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Comparing Anxiety and Depression among Midwives and Nurses Working in Pediatric Wards and Other Clinical Settings during the Covid-19 Outbreak

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Abstract

Background: This study aims to compare the COVID-related anxiety and depression between Midwives and nurses working in pediatric wars and the other clinical settings during the COVID-19 outbreak.

Methods: Random sampling method was implemented for sample selection. Modified Hospital Anxiety and Depression Scale (HADS) was used to measure anxiety and depression related to COVID-19; and the data was analyzed through linear regression.

Results: In this study, 88.6% of the participants were female and the mean age of nurses was 30.41 ± 6.59 years. 36.4% of the nurses were midwives, 35% were pediatric nurses and the rest were other nurses. The mean and standard deviation of anxiety and depression scores were 12.76 ± 7.75 and 1.78 ± 2.27, respectively. 92.9% of the participants were anxious and 11.4% were depressed. The variables of marital status and sports activity had a significant effect on nurses' depression scores.

Conclusion: Anxiety and depression scores were not significantly different among the treatment staff. The prevalence of COVID-19 anxiety was high among hospital staff in Iran and the prevalence of depression was moderate, which can have detrimental effects on the quality of care provided by nurses and midwives to the patient.

Key Words: Anxiety, Coronavirus, Depression, Health Anxiety, Influencing Factors, Medical Workers.

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1- INTRODUCTION

One of the pandemics that have affected all people in the world in recent years is Covid 19 disease (1). A new type of coronavirus (2019-nCoV) was first observed as a causative agent of pneumonia in 2019 in Wuhan, China, and spread rapidly throughout the world, leading to a serious epidemic called COVID-19 (2). According to the COVID-19 epidemic, which has spread to 213 countries and infected 13 million people so far, it is predicted that a large number of COVID-19 survivors will suffer from mental disorders (3).

The prevalence of coronary heart disease and the fear of contracting the disease have caused people to experience a great deal of anxiety and stress, as the disease operates silently and the person realizes that s/he has been infected with the virus at least 14 days after being infected. It is possible that anyone unknowingly carries the disease. Obsessive-compulsive disorder is becoming a serious phobia of coronary heart disease and anxiety (4).

Among occupations, health care workers, especially nurses, are more likely than others to be exposed to psychological disorders such as anxiety and stress because they are at the forefront of the disease (Brooks et al., 2020).

Stress is more common in health care workers who have been quarantined at home or in hospital due to contact with a suspect; For example, family tensions due to family blame for having a high-risk job are stressors for people working in high-risk locations such as health centers (Blendon, Benson, DesRoches, Raleigh, & Taylor-Clark, 2004).

Concerns about illness and transmission of the virus to family members and the resulting guilt increase the health of health workers, including nurses and midwives, during quarantine (Chen et al., 2020). A cross-sectional study on medical personnel in China during the Covid-19 outbreak showed that out of 512 personnel, about 164 had direct contact with an infected patient. The prevalence of anxiety was about 12.5%, of which 10.35% experienced mild anxiety, 1.36% moderate anxiety and about 0.78% experienced severe anxiety (Brooks et al., 2020).

Previous studies have shown that medical staff are more frightened, worried and depressed than administrative staff. In addition, the front-line medical staff working in the intensive care units, emergency departments, and respiratory and infectious disease wards are twice as likely to suffer from anxiety and depression as those who have less contact with Covid-19 patients. (Lu, Wang, Lin, & Li, 2020). Previous studies have reported a higher risk of psychological side effects in medical staff than in other employees working in departments that are less likely to experience a coronary crisis (Lasalvia et al., 2021).

The findings of this study show that nurses and midwives are one of the populations at risk of mental health during Covid 19 epidemic. The occurrence of these disorders may lead to decreased ability to work, impaired concentration and learning, impaired performance of assigned tasks, changes in quality of life and their improper performance. For timely prevention and treatment, it is necessary to make an initial assessment of the incidence of these cases; therefore, in addition to managing the treatment of coronary heart disease, an important part of the efforts of health officials should be planning to prevent and treat the negative effects of the disease-induced stress on medical staffs involved with patients. Moreover, since the mental health of medical staff is very effective on the quality of their services and the health status of patients (Jiang et al., 2020), paying attention to their mental health is very important (KILINÇEL et al.).

Previous studies have shown that children are less likely to develop Quid 19. Thus, our hypothesis is that pediatric ward nurses bear less psychological burden than nurses in other wards and midwives due to less exposure to patients.

2- MATERIALS AND METHODS

The data of this research is taken from two concurrent studies. Part of the data is from a large-scale study that was conducted to investigate the effect of remote counseling on staffs' mental health in coronavirus reference clinics and hospitals. In this cross-sectional study, all health care providers working in Iranian medical service centers in private and public hospitals as well as coronavirus reference clinics in the southern provinces of Iran were invited to participate in this study. The study lasted three weeks (March 10-30, 2020). Various methods were used to attract participants in this study, including the invitations to cooperate by the Vice Chancellor of Kerman University of Medical Sciences to encourage staff to participate in the study with an online questionnaire linked to it, sent to professional networks and Social, personal communication and snowball sampling. Samples were collected using the available sampling method. Samples of midwives and nurses from this study were randomly selected. Samples of pediatric nurses were randomly selected from another study conducted simultaneously in the southern half of the country.

2-1. Inclusion and Exclusion criteria

There was no age limit or work experience in the inclusion criteria. Respondents should not have been engaged in any psychological interventions that affect Covid-19-related health anxiety, anxiety, and depression. All participants completed a written consent form to participate in the study prior to answering the online questionnaire.

2-2. Ethical considerations

This study was approved by the Ethics Committee of Kerman University of Medical Sciences (IR.KMU.REC.1399.114). The participants were free to withdraw from the study at any time. Participants' information was recorded anonymously. They received a general description of the study before completing the online questionnaire. All participants confirmed the informed consent questionnaire by pressing a key online. The contact information for the corresponding researcher was at the end of the online questionnaire so that the participants could contact her if they had any problems or questions.

2-3. Data collection tools

a) Demographic profile

b) Modified hospital anxiety and depression scale for coronavirus epidemic

The Hospital Anxiety and Depression Scale (HADS), developed by Sigmund and Sneith (1983), includes 14 item options for measuring the two subscales of Anxiety Level (HADS-A) and Depression (HADS-D) (14). These items are rated on a 4-point Likert scale. The total score is in the range of 0 to 21 for each subscale; scores equal to or less than 7 indicate the absence of anxiety or depression, and scores greater than 7 indicate the presence of anxiety or depression (15). This tool has been validated in different cultures and languages. The Persian version of HADS has been translated by Montazeri et al. confirming that the HADS scale can differentiate between depression and anxiety. According to the convergent validity analysis, there is a negative correlation between HADS and the quality of life questionnaire in cancer patients. HADS has been validated in Iranian populations under various conditions including cancer (15), infertility (16) and epilepsy (17). In response to

psychopathological and psychotherapeutic interventions, HADS is relatively sensitive to the detection of mood swings during treatment (3). This questionnaire has been modified to assess depression and anxiety associated with Covid-19 instead of general anxiety and depression by adding the phrase "Coronavirus outbreak" in the initial description of the tool as well as at the end of all questions.

2-4. Data Analysis

Descriptive statistics are reported as frequency, percentage, mean and standard deviation. Univariate and multiple linear regression analyses were used to identify the effect of variables on anxiety and depression scores. Data analysis was performed by SPSS 22 software at a significance level of 0.05.

3- RESULTS

In this study, 88.6% of the participants were women and most of them were under 30 years of age. The mean and standard deviation of nurses' age was 30.41 ± 6.59 years. Married people made up 71.4% of the sample and 55% had children. In this study, 36.4% of the participants were midwife nurses, 35% were pediatric nurses. Other descriptive information is reported in **Table 1**.

Table 1: Demographic information of nurses

Variable		N (%)	Variable		N (%)
Gender	Female	124 (88.6)	Direct contact with a coronary patient	does not have	104 (74.3)
	Man	16 (11.4)		does not have	36 (25.7)
age category	<30	72 (51.4)	Mental illness	does not have	136 (97.1)
	≥30	68 (48.6)		does not have	4 (2.9)
marital status	Single	40 (28.6)	Physical illness	does not have	124 (88.6)
	Married	100 (71.4)		does not have	16 (11.4)
Having a child	has it	77 (55)	Sports activities	does not have	9 (6.4)
	does not have	63 (45)		disorganized	84 (60)
Nursing group	Mama	51 (36.4)		Regular	47 (33.6)
	Pediatrician	49 (35)	-	-	-
	Other nurse	40 (28.6)	-	-	-

The mean and standard deviation of anxiety and depression scores were 12.76 ± 7.75 and 1.78 ± 2.27, respectively. The lowest and highest anxiety scores were 9 and 19, respectively; and for depression, they were 2 and 15, respectively. In terms of anxiety, 92.9% of nurses were at the abnormal level and the rest were on the borderline and none of the nurses were at the normal level. Also in terms of depression, 11.4% were abnormal, 36.4% on the borderline and the rest were normal.

Univariate and multiple linear regression analyses were used to identify the effect of variables on anxiety and depression scores. The results are reported in **Table 2**.

None of the variables in both univariate and multiple linear regression models had a significant effect on nurses' anxiety scores. To identify the factors affecting the depression score, the variables of mental illness status, physical illness and sports activity were significant in univariate regression. Using multiple regression and controlling all variables, the variables of marital status and sports activity had a significant effect on nurses' depression scores. The regression coefficient (Beta) was -1 for marital status and 1.7 for sports

activity. The mean score of depression of married nurses was one unit lower than single ones. Also, the average depression of nurses with irregular exercise was 1.7 units higher than nurses without exercise.

Table 2: Univariate and multiple linear regression results on the predictive factors of anxiety and depression scores

Variable		Anxiety			Depression		multiple p-value
		Mean±SD	Univariate p-value	multiple p-value	Mean±SD	Univariate p-value	
Gender	Female	12.86±1.80	0.069	0.486	7.73±2.32	0.816	0.647
	Man	12.00±1.46			7.87±1.93		
age category	<30	12.57±1.79	0.185	0.184	7.69±2.44	0.767	0.602
	≥30	12.97±1.77			7.81±2.09		
marital status	Single	12.52±1.91	0.318	0.243	7.95±2.58	0.512	0.048
	Married	12.86±1.73			7.67±2.14		
Having a child	has it	12.69±1.76	0.580	0.439	7.56±2.30	0.271	0.056
	does not have	12.86±1.82			7.98±2.22		
Nursing group	Mama	12.86±1.60	-	-	7.45±1.82	-	-
	Pediatrician	13.00±2.16	0.700	0.757	8.00±2.49	0.230	0.348
	Other nurse	12.35±1.44	0.174	0.309	7.82±2.50	0.437	0.863
Direct contact with a coronary patient	does not have	12.88±1.77	0.176	0.671	7.56±2.17	0.088	0.308
	has it	12.42±1.81			8.31±2.49		
Mental illness	does not have	12.74±1.71	0.264	0.260	7.68±2.25	0.044	0.190
	has it	13.75±3.77			10.00±2.16		
Physical illness	does not have	12.83±1.70	0.222	0.148	7.60±2.21	0.035	0.094
	has it	12.25±2.32			8.87±2.45		
Sports activities	does not have	12.78±1.56	-	-	6.11±0.93	-	-
	disorganized	12.76±1.81	0.980	0.837	7.88±2.04	0.026	0.036
	Regular	12.77±1.81	0.986	0.955	7.75±2.27	0.037	0.060

4- DISCUSSION

The prevalence of Covid 19 disease in all countries of the world has endangered the psychological and physical health of individuals in the community and due to its mysterious, uncontrollable, unpredictable, and rapidly spreading nature has provided the ground for the spread of psychological problems in the mental health dimension of individuals (1). The World Health Organization (WHO) has reported a higher prevalence of occupational psychological disorders due to stress in healthcare settings (3). The outbreak of coronavirus in China has shown an increase in negative emotions, including anxiety, depression, and anger, which cause excessive stress (4), which accompany symptoms such as fear (response to a known threat) and anxiety (response to Unknown threat). Generalized Anxiety Disorders (GADs) are primarily characterized by symptoms of fear, anxiety, and arousal (5).

This study is the first study to investigate the prevalence of anxiety and depression associated with Covid-19 among midwives and nurses, during the Covid-19 epidemic. The overall prevalence of Covid-related

anxiety and depression in the present study was about 80%.

Feelings of vulnerability, loss of control, concerns about personal health and transmission of the virus to family members and others, job changes and fear of isolation, rapid human-to-human transmission and high mortality rates of the infection, make employees more sensitive to their job-related risks (10). An increasing number of confirmed or suspected cases, high workload, lack of personal protective equipment, excessive media coverage, lack of specific medications and lack of adequate support are among the psychological burdens imposed on hospital staff during the Covid-19 epidemic (9). Excessive risk of nurses working in public hospitals, inadequate preparedness for unpredictable epidemics, conflict with core professional values, and disruption of family and work management are among the stressors in this situation. The lack of any emergency plan for public health emergencies in hospitals also poses a major challenge for nurses' day-to-day work (8).

Anxiety and depression scores were not significantly different among the treatment staff. The prevalence of Covid-19 anxiety was high among the hospital staff in Iran and the prevalence of depression was moderate.

Previous studies have shown that exercise can reduce the level of anxiety and depression (25) (24). One study investigated the relationship between anxiety and inactivity. The findings of this study also showed that the higher the level of inactivity, the higher the level of anxiety (16). In a meta-analysis, Wipfli et al. examined the effect of regular exercise compared to other forms of treatment, finding that regular exercise significantly reduces anxiety (24). In another study, Wu et al. reported that women who exercised less than 7 hours a week had a relative risk of 1.23 ($p = 0.02$) more than the women who exercised more than 7 hours a week (Wu et al., 2020). Lebel et al., likewise, stated that Physical activity reduces anxiety symptoms (Lebel et al., 2020b). The findings of the present study showed that anxiety levels are not associated with exercise while in line with the decrease in the physical activities, an increase in the level of depression was observed. Differences between studies may be related to the levels of physical activity, since in the present study only 6% of medical staff exercised regularly.

A study on the medical staff in China showed a high level of anxiety and depression among medical staff. However, the prevalence of anxiety and depression in health care workers in China during Quoid-19 was much lower than that found in the present study (19). These findings indicate that health care providers became severely depressed and anxious during infectious epidemics. Also in terms of depression in the present study, 11.4% were abnormal, 36.4% on the borderline and the rest were normal. In general, infections have been found to be associated with a higher risk of mood disorders (7), and it appears that there is a higher risk of severe infections (8). This statement is consistent with the findings of the SARS-CoV-1 epidemic, which has shown depressive symptoms among patients during the period of infection (9). This higher risk may be due to the effect of the coronavirus on the brain directly or indirectly by inducing a widespread cytokine response in the brain (10).

In our study of Covid-19 depression and anxiety, there was no apparent difference between men and women. In line with the present study, two studies in China (19, 21) found no significant relationship between anxiety levels and gender. However, another study that compared the level of anxiety between male and female infertility in normal periods (without corona prevalence) showed that the level

of anxiety in female gender is higher than male (22). Thus, although the present study did not show a significant relationship between gender and the patients' anxiety, in some studies there was a relationship that could be due to the influence of social and cultural factors, the number of samples and sampling method. Furthermore, in the present study, the severity of the three variables (health anxiety, depression and anxiety) was not different between the two age groups. Similarly, Liu (19) did not report any age-based differences, although the classification of age groups was different in the two studies. In a study conducted during the SARS period, the age group of less than 30 years was considered as a predictor of anxiety (23). However, the two studies did not find any difference in the incidence of anxiety and age.

In another study, in contrast to the present study, multivariate logistic regression showed that age (<35) was associated with the level of anxiety of medical staff, i.e., medical staff under 35 years of age had more symptoms of anxiety and depression than those over 35 years old (21).

4-1. Limitations and strength of the study

One of the strengths of the present study is the Web-based survey (WBS) design which prevents potential infections and encourages the voluntary participation of individuals through the online system. Web-based survey (WBS) with unexpected and general technical problems is accompanied with unexpected technical problems (28). However, we experienced few technical problems in the present study. Moreover, in the WBS design, health care providers with higher anxiety levels are more likely to be treated or prevented. Nonetheless, since the present study is cross-sectional, the relationship between health anxiety and the related risk factors can not be evaluated. It is, then, suggested that future studies be designed longitudinally to examine anxiety and depression in covid peaks. In our study, mental health was assessed only once. If the prevalence is assessed over several time periods, it may be possible to assess psychological adjustments, such as the ability to tolerate emotional and physical distress in patients with Qovid. The prevalence of Qovid in different provinces of Iran has been reported differently. On the other hand, the present study was conducted in the southern provinces of Iran. Therefore, caution should be exercised in generalizing the results to the whole country or other countries. The high prevalence of depression and anxiety in the present study may be due to the use of the self-report questionnaire. The use of this questionnaire may be associated with the risk of underreporting or overreporting. One way to diagnose anxiety and depression is to use a clinical interview that has not been used in the current study. Another limitation of this study is that some confounding variables are not considered in the present study. Work experience, hospital valley, gender, marital status, economic status, personality, physical illness and level of education were effective factors in health anxiety. Working in a specialized hospital, female gender, being married, low income, postgraduate education and having a physical illness are also among the risk factors for increasing health anxiety (11).

5- CONCLUSION

Anxiety and depression scores were not significantly different among the treatment staff. The prevalence of Covid-19 anxiety was high among the hospital staff in Iran and the prevalence of depression was moderate, which can have detrimental effects on the quality of care provided by nurses and midwives to the patient. Prospective health care should lead to more support and appropriate interventions for medical staff, which in turn will help improve the mental health of

health care providers and thus the quality of care provided to patients. To design any preventive or therapeutic programs for the medical staff, it is necessary to consider the risk factors of anxiety and depression related to the corona virus or any infection in general.

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