

Weathering the Storm: Psychological Impact of COVID-19 Pandemic on Clinical and Nonclinical Healthcare Workers in India

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ABSTRACT

Background: Coronavirus disease-2019 (COVID-19) pandemic has exposed healthcare workers (HCWs) to a unique set of challenges and stressors. Our frontline workers are under tremendous psychological pressure because of the ever-rising crisis. This study was done to assess the magnitude of the psychological impact of the COVID-19 pandemic on clinical and nonclinical HCWs in India.

Materials and methods: It was a cross-sectional, online survey that was done from June 1, 2020, to July 4, 2020. A total of 313 clinical and nonclinical HCWs, who were directly or indirectly involved in patient care, participated in the study. The psychological impact was assessed in terms of four variables: insomnia, anxiety, depression, and stress. Insomnia was assessed by the Insomnia Severity Index (ISI). Anxiety and depression were assessed via the Patient Health Questionnaire-4 (PHQ-4), which included a 2-item anxiety scale and a 2-item depression scale (PHQ-2). Stress was assessed via the Perceived Stress Scale (PSS). We also compared the psychological impact of this pandemic between clinical and nonclinical HCWs.

Results: 7.3% of HCWs were having moderate insomnia, 3.8% had severe insomnia, and 20.8% were having subthreshold insomnia. Severe anxiety and depression were found in 6.7% of respondents. 8.0 and 32.3% of the respondents had moderate and mild anxiety–depression, respectively. 6.4% had high perceived stress. 47.6 and 46.0% of the respondents had moderate and low stress, respectively. There was a statistically significant difference in severe insomnia between clinical and nonclinical HCWs, whereas no significant difference in anxiety, depression, and stress between clinical and nonclinical HCWs.

Conclusion: This study suggests that psychological morbidity is prevalent among both clinical and nonclinical HCWs and both males and females. Early intervention may be beneficial to prevent this issue.

Keywords: Anxiety, Coronavirus disease 2019, Depression, Healthcare workers, Insomnia, Pandemic, Stress.

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INTRODUCTION

Coronavirus disease-2019 (COVID-19) is a pandemic¹ in which a coronavirus (SARS-CoV-2) has been identified as the cause of respiratory illness. Initially detected at the end of December 2019, the pandemic has spread its tentacles from its epicenter in Wuhan province, China to affect various countries across the globe. India had recorded its first case of COVID-19 in Thrissur district, Kerala on January 30, 2020. Since then despite effective containment, isolation, treatment measures taken by the Government of India including the timely lockdown measures, there has been an ever-increasing trend in the number of cases, with the number of infected patients touching 2 lakh at the end of May 2020. The spread of the disease in India has strained the healthcare structure keeping the frontline healthcare workers (HCWs) on their toes. An everyday increasing number of confirmed and suspected cases, long and stressful working hours, rapidly depleting supply of personal protection equipment, day–night media coverage of COVID-19 mathematics, lack of specific treatment, and inadequate support by the society may all contribute to the added mental burden of these HCWs. There were similar concerns of mental health problems of HCWs noted during the swine flu pandemic in 2019² and during the outbreaks of severe acute respiratory syndrome (SARS) and the Middle East respiratory syndrome (MERS).^{3,4} Psychological assistance, including help-line telephone numbers or application-based video-counseling, has been widely promoted by state and

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national mental health institutions in response to the pandemic. The Ministry of Health and Family Welfare (MoHFW), Government of India has issued guidelines toward mental health support for the HCWs during COVID-19 on July 15, 2020, emphasizing the

importance of a mentally healthy workforce.⁵ Still, evidence-based research and mental health interventions targeting frontline HCWs are relatively scarce in India. To bridge this gap, the main aim of the current study was to evaluate the psychological impact of this pandemic among HCWs in India by quantifying the magnitude of symptoms of depression, anxiety, insomnia, and stress. Thus, this study can serve as important evidence to promote mental well-being among HCWs.

MATERIALS AND METHODS

Ethics Committee Statement

The ethical clearance was obtained by the institutional ethics committee to conduct this study. An online informed consent was obtained before enrolling participants into the study.

Study Design

This was a questionnaire-based cross-sectional study conducted across India in the month of June to July 2020 (1.6.2020–4.7.2020). India had witnessed an exponential rise in the confirmed cases across all the major states, coinciding with the study period duration reflecting the highest vulnerable period having an enormous psychological impact on the HCWs. Online questionnaire link was circulated among the participants via social media platforms like e-mail, Facebook Messenger, and WhatsApp. Informed consent was mandatory and the participants were allowed to terminate the survey at any point in time as per their wish. The anonymity of the participant and the confidentiality of the information was assured. All the clinical and nonclinical health workers above the age of 21 years were eligible to enroll in the questionnaire-based study survey. Healthcare workers with preexisting psychiatric illnesses were excluded from the study. A total of 313 participants were included in the study. Clinical HCWs were defined as those who were involved in direct patient care as a part of their routine, e.g., doctors, nurses, physiotherapists, respiratory therapists, etc. Nonclinical HCWs were defined as those who were not involved in direct patient care as a part of their routine, e.g., allied health professionals, pharmacists, administrative staff, security staff, and housekeeping workers. Recruitment of nonclinical HCWs was done by contacting clinical HCWs working in various hospitals through social media platforms. Questionnaires were circulated online in the regional languages as well.

Participants

A total of 35 questions were included in the questionnaire divided into 6 sections, namely questions related to demographics, insomnia, anxiety and depression, stress, measures taken for mental well-being. Demographic data, i.e., sex, age, occupation (i.e., clinical health workers, nonclinical health workers), marital status (i.e., married, unmarried), living with families (yes or no), comorbidities, etc., were collected. It was asked whether participants were directly engaged in clinical activities of diagnosing, treating, or providing nursing care to patients with increased temperature or patients with confirmed COVID-19 patients or not. Those who responded yes were defined as frontline workers, and those who answered no were defined as second-line workers. It was asked whether participants are working in high-risk areas or low-risk areas. High-risk areas were the emergency room, intensive care unit, operation theater, inpatient wards, outpatient department—fever clinic,

housekeeping, etc. Low-risk areas were the administration building, billing section, security, pantry, etc.

Sample Size

Based on the study by Zhu et al.,⁶ considering an estimated prevalence of depression among HCWs to be 13.5%, stress 29.8%, and anxiety 24.1%, with an alpha error of 5% and confidence interval of 95%, the calculated sample size was between 126 and 408. We decided to take a sample size of 300. Symptoms of insomnia were assessed by Insomnia Severity Index (ISI). It had seven questions. For each question, participants were asked to select the number that best describes their severity of symptoms in the last 2 weeks. Total score was interpreted as: 0–7 = no clinically significant insomnia, 8–14 = subthreshold insomnia, 15–21 = clinical insomnia (moderate severity), 22–28 = clinical insomnia (severe). Anxiety and depression were assessed by PHQ-4 (the four-item Patient Health Questionnaire). Patient Health Questionnaire-4 was a combination of PHQ-2 and GAD-2 (the two-item Patient Health Questionnaire and generalized anxiety disorder two items, respectively). The total score was determined by adding together the scores of each of the four items. Scores were rated in terms of severity as normal (0–2), mild (3–5), moderate (6–8), and severe (9–12). Stress was assessed by the Perceived Stress Scale (PSS) to understand how participants perceived the stress about the situation during the last month. It included a total of 10 questions. Total score was interpreted as: 0–13 = low stress, 14–26 = moderate stress, 27–40 = high perceived stress. Various measures taken for mental well-being by the participants during these trying times were also asked in the questionnaire. The necessary official information regarding the professional help to address the psychological issues were also provided in the questionnaire.

Outcome and Analysis

The primary outcome of the study was to analyze the psychological impact in terms of the prevalence of insomnia, depression, anxiety, and stress experienced by the HCWs in India and the secondary outcome was to compare the prevalence of insomnia, depression, anxiety, and stress between clinical HCWs and nonclinical HCWs. The prevalence of insomnia, anxiety, depression, and stress were determined using count and percentage. The Chi-square test and Fisher's exact tests were used to compare the prevalence of insomnia, anxiety, depression, and stress between clinical HCWs and nonclinical HCWs. Data were exported from the Google Forms to Microsoft Excel (Microsoft Corporation, Redmond, Washington, USA, 2016) spreadsheet and coded. Statistical analyzes were performed using Statistical Package for Social Sciences (SPSS) Statistics 16 for Windows. (Chicago: SPSS Inc. 2007).

RESULTS

The survey questionnaire was responded to by 322 participants of which 9 were excluded as they were currently practicing out of India. 64.5% were males and 35.5% were females. The majority of the respondents (152) were of age group 31–40 years followed by 134 respondents who belonged to the age group 21–30 years. Twenty-seven respondents were of age 41 years and above. 66.5% of the respondents were married and 76% of the respondents were staying with family (Table 1).

Table 1: Demographic data

	Frequency	Percentage
Age group		
>61 years	1	0.3
21–30 years	134	42.8
31–40 years	152	48.6
41–50 years	21	6.7
51–60 years	5	1.6
Gender		
Female	202	64.5
Male	111	35.5
Marital status		
No	105	33.5
Yes	208	66.5
Do you stay with family?		
No	75	24.0
Yes	238	76.0
How are you related to the healthcare sector?		
Administrative staff	24	7.7
Allied health professional	46	14.7
Doctor	161	51.4
Housekeeping/security	24	7.7
Paramedic (nursing staff, dietitian, pharmacist, etc.)	58	18.5
Recently engaged in managing COVID patients		
No	164	52.4
Yes	149	47.6
Field of work		
High-risk areas (ER, ICU, OT, wards, OPD, housekeeping, etc.)	286	91.4
Low-risk areas (administration work, billing, security, pantry, etc.)	27	8.6
Do you give equal importance to mental health?		
No	32	10.2
Yes	281	89.8
Comorbidities		
Cardiac disease	2	0.6
Diabetes	6	2
Thyroid problem	3	0.9
Hypertension	5	1.6
Kidney disease	1	0.3
Lung disease	5	1.6
None	290	92.7
Obesity	1	0.3

This study proposed to address the prevalence of psychological impact in terms of insomnia, depression, anxiety, and stress experienced by the HCWs in India amid the COVID-19 pandemic. The results suggest that, out of 313 respondents, 7.3% were found to have clinical insomnia of moderate severity, 3.8% had severe clinical insomnia, and 20.8% were found to have subthreshold insomnia. Severe anxiety/depression was found in 6.7% of respondents, 8.0 and 32.3% of the respondents had moderate and mild anxiety/depression, respectively. 6.4% had high perceived stress, 47.6 and

Table 2: Prevalence of severity of insomnia, anxiety/depression, and stress

	Frequency	Percentage
Insomnia		
No clinically significant insomnia	213	68.1
Clinical insomnia (moderate severity)	23	7.3
Clinical insomnia (severe)	12	3.8
Subthreshold insomnia	65	20.8
Anxiety and depression		
Normal	166	53
Mild	101	32.3
Moderate	25	8
Severe	21	6.7
Stress		
Low stress	144	46
Moderate stress	149	47.6
High perceived stress	20	6.4

Table 3: Summary of Fisher's exact test to determine associations between the prevalence of insomnia and field of work (clinical/non-clinical)

Insomnia	Relation to the healthcare sector		p value for Fisher's exact test
	Clinical (%)	Nonclinical (%)	
No clinically significant insomnia	150 (68.5)	63 (67.0)	
Clinical insomnia (moderate severity)	15 (6.8)	8 (8.5)	0.03
Clinical insomnia (severe)	4 (1.8)	8 (8.5)	
Subthreshold insomnia	50 (22.8)	15 (16.0)	

46.0% of the respondents had moderate and low stress, respectively (Table 2).

We also compared the prevalence of insomnia between clinical HCWs and nonclinical HCWs using Fisher's exact test which showed a statistically significant difference in the prevalence of severe clinical insomnia (1.8% in clinical HCWs vs 8.5% in nonclinical HCWs) and the prevalence of subthreshold insomnia (22.8% in clinical HCWs vs 16.0% in nonclinical HCWs) was observed (p value = 0.03) (Table 3). However, the results suggested that there was no significant difference in the prevalence of anxiety/depression observed between clinical and nonclinical HCWs (Chi-square p value = 0.25) (Table 4). The results also suggested that there was no significant difference in the prevalence of stress observed between clinical HCWs and non-clinical HCWs (Chi-square p value = 0.63) (Table 5).

DISCUSSION

The duration and consequences of the global health emergency with the COVID-19 pandemic is indeterminate. Considering that HCWs are generally at a higher risk of exposure to the virus, they may also experience anxiety about one's own health and about transmitting the infection to loved ones. Measures like social restriction and self-quarantine while necessary to prevent the



Table 4: Summary of Chi-square test to determine associations between the prevalence of anxiety/depression and field of work (clinical/non-clinical)

Anxiety and depression	Relation to the healthcare sector		Chi-square test statistic value (p value)
	Clinical	Nonclinical	
Normal	109 (49.8)	57 (60.6)	4.156 (0.25)
Mild	78 (35.6)	23 (24.5)	
Moderate	18 (8.2)	7 (7.4)	
Severe	14 (6.4)	7 (7.4)	

Table 5: Summary of Chi-square test to determine associations between the prevalence of stress and field of work (clinical/nonclinical)

Stress	Relation to the healthcare sector		Chi-square test statistic value (p value)
	Clinical	Nonclinical	
Low stress	97 (44.3)	47 (50.0)	0.914 (0.63)
Moderate stress	108 (49.3)	41 (43.6)	
High perceived stress	14 (6.4)	6 (6.4)	

spread of infection can cause significant psychological distress, loneliness, and anxiety and may adversely affect coping.^{7,8} Significant psychological distress and post-traumatic stress in HCWs have been reported during the outbreak of SARS in 2002 to 2003 as well.⁹⁻¹¹ Emerging reports from China in the context of the COVID-19 pandemic indicate the presence of mental health concerns like anxiety, depression, and post-traumatic stress in HCWs. A meta-analysis including 13 studies with a total of 33,602 participants reported 23.2% prevalence of anxiety, 22.8% prevalence of depression, and 38.9% of insomnia in HCWs. All but one study in the meta-analysis was conducted in China with two studies from Wuhan, the epicenter of the pandemic and one study was from Singapore. Female HCW reported more mood symptoms compared to male HCW similar to the trend of higher prevalence of depression and anxiety in women.¹² Reports from Singapore examined the psychological distress, depression, anxiety, and stress experienced by HCWs amid the outbreak and compared these between medically and nonmedically trained hospital personnel from February 19 to March 13, 2020, from two major tertiary institutions. The prevalence of anxiety was higher among nonmedical HCWs than medical personnel (20.7 vs 10.8%; adjusted prevalence ratio, 1.85 [95% CI 1.15–2.99]; $p = 0.011$).¹³ A recent position paper in The Lancet Psychiatry recommends further research to monitor reports of anxiety, depression, and mental health concerns in vulnerable groups including HCW to develop prevention and intervention programs.¹⁴

This study aimed to assess the psychological issues among clinical and nonclinical health workers due to the COVID-19 pandemic in the Indian subcontinent. The psychological morbidities that were evaluated in this study included insomnia, depression, stress, and anxiety. The results showed a high prevalence of mild-to-moderate symptoms of clinical insomnia, anxiety, depression, and stress among HCWs. The stressors here may include financial constraints placed on existing healthcare systems, lack of PPE and medical supplies, unpredictable work schedule and scarcity of personnel, exposure to infection, limited understanding of the new disease, and availability of safety gears, increased workload, fear of

spreading the infection to their loved ones and fear of death.^{1,15-17} Healthcare workers are also at risk of “moral injury”, wherein they are forced to make difficult decisions about allocating resources among their patients or about balancing their own health needs with that of the community.

There was no significant difference in the prevalence of psychological morbidity between clinical and nonclinical health workers. There was also no difference in the prevalence of psychological morbidity between males and females. Previous similar studies have shown females are more affected than males.¹⁸ The reason for no such difference may be that all the subpopulation were facing similar situations and on the verge of coping with various psychiatric morbidities. The interventions for the psychological problem due to COVID-19 needs to be prioritized. The symptoms may worsen as the caseload increases. The programs need to consider mental health programs at work sites, tele-conversations, and periodic counseling by psychiatrists and clinical psychologists to address the issue. The work at the institutional level may be decreased or periodic shifts to be implemented to reduce the stress.¹⁹

Our study has a few limitations. The main limitation of the study is, the survey was self-reported. The scope of this study was limited as most of the participants were from the southern part of India. So, we cannot generalize our findings to all over Indian HCWs. Second, because of the continuous steady rise of COVID-19 cases in India, the psychological impact on HCWs could have become more severe subsequently. There was a lack of longitudinal follow-up in our study. In the future, long-term psychological implications on HCWs are worth investigating. Despite that, the major strength of the study is that the psychological impact has been assessed while the caseload is still on rising trends.

CONCLUSION

During this COVID-19 pandemic, HCWs reported a high prevalence of depression, anxiety, insomnia, and stress. Although there was no statistical clinical difference between clinical and nonclinical subgroups or male and female, this has a major clinical significance that needs to be addressed at the earliest. This is also a very important domain of public health to protect our workforce who are working relentlessly in the frontline during this pandemic. It is recommended that measures to promote mental well-being in HCWs should be immediately implemented.

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