

Study of depression, anxiety, stress and quality of sleep among healthcare professionals during COVID-19 pandemic in North Karnataka region

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Abstract

Background: Despite remaining the crisis management personnel, the HCW are not themselves immune to the psychological consequences due to COVID-19. Facing this critical situation, health care workers on the frontline who are directly involved in the care of patients with COVID-19 are at risk of developing psychological distress and other mental health symptoms. Present study was aimed to assess socio demographic profiles, magnitude of stress, anxiety, depression and quality of sleep among the healthcare professionals. **Material and Methods:** Present study was a cross-sectional, online study conducted during April 28th to May 20th, 2020 on health care workers working in hospitals equipped with fever clinics or wards for patients with COVID-19. **Results:** Out of 110 health care professionals 32 (29.1%) of the subjects had stress, 35 (31.8%) had anxiety and 40 (36.4%) had depression. The study also reveals that, out of 110 health care professionals 40 (36.4%) of the subjects had insomnia and 70 (63.6%) subjects had no clinically significant insomnia. There was statistically significant difference in level of stress and anxiety in marital status and work status ($P < 0.05$). Single or unmarried subjects had significantly more stress and anxiety levels as compare to married. There was statistically significant difference in level of depression and insomnia amongst age groups, marital status and work status ($P < 0.05$). Lower age group (18-30yrs) of subjects had significantly higher depression and insomnia as compared to higher age group (> 30 years). Single or unmarried subjects had significantly higher depression levels and insomnia as compared to married and others. Interns and junior residents had significantly more depression and insomnia as compared to others. **Conclusion:** Health care providers working during COVID 19 pandemic have high prevalence of depression, anxiety, stress and poor quality of sleep. In present study, age, marital status and work status were noted as significant risk factors for depression, anxiety, stress and insomnia.

Keywords: healthcare professionals, COVID 19 Pandemic, depression, anxiety, stress, quality of sleep

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INTRODUCTION

Starting as a mere local transmission from the Wuhan city of China, COVID-19 has become one of the major catastrophes affecting the global socio-political scene. On February 11, 2020, the WHO has officially declared the COVID-19 as “pandemic” from the previous status of global health emergency.¹ Despite remaining the crisis management personnel, the HCW are not themselves immune to the psychological consequences due to COVID-19. Facing this critical situation, health care workers on the frontline who are directly involved in the care of patients with COVID-19 are at risk of developing psychological distress and other mental health symptoms.²

Situation is further complicated due to complete uncertainty; lack of proper guidelines; unprepared health infrastructure, overwhelming workload, depletion of personal protection equipment, lack of specific drugs, and fear, anxiety, stigma, prejudice, and marginalization toward the disease. There are few studies done on how situation like this affect their mental health.^{3,4} Present study was aimed to assess socio demographic profiles, magnitude of stress, anxiety, depression and quality of sleep among the healthcare professionals.

MATERIAL AND METHODS

Present study was a cross-sectional, online study conducted during April 28th to May 20th, 2020, using an online questionnaire spread via social networks. 120 HCW responded to the online questionnaire. Out of them only 110 answered all the questions. The submission of the form was deemed as informed consent to participate in the study. The link of the questionnaire was sent through E-mails and WhatsApp to the contacts of the investigators.

Inclusion criteria: Health care workers working in hospitals equipped with fever clinics or wards for patients with COVID-19

Exclusion Criteria: HCW currently not working, not on social media platform and incomplete responses were excluded

The questionnaire was divided into formed on three sections:

1. Socio demographic data- age, gender, qualification, specialties, working hours and type of work.
2. Knowledge and attitudes of Covid 19
3. Clinical scales to evaluate mental health which included DASS 21 for assessing depression, anxiety and stress. Insomnia severity index scale was used for assessing quality of sleep.

The DASS-21 is based on three subscales of depression, stress, and anxiety, and each subscale consists of seven questions each. Each item is scored on a self-rated Likert scale from 0 (didn't apply to me all) to 3 (much or mostly applied to me) in past 1 week. The rating of DASS-21 subitems are normal, mild, moderate, severe and extremely severe. Insomnia severity Index consisted of 7 questions. Each question is scored on a self-rated Likert scale from 0 to 4. Final score was calculated adding each of 7 scores. The rating of the scale on final score as follows <7 no insomnia, 8-14 mild insomnia, 15-21 moderate insomnia and > 22 severe insomnia. Descriptive and inferential statistical analysis were carried out in the present study. Results on continuous measurements are presented on Mean ± SD (Min-Max) and results on categorical measurements are presented in number (%). Analysis of variance (ANOVA), Student t test (two tailed, independent), Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale. p value less than 0.05 was considered as statistically significant.

RESULTS

Maximum number of subjects 86 (78.2%) were belonging to the age group of 21-30 years, followed by 22 (20.0%) were of age group 31-40 years. There was no statistical significant difference of age among males and females (P>0.05)

Table 1: Age and sex wise distribution of cases

Age in years	Males		Females		Total	
	No.	%	No.	%	No.	%
<18 years	0	0.0	0	0.0	0	0.0
21–30 years	45	69.2	41	91.1	86	78.2
31--40 years	19	29.2	3	6.7	22	20.0
41--50 years	1	1.6	1	2.2	2	1.8
51--60 years	0	0.0	0	0.0	0	0.0
>60 years	0	0.0	0	0.0	0	0.0
Total	65	100.0	45	100.0	110	100.0
Mean ± SD	29.21 ± 13.15		27.81 ± 12.24		28.81 ± 13.02	

Table No 2 reveals that, Out of 110 health care professionals 32 (29.1%) of the subjects had stress, 35 (31.8%) had anxiety, and 40 (36.4%) had depression

Table 2: Health care professionals according to levels of Stress, Anxiety and Depression

Levels	Stress			Anxiety			Depression		
	Range	No.	%	Range	No.	%	Range	No.	%
Normal	0-14	78	70.9	0-7	75	68.2	0-9	70	63.6
Mild	15-18	9	8.2	8-9	8	7.3	10-13	7	6.4
Moderate	19-25	9	8.2	10-14	11	10.0	14-20	21	19.1
Severe	26-33	12	10.9	15-19	4	3.6	21-27	7	6.4
Extremely Severe	≥ 34	2	1.8	≥ 20	12	10.9	≥ 28	5	4.5
Total	--	110	100.0	--	110	100.0	--	110	100.0

Table 3 reveals that, Out of 110 health care professionals 40 (36.4%) of subjects had insomnia and 70 (63.6%) had no clinically significant insomnia.

Table 3: Levels of quality of sleep

Levels quality of sleep	Range	No. of health care professionals	Percentage
No clinically significant insomnia (Normal)	0 - 7	70	63.6
Sub threshold insomnia (mild)	8 - 14	29	26.4
Clinical insomnia (moderate severity)	15 - 21	9	8.2
Clinical insomnia (severe)	22 - 28	2	1.8
Total	--	110	100.0

Table No 4 reveals that there was statistical significant difference in level of stress and anxiety in marital status and work status ($P < 0.05$). Single or unmarried subjects had significantly more stress and anxiety levels as compare to married. Interns and junior resident had significantly more stress and anxiety as compared to other status of work. Study reveals that, there was no statistical significant difference in level of stress and anxiety between age groups, sex, Residence, educational qualification and department they belonged to. ($P > 0.05$).

Table 4: Demographical profile wise comparison of levels stress and anxiety scores

	Stress	Anxiety
Marital status	($X^2=6.32$ $P=0.017$) S	($X^2=7.96$ $P=0.019$) S
Work status	($X^2=13.83$ $P=0.042$) S	($X^2=12.91$ $P=0.041$) S

Table no 5 reveals that there was statistical significant difference in level of depression and insomnia amongst age groups, marital status and work status ($P < 0.05$). Lower age group of subjects had significantly higher depression and insomnia as compared to higher age group. Single or unmarried subjects had significantly higher depression levels and insomnia as compared to married and others. Intern and junior resident had significantly more depression and insomnia as compared to other status of work. Study reveals that, there was no statistical significant difference in level of depression and quality of sleep between sex, Residence, educational qualification and department they belonged to ($P > 0.05$).

Table 5: Demographical profile wise comparison of levels depression and quality of sleep scores

	Depression	Quality of sleep or insomnia
Age group	($X^2=6.32$ $P=0.015$) S	($X^2=6.11$ $P=0.026$) S
Marital status	($X^2=6.54$ $P=0.011$) S	($X^2=9.01$ $P=0.008$) HS
Work status	($X^2=18.47$ $P=0.010$) HS	($X^2=17.43$ $P=0.01$) HS

Table No 6 reveals that, out of 110 subjects; 58 (52.7%) of subjects had come in direct or indirect contact with a confirmed covid-19 case and 52 (47.3%) of subjects did not come into contact with a covid-19 case. Out of 58 subjects who have contact history, showed statistical significance in all the above 4 domains. Out of which, the highest statistical significance was seen in anxiety.

Table 6: Comparison of stress, anxiety, depression and quality of sleep among contact with confirmed covid-19 infection and without contact

Variables	Have you anytime came in direct and indirect contact with an individual who confirmed Covid 19 infection							
	Stress		Anxiety		Depression		Quality of sleep	
	Yes	No	Yes	No	Yes	No	Yes	No
Normal	36	42	34	41	31	39	32	38
Mild	6	3	6	2	4	3	19	10
Moderate	6	3	8	3	16	5	6	3
Severe	10	4	10	6	7	5	1	1
X ² -test	$X^2 = 7.21$		$X^2 = 12.45$		$X^2 = 8.04$		$X^2 = 6.09$	
P-value	$P = 0.034$ S		$P = 0.007$ HS		$P = 0.027$ S		$P = 0.043$ S	

DISCUSSION

The recent pandemic of COVID-19 has thrown serious challenges to health-care professionals. This situation exposed them to higher stress levels, anxiety, and apprehension. Moreover, it affects their work output which, in the pipeline, affects the health-care delivery to the whole nation.⁴ The current study observes that,

maximum number of subjects 86 (78.2%) were belonging to the age group of 21-30 years, followed by 22 (20.0%) were belonging to the age groups of 31-40 years which is in accordance with the review conducted by Mamidipalli Sai *et al.*⁵ This study found no statistical significant difference between male and female gender which is similar to the study conducted by Wilson William *et al.*⁶

Highest number constituted of junior residents 68 (61.8%) which is similar to the study conducted by William and *et al.*⁶ 85 (77.3%) subjects had their educational qualification MD/ MS/ Diploma which is similar to the study conducted by S S Chatterjee *et al.*⁴ Higher rates of anxiety and depression was generally noted than stress in the subjects which is similar to the findings of Wilson William *et al.*⁶ The prevalence rates for stress, anxiety and depression were 29.1%, 31.8% and 36.4% respectively. However, Chatterjee *et al.*⁴ demonstrated higher levels of anxiety (39.5%), compared to depression (34.9%), but had similar low levels of stress (32.9) as in our study. In our study, insomnia was seen in 36.4% of people which is similar to Lai Jianbo. *et al.*⁷ who found insomnia in 34% subjects in their study. Depression, which was found to be higher was of moderate type (19.1%) and subjects experiencing anxiety and stress were more of severe type (14.5% and 12.7%) similar to the study by Chatterjee *et al.*⁴ Level of stress and anxiety were high in unmarried and junior residents which was statistically significant. This may be due to the burden of doing COVID-19 duties, lesser time for the academics and constant fear of getting infected from others. Level of depression and insomnia were high among younger age group < 30 years, unmarried and junior residents which was statistically significant. As our study sample, constituted around 78% below the age of 30 years, where depression is a common prevalence. Xiao *et al.*⁸ have studied the role of social support in medical staff and looked for its association with self-efficacy, sleep quality, degrees of anxiety and stress. Results suggested that the social support given to medical staff caused a reduction in anxiety and stress levels and increased their self-efficacy. Protecting health care workers is an important component of public health measures for addressing the COVID-19 epidemic. Special interventions to promote mental well-being in health care workers exposed to COVID-19 need to be immediately implemented, with women, nurses, and frontline workers requiring particular attention.⁷ The study sample size was small and consisted predominantly younger age group (78%), so the results cannot be

generalized to entire HCW. A large scale multicentric study will probably give a larger picture of morbidity amongst HCW and guide us for better service planning and delivery.

CONCLUSION

Health care providers working during COVID 19 pandemic have high prevalence of depression, anxiety, stress and poor quality of sleep. In the present study, age, marital status and work status were noted as significant risk factors for depression, anxiety, stress and insomnia

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