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Healthcare Professionals (Nurses') Perceived Stress and Coping: Amid COVID-19

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Authors' contributions

All authors have made equal contributions in all phases of the project. All authors read and approved the final manuscript.

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ABSTRACT

Background: Nurses are the frontline health professional more likely to undergo various stressors during the pandemic Covid-19 situation. The ongoing unprecedented crisis causes more stress, especially among nurses, as they are the most vulnerable group who predominantly get impacted while delivering comprehensive care.
Aim: This study explored the level of stress among nurses working in different healthcare settings.
Methods: A descriptive cross-sectional study among nurses from developed and developing countries between 7 February and 7 April 2020 was adopted for this research. Sixty-four nurses working in different healthcare settings were included in the study. A self-developed online questionnaire using google documents was used to collect data that comprised baseline data, Cohen Perceived stress scale, simplified coping items, and items of psychosocial perception.
Results: It was revealed that 75.64% of studied participants (N=64) had a high level of stress, with a mean anxiety score and Standard deviation of 3.52± 1.084, during the Covid-19 pandemic

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situation. A statistically significant association was found between the demographic variables such as experience and participation in the COVID-19 team at p<.05, whereas gender, age, and working unit do not show any significant associations.
Conclusion: Heath institutions' effective and efficient protocols are required to enhance nurses' mental strength and alleviate their lack of coping strategies, particularly during a crisis.

Keywords: Stress; anxiety; safety; psychological support; holistic care.

1. INTRODUCTION

World Health Organization (WHO) declared Covid-19 emergence as an emergency pandemic situation worldwide since January 2020 [1]. The virus is considered infectious and infecting all people irrelevant of its nature, location, and age groups. It leads to unbearable psychosocial distress incredibly individual behaviors are being triggered in inducing further complications [2].

The pandemic situation due to COVID-19 has created unprecedented challenges to healthcare professionals worldwide, particularly physicians, nurses, and emergency health workers [3]. As of October 2020, International Council for Nurses (ICN) confirms that 1500 nurses died among 44 countries, and the fatalities could be around more than 20000 [4]. In the years 2019, 2020, and even today, healthcare providers' health and well-being are being threatened by the novel coronavirus in various perspectives, mainly when they are more likely to develop the stress disorder of burnout syndrome [5]. Nurses' essential role in treating patients constitutes several preparedness and management levels to provide holistic, comprehensive, and generous care. Simultaneously protecting their health and their families, colleagues, and children's safety might place them in a critical mental situation [2]. The healthcare professionals would also require the institution to deliver them the updated information to cope with the evidence-based education and training systems. Besides, institutions should look after healthcare professionals' welfare by providing necessary equipment and supplies to empower nurses' safety [6].

The comparative risk among nurses includes physical, mental, and occupational stress, is potentially higher as the cumulative exposure time of being with COVID-19 contacted patients is extensive [7]. Besides, dealing with patients with Covid-19 causes physical trauma of using PPE, and consistent physical and psychological trauma has threatened their safety and security [2].

These critical challenges lead nurses to acquire low self-confidence and eventually develop chronic depression. Though nurses are implicated in rendering comprehensive, holistic care to enhance health, depression is predominantly associated with fear. It is accompanied by physical signs and illness symptoms [8]. Nurses are the frontline workers exposed to several stressors that ultimately create a loss of job satisfaction, relationship issues with family members, friends, and colleagues [9]. Nevertheless, challenges exist in the lack of time to avail continuous professional support in the work, and shortage of equipment, supplies, and workforce are the added concerns. Also, healthcare workers (HCW) are forced to contribute in a busy cycle, even physically and mentally, unable to cope with such events [10].

The recognized and well pieces of evidence about the background of nurses burnout which is significant for many centuries are related to their workplace. It can also be exacerbated and triggered by the extended workplace stress associated with any pandemic situation [11]. Though the association of nurses' depressive thoughts related to burnout is not known, it is still understudied. There is a statistical association between nurses' stress and depressive incidents, and nurses are the most prevalent population to end their lives due to several factors of depression and anxiety [5,12].

Therefore, unmitigated crisis and the impact upon the healthcare system are bound to ruin the physical and mental being of HCW's. A better understanding of nurses' preceding stress, anxiety and psychosocial aspects needs to be investigated to protect nurses' welfare and plan for targeted intervention to promote a quality healthcare delivery system across the world.

2. METHODS

This study adopted a quantitative approach where a cross-sectional survey was implemented among the nurses working in different healthcare settings. The non-probability sampling technique

was adopted to access the facility amid the pandemic. The self-developed questionnaire, including modified Cohen's perceived stress items [13], was constructed using google documents. The inclusion criteria were: registered nurses, nurses working in a developing country and one developed country, volunteered, able to fill up the survey questions, working in the government and private sector, and currently working in the health care setting where Covid-19 patients are being treated.

The institutional postgraduate scientific review board reviewed the study protocol. Ethical approval was granted to collect data from the nurses after the appropriate consent and have confirmed data privacy. Each participant was informed about this study's purpose, and the assurance has been given to preserving the data confidentially. They were given the right to withdraw from the project at any time before the completion of the questionnaire. The link was shared adopting the purposive sampling technique after fulfilling the criteria of the study.

The collection tool was divided into three sections. The first section was built to collect data concerning demographic details such as age, gender, education, healthcare setting, and experience. The following second section was a modified pre-validated perceived stress scale 4(PSS-4) adopted from Cohen [13] with four-item responses such as Strongly Agree (5), Agree, Neutral, Disagree, Strongly disagree (1). The third section of the survey comprises fourteen questions to collect further data concerning the emotional perception of fear and anxiety and coping strategies (a combination of Yes or No and a five-point Likert scale). The content validity was executed by submitting the device to five masters in mental health nursing from a developed and developing country. The scores have been determined by computing the dimensions of mean, standard deviation, and overall mean values. The questions have both positive and negative worded statements, and the scores are calculated accordingly. The scores were reversed for the negative statements before analysis. A pilot study among the 10% of the targeted group was performed, and those were excluded from the primary task. The calculated alpha Cronbach's coefficiency score was 0.81. The variables analyzed were socio-demographic characteristics, the PSS4 stress scale (5 points Likert scale), and nurses' emotional perceptions. Descriptive and inferential statistical significance tests such as Chi-square statistic and T-test were used to test relationships between categorical variables. Multiple regression models were used for few emotional responses to predict the association between anxiety and some of their stress features. When the independent variable does not have any significance (p> .10), those items were considered null to further discuss in the research. SPSS statistical package and google excel sheets were used to interpret the data.

3. RESULTS

Demographic characteristics are depicted in (Table 1). A total of 64 healthcare workers participated in the present study. The mean age of the participants was 35.16, with a standard deviation of 4.118. Male healthcare workers constituted 6(9.4%) of the total study sample count, whereas females were 58(90.6%). The majority of the study participants were from the government sector (75%, n=64), followed by 25% from the private sector. Moreover, categorizing the healthcare workers based on their educational qualification indicated that bachelor degree holders constituted 37.5% (n=64) of the total study sample, followed by those having diplomas (62.5%, n=64).

Table 2 depicts the nurses' responses concerning their socio-psychological and working environment using a five-point Likert scale. N (%)

Table 3 shows nurses' perception concerning training support, participation in the covid-19 team, quarantine, and satisfaction about the shift duty and rest. About the nurses who contributed to working with the Covid-19 squad, more than half 42(65.6%) were the team's cohort during the past six months. The least number of nurses, 22(34.4%), have not been involved in the group; however, they had undergone exposure to working with the setting of Covid-19 as a frontline health worker. An equal number of nurses responded that they had received adequate rest during their duties.

Table 4 and Fig. 1 denote the responses of nurses to the PSS-4 scale questionnaire. It was evident that the mean nurses (PSS4 questionnaire) had a high level of stress, 3.52± 1.084, during the Covid-19 pandemic situation. Similarly, unable to control the essential things in life amid crisis was reported with 3.81± 1.081. Also, unable to control the crucial things in life amid crisis was reported with 3.81± 1.081. On the contrary, the participants expressed that they had a higher level of self-confidence (4.124±.984).

Table 1. Participants' demographic descriptive DATA (N= 64)

	Variable	Number (%)
Gender (%)	Female	58 (90.6%)
	Male	6 (9.4%)
Age (Mean± SD) 35.43± 2.10	25-30	42(65.6%)
	31-35	14(21.9%)
Country (%)	Developed	20(31.3%)
	Developing	44(68.75%)
Working Unit (%)	Government sector	48(75%)
	Private	16(25%)
Experience (Mean± SD) 12.161± 4.308	0-10	48 (75%)
	11-20	16 (25%)
COVID-19 Team (%)	Yes	44(68.75%)
	No	20(31.25%)
Qualification (%)	Diploma	40(62.5%)
	BSC	24(37.5%)

Table 2. Nurses perception about healthcare resources (socio-psychological and working condition)

Subscale Items	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Since the COVID-19 pandemic, are you getting upset frequently because of unexpected events at the hospital?	12(18.8)	28(43.8)	14(21.9)	10(15.6)	-
Do you feel nervous and stressed doing clinical duty.	22(34.4)	18(28.1)	12(18.8)	12(18.8)	-
Do you feel that you are not able to cope up with your routine work	12(18.8)	28(43.8)	6(9.4)	14(21.9)	4(6.3)
Are you getting irritated often due to the COVID-19 work schedule	14(21.9)	22(34.4)	12(18.8)	10(15.6)	6(9.4)
Do you often get angry because things are out of your control?	8(12.5)	22(34.4)	14(21.9)	16(25)	4(6.3)
Are you upset that you do still draw a low salary even during this pandemic?	16(25)	34(53)	6(9)	4(6.5)	4(6.5)
I often regret being a nurse, especially during this pandemic.	18(28.1)	24(37.5)	10(15.6)	4(6.3)	8(12.5)
I fear more about the functional safety at our hospital while caring for COVID-19 patients.	14(21.9)	34(53.1)	8(12.5)	6(9.4)	2(3.1)
I fear that I might lose my self-confidence in protecting myself while caring for the patient during a pandemic because of inadequate PPE	14(21.9)	20(31.3)	8(12.5)	16(25)	6(9.4)

Table 3. Nurses responses of baseline data (Perception)

Items concerning Nurses perception	Number/Yes%	Number/No%
Has your education department given you any training to deal with this pandemic crisis?	(46)71.9	18(28.1)
Are you still involved in the team treating COVID-19 patients?	42(65.63)	22(34.37)
Have you ever been quarantined/home isolation these days?	40(62.5)	24(37.5)
Are you satisfied with adequate rest being given in between your duty (Day/Night Shift) as you are involved in the COVID-19 assignment?	50(50)	50(50)

Table 4. Psychosocial responses of Perceived Stress Scale (PSS)

Fear Scale Items	Mean±SD
In these months, are you unable to control the essential things in your life?	3.81±1.081
Are you feeling confident about your ability to take care of any patients at this time?	4.12±0.934
Currently, Do you feel things are going in your way as you think?	2.56±1.067
Do you pile up your stress because your superiors do not support you during this pandemic?	3.59±1.256
Fear about unexpected events happened at the hospital?	3.65±0.963
I fear that I could be the cause to infect my family members with COVID-19.	3.90±1.268
I fear that health gets impacted due to continuous work without adequate rest	3.75±1.260
I fear more about the working safety at our hospital while caring for COVID-19 patients	3.81±0.990

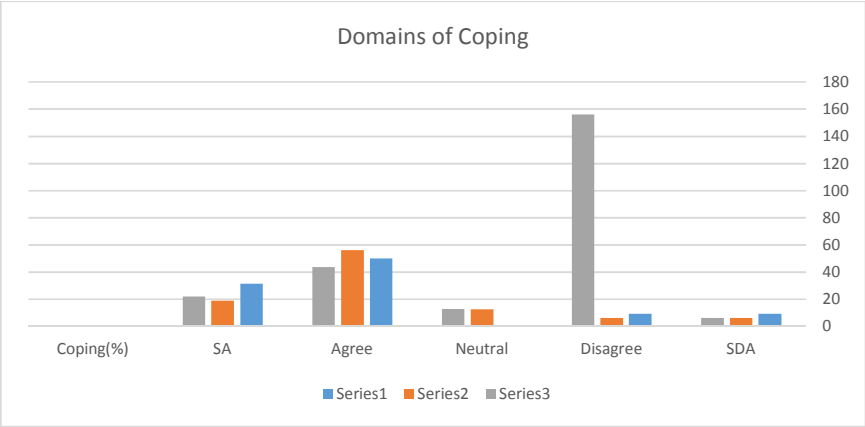

Fig. 1. Coping domains responses

Besides, they were more likely to pile up their stress as their superiors do not support them amid in terms of assigning heavy workload (3.59±1.256). The summed up psychosocial responses (Table 4) of the items concerning fear were reported about an unexpected event that is happening at the hospital, infecting the family members, their health, and working safety environment are as follows (3.65±0.963, 3.90±1.268, 3.75±1.260, and 3.81±0.990) greatly exceeds 3.5 (above median) at the 95% confidence level.

3.1 Domains of Coping

Domains of Institutional training; series 1, colleagues; series 2, friends and family support as series 3 are represented in Fig. 1. The participants responded using a 5-item Likert scale ranging from 1(strongly disagree) to 5 (Strongly agree).

Table 5 depicts that 48(75.64%) of studied participants had a severe level of stress. Also, 7(10.93%) had moderate, and 6(9.37%) were mildly stressed. Only 3 (4.06)% of the nurses didn't have any stressors due to the unprecedented situation. It was interpreted that the total depression scores ranged from 0-70 (i.e., Normal 0-17; mild= 17-36; moderate= 37-55; severe= 56-70 among nurses.

The following table shows a highly significant association between nurses' stress and their experience and being with the Covid-19 team) (P≤ 0.01).

4. DISCUSSION

This study aimed to conduct a cross-sectional perspective of exploring nurses' perceptions regarding stress, fear, and coping readiness while working with the COVID-19 hospital setting. Our findings found a (Perceived stress scale PSS) mean stress score among nurses working in the developing country with a higher level of stress 3.52 ±1.05, and anxiety was 3.7 ± 0.11 (PSS item No 1 and 3). On the contrary, the stress level of nurses from the developed country was found to be moderate. These findings are consistent with those of Maben and Bridge [8]. They hypothesized the results associated with various factors such as the training support, PPE, workload, nature of work, and cultural background (diversities). The study among healthcare workers in a developed country explored two-thirds of health professionals with 60% [14]. Another study reported by Mohammed et al. [3] a moderate to a higher stress level among the frontline workers with the mean value of 11.64 ±0.73.

The training support revealed that the nurses undergo ongoing training programs 46 (71.9%) to update the current evidence-based practices, only 28(28.1%) nurses indicated that they didn't have the opportunity to undergo training. The most comprehensive study findings are consistent with the survey conducted among health professions in showing anxiety and stress [9]. More than two-thirds of the participants, 48(75.62%), had a high-stress level during the clinical duty, whereas only 24.38% had not suffered any mental depression. The current study is in line with the research study that deals with the nurses' duties and responsibilities reported by Hassels et al., 2019 [15].

Nurses subscale stressors concerning working conditions and psychosocial predictors accounted for stress, fear, and anxiety. The domain of stress 3.52±1.084, the realm of coping institutional support 3.84+1.237, Colleagues cooperation 3.75+1.088, and the family support were 3.75+1.088. Among the predictable variable, the fear of losing self-confidence in preserving safety while caring for the patient during a pandemic because of inadequate PPE was the most predominant factor. It was observed that 46(72.5%) of the participants worried about the adequate PPE supply and safety. During any healthcare crisis, the hospital resources face scarcity in supplying acceptable personal protective devices. Frontline workers are the most vulnerable sector to get affected without availing the required facilities to protect them from getting infections [2,3]. Besides, they do not benefit from monetary benefits from serving the community in the most critical situation. Subsequently, fear about infecting family members, being quarantined away from the family, and continuous shifts without an appropriate rest period would succumb to burnout syndrome [2,16]. Finally, they are more likely to transform into low-level self-confidence and low coping skills [3,17].

Feeling nervous and stressed doing clinical duty amid COVID-19, revealed by 48 nurses (75.62%) out of 64, indicates that failure to adapt to the stressful atmosphere and the boundness to work with the proximity of contagious diseases amid lack of sufficient protective devices A recent report of (NHS 2020) [18] have addressed this concerns amid COVID-19. The majority of the participants, 54(84.3%), expressed that they still draw a low salary even during this pandemic; the fact in the developing country is that the nurses on a temporary position are not well paid than the regular staff. They are inclined to get only less than one-third of their deserved payment; there are vast differences. Despite this fact, salary is not the same, but the shift hours are similar to the permanent employees.

Table 5. Nurses level of stress

Level of stress (Scores)	No (%)
Normal (0-17)	3(4.06)
Mild (17-36)	6(9.37%)
Moderate (37-55)	7(10.93%)
Severe (56-70)	48(75.64%)

The coping strategies that nurses have adopted through institutions, colleagues, and family amid Covid-19; the mean satisfaction scores in all inquiry domains were significantly higher than 3 (neutral), indicating reasonable satisfaction about the institution, colleagues, and family support. The findings showed that institutional support 3.84+1.237 was the most favorable domain that the nurses have perceived towards their training and other professional help (p=0.021). Moreover, the mean subscale score of the field (colleagues' cooperation) was 3.75+1.088 ((p=0.028), whereas the family support was 3.59+1.178 (p=0.031). Results were presented in Table 5.

Nurses often regret being a nurse and inclined to negative styles of coping. Our study reports with just nearly three-quarters 46(72.5%) of them do feel so during crisis. It is well evident in this study why frontline workers refuse to volunteer during the crisis period. The speculation here is as follows: Continuous shift, lack of PPE, lack of institutional support, no salary benefits, absence of childcare facilities, and social stigma [19].

Although over three-fourths of the nurses had been under pressure and been exposed to plenty of stressors, there is no statistical association between the workforce of shift (Day, night, extra load). Either compulsory duties or volunteered have been perceived equally by the nurses. This result contrasts with the study by Chen CK et al., 2009 [6], according to which the participants' stress level was not related to job satisfaction.

The result shows that the effect variable regarding the experience offered a significant association with the value of 7.140(0.001) when

Table 6. Association between subscale of nurse's stress and specific variables

Items	Percentage (Numbers)	Stress level	T-test p-value
Experience	0-10 yrs 75% (48)	68.35±2.75	7.140(0.001)
	11-20 yrs 25% (16)	54±3.41	
Covid-19 team	Yes 68.75% (44)	64.28± 2.18	7.236 (0.001)
	No 31.25% (20)	57.2± 3.12	

the questions were asked about the items related to shift duty (workload) and administrative support. The variable of having participated working with the Covid-19 team evolved with the statistical association of 7.236 (0.001). This relationship's probable cause is that the nurses with above ten years of experience possess adequate competency in caring for infectious patients. Participants who were working with the COvid-19 team were more likely to develop depressive features in various domains. Frontline workers, especially nurses, face the worst psychosocial outcome in all disciplines of interest. Together, this study represents most of the stressors about the physical, mental, social, and occupational well-being of nurses involved working with the hospital settings of COVID-19 [20].

5. CONCLUSION

The study revealed comprehensive, in-depth findings concerning nurses' feelings during their experiences and barriers to what they perceived at the COVID-19 unit and how they had demonstrated their healthcare delivery system challenges. The adverse outcome of patient care delivery enclosed poor mental health, physical and mental illness, anxiety, stress, and fear that could impact delivering efficient care. The well-proven statement that nurses deem to hail with depression fall on various dimensions such as patients' comorbid illness, institutional support with supplies and equipment, adequate training, appropriate safety measures that require physical and psychological comfort, and counseling. It recommends the budget allocation for the frontline healthcare workers during a crisis that can revamp the staff welfare support services at any healthcare institution. These results provide an exciting key for nurses to get rid of their burnout syndrome.

6. LIMITATIONS

Different nations have different clinical scenarios of undergoing the crisis; the collected data was more complicated to compare accurately. Besides, the proportions of HCW's of developing and developed one was adequate to interpret the data. Hence, it was not possible to associate most of the variables to generate a causative relationship.

The authors could not associate the developed and developing nations' differences with the sample's inappropriate proportion. The cross-sectional study can not observe other associated issues that might impact nurses' stress levels and coping strategies. Its small sample size has less generalization of the research findings.

CONSENT

Participants' written consent has been collected and preserved by the author(s) as per international standard or university standard.

ETHICAL APPROVAL

As per international standard or university standard, written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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