

The anxiety level of healthcare professionals and hospital support staff during the COVID-19 pandemic

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Ethics Committee Approval

The study was approved by Erzincan University clinical research ethics committee (05/24). All procedures in this study involving human participants were performed in accordance with the 1964 Helsinki Declaration and its later amendments.

Conflict of Interest

No conflict of interest was declared by the authors.

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Abstract

Background/Aim: The coronavirus 2019 (COVID-19) pandemic has placed a significant psychological burden on healthcare professionals. This study aims to identify the anxiety levels of healthcare professionals and non-healthcare personnel during the pandemic.

Methods: This cross-sectional study was conducted on healthcare professionals during the pandemic, and we attempted to reach all personnel without setting a specific sample size. Participants completed a survey that included demographic information and the State-Trait Anxiety Inventory (STAI). We compared anxiety scores and working conditions between healthcare and non-healthcare personnel during the pandemic.

Results: Our study included 204 personnel, with 45.1% being healthcare professionals and 54.9% non-healthcare professionals. The mean state anxiety score for all participants was 44.7 (10.3). Female professionals, those working in intensive care, and personnel who believed they lacked sufficient protection training had significantly higher mean anxiety scores ($P=0.001$, $P=0.006$, $P<0.001$, respectively). Participants with mild or no problems initiating and maintaining sleep and waking up early had lower mean anxiety scores ($P<0.001$). There was no statistically significant difference between healthcare professionals and non-healthcare personnel in mean scores ($P=0.59$).

Conclusion: Our study found that all personnel experienced medium-level anxiety during the pandemic, indicating an increased risk for hospital staff. The fact that non-healthcare personnel had similar anxiety scores to healthcare professionals highlights the need for psychosocial interventions to support all hospital staff, regardless of their role in patient care.

Keywords: healthcare professionals, anxiety, hospital support staff, pandemic

Introduction

The emergence of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus in Wuhan, China, on December 31, 2019, quickly led to the global coronavirus disease 2019 (COVID-19) pandemic [1]. The first case of COVID-19 in Turkey was reported on March 11, 2020.

Coronaviruses are zoonotic, meaning they can be transmitted from animals to humans and cause human diseases [2]. Human-to-human transmission is primarily through contact and droplet spread from sneezing or coughing. The clinical characteristics of COVID-19 are not distinct from other viral respiratory tract infections, and most individuals may have mild symptoms or be asymptomatic. However, severe cases may lead to acute respiratory failure and death. The World Health Organization (WHO) has identified fever, fatigue, and dry cough as common symptoms, but shortness of breath, myalgia, sore throat, and diarrhea have also been reported [3].

Previous research has shown that pandemics can cause significant trauma and increase anxiety levels in individuals [4-6]. Healthcare professionals on the front line of the COVID-19 pandemic and directly involved in diagnosing, treating, and caring for patients with COVID-19 are at higher risk of developing high-level stress and anxiety [7,8]. During the SARS pandemic in 2003, healthcare professionals reported symptoms of long-term and high-level stress, anxiety, and depression.

Support staff, such as administrative personnel, secretaries, and cleaning personnel, who work alongside healthcare professionals in hospital environments, may also experience stress during the pandemic, despite not being directly involved in patient follow-up and treatment. This study aims to identify the anxiety levels of healthcare professionals and support staff during the pandemic.

Materials and methods

This descriptive study was conducted on healthcare professionals and support staff at Erzincan Mengücek Gazi Training and Research Hospital, with ethical approval granted by the clinical research ethics committee of Erzincan University (approval number: 05/24). We attempted to reach all personnel without setting a specific sample size, and participants were included in the study after providing informed consent. All participants completed a survey form that included demographic information and the State-Trait Anxiety Inventory (STAI).

The STAI is a self-evaluation questionnaire with 20 short phrases developed by Spielberger et al. [9] to assess an individual's current anxiety level. Respondents rate how they feel at a given time and under certain conditions using a scale of 1 (not at all) to 4 (very much so), with a total score range of 20 to 80. Higher scores indicate a higher level of anxiety [10]. The Turkish adaptation, validity, and reliability study of the STAI was conducted by Öner and Le Compte [11].

Statistical analysis

Data analysis was performed using the statistical software "SPSS for Windows 22.0.1 Standard Version". The chi-square test was used to compare sociodemographic characteristics among the groups, while T-tests, Pearson's correlation test, and One-way analysis of variance (ANOVA)

were used to compare numeric data such as age and inventory results. All numerical values were reported as means (standard deviations). The significance level was set at $P < 0.05$.

Results

More than half (55.9%) of the participants in our study were female, with a mean age of 36.1 (8.0). Most (71.1%) were married, 72.5% were university graduates, 13.7% had a chronic disease, and 6.4% had a history of psychiatric diseases. Of the personnel included in our study, 45.1% were healthcare professionals, including 24% physicians and 21% nurses, while 54% were non-healthcare personnel, such as medical secretaries, cleaning services, technicians, civil servants, and security officers.

Of the personnel included in our study, 47% worked in patient wards and outpatient clinics during the COVID-19 pandemic, and 45.6% had reduced working hours during this period. It was reported that 79.9% of participants had encountered COVID-19 patients, 97% considered the likelihood of encountering patients to be medium-high, and 36.8% frequently feared being infected. While 52.5% of participants believed that training on COVID-19 infection and protection was sufficient, 55.4% felt that hospital personnel did not take adequate protection measures.

A mere 8.8% of the personnel in our study reported receiving psychological support during the pandemic. Sleeping patterns were also evaluated, and it was found that participants had difficulties initiating sleep (35.3%), maintaining sleep (38.2%), and waking up early (34.8%).

The mean State Anxiety Inventory score for our study group was 44.7 (10.3) (range: 20–71). Pearson's correlation test was used to compare age and mean state anxiety scores, but no correlation was found ($r=0.00$, $P=0.99$). There was also no significant difference in mean scores based on years of professional experience or the presence of chronic or psychiatric diseases ($P=0.60$; $P=0.70$, respectively).

Table 1 shows the mean state anxiety scores for various sociodemographic and work-related characteristics. Female staff had higher mean anxiety scores than male staff ($P=0.001$). Although the mean anxiety scores for single personnel with primary school education were not significantly different from those of other groups, they were slightly higher ($P=0.62$; $P=0.58$, respectively). Although healthcare professionals had a higher mean anxiety score than non-healthcare personnel, there was no statistically significant difference ($P=0.59$). Mean anxiety scores were higher in intensive care personnel than those working in administrative services and operating rooms ($P=0.006$). The mean anxiety score was lower in personnel who believed they had sufficient training on protection against COVID-19 infection compared to personnel who believed the training was insufficient or those who did not receive any training ($P < 0.001$).

The mean scores were significantly higher in personnel receiving psychiatric support during the pandemic and those with a frequent or high-level fear of being infected ($P=0.004$ and $P < 0.001$, respectively). Examining sleeping patterns during this period, mean anxiety scores were significantly lower in those with mild or no problems initiating sleep, maintaining sleep, or

waking up early than those with moderate or severe sleeping problems ($P<0.001$) (Table 2).

Table 1: Some characteristics of participants and mean state anxiety scores.

	n	%	State anxiety score mean (SD)	P-value
Age	36.1	(8.0)	r=0.00	0.99
Gender				
Female	114	55.9	46.9 (10.9)	0.001
Male	90	44.1	41.8 (9.9)	
Marital Status				
Married	145	71.1	44.4 (10.5)	0.62
Single	59	28.9	45.2 (10.0)	
Education Level				
Primary School	9	4.4	48.1 (9.8)	0.58
High School	47	23.0	44.2 (10.8)	
University	148	72.5	44.6 (10.3)	
Position				
Healthcare professional	92	45.1	45.1 (10.8)	0.59
Non-healthcare professional	112	54.9	44.3 (10.0)	
Change in working hours				
None	75	36.8	43.4 (10)	0.12
Increasing	36	17.6	47.7 (12.0)	
Decreasing	93	45.6	44.5 (9.8)	
Unit				
Emergency	33	16.2	44.6 (8.5)	0.006
Operation room	19	9.3	40.9 (10.9)	
Ward	52	25.5	46.3 (10.7)	
Intensive care	12	5.9	54.5 (8.5)	
Outpatient Clinic	44	21.6	44.3 (10.3)	
Laboratory	5	2.5	44.2 (4.4)	
Administrative services	39	19.1	41.8 (10.3)	
The state of training on infection				
No	41	20.1	46.9 (9.9)	<0.001
Yes, sufficient	107	52.5	41.7 (10.1)	
Yes, insufficient	56	27.5	48.6 (9.5)	
Are protection measures sufficient?				
No	113	55.4	45.8 (9.6)	0.07
Yes	91	44.6	43.2 (11)	

SD: Standard deviation

Table 2: Some characteristics of participants and mean state anxiety scores

	n	%	State Anxiety Score mean (SD)	P-value
Psychiatric support				
No	186	91.2	44.0 (10)	0.004
Yes	18	8.8	51.4 (11.9)	
Fear of being infected				
Not at all	5	2.5	30.6 (11.9)	<0.001
Sometimes	67	32.8	40.8 (9.1)	
Frequently	75	36.8	44.4 (7.9)	
Very much so	57	27.9	50.8 (11.1)	
Sleeping problems				
Difficulty in initiating sleep				
None	56	27.5	39.3 (9.4)	<0.001
Mild	72	35.3	44.0 (9.9)	
Moderate	61	29.9	48.8 (9.5)	
Severe	15	7.4	51.0 (9.2)	
Difficulty in maintaining sleep				
None	61	29.9	41 (9.2)	<0.001
Mild	78	38.2	44.7 (9.5)	
Moderate	53	26.0	46.9 (11.3)	
Severe	12	5.9	53.2 (10.3)	
Waking up early				
None	71	34.8	41.1 (9.8)	<0.001
Mild	66	32.4	44 (9.4)	
Moderate	52	25.5	48.5 (10.6)	
Severe	15	7.4	51.2 (9)	

SD: Standard deviation

Table 3 compares some characteristics of healthcare professionals and non-healthcare personnel working at our hospital during the COVID-19 pandemic. There was no significant difference between healthcare professionals and non-healthcare personnel regarding psychiatric support and fear of being infected ($P=0.29$ and $P=0.48$, respectively). While 62% of healthcare professionals believed that protection measures against the pandemic were insufficient, 50% of non-healthcare personnel thought the measures were sufficient. Regarding changes in working hours, healthcare professionals had fewer working hours, while non-healthcare personnel had no changes in working hours ($P<0.001$). Regarding sleeping problems, healthcare professionals had moderate to severe problems

initiating and maintaining sleep compared to non-healthcare professionals and had no problems waking up early compared to non-healthcare personnel ($P=0.005$, $P=0.01$ and $P=0.01$, respectively).

Table 3: Comparing some of the characteristics in healthcare professionals and non-healthcare personnel

	Healthcare professionals n (%)	Non-healthcare personnel n (%)	P-value
Psychiatric support			
No	86 (93.5%)	100 (89.3%)	0.29
Yes	6 (6.5%)	12 (10.7%)	
The fear of being infected			
Never / Sometimes	29 (31.5%)	43 (38.4%)	0.48
Frequently	34 (37%)	41 (36.6%)	
Very much so	29 (31.5%)	28 (25%)	
Are protection measures enough?			
No	57 (62%)	56 (50%)	0.08
Yes	35 (38%)	56 (50%)	
Sleeping problems			
Difficulty in initiating sleep			
None	27 (29.3%)	29 (25.9%)	0.005
Mild	21 (22.8%)	51 (45.5%)	
Moderate	36 (39.1%)	25 (22.3%)	
Severe	8 (8.7%)	7 (6.3%)	
Difficulty in maintaining sleep			
None	31 (33.7%)	30 (26.8%)	0.01
Mild	27 (29.3%)	51 (45.5%)	
Moderate	24 (26.1%)	29 (25.9%)	
Severe	10 (10.9%)	2 (1.8%)	
Waking up early			
None	37 (40.2%)	34 (30.4%)	0.01
Mild	19 (20.7%)	47 (42%)	
Moderate	27 (29.3%)	25 (48.1%)	
Severe	9 (9.8%)	6 (5.4%)	
Changes in working hours			
None	13 (14.1%)	62 (55.4%)	<0.001
Increasing	22 (23.9%)	14 (12.5%)	
Decreasing	57 (62%)	36 (32.1%)	

Discussion

The COVID-19 pandemic caused by the novel coronavirus is a global public health emergency. As with any infectious disease, healthcare systems must respond rapidly to the pandemic, with healthcare professionals bearing the brunt of the burden in developing a response.

Insufficient knowledge about the new virus causing the disease, the rapidly increasing demand for healthcare services, and the lack of information on the disease have led to heightened psychological states such as anxiety, stress, and depression, which were already prevalent in the general population. Numerous studies have examined the psychological states of healthcare professionals during pandemics [12-15]. However, there is a lack of research on non-healthcare professionals working in administrative, cleaning, or secretarial positions who have direct contact with healthcare professionals as an essential component of the healthcare system.

The mean anxiety score of all personnel in our study was 44.7 (10.3), indicating moderate anxiety. Mean scores were similar in healthcare professionals and non-healthcare personnel. Several studies have reported high anxiety levels, particularly among healthcare professionals, during pandemics [12,13,16,17]. Factors such as increased workload, lack of protective equipment, and delayed implementation of measures may contribute to higher anxiety levels in healthcare professionals. The use of a different inventory in our study compared to other studies and the flexible working hours of healthcare professionals may account for the differences in mean anxiety scores found. Additionally, although not directly involved in patient care, the fact that non-healthcare personnel were affected

by the increased workload and provided services in a high-risk hospital environment may explain their similar levels of anxiety to healthcare professionals.

Our study found that female personnel and those working in intensive care had significantly higher mean anxiety scores than male personnel and those working in administrative units. Like our findings, Lai et al. reported that women and frontline workers in China during the COVID-19 pandemic had a higher risk of developing negative psychiatric outcomes [13]. Elbay et al. also found that women and personnel in direct contact with infected patients had high mean anxiety scores in a study conducted in Turkey, in line with our results [12]. Our study suggests that personnel who received sufficient training on protection against the COVID-19 pandemic had significantly lower mean anxiety scores than those who received insufficient training or thought the training was inadequate. Training is a critical step before or after the outbreak of communicable diseases. In particular, protection training has a positive impact on individuals' physical and mental health.

It was concluded that individuals who feared being infected had significantly higher mean anxiety scores. Like Zhu et al.'s study [18], it was demonstrated that the fear of being infected with the virus or by one of their family members was a risk factor for developing anxiety. The fear of infection was compared between healthcare professionals and non-healthcare personnel, and like Lu et al.'s study [17], no significant difference was found between the two groups. Several studies have strongly associated stress with sleep quality [19-21]. Increasing anxiety affects sleep quality, which can cause difficulty initiating sleep or frequent wake-ups during sleep [21]. In our study, we found that the anxiety level was higher in personnel with sleeping problems, and similarly, we concluded that healthcare professionals had more sleeping problems than non-healthcare personnel. Many studies conducted during the pandemic have reported that sleeping disorders pose a potential risk, especially for healthcare professionals under stress [5,13,14,22].

Limitations

Our study has several limitations. First, it is a cross-sectional study with a small sample size. The changing working conditions of hospital employees during the COVID-19 pandemic made it challenging to reach enough participants. Second, this study relied on subjective self-reported questionnaires to obtain data, which may have resulted in biases due to the excessive workload in the hospital. As a result, the statistical analyses may have been affected by these issues beyond our control. Therefore, future studies should include a larger sample cohort to investigate the effects of social support on the anxiety and sleep quality of healthcare professionals working with increased stress and workload.

Conclusion

In our study, we found that all personnel working at our hospital had moderate-level anxiety. Healthcare professionals and non-healthcare personnel showed similar anxiety levels during the COVID-19 pandemic. Working in the same environment may have contributed to increased anxiety levels, even for those who did not have direct contact with patients. While it is important to protect the physical health of healthcare

professionals, it is equally important to protect the mental health of non-healthcare personnel who work alongside them in the hospital environment. This study highlights the need for interventions and support systems to address the mental health needs of all personnel working in healthcare settings during pandemics.

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