PSYCHIATRY NURSING JOURNAL
(Jurnal Keperawatan Jiwa)
Vol. 5, No. 2, September 2023

Laman Jurnal: https://e-journal.unair.ac.id/PNJ
http://dx.doi.org/ 10.20473/pnj.v5i2.45854

Original Research

ANXIETY AND ITS ASSOCIATED FACTORS AMONG FRONTLINE NURSES DURING COVID-19 PANDEMIC IN SELECTED HOSPITALS OF KATHMANDU, NEPAL

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ARTICLE HISTORY
Received: June 01, 2023
Revised: August 27, 2023
Accepted: August 28, 2023
Available online: Sept 10, 2023

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ABSTRACT

Introduction: Frontline warier especially, nursing workforce were at potential risk of anxiety during COVID-19 Pandemic that could affect their well-being and work performance. Thus, this study aimed to assess the level of anxiety and its associated factors among frontline nurses working in selected hospital of Kathmandu, Nepal.
Methods: A descriptive cross-sectional study was conducted during period of January 2022 to February 2022 in Shree Birendra Hospital and Nepal Police Hospital of Kathmandu, Nepal. Non-probability purposive sampling technique was used to select 101 nurses involving in the direct management of COVID-19 patients. Self-administered method using pretested tool was used to collect the data. Descriptive statistics such as frequency, percentage, mean and standard deviation were used to describe selected variables. Fisher exact test was used to find out the association between anxiety and selected variables.
Results: More than half of the nurses (66.3%) had mild to moderate level of anxiety whereas, only 8.9% of nurses had severe anxiety. Age (p=0.005), high risk group in family (0.048), fear of being infected with COVID 19 (p=0.021), and working department (p=<0.001) were found to be statistically significant with anxiety among frontline nurses.
Conclusion: Frontline nurses are facing high burden of anxiety during COVID 19 Pandemic. It suggests the need of planning of appropriate coping strategies and interventions to safeguard nurses from the physiological distress and consequences of anxiety, ultimately enabling them to provide quality health services.

Keywords

Anxiety; COVID-19; factors; Nepal; nurses

Cite this as:

Ghimire, P.. & Khadka, A. (2023). Anxiety and its Associated Factors among Frontline Nurses during COVID 19 Pandemic in Selected Hospitals of Kathmandu, Nepal. *Psych. Nurs. J.*, 5(2). 66-74. doi.org/10.20473/pnj. v5i2.45854

1. INTRODUCTION

A novel corona virus disease (COVID) 2019, firstly emerged in Wuhan city of Hubei Province, China in late December 2019, crosses the countries territory and declared public health emergency as well as a pandemic by WHO on 11th March 2020 (Huang et al., 2020; Jin et al., 2020). This serious acute respiratory disease transmitted from the droplet method is responsible for massive morbidity and mortality around the global nations (Jin et al., 2020). Globally, as of 4 August 2021, the total number of confirmed COVID-19 cases reached 199,446,221 including 4244541 deaths, reported to WHO (World Health Organization, 2021). Especially the countries of SEAR (South East Asia Region) with low resources are struggling to manage the overwhelming challenges imposed by this highly infectious disease. The first case of COVID-19 in South East Asia Region was seen in Nepal on 23 January 2020 in a man who had returned from Wuhan, China (Dhakal & Karki, 2020). As the data of 5th August 2021, 7,08,079 COVID-19 cases including 9,994 deaths were reported in Nepal (Ministry of Health and Population, 2021). Due to the

fragile health system as well as the open border with India and China, Nepal is facing an escalating burden of COVID-19 affecting people's lives, livelihoods, trade and economy. Health workers especially nurses are the frontline warriors fighting the COVID-19 pandemic by providing direct care, treatment, and life support to COVID-19 patients has a higher rate of exposure than the general population (Maben & Bridges, 2020; Nguyen et al., 2020; Salman et al., 2020). Nurses directly or indirectly involved in the COVID-19 case management were susceptible to anxiety and depression (Lai et al., 2020). The fear of being contaminated, sleep deprivation, stigmatization of COVID-19, social isolation, and the compulsion to perform duty despite the adverse environment to treat patients have 2 lodged health workers at risk of anxiety and other mental health disorders (McGinty, Presskreischer, Han, & Barry, 2020).

This unfolding pandemic placed additional loads on health care workers (HCWs). Nurses possess the largest cohort among frontline health workers directly involved and providing 24/7 services to patients suffering from COVID-19 or susceptible to the COVID-19 infection (Usher et al., 2009; Varghese et al., 2021). Regardless of fearful circumstances, nurses are always on the frontline, exhibiting commitment, compassion, and spend most of their time working at patient bedsides, devoted their personal lives owing to a great sense of duty toward their patients (Fernandez et al., 2020; Kang, Son, Chae, & Corte, 2018; Liu et al., 2020; Pokharel, Shah, Lama, Karki, & Shrestha, 2022).

Nurses spend more time with patients and face greater risks as compared to other health care providers (Luo, Guo, Yu, & Wang, 2020; Pappa et al., 2020; Shechter et al., 2020). Another study also revealed that health care workers especially nurses are at high risk of infection during the COVID-19 pandemic (Sabetian et al., 2021). Nurses involved directly in providing care for patients with COVID-19 have reported significant work-related stress and anxiety (Barello, Palamenghi, & Graffigna, 2020). Previous studies conducted in Saudi Arabia, Bangladesh, Sri Lanka, India, and China reported anxiety among nurses as 51.4%, 51.8%, 53.6%, 9.2%, 18.1% respectively (Alsharif, 2021; Chowdhury et al., 2021; Dharra & Kumar, 2021). Past study in Wuhan observed that factors such as being the only child in their family; long working hours per week; excessive physical energy consumption; and wearing uncomfortable protective equipment that limited their ability to rest, consume food, and use the toilet, influenced nurses' anxiety and stress (Mo et al., 2020). Moreover, other previous studies identified that poor self-confidence, heavy workload, family members in the medical profession, lack of PPE, years of work experience, age, female nurse, contact with COVID-19 cases, and level of education were found to be significant factors associated with anxiety among Nurses during COVID-19 pandemic (Alsharif, 2021; Chowdhury et al., 2021; Dharra & Kumar, 2021; Zheng et al., 2021).

Some studies have been documented anxiety among frontline health workers during COVID-19 pandemic in Nepal. However, limited studies show the figures of anxiety among nurses during the COVID-19 pandemic in the hospitals of Nepal. Similarly, the study setting of most of those studies was outside of the Kathmandu valley. In Nepal, Kathmandu is an epicenter for the COVID-19 cases and most of the referral hospitals are situated in the Kathmandu, capital city of Nepal. Thus, Nurses working in the hospitals of Kathmandu are experiencing surplus burden and workload related to the management of COVID-19 cases as compared to other places of Nepal. It suggests the timely assessment of anxiety among Nurses working in hospitals of Kathmandu, Nepal. Therefore, this study aimed to assess the anxiety and its associated factors among frontline nurses of selected hospitals during COVID-19 pandemic in Kathmandu, Nepal.

2. MATERIALS AND METHODS

2.1 Design

A quantitative descriptive cross-sectional study design was applied in this study to assess the anxiety and its associated factors among frontline nurses during COVID-19 pandemic in selected hospitals of Kathmandu, Nepal. The study was conducted during January 2022 to February 2022 which was the period after second wave and starting of third wave of COVID-19 pandemic associated morbidity and mortality.

2.2 Population and Sampling

Study population was the nurses of Shree Birendra Hospital and Nepal Police Hospital of Kathmandu who were directly involved in care and treatment of COVID-19 patients during pandemic. Total study population was 250 nurses i.e. 145 nurses in Shree Birendra Hospital and 105 in Nepal Police Hospital. The total number of sample was 101 frontline nurses. Proportion of sample size was calculated as 40.4%. Then, the sample of 59 nurses from Shree Birendra Hospital and 42 nurses from Nepal Police Hospital were selected using non probability purposive sampling technique in this study. Nurses who gave consent and available for data collection were included in the study.

2.3 Variables

Dependent variable assessed in this study was anxiety whereas, independent variables were sociodemographic characteristics (age, educational level, marital status, type of family, monthly family income, presence of high risk group in the family) and work related characteristics (job title, employment status, working department, work experience, working hours per week, training on COVID-19 management, availability of PPE, witnessed a death of a COVID-19 patient, fear of being infected, allowance for COVID-19 management).

2.4 Instruments

A semi-structured self-administered questionnaire was developed by reviewing the related literature and seeking the opinion from subject experts. Questionnaire was constructed using simple and understandable words in English version. GAD-7(General Anxiety Disorder-7) scale was used for assessing the level of anxiety. GAD-7 scale includes 7 statements related to problems that individual had experienced during COVID-19 patient care. The score of each statement was ranged from 0- 3. Total score from the 7 statements were obtained and sum score is used to categorize level of anxiety as minimal anxiety (0-4), mild anxiety (5-9), moderate anxiety (10-14), and severe anxiety (15-21) (Spitzer, Kroenke, Williams, & Löwe, 2006).Questionnaire was divided into three parts: Part I: Questions related to socio-demographic characteristics Part II: Questions related to work related characteristics Part III: Questions to assess the level of anxiety. It was assessed by using GAD – 7(General Anxiety Disorder-7) scale (Spitzer et al., 2006). The content validity of the instrument was established by seeking opinion from subject experts, peer groups and related consultant. Similarly, pretesting of the instrument was done among 10% (12 nurses) of the study population in Armed Force Hospital having similar characteristics with the study population to check its clarity, sequence and feasibility with the purpose of maintaining the reliability of the instrument.

2.4 Data Collection Procedure

Data was collected after getting ethical approval from the research committee of NAIHS-CON. Written permission for data collection was taken from Shree Birendra Hospital and Nepal Police Hospital. Proportion of sample size of the study was calculated for study settings (two hospitals). Then appropriate sample from both hospitals were selected using purposive sampling technique. Objectives of the research study was clearly explained and informed written consent was obtained from each participant. Anonymity was maintained by asking participants not to write their names. Participants were provided instructions to fill the questionnaire in the presence of researcher to prevent data contamination. It took about 10-15 minutes to fill the questionnaire and collected their responses immediately after filling the questionnaire by respondents. At the end of the data collection, the questionnaires were collected and checked for completeness and consistency. All the procedures of data collection were performed following strict COVID-19 preventive measures.

2.5 Data Analysis

Data were checked, coded, classified and entered into statistical package for the social sciences (SPSS) version 16. Data analysis was done through descriptive and inferential statistics. Descriptive statistics i.e. frequency, percentage, mean, standard deviation was used to describe socio demographic characteristics and work-related characteristics. Inferential statistics i.e. chi square test was used to analyze the associations of selected demographic variables with anxiety among frontline nurses.

2.6 Ethical Clearance

Ethical clearance to conduct this study was sought from the research committee of NAIHS-CON with reference number of १५४४५/प/१९/०७८/७९/८३. Informed written consent was obtained prior to the data collection from the participants. Anonymity and confidentiality of participant's information was maintained.

3. RESULTS

A total of 101 frontline nurses were participated in the study. Table 1 shows that highest proportions (62.4%) of respondents were of age 25-34 years with mean age of 27.80 and standard deviation ± 5.69. Concerning the professional qualification, more than half (52.5%) of respondents had education level of PCL Nursing. Majority of respondents (52.5%) were unmarried. Highest proportion of respondents (64.4%) had nuclear family. Regarding monthly family income highest proportion (42.5%) of the respondents had income of NRS 50,000-1,00,000. Majority of the respondent (52.5%) had no high risk group in their family.

Table 2 shows that the majority of respondents (89.1%) were staff nurse. In terms of employment status, majority of respondents (78.2%) were permanent. 28.7% of the respondents were working at general ward. More than half (58.4%) of the respondents had work experience of 1-5 years. Regarding working hours of respondents, it was found that majority of the respondents (93.1%) were working ≤48 hours per week.

Table 3 shows that highest proportion (71.3%) of the respondents were trained on COVID-19 management. Similarly, almost all (91.4%) of the respondents had reported the availability of complete set of PPE. Almost half of the respondents (44.6%) were involved in the care of COVID-19 patient since 4-6 months. Furthermore, 2/3rd of the respondents (74.3%) were witnessed of death of the COVID-19 patient.

Table 4 shows that majority of the respondents (39.6%) had mild level of anxiety whereas least respondents (8.9%) had severe level of anxiety. Table 5 shows that almost half (46.5%) of the respondents feel anxious and almost 1/4th (24.8%) of the respondents were not able to stop or control worrying several days. Similarly, 29.7% of the respondents had mentioned that they worried too much about different things in several days. Furthermore, 29.7% of the respondents were feeling afraid in several days, as if something awful might happen.

Table 6 shows that age (p=0.005) and high risk group in family (p=0.048) were found to be statistically significant with level of anxiety. However,

Table 1. Socio-demographic characteristics of the respondents (n=101)

Variables	Frequency	Percentage
Age group (In Completed Years)		
15-24	28	27.7
25-34	63	62.4
>35	10	9.9
Mean ±SD (27.80±5.69)		
Educational level		
PCL	53	52.5
Bachelor	47	46.5
Master level and above	1	1.0
Marital status		
Unmarried	55	52.5
Married	46	45.5
Type of family		
Nuclear	65	64.4
Joint	36	35.6
Monthly family income (NRS)		
< 50000	41	40.6
50000-100000	43	42.5
>100000	17	16.8
High risk group in family		
Yes	48	47.5
No	53	52.5

Table 2. Work related characteristics of the participants (n=101)

Variables	Frequency	Percentage
Job title		
Staff nurse	90	89.1
Officer nurse	11	10.9
Employment status		
Permanent	79	78.2
Temporary	22	21.8
Working department		
Emergency ward	12	11.9
General ward	25	24.8
ICU/HCU ward	29	28.7
Isolation ward	13	12.9
Others	22	21.8
Work experience (in years)		
1-5	59	58.4
6-10	34	33.7
>10	8	7.9
Working hours per week		
≤48	94	93.1
>48	7	6.9

Table 3. COVID 19 related information of the participants (n=101)

Variables	Frequency	Percentage
Trained on COVID 19 management		
Yes	72	71.3
No	29	28.7
Availability of PPE		
Complete set	92	91.0
Incomplete set	9	8.9
Duration of COVID 19 patient care		
1-3 months	36	35.6
4-6 months	45	44.6
≥7 months	20	19.8
Witness of death of COVID 19 patient		
Yes	75	74.3
No	26	25.7

Table 4. Level of anxiety among participants (n=101)

Level of anxiety	Frequency	Percentage
Minimal anxiety (0-4 Score)	25	24.8
Mild anxiety (5-9 Score)	40	39.6
Moderate anxiety(10-14 Score)	27	26.7
Severe anxiety(15-21 Score)	9	8.9

Table 5. Participant's responses regarding anxiety during care of COVID 19 patient (n=101)

Items	Not at all f (%)	Several days f (%)	More than half the days f (%)	Nearly every day f (%)
Feeling nervous or anxious	25(24.8)	47(46.5)	13(12.9)	16(15.8)
Not being able to stop or control worrying	48(47.5)	25(24.8)	22(21.8)	6(5.9)
Worrying too much about different things	39(38.6)	30(29.7)	18(17.8)	14(13.9)
Trouble relaxing	37(36.6)	40(39.6)	15(14.9)	9(8.9)
Being so restless that it is hard to sit still	46(45.5)	27(26.7)	20(19.8)	8(7.9)
Becoming easily annoyed or irritable	28(27.7)	27(26.7)	27(26.7)	19(18.8)
Feeling afraid, as if something awful might happen	33(32.7)	30(29.7)	25(24.8)	13(12.9)

Table 6. Association of level of anxiety with socio-demographic variables (n=101)

Variables	Level of anxiety			Fisher exact value	p-value
	Minimal to mild f (%)	Moderate f (%)	Severe f (%)		
Age (in years)					
15-24	25 (89.3)	1 (3.6)	2 (7.1)	13.646	0.005*
25-34	34 (54.0)	23 (36.5)	6 (9.5)		
>35	6 (60.6)	3 (30.0)	1 (10.0)		
Educational level					
PCL	34 (64.2)	15 (28.3)	4 (7.5)	3.711	0.522
Bachelor	31 (66.0)	11 (23.4)	5 (10.6)		
Master level and above	-	1 (100.0)	-		
Marital status					
Unmarried	37 (67.3)	12 (21.8)	6 (10.9)	1.761	0.471
Married	28 (60.9)	15 (32.6)	3 (6.5)		
Type of family					
Nuclear	39 (60.0)	21 (32.3)	5 (7.7)	3.034	0.217
Joint	26 (72.2)	6 (16.7)	4 (11.1)		
Monthly family income (NRS)					
< 50000	32 (78.0)	6 (14.6)	3 (7.3)	7.028	0.114
50000-100000	25 (58.1)	14 (32.6)	4 (9.3)		
>100000	8 (47.1)	7 (41.2)	2 (11.8)		
High risk group in family					
Yes	25 (52.1)	17 (35.4)	6 (12.5)	5.954	0.048*
No	40 (75.5)	10 (18.9)	3 (5.7)		

*p≤0.05 is statistically significant

Table 7. Association of level of anxiety with work related variables (n=101)

Variables	Level of anxiety			Fisher exact value	p-value
	Minimal to mild f (%)	Moderate f (%)	Severe f (%)		
Job title					
Staff nurse	58 (64.4)	24 (26.7)	8 (8.9)	0.257	1.00
Officer nurse	7 (63.6)	3 (27.3)	1 (9.1)		
Employment status					
Permanent	47 (59.5)	23 (29.1)	9 (11.4)	4.161	0.119
Temporary	18 (81.8)	4 (18.2)	-		
Working department					
Emergency ward	11 (91.7)	1 (8.3)	-	30.927	<0.001*
General ward	17 (68.0)	6 (24.0)	2 (8.0)		
ICU/HCU ward	20 (69.0)	8 (27.6)	1 (3.4)		
Isolation ward	-	9 (69.2)	4 (30.8)		
Others	17 (77.3)	3 (13.6)	2 (9.1)		
Work experience (in years)					
1-5	41 (69.5)	13 (22.0)	5 (8.5)	4.119	0.555
6-10	18 (52.9)	13 (38.2)	3 (8.8)		
>10	6 (75.0)	1 (12.5)	1 (12.5)		
Working hours per week					
≤48	60 (63.8)	25 (26.6)	9 (9.6)	0.315	1.00
>48	5 (71.4)	2 (28.6)	-		

*p≤0.05 is statistically significant

Table 8. Association of level of anxiety with COVID-19 related variables (n=101)

Variables	Level of anxiety			Fisher exact value	p-value
	Minimal to mild f (%)	Moderate f (%)	Severe f (%)		
Training on COVID 19 management					
Yes	48 (66.7)	19 (26.4)	5 (6.9)	1.457	0.520
No	17 (58.6)	8 (27.6)	4 (13.8)		
Availability of PPE					
Complete Set	56 (60.9)	27 (29.3)	9 (9.8)	4.653	0.101
Incomplete Set	9 (100.0)	-	-		
Witness of death of COVID 19 patient					
Yes	45 (60.0)	22 (29.3)	8 (10.7)	2.228	0.351
No	16 (94.1)	1 (5.9)	-		
Fear of being infected with COVID 19					
Yes	49 (58.3)	26 (31.0)	9 (10.7)	7.454	0.021*
No	18 (52.9)	13 (38.2)	3 (8.8)		
Allowance for COVID 19 management					
Yes	47 (61.8)	22 (28.9)	7 (9.2)	0.839	0.678
No	18 (72.0)	5 (20.0)	2 (8.0)		

*p≤0.05 is statistically significant

educational level, marital status, type of family, monthly family income, and high risk group in family were not found to be associated with level of anxiety among nurses.

Table 7 shows that only working department (p=<0.001) was found to be statistically significant with level of anxiety. However, job title, employment status, working department, work experience, and working hours per week were not found to be associated with level of anxiety among nurses. Table 8 shows that fear of being infected with COVID-19 (p=0.021) was found to be statistically significant with level of anxiety. However, training on COVID-19 management, availability of PPE, witness of death of COVID-19 patient, and allowances for COVID-19 management were not found to be associated with level of anxiety among nurses.

4. DISCUSSION

The results of the present study shows that, majority (39.6%) of the nurses experienced minimal level of anxiety followed by moderate level of anxiety (26.7%) and high level of anxiety (8.9%).This findings is nearly consistent with the findings of the study conducted among 83 nurses in India which showed 33.33% and 4.8% nurses who worked as frontline workers had experienced moderate level of anxiety and severe anxiety respectively (Cornelio, Suseel, & Thomas, 2021).This finding is contrast with the finding of study carried out among 152 nurses in kaski district, Nepal where 7.9%, 20.4% and 9.9% of the nurses had experienced mild, moderate, and severe level of anxiety respectively(Silwal et al., 2020).

Similarly, another study conducted in Chitwan Medical College and Teaching Hospital among 181 nurses revealed that current study findings regarding anxiety was higher as compared to their study findings (Neupane, Angadi, Joshi, & Neupane, 2020). It demonstrated that 1.1 % and 10.5% of the nurses had experienced intense to severe and mild to moderate level of anxiety during COVID-19 pandemic respectively. The probable reason for the difference in this finding could be due to the study settings. Furthermore, another reason might be due to time period of the study where this study was conducted after second wave of COVID-19 pandemic in Nepal i.e., possess high morbidity and mortality due to COVID-19 while other studies were conducted during first wave of COVID-19 pandemic in Nepal i.e., less morbidity and mortality due to COVID-19 in comparison to second wave.

Present study shows that age (p=0.030) was significantly associated with anxiety among nurses. This result is consistent with studies conducted among nurses in China with p<0.01 (Lai et al., 2020) and Finland with p<0.01(Mattila et al., 2021) . However, studies of Pakistan (Khan et al., 2021) and Philippines (Labrague & De los Santos, 2020) shown the contradict result that age was not associated with anxiety. This difference in result could be due to sample size, study setting, and wave of COVID-19.

Similarly, working department (p<0.01) was found to be associated with anxiety among nurses in this study. It was supported by study conducted in China where working department was statistically significant with anxiety among nurses (Zheng et al., 2021).

Fear of being infected with COVID-19 (p=<0.01) also observed to be associated with anxiety among nurses working in hospital during COVID-19 pandemic. The studies among nurses in China (Zheng et al., 2021)and among health workers in Nepal (Barello et al., 2020)during COVID-19 pandemic found the similar findings of this study i.e., association of fear of being infected with COVID-19 and anxiety.

This study was conducted in only two central hospitals of Kathmandu which limits the generalization of the study. The findings of the study might be helpful for hospital administration to provide psychological preparedness training before posting nurses on duty and conduct psychological interventions and support like stress relieving programs, motivational program to enhance better working environment, sound mental health among nurses for standardization in patient care. The finding of this study might be useful as a source of reference for the further research in this area.

5. CONCLUSSION

Based on the findings of the study, the study concludes that there is high burden of anxiety among frontline nurses during COVID-19 Pandemic. Age, high-risk group in family, working department, and fear of being infected with COVID-19 were statistically significant predictors of increased level of anxiety among frontline nurses. Therefore, significant interventions addressing these factors should be planned and endorsed to overcome the burden of anxiety among frontline nurses which will ultimately aids to maintain the mental health of the nurses and beneficial for patient management during this COVID-19 pandemic.

6. REFERENCES

Alsharif, F. (2021). Nurses' knowledge and anxiety levels toward covid-19 in Saudi Arabia. *Nursing Reports*, *11*(2), 356–363. doi: 10.3390/nursrep11020034

Barello, S., Palamenghi, L., & Graffigna, G. (2020). Burnout and somatic symptoms among frontline healthcare professionals at the peak of the Italian COVID-19 pandemic. *Psychiatry Research*, *290*. doi: 10.1016/j.psychres.2020.113129

Chowdhury, S. R., Sunna, T. C., Das, D. C., Kabir, H., Hossain, A., Mahmud, S., & Ahmed, S. (2021). Mental health symptoms among the nurses of Bangladesh during the COVID-19 pandemic. *Middle East Current Psychiatry*, *28*(1). doi: 10.1186/s43045-021-00103-x

Cornelio, S., Suseel, S., & Thomas, V. (2021). Covid-19 Related Depression, Anxiety and Stress among Nurses Working as Front Line Workers in a Selected Hospital in Mumbai City. *International Journal of Health Sciences and Research*, *11*(5), 163–168. doi: 10.52403/ijhsr.20210526

Dhakal, S., & Karki, S. (2020). Early Epidemiological Features of COVID-19 in Nepal and Public Health Response. *Frontiers in Medicine*, *7*. doi: 10.3389/fmed.2020.00524

Dharra, S., & Kumar, R. (2021). Promoting Mental Health of Nurses During the Coronavirus Pandemic: Will the Rapid Deployment of Nurses' Training Programs During COVID-19 Improve

Self-Efficacy and Reduce Anxiety? *Cureus*, *13*(5). doi: 10.7759/cureus.15213

Fernandez, R., Lord, H., Halcomb, E., Moxham, L., Middleton, R., Alananzeh, I., & Ellwood, L. (2020, November 1). Implications for COVID-19: A systematic review of nurses' experiences of working in acute care hospital settings during a respiratory pandemic. *International Journal of Nursing Studies*, Vol. 111. Elsevier Ltd. doi: 10.1016/j.ijnurstu.2020.103637

Huang, C., Wang, Y., Li, X., Ren, L., Zhao, J., Hu, Y., … Cao, B. (2020). Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *The Lancet*, *395*(10223), 497–506. doi: 10.1016/S0140-6736(20)30183-5

Jin, Y., Yang, H., Ji, W., Wu, W., Chen, S., Zhang, W., & Duan, G. (2020). Virology, epidemiology, pathogenesis, and control of covid-19. *Viruses*, Vol. 12. MDPI AG. doi: 10.3390/v12040372

Kang, H. S., Son, Y. D., Chae, S. M., & Corte, C. (2018). Working experiences of nurses during the Middle East respiratory syndrome outbreak. *International Journal of Nursing Practice*, *24*(5). doi: 10.1111/ijn.12664

Khan, T. M., Tahir, H., Salman, M., Ul Mustafa, Z., Raza, M. H., Asif, N., … Biag, M. R. (2021). General Anxiety Predictors among Frontline Warriors of COVID: Cross-Sectional Study among Nursing Staff in Punjab, Pakistan. *Archives Of Pharmacy Practice*, *12*(2), 40–44. doi: 10.51847/a0j3y5qmhp

Labrague, L. J., & De los Santos, J. A. A. (2020). COVID-19 anxiety among front-line nurses: Predictive role of organisational support, personal resilience and social support. *Journal of Nursing Management*, *28*(7), 1653–1661. doi: 10.1111/jonm.13121

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., Wei, N., … Hu, S. (2020). Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Network Open*, *3*(3). doi: 10.1001/jamanetworkopen.2020.3976

Liu, Q., Luo, D., Haase, J. E., Guo, Q., Wang, X. Q., Liu, S., … Yang, B. X. (2020). The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study. *The Lancet Global Health*, *8*(6), e790–e798. doi: 10.1016/S2214-109X(20)30204-7

Luo, M., Guo, L., Yu, M., & Wang, H. (2020, September 1). The psychological and mental impact of coronavirus disease 2019 (COVID-19) on medical staff and general public – A systematic review and meta-analysis. *Psychiatry Research*, Vol. 291. Elsevier Ireland Ltd. doi: 10.1016/j.psychres.2020.113190

Maben, J., & Bridges, J. (2020, August 1). Covid-19: Supporting nurses' psychological and mental health. *Journal of Clinical Nursing*, Vol. 29, pp. 2742–2750. Blackwell Publishing Ltd. doi: 10.1111/jocn.15307

Mattila, E., Peltokoski, J., Neva, M. H., Kaunonen, M., Helminen, M., & Parkkila, A. K. (2021). COVID-19: anxiety among hospital staff and associated factors. *Annals of Medicine*, *53*(1), 237–246. doi: 10.1080/07853890.2020.1862905

McGinty, E. E., Presskreischer, R., Han, H., & Barry, C. L. (2020, July 7). Psychological Distress and Loneliness Reported by US Adults in 2018 and April 2020. *JAMA - Journal of the American Medical Association*, Vol. 324, pp. 93–94. American Medical Association. doi: 10.1001/jama.2020.9740

Ministry of Health and Population, N. (2021, August 5). COVID Cases Update. Retrieved August 26, 2023, from Ministry of Health and Population, Nepal website: https://covid19.mohp.gov.np/

Mo, Y., Deng, L., Zhang, L., Lang, Q., Liao, C., Wang, N., … Huang, H. (2020). Work stress among Chinese nurses to support Wuhan in fighting against COVID-19 epidemic. *Journal of Nursing Management*, *28*(5), 1002–1009. doi: 10.1111/jonm.13014

Neupane, M. S., Angadi, S., Joshi, A., & Neupane, H. (2020). Stress and Anxiety among Nurses working in tertiary hospitals in Nepal during COVID-19 Pandemic. *Journal of Chitwan Medical College*, *10*(33), 8–11. doi: 10.54530/jcmc.232

Nguyen, L. H., Drew, D. A., Graham, M. S., Joshi, A. D., Guo, C. G., Ma, W., … Zhang, F. (2020). Risk of COVID-19 among front-line health-care workers and the general community: a prospective cohort study. *The Lancet Public Health*, *5*(9), e475–e483. doi: 10.1016/S2468-2667(20)30164-X

Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsi, E., & Katsaounou, P. (2020, August 1). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, Vol. 88, pp. 901–907. Academic Press Inc. doi: 10.1016/j.bbi.2020.05.026

Pokharel, R., Shah, T., Lama, S., Karki, A., & Shrestha, E. (2022). Psychosocial Responses and Preparedness During Initial Phase of COVID-19

Pandemic Among Nurses Working Different Hospitals of Eastern Nepal: A Pre-Experimental Mixed Method Approach. *Journal of Mental Health*, *31*, 551–559. doi: 10.1080/09638237.2021.2022634

Sabetian, G., Moghadami, M., Hashemizadeh Fard Haghighi, L., Shahriarirad, R., Fallahi, M. J., Asmarian, N., & Moeini, Y. S. (2021). COVID-19 infection among healthcare workers: a cross-sectional study in southwest Iran. *Virology Journal*, *18*(1). doi: 10.1186/s12985-021-01532-0

Salman, M., Ul Mustafa, Z., Asif, N., Zaidi, H. A., Shehzadi, N., Khan, T. M., … Hussain, K. (2020). Knowledge, attitude and preventive practices related to COVID-19 among health professionals of Punjab province of Pakistan. *Journal of Infection in Developing Countries*, *14*(7), 707–712. doi: 10.3855/jidc.12878

Shechter, A., Diaz, F., Moise, N., Anstey, D. E., Ye, S., Agarwal, S., … Abdalla, M. (2020). Psychological distress, coping behaviors, and preferences for support among New York healthcare workers during the COVID-19 pandemic. *General Hospital Psychiatry*, *66*, 1–8. doi: 10.1016/j.genhosppsych.2020.06.007

Silwal, M., Koirala, D., Koirala, S., & Lamichhane, A. (2020). "Depression, Anxiety and Stress among Nurses during Corona Lockdown in a Selected Teaching Hospital, Kaski, Nepal". *Journal of Health and Allied Sciences*, *10*(2), 82–87. doi: 10.37107/jhas.210

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A Brief Measure for Assessing Generalized Anxiety Disorder The GAD-7. *Archives of Internal Medicine*, *166*(10), 1092–1097. doi: 10.1001/archinte.166.10.1092

Usher, K., Gardner, A., Buttner, P., Woolley, T., Sando, J., White, K., & West, C. (2009, December). The H1N1 influenza 09 and its potential impact on the Australian nursing workforce. *Collegian*, Vol. 16, pp. 169–170. doi: 10.1016/j.colegn.2009.10.001

Varghese, A., George, G., Kondaguli, S. V., Naser, A. Y., Khakha, D. C., & Chatterji, R. (2021). Decline in the mental health of nurses across the globe during COVID-19: A systematic review and meta-analysis. *Journal of Global Health*, *11*, 1–15. doi: 10.7189/jogh.11.05009

World Health Organization. (2021, August 4). WHO Corononavirus (COVID-19) Dashboard. Retrieved August 26, 2023, from World Health Organization website: https://covid19.who.int/

Zheng, R., Zhou, Y., Fu, Y., Xiang, Q., Cheng, F., Chen, H., … Li, J. (2021). Prevalence and associated factors of depression and anxiety among nurses during the outbreak of COVID-19 in China: A cross-sectional study. *International Journal of Nursing Studies*, *114*. doi: 10.1016/j.ijnurstu.2020.103809