

Anxiety, Depression and Functional impairment during the COVID-19 Pandemic among Health Care Workers: A Cross Sectional Online Survey

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Abstract

Background

COVID-19 is an infectious disease caused by a newly discovered, with more than 24 million cases worldwide. Geometrically increasing numbers of cases and deaths from COVID 19 in the world, both medical staff and the public have been experiencing psychological problems, which can cause disability and functional impairment of the individual. This study aimed to determine the burden of stress anxiety and depression among health care workers.

Methodology

A hospital-based cross-sectional study was carried out among all the employees of Hospital for Children Eye ENT and Rehabilitation Services Bhaktapur during the COVID-19 pandemic lockdown using an online questionnaire. The tools used were adopted from Hospital Anxiety and Depression scale (HADS) Nepali version and WHO Disability Assessment Schedule (WHODAS2.0).

Results

The mean age (SD) of the participants (n=86) was 32.53 (7.92) years. Male and female participants were equal in number. The point prevalence of anxiety and depression was 25.6% and 14.0%, respectively. Females had a higher prevalence of both anxiety (39.5% vs 11.6%, $p<0.01$) and depression (18.6% vs 9.3%, $p=0.351$). Clinical and non-clinical staff both had a higher prevalence of both anxiety (31.0% and 20.5%, $p=0.265$) and depression (16.7% and 11.4%, $p=0.478$). Mean disability score (WHODAS 2.0) among all participants and participants with anxiety and depression was 19.47 (95% CI: 18.13-20.80), 21.27 (95% CI: 18.08-24.46) and 19.92 (15.28-24.56), respectively.

Conclusion

Anxiety and depression during COVID-19 pandemic lockdown were highly prevalent both in clinical and non-clinical employees, without causing significant functional impairment among health care workers.

Introduction

COVID-19 is a new infectious disease spreading rapidly throughout the world. As of 28 August 2020, COVID-19 accounted more than 24 million confirmed cases and more than 827 hundreds deaths globally¹. The most stressful situation at this time is the unpredictability and seriousness of the risk². Before pandemic starts, around 13% people aged 18 years and above had any type of mental disorder in Nepal³. During pandemic management, the impact of outbreak on mental health is usually neglected though pandemic can trigger common mental disorders^{4,5}. Evidence has shown that with the increase in the number of cases and deaths from COVID 19, health care workers have been experiencing psychological problems, with disability and functional impairment⁶⁻⁹. Thus, this study aimed to determine the burden of

anxiety, depression, and functional impairment during COVID-19 among health care workers of tertiary level Eye, ENT hospital in Bhaktapur.

Methods

This is a cross-sectional web-based survey. The data collection was performed between 3rd April 2020 and 2nd May 2020 during the nationwide lockdown. A total of 86 health care workers, including clinical staff - doctors, nurses, paramedics, laboratory staff, radiographers and non-clinical staff - admin, housekeeping, security guards, drivers working in Hospital for Children Eye ENT and rehabilitation services, Bhaktapur participated in the study. Data collection was done through self-administered questionnaire used in Google forms. Nepali version of Anxiety and depression were measured using the 14-item Hospital Anxiety and Depression Scale (HADS) rated in four-point scale from 0 to 3 (Total score: HADS-A 0-21, HADS-D, 0-21) ¹⁰. A score of 11 or more in respective subscale was considered to indicate anxiety or depression. Functional impairment were measured using the 12-item WHO Disability Assessment Schedule (WHODAS 2.0) on a five-point Likert's Scale (total score 12 to 60), higher score indicate higher functional impairment. Both descriptive and inferential statistics were used to analyze the data. Binary logistic regression analysis was performed on variables with $p < 0.05$ in the bivariate analysis. Ethical approval for the study was obtained from the Nepal Health Research Council (Reg no. 269/2020P). Similarly, online consent was obtained from all the participants before the survey.

Results

The mean age (SD) of the participants (n=86) was 32.53 (7.92) years. Male and female participants were equal in number. More than half of the participants were non-clinical staff. Among all the participants, 11.6% had a history of foreign travel by their family member after the pandemic started in the world. Other sociodemographic characteristics and risk factors are presented in table 1.

The mean (SD) anxiety, depression and functional impairment scores were 7.27 (4.62), 5.13 (4.02) and 19.47 (6.23), respectively. The point prevalence of anxiety and depression were 25.6% and 14.0%, respectively. Females had a higher prevalence of both anxiety (39.5% vs 11.6%, $p < 0.01$) and depression (18.6% vs 9.3%, $p = 0.351$). Both clinical and non-clinical staff had a higher prevalence of anxiety (31.0% and 20.5%) and depression (16.7% and 11.4%). There was no significant difference in the prevalence of anxiety ($p = 0.265$) and depression ($p = 0.478$) among clinical and non-clinical staff.

Table 1: Different characteristics and point prevalence of anxiety and depression

Characteristics		n	%	Anxiety (%)	χ^2 p-value	Depression (%)	χ^2 p-value
All	-	86		25.6		14.0	
Gender	Male	43	50.0	11.6	<0.01	9.3	0.351*
	Female	43	50.0	39.5		18.6	
Age group	< 35 years	56	65.1	21.4	0.228	12.5	0.595
	<= 35 years	30	34.9	33.3		16.7	
Employees type	Clinical	42	48.8	31.0	0.265	16.7	0.478
	Non clinical	44	51.2	20.5		11.4	
Educational level	Literate or High school	35	40.7	28.6	0.599	20.0	0.180
	University degree	51	59.3	23.5		9.8	
Marital status	Married	57	66.3	33.3	0.041*	15.8	0.491*
	Unmarried	29	33.7	10.3		10.3	
Staying with	With family	77	90.6	27.3	0.191 [†]	15.6	0.594 [†]
	Single	8	9.4	0.0		0.0	
Children or elders in family	Yes	61	70.9	31.1	0.115*	13.1	0.994*
	No	25	29.1	12.0		16.0	
Living in	Own home	55	64.0	21.8	0.287	12.7	0.662
	Rented room	31	36.0	32.3		16.1	
Foreign travel history	Yes	10	11.6	30.0	1.000	20.0	0.919
	No	76	88.4	25.0		13.2	
Family member with chronic disease	Yes	39	45.3	23.1	0.628	15.4	0.727
	No	47	54.7	27.7		12.8	
Cough/ sore throat/common cold	Yes	10	11.6	10.0	0.415	10.0	1.00
	No	76	88.4	27.6		14.5	

* *chi-square test with continuity correction*

[†] *Fisher's exact test was performed*

Females had a very strong association with both anxiety (AOR=5.008 (95% CI; 1.593-15.741)) and depression (AOR=2.173 (95% CI; 0.599-7.882)). Likewise, married participants had a positive association with anxiety (AOR 4.379 (95% CI; 1.121-17.106)) and depression (AOR 1.542 (95% CI; 0.379-6.276)) (Table 2).

Table 2: Unadjusted and adjusted odds ratios of anxiety and depression among different genders and marital statuses

	Anxiety		Depression	
	OR (95% CI)	AOR (95% CI)	OR (95% CI)	AOR (95% CI)
Gender				
Male	1	1	1	1
Female	4.969 (1.63-15.15)	5.008 (1.593-15.741)	2.229 (0.62-8.05)	2.173 (0.599-7.882)
Marital status				
Unmarried	1	1	1	1
Married	4.333 (1.162-16.155)	4.379 (1.121-17.106)	1.625 (0.404-6.531)	1.542 (0.379-6.276)

The mean functional impairment score among all participants, participants with anxiety and depression were 19.47 (95% CI: 18.13-20.80), 21.27 (95% CI: 18.08-24.46) and 19.92 (15.28-24.56), respectively. There was slight increase in impairment score among the participants with higher anxiety and depression score, though the difference is not statistically significant. The first quartile, median and third quartiles for the mean score were higher among the participants with higher anxiety and depression score except in the first quartile among group of participants with different depression score (Table 3). There was moderate positive relationship ($r=0.570$) found between anxiety and depression. The relationship between functional impairment with both anxiety ($r=0.404$) and depression ($r=0.427$) was found weak positive (Table 4).

Table 3: Mean 12-item WHODAS 2.0 total scores and percentiles in participants

Group	Mean WHODAS 2.0 score (95% CI)	p-value	Quartiles		
			Q1	Median	Q3
All participants	19.47 (18.13-20.80)		15.00	18.50	23.50
Anxiety score < 11	18.84 (17.40-20.29)	0.115	14.25	18.00	22.75
Anxiety Score ≥ 11	21.27 (18.08-24.46)		15.00	20.00	28.00
Depression Score < 11	19.39 (17.98-20.80)	0.788	15.00	18.00	23.25
Depression Score ≥ 11	19.92 (15.28-24.56)		12.75	19.50	26.00

Table 4: Correlation among Anxiety, Depression and Functional impairment score

	Anxiety Score	Depression Score	Functional Impairment Score
Anxiety Score	1	0.570**	0.404**
Depression Score	0.570**	1	0.427**
Functional Impairment Score	0.404**	0.427**	1

** correlation is significant at the 0.01 level (2-tailed)

Discussion

This study assessed the prevalence of anxiety, depression and functional impairment among employees of the Hospital for Children Eye ENT and Rehabilitation Services, Bhaktapur, during the early phase of the COVID-19 pandemic. This study revealed that a significant proportion of the participants experienced mental health symptoms/problems such as anxiety (25.6%) and depression (14.0%). The prevalence rates found in this study are in contrast with the studies done in Nepal and other countries at the time of the pandemic.

A study performed among health workers using the similar tool in Nepal showed that anxiety was found in 18.3% of participants and depression in 13.5% of participants¹¹. Similarly, a study in China using different tool (9-item Patient Health Questionnaire and 7-item Generalized Anxiety Disorder) showed that anxiety and depression were prevalent among 44.6% and 50.4% of the participants, respectively¹². Another study in China using WHO five well-being Index and generalized anxiety disorder scale in general population during pandemic revealed that out of all participants, 22.6% had experienced anxiety, and 48.3% had a certain level of depression¹³.

Similarly, depression was prevalent among 32% of the participants, as depicted by a study in Italy¹⁴. Anxiety and depression were 16% and 28%, respectively, as shown by a recent systematic review of the

COVID-19 and mental health literature ¹⁵. This shows that there is a wide variation in the prevalence. The reasons behind this variation could be due to the variation in sample size, study population, instruments used and fewer cases with no fatality in the country during the data collection period.

In this study, female participants had a higher prevalence of both anxiety (39.5% vs 11.6%, $p < 0.01$) and depression (18.6% vs 9.3%, $p = 0.351$). Such gender difference has been reported mostly due to biological component and different coping strategies they have. This finding is in line with studies conducted in Nepal, China, India and Italy ^{12, 14, 16}. In this study, both anxiety and depression were found to be associated with marital status. However, in a recent study performed among health workers in Nepal, marital status was not associated with mental health symptoms ¹¹.

Period of Study ^{ref}	Country	Methodology	demography	Tool used	Sample size	Anxiety, depression
April 3 to May 2, 2020 (This study)	Nepal	Online	Clinical and non-clinical health care workers	HADS, WHODAS 2.0	86	A - 25.4% D - 14.0%
April 26 to May 12, 2020 ⁹	Nepal	Online	Clinical and public health practitioners	HADS	475	A - 18.3 D - 13.5
January 29 to February 3, 2020. ¹⁰	China		Physicians Nurses	PHQ-9, GAD -7	1,257	A - 12.3% D - 14.8%
January 31 to February 2, 2020 ¹¹	China		General population	(WHO-5), (GAD-7)	5,851	A - 22.6% D - 48.3%
18-22 March 2020 ¹²	Italy	Online	General population	DASS-21	2,766	A - 18.7% D - 32.8%

The low total functional score indicating low functional impairment among the participants was quite surprising during restricted normal outdoor activities during lockdown due to the COVID-19 pandemic. The low average functional impairment score may be due to the loose travel restriction to health care workers having hospital employees' hospital identity card.

Table 5: Comparison of Anxiety and depression during COVID-19

Limitations

This study has several limitations that need to be acknowledged. First, it was limited in hospitals, thus limiting the generalization of the findings. Second, long-term psychological problems could not be assessed while the situation worsened. This is because this study was performed during the early weeks of lockdown due to the COVID-19 pandemic. We don't have baseline information for all scales/tools we used. The scores might not be only due to COVID-19 as they might show the caseness prior to our study. There might be respondent bias because a face-to-face interview was not possible during which we may have missed information on sensitive issues. Additionally, the findings are based on self-reports, so there was no means of clinical verification.

Conclusion

Anxiety and depression during the COVID-19 pandemic were highly prevalent both in clinical and supporting health care workers without causing significant functional impairment. Multicenter anxiety, depression and functional impairment studies with larger sample sizes, including all health care workers, are recommended.

Declarations

Acknowledgement

We would like to thank the management of BPEF/CHEERS for allowing us to conduct this study in this hospital. We would also like to thank all the staff of BPEF/CHEERS hospital for participating in this survey.

Conflict of Interest

The authors do not have any conflict of interest

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