Research Article

Perceived Organizational Support and Its Relationship with Anxiety and Depression Among Neonatal Nurses: A Lesson from COVID-19 for Future Health Crises

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Abstract

Background: Neonatal nurses may experience anxiety and depression, which can contribute to increased turnover rates. Although some studies have reported correlations among perceived organizational support (POS), anxiety, and depression, empirical evidence remains limited.

Objectives: This study aimed to examine the relationship between POS, anxiety, and depression in neonatal nurses.

Methods: In this cross-sectional study, data were collected from 306 neonatal nurses using a consecutive sampling technique in Tehran, Iran. Data were collected using online scales, including POS and the Hospital Anxiety and Depression Scales (HADSs) from December 2020 to January 2021. For data analysis, the t-test, Pearson correlation coefficients, analysis of variance (ANOVA), and multiple linear regressions were performed using Statistical Package for Social Sciences (SPSS) version 16.

Results: The neonatal nurses' POS score was below 50% of the maximum possible score. More than half of the nurses reported mild to severe anxiety and depression [52.9% (n = 162); 58.2% (n = 178)]. A moderate inverse correlation was observed between anxiety and POS (R = -0.359, P < 0.001), and a slight inverse correlation was found between depression and POS (R = -0.303, P < 0.001). Analysis showed that POS was significantly correlated with age (R = 0.137; P = 0.017) and employment status (F = 5.044; P = 0.007) among neonatal nurses. Regression analysis indicated that anxiety was the only statistically significant predictor of POS (β = -0.274, P < 0.001; R^2 = 0.157).

Conclusions: Healthcare managers play a crucial role in reducing depression, especially anxiety, by increasing POS interventions, thus leading to more effective neonatal care. Moreover, improving leadership styles and training nurses on coping methods in the face of global pandemics are highly recommended. Therefore, managers and policy-makers in this sector should adopt measures to optimize POS initiatives.

Keywords: Anxiety, Depression, Organizational Support, Nurses, COVID-19

1. Background

Nurses constitute a critical resource within health-service organizations and represent the largest group of healthcare professionals (HCPs). Consequently, they play a pivotal role in providing quality health care. Among HCPs, nurses experience additional stress associated with caring for newborns and their families in the highly demanding and stressful environment of neonatal intensive care units (NICUs) ([1]). Results of a meta-analysis showed that many nurses in professional practice suffered from depression and anxiety symptoms during the COVID-19 pandemic ([2]). A study reported that although the number of NICUs has increased, along with greater variation in disease severity and higher patient admissions, the impact of these changes on HCPs remains unclear ([3]). Neonatal nurses observed a shorter interval between the onset of

COVID-19 and the time of death in newborns with the disease (4). As neonatal nurses are recognized as experts in caring for newborns and their families, one of their most important responsibilities is to support family engagement in neonatal care. To fulfill this role, their levels of anxiety and depression may differ from those of nurses in other hospital wards, particularly during the COVID-19 pandemic (5). However, there is a lack of scientific evidence regarding the mental health of neonatal nurses (6).

The psychosocial environments of countries affected by COVID-19 shifted as different protocols were implemented to confront the pandemic (7). One important indicator of environmental support is perceived organizational support (POS). Some nurses reported dissatisfaction with the level of organizational support, suggesting that changes in managerial perspectives may enhance staff perceptions of POS. The POS reflects nurses' beliefs about the extent to which their organization values their well-being and appreciates their contributions (8). Therefore, POS is essential, as it is closely related to nurses' psychological well-being, retention, organizational commitment, and anxiety (9, 10).

More than 60,000 nurses were diagnosed with COVID-19 (11), representing approximately 45% of Iran's nursing workforce (12). Health policymakers faced significant challenges in managing the COVID-19 crisis due to the virus's high infectivity and mortality, compounded by limited financial, material, and human resources (13). Moreover, the capacity of the healthcare system in responding to the pandemic plays a crucial role in disease management. Understanding this capacity can inform the design of future interventions that are more likely to enhance neonatal nurses' POS, ultimately improving their retention and quality of life.

2. Objectives

To assess POS in neonatal nurses for performing essential interventions can help decrease nurses' anxiety (10), the present study aimed to assess anxiety and depression and examine the relationships among anxiety, depression, and POS in neonatal nurses during the COVID-19 pandemic.

3. Methods

This online cross-sectional study was conducted among 306 nurses working in 27 different NICUs in 17 governmental and educational hospitals affiliated with Shahid Beheshti Medical Sciences University from December 2020 to January 2021 in Tehran, Iran. In the

initial stage, the investigator approached the NICU head nurse and informed her/him about the study. All NICU head nurses (n = 17) received an electronic survey link, which they subsequently forwarded to the neonatal nurses. After reading the informed consent form, participants were directed to complete the scales by clicking the link, and the completed responses were returned anonymously to the study investigators. The inclusion criteria were (A) a bachelor's degree or higher, (B) at least six months of NICU experience, (C) no current treatment with anti-depressants or anxiolytics. The minimum sample size was determined at 95% confidence level and 90% power, based on the assumption that the correlation coefficient between the POS and each of the variables, anxiety and depression, would be at least 0.2, allowing for detection of statistically significant relationships. Using the relevant formula, the required sample size was calculated as 265 and increased to 306, to account for approximately 15% attrition. Of the 568 neonatal nurses invited to participate, 306 completed the questionnaires by using the convenience sampling method. The main reasons for non-participation were lack of time and long working hours. The web-based data collection method used in this study had been successfully implemented in a previous study conducted from July 2020 to January 2021 (14).

3.1. Instruments

The questionnaire included characteristics of neonatal nurses, such as age, gender, education level, employment status, and work experience.

Hospital Anxiety and Depression Scale (HADS): The HADS consists of 14 items: 7 items measuring anxiety symptoms (HADS-A) and 7 items measuring depression symptoms (HADS-D) (15). Each item is scored from 0 to 3, resulting in total scores ranging from 0 to 21 for both subscales. Scores are categorized as follows: Normal (0 - 7), borderline/mild (8 - 10), moderate (11 - 14), severe/significant "case" of psychiatric comorbidity (11 - 21) (16). The HADS has been validated for psychometric properties in Iranian populations (17). In the present study, Cronbach's α was 0.70 for anxiety and 0.73 for depression, indicating acceptable internal consistency.

Perceived organizational support: The POS Scale, designed by Eisenberger, measures employees' POS. It consists of 8 items, each rated on a 7-point scale from strongly disagree to strongly agree, with higher scores indicating greater POS (18). In Iran, the validity of the POS Scale has been confirmed through 10 faculty members of the school of nursing and midwifery. The content validity (CVR = 0.78, CVI = 0.79), reliability

Table 1. Descriptive Characteristics of Neonatal Nurses [a]

Variables	Values	POS	Test Results	Effect Size [b]
Age (y)	32.27 ± 6.6		P = 0.017 [c, d]; R = 0.137 [e]	
< 30	144 (47.0)	23.68 ± 9.10		
30 to 39	115 (37.6)	25.03 ± 9.98		
40 <	47 (15.4)	26.14 ± 11.24		
Sex				
Female	304 (99.3)			
Male	2 (0.7)			
Marital status			$t = 1.224$ [f], P = 0.222	d = 0.15
Married	211 (69.0)	25.02 ± 10.26		
Single	95 (31.0)	23.54 ± 8.65		
Educational level			$t = 0.630$ [f]; P = 0.529	d = 0.12
Bachelor	275 (89.9)	24.68 ± 9.99		
Master	31 (10.1)	23.51 ± 7.89		
Employment status			F = 5.044 [g]; P = 0.007 [c, d]	
Official hiring	192 (62.7)	25.92 ± 10.24		
Agreement	49 (16.0)	22.36 ± 9.02		
Contract	65 (21.3)	22.23 ± 8.31		
Work experience in NICU	7.36 ± 5.86		R = 0.072 [e]; P = 0.21	
< 5	127 (41.5)	23.76 ± 9.87		
5 - 9	71 (23.2)	24.05 ± 10.11		
10 - 14	63 (20.6)	26.30 ± 9.52		
≥ 15	45 (14.7)	25.22 ± 9.43		
Shift in work			$t = 0.023$ [f]; P = 0.982	d = 0.001
Shifts in circulation	151 (49.3)	24.55 ± 9.52		
Others	155 (50.7)	24.58 ± 10.32		
Shift status			F = 1.809 [g]; P = 0.166	$^2\eta^2 = 0.001$ [h]
One	84 (27.5)	25.38 ± 9.70		
Two	112 (36.6)	23.16 ± 9.05		
Three	110 (35.9)	25.37 ± 10.50		

Abbreviation: POS, Perceived Organization Support.

[a] Values are expressed as No. (%) or mean ± SD.

[b] Cohen effect size: Small (d = 0.2), medium (d = 0.5), and large (d = 0.8).

[c] The bold values are statistically significantly.

[d] P < 0.05.

[e] Pearson correlation.

[f] Independent *t*-test.

[g] One-way Anova.

[h] $2\eta^2$ = partial eta-squared: small 0.01, medium 0.06, and large 0.14.

(Cronbach's α = 0.88) of the POS Scale has been confirmed (19). In this study, Cronbach's α for the POS was 0.84, indicating good reliability.

Data were analyzed using Statistical Package for Social Sciences (SPSS) software (Version 16.0; SPSS Inc., Chicago, IL). Pearson correlation coefficients were calculated to examine the associations among anxiety, depression, and POS scores, with a coefficient of 0.30 considered acceptable for meaningful relationships between variables (20). Independent t-tests and analysis of variance (ANOVA) were used to assess the relationships between demographic variables and POS. Correlation coefficients were interpreted as follows: below 0.20 is considered low, between 0.20 and 0.35 is slight, 0.36 to 0.65 is moderate, 0.66 to 0.85 is high, and above 0.86 is very high (20).

4. Results

Table 2. Anxiety, Depression and Perceived Organization Support in Neonatal Nurses [a]

Variables	Values	POS, Correlation Coefficient (P-Value)
Anxiety	8.23 ± 2.86	-0.359 (< 0.001)
Normal	144 (47.1)	
Borderline	68 (22.2)	
Abnormal	94 (30.7)	
Total	306 (100)	
Depression	8.6 ± 3.16	-0.303 (< 0.001)
Normal	128 (41.8)	
Borderline	60 (19.6)	
Abnormal	118 (38.6)	
Total	306 (100)	
Perceived organization support	306 (100)	1

Abbreviation: POS, Perceived Organization Support.

[a] Values are presented as mean ± SD or No. (%).

Table 3. Association Between Perceived Organization Support with Anxiety and Depression

Models	β (95% CI) [a]	t-Statistics	P-Value	Adjusted R Square
1 [b]				0.134
Anxiety	-0.277 (-1.402, -0.493)	- 4.101	< 0.001	
Depression	-0.133 (-0.825, -0.001)	-1.972	0.050	
2 [c]				0.157
Anxiety	-0.274 (-1.388, -0.490)	- 4.113	< 0.001	
Depression	-0.130 (-0.808, 0.005)	-1.944	0.053	

Abbreviations: CI, confidence interval.

[a] β: Standardized regression coefficient.

[b] Model 1 included anxiety and depression.

[c] Model 2 included anxiety, depression, age and employment status.

The average age of nurses in this study was 32.27 ± 6.65 years, with nearly half of the participants under 30 years old. Most were women (99.3%) and married (69%). Ten percent held a master's degree, and less than half had 6 months to 5 years of work experience. Approximately half of the nurses worked rotating shifts (49.3%) and were officially employed (62.7%). More than 70% of participants reported working multiple shifts. Analysis showed that POS was significantly correlated with age (R = 0.137; P = 0.017) and employment status (F = 5.044; P = 0.007) among neonatal nurses (Table 1).

Of the 306 neonatal nurses, 162 (52.9%) reported mild to severe anxiety symptoms, and 178 (58%) reported mild to severe depression symptoms. Results also indicated an inverse moderate correlation between POS and anxiety, and an inverse slight correlation between POS and depression (Table 2).

A multiple linear regression model was used with POS as the dependent variable. Variables that showed a significant correlation with POS (P < 0.05) were entered into the regression model. In the first model, anxiety and depression were entered as independent variables, and the results indicated that only anxiety was statistically significant. In the second model, age and employment status were added alongside anxiety and depression to adjust for potential confounders. After adjustment, with an adjusted R² of 0.157, anxiety was the only statistically significant predictor of POS (Table 3).

5. Discussion

More than half of the neonatal nurses in this study reported mild to severe anxiety and depression. These rates were higher than those reported in a meta-analysis, which found that one-third of nurses in professional practice experienced anxiety symptoms

and one-fifth experienced depression disorders during the COVID-19 pandemic (2). In comparison with another study conducted in Tehran using HADS, the moderate and severe levels of anxiety among neonatal nurses in our study were lower, while depression levels were higher (21). The higher anxiety observed in COVID-19-infected nurses may be related to feelings of stigmatization. During a global health crisis such as COVID-19, nurses often experience anxiety due to increased workloads, extended patient care hours, unequal distribution of personal protective equipment, and limited access to medical supplies (13, 22). Addressing these challenges requires implementing various protocols to protect the safety of both patients and HCPs (13).

In this study, the average POS score was less than half of the maximum possible score, which is consistent with results of previous research about POS of a sample of Iranian nurses (23). However, our findings contrast with findings among intensive care unit (ICU) nurses, whose POS scores were reported to be above half of the maximum (24). Several factors may influence the POS, including cultural values, nurse-to-patient ratios, staffing shortages, and the level of community support in different societies. Nonetheless, POS in specialized wards such as NICU is a key factor in enhancing work engagement (24). Additionally, POS has been shown to have a moderate negative correlation with nurses' turnover intentions (9, 25). Therefore, organizational decisions regarding support for personnel during the COVID-19 pandemic are particularly crucial.

A well-documented finding confirmed in our study is that nurses with higher levels of anxiety and depression report lower POS. On the other hand, a new longitudinal study showed that during the COVID-19 pandemic, depression and anxiety among nurses increased and remained elevated (26). Therefore, nurse managers should be attentive to signs of low POS. Anxiety and depression can lead to numerous negative changes in the daily lives of neonatal nurses, making it important to incorporate POS assessments in clinical settings as a foundation for supportive interventions.

Regression analysis showed that anxiety was the only statistically significant predictor of POS (β = -0.274, P < 0.001), consistent with a previous study on COVID-19 anxiety among nurses (10). Thus, hospital managers should prioritize enhancing POS as a key protective factor against HCPs' anxiety (10). When personnel perceive high POS, they demonstrate greater work engagement and improved performance.

Results of this study showed that younger nurses had lower POS scores than older nurses. This may be attributed to higher workloads, lower pay, and the fact that many younger nurses are not tenured and work under contract-based positions in hospitals. Increasing POS can help young nurses maintain a positive outlook and reduce turnover intentions (25). Additionally, POS scores were higher among officially employed nurses compared to those with contractual or agreement-based positions, suggesting that employment status is an important factor in enhancing POS. Leadership skills and stress management strategies should be offered as part of continuing education for neonatal nurses. Leadership teams can establish support groups and encourage nurses' participation to strengthen coping strategies and ultimately improve patient care (27).

Several limitations of this study should be noted: (A) self-selection or volunteer bias may have influenced which nurses chose to participate; (B) psychological responses to a pandemic are complex and influenced by many unmeasured factors; (C) the regression model had an adjusted R^2 of 0.157, indicating low explanatory power; and (D) potential confounders such as institutional policies and familial stress were not assessed.

In conclusion, the findings of this study provide valuable insights into the role of POS in reducing anxiety and depression among neonatal nurses. Managers should develop and implement strategies to manage crises, enhance leadership styles, improve communication, and support nurses in developing coping skills during global pandemics. To further support nursing personnel, it is important to provide targeted treatment services for high-risk nurses. Future research should consider comparing POS among neonatal nurses in government versus private hospitals and focus on evidence-based strategies that account for personal characteristics and occupational factors (28).

Footnotes

AI Use Disclosure: The authors declare that no generative AI tools were used in the creation of this article.

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