



## Original Research Article

## Depression, anxiety, stress and coping strategies in healthcare workers during the second wave of Covid-19 pandemic

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## ARTICLE INFO

## Article history:

Received 12-08-2021

Accepted 22-11-2021

Available online 28-11-2022

## Keywords:

COVID19

Second wave

Healthcare workers

Depression

Anxiety

Stress

Coping strategy

## ABSTRACT

**Background:** Millions of individuals were mentally and physically harmed by the first wave of the COVID-19 pandemic. Health-care workers are those who are most affected by the pandemic's psychological effects. This study examines the psychological effects of the second pandemic wave of Covid-19 on healthcare personnel in India and their coping strategies.

**Materials and Methods:** During the month of May 2021, a semi-structured online survey of healthcare workers in India was conducted. A total of 1340 healthcare workers participated in the study. SPSS software was used to analyze the data.

**Results:** Most participants (37.61%) were between the ages of 18 and 29, with 856 married (63.88%). Three hundred thirty-seven participants (25.15%) were resident doctors, while 1008 (75.22%) worked in government settings. 561 of the 1340 participants reported anxiety symptoms (41.87%). 536 (40.00%) of the participants reported depressive symptoms. Post-traumatic stress symptoms were also present in 423 participants (31.57%). Our study found a statistically significant difference between male and female depression and post-traumatic stress symptoms ( $p$ -value  $<0.05$ ). Most participants relied on keeping expectations open and hopeful as a coping strategy (66.57%).

**Conclusion:** It is important to develop strategies to address the growing number of mental health problems. It is anticipated that healthcare worker education about coping strategies, effective coping mechanisms, and avenues for practical assistance will be beneficial.

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## 1. Introduction

Coronavirus disease (COVID-19), a global health disaster, has never been seen before in human history.<sup>1</sup> Given the magnitude and speed with which the pandemic has spread, it is understandable that there has been an increase in anxiety among the public and health care workers (HCW). The World Health Organization (WHO) has explicitly recognized the risk of pandemic-related stress and burnout

(emotional exhaustion) in healthcare workers and has issued guidance on psychological issues during COVID-19.<sup>2</sup>

In India, the first wave of the COVID-19 pandemic wreaked havoc on the mental health of healthcare workers, with multiple studies revealing various levels of acute psychosocial stressors, anxiety, depression, and emotional exhaustion.<sup>3,4</sup> The outbreak of a fatal second wave of the pandemic cut short a growing sense of false confidence across the country.<sup>5,6</sup> In April 2021, India was afflicted by the world's most extraordinary COVID-19 outbreak.<sup>7</sup> The current study is one of the few to look at the psychological

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impact of the pandemic's second wave on distinct subgroups of healthcare workers in India. That is why an online survey was utilized to determine the stress, anxiety, and depression experienced by healthcare workers and the coping strategies.

## 2. Materials and Methods

### 2.1. Study population and eligibility criteria

Participants could participate in this study if they had internet access. Participants needed to be over 18 years old, able to communicate in English. They also had to be willing to provide informed consent. All adults in a healthcare setting were eligible to participate in the study, regardless of whether they are involved in patient care or treatment.

### 2.2. Study design

We conducted a cross-sectional survey between 01 and 30 May across the nation. We used the snowball sampling technique to recruit participants. A semi-structured online questionnaire was created with Google Forms and an attached consent form. The link was sent to the author's contact via email, WhatsApp, or other social media platforms. It was encouraged that contributors reach out to as many people with the survey as possible. The link was then forwarded to all contacts, including the first one. Once the link was clicked, it took the individual to information about the study and informed consent. After approval of the survey, they completed demographic information then a series of questions were presented that participants had to answer.

### 2.3. Measures

The online survey had five sections: sociodemographic, anxiety, depression, stress, and coping techniques. Answers to questions were either yes or no, and open-ended questions were also asked. This form included a summary of the survey's objective, procedures, and the voluntary nature of participation, a statement of anonymity and privacy, and instructions for completing the survey.

The independent variables were demographic characteristics (age, gender, profession, working environment). The Generalised Anxiety Disorder - 7 (GAD-7) questionnaire was used to assess anxiety symptoms. It is a self-reported anxiety screening instrument validated and used to determine the severity of symptoms.<sup>8</sup> The seven items are rated on a scale of 0 to 3, with 0 being not at all, to 3, nearly every day. The total score of an individual is used to classify anxiety severity as none (0-4), mild (5-9), medium (10-14), or severe (15-21).

The severity of depressive symptoms was determined using the Patient Health Questionnaire 9 (PHQ-9) scale. The validated, self-reported PHQ-9 scale has been used to

screen for and quantify depression severity.<sup>9</sup> There are nine possible responses, ranging from 0 to 3, with 0 being not at all and 3 nearly every day. The total score is divided into four categories: none (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), and severe (20-27).

Stress-related symptoms were assessed using the DSM 5 primary care post-traumatic stress disorder screening (PC PTSD-5).<sup>10</sup> This screening questionnaire consists of five items and is intended for use in primary care. To rule out the possibility of PTSD, a cut-off score of less than three is recommended.

Respondents were given a list of common coping strategies and the option to provide free text detailing any additional strategy they used. Sharing emotions, activities, and humor, turning to God, having hope, being open to change, not thinking, problem-solving, and so on were all common coping strategies.

### 2.4. Statistical analysis

To facilitate analysis, ensure accuracy, and avoid translation errors, all questionnaire data were pre-coded. The data were entered into Microsoft Excel 365 and then exported to SPSS V.20 Windows. SPSS V.20 is a social science statistical software package. For graph making, version 365 of Microsoft Excel was used. Continuous variables were described using descriptive statistics such as mean and standard deviation, whereas categorical variables were described using percentages or actual value. To distinguish between variables, an independent student t-test or chi-square test was used. The level of significance was determined using the standard 0.05 level.

### 2.5. Ethical approval

The institution's ethics committee approved the research. All ethical concerns pertaining to the research have been addressed. Before the interview could begin, participants were required to sign an informed consent form. Participants completed this form to indicate their willingness to participate in the study. Participants signed consent forms authorizing the collection, use, and disclosure of their personal information. The participants were assured that any information gathered would be kept strictly confidential.

## 3. Results

Within one month of the survey's unveiling, 1682 participants from across the country had responded. We excluded 342 of them from the final review because they did not answer all the questions. As a result, 1340 individuals responded to the survey and were considered legitimate. Most of the responses were received from Rajasthan (324), followed by Gujarat (147), Delhi (114), Madhya Pradesh (81), Utter Pradesh (78), and Punjab (59). (Figure 1)

**Table 1:** Sociodemographic characteristics of participants.

Characteristics	Number (n=1340)	Percentage (%)
<b>Age</b>		
18-29	504	37.61
30-39	340	25.37
40-49	290	21.64
≥50	206	15.37
<b>Sex</b>		
Male	848	63.28
Female	492	36.72
<b>Marital Status</b>		
Unmarried	364	27.16
Married	856	63.88
Widow/Divorced/Separated	120	8.96
<b>Profession</b>		
Medical Officer	282	21.04
Resident Doctor	337	25.15
Specialist	134	10.00
Nursing Staff	587	43.81
<b>Work Environment</b>		
Government Hospital	1008	75.22
Private Hospital	332	24.78

**Table 2:** Depression, anxiety, and stress severity among participants by gender.

Characteristics	Male % (n=848)	Female % (n=492)	Total % (n=1340)	Chi-square p-value
<b>Anxiety</b>				
None	475 (56.01)	304 (61.79)	779 (58.13)	4.284 0.232
Mild	224 (26.42)	113 (22.97)	337 (25.15)	
Moderate	112 (13.21)	57 (11.59)	169 (12.61)	
Severe	37 (4.36)	18 (3.66)	55 (4.10)	
<b>Depression</b>				
None	492 (58.02)	312 (63.41)	804 (60.00)	10.415 0.034*
Mild	208 (24.53)	124 (25.20)	332 (24.78)	
Moderate	92 (10.85)	40 (8.13)	132 (9.85)	
Moderately Severe	56 (6.60)	16 (3.25)	72 (5.37)	
Severe	0 (0.0)	0 (0.0)	0 (0.0)	
<b>Posttraumatic stress symptoms (PTSS)</b>				
No PTSS	563 (66.39)	354 (71.95)	917 (68.43)	4.455 0.035*
Probable PTSS	285 (33.61)	138 (28.05)	423 (31.57)	

There were 848 male (mean age = 38.3, SD = 12.8, range: 18-66 years) and 492 women (mean age = 31.4, SD = 12.8, range: 13-60 years). Most of the participants (37.61%) were between the ages of 18 and 29, and 856 were married (63.88%). By profession, 337 participants (25.15%) were resident doctors, and 1008 participants (75.22) worked in government settings. (Table 1)

Anxiety symptoms were reported by 561 of the 1340 participants (41.87%). Depressive symptoms were reported by 536 (40.00%) of the participants. Post-traumatic stress symptoms were also prevalent in 423 participants (31.57%), and nearly one-third could be considered for probable PTSD based on PC-PTSD-5 scores. Our study found a statistically significant difference between male and female

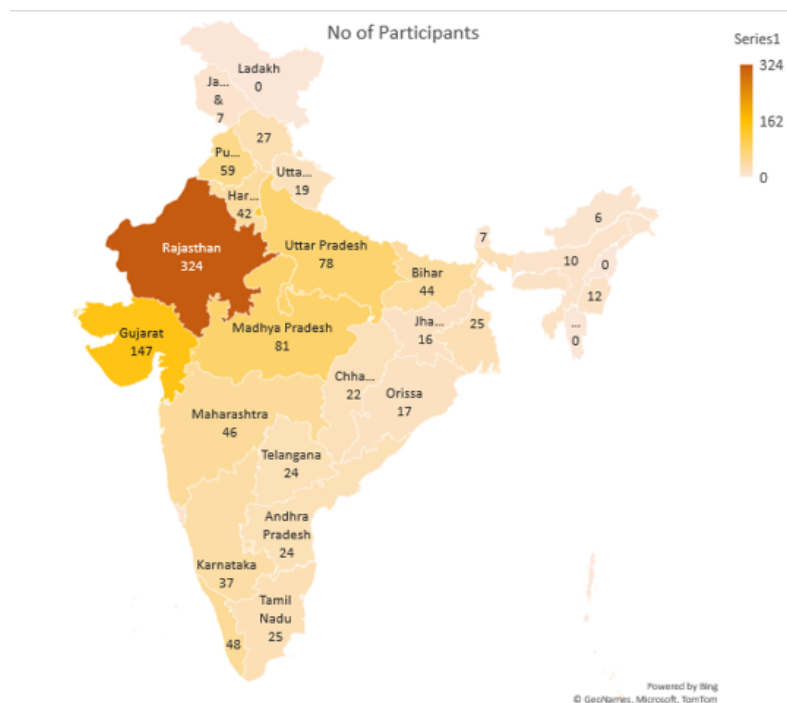
depression and post-traumatic stress symptoms (p-value <0.05). (Table 2)

Table 3 lists the various coping mechanisms adopted by the participants. Most participants used coping strategies were keeping expectations open and hopeful (66.57%); other common tactics included being busy with activities (52.69%), believing in God or religion (45.30%), problem-solving by own (31.34%), share emotions (30.52%), and communicating to others (29.85%).

We compared male and female coping strategies and found that males utilized keep busy (56.96% vs. 45.33%, p <0.01), while females used Belief in God or religion (53.66% vs. 40.45%, p <0.01) and take it easy (23.37% vs. 18.75%, p <0.05).

**Table 3:** Coping strategy of participants.

Coping strategy	Male % (n=848)	Female % (n=492)	Total % (n=1340)	Chi-square p-value
Keep expectations open and be hopeful	580 (68.40)	312 (63.41)	892 (66.57)	3.472 0.062
Continue to be busy.	483 (56.96)	223 (45.33)	706 (52.69)	16.901 <b>0.00*</b>
Belief in God or religion	343 (40.45)	264 (53.66)	607 (45.30)	21.928 <b>0.00*</b>
Take care of the problems on my end.	272 (32.08)	148 (30.08)	420 (31.34)	0.575 0.448
Share emotions with others.	268 (31.60)	141 (28.66)	409 (30.52)	1.274 0.259
Communicate with others	264 (31.13)	136 (27.64)	400 (29.85)	1.811 0.178
Try not to think about it.	229 (27.00)	125 (25.41)	354 (26.42)	0.409 0.522
Thinking in a different way	217 (25.59)	119 (24.19)	336 (25.07)	0.326 0.568
Take it easy	159 (18.75)	115 (23.37)	274 (20.45)	4.093 0.043*
Finding it difficult to cope.	68 (8.02)	30 (6.10)	98 (7.31)	1.696 0.193
Possessing self-assurance	28 (3.30)	14 (2.85)	42 (3.13)	0.214 0.644
Others	15 (1.77)	10 (2.03)	25 (1.87)	0.118 0.731
Not Sure	20 (2.36)	14 (2.85)	34 (2.54)	0.299 0.714

**Fig. 1:** Geographic distribution of participants.

#### 4. Discussion

The study assessed the prevalence of mental problems, potential risk factors, and the coping mechanisms adopted by those who used them during the second wave of the COVID-19 pandemic. In this study, 41.87% of participants reported having anxiety symptoms. 40.00% of participants reported experiencing depressive symptoms. Additionally, 31.57% of participants reported experiencing post-traumatic stress symptoms.

Studies conducted in response to the COVID pandemic worldwide found varying levels of psychological

impairment among healthcare workers. They ranged from mild behavioral changes to higher rates of anxiety and depression to more severe issues such as mental health disorders (depression and anxiety) and high prevalence rates up to 50%.<sup>4,9</sup> A meta-analysis involving 13 studies that included 33,062 healthcare workers revealed pooled prevalence rates at 23.2% and 22.8% for anxiety, insomnia, and depression.<sup>11</sup>

In India, one cross-sectional, nationwide study of 433 frontline healthcare workers found that the overall prevalence of stress, depression, and anxiety symptoms were comparable to what was observed globally.<sup>12</sup> A multi-

center study of 777 physicians assigned to frontline COVID-19 duty revealed that approximately half of those with psychological impairment suffered from moderate to severe depression, anxiety, stress, and insomnia.<sup>13</sup> Other studies on smaller cohorts of Indian healthcare workers found a relatively high prevalence of depression, anxiety, stress, and several factors associated with psychological outcomes.<sup>5</sup> Barzelay et al. found more significant levels of anxiety and depression were more common in healthcare workers than in non-healthcare workers.<sup>14</sup> In an analysis conducted in India, Chatterjee et al. revealed excessive stress and sleeplessness among 140 Indian health care workers.<sup>15</sup> Nursing professionals had higher levels of irritation than other healthcare workers. Due to direct interaction with covid-19 patients in a stressful atmosphere, these people are more prone to experience insomnia.

Our study is one of the few studies conducted on Indian health care workers during the pandemic's second wave. While we observed significant psychological symptoms in a subset of our study subjects, the overall prevalence of depression, anxiety, and stress was lower than that reported by most studies during the pandemic's first wave.<sup>16</sup> This could be due to the nature of work at the time of the survey, postvaccination status, or the psychological resilience developed by healthcare workers following the pandemic's first wave. Additionally, healthcare workers in a resource-constrained country like India are accustomed to strenuous professional lifestyles and burnout from their training days. This may have contributed to their relative invulnerability in psychologically taxing situations. However, the mean anxiety scores were significantly higher in doctors and nurses, a finding confirmed by previous research.<sup>4,6</sup> Increased anxiety levels in clinical healthcare workers could be attributed to their increased awareness of the COVID-19 infection's highly evolving nature, with its increasing number of variants, changing infectivity rates, and various clinical presentations, all of which contribute to a sense of insecurity and fear of the unknown.

Daily time spent thinking about or gathering information about COVID-19 was positively correlated with depression and stress scale scores, a finding previously established in the general population.<sup>17</sup> The researchers have found that rumination is related to internalising psychopathology and has a significant correlation with depression and anxiety.<sup>18</sup> This finding suggests that, in the context of the pandemic, healthcare workers should devise methods of self-distraction or incorporate elements of mindfulness practice into their daily routines.

Many healthcare workers were suffering from anxiety, depression, and stress symptoms, such as post-traumatic stress disorder (PTSD). Various studies in China showed that 21.3% experienced mild anxiety and 0.9% suffered from severe anxiety; 40.4% had psychological problems and 14.4% suffered from PTSD symptoms.<sup>19</sup> Similar

findings were reported according to various studies although prevalence figures vary greatly.<sup>20,21</sup>

Effective coping strategies are essential in stressful situations. This can help prevent stress-related psychiatric disorders. Individual vulnerability to stress and particular situations will play a part but utilizing coping strategies can help. During times of crisis or disaster, it's quite well that people have a variety of strategies for dealing with the situation.<sup>22</sup> According to the results of our study, 'Keep expectations open and be hopeful' was the most common way of coping with the situation. 'Continuing to be busy' was next. One-third of respondents said they used religious faith to cope with their problems. This included sharing feelings, communicating to others, and trying to understand the situation.

However, the study results show that information on coping with stress and effective coping strategies can be helpful. As secondary stressors like job loss, economic hardships, and bereavements set in, the weight of your concerns can increase.<sup>23</sup> It is crucial to inform the healthcare workers about available resources and practical ways to address these emerging issues and deal with COVID-19. Counseling, resilience training, and online psychotherapy support are all services that can be provided to healthcare workers.

## 5. Limitations

This study also has the usual limitations of online surveys. Since it does not reflect the total population, it may represent persons who have access to the internet. The accuracy of the findings may be higher with larger samples. It may also help examine regional/cultural variations in the presentation, which could be explored in future studies. Substance abuse and the exacerbation or worsening of pre-existing mental illnesses may have a broader and more pervasive impact. The results do not reflect the possible influence of these factors on mental health. Because it is a self-report study, participants may have given what they feel comfortable with, despite the anonymity of the data.

## 6. Conclusion

During the second wave of the COVID-19 pandemic, a significant proportion of healthcare workers in India reported experiencing anxiety, depression, or other stress-related symptoms. The results of this study highlight the critical need to help healthcare workers increase their capacity for long-term coping and resilience so that they can overcome the Covid-19 pandemic without succumbing to psychological distress. While the pandemic will pass, the psychological scars it leaves on healthcare professionals must be minimized by providing appropriate and timely psychological and mental health treatment. This will undoubtedly be a long-term endeavor that must begin during

the pandemic and continue afterward.

## 7. Conflict of Interest

The authors declare that there are no conflicts of interest in this paper.

## 8. Source of Funding

None.

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**Cite this article:** Baniya GC, Kumar S, Verma K, Masuria BL. Depression, anxiety, stress and coping strategies in healthcare workers during the second wave of Covid-19 pandemic. *Panacea J Med Sci* 2022;12(3):476-481.