Z = 1{,}0993$, $p = 0{,}13580829 > 0{,}05$
Forced isolation	78	30,71		$Z = 1{,}133097$, $p = 0{,}1285867 > 0{,}05$
Changing working conditions	76	29,92		$Z = 0{,}19307$, $p = 0{,}4234519 > 0{,}05$
The rate of the disease spread	56	22,047	4	$Z = 2{,}03159957$, $p = 0{,}021097 < 0{,}05$
Deficiency of means of protection	11	4,33	5	$Z = 6{,}1137$, $p = 4{,}86725\times10^{-10} < 0{,}05$

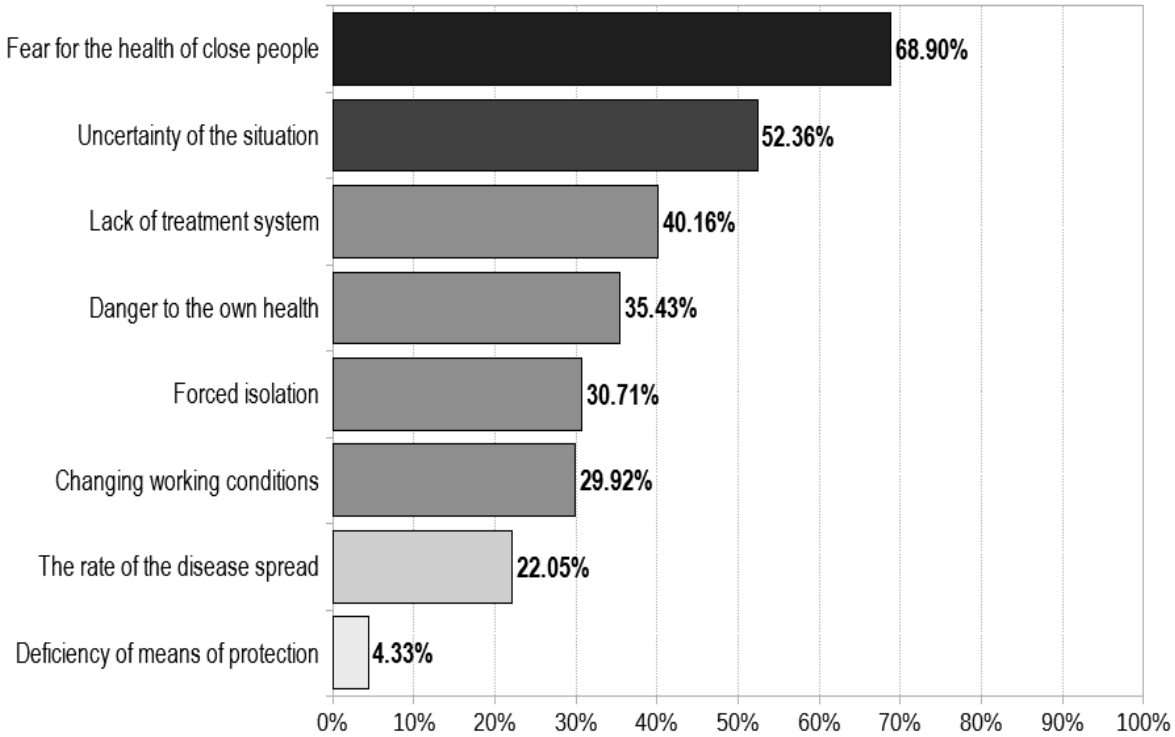


Figure 3. Ranking of stress factors during quarantine measures according to higher education teachers in Ukraine.

was the uncertainty of the situation, the third rank were such stressors as lack of treatment, danger to their own health, forced isolation and change of working conditions. The rate of the disease spread frightened not such a large proportion of respondents and was in 4th place among all stressors. The least stress was caused by the shortage of remedies, which may be related to the time of the survey, when this deficit was no longer as relevant as at the beginning of the quarantine restrictions in the country.

Analysis of respondents' answers (Table 2 and Figure 4) revealed that teachers often resorted to such psychological stress relievers as watching movies and TV shows, the second most popular way of psychological relief were walks in the open air, and the third - communication on social networks and by phone. In fourth place were physical exercises and reading fiction. Handmade, art (music, painting, poetry etc.) and games ranked only fifth in prevalence among stress relievers. Among other means of overcoming stress, respondents indicated learning a foreign language, communicating with children, writing articles, textbooks, and so on.

Table 2. Frequency of occurrence of different methods of psychological relief in the conditions of quarantine measures due to the COVID-19 pandemic according to the results of a survey of higher education teachers in Ukraine.

The method of psychological relief	Count	%	Rank	Statistical significance of differences compared to the nearest larger percentage
Watching movies, TV shows	181	71,26	1	–
Walking in the open air	150	59,06	2	$Z = 2{,}91061$, $p = 0{,}001804 < 0{,}05$
Communication on social networks, by phone	126	49,61	3	$Z = 2{,}14737$, $p = 0{,}01588194 < 0{,}05$
Exercise	81	31,89	4	$Z = 4{,}13096$, $p = 1{,}80629\times10^{-5} < 0{,}05$
Reading fiction	79	31,10		$Z = 0{,}19104$, $p = 0{,}4242465 > 0{,}05$
Hand-made	36	14,17	5	$Z = 4{,}6550655$, $p = 1{,}61939\times10^{-6} < 0{,}05$
Art (music, painting, poetry etc,)	28	11,02		$Z = 1{,}07085$, $p = 0{,}14211769 > 0{,}05$
Games	20	7,87		$Z = 1{,}2152$, $p = 0{,}11214231 > 0{,}05$
Other	9	3,54	6	$Z = 2{,}1128$, $p = 0{,}017309 < 0{,}05$

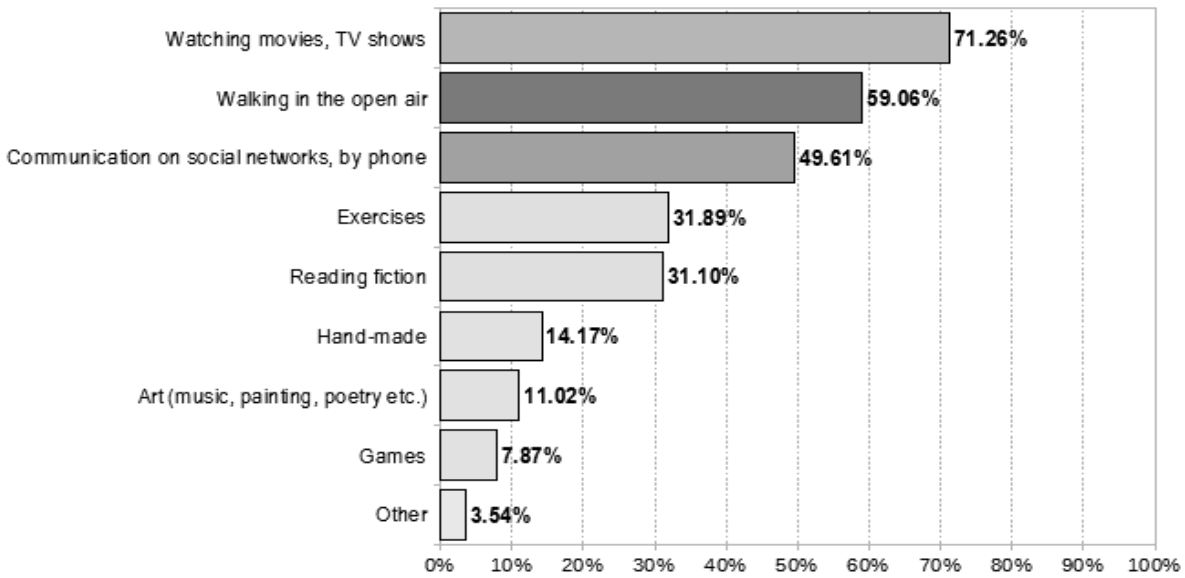


Figure 4. Prevalence of psychological relief methods during quarantine measures among higher education teachers in Ukraine.

Only 1,6 % of respondents sought qualified help from psychologists, and 12,2 % of teachers indicated that they would definitely consult a psychologist if they had the opportunity. But the vast majority (χ^2 = 324,0079, p = 0,0000) of respondents, namely 86,2 %, did not feel the need for professional psychological help.

The quarantine measures have changed the professional environment of teachers. Educational institutions have switched to distance learning, which requires completely different professional skills from teachers. To the question "How was your process of adaptation to changes in working conditions?" 56,7 % of respondents said that it was difficult, but they coped, 37 % of respondents adapted without much effort, 4,3 % did not feel changes in working conditions, 0,8 % of people could not adapt to new forms of teaching. These figures shows that most Ukrainian teachers had difficulty adapting to new working conditions (χ^2 = 6,2992, p = 0,0121 < 0,05).

The distribution of responses about the lack of communication during quarantine measures in the study sample was heterogeneous (χ^2 = 12,9291, p = 0,0048 < 0,05) with a predominance of those teachers who lacked communication at the beginning of quarantine restrictions, but then in one way or another adapted to new conditions (Z = 2,14948, p = 0,015798 < 0,05).

When asked about communication with colleagues, 43,7 % of respondents said that quarantine did not affect communications in work teams, and they continue to communicate actively; 43,3 % of teachers indicated that they began to communicate scarcer with colleagues, and 12,2 % of respondents had almost no interaction with colleagues. Regarding changes in communication in the family, the majority of respondents (68,9 %) noted that quarantine did not affect their relationships in families (χ^2 = 150,2441, p = 0,0000), in 21,7 % of people the relationship with family members became closer, and only 9,4 % of respondents have complicated family relationships.

The purpose of the survey was also to identify changes in the ***professional pedagogical activities*** of teachers during online learning and their impact on the quality and effectiveness of the educational process. The objects of study were the choice of educational platform; changes in the time allotted for work and repose; the quality of teaching the subject; quality of scientific and organizational work; feedback quality. The data showed that most teachers worked on a virtual platform chosen by their educational institution (χ^2 = 185,9685, p = 0,0000), and were satisfied with its capabilities (χ^2 = 38,68, p < 0,0001). On the other hand, given the obtained results, it is worth noting the existing internal discomfort in 13,4 % of teachers during online learning.

The identical number of educators note that during the teaching of their discipline the quality of teaching either did not change significantly or was significantly deteriorated (Z = 0,178565, p = 0,42913958 > 0,05), Figure 5a. Almost half of teachers surveyed acknowledged the decline in the quality of online learning.

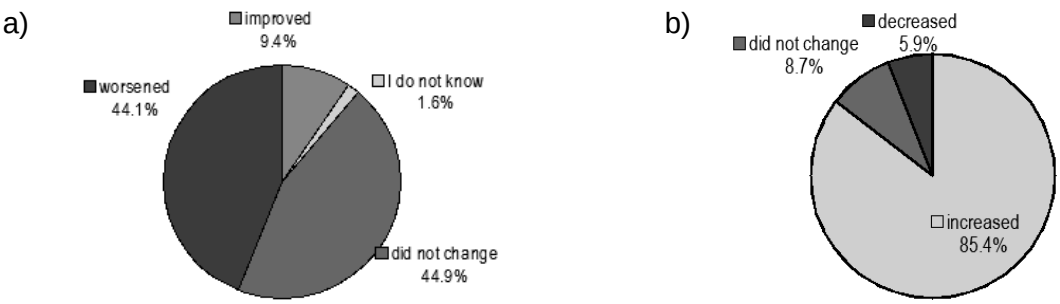


Figure 5. Assessment of teaching quality (a) and changes in time spent working in online learning (b).

An indicator of the change in time that research and teaching staff spend on preparing, giving classes and testing students' knowledge (Fig. 5b) significantly increased (χ^2 = 310,5433, p = 0,0000). The data do not confirm the hypothesis that changes in the distribution of time for educational work were associated with changes in the quality of teaching (χ^2 = 8,890964, p = 0,06388 > 0,05), scientific (χ^2 = 2,482111, p = 0,64784 > 0,05) or organizational (χ^2 = 5,239044, p = 0,26364 > 0,05) work.

The analysis of quality self-assessment of scientific work and organizational work testified that the vast majority of scientific and pedagogical staff did not notice significant changes in the quality of these activities (for scientific: χ^2 = 51,315, p < 0,0001; for organizational: χ^2 = 139,5, p = 0,0000). Among the reasons that hinder scientific work quality, 3.2 % of teachers pointed to the lack of time, as it is busier preparing for online classes. A significantly higher proportion of teachers reported a deterioration in the quality of teaching than a deterioration in scientific (Z = 2,8564, p = 0,002142352 < 0,05) or organizational work (Z = 2,7601, p = 0,002889478 < 0,05) (Table 3 and Figure 6).

The results of the survey on the use of various forms of organization of the educational process showed that an absolute minority of teachers consider online learning an effective tool for achieving program results (χ^2 = 117,1969, p = 0,0000 < 0,05). The rest of the surveyed research and teaching staff shared their preferences in half between traditional offline and mixed form of learning (Z = 1,6015, p = 0,054636743 > 0,05).

Advanced analysis of the data showed the existence of several homogeneous groups (clusters) among higher education teachers in Ukraine, which significantly differs from each other. The dendrogram of combining respondents into clusters based on their answers to the questionnaire (Figure 7) suggests the existence of two clusters.

Table 3. Changes in the quality of scientific and pedagogical staff activities as a result of quarantine measures and the transition to online training based on the results of a survey of higher education teachers in Ukraine.

		Activities of scientific and pedagogical staff		
		educational	**scientific**	**organizational**
quality of activity	**worsened**	112 / 44,1 %	81 / 31,9 %	82 / 32,3 %
	did not changed	114 / 44,9 %	133 / 52,4 %	163 / 64,2 %
	improved	24 / 9,4 %	40 / 15,7 %	9 /3,5 %
	difficult to answer	4 / 1,6 %		

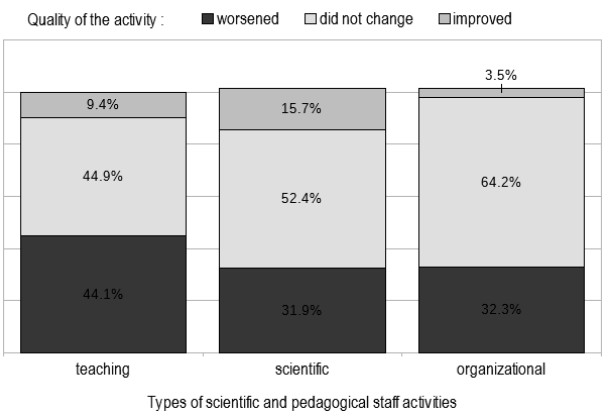


Figure 6. Changes in the quality of scientific and pedagogical staff activities as a result of quarantine measures based on the results of a survey of higher education teachers in Ukraine.

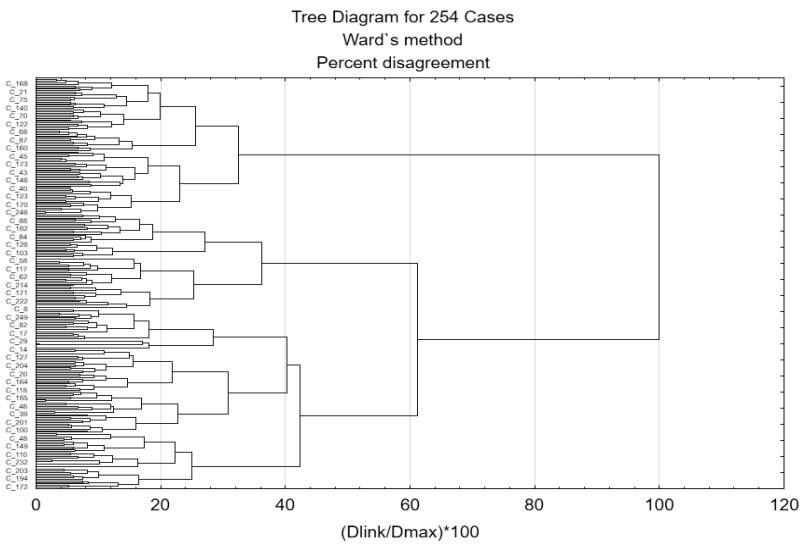


Figure 7. The results of clustering survey data.

A more detailed analysis of the obtained division into clusters showed that, first, they differed in the level of psychological stress, which was significantly higher in the first cluster (M-W Z = 6,882, $p = 5{,}91625\times10^{-12} < 0{,}05$, Figure 8).

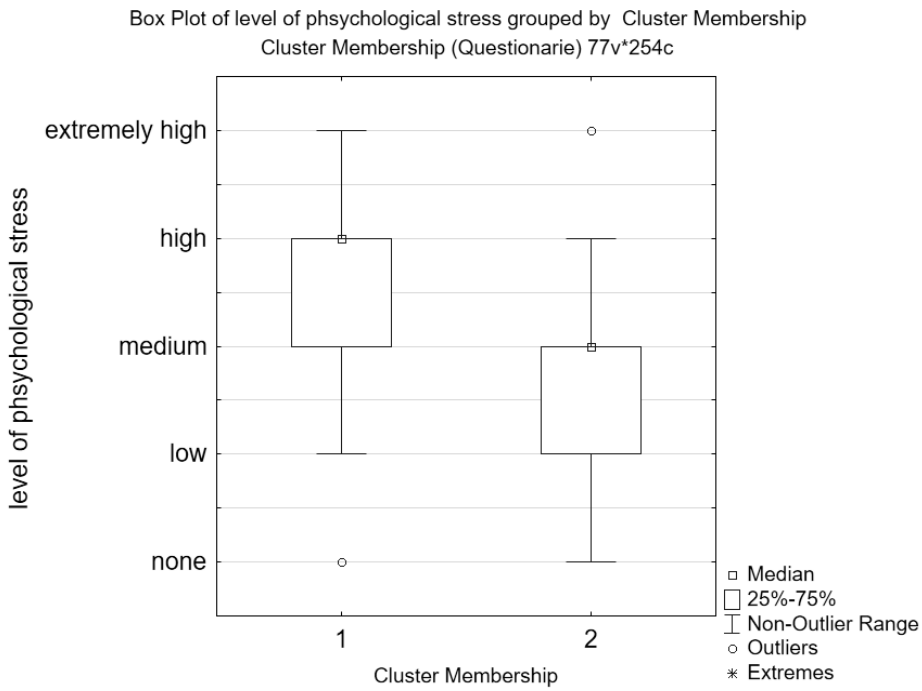
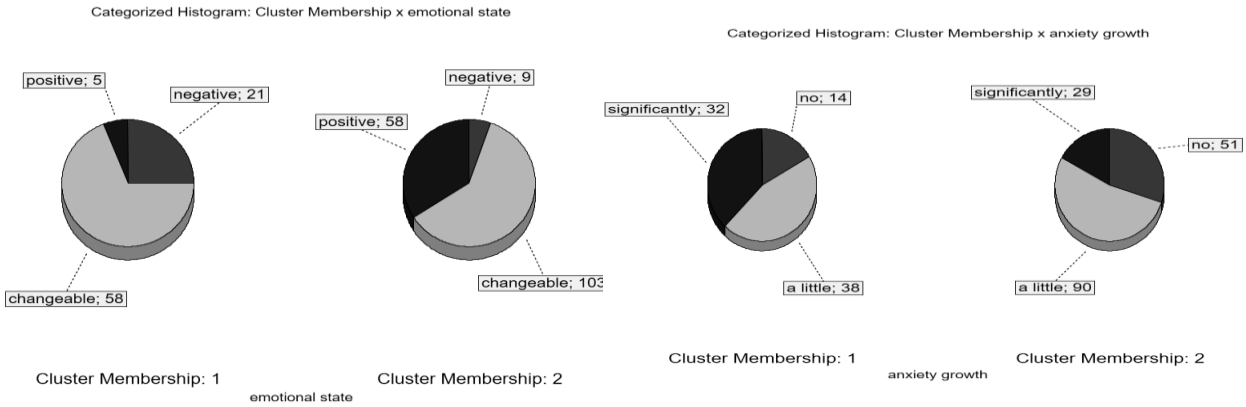


Figure 8. Boxplot of the level of psychological stress in two clusters.

A significant difference between clusters was also observed by the emotional state (χ^2 = 37,0999, $p = 8{,}7874\times10^{-9} < 0{,}05$, Figure 9a). Despite the fact that in both clusters the majority characterized their emotional state as changeable, there was significantly greater proportion of teachers in a stable negative state in the first cluster (25 % vs. 5,3 %, Z = 3,9200, $p = 5{,}42732\times10^{-5} < 0{,}05$), and significantly less teachers from the first cluster, recognized their condition as stable positive (5,95 % vs. 34,12 %: $Z = 6{,}3159$, $p = 1{,}34295\times10^{-10} < 0{,}05$). At the same time, a significantly higher percentage of teachers from the first cluster, admitted that they needed the help of a professional psychologist during the lockdown related to the pandemic (25 % vs. 8,2 %, Z = 3,2404, p = 0,00059682 < 0,05).

The percentage of teachers whose anxiety increased significantly as a result of the COVID-19 pandemic was higher in the first cluster than in the second (38,1 % vs. 17,1 %, Z = 3,4869, p = 0,000244355 < 0,05, Figure 9b). At the same time, in the second cluster, compared to the first, the percentage of teachers who admitted no increase in anxiety was significantly higher (30 % vs. 16,7 %, Z = 2,4808, p = 0,00655103 < 0,05, Figure 9b).



(a) **(b)**

Figure 9. Distribution of teachers by their emotional state (a) and by level of anxiety growth (b) in two different clusters.

Also, teachers who were assigned to the first cluster marked more stressors that affected them during the COVID-19 pandemic and quarantine measures than teachers from cluster 2 (M-W Z = 2,47339, p = 0,013384 < 0,05). It is noteworthy that in the analysis of differences between clusters in relation to each individual stress factor, significant differences were not found for any of them except for such a stress factor as uncertainty (χ^2 = 5,796148, p = 0,01606 < 0,05), i.e. in the first cluster a significantly higher proportion of people noted the uncertainty of the situation as the biggest stress factor compared to the second cluster (63,1 % vs. 47,1 %, Z = 2,4635, p = 0,00687964 < 0,05).

It should be noted that despite the above differences in psychological state and physiological changes due to quarantine measures between teachers of two clusters, the data of our study do not allow us to say the difference between them in the quality of their professional duties. Thus, the percentage of educators who indicated that their time for teaching during quarantine increased was significantly higher in the first cluster than in the second one (98,8 % vs. 78,8 %, Z = 5,96684, p = $1{,}20944\times10^{-9}$ < 0,05), but we find statistically significant differences between clusters neither in the quality of teaching (χ^2 = 0,0358, p = 0,98226 > 0,05), nor in the quality of scientific (χ^2 = 3,8152, p = 0,05079 > 0,05) so as organizational (χ^2 = 0,6695, p = 0,71552 > 0,05) work.

CONCLUSIONS

Present study on the physiological changes and health of research and teaching staff in higher education in Ukraine during the quarantine related to the COVID-19 pandemic showed that online work leads to the deterioration of certain psychosomatic indicators, namely: sleeping disorders, headaches, decreased physical activity, increased anxiety, stress and fatigue, violation of the work-rest regime.

Analysis of the survey data on the psychological state of research and teaching staff shows that the situation caused by the pandemic affected their psychological well-being: most of them increased stress, but at the same time, they found various ways to overcome emotional stress. It was also found that the vast majority of respondents managed to adapt to forced

changes in the conditions of professional activity, the lack of both personal and professional communication; only a small number of respondents admit that they need qualified psychological help.

The study of the impact of the COVID-19 pandemic on professional changes in the pedagogical activities of Ukrainian research and teaching staff of higher education institutions led to the conclusion that educators consider ineffective the use of online learning to achieve learning goals, choosing as an alternative during quarantine, a mixed form of training. Changes in the professional activities of teachers during the distance learning have significantly affected the amount of time allocated to various areas of scientific and pedagogical activities, noting its significant increase in teaching and methodological work, characterized by a large overload of various additional types of work, including the development of distance learning courses, recording of video lectures, preparation and checking assignments, and as a result – lack of free time for repose, which poses a high risk of developing psychological deformations on this basis, and a threat to social and psychological health. Regarding changes in the quality of professional activities, the study showed that in online learning during quarantine, about half of research and teaching staff noted the decline in teaching quality and achievement of educational goals, while the quality of scientific and organizational work of most teachers did not change significantly.

The analysis of the research results revealed the division of teachers into two clusters - teachers who coped with professional changes and easily adapted to new teaching conditions (about two thirds of teachers), and teachers who are forced to work in new conditions according to modern requirements, but for whom the experience of transition turned out to be severe and traumatic. The last group consisted of about a third of teachers. It can be assumed that among the causes of such severe consequences are labor intensity, the need to increase the methodological load and intensity in educational work, as well as unwillingness to use information technology.

REFERENCES

[1] Aperribai, L., et al.: *Teacher's Physical Activity and Mental Health During Lockdown Due to the COVID-2019 Pandemic*.
Frontiers in Psychology **11**, No. 577886, 2020,
http://dx.doi.org/10.3389/fpsyg.2020.577886,

[2] Hewlett, E.; Takino, S.; Nishina, Y. and Prinz, C.: *Tackling the mental health impact of the COVID-19 crisis. An integrated, whole-of-society response OECD Policy Responses to Coronavirus (COVID-19).*
https://www.oecd.org/coronavirus/policy-responses/tackling-the-mental-health-impact-of-the-covid-19-crisis-an-integrated-whole-of-society-response-0ccafa0b,

[3] Panchal, N.; Kamal, R.; Cox, C. and Garfield R.: *The Implications of COVID-19 for Mental Health and Substance Use.*
Kaiser Family Foundation (KFF), 10th February, 2021,

[4] Allen, J.; Rowan, L. and Singh, P.: *Teaching and teacher education in the time of COVID-19.*
Asia-Pacific Journal of Teacher Education **48**(3), 233-236, 2020,
http://dx.doi.org/10.1080/1359866X.2020.1752051,

[5] Konig, J.; Jager-Biela, D.J. and Glutsch, N.: *Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany.*
European Journal of Teacher Education **43**(4), 608-622, 2020,
http://dx.doi.org/10.1080/02619768.2020.1809650,

[6] Baker, C.N., et al.: *The Experience of COVID-19 and Its Impact on Teachers' Mental Health, Coping, and Teaching.*
School Psychology Review **50**(4), 491-504, 2021,
http://dx.doi.org/10.1080/2372966X.2020.1855473,

[7] Kuharenko, V.M. and Bondarenko, V.V.: *Emergency distance learning in Ukraine.* In Ukrainian.
City Printing House, Kharkiv, p.409, 2020,

[8] Arzhanova, I.V., et al.: *Impact of the COVID-19 pandemic on the higher education sector and masters studies: international, national and institutional response (analytical material).*
Terra Kurs, Moscow, 2020,

[9] Klyagin, A.V., et al.: *The storm of the first weeks: how higher education stepped into the reality of the pandemic.*
Modern Analytics of Education **6**(36), 2020,

[10] Pitulei, V.V.: *Peculiarities of the influence of distance learning on the psychology of the student and teacher.* In Ukrainian.
Scientific Notes of Ostroh Academy National University: Psychology Series **12**, 64-68. 2021,

[11] –: *The Lessons of the Stress Test*.
http://studyinspb.ru/report-lessons-of-the-stress-test, accessed 3rd July, 2020,

[12] –: *Information and analytical report on the results of the survey on the state of use of distance learning technologies in higher education institutions of Ukraine*. In Ukrainian.
https://old.sqe.gov.ua, accessed 3rd July, 2020.