Anxiety, Depression and Functional impairment during the COVID-19 Pandemic among Health Care Workers

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Abstract

Background

COVID-19 is an infectious disease caused by a newly discovered coronavirus that is pandemic, with more than 338 thousand 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, including anxiety, depression, and stress, which can cause disability and functional impairment of the individual. One of the most stressful situations is the unpredictability of the situation and the uncertainty of when to control the disease and the seriousness of the risk. These challenges and stress can trigger a common mental disorder. This study aimed to determine the burden of stress anxiety and depression among all employees of Eye and ENT hospitals.

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 self-administered questionnaire through Google forms. The tools were adopted from Hospital Anxiety and Depression scale (HADS) Nepali version on a Likert's scale of 0 to 3 validated by Risal A. et al. and WHO Disability Assessment Schedule (WHODAS S2.0) on a Likert's scale of 1 to 5 to assess functional impairment.

Results

The mean age (SD) of the participants (n=86) was 32.53 (7.92) years. Male and female participants was 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). The mean (SD) anxiety, depression and functional impairment scores were 7.27 (4.621), 5.13 (4.023) and 19.47 (6.228), respectively. 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)). 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)). Clinical and supporting 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). The mean 12-item WHO disability assessment schedule 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. The life activities domain of WHODAS 2.0 was significantly higher in participants with anxiety (1.91 vs 1.56, p<0.01) and depression (1.75 vs 1.63, p<0.001) than in those without anxiety.

Conclusion

Anxiety and depression during COVID-19 pandemic lockdown were highly prevalent both in clinical and non-clinical employees, causing mild to moderate functional impairment.

Introduction

COVID-19 is a new infectious disease spreading rapidly throughout the world. As of 07 August 2020, COVID-19 accounted for 18,854,287 confirmed cases and 708,639 deaths globally [1]. During pandemic management, the impact of a disease outbreak on mental health is usually neglected [2]. Evidence has shown that with the increase in the number of cases and deaths from COVID 19, medical staff, as well as the public, have been experiencing psychological problems, including anxiety, depression, and stress, that can cause disability and functional impairment of the individual [3-6]. The most stressful situation at this time is the unpredictability of the situation and the uncertainty of when to control the disease and the seriousness of the risk [7]. These challenges and stresses can trigger common mental disorders [8]. Thus, this study aimed to determine the burden of anxiety, depression, and functional impairment during COVID 19 among clinical and non-clinical health care workers of tertiary level ENT hospitals in Bhaktapur.

Methods

This was a cross-sectional web-based survey, and data collection was performed between [3] April 2020 and 2 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. A Nepali version of the self-administered questionnaire was used through Google forms. Anxiety and depression were measured using the 14-item Hospital Anxiety and Depression Scale (HADS) in 0 to 3 Likert's scale, and functional impairment was measured using the 12-item WHO Disability Assessment Schedule (WHODAS 2.0) in 1 to 5 Likert's Scale (total score 12 to 60). 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) among 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 tabulated 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 ($p=478$) among clinical and non-clinical staff.

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

Characteristics		n	%	Anxiety (%)	χ2 p-value	Depression (%)	χ2 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)), as shown in 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 score of the 12-item WHO disability assessment schedule (WHODAS 2.0) 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. The 25^{th}, 50^{th} and 75^{th} percentiles for the mean score were 15.00, 18.50 and 23.50, respectively, among all participants, as shown in Table 3.

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

Group	Mean score (95% CI)	Quartiles		
		25th	50th	75th
All	19.47 (18.13-20.80)	15.00	18.50	23.50
Anxiety	21.27 (18.08-24.46)	15.00	20.00	28.00
Depression	19.92 (15.28-24.56)	12.75	19.50	26.00

Among the different domains of WHODAS 2.0, the mean domain score in life activities was significantly higher among participants with anxiety (1.91 vs 1.56, p<0.01) and depression (1.75 vs 1.63, p<0.001).

Table 4: 12 item WHODAS 2.0 mean domain scores among participants

Domains	All	Anxiety			Depression		
		Score <11	Score >=11	p-value	Score < 11	Score >=11	p-value
Cognition	2.15 (1.04)	2.07 (1.00)	2.39 (1.13)	0.388	2.13 (1.03)	2.29 (1.14)	0.043
Mobility	1.59 (0.76)	1.51 (0.69)	1.79 (0.92)	0.106	1.55 (0.73)	1.83 (0.94)	0.072
Self-Care	1.14 (0.36)	1.14 (0.36)	1.14 (0.35)	0.090	1.13 (0.35)	1.17 (0.39)	0.145
Getting along	1.86 (0.99)	1.84 (0.93)	1.91 (1.15)	0.251	1.90 (1.02)	1.58 (0.73)	0.252
Life Activities	1.65 (0.68)	1.56 (0.59)	1.91 (0.85)	<0.01	1.63 (0.68)	1.75 (0.72)	<0.001
Participation	1.89 (0.82)	1.83 (0.78)	2.04 (0.91)	0.258	1.90 (0.83)	1.83 (0.72)	0.055

Independent sample t-tests were performed.

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 other countries at the time of the pandemic. A study performed among health workers in Nepal showed that anxiety was found in 41.9% of participants and depression in 37.5% of participants [9]. Similarly, a study in China showed that anxiety and depression were prevalent among 44.6% and 50.4% of the participants, respectively [10]. Another study in China revealed that out of all participants, 22.6% had experienced anxiety, and 48.3% had a certain level of depression [11].

Similarly, depression was prevalent among 32% of the participants, as depicted by a study in Italy [12]. Anxiety and depression were 16% and 28%, respectively, as shown by a recent systematic review of the COVID-19 and mental health literature [13]. 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). This finding is in line with studies conducted in Nepal, China, India and Italy [10,12,14].

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 [9].

Mild impairment in cognition (learning and concentration), significantly higher among participants with depression than without depression, was as expected. However, only mild functional impairment in other domains was quite surprising during restricted normal outdoor activities during lockdown due to the COVID-19 pandemic.

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. 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 non-clinical health care workers, causing mild to moderate functional impairment. Multicentre anxiety, depression and functional impairment studies with larger sample sizes, including all health care workers, are recommended.

Declarations

Acknowledgement

None

Conflict of Interest

The authors do not have any conflict of interest

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