

Mental Stress of Nurses Involved in Nursing Care of COVID-19 Patients

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ABSTRACT

Background: Among all healthcare professionals, nurses play an extraordinary role in combating COVID-19, which turned into a pandemic in a short time. Nurses are constantly faced with stressful situations that cause emotional exhaustion while managing complex care and treatment processes.

Objectives: The study aimed to find out the level of mental stress of nurses involved in the nursing care of COVID-19 patients.

Methodology: A descriptive cross-sectional study was conducted among nurses who are involved in nursing care of COVID-19 patients in Shahid Sayed Nazrul Islam Medical College Hospital, Kishoreganj, and 250 Bedded District Hospital, Sunamganj located in Sunamganj of Bangladesh. A purposive sampling technique was applied and a pre-tested semi-structured interview questionnaire was used in this study.

Results: A total of 382 respondents were included in this study with a mean age of 27.01 (\pm 2.692). The major finding of the study shows that 109 (29%) of nurses had low mental stress, 269 (70%) had moderate stress and 4(1%) had high mental stress.

Conclusion: The result demonstrates working in that COVID-19 have a great impact on Nurses' physical and mental health. Providing support and basic needs to the nurses can play a vital role in maintaining the mental health of Nurses.

KEYWORDS: Mental stress, Nurse, Nursing care, COVID-19.

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INTRODUCTION

Severe acute respiratory syndrome (SARS) cases with unknown etiology began to appear in Wuhan, China, towards the end of 2019 [1]. As a result of the local studies of China and the World Health Organization (WHO), it was confirmed that the pathogen causing this new pneumonia was coronavirus (SARS-CoV-2) and was named coronavirus disease (COVID-19) [2]. With the rapid increase in COVID-19 cases, the WHO identified the situation as a major public health threat [3]. It is known that coronavirus disease affects all human body systems physio-pathologically, especially the immune and respiratory systems, which also causes negative social, economic, and psychological effects [4]. Among all healthcare professionals, nurses play an extraordinary role in combating COVID-19, which turned into a pandemic in a short time. During the pandemic, nurses, who spent intensive efforts by risking their lives in emergency departments, infection control units, intensive care units, and COVID-19

patient wards, demonstrated their commitment to their profession and patients [2]. Nurses struggle with intensive work, insufficiency of resources, and uncertainty. Therefore, it has been reported that nurses' levels of stress and fear increase with time, and they are affected psychologically during the pandemic [4,5].

During the pandemic, nurses can be subjected to social isolation, discrimination, and loneliness by others, besides the intense work stress. Living in isolation from family members and loved ones, working in high-risk areas, and providing care to infected individuals may cause traumatic effects in the future [6]. Emotional and psychological problems with high stress negatively affect nurses' future cognitive functions and clinical decision-making processes. As a result, the risk of harm to patients and an increase in malpractice conditions are also a matter of concern [7]. Nurses are constantly faced with stressful situations that cause emotional exhaustion while managing complex care and treatment processes [8].

Mental Stress of Nurses Involved in Nursing Care of COVID-19 Patients

Stress is a universal human experience and is an integral part of the biological structure of any living organism. Stress has both positive and negative effects on people. While a low level of stress is motivating the person, above-average stress can cause people to be unable to work or cause serious physiological problems [9]. Factors such as isolation measures taken during a pandemic, contact with infected individuals, exposure and transmission risk, excessive workload, difficult triage decisions, lack of personal protective equipment, lack of some medications, stigma, fear of losing patience and colleagues, and insufficient social and psychological support can increase the stress level of nurses. [10, 11, 12, 13, 14, 15]. The study aims to assess the job-related factors of nurses, to determine the level of perceived stress of nurses, to find out the associated factors related to the mental stress of nurses, and to identify the socio-demographic characteristics of nurses who are involved in nursing care of COVID-19 patients.

MATERIALS AND METHODS

Study Design: A descriptive cross-sectional study was designed to conduct this research.

Study Population: Nurses who are involved in nursing care of COVID-19 patients in Shahid Sayed Nazrul Islam Medical College Hospital, Kishoreganj, and 250 Bedded District Sadar Hospital, Sunamganj during the COVID-19 pandemic.

Study place: The study was conducted in Shahid Sayed Nazrul Islam Medical College Hospital, Kishoreganj located in Kishoreganj, and 250 Bedded District Sadar Hospital, Sunamganj located in Sunamganj City of Bangladesh.

Study Period: The study was conducted for 12 months from 1st January 2021 to 31st December 2021.

Inclusion criteria

- Nurses of both sexes who are actively involved in management of COVID-19 patients for at least six (06) months.
- Nurses who gave informed written consent to participate in the study.

Exclusion criteria

- Who are unwilling to participate.

Sampling Technique: Nurses was selected by using a convenient sampling technique and the sample size was 382.

RESULTS

Table 1: Socio-demographic characteristics of the respondents (n= 382)

Age (in years)	Frequency	Percent
25-30	348	91.1
30-40	28	7.3
>40	6	1.6
Mean ± SD; 27.01 ± 2.692		
Sex		
Male	304	79.6
Female	78	20.4

Data Collection Technique: Face-to-face interview. The questionnaire was developed in English first and then converted into a Bengali version. It was pre-tested among defined nurses in another hospital of similar level and then the final version was presented among the participants of the targeted hospital. Data was collected through interviews using a semi-structured questionnaire.

Perceived stress scale: The perceived stress scale (PSS) was developed by Cohen et al. (1983) to determine how stressful an individual perceives certain situations in his life. The 10-item scale is rated on a 5-point Likert scale that ranges from 0 (never) to 4 (very often). Positive statements (4, 5, 7, 8) were reversely scored, the lowest score can be obtained which is 0 and the highest score is 56. A high score indicates that a person's perception of stress is high. (Cohen, S. et al, 1983).

Data Collection Instrument: pre-tested semi-structured questionnaire.

Data processing: Initially data was checked for completeness and correctness to exclude missing or inconsistent data then entered into the computer using Statistical Package for Social Sciences (SPSS).

Data Analysis

Data will be analyzed by using the statistical software namely SPSS (Statistical Package for Social Sciences).

- Descriptive data was analyzed by simple frequency distribution (mean, standard deviation, percentage).
- Data is presented using a frequency table, graph, and chart.

Ethical implications

- Permission of the concerned authority of the hospital was taken.
- The objectives of the study were explained in brief to the respondents.
- Informed consent was taken from every respondent before the collection of data.
- Privacy and confidentiality were ensured and maintained strictly.
- Respondents have the right to withdraw themselves from the study at any time during the data collection period.
- They assured that there would be no physical or mental harm to them during the study as there was no invasive procedure applied.

Mental Stress of Nurses Involved in Nursing Care of COVID-19 Patients

Designation		
Senior Staff Nurse	376	98.4
Nursing Supervisor	4	1.0
Nursing Superintendent	2	0.5
Education		
Diploma in Nursing	279	73
B.Sc. in Nursing	87	22.8
Master degree	14	3.7
PhD	2	0.5
Nursing Experience		
1-5	267	69.0
5-10	103	27.0
>10	12	3.1
Monthly family income		
25000-35000	81	21.2
35000-45000	53	13.9
>45000	144	37.7
Unknown	104	27.2
Marital status		
Unmarried	184	48.2
Married	197	51.6
Widowed/ Divorced/ Others	1	0.3
Living with elder citizen		
Sometimes	249	65.2
Often	60	15.7
Always	62	16.2
never	11	2.9
Co-morbidity		
Yes	10	2.6
No	372	97.4
Total	382	100.0

Table 1 shows that, out of 382 respondents, most of the respondents 348 (91.1%) were among (the 25-30) years age group. The mean age (\pm SD) of respondents was 27.01 (\pm 2.692). Most of the respondents 376 (98.4%) are Senior Staff Nurses and 73% of respondents have completed a Diploma in Nursing, 279(73%) have completed a Diploma in Nursing, 87(22.8%) are B.Sc. in Nursing, 14(3.7%) are completed their master degree and rest (0.5%) have completed their Ph.D. 267 (96.9%) have nursing experience in the range of 1-5 years. Here, 81 (21.2%) have monthly family income in the range of 25000-35000. 53 (13.9%) were in 35000-45000, and 144 (37.7%) were in >45000. Among all of the respondents, 104 (27.2%) respondents didn't give their information about that. 184(48.2%) are Unmarried, 197(51.6%) are married, 1(0.3%) is widowed/ divorced or others.65.2% are living with elder citizen sometimes, 15.7% are often, 16.2% are always and 2.9% never live with a senior citizen, and 2.6% have co-morbidity and 97.4% have not.

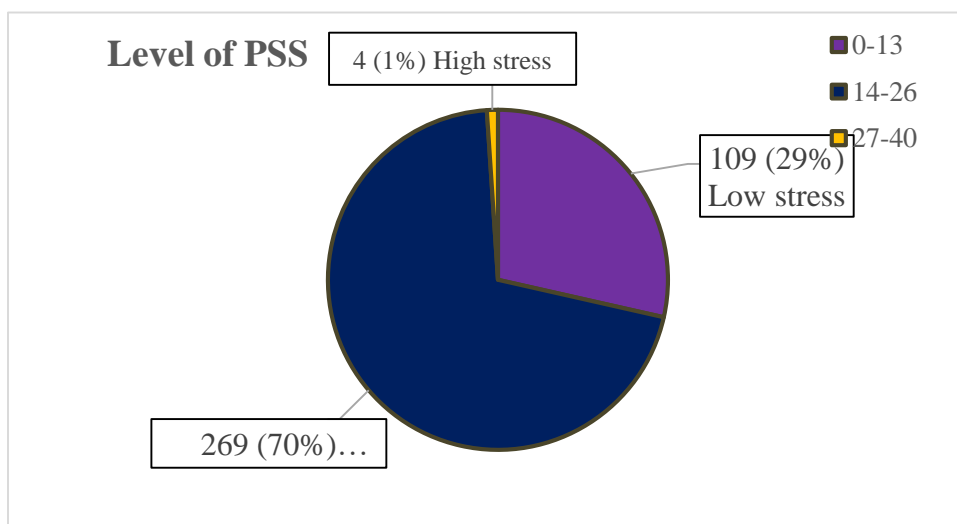


Figure 1: Distribution of the respondents by level of perceived stress (n=382)

Mental Stress of Nurses Involved in Nursing Care of COVID-19 Patients

Mean	15.80
Median	15.00
Mode	15
SD	4.510

Figure 1 shows that out of 382 respondents, 4(1%) Nurses have high mental stress, 269 (70%) have moderate mental stress and 109(29%) have low mental stress levels.

Table 2: Distribution of the respondent by job-related factors and associated factors related to mental stress of nurses caring for COVID-19 patients

Negative health effect	Frequency	Percent
Yes	243	63.6
No	139	36.4
COVID-19 test		
Yes	314	82.2
No	68	17.8
Diagnosed with COVID-19		
Yes	154	40.3
No	228	59.7
Adequate PPE during caring for COVID-19 patients		
Yes	272	71.2
No	110	28.8
Physical problems due to the use of PPE long time		
Yes	328	85.9
No	54	14.1
Worried about quarantine		
Yes	157	41.1
No	225	58.9
Face stigma during caring for COVID-19 patients		
Yes	245	64.1
No	137	35.9
Sleeping disturbance for caring COVID-19 patient		
Yes	244	63.9
No	138	36.1
Training to handle COVID-19 patients		
Yes	170	44.5
No	212	55.5
Total	382	100.0

Table 2 shows that among 382 respondents, 243 (63.6%) have negative health effect of work, 314(82.2%) have COVID-19 test, 154 (40.3%) were diagnosed with COVID-19, 272 (71.2%) were getting adequate PPE, (85.9%) face physical problem due to long time use of PPE, 157(41.1%) were

worried about quarantine, 245 (64.1%) faced stigma during caring COVID-19, 244 (63.9%) suffered from sleeping disturbance during caring COVID-19 patient, and 170(44.5%) had training to handle COVID-19 patients.

Table 3: Association between education of the respondents and level of mental stress, and colleague diagnosed with COVID-19 and level of mental stress (n=382)

Education of the respondents	Perceived Stress Scale			Total	Statistics
	Low stress	Moderate stress	High stress		
Up to graduation	109 (29.8%)	256 (69.9%)	4 (0.3%)	366 (100%)	Fisher's exact test = 22.760 P<0.0001
post-graduation	0 (0%)	13 (81.3%)	3 (18.8%)	16 (100%)	
Total	109 (28.5%)	269 (70.4%)	4 (1%)	382 (100%)	
Colleague diagnosed with COVID-19					
Yes	108(31.5%)	229(67.4%)	4(1.2%)	341(100%)	Fisher's exact test=24.872 P<0.0001
No	1(2.4%)	40(97.6%)	0(0%)	41(100%)	
Total	109(28.5%)	269(70.4%)	4(1.0%)	382(100%)	

Mental Stress of Nurses Involved in Nursing Care of COVID-19 Patients

Table 3 shows a significant association between education and level of mental stress was found at $p < 0.0001$ which means stress is significantly related to education (lower educated were highly stressed) and a significant association between having colleagues diagnosed with COVID-19 when caring for COVID-19 patients and level of mental stress was

found $p < 0.0001$. That means stress is significantly related to having a colleague diagnosed with COVID-19 when caring COVID-19 patient. (Respondents who had colleagues diagnosed with COVID-19 when caring for COVID-19 patients, were highly stressful than those who had not).

Table 4: Association between having enough colleagues to help when caring for COVID-19 patients and level of mental stress, and facing physical problems due to the use of PPE during caring for COVID-19 patients and level of mental stress(n=382)

Enough colleagues to help when caring for COVID-19 patient	Perceived Stress Scale			Total	Statistics
	Low stress	Moderate stress	High stress		
Yes	67 (30.9%)	150 (69.1%)	0 (0%)	217 (100%)	Fisher's exact test= 17.070 P<0.0001
No	42 (25.5%)	119 (72.1%)	4(2.4%)	165 (100%)	
Total	109(28.5%)	269 (70.4%)	4 (1.0%)	382 (100%)	
Facing physical problems due to the use of PPE during caring for COVID-19 patient					
Yes	104(31.7%)	220(67.1%)	4(1.2%)	328(100%)	Fisher's exact test=13.431 p=0.001
No	5(9.3%)	49(90.7%)	0(0%)	54(100%)	
Total	109(28.5%)	269(70.4%)	4(1.0%)	382(100%)	

Table 4 shows that a significant association between having enough colleagues to help and level of mental stress was found at $p < 0.0001$ which means stress is significantly related to having enough colleagues (respondents who couldn't work with enough colleagues to help were more stressed than those who could). A significant association between physical problems due to the use of PPE when caring for COVID-19 patients and level of mental stress was found $p = 0.001$. That means stress is significantly related to physical problems due to the use of PPE when caring for COVID-19 patients. (Respondents who faced physical problems due to the use of PPE when caring for COVID-19 patients, were highly stressful than those who did not).

DISCUSSION

The COVID-19 pandemic has placed unprecedented demands on healthcare systems worldwide. Nurses, being at the forefront of patient care, have been significantly affected by the challenges posed by this virus. The mental stress experienced by nurses while caring for COVID-19 patients is a topic of increasing concern. This discussion delves into the various factors contributing to the mental stress of nurses in this context and explores potential solutions and interventions to mitigate its impact.

Factors Contributing to Mental Stress among Nurses:

Fear of Infection: Nurses face an increased risk of exposure to the virus, which can lead to heightened anxiety and fear for their health and that of their families.

High Workload: The surge in COVID-19 patients has often resulted in a higher workload for nurses. They may be required to work longer hours, care for more patients, and manage complex cases, leading to fatigue and stress.

Limited Resources: Shortages of personal protective equipment (PPE), ventilators, and other critical resources can create a sense of helplessness and frustration among nurses.

Witnessing Suffering and Death: Nurses on the COVID-19 frontlines often bear witness to the suffering and death of patients, which can lead to moral distress and psychological trauma.

Isolation: Isolation measures can lead to loneliness and social isolation among nurses, exacerbating their stress.

Uncertainty: The rapidly evolving nature of the pandemic, coupled with misinformation and changing guidelines, can cause confusion and stress.

Effects of Mental Stress on Nurses:

Burnout: Prolonged exposure to stress can lead to nurse burnout, characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment.

Decreased Job Satisfaction: High levels of stress can lead to a decrease in job satisfaction and morale among nurses.

Physical Health Issues: Chronic stress can lead to a range of physical health problems, including hypertension, sleep disturbances, and compromised immune function.

Mental Health Issues: Nurses exposed to extreme stress may experience symptoms of anxiety, depression, and post-traumatic stress disorder (PTSD).

Reduced Patient Care Quality: High levels of stress can impact a nurse's ability to provide high-quality care, potentially compromising patient outcomes.

Mitigating Mental Stress: Providing comprehensive training on COVID-19, infection control, and stress management can empower nurses to feel more in control and prepared.

Adequate PPE and Resources: Ensuring that nurses have access to sufficient PPE and resources can alleviate concerns

Mental Stress of Nurses Involved in Nursing Care of COVID-19 Patients

about personal safety and resource shortages. Creating a supportive workplace culture that acknowledges and addresses the emotional toll of the pandemic can help reduce stress. Offering access to mental health services and counseling can help nurses cope with the emotional challenges of their work. Implementing rotation of shifts and providing adequate time off can help prevent burnout and reduce workload stress.

The mental stress experienced by nurses in the care of COVID-19 patients is a critical issue that demands attention and action. Understanding the factors contributing to this stress and implementing measures to mitigate its impact is crucial for the well-being of healthcare professionals. By addressing these issues, healthcare systems can better support their nurses and ensure the delivery of high-quality patient care during the ongoing pandemic and future public health crises.

CONCLUSION

Mental stress of Nurses involved in nursing care of COVID-19 patients, in this study, mental stress was found as moderate level is highest. Findings suggest that Nurses' exposure to job-related factors and some other associated factors with socio-demographic factors can increase the mental stress of nurses when caring for COVID-19 patients. The nurse's educational level & and monthly income have a great impact on his mental stress. Working schedule & and number of colleagues of nurses should be reviewed. Basic needs like PPE, hand sanitizer, and vaccination should be provided to nurses. Special training in handling COVID-19 patients can increase the knowledge of nurses. Social stigma should be reduced through different kinds of programs, banners, etc. Govt. can take many steps against social stigma.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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Mental Stress of Nurses Involved in Nursing Care of COVID-19 Patients

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