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RESEARCH

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Anxiety and depression among nurses in COVID and non-COVID intensive care units

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Abstract

Background: Frontline nurses dealing with the coronavirus disease-2019 (COVID-19) pandemic face various mental health challenges ranging from excessive stress and anxiety to severe depression.

Aims and Objectives: To study the comparative prevalence of anxiety and depression, and their contributing factors, between nurses working in intensive care units (ICU) with COVID-19 patients (COVID ICU) and nurses working in ICU with patients admitted for other reasons (non-COVID ICU).

Design: Quantitative comparative cross-sectional study.

Methods: All frontline nurses working in COVID and non-COVID ICUs at a tertiary care university hospital in Nepal were included. The data were collected using Google Forms. The groups were evaluated and compared in terms of various relevant variables with self-designed socio-demographic questionnaire, the validated Nepali version of the Hospital Anxiety and Depression Scale (HADS), and the General Health Questionnaire 12 (GHQ-12).

Results: The response rate was 100%. Of the 99 nurses who met the inclusion criteria, three were excluded. Out of the 96 nurses included, psychiatric caseness was present in 82 (85.4%). There was no statistically significant difference in the prevalence of psychiatric caseness, anxiety, and depression between the COVID ICU and non-COVID ICU nurses (caseness of 90.4% vs 79.5%, $P = .134$; anxiety of 36.5% vs 27.3%, $P = .587$; and depression of 21.2% vs 9.1%, $P = .214$, respectively). Among the factors that could potentially lead to psychiatric caseness, anxiety, and depression, statistically significant differences were observed only in relation to sleep disturbances, confidence in caring for patients with COVID-19 and intentions to discontinue current job, all being significantly higher in COVID ICU nurses.

Conclusion: Anxiety and depression are common in nurses working in both the COVID and non-COVID ICUs, although the difference is not statistically significant.

Relevance to clinical practice: Early assessment of anxiety and depression in nurses working in all ICUs and their active medical and behavioural interventions are important in protecting this vital work force dealing with the pandemic.

KEYWORDS
anxiety, COVID-19, depression, intensive care unit, nurses

1 | BACKGROUND

In December 2019, a novel coronavirus was identified in Wuhan, China, in a group of patients who developed severe acute respiratory illness. The causative agent of this disease (coronavirus disease 2019 or COVID-19) has been named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[1] Since its first appearance in China, SARS-CoV-2 has now spread to almost all countries in the world making it a public health emergency of international concern.

The observed infectivity and fatality of COVID-19 led to tremendous fear and anxiety about this new disease all over the world in a very short period of time. Even though the pandemic started more than a year ago, it seems it will not end easily in the near future and health care workers are having to use heavy personal protective equipment all the time.[2] Because health care workers are the first-line personnel responding to the pandemic, the high rates of depression and anxiety have been observed among them.[3] A recent systematic review and meta-analysis of studies carried out to identify prevalence of depression and anxiety among health care workers during this pandemic reported pooled prevalence of anxiety to be 23.2% and that for depression to be 22.8%.[4] A study from China suggested that 50.4% of the health care workers reported symptoms of depression, 44.6% had symptoms of anxiety, 34% had insomnia, and 71.5% reported some form of psychological distress.[3] The same study also found that all measurements of mental health symptoms were more severe in nurses, women, and frontline health care workers. Among the health care personnel, nurses, in particular, are the ones to bear the burden of a rapidly increasing workload. They have to remain in close contact with infected patients for a prolonged period of time and are naturally fearful of their own safety and of taking the infection with them to their loved ones.[5]

A small-scale online cross-sectional survey of 150 health care workers in Nepal suggested that 38% of them on COVID-19 duty were suffering from anxiety and/or depression.[6] In another cross-sectional web-based survey conducted in 475 health workers working in public and private health facilities and involved in COVID management in Nepal revealed that 41.9% of health workers had anxiety (23.6% borderline and 18.3% abnormal).[7] Anxiety was present in 24% of nurses, 17.1% of other health workers, and 13.6% of doctors.[7] The same study showed that 37.5% of the health care workers had some form of depression (24% borderline and 13.5% abnormal). Depression was present in 19.2% of nurses, 13% of other health workers, and 8% of doctors.[7] It is important to address the short-term and long-term mental health needs among these frontline staff. Studies have shown that when these mental health needs are not addressed in a timely manner, they can lead to various morbidities like severe depression, post-traumatic stress disorder, substance use disorder, and insomnia. There have been numerous reports of suicides among nurses too.[8] In our battle against this virus and pandemic, it is vital to protect our workforce and maintain their mental health.

What is known about this topic

- The COVID-19 pandemic has caused tremendous fear and anxiety in most people around the world.
- Because the health care workers are the major respondents in this pandemic, high rates of depression and anxiety are observed among them.

What this paper adds

- This article specifically addresses the anxiety and depression among nurses working in intensive care units of a developing country during the COVID-19 pandemic.
- The burden of unaddressed anxiety and depression among frontline nurses working in both COVID and non-COVID ICU is high, even though not statistically significant between the two groups.
- The identification of these disorders and the factors associated with them should be actively pursued in all nurses working in all ICUs to mitigate adverse physical and psychological outcomes.

A developing country faces various challenges during a pandemic. Lack of an adequate number of health care professionals, equipment, and treating centres pose special challenges in delivering adequate and appropriate care to patients affected by the disease. Fear of disease transmission has resulted in health care workers being forcefully removed from temporary residences, prejudices against the sick in the society, and physical assaults on health care workers in public places.[9] Many developed countries have supported their citizens with various relief funds and advanced health care safety nets; however, the pandemic has caused major setbacks on the social, economic, and mental status of the citizens of a developing country like Nepal.[10] In this context, the present study explored the burden of unaddressed mental health issues among frontline nurses working in the COVID and non-COVID ICUs in a tertiary hospital in Nepal. The identification of these disorders should be helpful to implement effective interventions and help in mitigating adverse physical and psychological outcomes. These can include preventive aspects like counselling of the nursing team prior to their posting in the ICU wards. The outcome can have policy implications for comprehensive mental health care and regular screening among staff involved in the care of critically ill.

2 | AIMS

To study the comparative prevalence of anxiety and depression, and their contributing factors, between nurses working in intensive care

units with COVID-19 patients (COVID ICU) and nurses working in ICU with patients admitted for other reasons (non-COVID ICU).

3 | DESIGN AND METHODS

3.1 | Study setting, design, and participants

This is a quantitative comparative cross-sectional study, which was conducted in COVID and non-COVID ICUs of a tertiary care university hospital in Kathmandu, Nepal. The hospital is a government-designated, tertiary-level referral centre for the management of patients with COVID-19, and it is the largest health care service provider in the country. Both COVID and non-COVID ICU services were operating in a parallel manner at the hospital during the time of this study. The hospital has 11 general ICUs and 8 medical intensive care unit (MICU) beds for the care of critically ill patients with medical disorders. As the COVID-19 caseloads increased, the hospital dedicated a separate building within the premises, which cared for patients with orthopaedic and head and neck disorders, to a dedicated COVID centre to isolate the care of patients with COVID-19. The high dependency unit within this building was converted into a 10-bedded level three ICUs for the management of critically ill patients with COVID-19. The working shift of the nurses was changed from eight hours a day to 12 hours a day to compensate for the lack of skilled staff. The general ICU and MICU admitted only patients who did not have COVID-19 (non-COVID ICU). The nurse-to-patient ratio in all ICUs is 1:2.

Convenience sampling was used to collect data from all frontline nurses (n = 99) who were working in COVID ICU and non-COVID ICU from 17 October 2020 to 15 November 2020. Nurses working in general ICU and MICU were included as participants in non-COVID ICU. Ethical clearance and permission to conduct the study were obtained from the Institutional Review Committee (IRC) of the Institute of Medicine, Tribhuvan University.

3.2 | Inclusion and exclusion criteria

3.2.1 | Inclusion criteria

All the frontline nurses working in COVID ICU and non-COVID ICU during the time of data collection (99 frontline nurses in total) were included.

3.2.2 | Exclusion criteria

Staff nurses with a prior history of mental disorders or taking any medication or therapy for mental disorders before working in COVID ICU or non-COVID ICU were excluded from the study. Nurses working in COVID ICU for <2 weeks and female nurses who were currently pregnant were also excluded.

3.3 | Tools and techniques for data collection

3.3.1 | Research Instrument

Socio-demographic data were collected using self-designed questionnaire. The presence of psychiatric caseness, anxiety, and depression was evaluated with the validated Nepali language versions of the General Health Questionnaire 12 (GHQ-12) and the Hospital Anxiety and Depression Scale (HADS), respectively.[11,12] The GHQ-12 is a tool used for detecting psychological disorders in various settings. The scoring in GHQ-12 is done by using "binary scoring" method with the two least symptomatic answers scoring 0 and the two most symptomatic answers scoring 1 (ie, 0–0–1–1). A score of 3 or greater is considered "psychiatric caseness". Psychiatric caseness is a probabilistic term, suggesting an increased probability (0.51) of the presence of any psychiatric disorder in an individual if the individual undergoes an independent psychiatric assessment.[13] The validated Nepali version of the GHQ-12 used in this research has a sensitivity of 85.58%, specificity of 74.79%, positive predictive value of 86.66%, and negative predictive value of 84%.[11] The HADS is a very reliable and valid tool to detect anxiety and depression.[12] It is a 14-item scale in which 7 of the items relate to anxiety and 7 to depression. A score of 0 to 7 is considered normal, 8 to 10 is considered as borderline case, and 11 to 21 is considered as abnormal. For the validated Nepali version of the HADS, the Cronbach's alpha was 0.76 for anxiety (HADS-A) and 0.68 for depression (HADS-D), the subscale HADS-A achieved full construct validity and a satisfactory construct validity was achieved for the subscale HADS-D.[12]

3.3.2 | Data collection

Data collection was done online using Google Forms. The invitation link to participate in the research and to the form was emailed to the nurses in charge of the respective ICUs who then posted the link into the Viber groups of the nurses working in the COVID and non-COVID ICUs. Reminders were sent once every week. All nurses in both the ICUs responded to the invitation to participate in the study.

3.4 | Data analysis

The collected data were processed and analysed based on the research objectives. After collecting data, they were entered into SPSS version 26.0 for analysis. Data were analysed using simple descriptive statistical methods in the form of frequencies and percentages. Relevant variables were compared by using Chi-square and Fisher's exact test (the latter for variables with frequencies <5 in 2 × 2 tables) to find out if any statistically significant differences exist between the two groups. The findings were then presented in tables.

TABLE 1 Comparison of study variables contributing to anxiety and depression among the nurses

Variables		Covid ICU	Non-Covid ICU	Total	Chi-square value; degree of freedom; *P*-value
Marital status	Unmarried	35 (67.3%)	24 (54.5%)	59 (61.5%)	$\chi^{2a} = 1.639$; df[b] = 1; $P^c = .200$
	Married	17 (32.7%)	20 (45.5%)	37 (38.5%)	
Type of family	Nuclear	37 (71.2%)	32 (72.7%)	69 (71.9%)	$\chi^2 = 0.029$; df = 1; $P = .864$
	Joint	15 (28.8%)	12 (27.3%)	27 (28.1%)	
Any children?	Yes	7 (13.5%)	11 (25%)	18 (18.8%)	$\chi^2 = 2.083$; df = 1; $P = .149$
	No	45 (86.5%)	33 (75%)	78 (81.2%)	
Fear of getting infected/ reinfected	Yes	50 (96.2%)	42 (95.5%)	92 (95.8%)	$P = 1.000$[d]
	No	2 (3.8%)	2 (4.5%)	4 (4.2%)	
Infected by COVID-19	Yes	20 (38.5%)	16 (36.4%)	36 (37.5%)	$\chi^2 = 0.045$; df = 1; $P = .832$
	No	32 (61.5%)	28 (63.6%)	60 (62.5%)	
Family member infected	Yes	11 (21.2%)	13 (29.5%)	24 (25%)	$\chi^2 = 0.895$; df = 1; $P = .344$
	No	41 (78.8%)	31 (70.5%)	72 (75%)	
Quality of sleep	Not satisfactory	27 (51.9%)	10 (22.7%)	37 (38.5%)	**$\chi^2 = 8.930$; df = 2; $P = .012$**
	Satisfactory	19 (36.5%)	28 (63.6%)	47 (49%)	
	Not sure	6 (11.5%)	6 (13.6%)	12 (12.5%)	
Difficulty taking leave	Yes	48 (92.3%)	42 (95.5%)	90 (93.8%)	$P = .684$[d]
	No	4 (7.7%)	2 (4.5%)	6 (6.2%)	
Work satisfaction	Not satisfied	36 (69.2%)	26 (59.1%)	62 (64.6%)	$\chi^2 = 2.967$; df = 2; $P = .227$
	Satisfied	6 (11.5%)	11 (25%)	17 (17.7%)	
	Not sure	10 (19.2%)	7 (15.9%)	17 (17.7%)	
Plans to quit job	Yes	24 (46.2%)	21 (47.7%)	45 (46.9%)	$\chi^2 = 0.024$; df = 1; $P = .878$
	No	28 (53.8%)	23 (52.3%)	51 (53.1%)	
Social discrimination	Yes	31 (59.6%)	25 (56.8%)	56 (58.3%)	$\chi2 = 0.077$; df = 1; $P = .782$
	No	21 (40.4%)	19 (43.2%)	40 (41.7%)	
Family happy about you working at this time	Yes	10 (19.2%)	8 (18.2%)	18 (18.8%)	$\chi^2 = 0.017$; df = 1; $P = .896$
	No	42 (80.8%)	36 (81.8%)	78 (81.2%)	
Confidence in caring for patients with COVID-19?	Yes	30 (57.7%)	14 (31.8%)	44 (45.8%)	**$\chi^2 = 6.427$; df = 1; $P = .011$**
	No	22 (42.3%)	30 (68.2%)	52 (54.2%)	
Wish to continue your work in the current department	Yes	20 (38.5%)	35 (79.5%)	55 (57.3%)	**$\chi^2 = 16.441$; df = 1; $P = <.001$**
	No	32 (61.5%)	9 (20.5%)	41 (42.7%)	
Need more COVID-19 related training than provided?	Yes	49 (94.2%)	43 (97.7%)	92 (95.8%)	$P = .622$[d]
	No	3 (5.8%)	1 (2.3%)	4 (4.25%)	
Total		52 (100%)	44 (100%)	96 (100%)	

Note: Statistically significant differences are indicated in bold.
[a]Chi-square value.
[b]Degree of freedom.
[c]*P*-value.
[d]Data analysis was performed using Fisher's exact test.

4 | ETHICAL CLEARANCE

Ethical clearance and permission to conduct the study were obtained from the Institutional Review Board of the parent institute of the hospital. Confidentiality and anonymity were strictly maintained during the research procedure. We required that the participants share their phone numbers so that they can be reached out in case they reported suicidal ideations and permission for reaching out in such cases was included in the consent form. Data collection was possible only when the participants read the informed consent form and consented to participate. The participants were informed that their personal information will be kept confidential, and the information obtained will be used only for research purposes.

5 | RESULTS

The response rate was 100%. A total of 99 nurses from COVID and non-COVID ICUs participated in the study. Among them, three were excluded because they were pregnant (all three were from non-COVID ICU). The mean age of the nurses was 27.41 years (range 20–41 years,

TABLE 2 Comparison of psychiatric caseness, anxiety, and depression among the nurses

Variables		COVID ICU	Non-COVID ICU	Total	Chi-square value; degree of freedom; *P*-value
General Health Questionnaire (GHQ-12) response[a]	Normal	5 (9.6%)	9 (20.5%)	14 (14.6%)	$\chi^{2b} = 2.248$; df[c] = 1; $P^d = .134$
	Caseness	47 (90.4%)	35 (79.5%)	82 (85.4%)	
Anxiety[e]	Normal	14 (26.9%)	15 (34.1%)	29 (30.2%)	$\chi^2 = 1.067$; df = 2; $P = .587$
	Borderline	19 (36.5%)	17 (38.6%)	36 (37.5%)	
	Abnormal	19 (36.5%)	12 (27.3%)	31 (32.3%)	
Depression[e]	Normal	28 (53.8%)	30 (68.2%)	58 (60.4%)	$\chi^2 = 3.082$; df = 2; $P = .214$
	Borderline	13 (25%)	10 (22.7%)	23 (24%)	
	Abnormal	11 (21.2%)	4 (9.1%)	15 (15.6%)	
Total		52 (100%)	44 (100%)	96 (100%)	

[a]Psychiatric caseness is present when the General Health Questionnaire (GHQ)-12 score is 3 or more.
[b]Chi-square value.
[c]Degree of freedom.
[d]*P*-value.
[e]Anxiety and depression scored by the Hospital Anxiety and Depression Scale (HADS); a score of 0 to 7 is normal, 8 to 10 is borderline case, and 11 to 21 is abnormal.

±3.37 years). Among the 96 participants, only one participant was male. They were working in the hospital for an average duration of 60.17 months (10–240 months). The work experience of the nurses in their current wards ranged from two week to ten years (mean 18.61 months). Among the three nurses with comorbidities, two had bronchial asthma and one nurse had polycystic kidney disease. The reported mean duration of sleep was 6.76 hours (±1.21 hours) hours (range 3–10 hours). Two participants had suicidal ideations and were reached out, and support was provided maintaining strict confidentiality. All the nurses (100%) had fears of transmitting the infection to their family members. Table 1 shows the different contributory variables that could lead to psychiatric caseness, anxiety, and depression in the study subjects. Table 2 compares psychiatric caseness, anxiety, and depression among the study subjects.

6 | DISCUSSION

Working in a pandemic and critical care setting can be a source of significant psychological stress on all health care workers.[14] In particular, frontline nurses involved in the care of COVID-19 patients experience more severe symptoms of depression and anxiety.[3]

In this study, 90.4% (47 of 52) of the nurses in the COVID ICU showed psychiatric caseness as compared to 79.5% (35 of 44) nurses in non-COVID ICU. The difference was, however, not statistically significant (Table 2). Nineteen (36.5%) of the nurses in the COVID ICU had abnormal anxiety as compared to 12 (27.3%) nurses in the non-COVID ICU (Table 2). Abnormal depression was present in 11 (21.2%) nurses in COVID ICU as compared to 4 (9.1%) nurses in non-COVID ICU (Table 2). Although not statistically significant, the percentage of nurses with anxiety and depression was higher in COVID ICU compared with non-COVID ICU (Table 2). Almost all contributory variables were equally distributed among nurses working in the COVID and non-COVID ICUs. As shown in Table 1, slight differences were observed but were not statistically significant between the two groups, except for sleep and job satisfaction (desire to continue working), which are discussed later.

The finding of a very high prevalence of psychiatric caseness among all ICU nurses in our study is very concerning. A social media survey studied the impact of COVID-19 pandemic on the mental health of the general population in our country and found that 50% of the respondents had at least one symptom and 32% had two or more symptoms of psychological distress.[15] In an epidemiological study of psychiatric cases using the GHQ-12 in a rural community of our country before the pandemic, the prevalence of psychiatric caseness was 37%.[16] Another study also conducted long before the pandemic, among nurses working in different departments in a tertiary care hospital in the country measured the prevalence of psychiatric problems using the GHQ-28 and concluded that psychiatric caseness was present in 34.7% of them.[17] Considering these findings, the observed psychiatric caseness of 85.4% among the nurses in our study is very alarming and requires prompt inputs to address and resolve their issues.

Some studies in Nepal have addressed depression and anxiety separately both prior and during the pandemic. A nationwide cross-sectional study conducted among adults in 2013 using HADS had demonstrated that the prevalence of anxiety and depression was 16.2% and 4.1%, respectively.[18] When we compare our findings with this study, we find that the prevalence of anxiety and depression in ICU nurses (anxiety in total 32.3% nurses and depression in total 15.6% of nurses) during the pandemic is very high compared with the prevalence in the general population before the pandemic. Another cross-sectional study among university health science students during the pandemic found the prevalence of anxiety and depression to be 15.7% and 10.7%, respectively.[19] When we compare our findings with this study, the prevalence of anxiety is higher in our study, but the prevalence of depression is

comparable. One study focusing on the mental health issues among different health professionals in the country during the pandemic demonstrated the presence of anxiety and depression in 24% and 19.2% of nurses.[7] The same study found anxiety and depression in 13.6% and 8% of doctors and 17.1% and 13% of other health care professionals apart from doctors and nurses. Compared with this study, our study shows slightly higher prevalence of anxiety (total 32.3% nurses) but lower prevalence of depression (total 15.6% nurses) in our nurses, but higher prevalence of both anxiety and depression in our nurses than in doctors or other health care professionals. Based on these comparisons, we can conclude that the pandemic has led to a higher prevalence of mental health problems in our nurses and appropriate measures, such as regular stress management sessions, screening of the staff, and provision of appropriate psychiatric inputs to address the issues, are urgently needed.

In a cross-sectional study among 1257 health care workers in 34 hospitals in China, the prevalence of moderate to severe anxiety and depression among nurses was 12.7% and 15.5%, respectively.[3] In another cross-sectional study among 3228 nurses in Sichuan Province and Wuhan City in China, the total prevalence of depression and anxiety among nurses was 34.3% and 18.1%, respectively.[20] The findings from the second study are comparable to our study; however, when we compare our findings with the first study, the rate of anxiety is higher in our study. The fact that this study was carried out very early in the pandemic in China might explain the relatively higher prevalence of anxiety in our nurses. In a cross-sectional online survey carried out using the HADS in 354 nurses caring for patients with COVID-19 at tertiary-level government institutes in India, it was found that 12.1% of the nurses had anxiety and 14.7% had depression.[21] In another study conducted in a private hospital in India among health care professionals, 20.9% of the nurses had clinically significant depression and 15.9% had clinically significant anxiety.[22] Compared to both studies, the prevalence of anxiety is higher in our participants, the reason could be that our nurses worked in critical care settings with higher inherent risk of disease transmission from high-risk procedures. The prevalence of depression in our study is similar to the first study in India, but lower than reported in the second study. The coping strategies of the nurses may be different in different populations and might explain this disparity.

An online survey in 472 nurses conducted at Arrowhead Regional Medical Center, San Bernardino County, California, to determine the prevalence of depression and anxiety in nursing staff during the COVID-19 pandemic found depression in 19% and anxiety in 31.6% of the nurses.[23] The findings from this study are comparable to ours and might suggest that the causes and levels of distress affecting nurses in the two countries might be comparable despite the differences in the infrastructure and health care systems in the two countries. In a web-based survey that aimed to assess the mental health of health care workers in a highly burdened area of north-east Italy during the lockdown phase of the COVID-19 pandemic, significant anxiety and depression were found in 62·8% and 32·7% of the nurses, respectively.[24] These findings are alarming and are significantly higher compared to our nurses. This can be explained by the rapid surge in cases and deaths of its citizens as well as the increase in the number of deaths among health care workers that overwhelmed the health care system in Italy. One study in Canada evaluated the effect of the COVID-19 pandemic on the mental health of critical care nurses who only cared for patients with COVID-19 during the early phase of the pandemic and found significant depression in 57% of the nurses and significant anxiety in 67% of them.[25] This is also very high compared to our nurses both in total and to nurses working only in COVID ICU (depression in 21.2% and anxiety in 36.5%). Even though Canada was not as affected by COVID-19 as Italy, the prevalence of anxiety and depression in these two developed countries is similar in the quoted studies. The authors of the Canadian study attribute this high prevalence of anxiety and depression in their nurses to the pandemic rapidly affecting health care providers all over the world, the health care policies that were rapidly changing, lack of proper communication, difficulty staying safe in new challenging environments, and difficulties in managing commitments to oneself and one's families.

There could be many reasons behind the observed lack of statistical significance in the difference between the caseness, anxiety, and depression among the two groups of nurses in this study. As the disease started to spread in the community, many patients admitted to different wards in the hospital developed symptomatic disease after few days of admission despite the polymerase chain reaction tests being negative at the time of admission. Many doctors and nurses working in the non-COVID wards in the hospital tested positive for the virus, and many had symptomatic disease. These could have led to increased psychiatric distress even in non-COVID ICU nurses and could be the reasons behind the lack of statistical significance observed in our study. In addition, almost all variables that could cause mental distress were almost equally distributed among nurses working in the two ICUs without any statistically significant difference being observed.

Various factors contribute to higher stress levels and mental health issues in nurses working in COVID ICUs. Fear is a known component of negative emotions that are present at an early stage in health care workers caring for patients with COVID-19.[26] Daily surges in the number of new cases and deaths around the time of data collection could have contributed to an increase in distress in our participants. As of 16 October 2020 (just 1 day prior to data collection), there were 126 137 confirmed cases of patients with COVID-19 and 715 deaths (0.6%) in our country (global death rate until the same date was 2.8%).[27] As of the same day, 33.2% of the total cases, 44.2% of the active cases, and 21.5% of the total deaths were in the city where our hospital is located.[27] The highest number of daily new cases was also in our city.[27] This was a source of great distress and fear was at an alarming level. The fear of contracting the infection was present in 95.8% of the nurses in this study and the fear of transmitting the infection to family members was present in 100% of the nurses (Table 1). These issues highlight the importance of adopting constructive coping strategies at an earlier stage to enhance positive feelings in nurses.[28]

Being treated in a biased manner by society due to fear of infection transmission can also be an exacerbating factor.[29] Fifty-six nurses (58.3%) in this study felt that they were treated differently by society because they were working in a hospital (social discrimination,

Table 1). Lack of adequate training, protective gear, and physical infrastructure could be other contributory factors.[30] There is a higher risk of airborne transmission not only due to aerosolization related to procedures in ICUs but also due to lack of negative pressure ventilation in resource-limited settings like ours. Ninety-two nurses (95.8%) in our study responded that it would have been better if they had been provided more COVID-19 care related training by the hospital than what they had received, and only 44 (45.8%) of the total nurses were confident in caring for patient with COVID-19 (Table 1). Being sick or having a family member becoming sick with COVID-19 infection likely resulted in negative effects in more than a third of participants. In this study, 36 (37.5%) of the total participants and in addition family members of 24 (25%) participants had COVID-19 (Table 1).

Prior studies have shown that the number of adequate available manpower, which is constrained in a pandemic setting, can be a significant determinant of nurse burnout and job dissatisfaction.[31] An alarming number of 62 nurses (64.6%) said that they were not satisfied with their work. Among 52 nurses working in COVID ICU, 32 (61.5%) did not want to continue working in the same department and this was statistically significant when compared to nurses working in non-COVID ICU (Table 1). Ninety (93.8%) of the nurses had difficulty taking leave and 45 (46.9%) of the total participants thought about quitting their job as nurses.

Studies have shown that long working shifts, poor quality of sleep, and sleep deprivation also adversely influence the well-being and job efficiency of nurses.[30,32] In our study, the mean duration of sleep was 6.76 hours (±1.21 hours, range 3–10 hours). Only 47 (49%) of the participants felt that their sleep pattern was satisfactory. The majority of the nurses in COVID ICU had unsatisfactory sleep compared with nurses working in non-COVID ICU, and this was also statistically significant (Table 1).

It is a matter of great concern that two of the study participants reported suicidal ideation. It is possible that the actual incidence of severe depression could be higher than the voluntarily reported number in our study. Due to the stigma attached to mental health in our society, participants might not have been completely forthcoming about the issues they are facing.

7 | LIMITATIONS

It is a cross-sectional study with a limited number of participants carried out in a single centre in one country. This fact could have resulted in the lack of adequate statistical power to detect a significant difference in the prevalence of psychiatric caseness, anxiety, and depression among the two groups of nurses. The current hospital is the referral centre in the country and the workload here can be different from other hospitals within the country. This study also does not address the mental health situations of nurses working in other COVID-designated centres in and outside the country, thus limiting the generalizability of the findings. The number of severe depression could be under-reported due to stigma related to psychiatric morbidity. Despite these limitations, this article addresses the experiences of the frontline nurses of the largest and the busiest critical care service provider in the country. Being able to include all ICU nurses working in the hospital across various departments and having a response rate of 100%, despite the level of distress and the busy schedules are other important strengths of this article.

8 | IMPLICATIONS AND RECOMMENDATIONS FOR PRACTICE

This study shows that the burden of unaddressed anxiety and depression among frontline nurses working in both COVID and non-COVID ICU is high. The identification of these disorders and the factors associated with them could aid in effective intervention and mitigation of adverse physical and psychological outcomes. Hospital administrators should focus on nurses in all ICUs to provide adequate training and preventive counselling before placing them in high stress environments of ICU nursing care. This may not be easy to carry out during a pandemic when the day-to-day activities might need to be rapidly changed to deal with the changing scenarios. However, provision of regular stress management sessions to frontline nurses, regular screening, and appropriate treatment of mental health issues they face by ensuring scheduled availability of mental health professionals during both office and off-work hours and encouraging them to vent their feelings through various means are possible and should be implemented. The outcome of this research can have policy implications for comprehensive mental health care and regular screening among staff involved in critical care settings.

9 | CONCLUSION

This study showed that anxiety and depression are common in nurses working in ICU settings. A higher percentage of nurses in COVID ICU have anxiety and depression, although there was no statistically significant difference, compared with nurses in non-COVID ICUs. Contributory factors leading to psychiatric morbidity were found to be present in comparable numbers in both groups, except for sleep disturbances, confidence in caring for patients with COVID-19, and intentions to discontinue current job, all three factors being significantly higher in COVID ICU nurses. Similar studies in the future can help elaborate the mental health issues in ICU nurses, thereby providing opportunity to timely intervention. There are also opportunities to perform follow-up studies in the same population to explore long-term mental health consequences.

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CONFLICT OF INTEREST

The authors do not have any conflicts of interest.

AUTHOR CONTRIBUTIONS

All the authors have contributed equally to conception, design, data analysis, manuscript preparation and finalization. Data collection was solely done by **Parishma Tamrakar**.

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