

Perceived Stress and Social Support Among Nurses Working in University Hospital During Covid-19

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How to cite this article: Roshani Gautam, Gita Kumari Satyal (Dahal). Perceived Stress and Social Support Among Nurses Working in University Hospital During Covid-19. International Journal of Nursing Education / Vol 17 No 2 April-June 2025

Abstract

Background: Nurses are considered a vulnerable group to experience stress and anxiety during the COVID-19 pandemic because of feelings of inadequate protection and high risks of infection. Being isolated from family, and dealing with the challenges including stigma and discrimination at the workplace and surroundings also increase the risk for such problems. Hence, this study aimed to find out nurses' perceived stress and their social support for the personal and professional quality of life.

Methods: A descriptive cross-sectional study was conducted among 224 nurses directly involved with caring of COVID-19 patients in university hospitals. A simple random sampling technique was applied to select the eligible participants and a self-administered structured questionnaire was used to collect data. Descriptive statistics (Percentage, mean, median, standard deviation) and inferential statistics were calculated by using IBM SPSS software version 21.

Results: Out of 224 participants, 75.3% and 16.2% of the nurses perceived moderate and high levels of stress, respectively. Similarly, 65.6% perceived moderated and 31.3% had a high level of social support during the period of COVID-19 pandemic.

Conclusions: Almost all nurses, who are providing direct patient care during the COVID-19 pandemic, had experienced moderate to high levels of stress, and all of them perceived a moderated to high level of social support during the pandemic.

Keywords: COVID-19, Perceived Stress, Social Support, Nurses

Introduction

The emergence and re-emergence of pandemic diseases have unprecedented challenges to the healthcare system including healthcare providers mainly emergency nurses and physicians¹. In the initial period, lack of resources such as personal protective equipment, inadequate practices on

infection prevention (IP) and very long hour shift have put them on the frontline of vulnerability to COVID-19 and reports about frontline workers being infected are rapidly increasing and witnessing the loss of co-worker and relatives which have the negative impact on their psychological health^{2,3}. Health care professionals, particularly nurses, are

considered a vulnerable group to experience stress and anxiety during the COVID-19 pandemic due to feelings of inadequate protection from contamination and high risks of infection, isolation from family, and fear of being carriers of disease in family^{4,5}. On top of this, they are discriminated by staff at hotels and are facing difficulties finding food and shelter. There have been similar incidences with healthcare providers in other countries as well including India, the USA, Australia^{6,7}. COVID-19 stigma labels and isolates healthcare workers, causing loss of status and discrimination. Protecting nurses' mental health is essential for a sustainable, high-performing workforce and overall well-being^{8,9}.

Frontline nurses require routine mental health screenings to monitor distress and detect secondary stressors¹⁰. Social support is the belief and reality of receiving care from important people like family or friends, manifesting as emotional, instrumental, or professional help¹¹. Study has provided evidence that perceived social support could effectively relieve perceived stress¹². Very little evidence is available on this issue among nurses during the COVID-19 pandemic. Therefore, this study examined nurses' perceived stress and social support in a Nepalese COVID-19 hospital, exploring their relationship to inform targeted interventions during the pandemic.

Materials and Methods

Research Design: This was a descriptive cross-sectional study conducted in Tribhuvan University Teaching Hospital (TUTH) at Kathmandu, a dedicated tertiary level hospital for COVID-19 pandemic management and recognized as third level COVID-19 special hospital by Ministry of Health and Population (MOHP).

Population, Sample size and Sampling Procedure: A total of 700 nurses are working in the different inpatient units of TUTH. Though there was a dedicated ward and intensive care units (ICU) for isolation and treatment for COVID-19 cases but all the nursing staff were posted on rotation basis during pandemic. Sampling frame was collected from hospital administration and total of 248 research participants were selected in the study through

random selection. Considering the prevalence of perceived stress in health care provider in Southern Ethiopia¹³, sample size was calculated as;

$$z^2 * p (1-p)$$

$$\text{Sample } (n) = \frac{e^2}{1 + \left(\frac{z^2 * p (1-p)}{e^2 N} \right)}$$

Where, n = minimum required sample size

Z = 1.96 at 95% Confidence Interval (CI)

p = 51.6%⁶

q = 1-p

e = margin of error, 5%

N = 700

The calculated sample size was 248. Total of 273 samples was selected with 10% non-response and were total of 224 research participants participated in the study with a response rate was 82.05%.

Inclusion/Exclusion Criteria: All the nurses who were frontline and bedside care providers to the COVID-19 infected patients, working for more than six months, available during the period of data collection and willing to participate in the study were included in the study. Nurses who were in administrative roles were excluded in the study.

Data collection Tools: Self-administered instrument was used in the study which contained three parts.

Demographic and Professional Information: Demographic and professional information included participants' age, educational status, working experiences, and COVID-19 related training.

Perceived Stress Scale (PSS): PSS is a classic stress assessment instrument, developed by Cohen et al. Contains ten items with 5-point Likert scale in which 0 = Never 1 = Almost Never, 2 = Sometimes 3 = Fairly Often 4 = Very Often). The scores are obtained by reversing responses (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items, yielding a totally original score ranging from 0 to 40. A score of 0-13 was considered as low stress, 14-26 as moderate and 27-40 was considered as high perceived stress¹⁴.

As the PSS is not a diagnostic instrument, there are no cut-off scores.

Multidimensional Scale of Perceived Social Support (MPSS): Multidimensional Scale of Perceived Social Support was used to find out the individual's perceived social support. developed by Zimmet et al is a 12-item,7-point Likert-type scale, ranging from 1 = very strongly disagree) to 7 = very strongly. The MSPSS was divided into three factors which are significant others family (scale = 3, 4, 8, 11), and friends (scale = 6, 7, 9, 12). This scale has total 12-84 score in which score 12-35 considered as low perceived support, 36-60 as medium support and 61-84 as high perceived support¹⁵. Nepali version of MSPSS-N, pilot tested among Nepali resident in Hong kong, shows good construct validity and high internal reliability^{16,17}.

Ethical Considerations. Approval was granted by the Institutional Review Committee (IRC) of Tribhuvan University, Institute of Medicine [Ref35/ (6-11) E2/077/078], and administrative permission was obtained from the study sites. Participants were informed about the study's purpose, procedures, and their rights, including voluntary participation and the option to withdraw without consequence. Ethical standards were maintained to protect their rights.

Data Collection and Analysis Procedure: After administrative approval, data were collected from September 15 to December 25, 2020. Self-administered questionnaires were distributed to randomly selected nursing staff during morning and evening shifts and collected the next day. Data were checked daily for completeness and duplicates. IBM SPSS version 21 was used to perform descriptive and inferential analyses, including Pearson correlation to assess the relationship between perceived stress and social support.

Results

Out of 224 study participants, two-third (67%) of them were 21-30 years of group, all were female. Regarding professional qualification, 75.9% had completed the bachelor level, 96% were working as staff nurses and 50.4% had 1-5 years of working experience. During COVID-19 pandemic, more than

two-thirds provide care to the COVID-19 infected patients. Only 5.4% had got an opportunity to participate in COVID-19 related training (table 1).

Table 1. Socio-demographic and Professional Characteristics of Participants (n = 224)

Characteristics	Number	Percentage
Age (in years)		
Less than 20	3	1.3
21-30	150	67.0
31-40	56	25.0
41-50	10	4.5
Above 50	5	2.2
Academic Qualification		
PCL nursing	54	24.1
B.Sc. Nursing/BNS/BN	170	75.9
Job Experience(in years)		
1-5	113	50.4
6-10	68	30.4
11-15	22	9.8
Above 15	21	9.4
Job Title		
Staff Nurse	215	96.0
Sister	9	4.0
Experience of caring COVID-19 Positive Patients		
Yes	157	70.1
No	67	29.9
History of Psychiatric Illness		
Yes	4	1.8
No	220	98.2
RT-PCR test to identify COVID-19		
Yes	197	87.9
Not yet	27	12.1
Status After RT-PCR test		
Positive	50	25.4
Negative	147	74.6
Training Received		
Yes	12	5.4
No	212	94.6

Perceived stress scale (10 items) was used to find out the perceived stress among nurses (table 2). Regarding perceived stress during COVID-19 pandemic, 44.2% got upset very often, 26.8% frequently felt that they are unable to control important things in life, one-third of them ((33.9%)

occasionally felt that they could not overcome the difficulties due to pandemic. Similarly, 18.3% of them felt angered due to the situation is not under their control and 38.3% had been able to control irritations in their life due to pandemic situation frequently.

Table 2. Perceived Stress of the Study Participants' (n = 224)

Statements	Perceived Stress					Mean±SD
	Never n (%)	Almost Never n (%)	Sometimes n (%)	Fairly Often n (%)	Very Often n (%)	
Got upset because of COVID-19 situation	1(4.0)	8(3.6)	42(18.8)	74(33)	99(44.2)	3.16± 0.88
Felt unable to control the important things in my life due COVID-19 pandemic situation	21(9.4)	24(10.7)	70(31.3)	60(26.8)	49(21.9)	2.41±1.20
Felt nervous and "stressed"	6(2.7)	16(7.1)	78(34.8)	77(34.4)	47(21.0)	2.63±0.97
Felt confident about my ability to handle my personal problems in COVID-19 pandemic	7(3.1)	26(11.6)	76(33.9)	79(35.3)	36(16.1)	2.49±0.99
Felt that things were going in my way	29(12.9)	49(21.9)	78(34.8)	51(22.8)	17(7.6)	1.90±1.12
Felt that I could not cope with all the things that I had to do due to COVID-19 pandemic	26(11.6)	31(13.8)	91(40.6)	56(25.0)	20(8.9)	2.05± 1.10
Able to control irritations in my life	8(3.6)	30(13.4)	72(32.1)	87(38.8)	27(12.1)	2.42±0.98
Felt that I was in control and aware of all the situations and changes in my life	4(1.8)	30(13.4)	70(31.3)	93(41.5)	27(12.1)	2.48±0.93
I felt angered because of things that were outside of my control	21(9.4)	32(14.3)	69(30.8)	61(27.2)	41(18.3)	2.30±1.19
Felt that difficulties were piling up so high that I could not overcome them due to COVID-19 pandemic.	24(10.7)	44(19.6)	76(33.9)	41(18.3)	39(17.4)	2.12±1.23

To find out the perceived social support during COVID-19 pandemic, the Multidimensional Scale of Perceived Social Support ("MSPSS") was used (table 3). Form the significant person's support, 13.8% of participants strongly agreed that they had special person's support when they need, 34.8% can share their joy and sorrows with special person and 34.8% agreed that the special person is the real source of

comfort for them. Regarding family support, nearly half (47.3%) of them somewhat agreed that their families tries to help them and equal percentage agreed that they received emotional support from them. Similarly, 24.6% disagreed that their friends really try to help them, 5.8% very strongly agreed that they can seek support from their friends and 16.5% very strongly agreed that they can talk their problems with friends.

Table 3. Participants' Perceived Social Support (n = 224)

Statements and subscale	Multidimensional Perceived Social Support							Mean±SD
	very Strongly Disagree (%)	strongly agree (%)	Mildly Disagree n (%)	Neutral n (%)	Mildly Agree n (%)	Strongly Agree n (%)	Very Strongly Agree n (%)	
Significant Person								
There is a special person who is around when I am in need of support	9(4.0)	12(5.4)	32(14.3)	57(25.4)	53(23.7)	31(13.8)	30(13.4)	4.54±1.55
There is a special person with whom I can share joys and sorrows.	7(3.1)	11(4.9)	18(8.0)	73(32.6)	78(34.8)	22(9.8)	15(6.7)	4.47±1.29
I have a special person who is a real source of comfort to me	5(2.2)	8(3.6)	30(13.4)	65(29.0)	78(34.8)	24(10.7)	14(6.3)	4.47±1.26
There is a special person in my life who cares about my feelings.	6(2.7)	6(2.7)	29(12.9)	47(21.0)	77(34.4)	43(19.2)	16(7.1)	4.67±1.33
Family								
My family really tries to help me.	4(1.8)	3(1.3)	12(5.4)	63(28.1)	106(47.3)	24(10.7)	12(5.4)	4.71±1.07
I get the emotional help & support from my family.	2(0.9)	3(1.3)	12(5.4)	61(46.4)	104(46.4)	23(10.3)	19(8.5)	4.81±1.07
I can talk about my problems with my family.	4(1.8)	6(2.7)	13(5.8)	52(23.2)	88(39.3)	44(19.6)	17(7.6)	4.84±1.21
My family is willing to help me for decisions making.	4(1.8)	3(1.3)	16(7.1)	54(24.1)	88(39.3)	36(16.1)	23(10.3)	4.87±1.22
Friends								
My friends really try to help me.	2(0.9)	6(2.7)	55(24.6)	92(41.1)	46(20.5)	16(7.1)	7(3.1)	4.11±1.09
I can seek support from my friends	2(0.9)	11(4.9)	43(19.2)	95(42.4)	45(20.1)	15(6.7)	13(5.8)	4.19±1.19
I have friends with whom I can share my joys and sorrows.	3(1.3)	5(2.2)	27(12.1)	86(38.4)	61(27.2)	33(14.7)	9(4.0)	4.48±1.15
I can talk about my problems with my friends.	3(1.3)	6(2.7)	28(12.5)	71(31.7)	52(23.2)	27(12.1)	37(16.5)	4.75±1.41

Table 4 depict that 75.3% of the study participants perceived moderate level of stress and 65.6% of them perceived moderate level social support during the period of COVID-19 pandemic

Table 4. Participants' Perceived level of Stress and Social Support (n = 244)

Variable	Number	Percentage	Mean	SD
Level of Perceived Stress			21.45	5.68
Mild stress(0-13score)	19	8.5		
Moderate Stress(14-26 score)	168	75.3		
Severe Stress(27-40 score)	37	16.2		
Level of Perceived Social Support			54.96	9.13
Low level Support(12-35 score)	7	3.1		
Moderate level Support(36-60 score)	147	65.6		
High level Support(61-84 score)	70	31.3		

Table 5 depicts the relationship between perceived stress and social support during the pandemic, there is a negative relationship between perceived stress and support from significant others($r = -0.176$), family ($r = -0.140$) and overall multidimensional support

score($r = -0.135$), while there is positive relationship with friends($r = 0.001$). However, the relationship between friends and total multidimensional support score is statically insignificant at 95% confidence level($p = 0.977$).

Table 5. Correlation between Perceived Stress and Social Support

Variables		Significant others	Family	Friends	Multidimensional Support
Perceived stress	R	-0.176	-0.140	0.001	-0.135
	p-value	0.008	0.035	0.977	0.043
Significant others	R		0.604	0.482	0.876
	p-value		0.000	0.000	0.000
Family	R			0.458	0.821
	p-value			0.000	0.000
Friends	R				0.764
	p-value				0.000

Discussion

It is widely accepted that the nursing profession is one of the highly stressful professions and nursing staff may be more psychologically susceptible to the COVID-19 pandemic's pressure¹⁸. High levels of psychological stress significantly reduce nursing staffs' commitment to their profession and

careers¹⁹. In the present study, more than ninety percent of the study participants perceived moderate to high levels of stress, which is similar with the study conducted among healthcare worker in Nepal during the early phase of COVID-19 pandemic²⁰. This finding is also comparable with the study conducted in other different countries^{10,13,21}. However, a similar study conducted during second wave of COVID-19

pandemic revealed a lower percentage of nurses had moderate to severe stress²². It might be because of the availability of information on disease and personal protective equipment.

Social support is perceived as the accessibility of resources provided through family, friends, spouses, and co-workers²³. Family and social support may help reduce the levels of stress by decreasing the perception of the threat and inappropriate behaviour that can result from stress. Ultimately, that leads to improved self-efficacy and a sense of professional success and avoidance of burnout in nurses^{24,25}. Moreover, high perceived social support has a positive impact on mental and physical well-being²⁶. In our study, almost all study participants have sense of greater support from family, friends and significant others which is quiet similar with the findings of a study conducted in Nepal and China^{27,28}. This could be recognised to the absolute necessity of nursing care and the significant contribution of the nursing profession during the COVID-10 pandemic²⁹. A Nepal study in early COVID-19 found nearly half of healthcare workers felt unsupported, with only a few experiencing strong support³⁰. This study suggest that perceived support from family is higher compared to others which is similar with the findings of previous study conducted in Nepal³¹.

The perception of available support has a greater impact on the psychological wellbeing of an individual than received support²⁶. Another study evidenced that social support impacts on perceived stress and family and significant other's support significantly reduces stress²⁷. The present study showed negative relationship between perceived stress and support from family and significant others. During the pandemic, nurses experienced less stress when supported by family and significant others, aligning with previous studies from diverse cultural and demographic backgrounds^{26,32,33}.

This study was conducted among nurses in a single COVID-19 dedicated tertiary hospital, limiting its generalizability to other settings. Therefore, its limitations should be considered before applying the results.

Conclusions

The study concludes that almost all nurses who provide bedside care to the COVID-19 infected cases have perceived moderate to severe levels of stress. However, all have greater support from family members, friends, and significant others. Support from family and significant persons has an important role in decreasing perceived stress in nurses. There is a great need for stress reduction programs including the cultivation of social support networks for alleviating perceived stress in nurses working in the COVID-19 dedicated hospitals.

Acknowledgements

The authors would like to extend sincere thanks to the administration and nursing staff of Tribhuvan University Teaching Hospital for their kind cooperation in this study.

Conflict of Interest: Regarding the study, authorship, and/or publishing, the authors humbly state that there are no potential conflicts of interest and no funds were available for the study.

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