International Journal of Epidemiologic Research
doi:10.34172/ijer.2022.22 2022 Summer;9(3):126-132 http://ijer.skums.ac.ir

Original Article

Relationship of COVID-19 Anxiety With Depression, Stress, and Anxiety Among Administrative Staff and Nurses in a Referral Hospital for Corona

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Abstract

Background and aims: The prevalence of the coronavirus disease 2019 (COVID-19) was associated with many psychological consequences among personnel of hospitals. The aim of this study was to investigate the relationship between COVID-19 anxiety and depression, stress, and anxiety among administrative staff and nurses.

Methods: This is a cross-sectional study that was conducted in January 2022. All 100 nurses and administrative staff of a hospital participated in this study. Demographic information questionnaires, Corona Disease Anxiety Scale, and Depression Anxiety Stress Scale (DASS-21) were employed to collect data. Statistical analysis was performed using SPSS software version 24.

Results: The mean ± standard deviation age of participants was 33.53 ± 6.73 years. The median (interquartile range) disease anxiety in nurses and administrative staff was equal to 7 (4.25) and 10 (8), respectively. Further, COVID-19 anxiety was significantly higher in administrative staff ($P=0.001$); moreover, a significant relationship was found between the history of COVID-19 disease and disease anxiety ($P=0.04$). Nurses reported higher stress than administrative staff ($P=0.02$), and no significant relationship was found between COVID-19 anxiety and components of DASS ($P>0.05$).

Conclusion: In this study, COVID-19 anxiety was significantly higher in administrative staff. Therefore, during the COVID-19 pandemic, it is necessary to pay attention to all jobs. Nurses reported higher stress and depression. Therefore, it is suggested that the necessary psychological measures be taken to improve their psychological states. Increasing the number of nurses, improving working conditions, reducing workload, and training can be effective in improving the mental health of nurses.

Keywords: COVID-19, Coronavirus, Anxiety, Depression, Stress, Hospital

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Received: 11 May 2022
Accepted: 22 June 2022
ePublished: 24 Aug. 2022

Introduction

In January 2020, the World Health Organization (WHO) declared the COVID-19 pandemic worldwide, calling it an emergency worldwide.[1] The outbreak of this disease had many consequences and caused many mental conflicts including the seriousness of the disease, unpredictability of the situation, and lack of knowledge about when to control the disease.[2,3] Social anxiety is one of the most important consequences of this disease worldwide.[4] Fear and anxiety resulting from the possible occurrence of COVID-19 are destructive and can lead to mental disorders and stress among individuals.[5] Further, the stress created in the long run is very destructive and can reduce the body's ability to fight disease and weaken the immune system.[6]

Nursing is one of the most important occupational groups and one of the most important pillars of organizations providing health services.[7] Nurses are the core of the care team and are the largest human resource in the care and treatment system.[8] Due to their contact with patients, they are affected by many stresses such as unhealthy work environments, continuous work fatigue, difficult relationships in the workplace, job risks, heavy workloads, and stressful working conditions that affect their professional performance and quality of life.[9,10]

COVID-19 pandemic has raised concerns about

nursing care and health behaviors.[7,11] Nurses and hospital staff are vulnerable to infection due to their close contact with COVID-19 patients; consequently, they can spread the virus among colleagues and family members.[12] The nature of this disease also increases severe stressful reactions such as fatigue, anxiety, and depression.[13] In a study, it was reported that among health care workers, nurses were more anxious regarding COVID-19 disease about themselves and their families.[14] High levels of stress in nurses reduced the quality of care and the occurrence of medical errors, which in turn led to an optimal reduction of the patient's safety index.[15] The main source of nurses' anxiety during the COVID-19 pandemic was fear of infection or unintentional transmission to others.[16] While low levels of anxiety are beneficial and motivate and excite a person, constant exposure to anxiety can be associated with various psychological and physiological consequences. Simonetti et al found a positive and significant relationship between COVID-19 anxiety and sleep disorders in Italian nurses.[17] In addition, the results of a study showed that there is a strong relationship between sleep disorders and dizziness-related illnesses.[18] Tu et al conducted a study on Wuhan nurses, observing that sleep quality and anxiety were significantly associated with depression.[19] The results of a study in Iran showed that during the COVID-19 pandemic, 44.8% of health workers have been subjected to depression.[20] In another study, 72.8% and 42.4% of the Iranian nurses reported anxiety and depression during the COVID-19 pandemic, respectively.[21] Mohamadzadeh Tabrizi et al reported that COVID-19 anxiety was significantly related to Iranian nurses' quality of life. Their results revealed that for each unit increase in COVID-19 anxiety, the score of quality of life decreased by 0.81 unit.[22]

Maintaining the mental health of nursing personnel is essential to control infectious diseases.[23] Studies conducted at the beginning of the outbreak demonstrated that anxiety and stress are high among nurses and health workers. In addition, it is necessary to study and pay attention to the mental health of health workers after the pandemic. It is predicted that understanding the nature of the disease and vaccination have affected the disease anxiety in nurses over the passage of time. Moreover, most previous studies have examined anxiety among nurses and health care workers, but non-clinical occupations in hospitals such as administrative staff have not been studied. Therefore, this study aimed to investigate the relationship between COVID-19 anxiety and depression, stress, and anxiety among administrative staff and nurses of a Corona referral hospital.

Materials and Methods

Study Population and Type

This is a cross-sectional study that was conducted in January 2022. For this study, a hospital was selected in Yazd province. The participants of this study were the administrative staff and nurses who were working in the hospital. The administrative staff had non-clinical roles, and they had no direct contact with patients and COVID-19 wards.

Sample Size and Sampling Method

In this study, the data gathering was performed using census. The total number of nurses and administrative staff were 80 and 65, respectively. Inclusion and exclusion criteria were assessed for all participants. In addition, incomplete questionnaires were discarded; as a result, 30 nurses and 15 administrative staff were excluded from the study. Finally, 50 individuals from each group were included in the study.

Inclusion and Exclusion Criteria

Inclusion criteria were age under 50, work experience over six months, and presence at work in the last week. Individuals that had family problems or experienced a critical situation such as hospitalization and the death of family members and friends in the last month were excluded from the study.

Variables

This study included demographic variables such as age, work experience, gender, marital status, education, history of COVID-19, and use of personal protective equipment (PPE). COVID-19 anxiety, stress, anxiety, and depression were other variables in this study.

Data Collection Tools

Demographic Questionnaire

In the present study, the demographic information questionnaire contained gender, education, age, marital status, work history, history of COVID-19, and use of PPE.

Corona Disease Anxiety Scale

The Corona Disease Anxiety Scale has been prepared and validated to measure anxiety caused by the outbreak of coronavirus in Iran. This questionnaire consists of 18 items and two subscales. Items 1 to 9 measured psychological symptoms, and items 10 to 18 measured physical symptoms. This tool is graded on a 4-point Likert scale, so the highest score that a person gets will be 54, and the lowest score will be zero. High scores in this questionnaire indicate a higher level of anxiety in individuals. Scores from 0 to 16 indicate mild anxiety, 17 to 29 moderate anxiety, and 30 to 54 severe anxiety. This questionnaire was validated by Alipour et al, and its content validity was examined by 5 psychologists. The reliability of this tool was obtained using Cronbach's alpha coefficient ($\alpha = 0.919$) for the whole questionnaire.[24]

Depression Anxiety Stress Scale

Depression Anxiety Stress Scale (DASS-21) was developed by Lavibond in 1995 to measure stress, anxiety, and depression. This tool includes 21 items. This questionnaire consists of three components, and each

subscale consists of seven items. The final score of each component is obtained through the sum of the scores of the related questions.[25] The validity and reliability of this questionnaire have been confirmed in various studies.[26,27] In the study by Sahebi et al, the internal consistency of scale for the Iranian population was calculated using Cronbach's alpha. The Cronbach's alpha coefficients of *reliability for* depression, anxiety, and stress scales were 0.77, 0.79, and 0.78, respectively.[28]

Statistical Analysis

Data were described using mean, standard deviation, frequency, and percentage indices. The normality of the data was assessed using the Kolmogorov–Smirnov test. The median and interquartile ranges were used to describe the non-normal data. Data were also analyzed using the correlation and Mann-Whitney tests. Data analysis was performed using SPSS software, version 24.

Results

All nurses and administrative staff of the selected hospital participated in the study. The total number of nurses and administrative staff was 100 (n = 50 for each group). The mean ± standard deviation of age and job experience were 33.53 ± 6.73 and 8.4 ± 6.5 years, respectively as presented in Table 1.

According to Table 1, 70% of nurses and 46% of administrative staff had a history of COVID-19 disease. In terms of COVID-19 anxiety, 90% of nurses reported mild anxiety, 8% moderate anxiety, and 2% severe anxiety. In the administrative staff group, 78% reported mild anxiety, 18% moderate anxiety, and 4% severe anxiety.

The result of the Mann-Whitney test showed that COVID-19 disease anxiety was significantly higher in people who had no history of COVID-19 disease ($P = 0.04$). In addition, no significant relationship was observed between other demographic variables and disease anxiety ($P > 0.05$). Due to the non-normality of the COVID-19 anxiety data, the median and interquartile range (IQR) were used to describe it as illustrated in Table 2.

The results of Table 2 indicated that COVID-19 anxiety in administrative staff is significantly higher than that in nurses ($P = 0.001$). Table 3 illustrates the results of stress, anxiety, and depression in the two groups.

According to Table 3, stress scores in nurses were significantly higher than in administrative staff ($P = 0.02$). In general, the prevalence of anxiety and depression was higher in nurses, but this difference was not significant ($P > 0.05$). The results of stress, anxiety, and depression in the two groups of nurses and administrative staff are presented in Figure 1.

In terms of depression, 78% of nurses were in normal condition, 16% reported mild depression, while 96% of the administrative staff were normal in terms of depression. Only 2% of nurses reported mild depression. 12% reported severe stress, and 2% exhibited severe anxiety.

The Spearman correlation test was used to investigate the relationship between stress, anxiety, and depression with COVID-19 anxiety in two groups. As observed in Tables 4 and 5, stress, anxiety, and depression were not significantly related to COVID-19 anxiety in nurses and administrative staff ($P > 0.05$).

Table 1. Frequency Distribution of Demographic Variables Among Nurses and Administrative Staff

Variables	Levels	Administrative Staff No. (%)	Nurses No. (%)	Total Frequency
Gender	Female	28 (56)	33 (66)	61
	Male	22 (44)	17 (34)	39
History of COVID-19 disease	Yes	23 (46)	35 (70)	58
	No	27 (54)	15 (30)	42
Status of use of PPE	Low	4 (8)	0 (0)	4
	Medium	43 (86)	40 (80)	83
	High	3 (6)	10 (20)	13
Education level	BSc and below	41 (82)	48 (96)	89
	MSc and high	9 (18)	2 (4)	11
Marital status	Single	5 (10)	12 (24)	17
	Married	45 (90)	38 (76)	83

Note. COVID-19: Coronavirus disease 2019; PPE: Personal protective equipment; BSc: Bachelor of science; MSc: *Master of science*.

Table 2. Comparison of COVID-19 Disease Anxiety Among the Nurses and Administrative Staff

Variables	Median (IQR)		*P* Value
	Administrative Staff	Nurses	
Coronavirus disease anxiety	10 (8)	7 (4.25)	0.001
Psychological dimension	7 (5.25)	6.5 (4)	0.06
Physical dimension	3 (5.25)	0 (1)	<0.001

Note. COVID-19: Coronavirus disease 2019; IQR: Interquartile range.

Table 3. Comparison of DASS Scores and Its Subscales Among Nurses and Administrative Staff

Scale	Median (IQR)		*P* Value
	Administrative Staff	Nurses	
Depression	2 (2)	2 (4)	0.41
Anxiety	2 (3)	2 (4)	0.60
Stress	3 (4)	4 (5.25)	0.02
Total status	6 (11)	9 (11)	0.25

Note. DASS: Depression Anxiety Stress Scale; IQR: Interquartile range.

Discussion

Health workers such as nurses and physicians have contact and exposure with infected patients. This contact and exposure can have several psychological effects. In this study, the median coronavirus anxiety among nurses and administrative staff was 7 and 10, respectively. Furthermore, 90% of nurses reported mild anxiety, 8% moderate anxiety, and 2% severe anxiety. Moreover, 12% of nurses reported very high stress, but no significant relationship was found between stress and COVID-19 anxiety. Further, COVID-19 anxiety in administrative staff was significantly higher than in nurses.

Liu et al found that medical workers who were directly

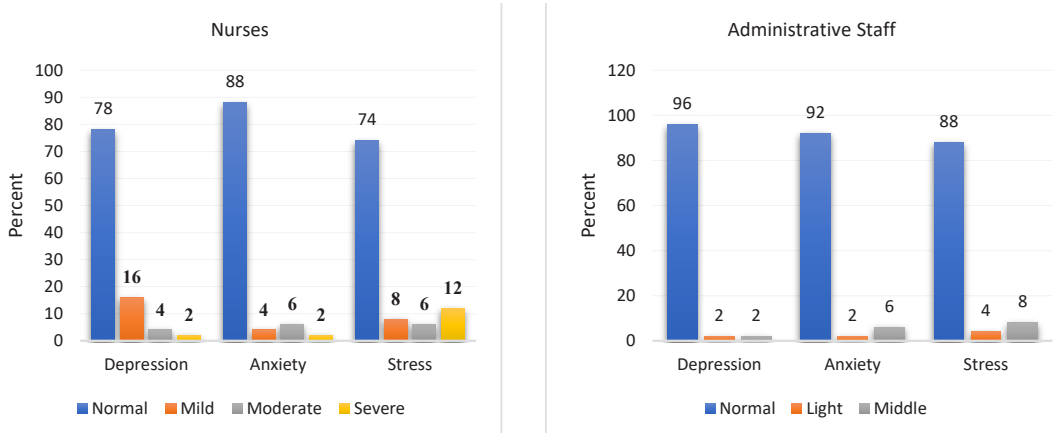

Figure 1. Percent of Status of Depression, Anxiety, and Stress Among the Nurses and Administrative Staff.

Table 4. The Relationship Between Stress, Anxiety, and Depression and COVID-19 Anxiety Among Nurses

Variables	COVID-19 Anxiety	
	Correlation Coefficient	*P* Value
Stress	0.03	0.81
Anxiety	0.15	0.28
Depression	0.13	0.36
Total	0.07	0.60

Note. COVID-19: Coronavirus disease 2019.

Table 5. The Relationship Between Stress, Anxiety, and Depression and COVID-19 Anxiety Among Administrative Staff

Variables	COVID-19 Anxiety	
	Correlation Coefficient	*P* value
Stress	0.10	0.45
Anxiety	0.11	0.43
Depression	- 0.07	0.59
Total	0.07	0.60

Note. COVID-19: Coronavirus disease 2019.

involved in the care of COVID-19 patients had higher anxiety scores than health care workers who did not care for COVID-19 patients, which is not consistent with results of the present study. Further, their results indicated that medical workers who directly cared for COVID-19 patients were more prone to stress and mental disorder which is consistent with the present study's results.[29] The results of another study showed that health workers who were at the forefront of the diagnosis and treatment of COVID-19 disease were associated with a higher risk of depression, anxiety, and mental distress compared with other health workers.[30] Contradictory results may be due to differences in study time and study population. In this study, the administrative staff examined those who were not involved in clinical work and care for COVID-19 and non-COVID-19 patients. Moreover, with the passage of time, the familiarity of nurses with the nature of the disease, methods of reducing complications, and performing vaccinations, the conditions became more normal for nurses in the COVID-19 wards. In fact, nurses could adapt psychologically to the situation after gradual learning and gaining experience.[31] In addition, the cause of more psychological damage for COVID-19 health workers can be changes in working conditions, feelings of loss and vulnerability, frequent and close contact with ill patients, and high workload.[30,32] Further, due to the lack of assessment of mental health status in the administrative staff of the hospital, it was not possible to compare the results with other studies.

The results of a study in 2020 demonstrated that the mean score of anxiety among nurses was 31.24.[33] In another study conducted in 2020, the mean coronavirus anxiety among nurses was 18.34.[34] It seems that after two years of pandemic conditions and the implementation of vaccination, despite the continuation of the epidemic, the level of anxiety and initial stress have decreased, and the conflict with COVID-19 has reduced. The results of a study by Cai et al in China showed a decrease in nurses' anxiety over time.[35] The results of another study conducted in Japan revealed that health workers' anxiety increased between March and May 2020.[36] The results of the study by Pinho et al showed that the symptoms of stress and anxiety in nurses significantly reduced over time.[37] Contradictory results may be due to differences in the study population or the epidemic situation in that country. Different resilience in humans may also affect results.

A cross-sectional study in China during the pandemic of COVID-19 found 10.35% mild anxiety, 1.36% moderate anxiety, and about 88% severe anxiety among medical workers.[29] This result is not consistent with the present study's results due to the difference in time and the situation of the disease. The result of a study by Silwal et al showed that anxiety and stress were common among 50% and 25.7% of respondent nurses, respectively. In their study, there was a significant relationship between depression and education level and work unit. Anxiety was significantly associated with the work unit, while stress was significantly associated with age and work unit.[38] In Iran, Sarboozi Hosein Abadi et al reported the prevalence of depression, stress, and anxiety in nurses to be 51.1%, 48%, and 48%, respectively.[39] Contradictory results may be due to differences in study time. Further, epidemic conditions

have a great impact on the psychological condition of medical staff and the general population. Studies have evidenced that psychological symptoms such as depression depend on the condition and stage of the epidemic.[40]

The present study did not find a significant association between COVID-19 anxiety and psychological effects such as depression. The results of studies revealed that various factors are involved in reducing the psychological effects of COVID-19. For example, Mirzaei Dahka et al found that resilience is one of the most important factors affecting the mental health of nurses during the COVID-19 pandemic.[41] Likewise, Cooper et al concluded that nurses' resilience was associated with psychological distress such as stress, anxiety, and burnout.[42] The results of another study showed that improving resilience scores were associated with reduced symptoms of stress and depression.[43] The results of studies also demonstrated that psychological distress in people is affected by the consequences of the disease. Certainly, people who experienced critical situations such as the death of loved one will report higher psychological distress.[44]

As mentioned, it is essential to pay attention to the mental health of health workers. Based on the results of the study by Bahmani, COVID-19 stress affected the job burnout of nurses. Coronavirus stress also affected the relationship between shift work and job burnout.[45] On the other hand, various studies have been conducted to investigate strategies to improve the mental health of people during the corona pandemic. Shechter et al considered methods such as exercise, yoga, and meditation to improve mental health of American health care workers.[46] In this regard, the WHO recommends activities such as physical activity, healthy eating, and virtual communication with friends.[47] Moreover, learning about coronavirus can affect mental health. The results of a study showed that too much coronavirus information had adverse effects on the mental health of health workers.[48] In addition to the above, factors such as job satisfaction and organizational conditions also affected resilience and mental health.[37] It seems that paying attention to educating nurses to deal with critical cases similar to COVID-19 can be effective in preventing nurses from suffering from depression, stress, and anxiety. Attention to issues that make nurses resilient and adapt to current conditions should be included in training and incentive programs.

The present study was one of the first studies to investigate COVID-19 anxiety among the administrative staff of the hospital. Anxiety and mental health status of nurses and administrative staff were also assessed at the time after vaccination. The present study also has some limitations. In this study, only a corona referral hospital in Yazd province was selected, and all its administrative staff and nurses were investigated. Therefore, the results cannot be generalized to all nurses and administrative staff in Iranian hospitals. The present study is a cross-sectional study and these results may not be confirmed in a longitudinal study.

Conclusion

The findings of the present study showed that COVID-19 anxiety affects the administrative staff of the hospital. Therefore, it is necessary to pay attention to all jobs in referral hospitals. Nurses perceived significantly higher stress. Further, the prevalence of depression and anxiety was higher in nurses. Therefore, it is suggested that the necessary psychological measures be taken to improve their psychological condition. Increasing the number of nurses, improving working conditions, reducing workload, and training can be effective in improving the mental health of nurses. Moreover, factors such as increasing social and organizational support can help reduce COVID-19 anxiety and improve the mental health of hospital personnel.

Acknowledgements

The preparation of this research has been done in collaboration with the hospital management and obtaining permission to conduct the study, which is fully appreciated by the authors.

Conflict of Interest Disclosures

None.

Ethical Approval

This study has been approved by the Ethics Committee (with the code of IR.SSU.SRH.REC.1400.007). We thank the staff of Shahid Sadoughi University of Medical Sciences for helping us to implement this project]code 11017[. Conscious and written consent was obtained from the individuals, and participants were assured that their information would be kept confidential.

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