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

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Abstract

Background: Most documented studies have focused on mental health status of Health care workers during the pandemic but there are very few studies, focusing on mitigation of mental health problems among nurses. There is an increasingly urgent need to understand mental health impact of COVID-19 and address these impacts through research.

Objective: To study psychosocial responses and preparedness for covid-19 and to assess effectiveness of intervention among nurses working in COVID-19 hospitals of eastern Nepal.

Methods: Prospective explanatory mixed-method study was conducted among 278 nurses by purposive sampling. Self administered questionnaire method was used for data collection. Psychosocial strengthening program was delivered and effectiveness was assessed after 4-5 weeks of intervention among 192 nurses. DASS-21, Composite measure of personal financial burden scales and in-depth interview guide were used to collect data. Chi-square and paired t test, and Pearson's correlation test were used at 95% confidence interval.

Results: Mild depression was found among 13.7%, moderate and severe depression were found among 9.4% and 1.1% respectively. Similarly, mild, moderate, severe and extremely severe anxiety were found among 21.2%, 8.6%, 3.2%, 2.2% respectively. Stress was mild among 9%, moderate 1.4% and severe in 0.7% of the participants. Lack of PPE and fear of transmitting infection to family were found as frequent causes of problems during in-depth interview. Mean Scores of Depression, Anxiety and Stress were significantly decreased after receiving psychosocial strengthening program (p=<0.001 for each). Majority of the participants (92.8%) had made infection prevention preparation and 11.2% of the participants had high financial worry.

Conclusion: Anxiety and depression were common problems though having adequate preparedness to deal with COVID-19. Psychosocial strengthening program was effective in reducing the problems.

Background

The novel corona virus disease 2019 (COVID-19) is a peril to the international health in an inimitable loom. Nepal, is also affected by the outbreak with the distressing effects on every aspect including its economy and health care. The Government of Nepal imposed Lockdown from March 24, which persisted for about 10 weeks[1]. Lockdown has been recognized as a successful method in breaking the chain of corona virus infection across the world[2, 3]. Psychological health has an important impact on persons' performance. The impact of COVID-19 on mental health among health workers has been recognized in previous studies [1, 4]. However, evidence regarding the impact of the COVID-19 pandemic on nurses and ways for mitigating it is not available in Nepal. Nurses spend the most of their time working at patients' bedsides. There are very few studies included nurses to know psychological status [1, 4] but no study reported the intervention and effectiveness of intervention among nurses. During the initial response to COVID-19, media reports were spotlighted on Testing, treating and PPE[5, 6]. Mental health effects and ways of promoting mental health at the workplace is crucial during health emergencies [7]. Khanal et al. in a web-based study reported high level of depression and anxiety among nurses during the initial phase of pandemic in Nepal [1]. A timely assessment of mental health status and mental health needs of Nurses during a pandemic would be helpful to reduce psychological distress, and also to motivate them for providing effective care to the clients in need. Therefore, this study was conducted with the aims of assessing the psychosocial response of nurses, providing psychosocial strengthening intervention and evaluating the effectiveness of intervention.

Methods

Design: Prospective explanatory mixed-method Study was adopted for the study

Study setting: This study was conducted in two hospitals of Eastern Nepal. One is Level three COVID-19 treatment center specified by Nepal Government. It is a tertiary care center and semi-government, university hospital consisted 750 beds. This is a referral center of eastern Nepal, where about 450 nurses work. This center provides treatment to the SARS-CoV-2 positive clients thorough separate 100 bedded hospital with labour room, operation theatre, lab and radiology and other multispecialty services, which is about 100 meters far from the main hospital. Level two COVID-19 treatment center specified by Nepal Government, it is a provincial level hospital under Nepal government. This center started COVID-19 isolation center for the first time in the province. One hundred nurses working in this hospital.

Participants

Self-administered questionnaires were distributed to the nurses working in level two and level three COVID-19 treatment centers of Province one as specified by Nepal Government by purposive sampling technique. All willing to participate nurses were included. Data were collected from 17th May to 20th August 2020. A total of 320 sets of questionnaires were distributed in-person and 278 of them were returned.

Measures

A Semi structured questionnaire was prepared including socio-demographic data, threat of losing jobs, effect on family due to travel restriction. Nepali Version of Depression, Anxiety, stress Scale (DASS) was used to measure psychosocial status [8]. DASS consist of 21 items; 7 for each (Depression, Anxiety and stress). According to this scale, scores 0-4 is normal, 5-6 mild, 7-10 moderate,11-13 severe and 14 plus is considered as extremely severe depression. Similarly, for anxiety category, 0-3 is normal, 4-5 mild, 6-7 moderate, 8-9 severe and 10 plus is considered extremely severe anxiety. Regarding stress, 0-7 normal, 8-9 mild, 6-7 moderate, 8-9 severe, 10 plus is considered as extremely severe stress.

A Composite measure of personal financial burden scale was used to measure financial burden and financial distress [9]. The scale consists of six items having "yes=1" or" no=0" options to measure financial burden. Score ranges from 0-6, more score indicates high burden. One item in the scale is for measuring financial worry. For that item score range from 1 to5, 0-3 is considered as "low worry" and 3-5 is considered "high worry". English version of tool was translated and back translate to and from Nepali language by bilingual persons.

Interview guide was used to collect qualitative data. After collecting baseline data, in-depth interview was done among ten consenting nurses, who had moderate to severe level of anxiety, depression and/or stress. The audio was recorded during the interview, then it was transcribed and translated by two persons (RP & ES). Questions of interview guide were considered as broad theme and analysis was done accordingly.

Intervention

After baseline quantitative data collection and in-depth interview, intervention was done. For intervention, a package was developed with the contents; introduction to COVID-19, infection prevention measures, dealing with uncertainty and stress management techniques with short practical sessions. Intervention session was about two hours. Participants who reported moderate to severe level of stress and anxiety were provided separate counselling sessions along with combined session. Post intervention Depression, Anxiety and stress were measured in after 4 to 5 weeks of intervention.

Analysis and statistics

Data were analysed using SPSS for Windows, version 16.0 (SPSSInc., Chicago, IL, USA). Chi-square test, Pearson's correlation and paired t-test were applied at 95% CI. Qualitative (audio record) data were analyzed manually.

Ethical consideration

All methods were carried out in accordance with national ethical guidelines for health research and local regulations. Study was approved by institutional review committee of the University. Informed written consent was obtained from each participant. Participants having symptoms of anxiety and depression even after receiving intervention, were advised to visit Psychiatrist. The intervention was provided during initial months of pandemic. Therefore, all interested nurses who were working in those hospitals were included in group intervention session. Total 460 nurses received the psychosocial intervention package. All the woks were done with standard precautions, none of the participant and researcher was infected during and till two weeks after the study period.

Results

Total 278 nurses were enrolled from two hospitals, 228 from Level three and 50 from Level two COVID-19 treating hospitals specified by Government of Nepal. Questionnaire response rate was 86.87%. In-depth interview was done among 10 nurses Among them 240 received intervention session. 192 were participated till the end of the study, retention rate was 80%. Cronbach's alpha score of Composite measure of personal financial burden scale was 0.67 in this study.

All (100%) of the respondents were female in this study. Table 1 shows the socio-demographic, preparedness and other variables of the nurses. Majority were Hindu (83.9%), educated up to Diploma level (62.2%), working as staff nurse (87.1%) (Table 2 shows the Psychosocial status among nurses. Table 3 depicts the association of psychosocial status with selected variables of participants. Contact history was significantly associated with stress and existence of chronic health problems was significantly associated with anxiety among the nurses. Table 4 illustrates the correlation of DASS scores with selected variables. There was significant positive correlation of Depression with age, financial worry and financial burden of nurses. Financial burden had significant correlation with anxiety and stress. Table 5 shows post intervention psychological status of the nurses and table 6 illustrates the pre and post intervention comparison of mean DASS scores.

Qualitative data from in-depth interview were analysed on following themes

Theme 1 Most important factors those are increasing your stress

"We do not have appropriate PPE" (P1,2,3,4,5,7,8,10) and" I have fear of transmitting infection to my family members from hospital. Not worried for myself if I get infected, but the greatest fear is I may transmit to my family members if I become an asymptomatic carrier of virus" (P1,2,3,4,6,7,8,10). "Situation is uncertain, how should we work in coming days we do not know." (P1,2,3)

"My neighbours do not say directly, but indirectly they tell me to stay in hospital quarter, do not come into the community, they stare at me, it gives emotional pain because I cannot leave my small child and old parents alone without me."(P3,9)

"Very painful experience to stay far from family, I have grandparents of old age, I miss them very much, but I cannot visit them because of fear of losing them if infection is transmitted to them" (P4). "I have a toddler, he wants to be close to me immediately after entering into home after my 12 hour shift, but I should avoid him, it's very painful and I myself am a client of diabetes, receiving insulin, I also have a fear of death." (P5). "Working with new disease in a newly constructed set up is quiet stressful, I am fearful thinking that if I will not be able to handle then what will be the situation." (P3) "Initially situation was very fearful but now fear has been decreased after seeing persons with SARS-CoV-2 infection. Feeling that it will not be transmitted if we take adequate precautions."(P 9)

Theme 2 Effects of lockdown

"Life is locked inside home, everything is locked, it added more responsibility towards children because schools are locked. Very difficult to manage home and work simultaneously." (P3).

However, some positive effects can be seen in eating habits, hygiene and control the transmission of virus to some extent (P1,2,3)

Theme 3 Role in prevention and control of COVID 19 as a healthcare provider

Spread awareness for family and locality. Preparation of diet and preventive measures of self and family. (P1-10)

Discussion

The present study was aimed to assess the psychosocial status of nurses working in front line to take care of patients with covid-19. For this purpose, 278 nurses from two COVID-19 treatment centers specified by Nepal government were enrolled in the study.

Majority of the nurses (87.1%) were working as a staff nurse. In nationwide hospitals, staff nurses comprised the highest proportion of the workforce. Although, Nepal had not entered into community transmission stage, 55% of the participants had contact history with suspected cases of COVID-19 before baseline data collection. After initiation of nationwide lockdown in Nepal, all international flights were restricted. Therefore, many people locked abroad, which added stress and financial burden to themselves and family members. As one of the reputed news channels also reported hundreds of Nepalese, who wanted to return to Nepal got stuck on Indian border points[10] In this study also, 14% of the nurses had their family members locked abroad due to travel restriction. The high financial worry was found among 12.2% of the participants.

PPE drew the attention of all people during initial days of the pandemic and became one of the scarcest resources during the initial days.The World Health Organization (WHO) encouraged people to wash hands with soap and water or use an alcohol-based hand sanitizer, and proper usage of face masks for protecting them from infection, it put a match to panic-buying and hoarding of those

goods, leading to shortages in most of the cities of Nepal including health sectors [11] [12]. This study found, only 14% had perceived of having adequate PPE. Healthcare became challenging, lots of ethical challenges were present in front of health workers and problems were also faced by health care institutions regarding finance and sustainability of organizations. Probably because of the same reason, 11.2% of participants felt the threat of losing their job due to COVID 19. Nearly one fifth (19.1%)of the participants had chronic health problems like diabetes hypertension etc. Regarding preparation from a personal level, 92.8% were prepared for infection prevention measures to protect self and family from getting infected, followed by extra stock of food by 79.5% and 22.66% had made other preparations like saving of money, some medicines etc.

One web-based survey among health care workers of Nepal found Overall, 13.5% had symptoms of depression in abnormal level as measured by hospital anxiety and depression scale [1]. The present study also found 13.7 % had mild depression Finding of this study was similar to a study conducted among public people of china, which also found mild depression among 13.8% of the participants[13]. Moderate and severe depression were relatively high among Chinese population as compared to this study[13]. This study revealed 9.4% moderate and 1.1% had severe depression. Age of the participants had a significant positive correlation with depression in this study. Similar findings were reported by Khanal et al that, the younger health workers had reported the lesser depressive symptoms in their study[1]. Financial worry and financial burden also had a significant positive correlation with depression score. During the data collection period, none of the institution had initiated corona insurance for their employees. Scarcity of appropriate PPE was also high and employees were managing PPEs of their own. This can also be explained by the evidence of a statistical significant association of availability of PPE with financial worry in this study. Therefore, financial issues might have put extra pressure on them.

The present study revealed, 21.2% of the participants had mild anxiety. This finding is quite higher than the finding of previous study in Nepal 18.3% [1] and Singapore 14.5% [14]. Those studies were done among all health care workers and reported higher proportion of nurses had anxiety as compared to the other health workers. This may be the reason of a bit higher proportion of mild anxiety in this study. A systematic review from few Asian countries also reported similar levels of anxiety among health workers [15]. Another study of China among public found 7.5% had mild anxiety, which is quiet lower as compared to present study[13]. The present study found 8.6% moderate, 3.2% had severe and 2.2% extremely severe anxiety. Moderate and severe anxiety were found to be lower than the study done in China [13]. Similar to the finding of previous studies done in Nepal and China, the anxiety level was significantly associated with having chronic health problems [1, 13]. Financial burden had a significant positive correlation with anxiety. Similar finding was reported by Gautam et al. in their social media based survey [16].

Regarding stress, 9% had mild and 1.4% had moderate level of stress while, 0,7% had severe stress. Shrestha et al. Also reported 11% were mild to moderate distressed and 0.5% were severely distressed due to COVID-19 pandemic [4]. The stress score had a significant positive correlation with financial worry and burden. Similar finding was reported in other studies done in Nepal, where low monthly family income had associated with high distress [16, 4].

While conducting the in- depth interview, the reasons of their problems and effects of the pandemic were also supported by quantitative findings. Lack of PPE, fear transmitting the infection to family members, feeling of stigmatization, feeling of pain to isolate the self from family, feeling of incompetency in a new situation, stress due to uncertainty and problems in work life balance were reported by the participants. These feelings are also supported by others' feelings in the studies done across different countries [17–20]. This shows that the healthcare workers sharing similar feelings, condition and problems, regardless of socio-economic status of the country. Pre-intervention mean scores of depression, anxiety and stress scores were comparable to the mean scores in a study done among health workers in Singapore [14].

After baseline data collection, we provided psychosocial support to the individuals where necessary and one intervention session for all in groups. After 4 to 5 weeks of intervention, mild depression was found among 5.2% and moderate depression was found among 2.1%. Similarly, mild anxiety was reduced to 12% and moderate to severe anxiety was 1%. Stress was also reduced. The reduction in mean scores of depression, anxiety and stress was statistical significant (p = < 0.001 for each). This shows the importance of stress management program for the nurses working in the front line; in their daily practice.

The post intervention reduction in mean scores may be because of low threat perception after managing the cases. Though this study did not quantify the psychological status of nurses before and after managing the patients with COVID 19, one of the participants during an in-depth interview mentioned about reduction of fear after seeing the recovered patients and managing the cases.

Limitations Of The Study

The study adopted self-administered questionnaire method for data collection. Therefore, understanding level of participants may have affected the scores. Though it is the first documented study of its kind from Nepal, this study could not address the confounding variables for significant reduction of stress, anxiety and depression during post intervention test.

Conclusion

Psychosocial problems were common among nurses. Infection prevention measures, food and other preparations were done by the majority of the nurses. Intervention was found to be effective in reducing the psychological problems of the nurses.

Recommendation

A stress management program on a regular basis would be effective for managing professional stress.

Abbreviations

COVID-19
Corona virus disease- 2019
DASS
Depression, Anxiety, Stress scale
SARS-CoV-2
Severe acute respiratory syndrome- coronavirus-2
SPSS
Statistical package for social sciences
WHO
World health organization

Declarations

Conflict of interest: none

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Availability of data and materials

The datasets generated and/or analysed during the current study are not publicly available due to confidentiality issue and institutional policy, but are available from the corresponding author on reasonable request.

Authors' contribution

RP principle investigator, designed the study, intervention, data collection, analysis and manuscript writing, TS helped in conceptualizing and designing study, intervention, review of manuscript, SL helped in conceptualizing and designing study, intervention, review of manuscript, AK supported during designing the study, data collection of level two hospital and helped in intervention. ES helped in data entry, drafting manuscript and editing manuscript.

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Tables

Table 1: Socio-demographic Characteristics and Preparedness among Participants (n=278)

Variable	Category	Frequency	Percentage
Religion	Hindu	231	83.9
	Others	47	16.1
Ethnicity	Bramhin/Chhetri	101	36.3
	Janajati	113	40.6
	Others	64	23.1
Education	SLC	26	9.4
	Diploma	173	62.2
	Bachelor/Masters	79	28.4
Designation	ANM	26	9.4
	Staff Nurse	242	87.1
	SSN/ officer	10	3.6
Contact with suspected cases	Yes	153	55.0
	No	125	45.0
Family member stuck abroad	Yes	39	14.0
	No	239	86.0
Perceived availability of PPE	Yes	39	14.0
	Partially	77	27.7
	No	162	58.3
Threat of losing job	No	247	88.8
	Yes	31	11.2
Chronic health conditions	No	225	80.9
	Yes	53	19.1
Self preparation to deal with COVID-19 (Multiple response)	Food	221	79.5
	IP measures	258	92.8
	others	63	22.66

Table 2: Psychosocial Status of Participants before intervention (n=278)

Variable	Category	Frequency	Percentage
Depression	No	211	75.9
	Mild	38	13.7
	Moderate	26	9.4
	severe	3	1.1
Anxiety	No	180	64.7
	Mild	59	21.2
	Moderate	24	8.6
	Severe	9	3.2
	Extremely Severe	6	2.2
Stress	No	247	88.8
	Mild	25	9.0
	Moderate	4	1.4
	Severe	2	0.7
Financial worry	Low	247	88.8
	High	31	12.2

Table 3: Association of Psychosocial status with selected variables n=278

Variables	Category	Depression			Anxiety			Stress			Financial worry	
		No	Mild	Moderate-severe	No	mild	Moderate-severe	No	Mild	Moderate-severe	high	low
Ethnicity	Janajati	79	18	16	73	23	17	97	12	4	18	94
	Brahmin/chhetri	80	12	9	63	27	11	93	7	1	9	93
	Others	52	8	4	44	9	11	57	6	1	4	60
	p-value	0.344			0.325			0.587			0.125	
Religion	Hindu	179	32	20	146	52	33	205	21	5	25	206
	Others	32	6	9	34	7	6	42	4	1	6	41
	p-value	0.137			0.422			0.992			0.747	
Education	SLC	22	1	5	19	6	1	26	0	0	6	20
	Certificate	133	27	13	113	40	20	158	11	4	15	158
	Higher	58	10	11	48	13	18	63	14	2	10	69
	p-value	0.130			0.065			**0.008**			0.216	
Threat of job loss	No	190	32	25	163	52	32	222	19	6	27	220
	Yes	21	6	4	17	7	7	25	6	0	4	27
	p-value	0.535			0.341			0.084			0.825	
Contact History	No	98	18	9	82	27	16	115	6	4	10	115
	Yes	113	20	20	98	32	23	132	19	2	21	132
	p-value	0.269			0.866			**0.047**			0.209	
Availability of PPE	Yes	32	4	3	29	7	2	37	1	1	1	38
	Partial	58	8	11	53	13	11	64	11	2	15	62
	No	121	26	15	98	39	25	146	13	3	15	147
	p-value	0.494			0.369			0.253			**0.030**	
Family members blocked abroad	No	184	31	24	159	50	30	214	20	5	26	212
	Yes	27	7	5	21	9	9	33	5	1	5	35
	p-value	0.586			0.198			0.673			0.853	
Chronic health Problems	No	174	29	22	154	45	26	204	16	5	21	204
	Yes	37	9	7	26	14	13	43	9	1	10	43
	p-value	0.528			**0.019**			0.111			0.054	

Table 4: Correlation of DASS score with selected variables

Variable	Mean ± SD	Depression r (p)	Anxiety r (p)	Stress r (p)
Age	29.37 ± 7.10	0.147 (**0.014**)	-0.44(0.466)	-0.007 (0.902)
Financial worry	2.36 ±1.01	0.256 (**<0.001**)	0.067 (0.264)	0.206 (**0.001**)
Financial burden	2.14 ± 1.30	0.281 (**<0.001**)	0.106 (**0.078**)	0.240 (**<0.001**)
Family income	68 ± 27.66	0.019 (0.758)	0.032 (0.595)	0.096 (0.111)

Table 5: Psychological Status of Participants after intervention (n=192)

Variable	Category	Frequency	Percentage
Depression	No	178	92.7
	Mild	10	5.2
	Moderate	4	2.1
	severe	0	0
Anxiety	No	151	78.6
	Mild	23	12.0
	Moderate	16	8.3
	Severe	2	1.0
	Extremely Severe	0	0
Stress	No	185	96.4
	Mild	5	2.6
	Moderate	0	0
	Severe	2	1.0

Table 6: Mean DASS Scores Comparison pre and post intervention (n=192)

Variable	Category	Mean ± SD	Mean Difference(95% CI)	p-value (t)
Depression	Pre-intervention	2.98 ± 2.425	1.302 (0.923-1.681)	<0.001 (6.780)
	Post- intervention	1.68 ± 1.724		
Anxiety	Pre-intervention	2.96 ± 2.680	0.823 (0.382-1.264)	<0.001 (3.678)
	Post- intervention	2.14 ± 2.055		
Stress	Pre-intervention	4.17 ± 2.571	1.417 (0.997-1.836)	<0.001 (6.661)
	Post- intervention	2.75 ± 2.142		