

## Health Anxiety among Nurses Caring for Patients with Covid-19

### Abstract

**Background:** Medical personnel, especially nurses, are at the forefront of the global COVID-19 epidemic. This study was conducted with the aim to evaluate the level of health anxiety in nurses caring for patients with COVID-19. **Materials and Methods:** This cross-sectional, descriptive study was performed on the 340 nurses working in 3 selected educational and medical centers affiliated with Zanzan University of Medical Sciences, Iran. The participants were selected through census method in April and May 2020. The instrument used was the Health Anxiety Inventory. It includes 18 items in 3 subdomains. Descriptive statistics and the nonparametric Mann–Whitney U and Kruskal–Wallis tests were used to analyze the data. **Results:** The mean (SD) total health anxiety score of nurses was 24.68 (4.30), and 91.76% of participants had moderate health anxiety. Moreover, there was a statistically significant relationship between health anxiety level and the demographic variables of gender ( $Z = -4.54, p < 0.001$ ), marital status ( $\chi^2_3 = 32.54, p < 0.001$ ), parenting ( $Z = -4.16, p < 0.001$ ), family relationships ( $Z = -2.30, p = 0.020$ ), work experience ( $\chi^2_4 = 19.32, p < 0.001$ ), and the workplace ( $\chi^2_2 = 41.24, p < 0.001$ ). **Conclusions:** The results showed that the level of health anxiety of nurses who cared for COVID-19 patients was moderate. Therefore, it is recommended that the necessary measures be taken to manage health anxiety in this group.

**Keywords:** Anxiety, COVID-19, health, nurses

### Introduction

The COVID-19 disease is a respiratory disease caused by the new Coronavirus.<sup>[1]</sup> This pandemic has had severe impacts globally.<sup>[2]</sup> By the end of July 2021, more than 200 million people worldwide have been infected, and about 4.2 million have died. According to Iran's latest statistical reports, almost more than 4 million people have been infected, and more than 90 thousand have died.<sup>[3]</sup>

Human resources of the health system, especially nurses, are the first line of confrontation against COVID-19. Nurses make up 70% of the health system workforce and spend more time with the patients. They are exposed to high-risk activities such as clearing the airway and collecting laboratory samples.<sup>[4]</sup> Since the beginning of this global epidemic, nurses working in related hospitals have faced several stressors, such as work time, family distancing, and concerns about the possibility of infection. Due to the high degree of stress in the workplace, it can be expected that a percentage of nurses with

greater vulnerability are at risk of mental illnesses, including anxiety disorders and depression.<sup>[5]</sup>

Anxiety is one of the most common psychiatric disorders in nurses. Health anxiety is a type of anxiety disorder and refers to worrying and anxiety regarding protection against serious diseases based on misinterpretations of body emotions or body changes as a disease.<sup>[6]</sup> The disorder consists of the emotional, cognitive, behavioral, and perceptual components, and is associated with the 4 specific dysfunctional beliefs of probability of getting or having the disease, fear of the disease, inability to cope with the disease, and insufficient medical services to treat the disease. This disorder's prevalence in nurses is estimated to be between 30% and 50%.<sup>[7,8]</sup>

Since health anxiety is an important factor that affects the personal and professional lives of nurses and can have adverse effects on their quality of life in the long run,<sup>[9]</sup> and given that Iran is one of the centers of COVID-19 disease in the world, nurses in Iran have been affected by the

Seyed Kazem Mousavi<sup>1</sup>,  
Mohsen Kamali<sup>1</sup>,  
Hamed Azizkhani<sup>2</sup>,  
Soraya Mohammadi<sup>3</sup>

<sup>1</sup>Department of Nursing, Abhar School of Nursing, Zanzan University of Medical Sciences, Zanzan, Iran, <sup>2</sup>Department of Nursing, Vali-e-Asr Hospital, School of Medicine, Zanzan University of Medical Sciences, Zanzan, <sup>3</sup>Department of Research and Technology, Zanzan University of Medical Sciences, Zanzan, Iran

### Address for correspondence:

Dr. Seyed Kazem Mousavi,  
Abhar School of Nursing,  
Zanzan University of Medical  
Sciences, Zanzan Province,  
Zanzan, Gavazang Road, Iran.  
E-mail: kazemmoosavi69@  
gmail.com

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consequences of this disease in recent months. On the other hand, due to the special conditions and clinical stress in the current period, the present study has been planned and implemented to investigate the level of health anxiety in nurses caring for patients with COVID-19.

## Materials and Methods

This descriptive, cross-sectional study was conducted in April and May 2020. The study participants included all the nurses working in the medical departments related to COVID-19 in medical centers affiliated with Zanjan University of Medical Sciences, Iran. The research environment included 3 hospitals that were designated centers for the acceptance of COVID-19 patients, and the sampling method used was census. The study inclusion criteria included willingness to participate in the research, a Bachelor's degree in nursing or higher, and at least 6 months of clinical experience. The exclusion criteria were a history of physical or psychiatric illness and medication intake for this disease based on self-reporting. After obtaining permission from the ethics committee, the researcher referred to the hospitals in which the research was conducted and invited research units that met the inclusion criteria to take part in the study. After obtaining written consent, 394 nurses entered the study. Due to unwillingness and inaccuracy in completing the questionnaires, 54 people (13%) were excluded from the study, and finally, 340 acceptable questionnaires were obtained.

The data collection tools included a 2-part questionnaire consisting of a demographic characteristics questionnaire and the Health Anxiety Inventory (HAI). The demographic characteristics questionnaire included questions regarding age, gender, marital status, parenting, family relationship, economic situation, education level, job category, work experience, and service ward. The HAI is used to measure health anxiety. The short form of this questionnaire was first developed by Salkoskis and Warwick (2002), and included 18 items scored on a 4-point Likert scale ranging from 0 to 3 in the 3 components of worry about health (7 items; 0–21 points), awareness of bodily sensations or changes (6 items; 0–18 points), and feared consequences of having an illness (5 items; 0–15 points). The total score range of this questionnaire is 0–54 points. Scores of 0–18, 18–36, and above 36 indicate a low, moderate, and high health anxiety level. The validity and reliability of this questionnaire have been evaluated and confirmed in the studies by Salkovskis and Warwick,<sup>[10]</sup> Abramowitz *et al.*,<sup>[11]</sup> and Nargesi *et al.*<sup>[12]</sup> The data collected were analyzed using descriptive indicators and the nonparametric tests of Man-Whitney and Kruskal–Wallis in SPSS software (version 17, SPSS Inc., Chicago, IL, USA) at a significant level of 0.05.

## Ethical considerations

This study was approved by the Research Ethics Committee of Zanjan University of Medical Sciences

(IR.ZUMS.REC.1399.044). Ethical considerations, including confidentiality of participants' information, informed consent of the participants, explanation of the research goals, voluntary participation in the research, permission to leave the study at any time, and trusteeship in using literature, were considered.

## Results

The present study was conducted on 340 nurses with a mean (SD) age of 31.50 (6.37) years; 80.60% were women, 90.90% had favorable family relationships, 56.17% were married, and more than half were parents. According to the findings, the mean (SD) score of health anxiety in nurses was 24.68 (4.30) points, and 91.76% had moderate health anxiety [Table 1].

Based on the Mann–Whitney U and Kruskal–Wallis tests results, there was a statistically significant relationship between the demographic variables of gender ( $Z = -4.54, p < 0.001$ ), marital status ( $\chi^2_3 = 32.54, p < 0.001$ ), parenting ( $Z = -4.16, p < 0.001$ ), family relationships ( $Z = -2.30, p = 0.020$ ), work experience ( $\chi^2_4 = 19.32, p < 0.001$ ), and ward of service ( $Z = -2.72, p < 0.001$ ) and health anxiety [Table 2].

## Discussion

The aim of the present study was to assess the level of health anxiety in nurses caring for patients with COVID-19. According to the study results, more than 90% of these nurses had moderate health anxiety. In line with the present study findings, in the study by Pappa *et al.*,<sup>[13]</sup> the prevalence of health anxiety in health care providers was 22%–36%. Lai *et al.*<sup>[4]</sup> and Huang and Zhao<sup>[5]</sup> reported this prevalence to be 44% and 35%, respectively. The findings of the present study are consistent with the results of these studies. According to this study's findings, the highest and lowest health anxiety levels in nurses were related to the dimensions of worry about health and awareness of bodily sensations or changes, respectively. Similar to the present study, in the study of Sun *et al.*<sup>[14]</sup> on the psychological experiences of nurses caring for COVID-19 patients, worry about their health and that of their family members was the main concern of nurses.

Contrary to the present study results, Temsah *et al.*<sup>[15]</sup> found that fear of contracting the disease was the main cause of

**Table 1: The level and subdomains of health anxiety in nurses**

Level	n (%)	Health anxiety	
		Sub-domains	Mean (SD)
Low	26 (7.64)	Worry about health	9.10 (2.24)
Moderate	312 (91.76)	Awareness of bodily sensations or changes	6.76 (1.72)
High	2 (0.58)	Feared consequences of having an illness	8.81 (1.83)

**Table 2: Demographic characteristics of nurses and its relationship with health anxiety**

Variables	n (%)	Health anxiety Mean (SD)	Statistical test	p
<b>Genders</b>				
Female	275 (80.90)	25.23 (4.11)	-4.54*	<0.001
Male	65 (19.10)	22.38 (4.85)		
<b>Marital status</b>				
Single	130 (38.23)	25.20 (4.05)	32.54**	<0.001
Married	191 (56.19)	23.27 (4.11)		
Divorced	13 (3.82)	29.53 (3.93)		
Widowed	6 (1.76)	27.50 (3.92)		
<b>Parenting</b>				
Yes	165 (48.52)	25.80 (4.34)	-4.16*	<0.001
No	175 (51.48)	23.60 (4.07)		
<b>Family relationships</b>				
Favorable	310 (91.17)	24.52 (4.32)	-2.30*	0.02
Unfavorable	30 (8.83)	26.26 (4.57)		
<b>Economic status</b>				
Bad	24 (7.05)	25.37 (4.10)	4.06**	0.25
Moderate	185 (54.42)	24.41 (4.62)		
Good	94 (27.65)	25.10 (4.10)		
Excellent	37 (10.88)	24.86 (2.80)		
<b>Level of education</b>				
Bachelor's	327 (96.17)	24.68 (4.32)	-0.11*	0.90
Master's and higher	13 (3.83)	24.69 (3.71)		
<b>Job category</b>				
Nurse	310 (91.18)	24.53 (4.23)	5.60**	0.06
Head nurse	12 (3.52)	24.50 (4.81)		
Supervisor	18 (5.30)	27.30 (4.52)		
<b>Work experience (year)</b>				
<5	101 (29.70)	23.41 (4.80)	19.32**	<0.001
5-10	103 (30.29)	24.43 (4.10)		
10-15	58 (17.08)	25.47 (4.30)		
15-20	50 (14.70)	26.44 (3.82)		
>20	28 (8.23)	25.43 (2.91)		
<b>Ward of service</b>				
Intensive	174 (51.18)	25.29 (3.72)	-2.72*	<0.001
Nonintensive	166 (48.82)	24.04 (4.81)		

\*Mann-Whitney U. \*\*Kruskal-Wallis

anxiety in health care providers. The contradiction with the present study findings may be due to the time of the study. Thus, at the time of sampling for the present study, infection statistics in Iran, especially the province studied, were on a downward slope, and the daily rate of infection was a single digit. Therefore, it is reasonable that anxiety about contracting the disease would have reduced in the present study.

The results showed that the level of health anxiety in female nurses caring for patients with Covid-19 was high. The studies by Lai *et al.*,<sup>[4]</sup> Spoorthy *et al.*,<sup>[16]</sup> and Pappa *et al.*<sup>[13]</sup> can confirm the results of this research because their studies were performed in almost similar conditions.

Therefore, we can claim that the level of health anxiety in female nurses is most affected by special situations such as COVID-19. Moreover, we found a significant relationship between health anxiety and marital status, parenting, and family relationships. Thus, married nurses with favorable family relationships and no children reported less health anxiety than others. In a similar study, Du *et al.*<sup>[17]</sup> stated that being married and having good family relationships reduces the amount of stress perceived in these nurses. Xiao *et al.*<sup>[18]</sup> pointed to the reverse relationship between anxiety and social support, and Liu *et al.*<sup>[19]</sup> emphasized that one of the most important causes of anxiety in health care providers is worrying about themselves and

their family members in terms of contracting the disease. Moreover, Cui *et al.*<sup>[20]</sup> stated that parenting is a crucial factor influencing the mental state of nurses and anxiety in nurses working in the Intensive Care Unit (ICU) and outpatient ward during this pandemic outbreak. Based on these findings, it seems that the level of health anxiety is affected by other sources of stress, such as family circumstances and personal relationships. In other words, we can say that the stress and tension from family can add to the anxiety level of nurses caused by a pandemic such as the COVID-19 pandemic.

In the present study, the level of health anxiety in nurses working in ICUs was higher than those in nonintensive wards. In line with the findings of Abdi *et al.*,<sup>[8]</sup> the level of health anxieties of nurses in ICUs and general wards were reported to be 44.45 and 30.08, respectively. In interpreting this similarity in the results, it can be said that the unstable general conditions of COVID-19 patients and the increased risk of infection in ICUs are the main factors exacerbating anxiety in nurses working in ICUS. Furthermore, a significant relationship was observed between work experience and health anxiety level in the present study, and this finding was in accordance with the results of the studies by Nemati *et al.*<sup>[21]</sup> and Kaveh *et al.*<sup>[22]</sup> Work experience increases self-confidence and mastery of the work environment; therefore, it is essential in reducing health anxiety, even under extreme circumstances such as this mysterious pandemic.

Among the limitations of this study was that the researcher had no control over the recent events in nurses' lives that could affect their health anxiety. In addition, since some conditions in the hospital work environment such as managerial styles, communication between colleagues, job satisfaction, and job stress can affect the level of anxiety perceived by nurses, it is suggested that the relationship between nurses' health anxiety and these factors be examined.

## Conclusion

This study showed that the level of health anxiety in nurses caring for COVID-19 patients is moderate. Therefore, due to the prolongation of the COVID-19 epidemic and the adverse effects of health anxiety on nurses' physical and psychological aspects in the long run, the management of health anxiety in this group is recommended. Identifying nurses with high health anxiety, holding workshops on topics such as stress management, and employing nurses with low health anxiety in COVID-19 units to the extent possible can be helpful.

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## Conflicts of interest

Nothing to declare.

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