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EPIDEMIOLOGICAL ASPECTS OF MENTAL HEALTH AND COPING METHODS IN TERTIARY HEALTHCARE FACILITY STAFF DURING COVID-19 PANDEMIC.

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Abstract:

Context/Background: Health emergency situations like COVID-19 pandemic have taken an extensive level of toll on both physical and mental health of health-care workers since they bear the major burden of patient care. This study aims to assess the mental health status among healthcare workers, its epidemiological correlates during COVID-19 pandemic and the stress coping strategies by them.

Aims/Objectives: To study the mental health status of healthcare staff working in a tertiary heath facility and stress coping methods used during COVID19 pandemic

Methodology: A cross sectional study with universal sampling method was conducted using a semi structured questionnaire assessing mental health status of healthcare staff working in the hospital during COVID-19 pandemic via Google forms after approval from institutional ethics committee & fulfilling the inclusion criteria. Descriptive statistics & Chi square test of significance were applied using Open-Epi software.

Results: 51.7% healthcare staff worked in high-risk areas and significantly higher proportion of moderate to extremely severe depression was observed in this group compared to those working in low-risk departments. Depression (18.8%), anxiety (20%) & stress (26%) levels were higher among clinical staff when compared with non-clinical staff. Excessive tiredness/lack of energy (37.7%) was the most commonly reported symptom & talking with friends/family (78%) was revealed as the primary measure to relieve stress. Discomfort due to extended use of PPE was significantly associated with experiencing anxiety among the healthcare workers (p =0.033)

Conclusions: A significant number of healthcare providers mainly doctors & nurses experienced depression, anxiety and stress while working during COVID-19 pandemic. Talking with friends/family, listening to music and Yoga/meditation were the most common stress relieving methods reported.

Key-words: Mental health, Healthcare staff, DASS 21 scale, Stress coping, Covid19.

Introduction:

The novel corona virus disease (COVID-19) was initially detected in Wuhan, Hubei Province, China which has become one of the major public health catastrophes profoundly affecting global health landscape. The World Health Organization (WHO) declared the disease a public health emergency of international concern on March 11, 2020, due to its rapid spread.[1] the global toll is immense, with the disease affecting 778 million people globally and resulting in 7.1 million deaths as of June 15, 2025. The pandemic has also gripped India, with 45.1 million cases as of June 15, 2025 and 5.34 lakh deaths. Since May 2025, Covid-19 positive cases have shown a sudden upward surge with increase in reported deaths globally as well as in India after a plateau maintained in past year.[2] This indicates that the pandemic is far from over and still poses an impending threat with pandemic potential. It has been learned from the past experiences, whenever situations like these arise, and healthcare workers come to play a major role and push their limits every day. Healthcare workers (HCWs) face physical risks as they work with a higher caseload, long work hours, during the epidemic.[3] Besides doctors and nurses, many others also involved in the health system including technicians, administrative staff, housekeeping, etc continuously come in contact with infectious cases. During pandemics, healthcare professionals often experience anxiety, stress, poor sleep quality, which can lead to depression and post traumatic stress disorder after the epidemic has passed. [4, 5] Prolonged quarantine periods along with risks of social discrimination pose an additional burden and have a significant emotional impact on healthcare workers. Mental health difficulties may influence healthcare workers' decision making and contribute to medical blunders. Acute stress can have long term effects on well being.[6, 7]

It is crucial to acknowledge the interconnectedness between mental health issues and health emergency situations.

Objectives:

1. To estimate the mental health status and its epidemiological correlates of staff working in a tertiary heath facility during COVID-19 pandemic.
2. To study the stress coping methods in the healthcare staff.

Methodology:

The design of the present study was a cross-sectional, carried out at DY Patil Medical College and hospital, Navi Mumbai, India conducted during beginning of the second wave of pandemic. The total duration of study was of 6 months. The study participants included doctors, nurses, administrative, housekeeping, technician and security staff working at study site.

The sampling technique used was universal sampling & healthcare workers employed in the hospital that were willing to participate in the study after giving written informed consent were included in the study.

Information on parameters like socio demographic profile, pre validated DASS-21 scale[8] (mental health status) was collected using a semi-structured, pre-tested survey questionnaire via Google form to the doctors, nurses, technicians, social workers and administrative staff working in the hospital during COVID-19 pandemic. For the housekeeping and security personnel, who were not fluent in English, forms in vernacular language (Marathi/hindi) were used and was back-translated by an independent investigators. Data was cleaned and entered into a data sheet using Microsoft Excel application and coded accordingly. Statistical analysis was done by using Epi Info (version 7.2) and Open Epi software. Descriptive summary statistics and bi-variate analysis for categorical variables were analyzed using Pearson's chi square test (x^2). While testing the association the p-value of < 0.05 was considered significant along with odds ration & 95% confidence interval. The present study was initiated after approval from Institutional Ethics Committee was obtained

[Institutional ethics committee for biomedical and health research, Dr. DY Patil medical college, Navi Mumbai (IEC Ref No. – DYP/IEBH/2020/43) (Date: 28/09/2021)]

Results:

In the study, the majority of healthcare staff participants were young adults in the 18–25 age-group (40.9%). The mean age of participants was 36.5 ± 7.3 years. The study showed that a majority of the participants were female (66.9%).

The majority of healthcare staff participants had a post-graduation or graduation education (41.8%), followed by those with a professional degree (23.5%). The majority of healthcare staff (58.8%) lived in nuclear families. Among 323 healthcare workers, 51.7% were from high-risk areas like Screening OPD, Emergency, Isolation, and COVID wards. Most of the healthcare staff worked between 8 to 12 hours per day (67.5%). However, the 22.6% of workers working more than 12 hours highlights the significant burden on frontline workers. (table 1).

On analysing the mental health status using DASS-21 score, healthcare workers reported experiencing severe levels of depression (32 extremely severe, 18 severe) and anxiety (44 extremely severe, 30 severe, figure 1).

Out of 323 participants, the observed prevalence of excessive tiredness/lack of energy (122) was the most commonly reported symptom experienced leading to stress, while menstrual problems were the least reported (43 cases, figure 2).

Among the healthcare workers who participated in the study, 253 reported talking with friends as a primary measure to relieve stress, followed by 207 who engaged in TV, movies, music, or reading. Other significant stress-relieving activities included prayer/meditation (142), exercise/yoga (118), and cooking/creative activities (125), figure 3). Multiple responses were recorded by the participants.

In this study, multiple responses were recorded by the participants while reporting discomfort due to use of PPE (like N95 masks, Face shields, PPE suit) for prolonged periods (> 8 hours) while working in high risk setting. The most common discomfort reported was severe sweating (129), barrier in communication (123), headaches (82), difficulty in breathing (81), and additional discomfort during menstruation (28). A significant association was observed between experiencing anxiety and discomfort due to extended use of PPE among the healthcare workers (P value =0.033, Chi square test value = 3.794, Odds ratio = 1.574 with 95% CI = 1.182 to 2.489, table 2).

A significantly higher proportion of moderate to extremely severe depression was observed in this group compared to those working in low-risk departments like Minor OT, Labour Room, Lab, and Radiology ($p = 0.002$, $\chi^2 = 24.17$). Although extremely severe anxiety was more frequent in high-risk areas like COVID wards and emergency units (24 cases), the overall association between place of work and anxiety levels was not statistically significant ($p = 0.97$, $\chi^2 = 26.60$). While slightly more cases of severe to extremely severe stress were observed in high-risk areas like Screening OPD and COVID wards, the association between place of work and stress levels was not statistically significant ($p = 0.096$, $\chi^2 = 13.508$, table 3). Depression levels were generally higher among clinical staff (doctors, interns, nurses, and healthcare workers), with 18.8% experiencing moderate to extremely severe depression. Non-clinical staff reported much lower levels ($p = 0.005$, $\chi^2 = 14.689$). About 20% of the study participants experienced moderate to extremely severe anxiety, compared to only 9% of non-clinical staff (MSW, admin, technicians, housekeeping, etc.). This difference was statistically significant ($p = 0.000$, $\chi^2 = 23.425$). Clinical staff (doctors, interns, nurses, and healthcare workers) reported significantly higher levels of stress, with 26% experiencing moderate to extremely severe stress compared to only 13% among non-clinical staff (MSW, admin, security, technicians, housekeeping). The association between staff category and stress levels was statistically significant ($p = 0.001$, $\chi^2 = 17.872$, table 4).

Tables & Graphs:

Demographic characteristics Age group	Total number (n=323)	Percent % (100%)
18-25	132	40.9
26-33	59	18.3
34-41	66	20.3
42-49	48	14.9
>50	18	5.6
Sex		
Female	216	66.9
Male	107	33.1
Education		
Professional degree	76	23.5
Post-graduation/ Graduation	135	41.8
Higher secondary school (12th)	15	4.7
Intermediate/diploma	43	13.3
Secondary school (10th)	34	10.5
Primary (4th)	12	3.7
Illiterate	8	2.5
Type of living arrangement		
Alone	19	5.9
Joint/extended family	69	21.4
Nuclear family	190	58.8
Shared accommodation/other	45	13.9
Occupation		
Doctors/Interns	154	47.7
Nurse	101	31.3
Technician (Lab/Radio/OT)	2	0.6
MSW/Administrative staff	7	2.2
Security/Housekeeping	59	18.2
Hours of Work		
< 8 hours	32	9.9
8 – 12 hours	218	67.5
> 12 hours	73	22.6

Table 1: Socio-demographic details of participants in the present study.

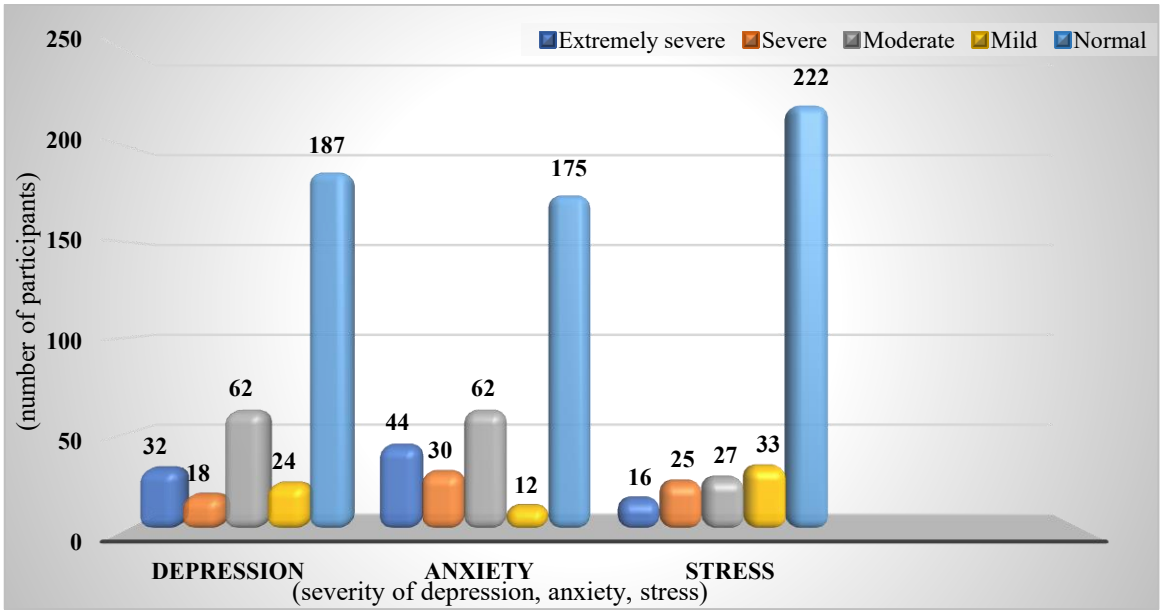

Figure 1: Mental status of participants in the present study.

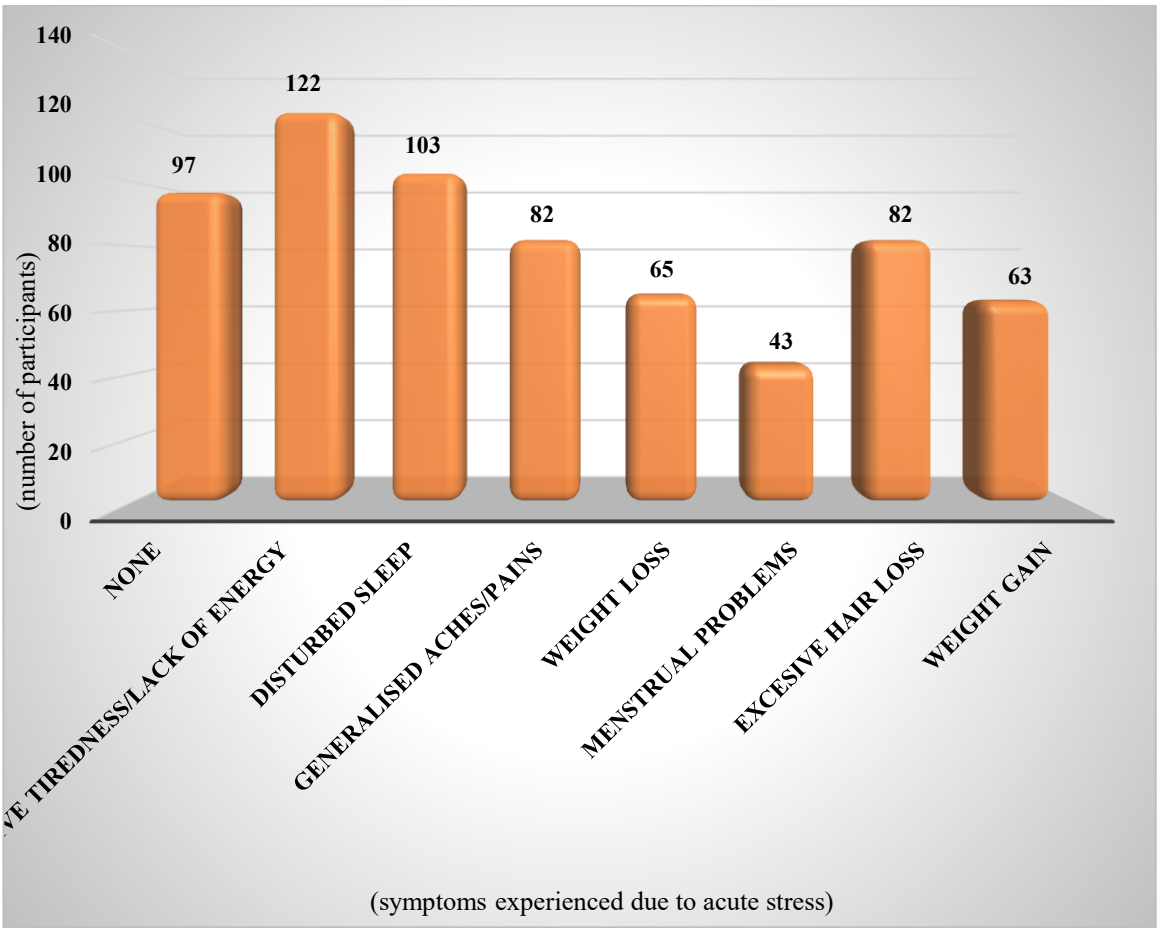

Figure 2: Symptoms of acute stress in participants of the present study. (Multiple responses)

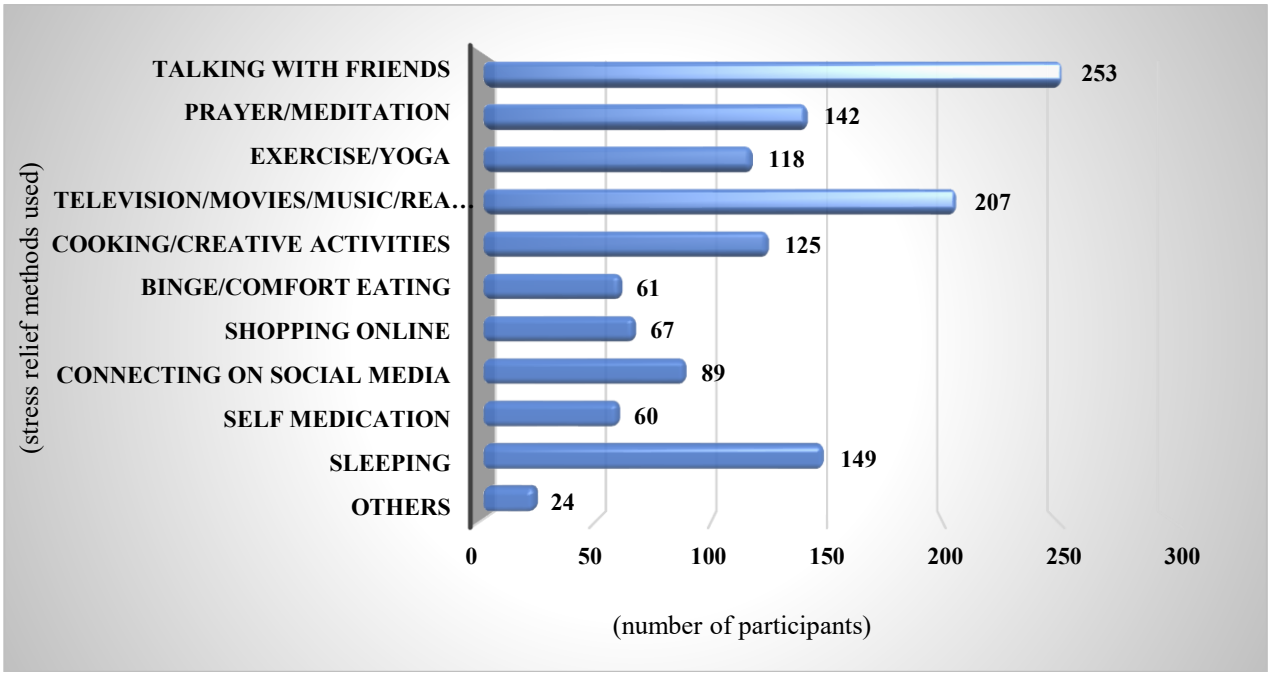

Figure 3: Measures taken by participants in the present study to relieve stress. (Multiple responses)

Anxiety	Discomfort due to prolonged PPE use		Total (n=323)	
	Reported	None		
YES (mild/mod/ severe/extremely severe)	101 (68.2%)	47 (31.8%)	148 (45.8%)	P value = 0.033, χ^2 = 3.794, OR =1.574 (95% CI for Odds = 1.182 to 2.489)
NORMAL	101 (57.7%)	74 (42.3%)	175 (54.2%)	

Table 2: Association between PPE (personal protective equipment) use and anxiety

Mental health	Place of work			Total (n =323)	
	Screening/Fever OPD/emergency /isolation and covid wards	Minor OT / labour room / lab / blood bank/radiology	Medical college/admin /outreach (RHC/UHC)		
Depression					P value 0.002 χ^2 24.171
Extremely severe	20 (6.2%)	2 (0.6%)	10 (3.1%)	32 (9.9%)	
Severe	7 (2.2%)	7 (2.2%)	4 (1.2%)	18 (5.6%)	
Moderate	26 (8%)	27 (8.4%)	9 (2.8%)	62 (19.2%)	
Mild	13 (4%)	2 (0.6%)	9 (2.8%)	24 (7.4%)	
Normal	101 (31.3%)	50 (15.5%)	36 (11.1%)	187 (57.9%)	
Anxiety					P value 0.97 χ^2 2.260
Extremely severe	24 (7.4%)	9 (2.8%)	11 (3.4%)	44 (13.6%)	
Severe	15 (4.6%)	8 (2.5%)	7 (2.2%)	30 (9.3%)	
Moderate	30 (9.3%)	20 (6.2%)	12 (3.7%)	62 (19.2%)	
Mild	6 (1.9%)	3 (0.9%)	3 (0.9%)	12 (3.7%)	
Normal	92 (28.5%)	48 (14.9%)	35 (10.8%)	175 (54.2%)	
Stress					P value 0.96 χ^2 13.508
Extremely severe	10 (3.1%)	1 (0.3%)	5 (1.5%)	16 (4.9%)	
Severe	18 (5.6%)	3 (0.9%)	4 (1.2%)	25 (7.7%)	
Moderate	10 (3.1%)	11 (3.4%)	6 (1.9%)	27 (8.3%)	
Mild	14 (4.3%)	9 (2.7%)	10 (3.1%)	33 (10.2%)	
Normal	115 (35.6%)	64 (19.8%)	43 (13.3%)	222 (68.7%)	

Table 3: Association between high risk posting & mental health status in healthcare workers.

Mental health	Type of job		Total (n=323)	
	Doctors/Interns/Nurses /Healthcare workers	MSW/Admin/Security/ Technician/housekeeping		
Depression				P value 0.005 χ^2 14.689
Extremely severe	32 (9.9%)	0 (0%)	32 (9.9%)	
Severe	15 (4.4%)	3 (0.9%)	18 (5.6%)	
Moderate	53 (16.4%)	9 (2.8%)	62 (19.2%)	
Mild	19 (5.9%)	5 (1.5%)	24 (7.4%)	
Normal	136 (42.1%)	51 (15.8%)	187 (57.9%)	
Anxiety				P value 0.000 χ^2 23.425
Extremely severe	43 (13.3%)	1 (0.3%)	44 (13.6%)	
Severe	29 (9%)	1 (0.3%)	30 (9.3%)	
Moderate	51 (15.8%)	11 (3.4%)	62 (19.2%)	
Mild	9 (2.8%)	3 (0.9%)	12 (3.7%)	
Normal	123 (38.1%)	52 (16.1%)	175 (54.2%)	
Stress				P value 0.001 χ^2 17.872
Extremely severe	16 (4.9%)	0 (0%)	16 (4.9%)	
Severe	25 (7.7%)	0 (0%)	25 (7.7%)	
Moderate	21 (6.5%)	6 (1.9%)	27 (8.3%)	
Mild	30 (9.3%)	3 (0.9%)	33 (10.2%)	
Normal	163 (50.5%)	59 (18.3%)	222 (68.7%)	

Table 4: Association between job responsibility & mental health status in participants of present study.

Discussion:

The age distribution aligns with the workforce composition in many tertiary healthcare facilities where younger staff, including interns and junior residents, forms the frontline. Studies like those by Mathew et al.[9] have highlighted that healthcare workers with varying educational levels faced different challenges in coping with the stress and psychological toll of the pandemic, influencing their mental health outcomes. However, the 22.6% of workers working more than 12 hours highlights the significant burden on frontline workers, a trend seen in studies by Saha et al.[10] and Agha et al.[11] where extended working hours were common among healthcare workers during COVID-19 pandemic. This reflects the standard shift duration in many healthcare settings, especially during the pandemic when staffing demands surged. Females predominated in the present study. This gender distribution suggests a predominance of women in frontline healthcare roles, particularly nursing and supportive care services. Such trends are commonly observed in healthcare settings where care giving roles are often female-dominated.

The findings of mental health status in participants of present study align with similar research conducted during the COVID-19 pandemic.[12,13,14] Notably, the prevalence of stress in this study (16 extremely severe, 25 severe) is consistent with findings from other research highlighting increased stress among frontline workers, particularly those in high-exposure settings.[15,16] However, the larger proportion of participants reporting normal mental health for both anxiety and depression (175 and 187 respectively) suggests that many healthcare workers were able to maintain resilience despite the challenges.

This could be due to stress coping methods implemented by them, most common being talking with peers, watching television, sleeping etc. These findings align with previous research indicating that social support plays a vital role in stress management.[16] However, the higher incidence of binge eating (61 participants) and self-medication (60 participants) in our study reflects a trend seen in other studies that have highlighted maladaptive coping strategies during the pandemic.[15]

A strong association between workplace risk level and mental health burden was found in the participants of present study. Similar findings were reported by Mathias et al[16] in their systematic review of Indian studies assessing mental status of healthcare providers in Covid19 and Gupta M. et al.[12] Studies in this review reported that mental health of healthcare workers depreciated as the workplace dynamics evolved during the pandemic. According to one study, HCWs were not only responsible for delivering treatment, but also for offering psychological and emotional therapy and assurance to patients, relatives, and co-workers, consequently putting additional burden on their own mental health.[16]

Spoorthy et al. also emphasized that while anxiety was common, its severity often depended on personal resilience and coping mechanisms.[18] This highlights possible variability due to different population characteristics or institutional support. These comparisons highlight the universal impact of frontline duties on mental health during the pandemic. and this may suggest that anxiety was widespread among healthcare workers during the pandemic, regardless of exposure level.

The clinical staff experienced higher prevalence of anxiety, stress and depression as compared to non-clinical staff in the present study most likely due to their direct involvement in patient care, longer duty hours, and greater risk of infection and heavier workload. This aligns with findings of various studies by Spoorthy et al.,[18] Chew et al.,[19] Gupta et al.,[12] which showed frontline medical workers had higher psychological distress and stress compared to administrative personnel who are not directly involved in COVID-19 patient care, emphasizing the need for mental health support targeted to frontline healthcare staff.

Conclusion:

The findings of present research work highlight significant number of healthcare providers experiencing depression, anxiety and stress while working in Covid-19 environment. These were more common in doctors, nurses working in close vicinity of patients. Continuous wearing of PPE kit was also cited as one of the contributing factor for stress. The findings of present study throw

light on extreme working environment for healthcare workers during Covid19. Talking with friends, listening to music were most common methods of relieving stress reported n present study.

Strength and Limitations:
The major limitation of present study was that it involved only one institute. Conducting a multi-centric study could provide a more generalized approximation of findings. Moreover, the cross-sectional study design did not allow conferring causality as well as tracking of changes in symptom status or severity over time.

Conflict of Interest: NONE

Funding: NONE

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