Determining the Anxiety Levels of Emergency Health Workers in the COVID-19 Pandemic

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Abstract

Aim: This study aimed to determine the anxiety levels of emergency healthcare workers during the coronavirus disease-2019 (COVID-19) pandemic.

Materials and Methods: This descriptive and cross-sectional study was conducted using face-to-face interviews with 153 healthcare workers in emergency service clinics who cared for patients suspected of COVID-19. Study data were obtained using a descriptive characteristics questionnaire and the State-Trait Anxiety Inventory (STAI).

Results: The mean state anxiety score of emergency healthcare workers was 42.76±10.06, the mean trait anxiety score was 42.11±8.22, and the total scale mean score was 84.88±15.11. No significant relationships were found between STAI scores and participants' descriptive characteristics (i.e., workplace, gender, marital status, age, profession, years of experience, and satisfaction with work conditions).

Conclusion: This study revealed that emergency healthcare workers experienced anxiety at the panic level.

Keywords: Anxiety, emergency, COVID-19

Introduction

Humanity has faced disasters throughout history. One type of disaster is epidemic disease, which deeply affect humanity and lead to death and devastating effects. They also disrupt social life and the commercial activities of communities (1). Today's disaster is the novel coronavirus disease-2019 (COVID-19), which emerged in December 2019 in the Wuhan Province of China and went on to affect the entire world. It was determined that this disease is caused by a new type of coronavirus (CoV) that has not been detected before, and it was named SARS-CoV-2 due to its similarity to the Severe Acute Respiratory Syndrome (SARS) virus (2,3). While SARS-CoV-2, a member of the CoV family, is causing a pandemic, the Middle East Respiratory Syndrome (MERS) and SARS have also caused serious infection rates and deaths in the

world. In addition, this family has many subtypes (HCoV-229E, HCoV-OC43, HCoV-NL63 and HKU1-CoV), which can be found in people, but are characterized by milder infections (2,4).

As in all epidemics, people's lives have also been turned upside down, and an atmosphere of panic has been created in societies. Despite all protective and isolation measures taken by governments, social psychological trauma could not be prevented. Health workers have found themselves in a more peculiar position in terms of psychological trauma. They not only face normal risks like other people, but also professional risks (5,6). Those who perform invasive procedures such as intubation and resuscitation, bronchoscopy and catheter insertion, and laboratory workers and healthcare workers who are in direct contact with patients constitute the high-risk group. Emergency health workers are thus

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part of the high-risk group for COVID-19. In addition, healthcare workers face problems such as discrimination, exclusion and pressure in society, working above capacity, separation from their families and burnout syndrome. These have led to stress, anxiety and depression (7).

Without doubt, the emergency service workers who first encounter COVID-19 patients are among the groups that have experienced these feelings most intensely during the pandemic. Determining the anxiety levels of the emergency service workers who faithfully struggle with the pandemic, and planning appropriate measures is extremely important both for emergency service workers and for the quality and reliability of the services they provide to the public. Before effective approaches are developed to support health professionals, it is important to determine their anxiety and fear levels (8).

This study aims to determine the anxiety levels of emergency health workers during the COVID-19 pandemic.

Materials and Methods

Type of Study

This is a descriptive and cross-sectional study.

Study Population and Sample

This study was conducted from June 1st to June 30th, 2020 by face-to-face interviews with 153 health professionals who deals with suspected COVID-19 patients at the emergency service clinics of Erzurum Atatürk University and Erzurum District Training and Research Hospital. The study population consisted of 184 people who worked in these hospitals during the study period, and the study sample consisted of 153 voluntary participants who agreed to participate in the study. The population representation power of the sample was 83.2%.

Data Collection

The study data were obtained using a descriptive characteristics questionnaire and the State-Trait Anxiety Inventory (STAI). The participants filled out the forms individually in approximately five minutes.

The Descriptive Characteristics Questionnaire consists of 14 questions regarding the health professionals' age, gender and professional information.

The State-Trait Anxiety Inventory (STAI) was developed by Spielberg et al. (9) in the USA in 1970 and its Turkish form's validity and reliability were performed by Öner and Le Compte (10). This form includes two scales consisting of a total of 40 questions. The first 20 questions measure the state anxiety level of the patient, while the remaining questions measure the trait anxiety levels.

The state anxiety scale requires individuals to determine how they feel at a certain time and under certain conditions and answer the questions considering their feelings under these conditions. The trait anxiety scale requires individuals to determine how they generally feel. While reading the state anxiety scale, in accordance with the strength of the current feelings, patients answered each question with one of the following responses: (1) Never, (2) Some, (3) Much or (4) Completely. They answered each question of the trait anxiety scale with one of these responses: (1) Rarely, (2) Sometimes, (3) Mostly or (4) Almost every time. There are two types of statements on the scales that are either direct or reverse statements. Both the state anxiety and the trait anxiety scales include 10 questions with direct statements and 10 with reverse statements. Direct statements indicate negative feelings, while reverse statements represent positive feelings. When scoring the reverse statements, statements that have a weighted value of 1 become a 4, and a weighted value of 4 becomes a 1. Furthermore, answers with a value of 4 indicate a high level of anxiety in direct statements, however, in reverse statements, answers with a value of 1 indicate a high level of anxiety. According to Oner's suggestion, on Speilberg's state trait anxiety scale, scores are assessed as follows: 0-19 points indicate "no anxiety", 20-39 points indicate "slight anxiety", 40-59 points indicate "moderate anxiety", 60-79 points indicate "severe anxiety" and scores of 80 and higher represent "panic" (9,10). In this study the Cronbach's alpha internal consistency coefficient was 0.71.

Statistical Analysis

All data were analyzed with SPSS (Statistical Package for the Social Sciences) software for Windows (v18.0; IBM, Armonk, NY, USA). Individual and aggregate data were summarized using descriptive statistics including mean, standard deviation, medians (minimum-maximum), frequency distributions and percentages. Initial evaluations and comparison of the data for normal distribution was made via Kolmogorov-Smirnov and Shapiro-Wilk tests. Comparison of the dependent variables with normal distribution was made with Student's t-test and ANOVA. For the continuous variables that were not normally distributed, the Kruskall-Wallis and Mann-Whitney U tests were conducted to compare the groups. The results were evaluated at a 95% confidence interval, and $p<0.05$ was the threshold for statistical significance.

Ethical Aspects of the Study

The principles of the Declaration of Helsinki were followed during the study. Approval was obtained from Atatürk University Faculty of Medicine Ethics Committee (no:15, date: 28.05.2020). Information was given to the participants about the purpose of

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the study, its methods and the time they were asked to allocate for the study. Their verbal consent was obtained, after explaining that the data collected would only be used within the scope of the study, and that confidentiality would be strictly ensured.

Results

The biggest group of the participants (64.7%) had been working at the district training and research hospital; 57.5% of the participants were men, and 51.6% were married. The biggest education group was formed by high school graduates (35.9%); 39.2% had worked at the hospital for 1-5 years, and 28.8% were nurses. Finally, 82.4% liked their profession, and 57.5% were satisfied with their work conditions (Table 1).

The participants' mean state anxiety score was 42.76±10.06, and their mean trait anxiety score was 42.11±8.22. Their mean score on the entire STAI was 84.88±15.11 (Table 2).

Table 3 shows a comparison of STAI mean scores and the participants' descriptive characteristics. No statistically significant relationships were found between the participants' STAI mean scores and their descriptive characteristics (workplace, gender, marital status, age, profession, years in the profession, satisfaction with work conditions).

Discussion

During epidemics, healthcare workers are in closest contact with infected patients. Healthcare professionals at the forefront of combating the disease in this difficult time have been confronted with a deadly virus with an extremely high rate of contagiousness which has never been seen before. The mental health of healthcare professionals in emergency departments has been significantly affected, and they experience serious difficulties dealing with this complex situation (11,12). The results of the current study are discussed here along with those in the literature.

This study determined that the participants' mean score on the entire STAI was 84.88, which corresponds to panic. Studies have reported that the COVID-19 pandemic has had more psychological effects on healthcare personnel than injuries (11,12). Cheung et al. (13) conducted a study in Hong Kong and found that medical and nursing personnel experienced high levels of burnout, mental fatigue and anxiety due to the COVID-19 pandemic. Bohlken et al. (14) determined that doctors in Germany experienced high levels of anxiety and show depressive symptoms. Unfortunately, previous studies have reported that severe psychological pressure and intense fear of death have even led healthcare personnel to attempt suicide (15,16). Healthcare workers on the frontline in Wuhan were under moderate to severe stress during the peak periods of the epidemic, and many reported high anxiety levels and depression (17). Regarding this subject, another study conducted in Wuhan, the main center of the epidemic, reported that a large proportion of healthcare workers experienced severe anxiety and most of them received psychological help (18). Chew et al. (19) conducted a multi-center study and found that 8.7% of healthcare personnel experienced anxiety on levels from moderate to panic. The results of this

Table 1. Distribution of the emergency health professionals' descriptive characteristics

Characteristics	Number	Percentage
Hospital		
District Research Hospital	99	64.7
Atatürk University Research Hospital	54	35.3
Gender		
Female	65	42.5
Male	88	57.5
Marital status		
Married	79	51.6
Single	74	48.4
Education		
Primary school graduate	6	3.9
High school graduate	55	35.9
Associate's degree	25	16.4
Bachelor's degree	32	20.9
Master's degree	35	22.9
Years of work experience		
1-5 years	60	39.2
6-10 years	53	34.6
11 years and more	40	26.1
Profession		
Physician	39	25.5
Nurse	44	28.8
Emergency medical technician	13	8.5
Triage staff	6	3.9
Personnel (cleaning and transport)	21	13.7
Other (medical secretary, X-ray technician, etc.)	30	19.6
Are you happy with your job?		
Yes	126	82.4
No	27	17.6
Are you satisfied with your work conditions?		
Yes	65	42.5
No	88	57.5
Age [Mean (SD)]	30.96±7.13	
SD: Standard deviation		

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Table 2. Minimum and maximum scores on the State-Trait Anxiety Inventory (STAI) and the distribution of mean scores		
Subdimension	Min-max scores	Mean scores $\overline{X} \pm SD$
State Anxiety Scale	20-65	42.76±10.06
Trait Anxiety Scale	21-72	42.11±8.22
STAI Score	41-125	84.88±15.11
SD: Standard deviation		

Table 3. Comparison of the mean scale scores and the descriptive characteristics of the emergency healthcare workers			
Scale		X ± SD	Test and significance value
STAI	**Place of employment**		
	District training hospital	83.31±13.81	t=-0.412 p=0.58
	Research hospital	84.31±16.05	
	Gender		
	Female	84.31±13.81	t=-0.412 p=0.60
	Male	85.31±16.05	
	Marital status		
	Married	83.70±14.95	t=-1.002 p=0.30
	Single	86.14±15.30	
	Profession		
	Physician	84.05±16.78	F=1.239 p=0.29
	Nurse	85.61±15.27	
	Emergency medical technician	78.00±16.49	
	Personnel (cleaning and transport)	82.23±15.31	
	Triage	88.00±10.03	
	Other	89.10±11.97	
	Total	84.88±15.11	
	Years of work experience		
	1-5 years	85.06±16.72	F=0.127 p=0.88
	6-10 years	85.43±14.69	
	11 years or more	83.87±13.35	
	Total	84.88±15.11	
	Satisfaction with work conditions		
	Yes	83.83±15.92	t=-0.728 p=0.46
	No	85.65±14.54	
	Age	r=-0,033 p=0.68	
STAI: State-Trait Anxiety Inventory, SD: Standard deviation			

study are consistent with the international literature. Emergency departments are first groups to come into contact with people infected with COVID-19, and many aspects of the disease that are not yet fully understood, the fear of death and intense work conditions cause them to experience panic level anxiety. At the same time, the fear of transmitting the virus to their families and necessity of staying away from their families during this time is thought to be another reason for intense stress. News about healthcare workers in other countries going through very difficult times due to severe work conditions, also increased the anxiety levels of emergency health personnel.The anxiety levels of this study's participants did not vary with sociodemographic

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variables such as age, gender, marital status or profession. Huang and Zhao reported that young people in China experienced more fear of catching the disease, and that their anxiety levels were higher (20). The first scientific study of the anxiety levels of healthcare professionals in Wuhan reported that female healthcare professionals experienced more fear than their male counterparts (17). A study conducted in Turkey found that nurses experienced more anxiety than other healthcare personnel, and that female healthcare workers experienced more anxiety than males (21). Another study determined that approximately one-third to half of nurses had symptoms of anxiety, depression and insomnia. It also reported that, like nurses, physicians experienced great levels of stress, and that nearly half of them experienced anxiety and depression (22). This study's results differ from those in the literature. This may be due to the panic level anxiety of this study's participants. Because all groups had high levels of anxiety, mean score of the whole population was found at panic level. In addition, this result may be due to the fact that the study was conducted when the pandemic reached high levels and awareness of all groups increased as the epidemic had spread and become a more severe pandemic. The literature describes four levels of anxiety: mild, moderate, severe and panic. At the panic level, responsiveness to external stimuli decreases, motor coordination weakens, and communication problems occur. In addition, problems such as dyspnea, dizziness and fear of death may occur (23). Panic level anxiety negatively affects all personnel, regardless of age, gender, marital status or profession. This study shows how seriously this epidemic has affected emergency healthcare professionals who are in constant contact with infected patients, who are the first group to interact with them and who are at risk of being infected.

Study Limitations

The study was conducted in the center, and the study sample reflects only one area of Turkey. The results of this study can be generalized to the study group.

Conclusion

The results of the study indicate that the emergency healthcare workers experienced anxiety at the panic level. Anxiety affects mental status and can cause serious problems for the short- and long-term psychological well-being of emergency health care personnel. It is extremely important to evaluate anxiety levels in order to provide an effective support system for emergency health personnel, to begin their psychological recovery process as soon as possible and to meet their psychological care needs.

In order to protect the mental health of emergency medical personnel, psychological counseling and group meetings should be provided to address and manage methods of coping with the anxiety caused by this pandemic.

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