Depression, Anxiety and Stress among Nurses during COVID-19 Lockdown in a Hospital of Kaski District, Nepal

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ABSTRACT

Introduction: Mental health is as important as physical health to respond to COVID-19 pandemic. This pandemic has increased social isolation and fear regarding health and well-being as well as a dilemma which can lead to mental health problems among general people and health workers.Thus the main objective of this study was to assess the prevalence and factors associated with depression, anxiety and stress among nurses working in a hospital of Nepal during the period of Corona lockdown.

Methods: A cross-sectional study was carried out among 152 nurses working at Gandaki Medical College Teaching Hospital and Research Centre of Kaski district of Nepal. Data were collected using a structured self-administered questionnaire consisting of socio-demographic items and Depression, Anxiety and Stress Scale (DASS-42) scale from 11 April to 18 April, 2020. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 22 applying descriptive statistics and inferential statistical method.

Results: Respondent's mean age and SD was 24.09 + 3.19 years. The sample mean score of DASS-42 was 29.46 (SD 25.37). Depression, anxiety and stress were prevalent among 39.5%, 50% and 25.7% of the respondents respectively. There was significant association of depression with education level (χ^2=6.597; p=0.01) and working unit (χ^2=8.187; p=0.004). Anxiety was significantly associated with working unit (χ^2=6.973; p=0.008) and children status (χ^2=4.199; p=0.040). Stress was significantly associated with age (χ^2=4.906; p=0.027), working unit (χ^2=4.984; p=0.026) and children status (χ^2=5.653; p=0.017).

Conclusion: Based on findings, it can be concluded that some degree of depression, anxiety and stress were prevalent among nurses during COVID-19 pandemic. Further assessment should be made to confirm the respective diagnoses. Stress and anxiety relieving sessions and psychological support programs may help for the nurses with higher than cut-offs.

INTRODUCTION

Corona virus disease 2019 (COVID-19) is a disease of the human respiratory system caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) which transmits from person-to-person via respiratory droplet. The symptoms include fever, cough and fatigue, mild to severe respiratory illness appearing after an incubation period of approximately 5.2 days.[1,2]

COVID-19 originated in Wuhan city, Hubei Province of China with 41 cases of pneumonia of unknown etiology.[3] Until February 2020, China was the only country affected by Covid-19 but from the beginning of March, it started to spread rapidly to South Korea. At the second week of March, cases increased rapidly to Italy and Spain and other European countries and at the third week of March cases were seen in United States and other countries in the Americas. WHO declared COVID-19 a pandemic disease on 11th March, 2020.[4] Globally, the reported cases of COVID-19 since 31 December 2019 and as of 20

March 2020 was found to be 2,42,488 including 9,885 deaths. Italy being seriously affected was in the first rank with reported deaths of 3,407 followed by China (3,254), Iran (1,284), Spain (767), France (372), United States (150), United Kingdom (144), India (4).[5] A single case was reported to have Covid-19 infection in Nepal till 23, March which was confirmed on 23 January 2020.[6] A country-wide lockdown came into effect on 24 March and was continued until 14 June 2020.[7, 8] There were total 886 infected persons in Nepal as of 27th May.A total of 15,259 cases have been confirmed as of as of July 3, 2020, affecting all seven provinces and 77 administrative districts.[6]

Mental illness is omnipresent and nobody is immune to it.[9] Mental health is as important as physical health to respond to COVID-19. This pandemic has invited the increased social

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isolation, fear regarding health and well-being as well as future dilemma which can lead to mental health problems among people.[10]Since many developed countries are facing massive challenges due to corona pandemic, no doubt Nepal being a developing country its health system can face stress to cope with the disease as it is ill prepared to spot and control the disease.[11]

Understanding the psychological impact of the COVID-19 outbreak among health care workers is vital in guiding policies and interventions to maintain their psychological well-being.[12] Several studies have shown increased prevalence of depression, anxiety and stress on general population and that among the front-line health workers.[12-14] In Nepal also corona cases were managed in selected public hospitals only.[7] However, assessment of mental health states of nurses working in private hospital were very limited. Therefore, the researcher assessed the level and factors associated with depression, anxiety and stress among nurses working in a private hospital of Kaski during early COVID-19 lockdown period.

METHODS

A cross-sectional research design was used to conduct the study among nurses working at Gandaki Medical College Teaching Hospital and Research Centre Private Limited (GMCTHRC). GMCTHRC is a 550 bedded tertiary level private hospital of Gandaki Province, Nepal, established in 2008 A.D. Located in the heart of Pokhara, at Prithvichowk, this hospital has been a working center for a number of health personnel including nurses. So, this setting was selected purposively for the study purpose. The targeted population for the study were all nurses working at GMCTHRC whose total number was 204. Sample size (n=152) was calculated taking prevalence of 56% with moderate stress among nurses from a study conducted by Mehta and Singh[15] at 95% confidence level, 5% allowable error and 15% non response rate using the formula: Z^2pq/d^2 and $n_0/(1+n_{0/N})$ for finite population size. Simple random sampling technique was used to select the sample. All nurses who were working in GMCTHRC for more than 3 months were included in the study. Hospital matron, nurses who were undergoing treatments for psychiatric problems and who were unwilling to participate were excluded from the study.

A self-administered questionnaire was developed through extensive review of related literature and was organized into 3 parts: Part I consisted questions related to socio-demographic and work-related characteristics, Part II consisted Depression Anxiety and Stress Scale (DASS). The DASS is a 42-item self report instrument developed by Lovibond and Lovibond[16] to measure the three negative emotional states of depression, anxiety and stress/tension. Each subscale consists of 14 items and rated using a 4-point Likert scale, ranging from 0 to 3:

0="did not apply to me at all" and 3 "applied to me very much or most of the time." The total score was calculated by summing up the scores on each item on the subscale. Depression was rated as follows: 0-9= no depression, 10-13=mild, 14-20=moderate, 21-27= severe and >28= extremely severe. Anxiety was rated as: 0-7= no anxiety, 8-9=mild, 10-14= Moderate, 15-19= Severe and >20= Extremely severe. Stress was rated as: 0-14= no stress, 15-18= mild, 19-25= Moderate, 26-33= Severe and > 34= Extremely severe. This questionnaire is public domain and requires no permission for use. DASS is a valid and reliable instrument (Cronbach alpha 0.89) used across various countries.[12, 14, 17,18]

The study was carried out after obtaining ethical clearance of the research proposal from the Institutional Review Board (IRB) of Gandaki Medical College. Informed verbal and written consent were taken from the respondents. Researchers collected the data from 11 to 17 April, 2020 using self-administered questionnaire. Data were coded, entered in IBM SPSS, version 16 and were analyzed by employing descriptive and inferential statistical method. Statistical significance was considered as p-value <0.05.

RESULTS

Total of 152 nurses having mean age 24.09 years (SD ± 3.19) were studied. More than half were Hindus (77.6%) residing in urban municipality (90.8%), unmarried (63.8%) and living with their family/spouse (87.5%). Almost three fourth (72.4%) had PCL level of education. Majority were working as staff nurse (88.2%) in critical units (59.2%) of the hospital for more than a year (74.3%) [Table1].

Table 1: Demographic and Job-related Characteristics of Respondents (n=152)

Characteristics	Number	Percentage
Age in years		
< 25	100	65.8
≥ 25	52	34.2
Mean age ± SD in years= 24.09± 3.19; Min.=19, Max.=36		
Religion		
Hindu	118	77.6
Non-Hindu (Buddhist, Islam, Christian)	34	22.4
Ethnicity		
Brahmin/Chhetri	78	51.3
Janajati	67	44.1
Dalit	7	4.6
Type of residence		
Urban	138	90.8
Rural	14	9.2
Marital Status		
Unmarried	97	63.8

Married	55	36.2
For married, number of children (n=55)		
None	34	61.8
1 or more	21	38.2
Living with family		
Yes	133	87.5
No	19	12.5
Professional qualification		
ANM	11	7.2
PCL Nursing	110	72.4
BN/BNS	12	7.9
B. Sc. Nursing	19	12.5
Working Units		
General Units	62	40.8
Critical Units	90	59.2
Designation		
Nursing In-charge	2	1.3
Senior Staff Nurse	13	8.6
Staff Nurse	134	88.2
ANM	3	2.0
Duration of work		
< 1 year	39	25.7
≥ 1 year	113	74.3

Mean work experience ± SD in years= 2.63 ± 1.95; Min.=0.25, Max.=10

Table 2 illustrates the prevalence of depression, anxiety and stress among nurses measured using DASS scale. Concerning depression, most participants had no depression (60.5%). 9.9% of nurses had severe and extremely severe level of depression. Similarly, half of the nurses had some level of anxiety. Severe and extremely severe stress was detected among 2.6% and 3.3% of the nurses respectively.

Table 2: Prevalence of Depression, Anxiety and Stress among Participants

Variables	Mean (SD)	Level (n=152)				
		Normal	Mild	Moderate	Severe	Extremely severe
Depression	9.2 (8.6)	92 (60.5%)	30 (19.7%)	15 (9.9%)	8 (5.3%)	7 (4.6%)
Anxiety	9.5 (8.5)	76 (50%)	12 (7.9%)	31 (20.4%)	15 (9.9%)	18 (11.8%)
Stress	10.6 (8.7)	113 (74.3%)	15 (9.9%)	15 (9.9%)	4 (2.6%)	5 (3.3%)

Table 3 shows that there is statistically significant association of depression with education level (p=0.010) and working unit (p=0.004). Respondent's anxiety was associated with working unit (p=0.008) and children status (p=0.040) while their stress was associated with age (p=0.027), working unit (p=0.026) and children status (p=0.017).

Table 3: Association of Depression, Anxiety and Stress with Selected Variables (n=152)

Variables	Depression		Anxiety		Stress	
	Yes No (%)	No No (%)	Yes No (%)	No No (%)	Yes No (%)	No No (%)
Age (in years)						
< 25	37 (37.0)	63 (63.0)	48 (48.0)	52 (52.0)	20 (20.0)	80 (80.0)
≥ 25	23 (44.2)	29 (55.8)	28 (53.8)	24 (46.2)	19 (36.5)	33 (63.5)
χ2 value	.749		.468		4.906	
p-value	.387		.494		. 027*	
Education level						
Intermediate level	54 (44.6)	67 (55.4)	62 (51.2	59 (48.8)	34 (28.1)	87 (71.9)
Bachelor level	6 (19.4)	25 (80.6)	14 (45.2)	17 (54.8)	5 (16.1)	26 (83.9)
χ2 value	6.597		.365		1.854	
p-value	.010*		.546		.173	
Duration of work						
< 1 year	12 (30.8)	27 (69.2)	19 (48.7)	20 (51.3)	6 (15.4)	33 (84.6)
≥1 year	48 (42.5)	65 (57.5)	57 (50.4)	56 (49.6)	33 (29.2)	80 (70.8)
χ2 value	1.664		.034		2.903	
p-value	.197		.853		.088	
Working unit						
General units	16 (25.8)	46 (74.2)	23 (37.1)	39 (62.9)	10 (16.1)	52 (83.9)
Critical units	44 (48.9)	46 (51.1)	53 (58.9)	37 (41.1)	29 (32.2)	61 (67.8)
χ2 value	8.187		6.973		4.984	
p-value	004*		.008*		.026*	

Marital Status						
Unmarried	37 (38.1)	60 (61.9)	50 (51.5)	47 (48.5)	24 (24.7)	73 (75.3)
Married	23 (41.8)	32 (58.2)	26 (47.3)	29 (52.7)	15 (27.3)	40 (72.7)
χ2 value	.198		.256		.118	
p-value	.656		.613		.731	
Childrenstatus(n=55)						
No children	13 (38.2)	21 (61.8)	13 (38.2)	21 (61.8)	6 (17.6)	28 (82.4)
With children	11 (52.4)	10 (47.6)	14 (66.7)	7 (33.3)	10 (47.6)	11 (52.4)
χ2 value	1.056		4.199		5.653	
p-value	.304		.040*		.017*	
Living with family						
Yes	51 (38.3)	82 (61.7)	64 (48.1)	69 (51.9)	33 (24.8)	100 (75.2)
No	9 (47.4)	10 (52.6)	12 (63.2)	7 (36.8)	6 (31.6)	13 (68.4)
χ2 value	. 566		1.504		.399	
p-value	.452		.220		.528	

χ2: Pearson's Chi square Test, *p-value significant at <0.05 level

DISCUSSION

The present study assessed the prevalence and factors associated with depression, anxiety and stress among nurses working in a private hospital of Nepal during early lockdown period of COVID-19 pandemic. Depression symptoms was seen among 60 (39.5%) nurses. Anxiety and stress was prevalent among 50% and 25.7% of the nurses respectively. These findings are similar with a study conducted among front-line nurses working during COVID-19 pandemic in Nepal which revealed 43.6%, 9% and 20.5% suffering from disabling anxiety, severe and mild anxiety respectively.[13] A study conducted among health care workers including nurses during COVID-19 pandemic in Nepal also showed a prevalence of a clinical level of depression (29.0%), anxiety (35.7%) and psychological distress (17.1%).[19] Our study findings is in line with the findings of a study from China which revealed that about half (50.4%) of health care workers reported symptoms of depression, 44.6% had symptoms of anxiety, and 71.5% reported distress.[20] The prevalence of depression, anxiety and stress in our study is higher than the study carried out among medical health care personnel in Singapore which showed 8.1%, 10.8% and 6.4% respectively.[12] Likewise, this result is also higher than the result of a study conducted among health care workers in Singapore and India with depression (10.6%), anxiety (15.7%) and stress (5.2%).[14] The mean score of depression, anxiety and stress in the present study were 9.2 + 8.6, 9.5 + 8.5 and 10.6 + 8.7 respectively which are higher than the study conducted in different countries[12, 14, 21] This might be related to insufficient or no personal protective equipment's among health workers.[19]

Age was significantly associated with stress (p=0.027) in this study. In contrast, a study among Iranian nurses showed age not associated to DAS.[21] In line with this study, a study form Hong Kong found age to be significantly associated with anxiety and stress score.[23] A study conducted among nurses working in a tertiary care hospital of India showed that anxiety and depression levels are increased in the younger and less experienced nurses.[24]

Likewise, working unit had significant association with depression, anxiety and stress which is supported by a study among health care workers revealing that those working in higher risk areas were found more likely to have depression.[19] This finding is also supported by a study among Hongkong nurses where specialty of nursing had significant association with depression, anxiety and stress.[23]

Education level was significantly associated with depression (p=0.010) only. This is in contrast to the findings of astudy which found no significant association of education with depression, anxiety and stress.[23] Educational status was not associated with anxiety and depression among nurses in India.[24] Marital status was not associated with depression, anxiety and stress in this study which is supported by the Iranian study.[21]

Duration of work was not associated with depression, anxiety and stress in our study. This finding is consistent with the study of conducted in Hong Kong.[23] which showed no association

between depression and work duration. However, in contrast to our findings the study showed significant association of work duration with anxiety and stress.A study conducted among nurses working in a tertiary care hospital of India showed that anxiety and depression levels are increased in less experienced nurses.[24]

Children status (having child or not) was associated with anxiety (p=0.040) and stress (p=0.017) among married nurses. There was no association of children status with depression (p=.304). This finding is supported by a study conducted among Jordanian nurses which showed that nurses who have children were more vulnerable to psychological co-morbidities compared to those who did not have children.[25]

Living status had no statistically significant association with depression (p=0.452), anxiety (p=0.220) and stress (p=0.528) in the current study. This finding contradicts to the findings of the study conducted among Chinese health workers which showed seldom or not living with family members had higher risk to have at least one of the mental health problems.[26]

Our study has limitations. Psychological assessment was based on self-report tool. Also, this study was performed early in the outbreak in Nepal and only in a hospital of Nepal which may limit the generalizability of the findings.

CONCLUSION

It is concluded that some degree of depression, anxiety and stress were prevalent among nurses during early lockdown period of COVID-19 pandemic in Nepal. Further clinical assessment should be made to confirm the respective diagnoses. Stress and anxiety relieving sessions and psychological support programs may help for the nurses with higher than cut-offs.

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