



Original Article

## The Relation of Depression, Stress, Anxiety, and Burnout among Healthcare Workers during the Second Wave of COVID-19 Pandemic in India

Nikhita Das<sup>1</sup>, MBBS, Seujee Goswami<sup>2</sup> , MD, Aritra Mondal<sup>1</sup>, MBBS

<sup>1</sup>Department of Psychiatry, Assam Medical College and Hospital, Barbari, Dibrugarh, <sup>2</sup>Department of Child and Adolescent Psychiatry, National Institute of Mental Health and Neuro Sciences (NIMHANS), Hosur, Bengaluru, India.

**\*Corresponding author:**

Dr. Nikhita Das,  
Department of Psychiatry,  
Assam Medical College and  
Hospital, Barbari, Dibrugarh,  
India.

[nikkey279@gmail.com](mailto:nikkey279@gmail.com)

Received : 14 August 2023

Accepted : 24 August 2023

Published : 15 September 2023

**DOI**

10.25259/ABMH\_4\_2023

**Quick Response Code:**



### ABSTRACT

**Objectives:** The COVID-19 outbreak has taken a significant toll on frontline workers globally, resulting in psychological stress, burnout, and mental exhaustion. This online-based cross-sectional study aimed to explore the relationship between depression, anxiety, stress, and burnout among healthcare workers (HCWs) providing direct care to COVID-19 patients in the second wave of the COVID-19 pandemic in India.

**Material and Methods:** The sample size comprised HCWs who met specific inclusion criteria and had completed at least 1 week of posting in COVID-19 units and provided informed consent to participate. Data were collected using semi-structured socio-demographic Proforma, the Depression Anxiety Stress Scale-21 items (DASS-21), and the Copenhagen Burnout Inventory (CBI)-19 items.

**Results:** Out of 137 participants, 68.6% had moderate and 15.3% had severe depression; 48.9% had moderate and 24.1% had severe anxiety; and 3.6% had extremely severe anxiety. The prevalence of severe and extremely severe stress was 46.7 and 6.6%, respectively. The subscales of the Copenhagen Burnout Inventory, personal and work-related burnout had a positive correlation with all the subscales of the Depression Anxiety Stress Scale-21 items, while client-related burnout only correlated with the stress subscale.

**Conclusion:** The high prevalence of burnout and other mental health problems in the healthcare workers during the pandemic necessitate the need for the healthcare system to provide psychological support and interventions for physicians working during the pandemic.

**Keywords:** Mental Health, resilience, Frontline Workers, Emotional Well-being, Coping strategies

### INTRODUCTION

The COVID-19 is a worldwide pandemic initiated by a highly contagious respiratory tract infection that is attributed to a novel coronavirus known as SARS-Cov-2. The pandemic has resulted in increased morbidity and mortality rates worldwide, affecting virtually every country on the globe, with the number of deaths continuously rising. Healthcare systems, as well as healthcare workers (HCWs), have been under significant strain and in numerous instances, unable to cope with the COVID-19 pandemic.<sup>[1]</sup>

Over a decade ago, during a severe outbreak of a respiratory illness known as SARS, it was recognized that HCWs had an increased likelihood of suffering from mental health disorders.<sup>[2]</sup> HCWs who are managing and diagnosing COVID-19 are facing a heightened level of pressure,

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

©2023 Published by Scientific Scholar on behalf of Academic Bulletin of Mental Health

which is resulting in significant psychological stress. Recent literature has indicated that the healthcare personnel are experiencing both physical and mental fatigue as they are required to make crucial decisions rapidly, without the assistance of appropriate care procedures, which can have life-or-death consequences.<sup>[3]</sup> Moreover, the emotional distress caused by the loss of patients and coworkers, as well as the potential danger of contracting the illness and transmitting it to their loved ones, is adding to the ethical predicaments and moral wounds that medical staff members are facing.

The literature available highlights the detrimental effect of the ongoing pandemic on HCWs who are actively engaged in managing the crisis. Nonetheless, there is a dearth of studies, and enduring consequences on the psychological well-being of these experts remain unknown. There is limited research on burnout among HCWs in this region of India in the following waves of the pandemic. Due to this gap in knowledge, the study was designed to explore the relation of depression, anxiety, stress, and burnout among HCWs who have provided direct care to patients during the second wave of the COVID-19 pandemic.

## MATERIALS AND METHODS

The sample was collected from the healthcare workers after receiving permission from the Institutional Ethics Committee (H). The recruitment of study participants started in April 2021 and continued till September 2021. This was a cross-sectional online-based prospective study. The sample comprised healthcare workers who met specific inclusion criteria of having completed a 1 week posting in COVID-19 units and providing informed consent to participate. Participants testing positive for COVID-19 and having some debilitating medical or psychiatric illness were excluded from the study.

The tools that have been used were the socio-demographic proforma to study various demographic variables, the Depression Anxiety and Stress Scale-21 items (DASS-21), and the Copenhagen Burnout Inventory (CBI)-19 items.<sup>[4,5]</sup>

To ensure anonymity, the identity of each participant was kept confidential. Prior to commencing the survey, all the participants were informed about the estimated time required to complete it, the study's nature, and that filling it out and submission implied their informed consent to participate. The questionnaires have been distributed online.

Data from both scales were inputted into Microsoft Excel Version 2007 and subsequently analyzed using the SPSS software, version 25 (IBM, Chicago, Illinois, US). The continuous data were represented as mean, standard deviation while categorical data were represented as frequency, percentage. The correlation has been tested among the three

subscales of the DASS-21 scale and the three subscales of CBI, Spearman test of correlation was utilized. P-value < 0.05 was considered significant.

## RESULT

The questionnaire was sent to 200 healthcare workers, of which 164 submitted the filled-up form, (response rate 82%). Out of the 164 responses, 27 were removed due to incomplete responses. The demographic details are given in [Table 1].

Participants were in the age range of 19–68 years (mean  $\pm$  SD), age being 36.7 ( $\pm$  10.42). Of all participants, 78 were females (57%). 55.5% of the participants were doctors,

**Table 1:** Demographic details and job profile of participants ( $n = 137$ ).

Variables	Frequency (%) / Range	Mean (SD)
<b>Age (in years)</b>	19–68	36.27 $\pm$ 10.42
<b>Gender</b>		
Male	59 (43)	
Female	78 (57)	
<b>Type of family</b>		
Joint	27 (19.7)	
Nuclear	110 (80.3)	
<b>Highest qualification</b>		
MBBS	54 (39.4)	
MD/MS	17 (12.4)	
DM/MCH	5 (3.6)	
GNM	31 (22.6)	
BSc. Nursing	27 (19.7)	
Others	3 (2.2)	
<b>Marital Status</b>		
Married	92 (67.1)	
Unmarried	45 (32.8)	
<b>Current Post</b>		
Intern	17 (12.4)	
Post graduate trainee	37 (27)	
Registrar/Senior resident	19 (13.9)	
Faculty	3 (2.2)	
Nursing staffs	58 (42.3)	
Others	3 (2.2)	
<b>Work hours/day in last week</b>		
<6	32 (23.3)	
6–12	94 (68.6)	
>12	11 (8)	
<b>COVID duty posting</b>		
Fever Clinic	16 (11.7)	
Designated Covid-19 ward	12 (8.7)	
ICU	23 (16.8)	
More than one of above	86 (62.8)	
<b>Currently staying</b>		
With family	25 (18.2)	
Without family	112 (81.7)	

42.3% were nurses, and 2.2% were other hospital staff. 68.6% participants had worked for 6–12 h/day in the last week, and 8% had worked for more than 12 h. 62.8% had served in at least two of the settings viz. fever clinic, designated COVID ward, and ICU, for a minimum period of 1 week in each. 80.3% participants belonged to nuclear families, 67.1% were married, and 81.7% were living away from family.

Among the 137 participants, 68.6% had moderate depression and 15.3% had severe depression according to DASS depression subscale, the mean ( $\pm$ SD) score being 17.07 ( $\pm$ 3.68). The DASS anxiety sub scale revealed that 48.9% had moderate anxiety, 24.1% severe anxiety and 3.6% having extremely severe anxiety with a mean ( $\pm$ SD) DASS anxiety score of 12.34 ( $\pm$ 4.18). 40.1% suffered from moderate level of stress 46.7%, and 6.6% suffered from severe and extremely severe levels of stress, respectively, according to the DASS stress subscale. The mean ( $\pm$ SD) score was found to be 25.49 ( $\pm$ 4.99).

The Copenhagen Burnout Inventory showed that 66.4% had a moderate level of personal burnout, and 14.6% and 0.7% had high and severe levels of personal burnout, respectively. The work-related burnout was found to be moderate for 62% of the participants. For 7.3%, it was high and severe for 1.5%. Client-related burnout was found to be present at moderate level in 37.2% of participants, while 46% were suffering from high levels and 3.6% from severe levels of client-related burnout [Table 2].

The correlation analysis showed positive correlations among depression, anxiety, and stress [Table 3]. Also, personal as well as work-related burnouts were positively correlated with all the subscales of DASS-21, whereas client-related burnout showed a positive correlation only with stress [Table 4].

## DISCUSSION

The current cross-sectional study revealed a very high prevalence of depression, anxiety, stress, and burnout faced

**Table 2:** Descriptive statistics for Copenhagen Burnout Inventory (CBI) and Depression, Anxiety Stress Scale (DASS-21).

Domain	Mean (SD)	Frequency and percentage N (%)
DASS Depression	17.07 (3.68)	Normal/mild = 22 (16.1) Moderate = 94 (68.6) Severe = 21 (15.3)
DASS Anxiety	12.34 (4.18)	Normal/mild = 32 (23.3) Moderate = 67 (48.9) Severe = 33 (24.1) Extremely severe = 5 (3.6)
DASS Stress	25.49 (4.99)	Normal/mild = 9 (6.6) Moderate = 55 (40.1) Severe = 64 (46.7) Extremely severe = 9 (6.6)
CBI Personal	60.07 (13)	No/low = 25 (18.2) Moderate = 91 (66.4) High = 20 (14.6) Severe = 1 (0.7)
CBI Work-related	56.07 (14.07)	No/low = 40 (29.2) Moderate = 85 (62) High = 10 (7.3) Severe = 2 (1.5)
CBI Client-related	68.82 (19.82)	No/low = 18 (13.1) Moderate = 51 (37.2) High = 63 (46) Severe = 5 (3.6)

SD: Standard Deviation  
DASS 21: Depression Anxiety Stress Scale-21 items  
CBI: Copenhagen Burnout Inventory

by the healthcare workers during the second wave of the COVID-19 pandemic. 83.9% of the study participants had suffered from depression, while 76.6% had severe levels of anxiety and 93.4% had extremely severe stress. One similar study from India reported the prevalence of depression and anxiety to be 31.4% each and stress to be 19% among resident doctors during the first wave of the COVID-19 pandemic using the DASS-21 scale. One Indian study found

**Table 3:** Correlations between different subscales of depression anxiety and stress.

	DASS Depression	DASS Anxiety	DASS Stress
DASS Depression			
Correlation Coefficient ( <i>r</i> )	–	0.299	0.361
P		P = 0.0004	P = 0.00001
DASS Anxiety			
Correlation Coefficient ( <i>r</i> )	0.299	–	0.774
P	P = 0.0004		P = 1.4064e-28
DASS Stress			
Correlation Coefficient ( <i>r</i> )	0.361	0.774	–
P	P = 0.00001	P = 1.4064e-28	

DASS: Depression Anxiety Stress Scale

**Table 4:** Correlation between burnout and depression, anxiety, and stress.

	DASS Depression	DASS Anxiety	DASS Stress
CBI personal			
Correlation Coefficient ( <i>r</i> )	0.660**	0.749**	0.766**
P	P = 1.8749e-18	P = 7.3237e-26	P = 1.0996e-27
CBI work-related			
Correlation Coefficient ( <i>r</i> )	0.347**	0.690**	0.853**
P	P = 0.00003	P = 1.0376e-20	P = 6.839e-40
CBI client-related			
Correlation Coefficient ( <i>r</i> )	0.053	0.128	0.238**
P	P = 0.539	P = 0.137	P = 0.005

Correlation is significant at the 0.01 level (2-tailed).\*\*  
DASS: Depression Anxiety Stress Scale  
CBI: Copenhagen Burnout Inventory

the prevalence of depression to be 26.82%, while stress to be 29.2%<sup>[6]</sup> The symptoms of anxiety and depression were seen in 35.2 and 28.2%, respectively, in another study done on doctors in India.<sup>[7]</sup> A systematic review revealed the collective prevalence of anxiety was 23.2% and while that of depression was 22.8%.<sup>[8]</sup> These results are not in agreement with the current study; however, all these studies reveal a significant association of the afflictions with the female gender with the meta-analysis further pointing at higher rates of affective symptoms among female healthcare professionals and nurses. A skew toward female distribution and a large number of nurses participating in the current study could be contributing to the high occurrence of mental disorders.

The dominance of moderate to severe personal burnout in the current study have been reported as 81.7%, while work-related burnout was found to be 70.8%, and client-related burnout was 86.8%. This is in contrast to an Indian study that used the Copenhagen Burnout Inventory, which found the prevalence of personal work-related burnout to be 44.6 and 29.6%, respectively. In that same study, pandemic-related burnout was reported to be 52.8%. The Indian study reported lower mean scores for burnout and was not in line to our study, with scores of 49.72 ( $\pm 18.68$ ) and 39.69 ( $\pm 20.43$ ), respectively.<sup>[9]</sup> However, the same study identified a possible link between a high workload and reduced family time in the development of burnout. In our study, the high prevalence and mean scores may be attributed to similar factors, such as participants living away from their families and working for more than 6 hours a day, while also facing a high risk of infection.

Similar studies conducted in India have reported varying prevalence rates of burnout among physicians. One study using the Oldenburg Burnout Inventory (OLBI) found a prevalence of 54.3%, while another study using the Burnout Measure-10 items short version (BMS) reported a prevalence

of 39.2%.<sup>[10,11]</sup> It is imperative to note that there is ongoing study on the best way to assess and diagnose burnout. However, the literature on burnout among medical residents shows a wide range of incidence rates, ranging from 18 to 82%.<sup>[12]</sup>

Burnout in healthcare workers not only increases chances of negligence that causes decreased patient satisfaction and increased chances of litigation but also increases psychological health that is directly related to burnout and thus may lead to depression, anxiety, and stress.<sup>[13,14]</sup> The Study by Prakash *et al.* reported that resident doctors experiencing burnout have an increased likelihood of developing depression, anxiety, and insomnia. It also reported a positive correlation which was statistically significant between the subscales of DASS-21 and burnout scores. Similar positive correlations were reflected in our study. Additional research carried out on physicians during the COVID-19 pandemic has similarly demonstrated a positive correlation between the subscale scores.<sup>[15,16]</sup>

In the current study, CBI personal burnout and work-related burnout had a positive correlation with the three subscales of DASS-21 whereas CBI client-related burnout showed a positive correlation only with the stress subscale. A similar Indian study has reported a positive correlation of the CBI scores with the DASS-21 scores in each subscale.<sup>[17]</sup> Another study, done in Portugal reported that depression was significantly associated with the three levels of dimensions of burnout, whereas there was noticeable association between elevated anxiety levels and increased burnout.<sup>[18]</sup>

The current study suggests that the prevalence of burnout among healthcare workers during the second wave of the pandemic has been alarmingly high in some places. Factors such as poor management, lack of proper information and training at the initial phases, staff shortage, high workload, and decreased time spent with family might have been

the significant stressors. Even though this burnout could not be established as the specific cause for the increased depression, anxiety, and stress among healthcare workers, neither was it the aim of the study; however, the significant positive correlation indicates a possible contribution of such burnout to poor psychological outcomes. This in turn hampers the delivery of services at the expected level leading to a possible collapse of healthcare. Therefore, in order to prevent the decline of healthcare workers' mental well-being, the institutional management should guarantee a supportive workplace environment. This can be achieved by providing education, training, and regular updates on COVID-19, ensuring that adequate equipment is available, and avoiding excessively long work hours.<sup>[9]</sup> At a personal level, it is essential for healthcare workers to prioritize seeking help from colleagues or experts and expressing their distress.

### LIMITATION

The study had a few limitations. The use of self-reported scales instead of diagnostic tools like the Diagnostic and Statistical Manual of Mental Disorder and the anonymity of the survey may have led to a lack of uniformity. Regional bias and the contribution of multitudes of other societal factors and life events could not be ruled out. The temporal variations in experiences during different waves of the pandemic and variations in work environments at different places also reduce the generalizability of the results.

### CONCLUSION

The current study reveals a heavy impact of COVID-19 in the second wave of the pandemic on the mental health of healthcare workers. The higher-than-expected burnout and its implications are usual in the study population at the time of such outbreaks and numerous causative reasons can be hypothesized. But such an alarming prevalence of adverse psychological outcomes highlights the urgent need for targeted interventions and formulation of other appropriate strategies promoting easier help-seeking.

### Declaration of patients' consent

The authors certify that they have obtained all appropriate patient consent.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

### Use of Artificial Intelligence (AI)-Assisted Technology for manuscript preparation

The author(s) confirms that there was no use of Artificial Intelligence (AI)-Assisted Technology for assisting in the writing or editing of the manuscript and no images were manipulated using the AI.

### REFERENCES

1. Armocida B, Formenti B, Ussai S, Palestra F, Missoni E. The Italian health system and the COVID-19 challenge. *Lancet Public Health* 2020;5:e253.
2. Wu KK, Chan SK, Ma TM. Posttraumatic stress, anxiety, and depression in survivors of severe acute respiratory syndrome (SARS). *J Trauma Stress* 2005;18:39–42.
3. Søvdal LE, Naslund JA, Kousoulis AA, Saxena S, Qoronfle MW, Grobler C, *et al.* Prioritizing the mental health and well-being of healthcare workers: An urgent global public health priority. *Front Public Health* 2021;9:679397.
4. DASS-21.pdf. Available from: <https://maic.qld.gov.au/wp-content/uploads/2016/07/DASS-21.pdf> [Last accessed on 2023 Aug 7]
5. Copenhagen Burnout Inventory (English version) used in the PUMA study. Available from: <https://nfa.dk/-/media/NFA/Vaerktojer/Spoergeskemaer/CBI/cbi-first-edition.ashx?la=da> [Last accessed on 2023 Aug 7]
6. Sil A, Das A, Jaiswal S, Jafferany M, Thole A, Rajeev R, *et al.* Mental health assessment of frontline COVID-19 dermatologists: A Pan-Indian multicentric cross-sectional study. *Dermatol Ther* 2020;33:e13884.
7. Gupta S, Kohli K, Padmakumari P, Dixit PK, Prasad AS, Chakravarthy BS, *et al.* Psychological health among armed forces doctors during COVID-19 pandemic in India. *Indian J Psychol Med* 2020;42:374–8.
8. Pappa S, Ntella V, Giannakas T, Giannakoulis VG, Papoutsis E, Katsaounou P. Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis [published correction appears in *Brain Behav Immun*. 2021;92:247]. *Brain Behav Immun* 2020;88:901–7.
9. Khasne RW, Dhakulkar BS, Mahajan HC, Kulkarni AP. Burnout among healthcare workers during COVID-19 pandemic in India: Results of a questionnaire-based survey. *Indian J Crit Care Med* 2020;24:664–71.
10. Vinnakota A, Srikrishna N, Srinivas S. Burnout and its impact on mental health of physicians during the COVID -19 pandemic: A cross-sectional study from South India. *Telangana J Psychiatry* 2021;6:160–5.
11. Prakash A, Agarwal V, Kar S, Dalal P. The psychological impact of COVID-19 duty among resident doctors working in a COVID-hospital: A short-term follow-up study. *Indian J Psychiatry* 2023;65:107.
12. Prins JT, Gazendam-Donofrio SM, Tubben BJ. Burnout in medical residents: A review. *Med Educ* 2007;41:788–800.
13. Peterson U, Demerouti E, Bergström G. Burnout and physical and mental health among Swedish healthcare workers. *J Adv Nurs*.2008;62:84–95.

14. Prosser D, Johnson S, Kuipers E, Szmukler G. Mental health, “Burnout” and job satisfaction among hospital and community-based mental health staff. *Br J Psychiatry* 1996;169:334–7.
15. Ghogare A, Aloney S, Spoorthy M, Patil P, Ambad R, Bele A. A cross-sectional online survey of relationship between the psychological impact of coronavirus disease 2019 and the resilience among postgraduate health sciences students from Maharashtra, India. *Int J Acad Med* 2021;7:89.
16. Prasad S, Mahato C, Magon N. Psychological impact of COVID-19 on obstetrics and gynaecology residents in India. *Int J Reprod Contracept Obstet Gynecol* 2021;10:2785.
17. Kumar S, Vijai M. Mental stress, and burnout among COVID warriors – A new healthcare crisis. *J Med Res* 2020;6:193–6.
18. Baptista S, Teixeira A, Castro L, Cunha M, Serrão C. Physician burnout in primary care during the COVID-19 pandemic: A cross-sectional study in Portugal. *J Prim Care Community Health* 2021;12:21501327211008436.

**How to cite this article:** Das N, Goswami S, Mondal A. The relation of depression, stress, anxiety and burnout among healthcare workers during the second wave of COVID-19 pandemic in India. *Acad Bull Ment Health*, 2023;1:13-8.