Disease and Diagnosis

→ Original Article

Evaluation of Health Anxiety in Healthcare Workers During Coronavirus Disease 2019 (COVID-19) Pandemic

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Abstract

Background: Considering the importance of health anxiety (HA) and its impact on the management of a pandemic, the present study investigated HA among healthcare workers during coronavirus disease 2019 (COVID-19) pandemic.

Materials and Methods: The sample of this cross-sectional study consisted of 220 healthcare staff working in health centers and hospitals in Iran. Participants were selected using convenience sampling method. The data collection tool was a two-part questionnaire. The first part contained demographic information and the second part included a health anxiety questionnaire (HAQ). This questionnaire was provided to the target community through social media and the required data was collected. Data analysis was carried out using IBM SPSS Statistics for Windows, version 21 (IBM Corp., Armonk, N.Y., USA).

Results: In the present study, out of 220 participants 128 (58.2%) were employed in health centers and 92 (41.8%) in hospitals. The mean HA score was 17.36 ± 7.66. Moreover, the mean HA scores in health center and hospital personnel was 17.81± 8.02 and 16.52 ± 6.78, respectively, which were not significantly different ($P=0.217$). The results showed that exercise and chronic disease are significant predictors of HA ($P=0.0001$ and $P=0.043$, respectively).

Conclusion: The HA level was very high in healthcare personnel during the COVID-19 pandemic. This study showed that physical activity and having an underlying disease are important predictors of HA. Hence, in order to reduce the level of anxiety in healthcare personnel, it is recommended to plan regular physical activity programs and make changes in the work schedule of personnel with underlying disease.

Keywords: Health anxiety, Health personnel, Medical personnel, COVID-19

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Introduction

Health anxiety (HA) occurs when a person interprets perceived emotions or bodily changes as disease symptoms (1). Almost all people experience normal HA levels, which in turn has a protective effect and leads to improved health-promoting behaviors. However, excessive anxiety can be harmful (1). It is estimated that 3.4% of the total population and 20% of patients referred to health clinics suffer from HA (2, 3). Persistent and excessive fear or extreme anxiety about the disease not only leads to suffering and dysfunction, but also causes a significant increase in health and social costs (4). It has been found that the cost of healthcare for HA patients referring to physicians is 41%-78% higher than patients who refer to physicians with a specific disease (4), which indicates the HA-related financial burden imposed on the individual and society. This issue becomes more important because experts believe that HA may have increased among people in recent years (3).

Psychological factors have been shown to play a vital role in public health strategies, including social distancing, health practices, and vaccination to control

epidemics and pandemics, and HA plays a key role in the success or failure of any of these strategies (5).

The coronavirus disease 2019 (COVID-19), caused by the SARS-CoV-2 pathogen, is a highly contagious viral disease, the first case of which was reported in Wuhan, China in December 2019 and has now been spread throughout the world. In the United States, the Institute for Health Metrics and Evaluation (IHME) predicts that this pandemic will go far beyond the capacity of the healthcare system and kill many people (6). COVID-19 has led to unprecedented public health measures in many countries such as long-term school closures and social distancing (6). Increasing the level of awareness of all stakeholders has always been one of the important issues during epidemics. Studies show that raising awareness of health issues and diseases can be effective in reducing anxiety (7). People with high HA level mistakenly consider their bodily changes as symptoms of infection during a pandemic of viral diseases such as COVID-19. This increases their anxiety and affects their behavior. These behaviors can include social isolation and excessive hand washing. Such behaviors are recommended by health officials during a pandemic, but people with high HA level perform these behaviors in an exaggerated manner, which can be harmful to the society. For example, these people flood into stores and buy and store essential health items (such as masks and gloves) in large quantities, leading to scarcity of these items in the society.

Considering the importance of HA and its impact on pandemic management and the prevalence of COVID-19 in Iran, which has become the most important health priority at present, this study was conducted to investigate the prevalence of HA among healthcare workers in Iran during the COVID-19 pandemic.

Materials and Methods

The population of the present cross-sectional study included the healthcare staff working in health centers and hospitals in Iran in May 2020 . The sample size was calculated using Cochran's formula and it included 220 individuals. The participants were selected using a convenience sampling method. In order to invite people to participate in the study, the electronic questionnaire link was provided to people through social media and people were encouraged to send the questionnaire to their colleagues after completing it. Based on this strategy, a total of 220 healthcare workers participated in the study.

The instrument used was a questionnaire consisting of two parts. The first part contained demographic information and the second part included health anxiety questionnaire (HAQ). HAQ consists of 18 items, in which each item has a score between 0 and 3, and higher scores indicate higher HA level. According to a previous study, the Persian version of this questionnaire has acceptable validity and reliability (8). This questionnaire includes three dimensions, including probability of disease (7 questions), fear of disease (7 questions), and consequences of the disease (4 questions).

Considering the results of one of the previous studies, a score of 15 and above is considered as the diagnostic threshold of HA (9).

To analyze the collected data, first the data were entered into the IBM SPSS Statistics for Windows, version 21 (IBM Corp., Armonk, N.Y., USA), and then analyzed using descriptive statistics (mean and frequency), ANOVA test, independent t test, and multiple regression analysis.

Results

Out of 220 participants, 128 (58.2%) were employed in health centers and 92 (41.8%) were employed in hospitals. Moreover, 87 (39.5%) of participants were male and 133 (60.5%) were female. The age range of the participants was 23-60 years with a mean ±SD of age of 38.69 ± 8.53 years. Other demographic characteristics of the participants are presented in Table 1.

The results of the HAQ showed that the mean HA score of the subjects was 17.36 ± 7.66. In addition, the mean HA scores of health center and hospital personnel were 17.81 ± 8.02 and 16.52 ± 6.78, respectively, which were not significantly different ($P > 0.05$). Table 1 compares the mean HA scores in study groups.

According to the diagnostic threshold for HA (people scoring above 15 in the questionnaire used), 58.6% of the

Table 1. Demographic Characteristics and Mean HA Score of the Participants

Characteristic	Grouping	No. (%)	Average HA Score	P Value
Sex	Male	87 (39.5)	16.31±7.54	0.099
	Female	133 (60.5)	18.05±7.69	
Marital status	Single	51 (23.2)	16.48±7.72	0.387
	Married	169 (76.8)	17.54±7.60	
Education	Middle school	3 (1.4)	25.33±10.21	0.057
	Diploma	22 (10)	17.13±7.95	
	Associate Degree	23 (10.5)	14.21±9.18	
	Bachelor	114 (51.8)	18.36±7.53	
	MA	40 (18.2)	16.75±5.86	
	PhD	18 (8.2)	15.33±8.02	
Smoking	Yes	14 (6.4)	14.92±5.79	0.220
	No	206 (93.6)	17.52±7.75	
Weekly exercise duration	I do not exercise at all	101 (45.9)	18.92±8.09	0.001
	<1 hour	50 (22.7)	18.6±6.85	
	1-3 hours	54 (24.5)	14.85±7.01	
	3-5 hours	10 (4.5)	11.90±4.88	
	>5 hours	5 (2.3)	11.6±4.03	
Workplace	Health centers	128 (58.2)	17.81±8.02	0.217
	Hospital	92 (41.8)	16.52±6.78	

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subjects had HA. The multiple regression model was used to determine the HA predictors among health center and hospital personnel. Based on the results, the regression model significantly predicted 12.1% of changes in HA scores (Table 2). Also, among the studied variables, only exercise and chronic disease were significant predictors of HA (Table 3).

Discussion

Since COVID-19 pandemic is currently the most important health priority in the world, the present study was conducted to investigate HA among healthcare workers. The results revealed that 58.6% of the subjects obtained scores higher than 15 from HAQ, indicating a high HA level. These results are consistent with the results of previous studies, which showed that more than 50% of people are worried or anxious during viral pandemics (10, 11). Recent studies in China during COVID-19 pandemic also showed that 25%-35% of people suffer from anxiety and stress associated with this pandemic (12). In addition, the results of the present study showed that 59.5% of healthcare center personnel were anxious that they may develop COVID-19 infection. This finding is comparable to the findings of studies on the general population in China, which revealed that more than half of the population is anxious about COVID-19 (13, 14). Although high HA levels can have a negative impact on the mental health of the individual and society, too low HA levels could also have negative health effects (15). People with very low HA levels will not adhere to health strategies to control an epidemic or pandemic, for example, they are less likely to wash their hands and participate in vaccination programs (16, 17).

Furthermore, the present study investigated and compared the mean HA score in healthcare workers in terms of various variables such as sex, marital status, level of education. The results showed no significant difference between study groups in terms of mean HA score by sex, marital status, smoking, and type of workplace (health center or hospital) ($P>0.05$); however, the mean HA score was significantly lower in people who exercised for a longer period of time per week ($P=0.001$). This finding is consistent with the results of studies showing that exercise can improve mental health and reduce the symptoms of depression and anxiety (18). In this regard, considering the high HA level among healthcare personnel during the COVID-19 pandemic, it will be very beneficial to plan a regular exercise program for this group.

Moreover, the present study attempted to determine the HA predictors using multiple regression model, the results of which are presented in Table 3. As can be seen, factors such as age and smoking were not considered as predictors of HA, which is inconsistent with the study by Sunderland et al (2). The reason for this discrepancy could be the high HA level among different groups during COVID-19 pandemic. This means that different groups experience too high levels of anxiety during COVID-19 pandemic so that there is no difference in the anxiety levels in different groups. This perspective is confirmed by referring to the fact that only 3.4% of people suffered from HA in the study by Sunderland et al, but this figure was 58.6% in the present study, which is very high and is due to COVID-19 pandemic.

Multiple regression analysis showed that presence or absence of a chronic disease can be considered as a predictor of HA in the studied population (Table 3), which is consistent with the results of Uçar et al, which showed that HA level in people with a chronic disease (fibromyalgia syndrome) is higher than healthy people (19). The relationship between HA levels and the presence of chronic disease during the COVID-19 pandemic can be further strengthened as information in various media emphasizes higher mortality rates among COVID-19 patients with some underlying diseases.

Multiple regression analysis also showed that one of the important predictors of HA is exercise duration, meaning that HA level decreases with increasing hours of exercise per week. Consistent with these results, Anderson and Shivakumar emphasized the role of physical activity and exercise in reducing anxiety (20). One of the mechanisms to explain the effect of exercise on reducing anxiety is that exercise can distract a person from the stressors that cause anxiety.

Conclusion

In general, the present study showed very high HA levels among healthcare personnel during the COVID-19 pandemic so that more than half of the personnel experienced high levels of anxiety. Considering that the

Table 2. Summary of the Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.348	0.121	0.088	7.31951

Table 3. Coefficients of Regression Model to Predict the Level of Anxiety

Coefficients	Unstandardized Coefficients		Standardized Coefficients	P Value
	B	Std. Error	Beta	
(Constant)	13.379	6.173		0.031
Age	-0.107	0.066	-0.119	0.108
Sex	1.062	1.101	0.068	0.336
Marital status	2.129	1.255	0.119	0.091
Education	-.053	0.472	-0.007	0.911
Smoking	1.241	2.143	0.040	0.563
Exercise	-1.747	0.487	-0.238	0.000
Availability of protective equipment in the workplace	0.198	0.537	0.024	0.712
Chronic disease	2.306	1.131	0.139	0.043

present study confirmed physical activity and having an underlying disease as important predictors of HA during COVID-19 pandemic, in order to reduce the HA level among healthcare personnel, planning and encouraging personnel for regular physical activity is recommended. In addition, changing the work schedule of personnel with underlying disease is recommended to reduce their stress and anxiety levels.

Authors' Contribution
MZ, MBA, and MSA played a role in study design and implementation, data collection and analysis, and writing the manuscript. MHA, TAM, and AM were involved in study design and data collection.

Informed Consent
Informed consent was obtained from all the participants.

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