

Mental health status of healthcare providers during the Covid-19 pandemic: A cross-sectional study across India

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ABSTRACT

Background. From the beginning of the Covid-19 pandemic, studies have observed an increased prevalence of psychological symptoms in the general population and healthcare providers. We studied the prevalence of psychological symptoms among the latter.

Methods. We did this study using a self-administered questionnaire among healthcare providers across India who were involved in caring/treating patients. The questionnaire collected information on demographics, Depression, Anxiety and Stress Scales (DASS-21) and semi-structured questions related to the Covid-19 pandemic.

Results. A total of 612 healthcare providers participated in the study; 254 were doctors of various specialties and 358 were nursing care-providers. According to the DASS-21 assessment, the prevalence of depression was 12.4%, anxiety was 19.1% and stress was 10.8%. The prevalence of psychological problems was more among nursing staff compared to doctors (depression risk ratio [RR] 2.4, anxiety RR 1.73 and stress RR 2.93) and they were equal among both genders (depression RR 1.05, anxiety RR 1.06 and stress RR 1.21).

Conclusions. Our study shows that there is a higher prevalence of depression, anxiety and stress among healthcare providers, particularly among nursing care-providers. We suggest psychological interventions to nursing care-providers and also those who are vulnerable among doctors, to improve their mental health status.

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INTRODUCTION

The WHO declared the Covid-19 outbreak as a pandemic on 30 January 2020. Since the beginning of the pandemic, many healthcare providers all over the world experienced an increase

in workload and working hours, burnout and increased psychological symptoms. Similar mental health-related issues were observed during outbreaks of severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). During these outbreaks, healthcare providers had reported high levels of stress and among some caregivers it also resulted in post-traumatic stress disorder.^{1,2}

Healthcare providers were at high risk of getting infected during the treatment of patients with Covid-19. With increasing number of confirmed cases, the workload gradually increased and this also led to shortage of personal protection equipment (PPE). Further, the lack of any specific drugs contributed to the mental burden of healthcare providers. They were at risk of developing psychological stress and other mental health-related problems.^{1,2} Studies showed that healthcare workers feared contracting the infection and spreading it to their family, friends and colleagues.

We aimed to evaluate the mental health status among healthcare providers across India by quantifying the symptoms of depression, anxiety and stress during the Covid-19 pandemic.

METHODS

Study participants

More than 1500 healthcare providers were sent an invitation to participate in the study through social media (WhatsApp), personalized short messaging service (SMS) and through messages in various professional groups. The survey was administered as a Google form. The questionnaire was in English and comprised demographic characteristics, Depression, Anxiety and Stress Scales (DASS-21) and other relevant questions related to the Covid-19 pandemic. DASS-21 is a validated screening instrument for use among patients and the general population.³ It is a self-reported 21-item scale, which provides independent measures of depression, stress and anxiety with recommended severity thresholds for the depression, stress and anxiety sub-scales. The scores for each of the three components were calculated by summing up the scores for the relevant items. On the DASS-21 depression sub-scales, scores of 10–13 were termed as mild, 14–20 as moderate, 21–27 as severe, and 28–42 as extremely severe depression. The DASS-21 anxiety sub-scale score was assessed as mild (8–9), moderate (10–14), severe (15–19) and extremely severe (20–42). The DASS-21 stress sub-scale score was scored as mild (15–18), moderate (19–25), severe (26–33), and extremely severe stress (34–42).⁴ Some other questions were also sent to the caregivers related to the Covid-19 pandemic and work. Our institutional ethics committee approved the study.

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Sample size

The sample size calculated was 377 assuming a response rate of 50%, 95% confidence interval (CI), Z as 1.96, and a margin of error as 5%. Considering, an additional 10% for any error in questionnaire filling, a final sample size of 414 was required.

Statistical analysis

Statistical analysis was done using SPSS 26.0 (IBM, New York, USA). Chi-square test and ANOVA were used to compare different professions, location and place of work with DASS-21 scores. Data were summarized as mean and standard deviation for specific sections. A value of $p < 0.05$ was considered to be statistically significant. Risk ratio (RR) was calculated separately for genders, and also between nursing care-providers and doctors.

RESULTS

The study was done from 15 April to 5 July 2020. We received 612 responses from across India. The mean (SD) age of the participants was 39.75 (12.85) years and the majority were men (Table I). The prevalence and severity of the self-reported symptoms have been summarized in Table II. The mean DASS-21 scores according to gender and category of work (doctor,

TABLE I. Demographic details of healthcare workers

Item	n (%)
Mean (SD) age (in years)	39.75 (12.85)
Range	23–78
<i>Gender</i>	
Men	363 (59.3)
Women	249 (40.7)
<i>Category</i>	
Doctor	254 (41.5)
Nursing staff	358 (58.5)
<i>Currently staying at</i>	
Own home	409 (67)
Outside my home place	20 (33)
<i>Current workplace</i>	
Medical college	240 (39)
Private clinic/hospital	250 (41)
Government hospital	122 (20)
<i>Are you able to continue to work now?</i>	
Yes	429 (70)
No	183 (30)
<i>Are you trying to avoid working due to</i>	
Government policy related to Covid is not sufficient to protect healthcare providers	224 (37)
Hospitals are not providing safety measures	70 (11)
I may be wrongly implicated in the spread of infection	126 (21)
There are no clearly defined safety measures available.	156 (25)
Other reason (movement of patients restricted by government policies)	36 (6)
<i>Did you get quarantined?</i>	
Yes	158 (26)
No	454 (74)
<i>Has Covid-19 affected your personal/family life?</i>	
Yes	390 (64)
No	222 (36)
<i>Has this affected your financial condition?</i>	
Yes	326 (53)
No	286 (47)

nurse) are summarized in Table III. The inferred grading according to DASS-21 scores on the respondent's place of residence and the kind of workplace (government, private, etc.) are summarized in Table IV.

The prevalence risk of self-reported psychological problems was nearly the same for both genders (depression RR 1.05, anxiety RR 1.06 and stress RR 1.21). The prevalence risk of psychological problems was more among the nursing staff compared to doctors (depression RR=2.4, anxiety RR=1.73 and stress RR=2.93). There was no statistical difference in the prevalence of psychological problems between the groups classified according to their place of stay and work (separately).

DISCUSSION

We found that the prevalence of depression was 12.4%, anxiety 19.1% and stress 10.8% among healthcare workers during the Covid-19 pandemic. Our findings vary from those reported from China for the general population, and from Singapore and India for frontline healthcare workers.⁵⁻⁸ A similar study, on healthcare workers in China, reported an occurrence of depression in 9.5% and anxiety in 8.5% of the subjects studied.⁹ Our study revealed

TABLE II. Severity of anxiety, depression and stress among healthcare providers using the Depression, Anxiety and Stress Scales-21 (DASS-21)

Parameter	Depression, n (%)	Anxiety, n (%)	Stress, n (%)
<i>Condition</i>			
Normal	536 (87.6)	495 (80.9)	545 (89.1)
Abnormal	76 (12.4)	117 (19.1)	67 (10.9)
<i>Severity of psychological problems</i>			
Mild	45 (7.4)	42 (6.9)	36 (5.9)
Moderate	23 (3.8)	37 (6)	23 (3.8)
Severe	5 (0.8)	19 (3.1)	5 (0.8)
Extremely severe	3 (0.4)	19 (3.1)	3 (0.4)
Total	612 (100)	612 (100)	612 (100)

TABLE III. Mean Depression, Anxiety and Stress Scales-21 (DASS-21) scores according to sex of participants and category of work

Grading	Male*	Female*	Nursing staff†	Doctor†
<i>Stress score</i>				
Normal	327 (90)	218 (88)	304 (85)	241 (95)
Mild	18 (5)	18 (7)	28 (8)	8 (3)
Moderate	13 (4)	10 (4)	19 (5)	4 (2)
Severe	2 (1)	2 (1)	4 (1)	1 (0)
Extremely severe	3 (1)	0 (0)	3 (1)	0 (0)
<i>Anxiety score</i>				
Normal	290 (80)	205 (82)	275 (77)	220 (87)
Mild	28 (8)	14 (6)	24 (7)	18 (7)
Moderate	19 (5)	18 (7)	27 (8)	10 (4)
Severe	12 (3)	7 (3)	15 (4)	4 (2)
Extremely severe	14 (4)	5 (2)	17 (5)	2 (1)
<i>Depression score</i>				
Normal	319 (88)	217 (87)	299 (84)	237 (93)
Mild	25 (7)	20 (8)	37 (10)	8 (3)
Moderate	14 (4)	9 (4)	16 (4)	7 (3)
Severe	2 (1)	3 (1)	3 (1)	2 (1)
Extremely severe	3 (1)	0 (0)	3 (1)	0 (0)

All figures are n (%) * differences in all scores are not statistically significant (p>0.05) † differences are statistically significant (p=0.004/0.003)

TABLE IV. Inferred grading from DASS-21 scores according to place of residence and work at the time of the study

Grading	Home*	Outside home*	Others (hostel, etc.)*	Medical college and hospital	Private clinic/hospital	Government institution/hospital
<i>Stress score</i>						
Normal	379 (90)	95 (90)	71 (86)	212 (85)	226 (93)	107 (91)
Mild	22 (5)	5 (5)	9 (11)	17 (7)	11 (5)	8 (7)
Moderate	16 (4)	5 (5)	2 (2)	16 (6)	5 (2)	2 (2)
Severe	5 (1)	0 (0)	0 (0)	4 (2)	1 (0)	0 (0)
Extremely severe	1 (0)	1 (1)	1 (1)	1 (0)	1 (0)	1 (1)
<i>Anxiety score</i>						
Normal	346 (82)	89 (84)	60 (72)	199 (80)	203 (83)	93 (79)
Mild	26 (6)	5 (5)	11 (13)	17 (7)	13 (5)	12 (10)
Moderate	26 (6)	5 (5)	6 (7)	15 (6)	19 (8)	3 (3)
Severe	12 (3)	4 (4)	3 (4)	7 (3)	6 (2)	6 (5)
Extremely severe	13 (3)	3 (3)	3 (4)	12 (5)	3 (1)	4 (3)
<i>Depression score</i>						
Normal	374 (88)	96 (91)	66 (80)	214 (86)	218 (89)	104 (88)
Mild	28 (7)	6 (6)	11 (13)	20 (8)	17 (7)	8 (7)
Moderate	18 (4)	2 (2)	3 (4)	12 (5)	6 (2)	5 (4)
Severe	2 (0)	1 (1)	2 (2)	3 (1)	2 (1)	0 (0)
Extremely severe	1 (0)	1 (1)	1 (1)	1 (0)	1 (0)	1 (1)

All figures are n (%) * differences in all scores are not statistically significant (p>0.05) DASS Depression, Anxiety and Stress scale

a higher prevalence of depression and anxiety compared to the Chinese subjects.

In our study, the prevalence of psychological problems was equal among the genders. This is in contrast to previous studies that have shown women with a higher incidence of psychological symptoms.^{10,11}

Many healthcare providers were scared to continue to operate their private hospitals and clinics even though the government was insisting on their continuing to provide healthcare services. Some healthcare providers were concerned about transmitting the infection to their families, especially due to the lack of proper protective measure (PPE kits). During the SARS epidemic, these findings were reported among medical staff, but were less significant.¹²⁻¹⁴

Many studies also reported that the lockdown affected them financially. This was probably one of the major reasons for increased reporting of anxiety-related symptoms.

Based on our findings, we recommend that healthcare providers should be provided adequate counselling and training before they are assigned duties during an infectious disease pandemic. This would help in managing mental health issues among them.¹⁵

This study, being cross-sectional, could not assess the cumulative effects of prolonged psychological stress that can occur during a long-lasting pandemic. Further, it is possible that our findings were also affected by non-response bias, especially since a severely stressed healthcare provider may not respond to such questionnaires.

Conclusions

Based on the results, we recommend, apart from providing proper health infrastructure and facilities, psychological interventions such as counselling, training in positive coping skills and psychotherapy for healthcare workers to improve their psychological well-being. This may result in better patient care during an infectious disease pandemic such as Covid-19.

Conflicts of interest. None declared

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