



Organizational Support, Anxiety, Depression, and Stress Among Nurses in COVID-19 and Non-COVID-19 Units: A Cross-sectional Study

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Abstract

Background: There is an increase in psychological well-being among employees who receive high levels of organizational support.

Objectives: The purpose of this study was to examine the relationship between hospital support during the COVID-19 epidemic and nurses' levels of stress, anxiety, and depression.

Methods: In this cross-sectional study, 230 nurses working in the COVID and non-COVID units of Ganjavian Hospital were enrolled using the convenience sampling method from February to October 2021. Modified organizational support and a 21-item DASS questionnaire were used to collect information. Independent *t*-test and Pearson correlation were used to analyze the data using SPSS software version 16.

Results: According to the results, 58.4% of nurses in COVID units and 64.8% in non-COVID units received moderate support from the hospital. 64.8% of COVID units experienced low levels of anxiety. As regards depression scores, 90.4% of respondents had low depression, 100% had low-stress levels, and none of the nurses had mild, moderate, or severe stress levels. 61% of non-COVID units experienced low anxiety, and 81% experienced low depression. In terms of stress scores, 97.1% showed low levels. Based on the Pearson correlation, the correlation score between organizational support and depression in the COVID and non-COVID units was (-0.28) and (-0.206), respectively. There was an inverse correlation between organizational support and anxiety in COVID and non-COVID units (-0.27). The relationship between organizational support and stress in the COVID and non-COVID sectors was (-0.29) and (-0.22).

Conclusions: The moderate organizational support nurses received in COVID-19 and non-COVID-19 units were associated with low levels of stress, anxiety, and depression.

Keywords: COVID-19, Anxiety, Stress, Psychological, Depression, Nurses

1. Background

Health care workers face severe psychological stress and distress due to the increasing incidence and mortality of COVID-19 (1). As health care workers are the first line of response to the epidemic, high rates of depression and anxiety have been observed among them (2). There was a 23.2% anxiety rate among health care workers and a 22.8% depression rate (3). Among the health care personnel, nurses must remain in close contact with infected patients for an extended time. As a result, they are concerned about their immunity to the disease and the possibility of spreading the infection to their family and friends (4).

Support from the organization is one of the factors affecting nurses' psychological health. Organizational support is related to the level of employees' understanding of the organization's efforts to compensate for their efforts,

help them in times of need (such as illness or work-related problems), to create an engaging and exciting work environment, and to provide appropriate working conditions (5). Hence, nurses are a group that requires organizational support; in other words, nurses who support patients also need assistance. A supportive work environment is the most important factor in job satisfaction for nurses. Organizational support influences the treatment of patients, the job satisfaction of nurses, and their recruitment and retention in the workplace (6). During the SARS pandemic, a study found that perceptions of organizational support predicted lower avoidance behaviors, emotional exhaustion, and nurse anger. The results of another study showed that organizational support moderated the relationship between exposure to AIDS patients and nurses' negative moods (7).

Since the start of the COVID-19 pandemic, some orga-

nizations have taken measures to reduce the detrimental effects of the situation on the well-being of health personnel. Some of these services included emotional support lines, peer support programs, and the creation of a wellness center (e.g., meditation rooms and yoga classes) (8). A number of other organizational support measures have been implemented during the COVID-19 era (9), including providing protective equipment and training, improving salaries, providing incentives, ensuring the daily needs of health personnel, providing services to their families, and changing work schedules.

However, it was observed in some regions that there was a lack of research on organizational support and nurses' psychological health during this pandemic. Therefore, conducting studies in this field in other places seems necessary.

2. Objectives

The Ganjavian Hospital is the only active center for treating patients infected with COVID-19 in Dezful, and nurses are in direct contact with patients. As a result, we decided to investigate the status of organizational support during this period and its relationship with nurses' levels of anxiety, stress, and depression.

3. Methods

3.1. Participants and Procedure

In this cross-sectional study, 230 nurses working in the COVID (125 nurses) and non-COVID (105 nurses) units of Ganjavian Hospital were enrolled using the convenience sampling method from February to October 2021.

A total of seven units related to COVID and eight units with non-COVID patients were selected for sample collection. Due to the allocation of units in the hospital to patients with COVID-19, the selection was based on the activity of nurses in COVID and non-COVID wards.

Inclusion criteria were willingness to participate in the study and work in a COVID or non-COVID unit. Exclusion criteria included a history of depression and experiencing stressful events within the past six months.

Based on the following formula, 230 samples were calculated (approximately 115 people per group):

"Z" (confidence level), " $(S_1^2 + S_2^2)$ " (variance of two groups), " $(\mu_1 - \mu_2)^2$ " (the average difference between the two groups), " $(1-\beta)$ " (power of the study).

$$N = \frac{[Z_{1-\frac{\alpha}{2}} + Z_{1-\beta}]^2 (S_1^2 + S_2^2)}{(\mu_1 - \mu_2)^2}, (\mu_1 - \mu_2)^2 = 9.89, Z_{1-\frac{\alpha}{2}} = 1.96, Z_{1-\beta} = 0.85, S_1^2 + S_2^2 = 155.6$$

3.2. Measures

An eight-item questionnaire was used to assess the level of support provided by the organization (10). The questionnaire was given to 10 faculty members of the school of nursing and midwifery, and the content of some items and the scoring method was modified (Appendix 1 in Supplementary File). Content validity of the questionnaire was determined (CVI = 0.78, CVR = 0.79). The reliability of the questionnaire was confirmed by Cronbach's alpha (0.88).

We used a Likert scale with three options: Yes completely (3), yes to some extent (2), and no (1). There is a range of 1 to 24 on the questionnaire. The higher the score, the greater the level of organizational support (9).

The DASS 21-item scale (11), which is a self-report scale, was used to measure depression, anxiety, and stress (CVR > 0.78, CVI > 0.79). Cronbach's alpha of the questionnaire was between 0.80 - 0.95 for different parts of the questionnaire.

Each of the DASS-21 subscales consists of seven questions. In order to calculate the final score, the scores of the related questions are added together. A Likert scale with four options was used:

Did not apply to me at all (0), Applied to me some of the time (1), Applied to me a good part of the time (2), and applied to me most of the time (3).

An individual outside the research group who was not familiar with the grouping process performed the data analysis in order to ensure the accuracy of the analysis.

3.3. Data Analysis

The data was analyzed using SPSS 16 software. Statistical analyses were performed using frequency, percentage, Pearson correlation, and independent *t*-test. For the analysis, P-value of < 0.05 was considered.

4. Results

4.1. Demographic Profile in COVID Units

It was found that 96% of the participants in COVID units were women, 60% were over 30 years old, 59.2% were married, 94.4% had a bachelor's degree, 52% of nurses lived with their parents, and 35.2% had a work experience between 1 and 5 years. In terms of job status, 24.8% of nurses were service commitment personnel, 8% of them were pregnant women, 18.4% had an underlying disease, 8.8% lived with a spouse who had an underlying illness, 86.4% were immunized, 20% had a history of COVID-19 infection, 74.4% had children over ten years old, and 95.2% did not hold a specific organizational position.

4.2. Demographic Profile in Non-COVID Units

The majority of participants in non-COVID units were women, 62.9% were over 30 years of age, 57.1% were married, 94.3% had a bachelor's degree, 56.2% lived with their parents, 30.5% had a work experience of 1-5 years, and 23.8% were formal personnel. In this study, pregnant women comprised 3.8% of cases, 24.8% had the underlying disease, 9.5% had a spouse with an underlying illness, 86.7% had received the COVID-19 vaccine, and 21.9% had a history of infection with COVID-19. It was found that 70.5% of nurses had children over ten years old, and 91.4% did not have a management position.

The demographic characteristics of nurses in COVID and non-COVID units are shown in [Tables 1 and 2](#).

4.3. Organizational Support in COVID and Non-COVID Units

According to the survey of organizational support, 58.4% of COVID units and 64.8% of non-COVID units received moderate support from the hospital.

4.4. Anxiety, Depression, and Stress in COVID and Non-COVID Units

64.8% of COVID units reported low levels of anxiety. In terms of depression scores, 90.4% of people had low depression levels, and 100% of people had low-stress levels, with none of the nurses showing mild, moderate, or severe stress levels.

There was a low level of anxiety in 61% of non-COVID units and a low level of depression in 81%. Regarding the stress score, 97.1% showed low stress.

The nurses' levels of organizational support, depression, stress, and anxiety are shown in [Table 3](#).

Relationship between Organizational support, depression, anxiety, and stress in COVID and non-COVID units

Both units had a negative relationship between organizational support, depression, anxiety, and stress.

Using Pearson correlation, the relationship between organizational support, depression, anxiety, and stress in non-COVID units was (-0.20), (-0.27), and (-0.22).

The correlation score between organizational support, depression, anxiety, and stress in COVID units based on Pearson correlation was (-0.28), (-0.27), and (-0.29).

The correlation between organizational support, depression, anxiety, and stress is shown in [Table 4](#).

4.5. Relationship Between Organizational Support and Sociodemographic Variables

The relationship between organizational support and demographic variables was not significant (P-value > 0.05).

Table 1. Sociodemographic Variables of the Nurses in COVID and Non-COVID Units

Variables	No. (%) in Non-COVID Units	No. (%) in COVID Units
Gender		
Female	85 (81)	95 (76)
Male	20 (19)	30 (24)
Age		
Under 30 years	39 (37.1)	50 (40)
Over 30 years	66 (62.9)	75 (60)
Marital status		
Single	44 (41.9)	48 (38.45)
Married	60 (57.1)	74 (59.2)
Divorced	1(1)	1 (0.8)
Widow	0 (0)	2 (1.6)
Education		
Bachelor	99 (94.3)	118 (94.4)
Master	6 (5.7)	7 (5.6)
Living with parents		
Yes	59 (56.2)	65 (52)
No	46 (43.8)	60 (48)
Organizational position		
Nurse	96 (91.4)	119 (95.2)
Head nurse	9 (8.6)	6 (4.8)
Of work experience		
Under 1-year	17 (16.2)	18 (14.4)
Between 1 - 5 years	32 (30.5)	44 (35.2)
Between 5 - 10 years	21(20)	22 (17.6)
Between 10 - 15 years	19 (18.1)	18 (14.4)
More than 15 years	16 (15.2)	23 (18.4)
Occupational status		
Part-time	22(21)	22 (17.6)
Contractual	15 (14.3)	15 (12)
Service commitment personnel	22 (21)	31 (24.8)
Formal	25 (23.8)	29 (23.2)
Corporate workforce	21 (20)	28 (22.4)

Table 2. Sociodemographic Variables of the Nurses in COVID and Non-COVID Units

Variables	No. (%) in Non-COVID Units	No. (%) in COVID Units
Pregnancy status		
Yes	4 (3.8)	10 (8)
No	101 (96.2)	115 (92)
Having an underlying disease		
Yes	26 (24.8)	23 (18.4)
No	79 (75.2)	102 (81.6)
Living with a spouse with an underlying disease		
Yes	10 (9.5)	11 (8.8)
No	95 (90.5)	114 (91.2)
Vaccine injection		
Yes	91 (86.7)	108 (86.4)
No	14 (13.3)	17 (13.6)
A history of infection with COVID-19		
Yes	23 (21.9)	25 (20)
No	82 (78.1)	100 (80)
Have a child		
Under ten years old	31 (29.5)	32 (25.6)
Over ten years	74 (70.5)	93 (74.4)

4.6. Relationship Between Depression, Anxiety, Stress, and Sociodemographic Variables

There was a significant relationship between depression, anxiety, and stress in COVID and non-COVID units and living with parents (P -value = 0.001), having a spouse with underlying disease (P -value = 0.05), being married (P -value = 0.05), and having a child under the age of 10 (P -value = 0.021).

There was a significant relationship between pregnancy (P -value = 0.002) and vaccination (P -value = 0.002) with stress and anxiety in COVID and non-COVID units.

Both units had a significant relationship between having an underlying disease (P -value = 0.05), history of infection with COVID-19 (P -value = 0.05), and anxiety.

5. Discussion

This study aimed to investigate the level of organizational support, stress, anxiety, and depression among nurses at Ganjavian Hospital.

The level of organizational support was moderate in both COVID and non-COVID units. Zeng et al. reported that medical personnel in China received high levels of support

from their hospitals (12). According to Lethin et al. report, perceptions of organizational support vary significantly among countries. Hence, Swedish employees had the most positive perceptions of organizational support compared to Italy and the United Kingdom (13).

According to one study, front-line nurses in the Philippines reported moderate levels of organizational support during the COVID-19 epidemic (14). An explanation for the difference in understanding organizational support could be related to the way in which leadership is exercised in care organizations in different countries. There is not much agreement between experts, politicians, and governments regarding what should be done when situations such as the COVID-19 epidemic are unclear, which limits detail-based management and control. Instead, it is imperative to have decisive leadership that focuses on goals and strategies (15), involving communication, collaboration, coordination, and support (16). Managers in such situations should emphasize the importance of cooperation and provide mutual assistance to both the patient and the medical personnel.

The present study also found that nurses working in COVID and non-COVID units experienced low anxiety, stress, and depression levels. Nevertheless, nurses working in COVID wards experience slightly higher anxiety, stress, and depression levels than those in non-COVID wards. It has been demonstrated in a study conducted on physicians and hospital nurses during the COVID-19 disease that medical care workers had a high degree of depressive symptoms (50.4%) as well as anxiety (44.6%) (2). Pappa et al. conducted a systematic review and meta-analysis of the prevalence of anxiety and depression among health care workers during the COVID-19 epidemic. Twelve studies evaluated anxiety, with a majority of 23.2%. Ten studies evaluated depression, with a prevalence of 22.8% (3). This study supports the results of the current study, which indicate that about a quarter of health care workers experience anxiety and depression during the COVID-19 outbreak. There is a possibility that nurses' low levels of stress, anxiety, and depression in the present study may be attributed to the availability of vaccines for them and their families, which reduces their fear of infection and transmission of the disease to others.

A significant relationship was found between organizational support, depression, anxiety, and stress in COVID and non-COVID units. In other words, increasing organizational support reduces stress, anxiety, and depression. The perception of organizational support by Jordanian and Egyptian nurses showed that nurses who perceived less organizational support experienced higher stress levels (17). The increased levels of organizational support among nurses were associated with decreased anxiety re-

Table 3. The Level of Organizational Support, Depression, Stress, and Anxiety of the Nurses

Variables	No. (%) in Non-COVID Units	No. (%) in COVID Units	Mean \pm SD in Non-COVID Units	Mean \pm SD in COVID Units
Organizational support			11.88 \pm 1.84	12.07 \pm 1.92
Low	36 (34.3)	46 (36.8)		
Moderate	68 (64.8)	73 (58.4)		
More	1 (1)	6 (4.8)		
Depression			6.78 \pm 3.02	6.12 \pm 2.58
Low	85 (81)	113 (90.4)		
Mild	19 (18.1)	10 (8)		
Moderate	1 (1)	2 (1.6)		
Severe	0	0		
Anxiety			6.47 \pm 3.27	6.27 \pm 3.35
Low	64 (61)	81 (64.8)		
Mild	24 (22.9)	28 (22.4)		
Moderate	15 (14.3)	13 (10.4)		
Severe	2 (1.9)	3 (2.4)		
Stress			7.79 \pm 3.37	7.67 \pm 2.78
Low	102 (97.1)	125 (100)		
Mild	3 (2.9)	0 (0)		
Moderate	0 (0)	0 (0)		
Severe	0 (0)	0 (0)		

Table 4. Correlation Between Organization Support and Depression, Anxiety, and Stress

Variables	Organizational Support	P-Value
Depression in COVID units	-0.281	0.001
Depression in non-COVID units	-0.206	0.035
Anxiety in COVID units	-0.275	0.002
Anxiety in non-COVID units	-0.271	0.005
Stress in COVID units	-0.290	0.001
Stress in non-COVID units	-0.225	0.021

lated to COVID-19. In the case of nurses who were receiving more support from the organization, they were more motivated, satisfied, and experienced less stress when performing their duties (18, 19). Organizational support as a source of external response in the workplace can lead to support for the personal resources of personnel, such as resilience, which in turn leads to positive results (20). thus, nursing managers should pay attention to this.

Depression, anxiety, and stress are significantly related to living with parents or spouses with underlying diseases in COVID and non-COVID settings. There is a possibility that this relationship is associated with the concern of transmitting the disease to family members. Recent research

has shown that one of the biggest concerns of health personnel is the possibility of contamination of others, especially family members (14). In addition, other studies have shown that most hospital nurses are worried about infecting their friends and families and are afraid of infecting them (21, 22). Having a belief that COVID-19 is unlikely to develop is associated with decreased stress and symptoms of post-traumatic stress disorder. According to some studies, nurses who care for patients with confirmed diseases are concerned about transmitting the infection to others, which puts them under stress (23, 24). In addition to the fear of transmitting the disease to family members, the stigma of the possibility of this transmission can cause psychological problems (25).

In both units, depression, stress, and anxiety were significantly associated with marital status. According to Jafari et al., the rate of depression among singles is higher than that among married people. Fallahzadeh et al. also confirm this observation (26, 27). According to a survey conducted by Souri et al., obsessive-compulsive disorder, interpersonal sensitivity, depression, and morbid fear are more common in single individuals, and they have lower psychological health (28). Marriage serves as a shield against the hardships of life and provides economic and emotional support to the couple. Marriage has the most

potent effect on happiness, mental health, and physical health, and the deprivation of that is very disturbing.

There was a significant association between having a child under the age of ten and nurses' depression, anxiety, and stress. As soon as COVID-19 spread, the medical community was concerned about its potential impact on children, especially those with chronic underlying diseases. However, in rare cases, children can be severely affected (29). Most infected children experience a milder process and have better results (30). One study found that 83% of infected children with a positive family history were rarely admitted to intensive care units (3%). There have been a few reported deaths worldwide (31). Providing scientific explanations and statistics from reputable sources to explain the lower probability of infection in children under ten could reduce nurses' concerns in this area and teach the necessary precautions to protect children from getting COVID-19.

According to the study results, there is a significant relationship between stress and anxiety during pregnancy. A study found that 26% of pregnant women have concerns (29). Pregnant women and their fetuses are considered high-risk populations for the spread of infectious diseases (30). Compared to the general population, pregnant women are more susceptible to infectious diseases, particularly respiratory illnesses and pneumonia (31). Studies have shown that viral infection and physiological changes in a pregnant mother with COVID-19 often cause side effects. Preterm labor is recognized as the most common complication of pregnancy among women of reproductive age. A higher cesarean section rate was also associated with COVID-19 during pregnancy (32, 33). There is a link between gestational age and the psychological effects of COVID-19. Anxiety in women in the first trimester of pregnancy is higher than in the later stages or after childbirth (34). The second trimester of pregnancy is associated with fewer anxiety symptoms than the other trimesters (35). Since the gestational age of nurses in this study was unknown, it was impossible to determine which trimester of pregnancy caused pregnant women to experience more anxiety and stress.

Nurses' anxiety and stress were significantly correlated with vaccine injection. In order to prevent COVID-19, vaccination is essential. It was due to a lack of trust in vaccination against COVID-19 that initially led to resistance since understanding the vaccine's safety is dependent upon trusting it (36). Health workers were among the groups for whom vaccinations were initiated after the elderly, according to the Ministry of Health. Nurses were encouraged to receive the COVID-19 vaccine despite their fear of vaccination due to a lack of trust in it. The death of two health care workers in Ganjavian Hospital during the

COVID-19 pandemic and fear of transmitting the disease were among the reasons for their decision. It seems that vaccination has been effective in maintaining the psychological health of nurses. However, it is impossible to draw definite conclusions from the nurses' lack of fear and anxiety during the pre-vaccination period. There was a significant relationship between having an underlying disease and anxiety levels in the present study. People with chronic diseases have higher physical complaints, anxiety, and fear (32). According to studies on people with underlying conditions, they are more likely to develop and die from the disease (33). Coronavirus infection can exacerbate symptoms of COPD, asthma, heart failure, and underlying conditions that increase the need for acute emergency care and hospitalization (34).

The present study found a significant correlation between a history of infection with COVID-19 and anxiety levels. Those who have previously had COVID-19 are more likely to experience physical complaints, obsessive-compulsive disorder, and morbid fear. Perhaps this is due to the experience of symptoms and issues related to the disease, such as isolation and being away from the workplace and family, which have caused them to be concerned about repeating their experiences related to the disease through re-infection with COVID-19 (32).

According to the results of the study, there was no significant relationship between organizational support and demographic variables in either unit. It is possible that nurses in both units received moderate organizational support.

As a result of the impossibility of stratified random sampling among COVID and non-COVID units, the results of the study cannot be generalized to all nurses of Ganjavian Hospital.

5.1. Conclusions

This study determined a moderate level of organizational support. Although Ganjavian Hospital, the only active hospital in Dezful, was hospitalizing and caring for patients with COVID 19, nurses there experienced little stress, anxiety, and depression. According to the results, nurses' psychological health was associated with the hospital's organizational support during the COVID-19 period.

In addition, some causes were identified that were not directly related to the work environment. Factors such as living with parents and spouse with underlying disease, having a child under ten years old, history of infection with COVID-19, pregnancy, vaccine injection, and marital status were the main factors related to the psychological health of nurses.

According to this article, hospital managers' support

for staff during times of crisis, such as COVID-19, is beneficial for their mental health.

Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

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Footnotes

Authors' Contribution: Design of the study, analysis, and interpretation of data: M.A; Provision of study materials, final approval of the study, statistical expertise, obtaining funding for the study: H.M; Critical revision of the article, final approval of the study, collection, assembly, possession of raw data, administrative and logistical support, the guarantor of integrity of the entire investigation: S.N; Control of raw data: MY. L..

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Data Reproducibility: The dataset presented in the study is available on request from the corresponding author during submission or after its publication. Due to the extension of the data (SPSS was not allowed to attach it), the data is not publicly available.

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