ORIGINAL RESEARCH

Prevalence of anxiety and depressionusing HADS score and associated factors among health care workers during COVID-19 pandemic in a tertiary care hospital: A cross sectional study

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ABSTRACT

Introduction: This study was planned with objective to evaluate magnitude of anxiety and depression using HADS score and associated factors among healthcare workers during COVID-19 pandemic at a tertiary care hospital. **Methodology:** This cross sectional study was conducted among health care workers at a dedicated COVID hospital in Jaipur from July 2020 to June 2021 during COVID- 19 pandemic. All consent giving participants of age ≥18 years were enrolled in this study excluding HCW having pre-diagnosed mental health illness or those who did not gave consent. Anxiety and depression scores were calculated using HADS scale and were analyzed using SPSS version 20.0. **Results:** In this study, 100 health care workers were enrolled. The largest proportion (78%) were doctors followed by nursing staff (11%) and Class 4 employees (11%). Maximum 70 (70 %) participants were remain admitted both in ward and ICU. Proportion of anxiety was 88% and depression was 23% among HCW. The mean anxiety score was 10.36 ± 2.052 and the mean depression score was 6.62 ± 1.841 in the HCW group. Male HCWs had higher mean anxiety score (10.44 ±1.980) (p=0.567) and higher Depression score (6.72 ±1.852) (p=0.429).Mean anxiety score was higher in 21-40 years age group (10.52± 2.002)(p=0.689).In contrast, mean depression score was higher in >60 years age group (8.33± 1.875) (p=0.002).Doctors were having highest Anxiety score (10.55± 1.898)(p=0.043) and highest depression score (6.92± 1.864)(p=0.002).Those admitted in ward had maximum anxiety score (11.8±1.322) (p<0.001) and maximum depression score (6.75±1.86) (p=0.182). **Conclusion:** Mental health of Health care workers was severely affected during COVID pandemic. Higher anxiety and depression scores were observed specially among doctors. Efforts should be made to promote mental health.

Key words: Health care workers, anxiety, depression, COVID-19, HADS score.

INTRODUCTION

Being first line warrior for medical emergencies, health care workers remain under tremendous pressure and susceptible for psychological stressful situations.Pandemic of COVID-19 being one of such challenging situation has wreaked havoc around the world. It was declared a public health emergency on January 30, 2020, by the World Health Organization (WHO). [1] COVID-19 is highly transmissible and caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).[2]

Health care workers remain directly involved in treatment and care of patient and are vulnerable to get infection and jeopardizing their lives. Prolonged job shifts, work overload, rapid global spread and significant mortality, uncertain trajectory of disease, lack of specific treatment and protective equipment, strict safety instructions and measures, the constant

need for concentration and surveillance, reduced social contact, as well as having to perform tasks for which many professionals have not been prepared contributed to adverse psychological impacts on health care workers. [3-5]

Mitigating the hazardous effects of COVID-19 on mental health is an international public health priority. [6] This study was planned with objective to evaluate magnitude of anxiety and depression using HADS score and associated factors among healthcare workers during COVID-19 pandemic at a tertiary care hospital.

METHODOLOGY

This cross sectional study was conducted among health care workers at a dedicated COVID hospital in Jaipur from July 2020to June 2021 during COVID- 19 pandemic. Sample size was calculated assuming proportion of anxiety or depression as 50% among health care workers at 95% confidence interval taking maximum variance with relative allowable error of 20% using following formula:

$$n = (Z^2 * P * (1 - P)) / e^2$$

Where:n = sample size, Z = Z-score (the standard normal distribution value for the desired confidence level, which is 1.96 for a 95% confidence level), P = expected prevalence =50%, e = Relative allowable error = 20%

Sample size was calculated as 100. All consent giving participants of age ≥18 years were enrolled in this study excluding HCW having pre-diagnosed mental health illness or those who did not gave consent.Study was conducted after getting permission from institutional ethical committee. Data was collected after getting informed consent from study participants. Study participants were assured of their anonymity. Data was collected regarding socio-demographics and anxiety and depression score were calculated using HADS scale.

HADS(Hospital Anxiety and Depression Scale) developed by Zigmond and Snaith, distributed by Mapi trust, UK was applied to calculate the score after taking copyright permission. It is a questionnaire based scale. There are 14 questions with 4 options to answer.0 to 3 numbers are given to each response, separately for anxiety and depression. HADS score would be calculated by adding them all.It is a short, easy-to-use, 14-item screening tool for depression and anxiety symptoms in the hospital setting. It is composed of two 7-item subscales (HADS-D and HADS-A for depression and anxiety respectively), both ranging from 0 to 21 with higher scores indicating more severe distress. Items enquire about symptoms over the preceding week and are self- or clinician-rated on a 4-point Likert scale. The developers suggested categorising subjects according to subscale score into noncases (0 to 7), possible cases (8 to 10), and probable cases (>10) of clinical depression. [7] So for this study purpose, anxiety score ≤7 was considered as normal and >7 was considered as anxiety. Depression score ≤7 was considered as normal and >7 was considered as depression.

Data collected were entered in Microsoft excel software and analyzed using SPSS version 20.0. Quantitative data were expressed as mean and standard deviation and were analyzed using unpaired t test or ANOVA test. Qualitative data were expressed as percentage. p-value <0.05 was considered as statistically significant.

RESULT

In this study, 100 health care workers were enrolled, out of them 32 (32%) were females and 68 (68%) were males. Regarding age group, 50% of the HCWs were between the ages of 21-40, 38% were in 41-60 age group and 12% were in >60 years age group. The data shows that out of 100 HCWs, the largest proportion (78%) were doctors followed by nursing staff (11%) and Class 4 employees (11%). Maximum 70 (70 %) participants were remain admitted both in ward and ICU followed by 20 (20%) in wards and 10 (10 %) in ICU. [Table-1]

Table-1: Distribution of Baseline demographic variables

Demographic variables	HCW	%
Sex		
Female	32	32
Male	68	68
Age group		
21-40	50	50.00
41-60	38	38.00
>60	12	12.00
Profile of HCW		
Doctor	78	78
Nursing staff	11	11
Class 4	11	11
Admission status		
Only Wards	20	20
Only ICU	10	10

Both	70	70
Grand Total	**100**	**100.00**

The data shows that proportion of anxiety was 88% and depression was 23% among HCW. The mean anxiety score was 10.36 ± 2.052 and the mean depression score was 6.62 ± 1.841 in the HCW group. [Table-2]

Table-2: Proportion and Mean Scores of anxiety and depression

HCW	Proportion	Scores	
	n (%)	Mean	SD
Anxiety	88 (88%)	10.36	2.052
Depression	23 (23%)	6.62	1.841

Data revealed that male HCWs had higher mean anxiety score (10.44 ±1.980) as compared to females (10.19±2.221). Depression score was more among males (6.72 ±1.852) as compared to females (6.41 ±1.829). However, the difference according to gender was not statistically significant for anxiety score (p=0.567) as well as depression score (p=0.429).

Regarding age groups, the data showed that the mean anxiety score was higher in 21-40 years age group (10.52± 2.002) followed by 41-60 year (10.26± 2.238) and >60 year age group (10.00± 1.706). Anxiety score was high in younger age group as compared to older age group but this difference was not found statistically significant (p=0.689).In contrast, mean depression score was higher in >60 years age group (8.33± 1.875) followed by 41-60 year age group (6.45± 2.165) and >60 years age group (6.34± 1.303). Depression scores were higher in older age group as compared to younger age group and association of depression scores with age group was found statistically significant (p=0.002)

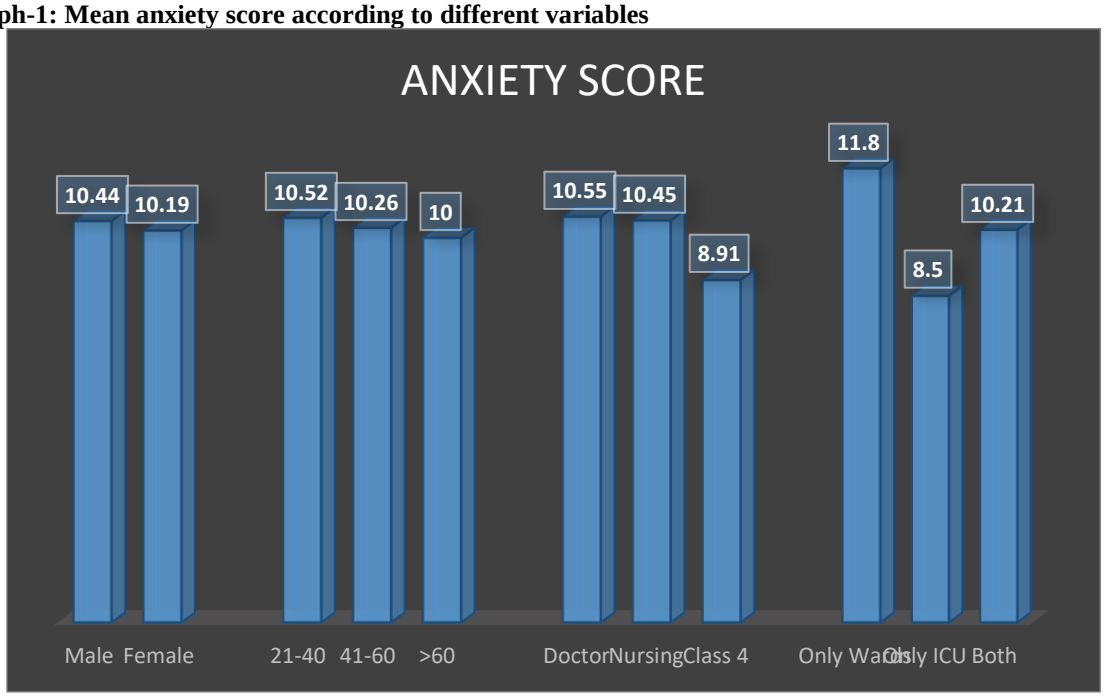
Regarding type of HCW, anxiety score was higher among doctors (10.55± 1.898) followed by nursing staff (10.45± 2.697) and class 4 (8.91± 2.023). Anxiety scores were significantly associated with type of HCW (p=0.043). Depression score was higher among doctors (6.92± 1.864) followed by nursing staff (6.09± 1.514) and class 4 (5.0± 0.775). Depression scores were significantly associated with type of HCW. (p=0.002)

Regarding admission status, maximum anxiety score was observed among those of only ward (11.8±1.322) followed by both ward and ICU (10.21± 2.014) and Only ICU (8.5 ± 1.716). Anxiety score was significantly associated with admission status. (p<0.001) Maximum depression score was observed among those of only ward (6.75±1.86) followed by both ward and ICU (6.729± 1.88) and Only ICU (5.6 ± 1.265). Significant association was not found between depression score and admission status (p=0.182). [Table-3, Graph-1,2]

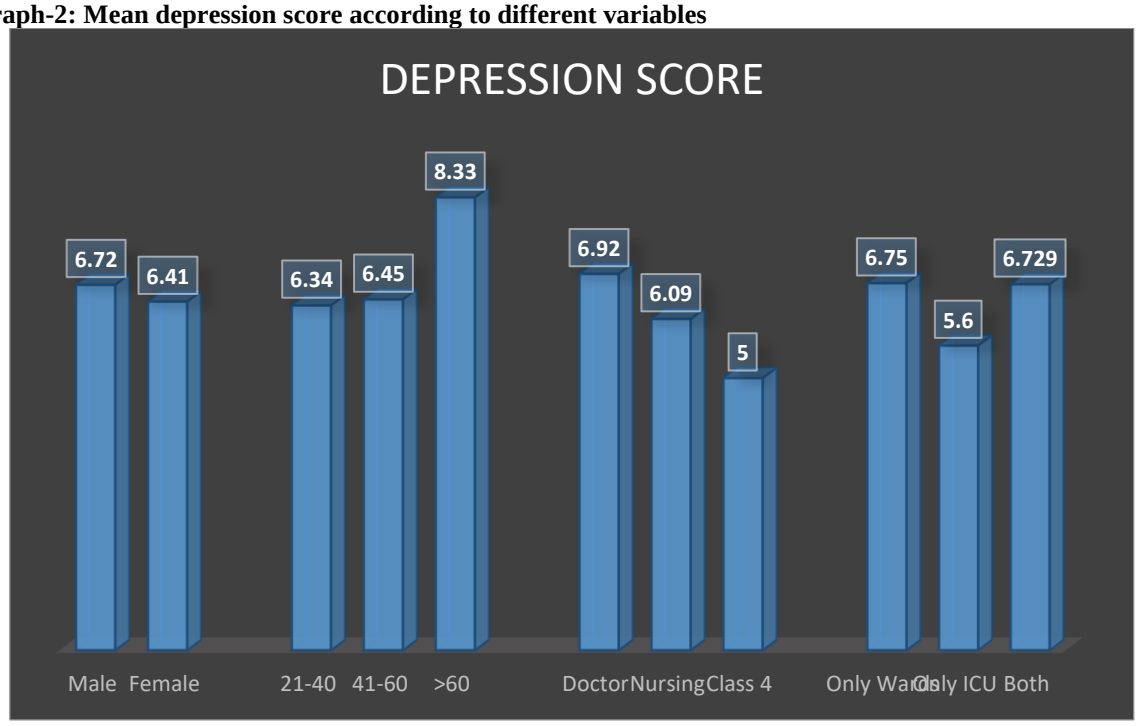
Table-3: Association of Anxiety and Depression scores with age, sex and work profile and admission status

Baseline variable	Anxiety Score		Depression Score	
	Mean	SD	Mean	SD
Gender				
Male	10.44	1.980	6.72	1.852
Female	10.19	2.221	6.41	1.829
P value	**0.567**		**0.429**	
Age Groups				
21-40	10.52	2.002	6.34	1.303
41-60	10.26	2.238	6.45	2.165
>60	10.00	1.706	8.33	1.875
P value	**0.689**		**0.002**	
Type of HCW				
Doctor	10.55	1.898	6.92	1.864
Nursing	10.45	2.697	6.09	1.514
Class 4	8.91	2.023	5	0.775
P value	0.043		0.002	
Admission status				
Only Wards	11.8	1.322	6.75	1.86
Only ICU	8.5	1.716	5.6	1.265
Both	10.21	2.014	6.729	1.88
P value	<0.001		0.182	

Graph-1: Mean anxiety score according to different variables



Graph-2: Mean depression score according to different variables



DISCUSSION

This study was conducted among 100 health care workers during COVID-19 pandemic in a tertiary care hospital in Jaipur to assess the magnitude of anxiety and depression and associated factors. 32% of them were females and 68% were males. Half of the study participants were of 21-40years age group. Out of 100 HCWs, the largest proportion (78%) were doctors followed by nursing staff (11%) and Class 4 employees (11%).Of the 350 participants, 84.3% (n = 295/350) were doctors and the remaining 15.7% (n = 55/350) were nurses. In study of Wilson W et al [8], 84.3% (n = 295/350) were doctors and the remaining 15.7% (n = 55/350) were nurses similar to our study.In study of Dar S et al [9], there were 42% staff nurse, 29.9% doctors, 3.7% lab staff, 1.9% drivers and remaining 22% were others.

Prevalenceof anxiety was 88% and depression was 23% among HCW in our study using HADS score. A study conducted by Khanal P et al [10] in Nepal revealed that prevalence of anxiety (41.9%) and depression (37.5%) symptoms among health workers. Anxiety and depression among HCP was 38.9 and 43.6%, respectively instudy of Jakhar J et al[11] but in

their study, they used Depression Anxiety Stress Scale – 21-item version (DASS-21) to measure the depression and anxiety in HCPs. Bhattacharya P et al [12] in their study used Generalized Anxiety Disorder (GAD-7) scale and revealed that Doctors were found to be most anxious among the different HCWs, with greater anxiety in females. Wilson W et al [8] found that prevalence of anxiety was 17.7% and depression was 11.4% and in this study they used Public Health Questionnaire—9 and Generalized Anxiety Disorder—7 to assess depression and anxiety. 35.51% of the HCWs experienced anxiety and 17.76% reported depression in study of Dar S et al [9].

The mean anxiety score was 10.36 ± 2.052 and the mean depression score was 6.62 ± 1.841 in the HCW group. The mean anxiety score was relatively lesser (8.02±2.02) and mean depressive scores was relatively higher (9.10±2.88) in study of Dar S et al.[9]

Male HCWs had higher mean anxiety score (10.44 ±1.980) as compared to females (10.19±2.221). Depression score was more among males (6.72 ±1.852) as compared to females (6.41 ±1.829). However, the difference according to gender was not statistically significant for anxiety score (p=0.567) aa well as depression score (p=0.429). Anxiety score was high in younger age group as compared to older age group but this difference was not found statistically significant (p=0.689). In contrast, Depression scores were higher in older age group as compared to younger age group and association of depression scores with age group was found statistically significant (p=0.002)

Regarding type of HCW, anxiety and depression scores were highest among doctors followed by nursing staff and class 4. In our study, doctors were having maximum anxiety in contrast to the study of Khanal P et al [10] in Nepal where nurses had higher odds of exhibiting anxiety than other health professions.Anxiety and depression scores were significantly associated with type of HCW (p=0.043, 0.002 respectively). Similar results were obtained by Khanal P et al [10] where a significant difference in anxiety ($p < 0.001$) and depression ($p = 0.001$) was observed across different types of profession. Prevalence of anxiety (p =0.063) and depression (p =0.045) was higher in nurses compared with other occupations In study of Dar S et al [9]

CONCLUSION

Mental health of Health care workers was severely affected during COVID pandemic. Higher anxiety and depression scores were observed specially among doctors. Efforts should be made to promote mental health. Appropriate interventions should be done based on the individualized assessment of the anxiety/ depression. Studies with higher sample size should be conducted to assess associated factors.

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