

Mental Health Disorders of Bulgarian Healthcare Professionals during a Recurring Wave of the COVID-19 Pandemic

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KEYWORDS

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ABSTRACT

Introduction: During the COVID-19 pandemic, health hazards for medical professionals are associated not only with the high risk of infection, but also with poor working conditions, a stressful psychosocial environment and several socio-demographic factors.

Objectives: The study aims to gain insight into possible mental health disorders among healthcare professionals working in the Bulgarian healthcare system and to determine which professional and socio-demographic categories are most significantly affected.

Methods: This cross-sectional study was conducted in October 2022 in healthcare facilities from seven regions in Southern Bulgaria. A total of 665 workers from hospitals, emergency centers, general and specialized medical practices, and medical laboratories filled out the self-assessment mental health questionnaire DASS-21 (Depression, Anxiety and Stress Scale), as well as a survey about their occupational and socio-demographic characteristics. Suitable statistical methods were used to assess the scientific hypothesis.

Results: 40% of all surveyed healthcare workers had some type of self-reported mental health disorder, with 27% having more than one. 13% had simultaneous signs of depression, anxiety and stress. The rates of depression, anxiety and stress were highest among those working in COVID wards and emergency care centers, among young workers under 26 years of age, and among workers with disabilities and frequently ill workers.

Conclusions: Protecting healthcare workers' physical and mental health and work ability is a matter of primary importance, particularly under challenging working conditions such as the COVID-19 epidemic.

1. Introduction

The Covid-19 pandemic has resulted in increased mental health risk for all, but especially for healthcare workers. For medical professionals, hazards are associated not only with high risk of infection and disease, but also with working conditions, the psychosocial environment and several socio-demographic factors. Studies in many countries among various medical professional groups show that the most common manifestations of impaired mental health are anxiety, depression, burnout, mental and somatic signs of distress and post-traumatic stress [1-4]. Large-scale review articles and meta-analyses in recent years confirm the importance of occupational risks for the mental health of healthcare professionals [3, 5-7]. A large meta-analysis of 204 mental health studies found that conditions such as depression, anxiety, post-traumatic stress and insomnia were more common among healthcare workers than in the general population [8].

There is a glaring lack of research on the mental health of Bulgarian healthcare professionals during the COVID-19 pandemic. This was the incentive for our research team to collect current data on the mental health status of Bulgarian healthcare workers.

Objective

The objective of the current study was to gain insight on the types and possible severity of mental health disorders among healthcare professionals working in the Bulgarian healthcare system and to determine the professional and socio-demographic categories that are most strongly affected.

2. Methodology

The study was conducted in October 2022 at healthcare facilities from seven regions in Southern Bulgaria. Participating healthcare workers came from three multi-profile hospitals, two specialized hospitals for pulmonary diseases, and emergency care centers in seven settlements. Workers from two centers for general and specialized outpatient care were also included, as well as workers from two medical laboratories. A total of 665 surveys were exhaustively filled out by the respondents, including 42 surveys submitted online. Full ethical approval and consent for the study was obtained from the Commission on Scientific Research Ethics at the Medical Faculty, Trakia University. Informed consent and protection of personal data was ensured for all participants.

The survey contained several sections with questions about the occupational and socio-demographic characteristics of the participants, as well as mental health. The validated self-assessment scale DASS-21 (Depression, Anxiety and Stress Scale) was used to assess the healthcare workers' mental health status [9]. DASS-21 is a shortened version of the well-established DASS-42, which has long been used as a screening tool for psychological distress. The short, 21-item version consists of seven statements for various symptoms of depression, anxiety and stress. The subjects were requested to circle the number 0, 1, 2 or 3 next to each statement to indicate to what extent it applied to them over the past week. The rating scale is interpreted as follows:

0 - Did not apply to me at all

1 - Applied to me to some degree, or some of the time

2 - Applied to me to a considerable degree, or a good part of time

3 - Applied to me very much, or most of the time

The score was calculated as separate scores for the three subscales (depression, anxiety and stress). Additionally, the scores for each subscale were classified into five levels of severity: normal, mild, moderate, severe and extremely severe.

The data collected were processed using IBM SPSS Statistics 19. The relative share of individuals with various degrees of depression, anxiety and stress was determined. Relative shares of healthcare workers without mental health complaints and those with one or more mental disorders, regardless of severity, were also determined. Respondents were divided into several categories based on their occupational and socio-demographic characteristics – occupation, workplace, care for patients with COVID-19, work experience, sex, age, household, and health status (Table 1). The relative proportions of healthcare workers with manifestations of depression, anxiety and stress in the various professional and socio-demographic groups were compared. The assumption of normality of distribution both in the whole sample and across individual categories was tested with Kolmogorov-Smirnov test, and for categories with fewer than 50 cases Shapiro-Wilk test was used. Statistically significant differences between levels of depression, anxiety and stress in the different categories were sought to determine the most affected categories of health workers. Since the distribution of cases in the sample was non-normal, Mann-Whitney U-test was used for hypothesis testing. Correlation dependence between the manifestations of depression, anxiety and stress was sought by means of Spearman's non-parametric correlation analysis.

3. Result and Discussion

The relative proportions of workers with manifestations of various degrees of depression, anxiety and stress are presented in Figure 1. Analysis showed that out of 665 participants in the study, 87 (13.08%) had mild manifestations of depression, while 86 (12.93%) had moderate signs. Only 11 (1.65%) of the respondents had severe signs of depression, and 12 (1.8%) had very severe signs. 86 (12.93%) of the respondents had mild anxiety, 56 (8.42%) had moderate anxiety, 25 (3.76%) had severe anxiety, and 21 (3.16%) had very severe anxiety. The self-reported results for stress were more favorable. There were 78 (11.73%) healthcare workers with mild stress, 45 (6.77%) with moderate stress, 14 (2.11%)

with severe stress, and 11 (1.65%) with very severe stress.

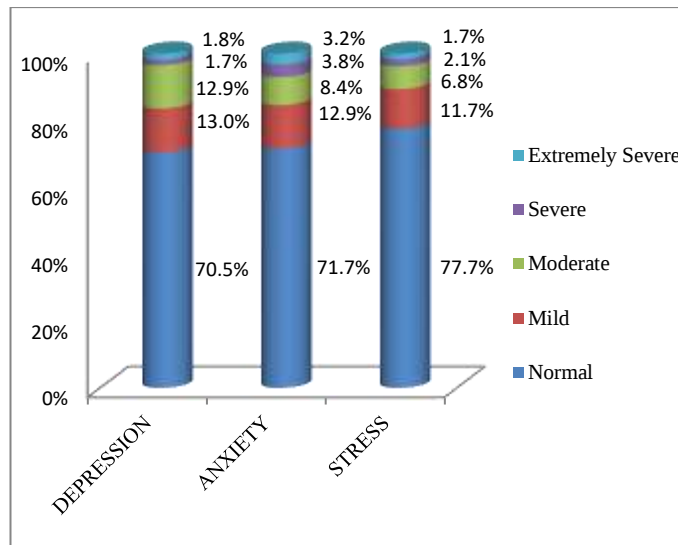


Figure 1. Levels of depression, anxiety and stress in the surveyed healthcare workers.

In some of the participants, only one type of mental disorder was reported, and in others a combination of two or even all three investigated disorders (Figure 2).

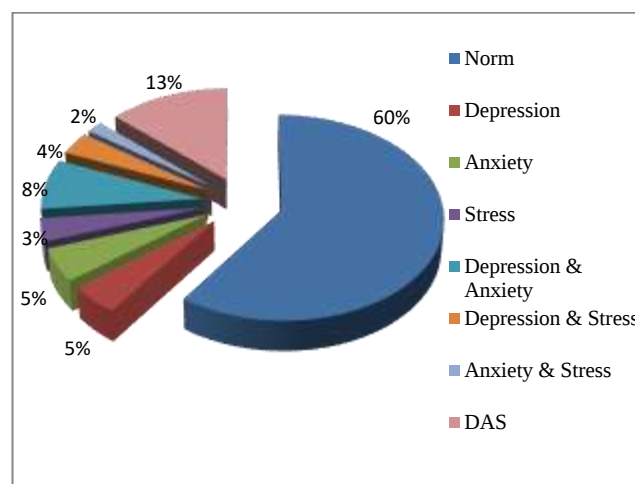


Figure 2. Distribution of various mental health disorders in the surveyed healthcare workers.

Workers without any self-reported mental health issues were 60%. Many of the respondents had signs of all three disorders (depression, anxiety and stress) simultaneously – 13% in total. Workers with combined manifestations of depression and anxiety came in second (8%), while the remaining combinations of disorders did not exceed 5%. Non-parametric Spearman correlation analysis found significant correlations between the different mental health disorders. The correlation coefficients (Spearman's rho) were respectively 0.793 between depression and stress, 0.746 between depression and anxiety and 0.709 between anxiety and stress, at a significance level of $p < 0.01$ for all three correlations.

Table 1 shows the distribution of respondents by occupational and socio-demographic characteristics. The relative proportions of depression, anxiety and stress in the different groups are presented.

	Number of respondents	DEPRESSION		ANXIETY		STRESS	
		n	%	n	%	n	%
Total	665	196	29.5	188	28.3	148	22.3
Occupation							
Physician	169	48	28.4	38	22.5	40	23.7

Physician's Assistant	68	23	33.8	31	45.6	19	27.9
Nurse	256	67	26.2	66	25.8	50	19.5
Laboratory Technician	25	7	28.0	6	24.0	5	20.0
Orderly	102	37	36.3	33	32.3	24	23.5
Nonmedical personnel	45	14	31.1	14	31.1	10	22.2
Workplace							
COVID-19 Ward	97	41	42.3	32	33.0	36	37.1
Intensive Care Ward	90	48	20.0	17	18.9	13	14.4
Other Hospital Ward	299	91	30.4	91	30.4	64	21.4
Medical Laboratory	24	3	12.5	4	16.7	4	16.7
Emergency Medical Center	92	32	34.8	32	34.8	22	23.9
General Medical Practice	16	2	12.5	3	18.8	3	18.8
Specialized Medical Practice	47	9	19.2	9	19.2	6	12.8
Care for patients with COVID-19							
No	149	34	22.8	33	22.2	21	14.1
Yes, currently	125	36	28.8	34	27.2	31	24.8
Yes, currently and previously	117	42	35.9	37	31.6	31	26.5
Yes, previously	274	84	30.7	84	30.7	65	23.7
Work experience (years)							
< 11	211	64	30.3	62	29.4	51	24.2
11-20	143	33	23.1	32	22.4	28	19.6
21-30	137	48	35.0	44	32.1	34	24.8
31-40	129	41	31.8	42	32.6	29	22.5
> 40	45	10	22.2	8	17.8	6	13.3
Sex							
Female	533	157	29.5	156	29.3	122	22.9
Male	132	39	29.6	32	24.2	26	19.7
Age (years)							
<26	31	12	38.7	13	41.9	11	35.5
26-35	143	36	25.2	34	23.8	32	22.4
36-45	143	32	22.4	35	24.5	21	14.7
46-55	172	57	33.1	52	30.2	44	25.6
56-65	150	51	34.0	47	31.3	36	24.0
> 65	26	8	30.1	7	26.9	4	15.4
Household							
Single	163	45	27.6	35	21.5	37	22.7
Single carer for child/ren or elderly parent/s	58	18	31.0	21	36.2	10	17.2
With a partner	259	80	30.9	77	29.7	58	22.4
With a partner and caring for child/ren or elderly parent/s	133	35	26.3	35	26.3	28	21.1
With a parent and/or roommate	52	18	34.6	20	38.5	15	28.9
Health status							
Rarely ill	475	132	27.8	120	25.3	92	19.4
Often ill	54	24	44.4	23	42.6	20	37.1
With a chronic illness	115	33	28.7	34	29.6	28	24.4
With a disability/reduced work ability	21	7	33.3	11	52.4	8	38.1

In the occupation category the highest relative proportion of workers with anxiety was among physician's assistants - 45.59%, which was significantly higher compared to the rate of anxiety among physicians - 22.49% ($p < 0.001$) and nurses - 25.78% ($p < 0.01$). There were no significant differences in the rates of depression and stress among various occupation groups. Non-parametric Mann-Whitney analysis showed significantly lower levels of anxiety among physicians compared to other occupations, with the exception of laboratory technicians (Table 2).

Table 2. Statistically significant differences in levels of depression, anxiety and stress in healthcare workers, distributed by professional and socio-demographic characteristics

	DEPRESSION	ANXIETY	STRESS
Occupation			
Nurses > Physicians		p = 0.015	
Physician's Assistants > Physicians		p < 0.001	
Orderlies > Physicians		p = 0.001	
Nonmedical personnel > Physicians		p = 0.025	
Orderlies > Nurses	p = 0.043		
Workplace			
COVID-19 Ward > Intensive Care Ward	p < 0.001	p = 0.001	p < 0.001
COVID-19 Ward > Other Hospital Ward	p = 0.039		p < 0.001
COVID-19 Ward > Medical Laboratory	p = 0.019		p = 0.013
COVID-19 Ward > Emergency Medical Center			p = 0.049
COVID-19 Ward > Specialized Medical Practice	p = 0.007	p = 0.035	p < 0.001
Emergency Medical Center > Intensive Care Ward	p < 0.001	p < 0.001	p = 0.001
Emergency Medical Center > Other Hospital Ward		p = 0.033	
Emergency Medical Center > Medical Laboratory	p = 0.017		
Emergency Medical Center > General Medical Practice		p = 0.025	
Emergency Medical Center > Specialized Medical Practice	p = 0.009	p = 0.009	p = 0.003
Other Hospital Ward > Intensive Care Ward	p = 0.011	p = 0.008	p = 0.014
Other Hospital Ward > Specialized Medical Practice			p = 0.025
Care for patients with COVID-19			
Yes, currently > No		p = 0.038	p = 0.022
Yes, currently and previously > No	p < 0.001	p = 0.004	p < 0.001
Yes, previously > No	p = 0.010	p = 0.015	p = 0.004
Work experience (years)			
below 11 > 11 ÷ 20		p = 0.028	p = 0.026
21 ÷ 30 > 11 ÷ 20	p = 0.012	p = 0.009	p = 0.002
21 ÷ 30 > over 40			p = 0.022
31 ÷ 40 > 11 ÷ 20		p = 0.016	
Sex			
Female > Male		p = 0.014	p = 0.003
Age (years)			
below 26 > 26 ÷ 35		p = 0.004	p = 0.039
below 26 > 36 ÷ 45		p = 0.007	p = 0.003
below 26 > over 65			p = 0.042
46 ÷ 55 > 26 ÷ 35		p = 0.030	
56 ÷ 65 > 26 ÷ 35		p = 0.044	
Household			
Single carer for child/ren or elderly parent/s > Single		p = 0.025	
With a partner > Single		p = 0.032	
With a parent and/or roommate > Single		p = 0.027	
Health status			
Often ill > Rarely ill	p = 0.001	p = 0.001	p = 0.007
With a chronic illness > Rarely ill		p = 0.011	
With a disability > Rarely ill		p = 0.007	
Often ill > With a chronic illness	p = 0.010		p = 0.049

The differences between relative proportions of workers with mental health disorders were most pronounced by workplace (Figure 3). The rate of depression was highest among those working in COVID wards and emergency care centers. In the COVID wards, 42.27% of all surveyed workers had varying degrees of depression, compared to 34.78% of respondents from emergency centers –

Figure 3.

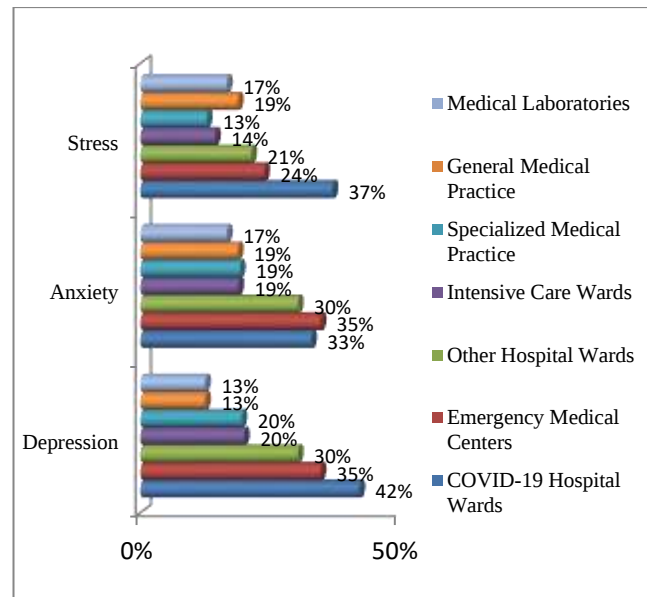


Figure 3. Rates of depression, anxiety and stress in healthcare workers, distributed by workplace.

There was no significant difference between these two groups, but the rates were both significantly higher compared to other groups ($p < 0.01$ for the COVID wards and $p < 0.05$ for the emergency centers). The results were similar for anxiety rates - 34.78% of emergency care workers and 32.99% of COVID ward workers had self-reported anxiety symptoms. The rate of stress was also highest among those working in COVID wards (37.11%), once again significantly higher compared to that of other surveyed workplaces, with levels of significance within the limits of $p < 0.05$ to $p < 0.001$.

Similar results were obtained when comparing levels of depression, anxiety and stress in the different workplace categories, which were significantly higher among those working in COVID wards and emergency care centers (Table 2).

Another occupational factor for which significant differences in the relative proportions of affected individuals and levels of mental health issues were observed was provision of medical care to patients with COVID, presented on Figure 4. The rate of depression among healthcare workers who directly worked with COVID-19 patients in the current and previous waves of the pandemic was significantly higher compared to that among these who did not provide direct medical care to patients with COVID-19 ($p < 0.01$). The relative proportions of workers with stress in all groups who take care for COVID-19 patients were also significantly higher than among those who did not work with COVID-19 patients ($p < 0.05$). The levels of anxiety, stress and depression were significantly higher among healthcare professionals working directly with COVID patients both currently and in previous waves of the pandemic (Table 2).

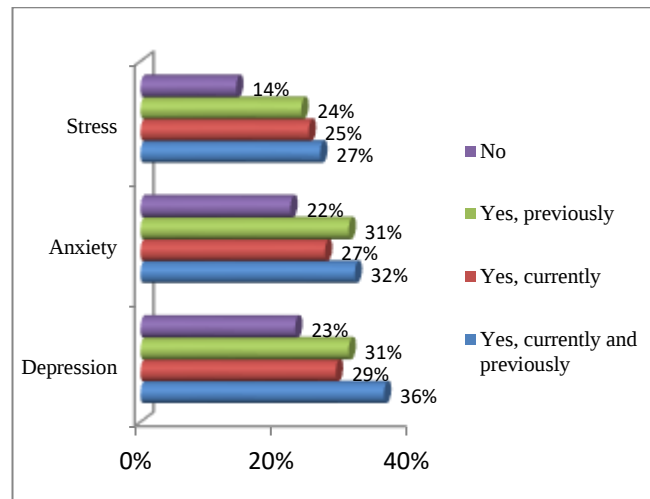


Figure 4. Rate of depression, anxiety and stress in healthcare workers, distributed by provision of medical care to COVID patients.

No significant differences were seen in the rates of depression, anxiety and stress between the groups compiled on the basis of work experience. The differences in mean group levels by work experience did not follow any definite trend.

The most significant differences in the socio-demographic categories were observed in the groups divided by age and by health status. The rates of depression (38.71%), anxiety (41.94%) and stress (35.48%) were highest among young workers under the age of 26, and those numbers were significantly higher ($p < 0.05$) than the relative proportions in the age group from 36 to 45 years, which were the lowest. The second most affected were the categories of 46-55-year old and 56-65-year old workers. Levels of anxiety and stress for these two age groups were also significantly higher compared to those of the other age groups, but no such differences were observed for depression rates (Table 2).

The rates of anxiety (52.38%) and stress (38.1%) were significantly higher among workers with disabilities (permanently reduced working capacity), as well as among workers who are often ill (i.e. who are on sick leave four or more times per year) – 42.59% of respondents in this group reported anxiety and 37.04% reported stress ($p < 0.01$). The rate of depression (44.44%) was significantly higher only in the group of frequently ill workers ($p < 0.01$) – Table 1. Anxiety level in the category of rarely ill individuals was significantly lower in comparison to the others (Table 2).

When we compared the relative proportions of depression, stress and anxiety in women and men, no significant differences were found (Table 1). However, mean category levels of anxiety and stress in women were significantly higher than those in men (Table 2).

There was no significant difference in the relative proportion of depression and stress in different households, but anxiety was most prevalent in workers living with a roommate or a parent (38.46%) and those who sole caregivers for children or elderly parents (36.21%) – Table 1. Anxiety level was significantly lower for those living alone (Table 2).

Discussion

It is worrying that out of the 665 healthcare workers surveyed, 40% self-reported having some type of mental health disorder (Figure 2). These numbers are close to those reported by the British Medical Association (BMA) at the beginning of the COVID-19 pandemic in April 2020. The BMA survey found that 45% of British healthcare workers suffer from depression, anxiety, stress, burnout or other mental health issues, with two-thirds of those affected having their symptoms worsened by the COVID-19 crisis [1]. Our results provide evidence that healthcare workers are still troubled and worried about COVID risks three years after the beginning of the pandemic.

A positive trend in our study, conducted 30 months after the beginning of the COVID-19 pandemic, is

the predominance of mild and moderate mental health issues (Figure 1). Cases of severe and very severe depression and stress were reported by less than 2%, and severe or very severe anxiety by less than 4% of those surveyed. Huang et al. in 2020 studied the mental health of 230 healthcare workers from COVID-19 infectious diseases hospitals and reported results very similar to ours 23.04% of the studied subjects reported different levels of anxiety - mild for 16.09%, moderate for 4.78% and severe for 2.17%. Post-traumatic stress disorder of varying severity was found in 27.39% of the studied workers [10]. Our findings of 29.5% of health care workers with depression, 28.3% with anxiety, and 22.3% with stress symptoms (Table 1) are well below those found at the start of the pandemic by Mental Health America. The results of a survey of more than 1,000 US healthcare professionals between June and September 2020 showed that 93% of respondents were regularly stressed, 86% experienced anxiety, 77% experienced frustration, and 76% reported fatigue and burnout [11]. In 2021, Lasalvia et al. performed a repeat cross-sectional survey among workers at the University Hospital in Verona and found a significant increase in levels of anxiety – from 50.1% to 55.5%, depression – from 26.6% to 40.6%, and burnout – from 28.6% to 40.6% [12]. Unfortunately, we do not have data on the mental health of Bulgarian healthcare workers from 2020 and 2021, but in our study conducted in October 2022, mental health disorders among health workers were less frequent compared to those reported in surveys at the beginning of the COVID-19 pandemic in other countries, as well as one year later.

The significant correlations observed between manifestations of depression, anxiety and stress, as well as the fact that they occurred in different combinations for 27% of the respondents (Figure 2), show that mental health disorders often appear simultaneously in the same vulnerable groups of people. It is those groups that have the greatest need for professional help. Choosing the correct and effective coping strategy in stressful situations is of utmost importance. There are not many studies on the effects of implemented measures to improve mental health [3]. In this regard, the study of Saeedi et al. from 2023 provides useful insights. The research team found a correlation between anxiety manifestations in nurses and the coping strategy used. Emotion control strategy proved to be ineffective compared to the implementation of a problem-solving strategy [13]. In order to reduce the negative effect on healthcare workers' mental health while focusing on the most vulnerable workers, it is advisable to implement a correct coping strategy for the realities of the epidemic and to carry out group training programs accordingly. Support and respect from colleagues, financial compensation, workload reduction, clear communication of health protection measures and provision of adequate personal protective equipment are important for improving mental health [14]. For more vulnerable workers, Holmes et al. recommend tailored psychological interventions to mitigate the adverse effects of the pandemic on their mental well-being [15].

A survey of nearly 21,000 healthcare professionals in the United States (May-October 2020) reported the highest levels of stress among nurses, physician assistants and social workers. Stress symptoms were most pronounced among hospital workers, women, and minorities [16]. Our study, although much smaller in scale, but comparative to the country's population, showed similar results. The people most severely affected by mental health disorders were workers from COVID-19 wards and emergency care centers, as well as those directly involved in treating COVID-19 patients (Figures 3 and 4). Based on their own studies or on literature reviews, a number of authors found that manifestations of distress, anxiety, depression and insomnia were most pronounced among healthcare workers on the front line and those in direct contact with COVID-19 patients [2,3,17,18]. In a "scoping review" of 154 publications, Shaukat et al. also concluded that front-line medical personnel directly involved with COVID-19 patients were at greater risk of depression, anxiety and distress. The authors reported depression in 50.4% of the surveyed workers, stress in 27.4-71%, and anxiety in 23-44% (of which 16.1% mild, 4.8% moderate, and 2.2% severe) [6]. These and other authors [10,19] found that both the level and severity of anxiety were significantly higher in women compared to men, and in nurses compared to physicians. Our study also found the lowest rate (Table 1) and severity (Table 2) of anxiety in physicians, compared to other occupational groups. This is probably due to their greater adaptability

to work overload and emergency situations. Similar to the aforementioned studies, we also found higher levels of anxiety and stress in women than in men (Table 2). This could be explained by the fear of infecting their loved ones (more pronounced in women), as well as their worry that they are not taking good enough care of their families due to work overload and the need to isolate to avoid infecting others. In the Mental Health America survey, half of the surveyed working parents reported difficulty and lack of time in caring for their children [11]. We found higher anxiety among working physicians who are single parents or caregivers for their elderly parents.

Comparing the respondents' results by age comparison established that in young workers (under 26 years old), anxiety and stress were more pronounced (Table 2), and the rate of all mental health disorders was the highest (Table 1). A web-based study by Huang & Zhao from 2020 also reported significantly higher levels of anxiety and depression in young adults [20]. In our study, adults between the ages of 46 and 65 had the second highest level and severity of anxiety. Cai et al. believe that the causes for anxiety differ for the various age groups. According to the authors, anxiety among younger healthcare workers is caused by fear of infection, including infecting their relatives, while among the older workers it is due to fatigue, exhaustion and uncertainty in the means of protection [21]. In our opinion, additional causes of the more pronounced anxiety and stress among young healthcare workers are the lack of professional experience and the lack of adequate training for work during a pandemic and ways to prevent infection.

Another risk factor that we identified for mental health disorders was the workers' current health status. Healthcare workers with disabilities, as well as those who get sick often, are not only physically but also mentally more vulnerable. In those groups, rates of mental disorders were significantly higher than in the group of workers who rarely get sick (Table 1).

A consequence of mental health disorders for all healthcare workers is their reduced resistance to the coronavirus infection and other diseases, as well as the worsening of chronic diseases, especially mental ones. This can lead to increased, often severe morbidity and prolonged absence from work, which increases the workload for their colleagues. On the other hand, mental health disorders and increased work overload among healthcare workers are a prerequisite for reduced efficiency and lower quality of medical care, as well as increased risk of medical errors and accidents. All these negative phenomena determine the extreme importance of mental well-being and the need for prevention among healthcare workers. Many studies have not only identified mental health problems among medical professionals from various countries, but have explicitly emphasized the need for action to reduce psychosocial risk factors, increase resilience on a personal and group level, and prevent mental health issues among healthcare workers [1,3,22]. De Kock et al. conclude that strengthening psychological resilience in a personalized approach can be effective in protecting workers, but a holistic approach to the psychological well-being of healthcare workers is needed, which includes personal interventions alongside necessary changes to create a healthy, safe and supportive work environment [3].

Strengths and limitations

Our study is, to our knowledge, the first of its kind that undertakes a large-scale screening of the mental health status of Bulgarian healthcare workers during the COVID-19 pandemic. We have surveyed a total of 665 individuals from all levels of the healthcare system – hospital employees, workers in outpatient practices, and laboratory technicians. We have covered both state and private hospitals, which may have different working conditions due to differences in funding.

Our chosen mental health questionnaire, DASS-21, can be viewed as a limitation because of its characteristics as a self-assessment screening tool. The data obtained cannot therefore be used to make diagnostic assumptions for the studied individuals. The questionnaire is nevertheless easy to apply in large population groups and provides useful initial information for mental health issues, as well as a way to screen for vulnerable individuals and workers at risk for mental health disorders.

In the study, we did not include a question regarding pre-existing mental conditions of the healthcare

workers. Such information is therefore missing from our data. The reason behind this decision was first and foremost ethical – to abstain from collecting sensitive medical information from the surveyed individuals and to guard their privacy.

An additional limitation is the fact that our study was conducted in October 2022, when a COVID vaccine was readily available and the strain on the healthcare system was not as great as it was in 2020. It is worth mentioning, however, that the percentage of Bulgarians fully vaccinated against COVID-19 remains much lower than in the rest of the EU, which results in higher numbers of infected and hospitalized individuals even at present.

4. Conclusion and future scope

Our study showed that 40% of all healthcare workers surveyed in October 2022 had some type of self-reported mental health disorder, with 27% having more than one and 13% having simultaneous signs of depression, anxiety and stress. Statistically significant correlation was established between levels of depression, anxiety and stress in the whole sample. Most affected were those working in COVID-19 wards and emergency care centers, i.e. those providing direct medical assistance to patients with COVID-19. Young workers (under 26 years of age) were most vulnerable to anxiety and stress. In women, the rates of mental health disorders were the same as in men, but the levels of anxiety and stress were significantly higher. Significantly higher rates and levels of depression, anxiety and stress were found in workers with disabilities and those who are frequently ill.

Healthcare workers are rightly defined as essential workers, as they bear the main burden of implementing anti-epidemic measures and providing timely diagnosis and treatment in pandemic conditions. Therefore, protecting healthcare workers' physical and mental health and work ability is a matter of primary importance. Overcoming the consequences of the pandemic requires professional help and support from leaders (healthcare managers), with particular focus on the most vulnerable groups of workers. It is even more important to organize sufficient and effective preventive work regarding the mental health of healthcare workers in emergency situations, such as pandemics, natural disasters, wars, when the pressure on the health system is enormous.

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