# STRESS AND COPING MECHANISM AMONG NURSES WORKING AT NOBEL MEDICAL COLLEGE TEACHING HOSPITAL NEPAL DURING COVID 19 PANDEMIC

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## ABSTRACT

### Introduction

Novel Corona Virus (SARS-CoV-2) is a highly contagious respiratory disease caused by a severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2). Nurses at the frontline of caring for COVID-19 patients are sure to face frequent experiences of mental health challenges. Hence they need special supportive coping strategies to control and reduce their stress.

### Objective

The aim of this study was to identify level of stress and coping mechanisms used to deal with stress among nurses at Nobel Medical College and Teaching Hospital, Biratnagar, Nepal.

### Methodology

A cross-sectional study was conducted from August 2021 to February 2022. A total of 300 nurses were selected by using a non-probability consecutive sampling technique. Ethical clearance was taken from the Institutional Review Committee of Nobel Medical College and IRC Registration Number 505/2021. Data was collected by using self-administered questionnaire. The collected data were entered in MS Excel and statistical analysis were processed by the SPSS Version 23. Chi-square test was used to show the association between variables.

### Result

The findings of the study revealed that out of 300 nurses 91.7% nurses reported moderate and 5.3% reported high level of stress and 92% of nurses used moderate level of coping strategies and only 3.3% of nurses used high level of coping strategies to reduce perceived stress. There was statistically significant association of stress in nurses with marital status, duty schedule and monthly income. Likewise, there was a significant association between living condition of the nurses and coping strategies.

### Conclusion

The research finding showed all working nurses having some level of stress during the COVID-19 Pandemic. Moreover, about 96% nurses having moderate or high level of stress and in contrast they were also following moderate level of coping strategies. However, they need high level of coping strategies to overcome the persisting stress level.

## KEY WORDS

*Copying Strategy, Covid-19, Nurses, Stress*

## INTRODUCTION

Stress is defined as an individual's reaction to any change that requires an adjustment or response which can be physical, mental or emotional. Responses directed at stabling internal biological processes and preserving self-esteem can be viewed as healthy adaptations to stress.[1] Nurses are the primary group who come in first contact with patients, an important source of exposure to infected cases in hospital. The Corona Virus Disease 2019(COVID-19) pandemic caused drastic changes in healthcare and severe social restrictions. Healthcare workers like nurses are on the front line against infection and have been highly exposed to pandemic related stressors.[2]

COVID-19 is a highly contagious respiratory infection caused by a severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2). It was first reported in December 2019 from Wuhan, Hubei province in China.[4]

The world was alarmed when the WHO declared a public health emergency of international attention on January 30, 2020, about the outbreak of Nobel Coronavirus Disease 2019 (COVID-19)[7].

Covid -19 pandemic has spread around over 222 countries with more than 511 million confirmed cases and over 6 million deaths worldwide, whereas in Nepal the number is growing gradually and reached 978,778 confirmed cases as of 27 April 2022 with 11951 death and 966575 recovered.[8]

The pandemic spread across the world and had a great impact on the healthcare system. In already fragile healthcare system in developing country like Nepal, high stress roles with unique demands, the fear of contagion, stigmatization, social isolation and compulsion of performing duty have definitely brought extreme stress and anxiety in healthcare workers.[9,10]

From a nursing stand, nurses as front liners experienced dilemmas because they thought of safety not only for themselves but also their families.[11] As they are exposed to Covid 19 patients, fear, escalates, emotion intensifies, and anxiety increases, thereby coping is more utilized[12].

A study conducted in High Income countries indicate that more than half of all respondents' concerned stress related to problems in workplace response to the pandemic[13] A study conducted in Saudi Arabia found that outpatient department and COVID-19 isolation ward had more negative feelings and encountered several factors causing stress but were coping in a better way than others.[14]

Another study conducted in India found that 25.5 % nurses had stress.[15] Similarly, another study conducted in Nepal showed that more than half of the respondents (54.7%) had moderate stress, 37.6% had high level of stress. Whereas 7.7% respondents had low level of stress[16]

Stress and coping abilities influence the health status and work performance of nurses.[17] Stress also occurs during the Covid-19 pandemic, Health Care Workers (HCW), who felt stigmatized, perceived stigma concerning negative public attitude and disclosing about one's work, experienced higher level of depression, anxiety and psychological distress. In nursing, during COVID outbreak perceived social stigma was associated with higher stress and poorer mental health. Media reports from many of the world's COVID hotpots, including Italy and the United States document extreme exhaustion, physical discomfort from long working hours with face masks and other Personal Protective Equipment (PPE) fear of contagion, and emotional distress in nurses.[18,19] Present study is performed, getting to identify the stress and the coping strategies by nurses working at Nobel Medical College Teaching Hospital, Biratnagar. This research can lay the inspiration of effective intervention programs to minimize the stress within the pandemic situation, of nurses.

Stress is recognized as an inherent feature of the work lifetime of nurses. Internationally, many studies were conducted to identify the sunshine on stressors among nurses; however, relatively few studies were conducted within the Nepalese context. This study has identified the stress and use coping strategies in pandemic situation stress among nurses working at Nobel Medical College Teaching Hospital Biratnagar and therefore the main factors that contribute it. The aim of this study was to assess stress level and different coping strategies among nurses working at Nobel Medical College Teaching Hospital Biratnagar, Nepal during COVID-19 pandemic.

## METHODOLOGY

A cross-sectional study was conducted from August 2021 to February 2022. A total of 300 nurses were selected from study setting by using a non-probability consecutive sampling technique. Sample was calculated using the formulae for cross-sectional study design $h = \frac{z^2PQ}{d^2}$ Data was collected by using self-administered questionnaire. The reliable and internationally free access valid tool was used to rate the stress and coping strategy. Permission/Ethical approval was obtained from The Institutional Review Committee of Nobel Medical College and Teaching Hospital Biratnagar and written informed consent was also obtained from each participant before data collection. The collected data were then entered in MS Excel and transferred to SPSS version 23 for further analysis. Frequency tables, cross-tables, mean and standard deviations and other descriptive analysis were done. After descriptive analysis chi-square test was also applied to find the association between variables. P value was considered as significant at 95% confidence interval (P<0.05).

## RESULTS

Among the 300 nurses participated in this study, 71.7 % were below 25 years of age, and the mean age was 24.76 years with SD 3.64. Most of the participants were belong to Hindu religion (92.7%) and having nuclear family structure (76.0%). Majority of the participants were unmarried (70.3%) and most of them (84.3%) had monthly income less than 20,000. Similarly, highest percentage of participants (70.3%) had their education of PCL in nursing and working as staff nurse (82.3%). Most of the participants had working experience of less than 5 years (Table1).

**Table 1:** Socio-Demographic Characteristics of the Respondents

| Characteristics | Frequency (n=300) | Percentage |
|---|---|---|
| **Age group** | | |
| >25 | 215 | 71.7 |
| <25 | 85 | 28.3 |
| Mean Age±SD | 24.76±3.64 | |
| **Religion** | | |
| Hinduism | 278 | 92.7 |
| Non-Hindu | 22 | 7.3 |
| **Family type** | | |
| Nuclear | 228 | 76.0 |
| Joint | 72 | 24.0 |
| **Marital status** | | |
| Married | 89 | 29.7 |
| Unmarried | 211 | 70.3 |
| **Monthly income** | | |
| <20000 | 253 | 84.3 |
| >20000 | 47 | 15.7 |
| **Education qualification** | | |
| Proficiency certificate level | 211 | 70.3 |
| Bachelor nursing | 71 | 23.7 |
| ANM | 18 | 6 |
| **Position** | | |
| ANM | 24 | 8 |
| Staff nurse | 247 | 82.3 |
| Nursing In-charge | 25 | 8.3 |
| Supervisor | 4 | 1.3 |
| **Year of experience** | | |
| <5 | 256 | 85.3 |
| >5 | 44 | 14.7 |

**Table 1a:** Socio-Demographic Characteristics Count...

| Characteristics | Frequency (n=300) | Percentage |
|---|---|---|
| **Type of hospital ward** | | |
| Emergency | 57 | 19.0 |
| General ward | 149 | 49.7 |
| Critical care unit | 85 | 28.3 |
| COVID isolation ward | 9 | 3 |
| **Duty schedule** | | |
| Day duty | 75 | 25.0 |
| Shift duty | 225 | 75.0 |
| **COVID-19 test** | | |
| Yes | 243 | 81.0 |
| No | 57 | 19.0 |
| **Living condition** | | |
| With family | 190 | 63.3 |
| Without family | 110 | 36.7 |
| **Work load** | | |
| Not increased | 36 | 12.0 |
| Increased | 264 | 88.0 |

Table 1a also presents the characteristics of participants related to working status and Covid-19 test. Highest percentage (49.7%) of participants were working in general ward followed by Critical Care Unit (28.3%) and most of them (75.0%) had shift duty. Nearly two third (63.3%) were living with their family. More than four fifth (81.0%) had already tested COVID positive and nearly 90 % (88%) reported that they had increased workload during the COVID-19 pandemic period.

**Table 2:** Level of Perceived Stress of Respondents during COVID-19

| Characteristics | Frequency (n=300) | Percentage |
|---|---|---|
| Low stress | 9 | 3.0 |
| Moderate stress | 275 | 91.7 |
| High | 16 | 5.3 |
| **Total** | **300** | **100.0** |

Among the total 300 participants, more than 90 percent (91.7%) experienced moderate stress during COVID 19 time and 5.3% experienced high level of stress. However, only 3% get low level of stress. The figure shows every nurses got some level of stress.

**Table 3:** Association between perceived stress scales and the Selected Socio- Demographic Variables: n=300

| Variables | Level of stress (%) | | | P value |
|---|---|---|---|---|
| **Religion** | | | | |
| Hindu | 9 (3) | 253(84.33) | 16(5.33) | .136 |
| Non-Hindu | 0 ( 0) | 22(7.33) | 0(0) | |
| **Family type** | | | | |
| Nuclear | 6 (2 ) | 209(69.66) | 13(4.3) | 0.721 |
| Joint | 3 (1) | 66 (22.0) | 3(1) | |
| **Marital status** | | | | |
| Married | 4 (1.33) | 84(28) | 1(0.33) | **0.039** |
| Unmarried | 5 (1.66) | 191(63.66) | 15(5) | |
| **Living condition** | | | | |
| With family | 5 (1.66 ) | 177(59) | 8(2.66) | 0.464 |
| Without family | 4 ( 1.33) | 98 (32.66) | 8(2.66) | |
| **Covid test** | | | | |
| Yes | 6 ( 2 ) | 221(73.66) | 16(5.33) | 0.093 |
| No | 3( 1 ) | 53(17.66) | 0(0) | |
| **Increased work** | | | | |
| **Yes** | 7 (2. 33 ) | 241(80.33) | 16(5.33) | 0.088 |
| **No** | 2 (0.66 ) | 34 (11.33) | 1(0.33) | |
| **Duty schedule** | | | | |
| Day | 6(2) | 68(22.66) | 1(0.33) | **0.004** |
| Shift | 3(1) | 207(69) | 15(5) | |
| **Monthly income** | | | | |
| ≤ 20000 | 6(2) | 231(77) | 16(5.33) | **0.028** |
| >20000 | 3(1) | 44(14.66) | 0(0) | |

Table 3 presents the result of cross tabulation between socio-demographic variables and perceived stress. Among the nine variables tested, only three variables as marital condition, duty schedule and monthly income of the respondents significant associated with perceived stress.

**Table 4:** Level of Coping of the Respondents on Brief COPE Inventory during COVID-19

| Coping score | Frequency (n=300) | Percentage |
|---|---|---|
| Low | 14 | 4.7 |
| Moderate | 276 | 92.0 |
| High | 10 | 3.3 |

Table 4 shows that most of the respondents 92.0% utilized moderate level coping strategies and only 3.3% nurses utilized high level of coping strategies during COVID-19.

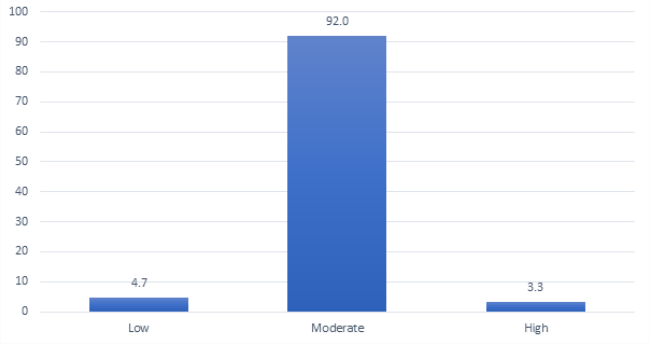


**Figure 1:** Level of Coping Strategy adopted by respondents

**Table 5:** Association between Coping Strategies with the Selected Socio-Demographic Variables n=300

| Variables | Coping strategies (%)P | | | Value |
|---|---|---|---|---|
| | Low N(%) | Moderate N(%) | High N(%) | |
| **Age in years** | | | | |
| ≤ 25 | 17 (7.9) | 181 (84.2) | 17 (7.9) | 0.288 |
| >25 | 9 (10.6) | 73 (85.9) | 3 (3.5) | |
| **Religion** | | | | |
| Hindu | 24(8.6) | 236(84.9) | 18(6.5) | 0.897 |
| Non-Hindu | 2(9.1) | 18(81.8) | 2(9.1) | |
| **Family type** | | | | |
| Nuclear | 23(10.1) | 188(82.5) | 17(7.5) | 0.128 |
| Joint | 3(4.2) | 66(91.7) | 3(4.2) | |
| **Marital status** | | | | |
| Married | 7(7.9) | 80(89.9) | 2(2.2) | 0.081 |
| Unmarried | 19(9.0) | 174(82.5) | 18(8.5) | |
| **Living condition** | | | | |
| With family | 19(10.0) | 164(86.3) | 7(3.7) | **0.020** |
| Without family | 7(6.4) | 90(81.8) | 13(11.8) | |
| **Covid test** | | | | |
| Yes | 17(7.0) | 211(86.8) | 15(6.2) | 0.096 |
| No | 9(15.8) | 43(75.4) | 5(8.8) | |
| **Increased work** | | | | |
| Yes | 22(8.3) | 223(84.5) | 19(7.2) | 0.489 |
| No | 4(11.1) | 31(86.1) | 1(2.8) | |

Table 5 presents the result of cross tabulation between socio-demographic variables and coping strategies adopted. Among the seven variables tested, only the living condition of the respondents found associated with coping strategies.

## DISCUSSION

The world was alarmed when the WHO declared a public health emergency of international attention about the outbreak of Nobel Coronavirus Disease 2019 on January 30, 2020 (COVID-19)[7]. The pandemic spread across the world and had a great impact on the healthcare system. Having fragile healthcare system in developing country like Nepal, high stress roles with unique demands, the fear of contagion, stigmatization, social isolation and compulsion of performing duty have definitely brought extreme stress and anxiety in healthcare workers. Hence this study was conducted with the aim to identify level of stress and coping strategies adopted by nurses during the Covid-19 pandemic.

The present study revealed that the majority (71.7%) of nurses were from 25 years or below age, with mean age 24.76±3.64 years. Most of the participants (92.7%) were following Hindu religion and more than three forth (76.1%) were from nuclear family. Majorities (70.3%) were unmarried and most of them (84.3%) had monthly income below twenty thousand. About 70 % nurses had completed PCL Nursing only and working as staff nurse. Similarly, 81% respondents told they had tested COVID-19 (PCR) and most of them (88.0%) agreed that the work load during COVID-19 was increased significantly. During this alarming pandemic of COVID-19, nearly 92 % nurses perceived moderate level and 5.3% perceived high level of stress. However, only 3.3 % nurses were able to apply high level of coping strategy and rest of nurses (96.7%) applied only moderate and poor level of coping strategy to manage the stress.

A study conducted by Eman Alnazly et. al. in Jordan with 365 health workers get similar results where most of the health workers were registered nurse and 40% were facing severe depression and 60% severe anxiety during the pandemic. Weak correlations were obtained between social support and other variables.[20] Another cross-sectional survey conducted in India by Jayadev PS et al. showed a moderate level of stress perceived by the majority of nurses. There was a statistically significant association found between perceived levels of stress with demographic variables like age, education, and experience at p <0.05 level, but no significant association existed between gender and level of stress perceived.[21] This study also partially supports the present study. Shasha Cui et.al. conducted a cross-sectional survey in Jiyangsu Province, China and among 481 responses, they obtained 453 valid responses. They found the participants who had female gender, fear of infection among family members, regretting being a nurse, less rest time, more night shifts, having children, lack of confidence in fighting transmission, not having emergency protection training, and negative professional attitude had more severe mental health problems in comparison to their opponents. This study also supports the present study in many matters however, present study is slightly differs to get significant variations in many socio-demographic variables.

In conclusion, the health professionals, especially the nurses had been facing high level of stress during COVID-19 pandemic and also they were trying to adopt some coping strategies as far as possible. However, they need more inspiration and training on coping strategies.

## CONCLUSION

The research finding showed all working nurses having some level of stress during the COVID-19 pandemic. Moreover, about 96% nurses having moderate or high level of stress

and in contrast they were also following moderate level of coping strategies. However, they need high level of coping strategies to overcome the persisting stress level.

## RECOMMENDATIONS

Mental health status should be screened in nurses with care of COVID-19 patients. Further studies with large population to distinguish prevalence of stress and coping among nurses who provide care of COVID-19 patients.

## LIMITATION OF THE STUDY

This study has limited coverage since it is based on only one health institution with only 300 samples. Large studies may provide more valid result to generalize. The association of stress with other variables also needs to be explored.

Despite the fact our study also has few limitations; there is a lack of control group for comparison. Findings of the study may not be generalized to other setting as it was done at a single site in Nepal.

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## CONFLICT OF INTEREST

There are no conflicts associated with this research study.

## FINANCIAL DISCLOSURE

No funding has received.

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