



Original Contribution

PSYCHOSOCIAL RISKS AND THEIR IMPACT ON THE MENTAL HEALTH IN HEALTHCARE WORKERS DURING A RECURRING WAVE OF COVID-19

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ABSTRACT

The **purpose** of the study is to prioritize psychosocial risk factors in healthcare workers during a wave of Covid-19. **Methods:** Cross-sectional survey was conducted among 665 health care workers from hospital, outpatient, and emergency care settings in 9 cities in Southern Bulgaria. The survey included 29 questions on psychosocial risks at work and 21 questions on self-rated manifestations of depression, anxiety and stress (DASS 21). Binary logistic regression was used to explore the association between depression, anxiety and stress with psychosocial risk factors. **Results:** Priority psychosocial risks include the lack of adequate training in an epidemic setting, insufficient experience in treating infectious patients, uncertainty about the implemented counter-epidemic measures, and poor communication within work teams when discussing problems and making decisions. The intensity of the workload, lack of recognition and uncertainty in the work performed have a significant influence on the mental health. There are other contributing personal factors, such as anxiety about patients' lives, anxiety about one's own health and safety, and that of one's relatives, and the conflict between work and social life. Some form of mental health disorder was identified in 40% of the healthcare workers. **Conclusion:** The results show the need for training sessions at all levels on safe and professional behaviour during a pandemic, improved management and communication in work teams, personalised interventions to support the mental health of workers.

Key words: psychosocial risks, healthcare workers, mental health, pandemic

INTRODUCTION

Even before the pandemic, health care is identified as one of the most affected sectors in terms of psychosocial risk factors in the work environment (1, 2). In addition to pre-existing psychosocial risks in the health care system such as understaffing, insufficient payment, significant neuropsychological and psycho-emotional load, poor communication, insufficient recognition and support (3, 4), new risk factors emerge, such as very high work intensity, forced change in working conditions and work organization due to staff being transferred from different clinical structures to

treating patients with coronavirus infection, insufficient experience in the medical care of infectious patients, frequent deterioration and loss of patients, risk of infection, uncertainty about protective measures and equipment (4-8). All these factors can contribute to mental health disorders to varying degrees, depending on working conditions, work organization, availability of support and training, and individual adaptability (6-9). Mental health prevention among healthcare workers is extremely important, not only for preserving their health and safety, but also for their ability to provide adequate medical care to patients. For preventive measures and corrective actions to be effective, they must be prioritized to address the most problematic risk factors with the most significant impact on mental health (4-6).

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The goal of the study is to identify the most common psychosocial risk factors for healthcare workers during a pandemic, as well as those that significantly increase the risk of mental health disorders. Prioritization of psychosocial risks is important in order to properly target preventive and remedial actions to reduce risk.

MATERIALS AND METHODS

A cross-sectional survey was conducted in October 2022, during a wave of Covid-19, among health care workers from hospital, outpatient, and emergency care settings in 9 cities in Southern Bulgaria, employed in different medical departments: Covid-19 Ward – 97; Intensive Care Ward – 90; Other Hospital Wards – 299; Medical Laboratory – 24; Emergency Medical Center – 92; General and Specialized Medical Practice – 63. A total of 665 questionnaires were exhaustively filled out by 533 females and 132 males, holding the following positions: physicians – 169; physician's assistants – 68; nurses – 256; laboratory technicians – 25; orderlies – 102; and nonmedical personnel – 45. 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 included 29 questions on psychosocial risks at work relating to work organization, specific professional risks and anti-epidemic measures, communications in the working team and personality traits. The validated self-assessment scale DASS-21 (Depression, Anxiety and Stress Scale) was used to assess the mental health (10). The DASS-21 consists of three subscales with seven statements each for various manifestations of depression, anxiety, and stress. Scores were calculated separately for the three subscales to classify cases as normal or with varying severity of manifestations: mild, moderate, severe, and extremely severe.

All data were entered and managed using statistical package IBM SPSS Statistics, version 25.

For each question, the relative proportions of positive and negative responses were determined on a four-point scale. Binary logistic regression was used to explore the association between depression, anxiety and stress (as dependent variables) and psychosocial risk factors

(as independent variables). Cross sectional odds ratios with 95% confidence intervals (CI) were calculated to identify the contribution of the different factors toward the probability of depression, anxiety and stress. The dependences of depression, anxiety and stress manifestation regarding psychosocial risk factors were measured using binary logistic regression analysis, applying the FSTEP (LR) method. A p-value less than 0.05 was considered to be statistically significant. Of all 29 psychosocial risk factors, those with a statistically significant impact on depression, anxiety and stress were identified. In addition, the combined impact of any two of these factors on the risk of depression, anxiety and stress was calculated.

RESULTS

According to the relative proportion of responses received, the most problematic organizational psychosocial risk factors during the pandemic wave are insufficient adequate training of workers and insufficient security of workers from the measures implemented to protect their health and safety (**Figure 1**). For these psychosocial factors, logistic analysis showed no significant impact on the risk of mental health disorder. One organisational factor that was found to significantly increase the risk of stress ($B=3.1$; $p<0.0005$) is the assignment of non-specific tasks (**Table 1**).

Occupational risk factors that emerge as problematic are insufficient experience in treating infectious patients and too intense workload, often beyond the capabilities of workers (**Figure 1**). Lack of experience in treating infectious patients may significantly increase the risk of anxiety ($B=2.9$; $p=0.011$) - **Table 1**. The risk of stress increases with frequent intense workload ($B=2.4$; $p=0.011$). Combined with anxiety about patients' lives, may increase the risk of stress even more ($B=3.5$; $p=0.02$). Logistic analysis showed the significance of another psychosocial risk - insufficient confidence to cope with work increases the risk of depression ($B=2.8$; $p=0.001$) and anxiety ($B=4.8$; $p<0.0001$). An important occupational factor is lack of interest and job satisfaction, which significantly increases the risk of stress ($B=5.4$; $p=0.002$). When job dissatisfaction is combined with a frequently intense workload, the risk of stress may increase by a factor of 4.6 (**Table 1**).

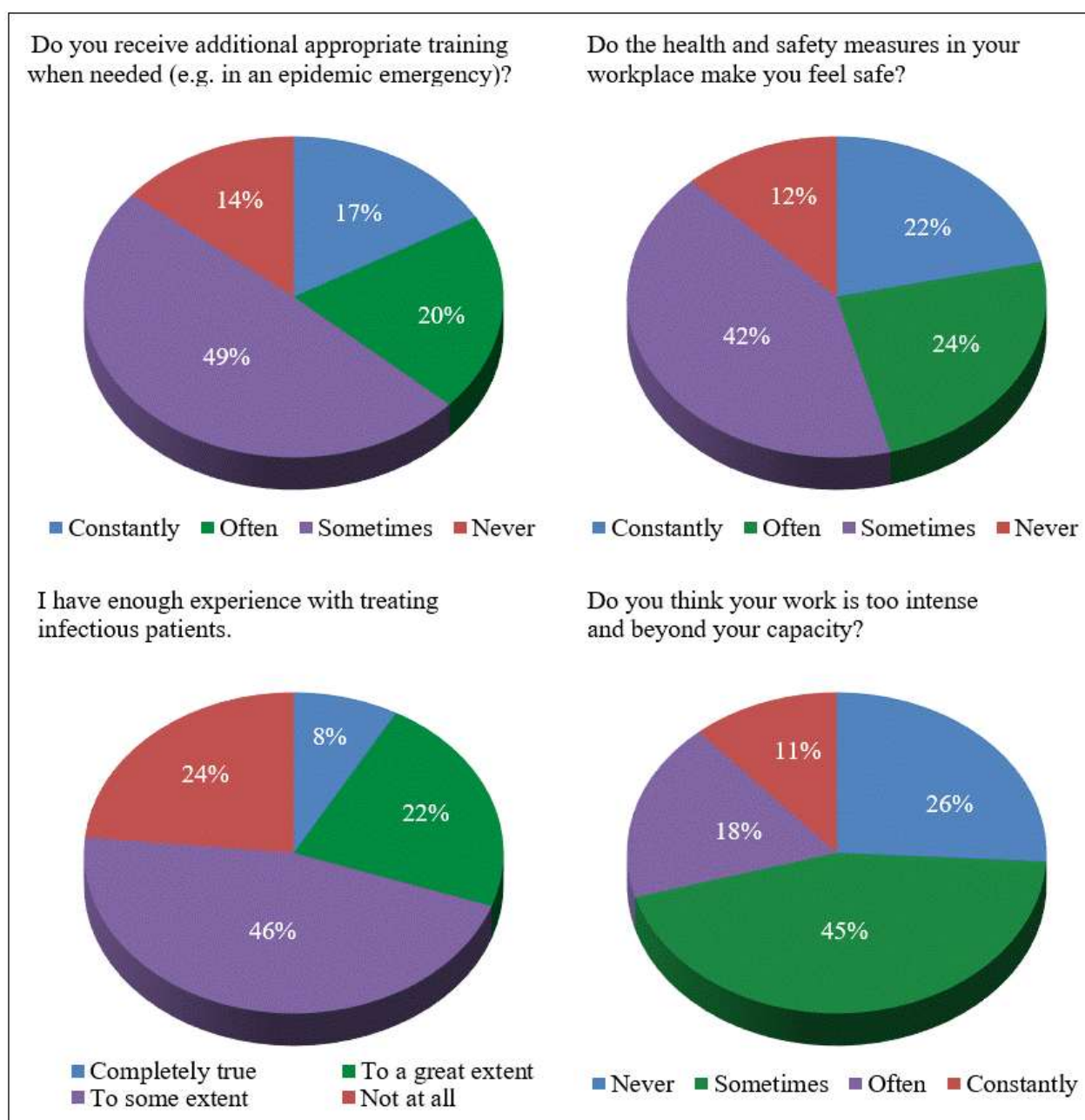


Figure1. Organizational and professional psychosocial risk factors related to Covid-19.

Insufficient involvement of workers in discussing work team decisions, disregard for their opinions when changes are made in the workplace and work organization, insufficient freedom to raise issues, problems and disadvantages, and underappreciation and lack of recognition for a job well done, all point to common poor communication and relationships within teams (**Figure 2**). Of these factors, lack of

recognition and underappreciation of well performing employees have a significant impact on mental health, increasing the risk of depression ($B=2.9$; $p=0.003$) - **Table 1**. When the feeling of underappreciation and lack of recognition is combined with a good self-assessment of job performance, the risk of depression increases further ($B=5.9$; $p=0.005$).

Table 1. Logistic regression analysis for dependence of depression, anxiety and stress on psychosocial risk factors.

	Risk increase Exp (B)	Significa nce level (p)	Confidence interval 95% Lower Upper	
DEPRESSION				
Do you get recognition for a job well done, do you feel appreciated? NEVER	2,9	0,003	1,4	6,0
I wish I had a different occupation COMPLETELY TRUE	4,5	0,000	2,1	9,3
I am handling my job well. TO SOME EXTENT	2,8	0,001	1,5	5,2
Do you feel anxious about your patients' lives? OFTEN	3,8	0,000	1,8	7,7
Are you anxious that your work is endangering the health of your family? CONSTANTLY	3,2	0,003	1,5	7,0
Does work interfere with your social/family life? CONSTANTLY	4,3	0,000	2,1	9,1
Do you get recognition for a job well done, do you feel appreciated? NEVER	5,9	0,005	1,7	20,3
I am handling my job well. TO A GREAT EXTENT				
I wish I had a different occupation. COMPLETELY TRUE	9,3	0,008	1,8	48,9
Do you feel anxious about your patients' lives? OFTEN				
ANXIETY				
I have enough experience with treating infectious patients. NOT AT ALL	2,9	0,011	1,3	6,6
I am handling my job well. TO SOME EXTENT	4,8	0,000	2,8	8,3
Do you feel anxious about your patients' lives? OFTEN	3,9	0,000	2,0	7,7
Do you feel anxious about your own health and safety? CONSTANTLY	5,4	0,000	2,3	12,8
Does work interfere with your social/family life? CONSTANTLY	3,4	0,003	1,5	7,5
I am handling my job well. TO SOME EXTENT	11,3	0,000	3,6	35,6
Do you feel anxious about your patients' lives? OFTEN				
I am handling my job well. TO SOME EXTENT				
I have enough experience with treating infectious patients. NOT AT ALL	10,7	0,000	4,4	3,5
STRESS				
Are you assigned non-specific tasks? OFTEN	3,1	0,000	1,7	5,6
I am interested and satisfied with my work. NOT AT ALL	5,4	0,002	1,9	15,2
Do you think your work is too intense and beyond your capacity? OFTEN	2,4	0,011	1,2	4,7
Do you feel anxious about your patients' lives? OFTEN	3,0	0,005	1,4	6,4
Does work interfere with your social/family life? CONSTANTLY	10,5	0,000	5,1	21,5
Do you think your work is too intense and beyond your capacity? OFTEN	4,6	0,043	1,1	20,5
I am interested and satisfied with my work. NOT AT ALL				
Do you think your work is too intense and beyond your capacity? OFTEN	3,5	0,020	1,2	10,3
Do you feel anxious about your patients' lives? OFTEN				

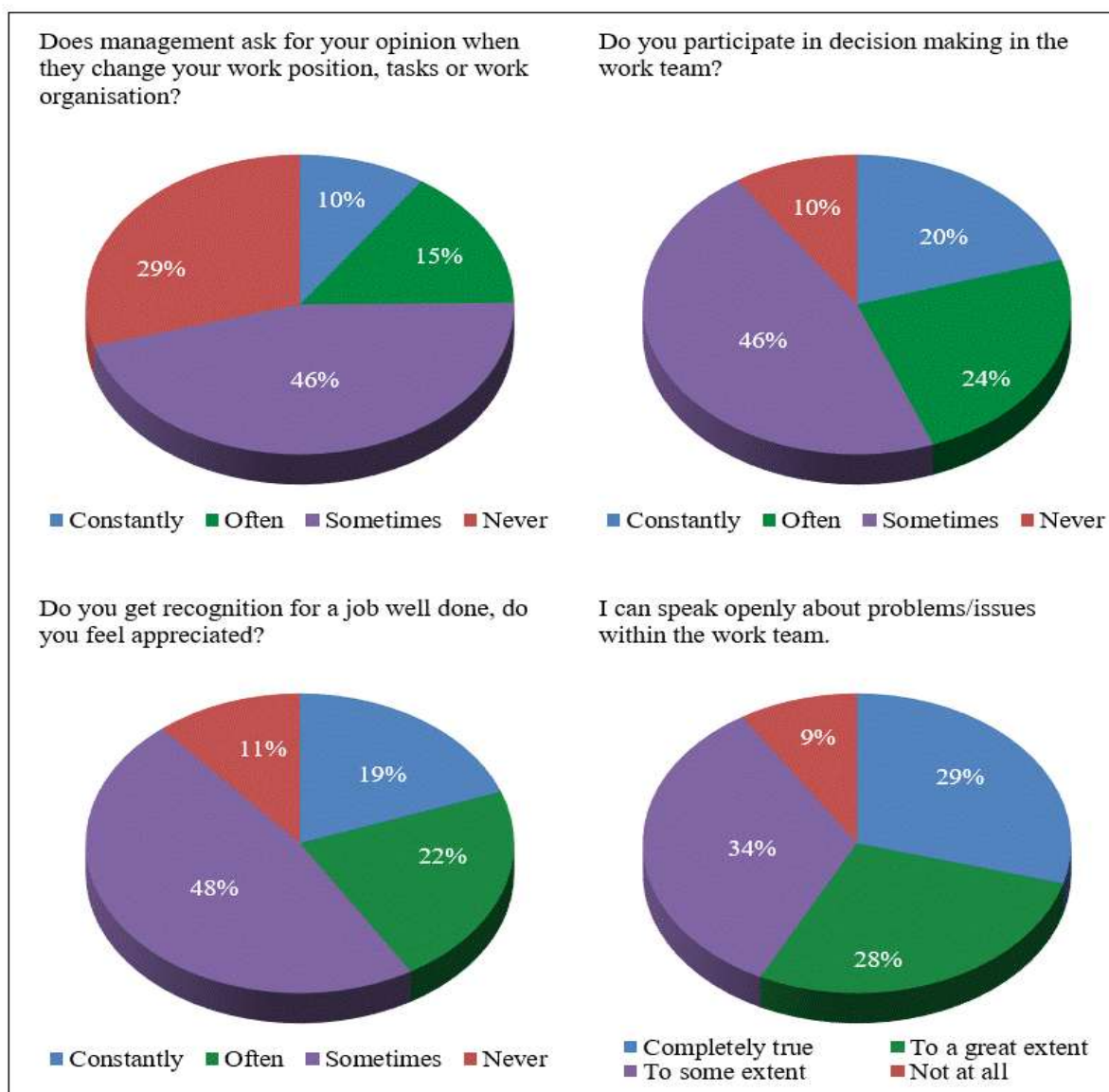


Figure 2. Psychosocial risks related to team communication.

Anxiety about patients' lives, about one's own health and safety, and fears of endangering the health and lives of their loved ones with their work, are the most pronounced personal psychosocial risks (**Figure 3**). All of these subjective factors, as well as the conflict between work and social/family life (poor work-life balance), alone or in combination, significantly increase mental health risk (**Table 1**). While being anxious about one's own health is significantly associated only with the risk of anxiety, being anxious about patients' lives significantly increases the risk of all three disorders - depression, anxiety and stress. The risk of depression is highest when patients' life anxiety was associated with a desire to change occupation ($B=9.3$; $p=0.008$). On the other hand, the risk of anxiety increases when there is

uncertainty about coping with job duties and lack of experience in treating infectious patients (**Table 1**).

The relative proportions of workers who reported that they often or constantly have to take on responsibilities that exceed their authority (21.3%) or that they receive contradictory orders from their supervisors (13.8%) are not high. It does not speak well that 30% of workers had to purchase their own personal protective equipment and work clothing. The organization of working hours, breaks and holidays is unsatisfactory for 45% of workers. However, these organizational disadvantages were not found to have a significant impact on mental health risks.

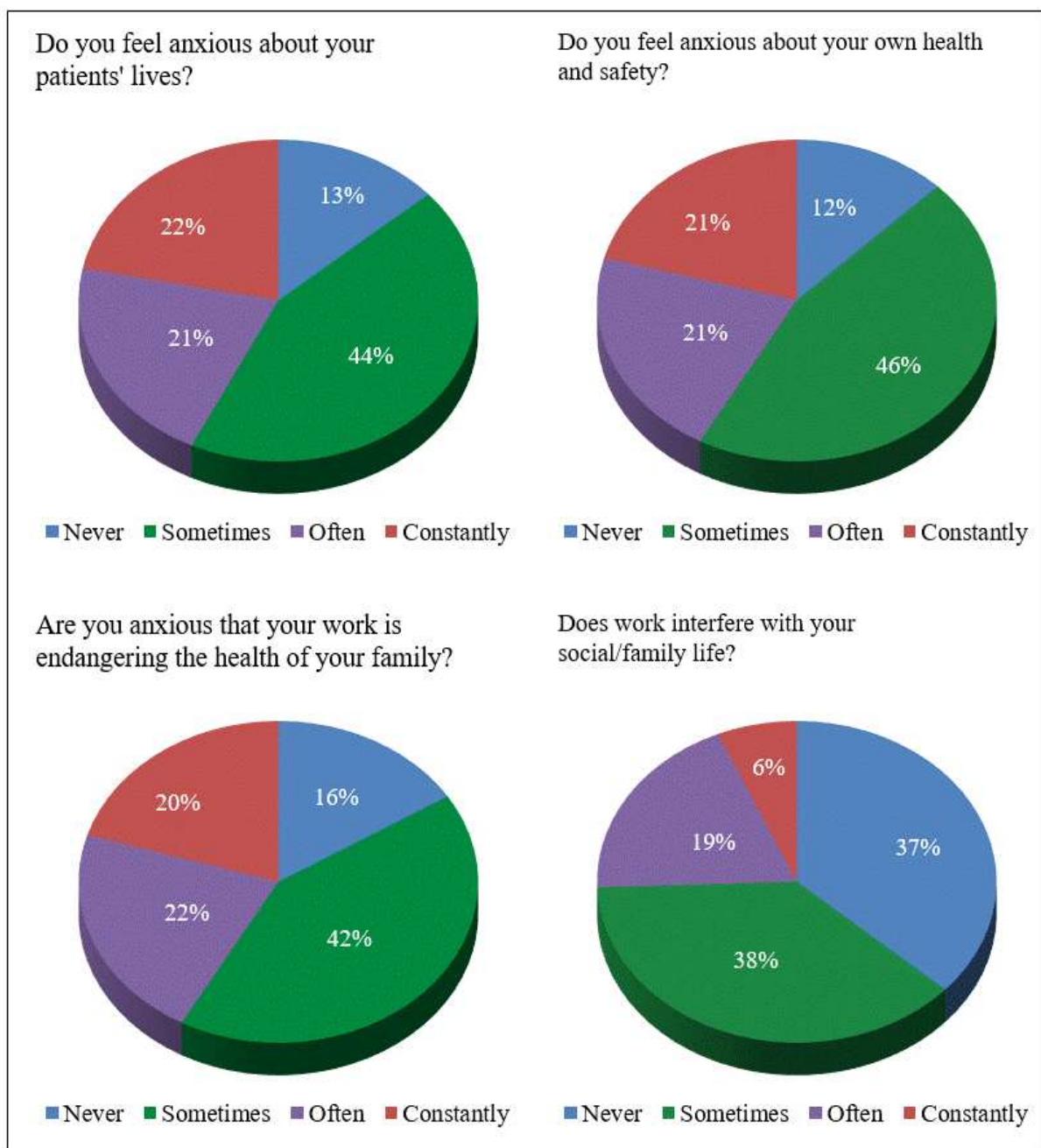


Figure 3. Personal psychosocial risk factors.

The data shows that 35% of respondents often or constantly experience fear of aggression from patients or their relatives. 32% do not rely enough on support from their colleagues in the team and 20% do not receive enough understanding and support from their family. 28% cannot communicate calmly with their direct supervisors, and 25% feel that there are instances of psychological harassment at work. Although the logistic analysis for these communication psychosocial risk factors did not show a significant impact on mental health

disorders for the whole sample, this does not mean that they have no impact on individuals.

Figure 4 shows the frequency of workers exhibiting varying degrees of depression (29.5% overall), anxiety (28.3% overall) and stress (22.3% overall). It is good that mild and moderate conditions predominate. 40% of respondents were found to have some mental health disorder, with 27% having evidence of more than one disorder.

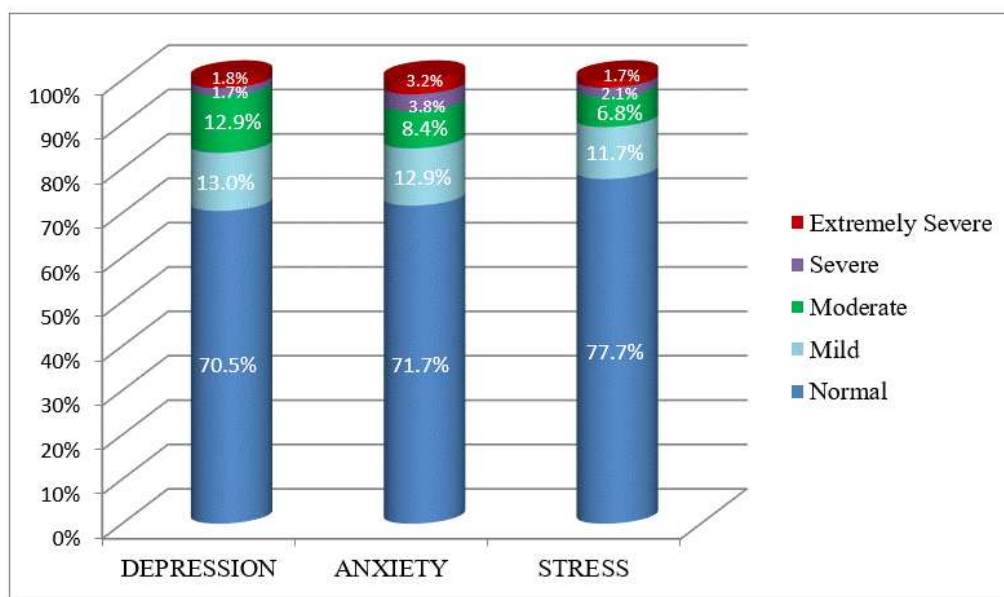


Figure 4. Levels of depression, anxiety and stress in the surveyed healthcare workers.

DISCUSSION

It is known that the risk to the health and safety of workers is determined by two elements - the likelihood of something happening and the severity of the consequences. In order to reduce mental health risk in health care workers, measures should be taken in two ways: firstly, creating a safer work environment and work organization, which will reduce the likelihood and secondly, increasing individual resilience and adaptability, which will reduce the severity of the consequences (11, 12). Our results showed that a weak point is the training of staff, both professional and in terms of safety rules and anti-epidemic measures (**Figure 1**). This, combined with the lack of experience in the treatment of infectious patients, results in a lack of confidence in coping with the work, anxiety for the lives of patients, fear of infection and fear of transmitting the disease to one's family. Logistic analysis showed that all these factors increased mental health risk (**Table 1**). Therefore, during a pandemic, epidemic, and in other crisis situations, it is very important to conduct timely, practice-oriented training to shape the professional and safe behaviour of the personnel. Studies have pointed to the availability of previous knowledge and experience of staff when confronted with similar diseases (MERS or SARS), adequate and timely training, awareness, clear procedures, instructions, and responsibilities consistent with authority, as protective factors (6, 7, 12).

Another unresolved issues are the too intense workload, dissatisfaction with the distribution of working hours, which in turn is associated with a poor balance of the social and family life of workers - factors that also significantly increase the risk to mental health (**Table 1**). Solving this problem is made all the more difficult by systemic staff shortages in the health system. Nonetheless, managers should strive to achieve the best possible balance in the distribution of work tasks. The results show that communication within work teams is also not at a good enough level, especially in terms of worker participation in problem discussion and decision making (**Figure 2**). On this note, it is necessary to professionally train managers on the basic principles, organization and management of teamwork. Lack of recognition and no job satisfaction significantly increase mental health risk. Social and moral support and recognition from the team, from management, from those in authority, and from the public, are extremely important for mental health (3, 7, 8). Understanding by hospital management and proper governance are also important. Hospital administrations should engage in dialogue with staff representatives and encourage staff participation in decision making, especially in difficult situations. Managers should promote connectedness and mutual support among health workers and resist psychological bullying and social isolation (3, 6, 12). It is important to note that in our survey, 67% of workers responded that they trusted their

colleagues completely or to a great extent. Another very positive fact is that despite all the disadvantages considered, only 22% of respondents would hesitate to care for Covid-19 patients. This shows a strong sense of responsibility and understanding of the importance of medical care. Being part of a supportive team community is a strong protective factor, as is the sense of meaningful and significant work (3, 13).

According to the logistic analysis, personal psychosocial risks increase mental health risk the most (**Table 1**). Individuals cope with stressful situations in different ways and with varying degrees of success. Two strategies are applied to reduce the impact of psychosocial risks, task-oriented and emotion-oriented. The first applies measures aimed at the source of psychosocial risks - adapting the environment to the individual, while the second attempts to reduce the individual's emotional experiences - adapting the individual to the environment. Most authors emphasize that at the personal level, neither type of strategy is necessarily better than the other when solving a particular problem (6, 12).

High levels of stress, depression and anxiety can inevitably lead to a decrease in the effectiveness of medical professionals' work and a deterioration in the quality of medical care. Hospital administrations should regularly monitor the health status of workers, especially those with ongoing mental disorders, in order to protect the more vulnerable and provide regular psychosocial support where necessary.

Personalized psychological approaches (interventions and counselling) that strengthen individual mental resilience and adaptability have good mental health outcomes (7, 14). On the other hand, more attention should be paid to the interventions at organizational level that improve the work environment. A holistic approach to the psychological well-being of health care workers (HCWs) is needed to create a healthy, safe, and supportive work environment (4, 6, 12, 15).

CONCLUSION

The results show the need for training sessions at all levels on safe and professional behaviour during a pandemic. Management and communication within work teams need to be improved. Employees should feel free to discuss problems and participate in decision-

making. Employers have to motivate and support healthcare workers during a pandemic and other crisis situations, and recognize a job well done. Personalised interventions and support to increase resilience and adaptability are recommended for the most sensitive and vulnerable workers.

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