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Original Article

Prevalence and Predictors of Depression and Anxiety among Healthcare Workers in Benghazi Hospitals in the Context of the COVID-19 Pandemic

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Coronavirus Disease-2019, Anxiety, Depression, Health-Care Workers.

A B S T R A C T

During the COVID-19 outbreak, health care workers faced significant psychological challenges while fighting the pandemic on the front lines. This research evaluated the mental health of front-line health workers following four years of COVID-19 efforts. This study aimed to investigate the anxiety levels and depression in HCWs in Libya after the COVID-19 pandemic and to assess the main predictors of elevated anxiety levels among them. A cross-sectional study included healthcare workers (doctors and nurses) in Benghazi hospitals who had been working during the COVID-19 pandemic and were willing to give consent. Female nurses reported the highest level of anxiety, followed by doctors. The three most critical variables that may explain the distress level were loss of control or vulnerability, worry for one's health, and the spread of the infection. Strategies for early detection and treatment of depression and anxiety should be developed for medically ill people.

Introduction

On January 30, 2020, the World Health Organization (WHO) declared a worldwide emergency due to the new coronavirus epidemic in Wuhan, a city in China's Hubei province (1). The detection of infection in a household cluster, as well as infections in healthcare workers caring for patients with 2019-nCoV, suggest human-to- human transmission and the potential for disease spread (2). The reported symptoms varied in severity Fever. Cough, myalgia or tiredness, and dyspnea were the most often reported symptoms (3). Patients with minor symptoms were found to recover within a week, but serious cases were reported to undergo progressive respiratory failure due to virus-induced alveolar destruction, which might lead to death (4). The following methods have been proposed for the diagnosis of people with suspected infections: detecting the positive nucleic acid of SARS-CoV-2 in sputum, throat swabs, and lower respiratory tract secretions using real-time fluorescence (RT-PCR) (5).

The most frequent clinical complications of COVID-19 are respiratory, cardiac, and renal problems. Furthermore, the COVID-19 virus has a major effect on the psychological well-being of the general population and healthcare workers (6). To stop the virus from spreading, several public health programs have been put in place in an effort to stop or minimize the COVID-19 virus's spread. The procedures included case isolation, contact identification and follow-up, environmental sanitization, and the utilization of personal protective equipment (7).

Pandemics of infectious diseases are typically accompanied by a quiet, hidden pandemic called the psychological impact. Healthcare workers (HCWs) and the general public are susceptible to this hidden pandemic. As the first responders to pandemics, health care workers (HCWs) are predicted to experience anxiety to a different degree than the general public. Anxiety levels among healthcare workers may be influenced by a variety of factors, including fear of acquiring the virus at work, worry of infecting loved ones. Lack of understanding and the quality of information provided by official portals (8). There is a limitation to research exploring the prevalence of anxiety and depression among healthcare workers (2). The purpose of this study was to investigate the anxiety and depression levels in HCWs in Libya after the COVID-19 pandemic and to assess the main predictors of elevated anxiety levels among them.

Methods

A cross-sectional study was carried out on healthcare workers in Benghazi hospitals. The healthcare workers, doctors, and nurses who worked during the COVID-19 pandemic and provided consent were considered for inclusion. Also, Incomplete questionnaires and participants with a history of psychological or cognitive disorder, and staff who declined to give consent were excluded. Data were collected using a

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self-administered questionnaire. A questionnaire survey and personal assessment of depression and anxiety were conducted for them. In addition, gender, age, history of chronic illness, marital status, and place of work were also collected. The Hospital Anxiety and Depression Scale (HADS) was used, and the statistical package of social science (SPSS), version 27, was used for data entry and analysis.
Before this study began, approval from Libyan Medical Counseling's clinical research ethics committee was obtained. Before being enrolled, each survey participant gave verbal informed consent. Survey respondents were free to end it whenever they'd like. The survey was anonymous, and information confidentiality was guaranteed.

Results

About 285 healthcare workers participated in the study, and the majority of participants (71%) were females. Figure 1 below demonstrates that, among the healthcare workers who took part in the study, females represented the majority (71.9%).

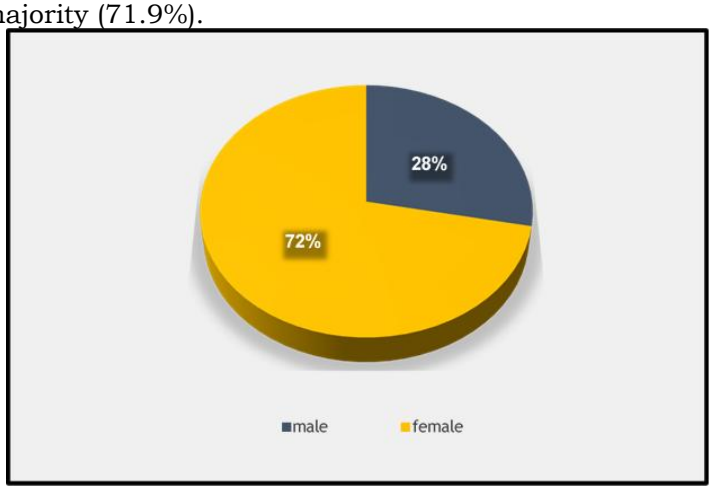

Figure 1. Distribution of genders of health care workers

The youngest participant was 18 years old, the eldest was 55 years old, the mean age ±SD was 34.78± 6.68yrs.

Table 1. The age distribution of participants

Demographic character	Max	Min	Mean	Std. Deviation	Median	Mode
Age	55	18	34.78	6.68	36	39

Singles represent the majority of the population (55.4%), followed by married individuals, divorcees, and widows (39.6%, 3.5%, and 1.4%, respectively) (Figure 2). Only 6% of HCWs had a history of chronic disease Table.2

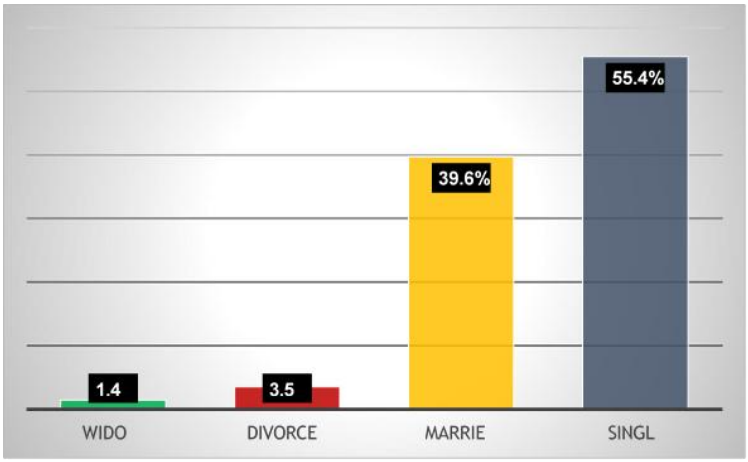

Figure 2: Distributions of marital states among healthcare workers

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Table 2: The percentage of individuals having a history of chronic illness

History of Chronic illness	No= (285).	%
Yes	17	6
No	268	94

In terms of the participants' professions, the percentages were about equal: 50.5% of participants are nurses, and 49.5% were physicians. Figure.3

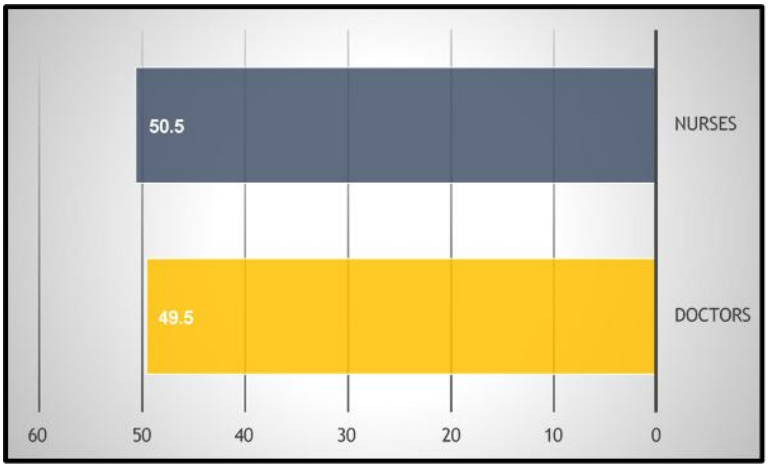

Figure 3: The distribution of the profession of HCWs

More than two-thirds of the participants had some symptoms of anxiety (borderline: 37.2% and abnormal: 33.3%). Similarly, 61.1% of the participants experienced symptoms of depression (borderline: 28.8% and abnormal: 32. 3%). The percentage of HCWs with normal anxiety scores was 29.5%, whereas the percentage of those with normal depression scores was 38.9%. Table.3

Table 3: Percentage of anxiety and depression among HCW

Mental health outcome	Category	NO= (285)	%
Anxiety	Normal	84	29.5
	Borderline	106	37.2
	Abnormal	95	33.3
Depression	Normal	111	38.9
	Borderline	82	28.8
	Abnormal	92	32.3

In terms of anxiety, females with borderline and abnormal scores had a greater proportion than males (64.6 % vs. 35.4%) for the borderline group and (79.5% vs. 20.5%) for the abnormal category, which is statistically significant (χ2 (2) = 12, 75, p-value 0.002). Similarly, females had a larger proportion of depressive symptoms than men in the borderline group (78.1% vs. 21.9%) and abnormal depression category (64.7% vs. 35.3%), respectively. The statistically significant difference (χ2 (2) = 12, 33, p-value 0.002) (Table 4).

Table 4: Gender and mental health outcomes from HCWS

Mental health outcomes	Categories	No. (%)	Male (n=80)	No. (%)	Females (n=205)	No. (%)	P-value*
Anxiety	Normal	37(100%)	17	45.9%	20	54.1%	0.002
	Borderline	82(100%)	29	35.4%	53	64.6%	
	Abnormal	166(100%)	34	20.5%	132	79.5%	
Depression	Normal	51(100%))	6	11.8%	45	88.2%	0.002
	Borderline	64(100%)	14	21.9%	50	78.1%	
	Abnormal	170(100%)	60	35.3%	110	64.7%	

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The mean age of HCWs with depressive symptoms and those who acquired anxiety symptoms was almost the same (34.44±6.46 vs. 34.55±6.41). And there was no statistically significant difference (t (285) = 1.515, p-value0.131) between the two groups (Table 5).

Table 5: Relationship between the average age of HCWs and their mental health.

Variable	Mean ±SD		Independent t test p- value
	Anxiety	Depression	
Age	34.44±6.46	34.55±6.41	0.131

Profession and Mental Health Outcomes of HCWS

In HCWS anxiety categories, nurses had a higher proportion than doctors (63.4% vs. 36.6%) for borderline categories, while doctors had a higher proportion (54.8% vs. 45.2%) for abnormal categories. There was no statistically significant difference (χ2 (2) = 7, 66, p-value 0.221). In the borderline category, nurses had a higher proportion of depression symptoms than doctors (67.2% vs. 32.8%), while doctors had a higher proportion (60% vs. 40%) in the abnormal category. The difference was statistically significant (χ2 (2) = 18 75, p-value< 0.001) (Table 6).

Table 6: Relationship between employment and mental health outcomes

Mental health outcomes	Categories	Total No. (%)	Doctor (n=141)	%	Nurse (n=144)	%	P-value*
Anxiety	Normal	37	20	54.1%	17	45.9%	0.221
	Borderline	82	30	36.6%	52	63.4%	
	Abnormal	166	91	54.8%	75	45.2%	
Depression	Normal	51	18	35.3%	33	64.7%	<0.001
	Borderline	64	21	32.8%	43	67.7%	
	Abnormal	170	102	60%	68	40%	

Marital Status and Mental Health Outcomes among HCWS. Marital Status and Levels of Anxiety

The proportion of anxiety categories borderline and abnormal anxiety score of HCWS and their marital status (20.35%, 20.0%) for singles, (15.44%, 11.58%) for married, (1.05% and 1.40%) for divorced, and (0.35% and 0.35%) for widowed. No statistical difference between the categories of anxiety and normal scores (Figure 4).

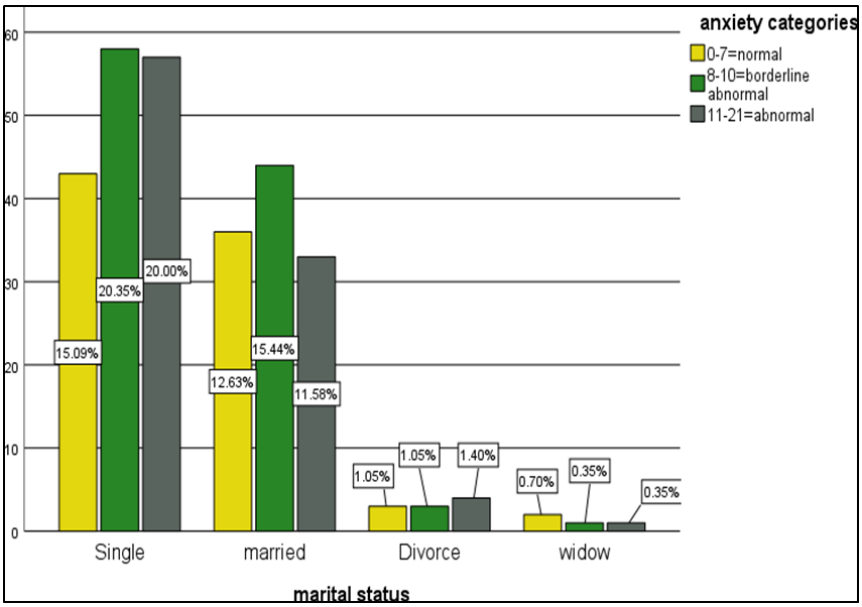

Figure 4: Distribution of HCWS by marital status and anxiety category.

Marital Status and Levels of Depression

The proportion of depression categories, borderline and abnormal depression score, respectively, of HCWS and their marital status (16.84%, 18.60%) for singles, (9.12%, 12.28%) for married, (2.11% and 1.05%) for

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divorced, and (0.70% and 0.35%) for widows. there was no statistical difference between the categories of depression and the normal score (Figure 5).

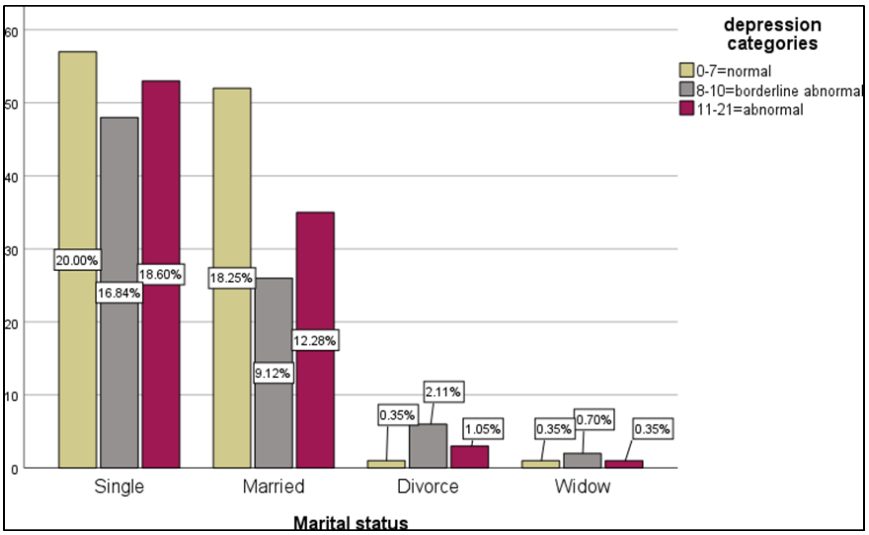

Figure 5: Distribution of HCWS by marital status and depression category

History of Chronic Illness and Mental Health Outcome among HCWS: History of Chronic Illness and Levels of Anxiety. The proportion of anxiety categories among HCWS who reported no history of chronic disease (27.37%, 36.14%, and 30.88%) for normal, borderline, and abnormal depression scores, respectively, compared to HCWS who reported a history of chronic illness (2.11, 1.05%, and 2.46%). no significant difference between the two groups (Figure 6).

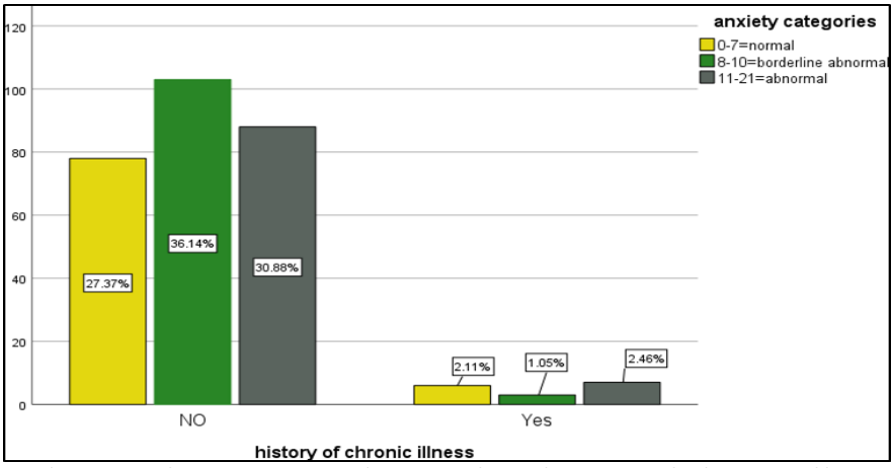

Figure 6: Distribution of HCWS according to their history of chronic illness and anxiety categories.

History of Chronic Illness and Levels of Depression

The proportion of depression categories among HCWS who reported no history of chronic disease (35.79%, 27.72%, and 30.88%) for normal, borderline, and abnormal depression scores, respectively, compared to HCWS who reported a history of chronic illness (3.16%, 1.05%, and 1.40%). no significant difference between the two groups (Figure 7).

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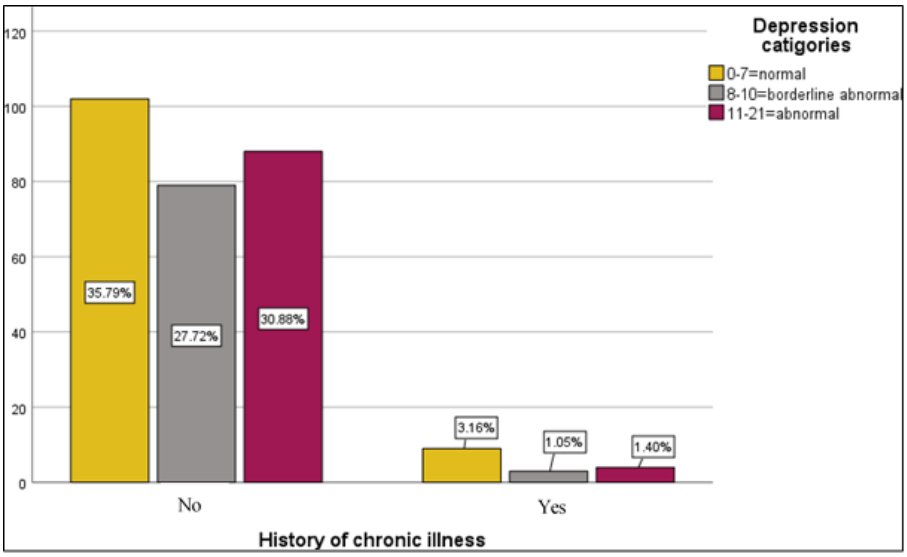

Figure 7: Distribution of HCWS according to their history of chronic illness and depression categories.

Discussion

Mental health issues among healthcare workers might result in high levels of job dissatisfaction and higher turnover. The World Health Organization claimed on December 31, 2019, that there was a COVID-19 epidemic in Wuhan, China's Hubei Province. The COVID-19 pandemic has caused significant psychological challenges for healthcare workers (e.g., high risk of infection, physical exhaustion, and effects on mental health due to loss of infected patients, personal safety, and fear of passing infections to family members). Mankind has never faced an epidemic with such a large and prolonged impact (9). In this study, depression and anxiety were prevalent among healthcare workers at 61.1% (borderline: 28.8% and abnormal: 32.3%) and 70.5% (borderline: 37.2% and abnormal: 33.3%), respectively.

This study reported a higher prevalence of depression and anxiety among health care workers than in many other nations, including China (23.6%, 27.4%, respectively) (10). Moreover, this study showed a greater rate of depression, anxiety, and stress among healthcare professionals compared to Singapore and India (11). In our results, anxiety levels in females with borderline and abnormal scores are greater than in men (64.9% vs. 35.1% for borderline category and 79.5% vs. 20.5% for abnormal category, with a statistically significant difference. Similarly, females had a larger proportion of depressive symptoms than men in the borderline group (78.1% vs 21.9%) and abnormal depression category (64.7% vs 35.3%), respectively; there was a statistically significant difference. Similar findings have been reported in studies conducted among healthcare workers in other countries: according to a systematic review and meta-analysis, nurses and female health workers are more likely to experience psychological symptoms than men (12).

Khan H et al reported that males were much more impacted by anxiety; however, the majority of males had moderate anxiety, whereas females had significantly more severe anxiety. Furthermore, men had a considerably greater incidence of moderate depression, but women had a significantly higher level of severe depression. (13). In this study, HCWs with depressive symptoms and those who experienced anxiety symptoms had similar mean ages (34.44±6.46 vs 34.55±6.41.), with no statistically significant difference between the two groups. The participants in the 26–35 age range also had higher levels of depression, which is consistent with the current findings. In line with our findings, healthcare workers under the age of 50 had significant levels of anxiety and despair (14).

Huang et al. found that younger individuals (<35 years) were more likely to have anxiety and depressed symptoms during the COVID-19 outbreak14. These findings indicate that younger healthcare personnel were more sensitive and coped less with the chaotic mood caused by the COVID- 19 (15). In the present study, nurses had a larger proportion than physicians (63.4% vs. 36.6%) for borderline categories, whereas doctors had a higher proportion (54.8% vs. 45.2%) for abnormal categories. There was no statistically significant change. In the borderline group, nurses had a greater proportion of depressive symptoms than doctors (67.2% vs. 32.8%), although doctors had a higher proportion in the abnormal category (60% vs. 40%). The difference was statistically significant. In support of the present results, a study of 657 healthcare workers in New York City, USA, 33% reported experiencing anxiety symptoms. Additionally, nurses were more likely to screen positively for anxiety than attending doctors (16).

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Furthermore, a study of medical staff in emergency rooms during the SARS pandemic revealed that nurses were more likely than doctors to experience distress (17).
The current study found that, the proportion of anxiety categories borderline and abnormal depression scores in HCWS and their marital status (20.35%, 20.0%) for singles, (15.44%, 11.58%) for married, (1.05% and 1.40%) for divorced, and (0.35% and 0.35%) for widowed. The chi square test found no substantial difference between the categories of anxiety and normal scores. Moreover, the percentage of depression categories borderline and abnormal depression score, respectively, of HCWS and their marital status (16.84%, 18.60%) for singles, (9.12%, 12.28%) for married, (2.11% and 1.05%) for divorced, and (0.70% and 0.35%) for widows. there was no statistical difference between the categories of anxiety and the normal score. Furthermore, the levels of depression and anxiety do not differ between single and married people. Contrasting with our outcome, the frequency of mental illnesses was influenced by marital status, with unmarried and divorced/widowed groups scoring considerably higher on the depression scale than married individuals (18).
Similar outcomes during the COVID-19 shutdown have been observed in the Nigerian community as a whole (19). However, in prior research by podiatrists, anxiety was linked to relationship status, with married professionals living with their families experiencing the most anxiety and fear. This might be due to their concern that they may pose a risk of infection to their partner and family (20). In regards to chronic illness, among Spanish individuals with chronic medical conditions, the COVID-19 pandemic has resulted in moderate to extremely severe depression (16.5%) and anxiety (25%)(21). as well as 32.4% and 18.7% of moderate to severe depression in Italy, which were linked to health issues and unemployment (22). Unfortunately, we were unable to quantify the influence of chronic disease on levels of anxiety and depression in our study due to the small number of healthcare professionals with chronic illnesses included in it. Moreover, the COVID-19 pandemic has been documented to have had a significant impact on ICU staff in terms of stress and psychological load (23). Furthermore, emergency health care workers (HCWs) providing treatment during the COVID-19 pandemic are vulnerable to specific psychological effects such as anxiety, burnout, depression, insufficient sleep, and PTSD symptoms (24).

Conclusion

The COVID-19 epidemic had created great concern among healthcare workers. Female nurses reported the highest level of anxiety, followed by doctors. The three most critical variables that may explain the distress level were loss of control or vulnerability, worry for one's health, and the spread of the infection. Strategies for early detection and treatment of depression and anxiety should be developed for medically ill people.

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Conflicts of Interest

The writers state that they have no conflicting interests.

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