



MENTAL HEALTH SUPPORT FOR HIGHER EDUCATION STAFF IN TIMES OF CRISIS

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ABSTRACT:

The COVID-19 pandemic affected the mental health of higher education staff.

Purpose: The aim of this study is to examine the impact of COVID-19 on the mental health of higher education staff.

Materials and methods: The survey subjects were 165 university teachers of the Medical University in Varna. The following tools were used: a questionnaire to explore some aspects of the respondent's quality of life before and during the COVID-19 pandemic, HADS and the Maslach Burnout Inventory. Descriptive statistical methods, a t-test, correlation analysis, χ^2 test and a multiple linear regression model were applied. SPSS version v.24.0 was used to process the survey data.

The survey took place between October and December 2022.

Results: The mean value on the anxiety scale was 5.61, SD = 4.027 and 3.62, SD = 3.39 on the depression scale. The mean score on the emotional exhaustion scale (EE) was 27.67. The mean in the depersonalization scale was 9.10, SD = 5.494. The personal accomplishment mean value was 44.78, SD = 8.006. The results from HADS depression and HADS anxiety showed a statistical significance for predicting the scores on the EE scale ($\beta = 1.158$, $p = 0.0001$ and $\beta = 0.573$, $p = 0.021$). The levels of stress before and during the pandemic had a statistically significant weak correlation with the EE scale.

Conclusions: activities for general and selective prevention of occupational stress and burnout, based on stress-coping strategies, can be introduced in higher education.

Keywords: COVID-19; mental health; university teachers and non-academic university staff

INTRODUCTION:

Various studies show that there has been a significant deterioration in the mental health of the population since the start of the COVID-19 pandemic. High rates of anxiety disorder, depression, post-traumatic stress disorder and psychological distress have been reported in many countries, with stress being reported after the pandemic began [1].

After comparing the impact of COVID-19 on different representatives of the smart working professions in Italy, a greater increase in stress levels was found among teachers [2]. The changes in the working conditions of higher education staff during the pandemic led to social isolation and difficulties in organizing the study process, which impacted the teachers' physical and mental health [3].

Some studies that target teaching staff at universities have focused on their digital competencies and skills for teaching courses in an online environment [4]; the concept of 'technostress' has been introduced and its causes have been investigated [5]. Others examined anxiety and depression among educators during the COVID-19 pandemic [6] or among staff and students [7, 8]. A third group of researchers have drawn attention to the exacerbation of pre-pandemic traumatic experiences [9].

The pandemic context has been an additional factor in increasing stress at the workplace and, hence, the risk of developing burnout. This syndrome is expressed in the fundamental emotional and value disengagement of employees from their jobs. Burnout is defined as a state of emotional and physical exhaustion caused by prolonged periods of stress [10]. It refers to chronic stress in the work environment that has not been successfully managed. According to the World Health Organisation 'burnout is an occupational phenomenon' [11]. Burnout manifests through emotional exhaustion, depersonalization (in the sense of dehumanization) and reduced personal accomplishment, and these are the main dimensions of the Maslach Burnout Inventory (MBI) assessment tool created by Maslach and Jackson. Many studies have looked for the links between burnout, anxiety and depression [12, 13].

Tending to a person's mental health and wellbeing is crucial in order to prevent mental health issues like anxiety and depression, as well as the various consequences of occupational stress such as demotivation, incapacity, etc. It is the responsibility of the state authorities to develop strategies to deal with stress and to promote prevention mechanisms [14]. Such support can be provided in several aspects: creating working conditions adapted to the crisis situation

(which universities have been able to do with the help of online learning platforms); support for implementing the new activities (training, consultations) and social support. A study conducted in Bulgaria during the pandemic provided data on the potential influence of social connectedness, social support, and available resources on subjectively perceived stress, negative mood and impulsivity [15].

A number of studies have been aimed at developing stress-coping strategies for nurses [16] for teachers [17], but there are not many studies for those working in the field of higher education, which has its own specifics compared to other spheres of public life. According to a review study, the anxiety levels among primary school teachers were higher compared to university teachers. The levels of stress, however, were higher in academics than in school teachers. Primary teachers had experienced the threat of the pandemic as a one-off stressor because they were in direct contact with their students. In general, university teachers had been under stress even before the pandemic. The variety of their tasks, such as training students in specialized skills, interacting with them, and upgrading their level of professionalism, could increase stress, especially in times of uncertainty and high workload, such as during the COVID-19 pandemic [18].

Combining remote teaching with the need to organize and conduct in-person practical sessions, online exams, and research work has made it difficult for a large number of university teachers. The lack of face-to-face interaction with students and co-workers has increased the need for social support that fosters sharing, trust and sympathy. Insufficient engagement with others can lead to dissatisfaction, uncertainty, anxiety, a sense of depression and burnout syndrome.

It has been proven that perceived stress is directly related to emotional exhaustion and depersonalization and is inversely related to personal accomplishment [19].

OBJECTIVE

The aim of this study is to explore the impact of the COVID-19 pandemic on the mental health and wellbeing of higher education personnel in order to develop preventive strategies for coping with crises.

The COVID-19 pandemic, like any other crisis, has intensified psychosocial risk factors and workplace stress and has affected the mental health of university teachers and general university staff. An increase in the level of anxiety and depression is expected, as well as an increase in the risk of developing burnout in the target group.

If the hypothesis is confirmed, it would be appropriate to create a general strategy for coping with crises in two main aspects:

- Preventive coping approaches focused on specific risk factors such as social isolation, insecurity, etc;
- Interventions in case psychological problems are identified;

MATERIALS AND METHODS

The participants in the study were 165 - teachers (120) and non-academic staff (45) of the Medical University in Varna, Bulgaria.

The following tools have been used:

- A questionnaire survey: exploring some aspects of the respondents' quality of life before and during the COVID-19 pandemic. The first questions in the survey are focused on some socio-demographic characteristics of the participants: age, gender, educational level and employment. These are followed by specific questions that investigate the possible changes in daily work personal negative effects related to mental health as a result of the measures taken to prevent the spread of COVID-19 (social distancing, work from home, etc). Main items from representative international studies on mental health and quality of life during the pandemic have been considered when developing the questionnaire.

- HADS: a self-assessment questionnaire to measure intense anxious and depressive states. The tool includes seven questions about anxiety and seven questions about depression.

- Maslach Burnout Inventory – MBI, a questionnaire for occupational burnout, official translation to Bulgarian by Tsenova [20]. This tool provides information on three components: emotional exhaustion, depersonalization and personal accomplishment. It consists of 22 statements which the respondents rate in terms of frequency and intensity.

The study was approved by the Research Ethics Committee at the Medical University – Varna with Decision No. 119 on 21.07.2022. The participants received an invitation to take part through their work emails. Informed consent was obtained from the participants before the questionnaires were distributed. All of them were informed about the nature and purpose of the study. Confidentiality of the personal data was secured. Participation was voluntary, and anyone could

Descriptive statistical methods, a t-test, correlation analysis, χ^2 test and a multiple linear regression model have been used. SPSS version v.24.0 has been used to process the survey data.

The survey took place between October and December 2022.

RESULTS

The sample consisted of 165 participants, of which 133 women (80.6%) and 32 men (19.4%); educational background: university degree - 151 participants (91.5%) and secondary education - 14 participants (8.5%); mean age 46.8 years (SD = ± 9.864 years; the median - 47 years, age range - 25 – 67 years). In terms of job position: 120 were academic staff (72.7%), while 44 of the participants were non-academic staff (26.7%). The mean age of university teachers was 45.73 years (SD = ± 10.33 years) and of other employees - 49.36 years (SD = ± 7.71 years).

Nearly all respondents (93.9%) worked 40 hours a week. During the COVID-19 pandemic, 109 of them worked remotely (66.1%). On the question regarding changes in the workload due to transitioning to remote work, the distribution was as follows: 90 participants (54.5%) did not report any change in their workload, 9 subjects (5.5%) reported working less, while 65 (39.4%) indicated that they worked more.

When asked what impact remote work had on the stress levels they experienced at work, 6.7% of respondents replied that working from home caused them significantly less stress, 14.5% reported less stress, 49.1% reported no difference in the stress level, 20.0% reported stress as slightly higher, and 6.7% experienced significantly more stress.

At that time, the mental health of university teachers and non-academic staff was probably affected by worries of getting infected with the coronavirus. The degree of concern for their personal risk of infection was distributed as follows: 'not at all' – 23 participants (13.9%), 'a little' – 40 participants (24.2%), 'moderately' – 81 partici-

pants (49.1%) and 'very much' – 21 participants (12.7%). Regarding the degree of their worry about loved ones getting infected by COVID-19, the responses were: 'not at all' – 10 respondents (6.1%), 'a little' – 27 respondents (16.4%), 'moderately' – 80 (48.5%) and 'very much' – 48 respondents (29.1%).

The questionnaire included questions that covered some key parameters of mental health, making a comparison before and during the pandemic. The responses were grouped according to the degrees ('not at all' – 1, 'a little' – 2, 'moderately' – 3 and 'very much' – 4) and were included in Table 1 (Parameters of mental health of staff of the Medical University - Varna before and during COVID-19).

Table 1. Parameters of Mental Health of Staff of the Medical University - Varna before and during COVID-19

Degree	Stressed		Overworked		Nervous		Insecure		Depressed		Socially supported		Socially isolated	
	Before	During	Before	During	Before	During	Before	During	Before	During	Before	During	Before	During
	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19	COVID-19
1	26.10%	6.70%	13.90%	10.90%	28.50%	15.20%	47.30%	25.50%	63.60%	41.80%	24.20%	26.10%	80.60%	20.60%
2	35.80%	24.20%	26.10%	14.50%	32.70%	27.30%	35.80%	35.80%	27.30%	33.30%	20.00%	27.30%	12.10%	26.70%
3	34.50%	46.70%	49.70%	51.50%	34.50%	36.20%	15.80%	22.40%	9.10%	16.40%	42.40%	33.90%	6.70%	23.00%
4	3.60%	22.40%	10.30%	23.00%	4.20%	19.40%	1.20%	16.40%	0%	8.50%	13.30%	12.70%	0.60%	29.70%

Respondents' sleep quantity and quality were also surveyed before and during the pandemic. In these periods, 17.8% and 21.8% of the study participants slept less than 6 hours. Before the coronavirus crisis, 4.2% and 13.3% defined their sleep as inefficient or less efficient, respectively, whereas during the pandemic, the percentages were 6.7% and 21.2%. That indicated a decline in sleep parameters.

A small share of respondents reported increased use of cigarettes, alcohol and tranquilizers as a result of the pandemic (2.4%, 0.6% and 3.8%).

The question: 'To what extent did work changes make it difficult for you to perform your work tasks?' with possible answers 'not at all difficult' – 1, 'a little' – 2, 'moderately' – 3 and 'very difficult' – 4, an approximately equal share of respondents reported that they had no or few work-related difficulties. (38.2% and 34.5%). The distribution of the rest was: 20.6% reported that work was moderately difficult and 6.7% very difficult.

The levels of 'anxiety' and 'depression' in the HADS tool were scored as follows: 0-7 – normal; 8-10 – mild; 11-14 – moderate; 15-21 – severe. The results of the staff from Medical University-Varna are presented in Table 2.

Table 2. Distribution by Levels of Anxiety and Depressive States (HADS)

Level	Anxiety		Depression	
	number	%	number	%
1	125	75.80%	140	84.80%
2	20	12.10%	17	10.30%
3	16	9.70%	8	4.80%
4	4	2.40%	0	0%
Total	165	100%	165	100%

The mean value on the anxiety scale was 5.61, SD = 4.027 (women - 5.71, SD = 4.04; men - 5.34, SD = 3.98; university teachers - 5.54, SD = 3.55; non-academic staff - 5.86, SD = 5.15). The mean on the depression scale was 3.62, SD = 3.39 (women- 3.55, SD = 3.21; men - 4, SD = 4.09; university teachers - 3.68, SD = 3.36; non-academic staff - 3.48, SD = 3.55).

The levels of the Maslach questionnaire are low, moderate and high for each scale, evaluated according to the number of points obtained from the respondents' answers. The survey results are shown in Table 3.

Table 3. Distribution of Survey Results from the Three Maslach Scales

Level	Emotional Exhaustion		Depersonalization		Personal Accomplishment	
	number	%	number	%	number	%
1 low	18	10.90%	64	38.80%	142	86.10%
2 moderate	64	38.80%	50	30.30%	12	7.30%
3 high	83	50.30%	51	30.90%	11	6.70%
Total	165	100%	165	100%	165	100%

The mean value in the EE scale was 27.67, SD = 10.795 (women - 27.62, SD = 10.35; men - 28.28, SD = 12.61; university teachers - 28.14, SD = 10.72; non-academic staff - 26.47, SD = 11.13), given that a score above 25 indicates a high risk of burnout according to this tool.

The mean in the DP scale was 9.10, SD = 5.494 (women - 8.73, SD = 4.99; men - 10.72, SD = 7.14; university teachers - 9.13, SD = 5.48; non-academic staff - 9.09, SD = 5.62). The mean values ranged between 6 and 10, which indicated a moderate risk.

The PA mean value was 44.78, SD = 8.006 (women - 44.89, SD = 7.84; men - 44.94, SD = 8.22; university teachers - 45, SD = 7.18; non-academic staff - 44, SD = 9.98), i.e. above 37, meaning low risk.

In the correlation analysis, a statistically significant high correlation was found between HADS anxiety (HADS-A) and HADS depression (HADS-D) scales ($R = 0.688$, $p < 0.01$). The anxiety scale also indicated significant correlations with the three Maslach dimensions: a significant moderate positive correlation with EE ($R = 0.464$, $p < 0.01$); a significant weak positive correlation with DP ($R = 0.294$, $p < 0.01$) and a significant weak negative correlation with PA ($R = -0.256$, $p < 0.01$).

No significant correlations between anxiety and age, gender, education, job position and weekly workload were identified.

A statistically significant weak negative correlation was found between HADS-A and remote work ($R = -0.166$, $p < 0.01$). That means respondents who worked remotely were less anxious. The same applied to the relationship between anxiety and the degree of concern for their personal risk of infection. The stress levels before and during the pandemic correlated significantly with the level of anxiety. The perception of being overworked during the pandemic showed a weak statistically significant correlation with anxiety. The indicators - perceived nervousness, insecurity, and depression before and during the pandemic had a statistically significant correlation with anxiety ($p < 0.01$). There was a statistically significant moderate correlation of anxiety with the feeling of social isolation before and during the pandemic. A weak, significant and negative correlation was identified between the respondents' perception of sleep efficiency and anxiety. The experienced work-related difficulties caused by the pandemic showed a statistically significant moderate correlation with anxiety ($R = 0.319$, $p < 0.01$).

The HADS-D scale indicated a strong significant positive correlation with Maslach's EE scale ($R = 0.511$, $p < 0.01$), a moderate positive correlation with the DP scale ($R = 0.326$, $p < 0.01$) and a moderate negative correlation with the PA scale ($R = -0.307$, $p < 0.01$). The level of stress before and during the pandemic had a statistically significant weak correlation with depression. The perception of being overworked before and during the pandemic showed a weak, statistically significant positive correlation with depression. Perceived nervousness, insecurity, depression and the feeling of social isolation before and during COVID-19 had a statistically significant and positive correlation with depression. Logically, the degree of reported social support

had a negative correlation with depression ($p < 0.05$). Social support was undoubtedly a protective factor for depression and anxiety. There was a statistically significant, moderate, positive correlation of depression with the feeling of social isolation before and during the pandemic. Regarding sleep, a statistically significant weak correlation was observed with the quantity of sleep ($R = -0.175$, $p < 0.05$) and a significant, weak and negative correlation with the perception of sleep efficiency and depression. The work-related difficulties caused by the pandemic showed a statistically significant weak positive correlation with depression ($R = 0.251$, $p < 0.01$).

The level of stress before and during COVID-19 showed a statistically significant weak correlation with the EE scale. Feeling overworked, nervous, insecure, and depressed during the pandemic and the perceived social isolation before and during the pandemic indicated weak or moderate correlations with the EE scores. The degree of social support during the pandemic had a weak negative correlation with the EE scale. A statistically significant weak correlation was seen between the EE scale and the perceived social isolation before and during the pandemic. The use of tranquilizers showed a statistically significant weak correlation with the EE scale ($p < 0.05$), and so did work-related difficulties due to the pandemic ($R = 0.280$, $p < 0.01$).

To examine the relationship between scores on the EE scale and scores from the mental health indicators included in the survey, we used a multiple linear regression model. Our goal was to test the hypothesis that the predictive values of depression and anxiety on HADS would reliably predict scores on the Maslach EE scale.

The overall regression model was statistically significant ($R = 0.534$, $R^2 = 0.285$, F (Regression $df = 2$, Residual $df = 162$) = 32.290, $p = 0.0001$).

We found that the predictive variable, HADS-D scores, significantly predicted the results on the EE scale ($\beta = 1.158$, $p = 0.0001$).

It was also established that the predictive variable, scores on HADS-A, had a statistical significance in predicting the EE scale scores ($\beta = 0.573$, $p = 0.021$).

The levels of stress before and during the pandemic had a statistically significant but weak correlation with the DP scale. Perceived nervousness, insecurity and depression showed a weak, positive correlation with the DP scale. The use of alcohol and tranquilizers also had a weak, positive correlation with that scale. Work-related difficulties due to the pandemic showed a statistically significant, weak correlation with the DP scale ($R = 0.166$, $p < 0.05$).

A multiple linear regression model was applied to test the hypothesis of whether the predictive values of HADS-A and HADS-D could significantly predict the scores on the Maslach DP scale.

The overall regression model was statistically significant: ($R = 0.340$, $R^2 = 0.116$, F (Regression $df = 2$, Residual $df = 162$) = 10.594, $p = 0.0001$).

It was identified that the predictive variable - HADS-D scores, significantly predicted the scores on the DP scale ($\beta = 0.380$, $p = 0.022$).

We found that the predictive variable - HADS-A

scores, had no statistical significance for predicting the DP scale scores ($\beta = 0.139$, $p = 0.193$).

Weak negative correlations were found for the stress levels before the pandemic, for perceived nervousness, insecurity and depression before and during the pandemic, for the degree of perceived social isolation before and during the pandemic and for perceived social support during the pandemic with the personal accomplishment scale. Positive weak correlations were identified between PA and sleep quantity and efficiency before and during the pandemic. A weak negative correlation was observed between the PA scale and the use of tranquilizers ($R = -0.160$, $p < 0.05$).

A multiple linear regression model was applied to test if the predictive values of HADS-A and HADS-D would significantly predict the scores on the PA scale.

The overall regression model was statistically significant: ($R = 0.313$, $R^2 = 0.087$, F (Regression $df = 2$, Residual $df = 162$) = 8.799, $p = 0.0001$).

It was established that the predictive variable - HADS-D scores, significantly predict the results of the PA scale ($\beta = -0.586$, $p = 0.017$).

Regarding the predictive variable HADS-A scores, no statistical significance for predicting the PA scores was found ($\beta = -0.170$, $p = 0.407$).

Table 4. Multiple Linear Regression Analysis of Predictors of Scores for the three Maslach Scale: – Emotional Exhaustion, Depersonalization and Personal Accomplishment

Level	Emotional exhaustion	Depersonalization	Personal Accomplishment
HADS Anxiety	.0001***	0.193	0.407
HADS Depression	.021*	.022*	.017*

DISCUSSION

It is clear from the survey responses that for almost half of them, remote work has not changed the amount of activities performed, and some have even indicated that they worked less. For almost half of the participants in the study, remote work has not caused serious stress, and for 21.2% of the respondents, it has even led to less stress. However, for over a third of respondents, work increased during the pandemic, and approximately the same percentage indicated that they experienced more stress.

About half of the respondents have been moderately worried about the risk of contracting COVID-19, both about themselves and their loved ones, as the concern for loved ones has been more pronounced, which is also confirmed by other studies [21].

The following can be seen when comparing the specific parameters before and during the COVID-19 pandemic: 38.1 % of participants reported moderate and high levels of stress before the pandemic, while 69.1 % of participants reported moderate and high levels of stress during the pandemic, which is an almost two-fold increase.

This difference shows a statistical significance in the χ^2 test, which compares the percentage distribution ($\chi^2 = 47.94$, $\kappa = 3$, $p < 0.00001$). Feeling overworked (degrees 3 and 4) before the coronavirus crisis has been reported by 60 %, while 71.5 % of respondents experienced that during the pandemic. This difference shows a statistical significance in the χ^2 test ($\chi^2 = 14.07$, $\kappa = 3$, $p < 0.02812$). An increase is also observed in the nervousness indicator – 38.7% before and 55.6% during the pandemic. This difference shows a statistical significance in the χ^2 test ($\chi^2 = 23.87$, $\kappa = 3$, $p < 0.000027$). The same tendency is manifested for insecurity, 17% before and 38.8% during the pandemic, which shows a statistically significant difference in the χ^2 test ($\chi^2 = 34.27$, $\kappa = 3$, $p < 0.00001$). The respondents who subjectively define themselves as moderately depressed before the crisis are 9.1 %, while during the pandemic, the percentage increases to 16.4%, adding here 8.5% who have reported the highest level 4. This difference shows a statistical significance in the χ^2 test ($\chi^2 = 23.84$, $\kappa = 3$, $p < 0.000027$). As regards social support before and during the pandemic, the dynamics are the following: 55.7% before the pandemic vs 46.6 % during it. This difference does not show a statistical significance in the χ^2 test ($\chi^2 = 3.53$, $\kappa = 3$, $p = 0.3164$). The situation is completely different with the socially isolated indicator, where the results are 7.3% before the pandemic vs 52.7 % during the pandemic. This difference shows a statistical significance in the χ^2 test ($\chi^2 = 128.65$, $\kappa = 3$, $p < 0.00001$). Naturally, the most significant increase is noted among participants who felt socially isolated during the COVID-19 pandemic, and this is undoubtedly a factor that worsens mental health. These results are confirmed by a qualitative study on the experiences of academics during the pandemic.

The present survey makes it clear that for 34.5% of participants, the main job-related change caused by the pandemic has been transitioning to remote work, whereas for 41.8 %, there hasn't been any change. Only one respondent reported losing their job during that period.

Moderate and severe levels of anxiety are registered in 12.1% of the participants, and moderate and severe levels of depression - in 4.8%.

The fact that about half of the surveyed staff of Medical University-Varna has shown a high level of emotional exhaustion is alarming. High levels of stress require urgent changes in the working environment and pace of work, and often consultations with a specialist (psychologist, psychiatrist). In case moderate levels are identified, there are prerequisites for emotional overstrain, so appropriate measures must be taken, such as a review of work commitments, time off, etc.

Approximately one-third of the survey participants have shown a high level on the DP scale. Regarding the PA scale, many respondents have demonstrated a low level, but 14% are still in the second and third levels of risk, according to this indicator.

Anxiety measured with the HADS tool indicates statistically significant correlations with remote work, stress levels, perceived nervousness, insecurity, depressive states and the feeling of being overworked and socially isolated.

For most of these indicators, this is valid both before and during the COVID-19 pandemic.

Depression measured with the HADS tool, shows statistically significant correlations with almost the same indicators as anxiety.

The results demonstrate the significant predictive value of HADS scores, especially those for depression, in predicting levels of occupational burnout. This is seen in all scales but is most distinct in the emotional exhaustion scale.

These results support our initial hypotheses and add weight to using tests such as HADS to screen for burnout symptoms and to implementing effective interventions.

CONCLUSION

The health promotion strategy in higher education can include activities for general and selective prevention of occupational stress and burnout based on stress coping strategies [22]. General prevention, aimed at all university teachers and non-academic staff, can be organ-

ized in the form of training group work to use constructive coping: self-control, seeking social support, accepting responsibility, planful problem solving, positive appraisal [23]. Research shows that reduced personal accomplishment is associated with problem-focused strategies, while emotional exhaustion and depersonalization are linked with emotion-focused coping. Seeking social support is negatively related to low levels of DP and positively to EE. Selective prevention targets employees who are at risk of developing psychological symptoms due to stress and burnout. The HADS test can be used as a screening tool to identify the persons at risk. The next step is to include them in focus and training groups where indicators of psychological resilience shall be considered and to discuss some of the key techniques for emotional survival in times of crisis.

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