Comparison of Mental Health of Nurses and General Population During the COVID-19 Pandemic in Iran

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Abstract

Introduction: COVID-19 crisis can affect the mental health of individuals. Anxiety and depression are two of many consequences of the COVID-19 pandemic. The present study aimed to investigate the anxiety and depression of nurses and the general population during the COVID -19 pandemic in Iran.

Methods: The statistical population was all of the Tehran general population, and nurses were working in the Tehran province of Iran. A total of 2060 general population and 516 nurses completed the Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder (GAD-7).

Results: The anxiety (8.73± 4.52) and depression (9.03±5.87) revealed that the anxiety and depression of nurses were mild. The anxiety (7.75±4.96) and depression (8.33±6.33) showed that the anxiety and depression of general participants were mild. The mean of anxiety in nurses was significantly higher than the general population (P=0.021). Also, the average anxiety in nurses was significantly higher than the general population (P=0.031).

Conclusion: The anxiety and depression of emergency nurses are higher than the general population. It means they need more attention in supportive programs such as mental health-promoting interventions during the COVID-19 pandemic.

Keywords: Mental Health; General Population; Nurses; COVID-19; Anxiety; Depression.

Introduction

The COVID-19, the most considerable crisis in public health in the past century, had many consequences on individuals [1]. The psychological health of the individuals can be affected additionally physical health [2]. There are massive psychological impacts such as anxiety, post-traumatic, and depression symptoms of the pandemic. Most people have been experienced mild-moderate disturbances. A minority of persons were reported severe symptoms [3]. A high prevalence of psychiatric symptoms is reported in most studies. It has been seen in low, middle, and high-income countries [4]. The present study was evaluated anxiety and depression between the general population and nurses.

Some mental health problems including anxiety, stress, depression, insomnia, anger, denial, and worldwide fear, have been seen during the COVID-19 pandemic [5]. The psychosocial effects of the COVID-19 pandemic are immeasurable ; some of them are financial problems, social isolation, and unfavorable economic outcomes [6]. The subsyndromal concerns about mental health are prevalent reactions to the pandemic in the general population and healthcare workers.16-28% of people have been experienced anxiety and depressive symptoms [7]. A systematic review reported that approximately half of the general population involved in a mental health impact during the pandemic [8]. The existence of the

pandemic for the long term, can develop anxiety, acute panic, obsessive behaviors, paranoia, hoarding, depression, and post-traumatic stress disorder (PTSD) [6].

The levels of anxiety and depression can increase during the pandemic by Socioeconomic difficulties, the anxiety of illness, and being under the condition of quarantine [2,9]. Other destructive consequences of the pandemic are financial problems, educational disruption, isolation, and social distancing [10]. Some factors can contribute to depression, like socioeconomic, cultural, environmental, lack of support, and genetics can contribute to depression [11]. The beginning of depression is typical in the second or third decade of life ; also, the second peak of it in their 50s [11]. Some of the demographics are associated with the anxiety of the pandemic, such as income level, physical ill-health [10,12], people with underlying health conditions, and being female [13]. A recent study in Turkish showed that women, persons living in urban, persons with psychiatric illness history, and individuals with a chronic disease are more psychologically impacted during the COVID-19 pandemic [14].

Healthcare workers are more vulnerable to psychological impacts. Females and younger persons were more vulnerable [3]. The healthcare providers (that are at higher risk of infection) show adverse psychological consequences such as anxiety, burnout, fear of infection transition, incompatibility feelings, increased substance dependence, depression, and PTSD [6]. Some variables that can develop problems in healthcare workers are being isolated from their families, limiting social support networks, and changing their routines. Various psychological effects, including experiencing helplessness, loneliness, stress, hopelessness, irritability, and mental and physical fatigue, were reported [15].

In general, healthcare workers were more psychologically affected than the general population during the pandemic; among the nurses were affected more [16].

More representative studies are needed about the psychological reactions to the pandemic , specifically in vulnerable populations [7]. During the pandemic, investigating the components affecting anxiety, hopelessness, and the persons that may be more mentally affected is necessary [16]. Monitor and surveying the psychological status of individuals is needed as a routine part of scientific efforts worldwide [17]. Mental distress is correlated to more probability of medical errors and patient safety [18]. So, it can be crucial in medical settings. Therefore, the present study compared the mental health of nurses and the general population in the area of anxiety and depression during the COVID-19 pandemic. The present study aimed to assess the anxiety and depression of emergency nurses and the general population during the COVID -19 pandemic in Iran.

Methods

The present study was a cross-sectional survey among Tehran province's general population and nurses.

Participants & Recruitment

The data were collected by an online survey (Google Forms) from February 2021 to March 2021. All general population and nurses living in Tehran were eligible to participate in the present study. The necessary information brief letter was provided to help the individuals for deaccessioning about filling out the questionnaires (i.e., the objectives of the present study, expectations, confidentiality, and rights). The participants signed a consent form, and the answers to the questionnaires were anonymous. They were mentioned that they could leave answering the questions at any time. The survey was notified to the nurses of Tehran through professional groups of social networks (Telegram and WhatsApp).

The present survey has a structured format consisting of:

Age, gender, education, marriage status was included in the demographic section of the questionnaire.

Generalized Anxiety Disorder-7 (GAD-7): Anxiety symptoms were evaluated by the GAD-7 questionnaire; as a proper self-rating screening tool for assessing anxiety its severity. It is a 7-item questionnaire that ranks from 0 (not at all) to 3 (nearly every day). The severity of anxiety disorders (generalized anxiety disorder or panic disorder) is shown based on its total score: minimal (0-4), mild (5-9), moderate (10-14), and severe (15-21). The participants report the frequency of symptoms which was experienced within the last two weeks [19]. The Cronbach's alpha coefficient of the GAD-7 for the present study was 0.87.

Patient Health Questionnaire (PHQ-9): Symptoms of depression were evaluated by the PHQ-9 scale; as a proper self-rated screening tool for depression and its severity in primary and mental health. It is a 9-item questionnaire based on depression symptoms scaled from 0 (not at all) to 3 (nearly every day). The participants report the frequency of symptoms experienced within the last two weeks. The severity of depression is classified into minimal (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), and severe (20-27) [20]. The Cronbach's alpha coefficient of the GAD-7 for the present study was 0.89.

Data Analysis

The data were analysed via SPSS-20 software. Percent, Frequency, Mean and Standard Deviation (SD) were used for data presentation. Chi-2, Mann Whitney U test, andand t-test were applied for comparison data between groups. The cut-off point for P-value was considered less than 0.05 for all tests.

Results

A total of 516 nurses returned the completed questionnaire. The majority of participants were female (n = 427, 82.8%). Their age ranged from 22 to 59 years (mean = 30.18, SD = 8.76). The major participants had a bachelor's degree (84%), and about half were single (54%).

Of the general participants in the study, a total of 2060 cases were included in the completed questionnaire. The majority of participants were female (70.7%), their ages ranged from 18 to 65 years. The mean age of participants was 32.80±12.33 years. 56.0% of the participants were currently married.

There were no differences between groups regarding age, sex, educational levels, and married status (P>0.05) (Table 1).

According to table 2, among the LSS group, 21 males and 27 females had positive sedimentation signs while only one male and one female had negative sedimentation signs, which were not statistically significant (P=0.69).
Based on table 3, the frequency of positive nerve sedimentation signs among the LBP group, was zero, and among the LSS group was 47 subjects. Thus there were two false-negative cases and none false-positive cases. Therefore, diagnostic indicators value was as follow: negative predictive value (NPV) = 96.1%, positive predictive value (PPV) = 100%, SP= 100% and SEN= 96%. There was also a significant correlation between stenosis level and nerve sedimentation sign in the X2 test (P=0.0001).

Anxiety and depression

The levels of anxiety (mean = 8.73, SD = 4.52), and depression (mean = 9.03, SD = 5.87) revealed that the anxiety and depression of nurses were mild. But the scores of females (anxiety: mean = 8.99, SD = 4.50; depression: mean = 9.34, SD = 5.91) were a little but significant (p < .05) higher than male (anxiety: mean = 7.48, SD = 4.61; depression: mean = 7.46, SD = 5.52) nurses.

The levels of anxiety (mean = 7.75, SD = 4.96) and depression (mean = 8.33, SD = 6.33) revealed that the anxiety and depression of general participants were mild.

The mean of anxiety in nurses was significantly higher than the general population (P=0.021). The mean anxiety levels in nurses were higher than in the general population (P=0.031) (Table 2).

Table 1. Distribution of sex, educational level, Marital Status, and age in the participants

Characteristics	Classification	Nurses	General		P-value
Sex	Female	82.8%	70.7%		0.85
	Male	16.1%	28.6%		
Educational level	Finished mandatory schooling	---	7.53%)		0.06
	High school/Diploma	---	17.72%		
	Some college	3.5%	4.97%		
	Bachelor degree	84.1%	35.76%		
	Master degree	11.2%	23.84%		
	Ph.D.	1.2%	10.18%		
Marital Status	Single	54.1%	56.0%		0.56
	Married	45.9%	41.3%		
Age	Mean	SD	Mean	SD	0.68
	30.18	8.76	32.80	12.33	

Table 2: Distribution of anxiety and depression in nurses and general groups

Items	Sex		P-value
	Nurses	General	
Anxiety	8.7±4.50	7.75±4.96	0.021
minimal	17.2%	29.3%	0.04
mild	43.4%	39.7%	
moderate	26.9%	19.8%	
severe	12.4%	11.3%	
Depression	9.03±5.87	8.33±6.33	0.031
minimal	26.4%	33.9%	0.014
mild	33.3%	32.0%	
moderate	23.1%	15.6%	
moderately severe	11.4%	11.3%	
severe	5.8%	7.2%	

Discussion

The present study showed that the anxiety and depression among the general population and nurses was mild in Tehran. The anxiety and depression levels in nurses were more than general population. Also, female nurses had the most anxiety and depression.

The results of the present study have harmonious with most of previous studies in Iran and other countries.

The prevalence of anxiety and depression in the general population during the COVID-19 pandemic is shown in previous studies: In Chinese, 0.9% showed severe anxiety, 21.3% reported mild anxiety, and 2.7% showed moderate anxiety levels [21]. Another study in China showed that 35% of individuals were psychologically impacted by the COVID-19 pandemic [22]. Another study reported 24% depression and 26% anxiety in the general population [8]. Jeong et al. showed that 7.6% and 16.6% of the persons were anxious and angry respectively in quarantine. A systematic review was reported that females, students, and people with the symptoms of COVID-19 had higher scores of anxiety and depression [7].

People that need psychological services in a pandemic situation experience increased problems. They asked to stay at home like other people and cannot give medical and psychological assistance from clinics [14]. The results of a review study in 8 countries (Iran, China, Spain, the US, Italy, Turkey, Denmark, and Nepal) showed approximately high rates of symptoms of depression (14.6% to 48.3%) and anxiety (6.33% to 50.9%) in the general population during the pandemic. Risk factors correlated with distress measures involved the younger age group (≤40 years), female gender, sufferance of chronic/psychiatric illnesses, student status, unemployment, and repeated encounters to social news/media about COVID-19 [4]. In general, women experience more depression than men [11].

In a review study, the prevalence of depression and anxiety were 28% and 33%, respectively. It was highest between patients with pre-existing conditions and COVID-19. Also, among the general population and healthcare workers, it was similar. The rates were higher than the pooled prevalence in the other studies of Iran, China, Italy, Spain, and Turkey. These risk factors include female gender, having a lower socioeconomic situation, being a nurse, social isolation, and having a high risk of exposure to COVID-19 were reported in the review study. Protective factors included having accurate and new information, having proper medical services, and doing preventative actions [23]. Also, Loneliness and social isolation are related to depression and anxiety. Individuals with social inequality or worse health are more vulnerable to the psychological distresses of COVID-19 [1].

Similar studies in previous pandemics reported a high prevalence of psychological symptoms like depression and anxiety in the general population, and frontline healthcare workers [24,25]. The higher psychological problems in the general population compared to the pre-corona era have been shown in previous studies and epidemics too [8]. One of the reasons for psychological problems among the general population is prolonged quarantine that has a lot of difficulties with itself [8].

A recent study in Iran reported that the rate of anxiety and depression in the general population was 20.1% and 15.1%, respectively. The risk factor for more anxiety and depression was female gender, and the protective components were being older and married. Also, having higher education was a protective component for anxiety levels [26]. Another research in Iran showed that 65.6% of individuals were experienced moderate and severe symptoms of anxiety, and 42.3% were experienced moderate to severe symptoms of depression. The anxiety prevalence in females and individuals in 30-39 years was higher. Furthermore, the anxiety and depression in physicians and nurses were higher compared with other jobs [27]. Lack of definite treatment spread wrong information about the virus, lack of hygiene and medical supplies, and the ignorance of the population about the seriousness

of the virus increased anxiety among Iranian people [28]. The growing trend of the COVID-19, despite the limitations and related health care, can be one of the causes of the mental consequences of the COVID-19 pandemic [14].

The previous studies showed the prevalence of anxiety and depression between healthcare workers, particularly nurses, during the COVID-19 pandemic so. Most previous studies have shown higher psychological problems among healthcare workers during epidemics compared to the general population [8,29,30]. Some studies reported similar rates of anxiety and depression among the general population and healthcare workers [23]. However, other studies reported a higher prevalence of depression and anxiety among healthcare workers [1,23]. Some studies were shown that females and nurses were more vulnerable to stress [22,23,31].

A systematic review reported that the pooled prevalence of psychological morbidities involved depression (26%) and anxiety (26%). The pooled prevalence of psychological morbidities about exposure to the COVID-19 pandemic was 44%. The highest psychological morbidities were ordered in the COVID-19 patients, healthcare workers, and general population. Mortality level, perception of threat, discrimination and stigma, and no definitive therapy can be the reasons for the burden [8]. An extensive study in Europe showed that most nurses reported typical to mild levels of psychological strain. Also, approximately one-third showed a moderate to particularly severe level of distress [32].

One study in Iran reported 10.6% for depression symptoms and 15.7% for anxiety symptoms in healthcare workers [33]. Congruent research in Iran showed that the anxiety, depression, and stress in medical students and patients with COVID-19 were higher than the community population and medical staff. The anxiety level in men was higher than in women. The unmarried individuals were higher in depression than the married group. Also, females were more elevated in depression than men [17]. Another congruent study in Iran showed that the

health workers worker's contact with COVID-19 patients had a higher task load than those who had no encounter with the patients. Also, nurses had more workload and experienced more mental pressure, time pressure, physical tension, and frustration than other jobs [34]. In a recent study among Iranian nurses caring for COVID-19 patients, 54% had anxiety, 17.4% had stress, and 43% had a degree of depression. Some variables like age, having children, and work experience, were related to their stress level [35]. The mental pressure levels, time pressure, physical pressure, workload, and frustration were higher than other jobs in Iran [34].

The reasons of distress among healthcare workers are some problems such as the higher possibility of disease getting, the health of their loved persons, long working hours, death of their colleagues, ethical concern regarding situations of rationing of ventilators for sick, and stress about domestic supplies [36]. Anxiety and helplessness are correlated with management approachability and personal equipment concerns in nurses during the pandemic. Also, problematic stress is correlated with the tendency to leave a current job or the nursing profession altogether [37]. So, experiencing overload and challenges of work can increase the anxiety and depression of nurses compared to the general population.

Some of the significant implications of the present study are the importance of the implementation of psychological services additionally medical services. The results can help design effective interventions for exposure to the COVID-19 pandemic. Also, the predictive interventions can develop and will be very useful with knowing the risk factors of mental problems during the pandemic. Some of the limitations of the present study were as follows: First, all of the participants were from Tehran Province. So, the generalization of the results should be made with caution. Second, anxiety and depression were assessed by questionnaires that could be less accurate than clinical interviewing. Third, the design of the

present study was cross-sectional. Therefore, the cause-and-effect relationships between variables couldn't be confirmed. Fourth, the questionnaires were electronic and is not well accepted among older participants. Therefore, the elders less participated in the study, and it can cause sampling bias. Fifth, a large number of individuals refused the participate in the study. Individuals with more anxiety and depression may do not participate in the study. This bias may affect the results. Future studies can investigate the psychological effects of COVID-19 in the longitudinal method. Also, comparing another psychological variable between healthcare workers, nurses, and general people is needed. Also, future research can reach the psychological effects of the pandemic on various categories of participants such as children, older people, and psychiatric patients.

Conclusion

The results of this study can help the managers to program applicable psychological interventions for target populations during the COVID-19 and similar pandemics. Designing comprehensive support programs to promote the psychological well-being of nurses is recommended during the COVID-19 pandemic. The healthcare systems can develop programs for the general population and nurses to improve their mental health in such pandemics.

Authors' Contributions
All authors pass the four criteria for authorship contribution based on the international committee of medical journal editors (ICMJE) recommendations.

Ethical Statement
This study was approved by ethical committee of Alzahra University, Tehran, Iran.

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