

# INVESTIGATION OF FEAR OF COVID-19, WORK STRESS AND AFFECTING FACTORS IN PREHOSPITAL EMERGENCY HEALTHCARE WORKERS

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**Received:** 01.03.2022; **Accepted:** 31.10.2022; **Available Online Date:** 31.01.2023

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**Cite this article as:** Öztürk MH, Vardar O, Özkan S, Serçekuş P. Investigation of Fear of COVID-19, Work Stress and Affecting Factors in Prehospital Emergency Healthcare Workers. J Basic Clin Health Sci 2023; 7: 149-157.

## ABSTRACT

**Purpose:** Since healthcare workers work in the same environment with infected patients, they have a higher risk in terms of COVID-19 transmission compared to other parts of society, and accordingly, they experience more stress. The aim of this study to investigate the fear of COVID-19, work stress, and affecting factors in prehospital healthcare workers.

**Material and Methods:** The research has a descriptive and cross-sectional design. The research was completed with a total of 399 individuals. Data were collected online using an introductory information form, the Fear of COVID-19 Scale, and the General Work Stress Scale.

**Results:** The level of fear of COVID-19 was higher in women compared to men ( $B=-1.451$ ,  $p=0.012$ ), in married individuals compared to singles ( $B=-1.667$ ,  $p=0.011$ ), in those with low income compared to those with moderate or high income ( $B=-2.259$ ,  $p<0.001$ ), and in those who were vaccinated compared to those who were not vaccinated ( $B=-1.722$ ,  $p=0.005$ ).

**Conclusion:** In prehospital emergency healthcare workers, the fear of COVID-19 was higher among women, married individuals, those with low income, those who were COVID-19-vaccinated, and those with high levels of anxiety and depression. Those with low income, high education level, and high anxiety level had a higher level of work stress

**Keywords:** Prehospital staff, work stress, mental health, fear of COVID-19, COVID-19 vaccines

## INTRODUCTION

The deadly COVID-19 outbreak, which started in Wuhan city of Hubei province in China in December 2019 and has caused severe acute respiratory infections, has spread rapidly to many countries (1, 2). The World Health Organization's Emergency Committee defined this as a global emergency health problem on January 30, 2020, due to the increasing rate of cases in countries (3). The total number of COVID-19 cases worldwide was announced as

281.808.270 in the data on December 31, 2021 (4). This increase continues in Turkey as well as in the world. On the same date, according to the data of the Turkish Ministry of Health, the total number of cases was reported to be 9.136.535 (5).

The COVID-19 outbreak has become a pandemic, creating great panic and fear all over the world (6, 7). Pandemics, by their very nature, have always caused widespread concern, fear, and anxiety. The feelings of anxiety, fear, and uncertainty that arise during

pandemics interact with each other (8). Accordingly, individuals' fear of COVID-19 is directly associated with the infection rate of the disease, the rate of transmission, and mortality (9). Studies revealed that there is an increase in mental health problems such as stress, anxiety, and depression due to the COVID-19 pandemic compared to the pre-pandemic period (10-16).

In the fight against the COVID-19 pandemic, all healthcare workers, including doctors, nurses, and paramedics, are in the frontline (17-19). Therefore, healthcare workers are in the high-risk group (20). Since healthcare workers work in the same environment with infected patients, the risk of COVID-19 transmission is higher compared to other parts of society, and accordingly, they experience more stress (21). Especially emergency services and emergency units are the work areas where work stress is more intense. It is stated that employees working in emergency units are exposed to more stress than their colleagues working in other departments (22-24). Prehospital emergency healthcare workers are at higher risk of being COVID-19 infected, as they practice direct contact with patients and body fluids, such as tracheal intubation, catheter insertion, cardiopulmonary resuscitation, oxygen therapy, and non-invasive ventilation (25, 26). The already heavy workload of emergency units has increased more in the COVID-19 pandemic (27). The COVID-19 pandemic has prompted healthcare workers to work harder, get tired, sleep less, spend less time with their families than ever before, and even live apart from their families (18). In addition to increasing the workload of healthcare workers, this process also increases work stress because it leads to many physical, mental, and emotional difficulties (28). All these reasons require investigating the psychological effects of working in a pandemic environment, especially in healthcare personnel working in emergency units (29). Moreover, there are few studies addressing the fear and work stress of prehospital emergency healthcare workers regarding the pandemic (27, 30). Therefore, the aim of this study to investigate the fear of COVID-19, work stress, and affecting factors in prehospital healthcare workers.

## **MATERIAL AND METHODS**

### **Study Design**

The research has a descriptive and cross-sectional design.

### **Participants**

The study was carried out with prehospital emergency healthcare workers between February 2021 and April 2021. The population of the research consisted of 4840 prehospital emergency healthcare workers working in the Aegean region. The number of these employees was reached from the provincial health directorate personnel branch unit. Only public employees were included in the study. The random sampling method was used in sample selection. It was aimed to reach all pre-hospital emergency health personnel working in the Aegean region, who are members of the Association of Emergency Medical Technicians and Paramedics (ATTDER) and who are not members, who meet the inclusion criteria and volunteer to participate in the research. Before starting the research, the sample size was calculated according to the known population sampling method (31). At least 356 individuals were required based on the calculation for known population sampling, with a p and q value of 0.5, a t value of 1.96, and a d value of 0.05. The research was completed with a total of 399 people.

### **Ethical Consideration**

The ethical approval of the research was taken from the non-interventional research ethics committee of Pamukkale University (Number of ethical council: E-60116787-020-14316, Date: 05.02.2021). At the beginning of the online surveys, there was information about the study and a statement that the data would not be shared with anyone. Healthcare workers were able to fill out the forms after reading these explanations and selecting "I consent to participate in the study" option.

### **Data Collection Instruments**

Introductory information form: This form consists of 13 questions prepared in line with the literature, regarding the information on age, gender, education level, marital status, income status, working year, occupation, information about COVID-19, psychological support, depression and anxiety levels (27, 32-37).

The Fear of COVID-19 Scale (FCV-19S): The scale was developed by Ahorsu et al. (38) to measure the COVID-19-induced fear levels of individuals. The scale has a single factor structure and consists of seven items ranked on a five-point Likert type scale (1 = strongly disagree; 5 = strongly agree). There is

no reversed item. In the original study of the scale, the Cronbach alpha coefficient was 0.82. The validity and reliability of the scale in our country was established by Ladikli et al. (39) and the Cronbach alpha coefficient was found to be 0.86. A high score on the scale indicates a high fear of COVID-19. The Cronbach alpha coefficient of the scale in this study was found as 0.90.

General Work Stress Scale (GWSS) (Supp-3): The scale was developed by De Bruin to measure work stress (40). The scale consists of 9 items ranked on a five-point Likert scale (1= Never; 2= Rarely; 3= Sometimes; 4= Usually; 5= Always). GWSS addresses the emotional, cognitive, motivational, and social consequences of the interaction between an individual and the perceived demands of the workplace. The score on this scale reveals the stress levels experienced or felt by the individual according to their self-evaluations. In the original study of the scale, the Cronbach alpha coefficient was 0.91. The Turkish validity-reliability of the scale was made by Teleş (41) and the Cronbach alpha coefficient was found to be 0.91. High scores indicate high work stress and low scores indicate low work stress. The Cronbach alpha coefficient of the scale in this study was determined as 0.92.

### Data Collection

The study was announced through the social media accounts of an association of prehospital emergency healthcare workers (Emergency Medical Technician and Paramedic Association-ATTDER). All prehospital emergency healthcare workers working in the Aegean region were reached. Through ATTDER, the Aegean region provincial representatives of the association shared the work from the provincial health directorate's 112 Emergency WhatsApp group and the official Aegean region social media accounts of the association. Questionnaire form explanations were made and those who volunteered to participate filled out the questionnaire. The data were collected online with a survey form. As all questions in the online survey were defined as mandatory to be answered, no data loss was observed.

### Statistical Analysis

The data were evaluated with the SPSS 22.0 package program. Numbers and percentages were used in the evaluation of data on individual characteristics of healthcare staff. The skewness and kurtosis (skewness and kurtosis) values were

**Table 1.** Sociodemographic, occupational and COVID-19 related information

Variables	Number (%)
<b>Age<sup>a</sup></b>	31.42±5.99
<b>Gender<sup>b</sup></b>	
Female	217 (54.4)
Male	182 (45.6)
<b>Educational status<sup>b</sup></b>	
High school	39 (9.8)
Associate degree	176 (44.1)
Undergraduate or graduate	184 (46.1)
<b>Marital status<sup>b</sup></b>	
Married	245 (61.4)
Single	154 (38.6)
<b>Income status<sup>b</sup></b>	
Income less than expenses (low)	107 (26.8)
Income equal to or more than expenses (moderate or high)	292 (73.2)
<b>Working year<sup>b</sup></b>	
10 years and below	213 (53.4)
11 years and above	186 (46.6)
<b>Occupation<sup>b</sup></b>	
Paramedic	158 (39.6)
Emergency medical technician	215 (53.9)
Other (Physician, nurse/medical officer, driver)	26 (6.5)
<b>Covid-19 vaccination status<sup>b</sup></b>	
Yes	272 (68.2)
No	127 (31.8)
<b>Reason for not getting vaccinated<sup>b</sup></b>	
I don't trust the vaccine	25 (19.6)
I do not believe in the effectiveness of the vaccine	16 (12.5)
I am afraid that the vaccine may cause side effects.	28 (22.3)
I do not want to express my opinion	58 (45.6)
<b>The state of being infected with Covid-19<sup>b</sup></b>	
Yes	109 (27.3)
No	290 (72.7)
<b>Depression level<sup>a</sup></b>	7.12±2.75
<b>Anxiety level<sup>a</sup></b>	6.81±2.74
<b>The status of receiving professional psychological support<sup>b</sup></b>	
Yes	15 (3.8)
No	384 (96.2)
<b>Total</b>	399 (100)

<sup>a</sup> Mean ± standard deviation <sup>b</sup> Frequency

examined to determine the fitness of the data to the normal distribution. Since the values of skewness (-0.068, 0.400) and kurtosis (-0.554, -0.271) were between -1.5 and +1.5, the data fit the normal distribution (42). Pearson correlation analysis was

**Table 2.** Multiple linear regression model of factors affecting fear of COVID-19 and general work stress

Variables	The Fear of COVID-19 Scale				General Work Stress Scale			
	B	S.E.	β	p	B	S.E.	β	p
<b>Constant</b>	14.662	1.575		<b>&lt;0.001</b>	15.624	2.090		<b>&lt;0.001</b>
<b>Age</b>								
Female			ref				ref	0.908
Male	-1.451	0.578	-0.112	<b>0.012*</b>	0.089	0.767	0.005	
<b>Educational status<sup>a</sup></b>								
High school			ref				ref	<b>0.041*</b>
Associate degree	0.769	1.001	0.059	0.443	2.724	1.329	0.162	
High school			ref				ref	<b>0.005*</b>
Undergraduate or graduate	-0.033	1.042	-0.003	0.975	3.919	1.383	0.234	
<b>Marital status</b>								
Married			ref				ref	0.825
Single	-1.668	0.655	-0.126	<b>0.011*</b>	0.192	0.870	0.011	
<b>Income status</b>								
Low			ref				ref	<b>&lt;0.001</b>
Moderate or high	-2.259	0.639	-0.155	<b>&lt;0.001</b>	-4.874	0.848	-0.259	<b>&lt;0.001</b>
<b>Working year</b>								
10 years and below			ref				ref	0.324
11 years and above	0.267	0.638	0.021	0.675	0.835	0.846	0.050	
<b>Occupation<sup>a</sup></b>								
Paramedic			ref				ref	0.161
Emergency medical technician	-0.292	0.613	-0.023	0.634	-1.142	0.814	-0.068	
Paramedic			ref				ref	0.778
Other (Physician, nurse/medical officer, driver)	-0.651	1.213	-0.025	0.592	0.454	1.610	0.013	
<b>Covid-19 vaccination status</b>								
Yes			ref				ref	0.997
No	-1.722	0.606	-0.124	<b>0.005*</b>	0.003	0.805	0.000	
<b>The state of being infected with Covid-19</b>								
Yes			ref				ref	0.079
No	0.664	0.630	0.046	0.293	-1.470	0.836	-0.078	
<b>Depression</b>	0.480	0.182	0.205	<b>0.009*</b>	0.243	0.242	0.080	0.315
<b>Anxiety</b>	0.663	0.185	0.282	<b>&lt;0.001</b>	1.090	0.246	0.358	<b>&lt;0.001</b>

<sup>a</sup>Artificial coding was done.

β: Beta, S.E: Standard error, \*p<0.05

The Fear of COVID-19 Scale: R=0.563, R<sup>2</sup>=0.317, F=14.908, p<0.000

General Work Stress Scale: R=0.529, R<sup>2</sup>=0.280, F=12.522, p<0.000

performed to determine the correlation between the fear of COVID-19 and work stress. Multiple linear regression analysis was used to evaluate the effect of independent variables on individuals' fear of COVID-19 and work stress.

**RESULTS**

Table 1 shows the sociodemographic, occupational, and COVID-19 related information of the individuals. The mean age of the healthcare staff was 31.42±5.99. Of the staff, 54.4% were female; 46.1% had undergraduate or graduate degrees; 61.4% were married; 73.2% had moderate or high income; 53.4%

had a professional experience of 10 years and below; 53.9% were emergency medical technicians. 68.2% of the participants in the study were COVID-19-vaccinated. 45.6% of those who did not have the vaccine did not want to indicate the reason for not being vaccinated. 72.7% of the healthcare staff had not had COVID-19. The rate of those who had not received any professional psychological support was 96.2%. The mean depression level, which the participants ranked between 1-10 points, was 7.12±2.75 and the mean anxiety level was 6.81±2.74. Multiple linear regression analysis was performed to determine the factors affecting the fear of COVID-19

**Table 3.** Mean, Standard Deviation and Correlation Coefficient Values of the fear of COVID-19 Scale and the General Work Stress Scale

	Mean	SD	The Fear of COVID-19 Scale	General Work Stress Scale
<b>The Fear of COVID-19 Scale</b>	19.82	6.46	1	0.523*
<b>General Work Stress Scale</b>	23.07	8.35	0.523*	1

Pearson correlation analysis was performed. \*p<0.01

and work stress. Table 2 presents the results. The data were analyzed in terms of multicollinearity assumption; correlation coefficients between independent variables, VIF (Variance Inflation Factor), and tolerance values were investigated. There was no multicollinearity problem among the independent variables. After all these investigations, the data set was found suitable for multiple linear regression analysis. Since the “educational status” and “occupation” variables consisted of three categorical variables, an artificial coding was applied and 3-1=2 (k-1) groups were obtained. Gender, marital status, income status, COVID-19 vaccination, depression, and anxiety level were found to affect the fear of COVID-19. The fear of COVID-19 was higher in women compared to men (B=-1.451, p=0.012), in those who married compared to singles (B=-1.667, p=0.011), in those with low income compared to those with moderate or high income (B=-2.259, p<0.001), in those who were vaccinated compared to those who were not vaccinated (B=-1.722, p<0.005). It was determined that the increase in depression (B=0.480, p=0.009) and anxiety (B=0.663, p<0.001) levels might increase the fear of COVID-19.

Income status, education level, and anxiety level were found to affect work stress in healthcare staff. The level of work stress was higher in those with low income compared to those with moderate or high income (B=-4.874, p<0.001), in those with associate degree compared to high school graduates (B=2.724, p=0.041), and in those with undergraduate or graduate degree compared to high school graduates, (B=3.919, p=0.005). It was determined that an increase in anxiety level (B=1.090, p<0.001) might cause an increase in work stress.

Table 3 shows the mean FCV-19S and GWSS scores of the individuals participating in the study and the

statistics on the correlation coefficient between the scales. The mean FCV-19S score of the healthcare workers was 19.82±6.46 and the mean GWSS score was 23.07±8.35. A positive, moderate, significant correlation was found between the mean total scores of the two scales (r=0.523, p<0.001).

**DISCUSSION**

In this study, it was determined that female prehospital emergency healthcare workers experienced more fear of COVID-19 than males. Similar to our study, studies conducted on anesthesiologists (43), nurses (33), and hospital staff (21, 44) revealed that women have a higher fear of COVID-19 than men. According to many societies, men are strong, fearless, aggressive, unexcited whereas women are considered compassionate, sensitive, fragile, and weak (45). Although these stereotypes are a result of the concept of gender, they are accepted in many societies and cultures (46). Furthermore, women, by their nature, are more emotional and less resistant to fear (47). All these may be why female healthcare workers experience higher fear of COVID-19 than males.

In our study, it was found that married individuals experienced more fear of COVID-19. A study revealed that nurses experienced anxiety because of infecting their families with COVID-19 (12). Being married poses the risk of transmitting COVID-19 to other family members. This may have caused married healthcare workers to experience higher fear of COVID-19.

Hu et al. (33) revealed in their study that the fear of COVID-19 is more common in nurses with high-income levels. In this study, on the contrary, those with low income had a higher level of fear. The economic stagnation due to the pandemic causes uncertainty and fear of the future (48). For an example of paramedics who are prehospital healthcare workers have an average annual salary of \$7494 in Georgia, \$7694 in Bulgaria, \$8406 in Romania. In our country, the average annual salary of a paramedic is \$4404 (49). Receiving less salary compared to healthcare workers in the same status in many countries and the economic concerns that have emerged during the pandemic period may have caused healthcare workers with low-income levels to experience a higher fear of COVID-19.

In this study, those who were COVID-19 vaccinated had a higher fear of COVID-19. Likewise, in a study conducted in Germany, it was found that individuals

who were concerned about COVID-19, who were afraid of being infected and negatively affecting the health of themselves and their loved ones, were more willing to get vaccinated (50). On the other hand, it was reported that there is a correlation between fear of COVID-19 and hesitance about vaccination. Studies showed that those who are afraid of being COVID-19 infected are less hesitant about COVID-19 vaccines (51, 52). According to these results, individuals' fear of the negative effects of COVID-19 infection on health may have led them to trust vaccines and be more willing to be vaccinated.

It is known that anxiety, fear, and depression trigger each other (53). In this study, it was determined that the increase in depression and anxiety increased the fear of Covid-19. Previous studies revealed that depression (21, 33, 36, 54, 55) and anxiety (21, 33, 36, 54-56) increase the fear of COVID-19 in healthcare staff.

Insufficient vocational education levels bring along work stress (57). Hendy et al. (58) conducted a study with nurses and found that nurses with low education levels experienced more stress during the COVID-19 period. In this study, contrary to the literature, it was determined that healthcare workers with higher education levels experienced more work stress. The increased awareness of COVID-19 transmission and prevention methods among employees with high education levels may have led to these results.

Economic problems such as working for low wages are among the reasons for work stress (59, 60). Zandian et al. (60) conducted a study with nurses and stated that employees with low-income levels have higher work stress. In this study, it was determined that prehospital emergency healthcare workers with low incomes experienced more work stress. The negative economic consequences of the pandemic are likely to negatively affect work stress in low-income employees.

Anxiety increases work stress in healthcare workers (56). Similar to the literature, our study results showed that the work stress of prehospital emergency healthcare workers increased as their anxiety level increased during the COVID-19 period. Stress has symptoms such as anxiety, depression, tension, and burst of anger (61). The increased workload of healthcare staff during the pandemic period may have increased their anxiety levels. The increase in anxiety may have also caused an increase in work stress.

Studies conducted on healthcare workers revealed that fear of COVID-19 and stress affect each other (27, 29, 36). In a study conducted on prehospital emergency healthcare workers, it was reported that there is a significant relationship between the fear of COVID-19 and excessive workload (30). In this study, it was found that work stress increased as the fear of COVID-19 increased. Individuals may exhibit emotional problems such as fear, anxiety, and depression in the face of stress (62). For this reason, it is necessary to support prehospital emergency healthcare workers.

### Limitations

The strength of this study is that it is one of the few studies conducted on prehospital emergency healthcare workers, who are one of the riskiest groups in terms of being COVID-19 infected. On the other hand, the limitation of the study is that individuals' levels of anxiety and fear were determined according to their self-evaluations between 1 and 10 points.

### CONCLUSION

In prehospital emergency healthcare workers, the fear of COVID-19 is higher among women, married individuals, low-income individuals, those who are COVID-19 vaccinated, and those with high levels of anxiety and depression. Prehospital emergency healthcare workers, who have low income, high education and anxiety levels, have a higher level of work stress. Furthermore, fear of COVID-19 and work stress influence each other.

In healthcare workers, the fear of COVID-19 and work stress may increase and turn into chronic stress with anxiety and depression. Therefore, it is recommended to plan and implement strategies to improve the mental health and working conditions of prehospital emergency healthcare workers. Also, further studies to compare the differences between countries are required.

**Acknowledgement:** We would like to thank the Emergency Medical Technician and Paramedic Association-ATTDER for their contributions during the data collection phase.

**Author contribution:** The authors contributed equally and meaningfully to this study and the final manuscript. All authors approved the final manuscript

**Conflict of interests:** There are no relevant conflicts of interest to disclose.

**Ethical approval:** The ethical approval of the research was taken from the non-interventional research ethics committee of Pamukkale University (Number of ethical council: E-60116787-020-14316, Date: 05.02.2021). At the beginning of the online

surveys, there was information about the study and a statement that the data would not be shared with anyone. Healthcare workers were able to fill out the forms after reading these explanations and selecting "I consent to participate in the study" option

**Funding:** The authors declared that this study has received no financial support.

**Peer-review:** Externally peer-reviewed.

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