

# Burden of Mental Morbidities among Health Care Workers in a Tertiary Care Hospital Of West Bengal during Third Wave of COVID-19 Pandemic: A Cross-Sectional Study

Soumi Ghosh<sup>1</sup>, Sourav Bag<sup>2</sup>, Arijit Mondal<sup>3\*</sup>, Soumit Roy<sup>4</sup>

<sup>1</sup> Senior Resident, Department of Psychiatry, IPGMER & SSKM Hospital, Kolkata, West Bengal.

<sup>2</sup> Senior Resident, Department of Psychiatry, IPGMER & SSKM Hospital, Kolkata, West Bengal

<sup>3</sup> Assistant Professor, Department of Psychiatry, Santiniketan Medical College, Bolpur, West Bengal

<sup>4</sup> Assistant Professor, Department of Community Medicine, IQ City Medical College, Durgapur, West Bengal

\*Corresponding Author:

Arijit Mondal, Assistant Professor, Department of Psychiatry, Santiniketan Medical College, Bolpur, West Bengal

E-MAIL: [drarijitmondal2010@gmail.com](mailto:drarijitmondal2010@gmail.com)



COPYRIGHT: ©2023 (Soumi Ghosh) et al. This is an open-access journal, and articles are distributed under the terms of the Creative Commons Attribution License CC-BY 4.0. (<https://creativecommons.org/licenses/by/4.0/>) which permits unrestricted use, distribution, and reproduction in any medium, provided the original authors and source are credited.

Date of Submission: 26/03/2024

Date of Review: 19/04/2024

Date of Acceptance: 23/11/2024

## ABSTRACT

**Introduction:** Healthcare workers (HCWs) are constantly on the frontlines, facing the brunt of the COVID 19 pandemic in their personal, professional, and social lives. This pandemic has also taken a toll on the lives of healthcare workers over the past two years. Facing the stress and burnout since the pandemic has begun, during the third wave of the pandemic, there might be an increase in mental health issues among HCWs in this state. The aim of the study is to assess the magnitude of anxiety and depression during the third wave of COVID-19 pandemic among the healthcare workers in a tertiary care hospital in West Bengal.

**Materials and methods:** The observational study was conducted at IPGMER & SSKM Hospital, a tertiary care teaching hospital in Kolkata, West Bengal, over a period of one week from January 19 to January 26, 2022. A cross-sectional rapid survey was conducted using an online questionnaire containing the Beck Anxiety Inventory (BAI) and Beck Depression Inventory-II (BDI-II) among HCWs in the hospital using a Google Proforma through various social media groups. A total of 86 HCWs participated over a period of one week. The data was analysed using SPSS 16 software. Descriptive statistics and univariate logistic regression were used.

**Result:** In the present study, it was found that among 86 people, 61 of them were aged between 26-40 years, half of them, i.e., 45 people, were male, and more than one-fifth (22.1%) (n = 86) had moderate to severe anxiety. Most of the participants, i.e., 39 of them (45.3%), had clinical depression ranging from borderline to extreme. No significant association of moderate to severe anxiety and depression and socio-demographic characteristics was

noticed, except for the significantly higher preponderance of anxiety in female gender (p value= 0.0001). Anxiety showed a good positive correlation with depression (p value less than 0.001) and all who had severe anxiety were also suffering from either severe or extreme depression.

**Conclusion:** An alarming proportion of anxiety and depression was noticed among HCWs. The prevalence of anxiety and depression (severe grade) among HCWs are 6% and 8% respectively. So awareness regarding their own mental health, preventive therapies, and proper diagnosis and treatment of cases are needed.

**KEYWORDS:** Covid 19 Pandemic, Anxiety, Depression, Health care workers

## INTRODUCTION

Since its emergence in Wuhan, China, in late 2019, the Coronavirus pandemic has profoundly impacted global health. The World Health Organization (WHO) officially declared it a global pandemic on March 11, 2020. By January 2020, more than 338 million cases had been reported worldwide, with India accounting for nearly 38 million cases.<sup>[1]</sup> India is currently grappling with the third wave of COVID-19.<sup>[2]</sup> Healthcare workers (HCWs) have been at the forefront of this crisis, risking their lives while providing essential services to the population.

Historically, pandemics and infectious outbreaks have taken a significant toll on the physical and mental health of healthcare providers, not only during the acute phase but also in the aftermath.<sup>[3]</sup> In India, as a developing nation with limited healthcare resources, the pandemic has placed immense pressure on its healthcare system and

workers. Over the past two years, COVID-19 has caused numerous deaths among HCWs and led to daily exposures that heighten their vulnerability.<sup>[4]</sup>

The prolonged nature of the pandemic has resulted in severe burnout among HCWs, affecting both their mental and physical well-being. Prolonged working hours, excessive workloads, insufficient resources, stigma and social isolation associated with the viral infection have all contributed to deteriorating health outcomes among HCWs.<sup>[5]</sup> The psychological toll is evident in the rising prevalence of issues such as anxiety, depression, panic attacks, sleep disturbances, social withdrawal, and interpersonal conflicts.<sup>[6]</sup>

Additional challenges compound these mental health struggles. Junior doctors, who bear the brunt of clinical responsibilities in large hospitals, face heightened stress due to delayed examinations and counselling sessions, which have been postponed for over a year. This situation has created a "missing batch," adding further uncertainty and pressure. Meanwhile, MBBS graduates preparing for postgraduate medical entrance exams (NEET PG) have experienced immense frustration, as their absence during the crisis has been deeply felt. These issues have sparked nationwide protests among resident doctors.<sup>[7]</sup>

The combined pressures of academic and clinical responsibilities have, in some cases led to tragic outcomes, including suicides among resident doctors<sup>[8-10]</sup> As the country moves through successive pandemic waves and implements repeated lockdowns, the mental health burden on HCWs continues to grow.

Although some research has explored the psychological impact of COVID-19 on HCWs in India, data remains limited. Chatterjee et al. reported elevated levels of anxiety and depression among HCWs during the pandemic.<sup>[11]</sup> Recognizing these challenges, organizations such as NIMHANS have proposed nationwide mental health consultation initiatives, though their implementation has been hindered by inadequate data.<sup>[12, 13]</sup>

Given these challenges, this study seeks to examine the impact of the third wave of COVID-19 on the prevalence of anxiety and depression among HCWs in a tertiary care hospital in West Bengal. The objectives of the study are to evaluate the levels of anxiety and depression in the study population and to determine correlations between the severity of anxiety and depression.

## MATERIALS AND METHODS

Permission was obtained from the institutional ethical committee (IPGME&R/IEC/2020/636) prior to conducting the survey. The study employed an online cross-sectional survey design, utilizing a structured Google Form. The survey link was disseminated through verified social media groups of healthcare workers affiliated with a tertiary care hospital. Data collection occurred over a one-week period, from January 10 to January 16, 2022. Participants' identities

were verified as healthcare workers (HCWs) before including their responses. The study was conducted at IPGME & SSKM Hospital, a tertiary care teaching hospital in Kolkata, West Bengal.

**Inclusion criteria:** All the workers in the hospitals, including doctors, nursing staff, paramedical staff, and administrative workers, were included in this study.

**Exclusion criteria:** incomplete forms and responses from non-healthcare worker participants were excluded.

**Sample size and sampling:** An Internet-based consecutive sampling method was used. The sample size was calculated using the formula below.<sup>[14]</sup>

$$n = \frac{Z_{1-\frac{\alpha}{2}}^2 \times p \times (1-p)}{d^2}$$

Where "z" is the standard normal deviation at 95% confidence = 1.96 (two-tailed). "p" is the proportion of anxiety/depression in study subjects, and "d" is an allowable error. According to Thakur et al., the proportion of anxiety among government employees was 33.1%, considering a 10% allowable error, the minimum sample size needed for the study was 85.

$$n = \frac{1.96^2 \times 0.33 \times 0.67}{0.1^2} = 85$$

Thus, 86 participants were included in the study. Due to the lockdown and the increased work burden on healthcare workers during the 3rd wave of the pandemic, offline data collection was not possible. Thus, a Google Form was circulated to verify social media groups of healthcare workers, and internet-based consecutive sampling was used for the collection of responses. All inadequately filled forms were excluded, and a total of 86 participants were included in the final analysis.

**Study tools:** A Google form containing 3 sections

- **Socio-demographic variables:** including age, gender, education, religion, family type, residency, and marital status, were taken using a socio-demographic questionnaire.
- **Beck Anxiety Inventory (BAI)**<sup>[15]</sup> : This is a validated 21-item self-report questionnaire [test-retest reliability = 0.75] developed by Aaron T. Beck and measures the severity of symptoms of anxiety on a 4-point Likert scale ranging from 0 to 3. The total attainable score ranged from 0 to 63, among which 0-7 points reflect minimal anxiety; 8-15 indicate mild anxiety; 16- 25 reflect moderate anxiety; and > 25 indicate severe anxiety.
- **Beck Depression Inventory-II (BDI-II)**<sup>[16]</sup> : It is a validated 21 items self-report questionnaire [Test Retest reliability=0.93, interclass correlation coefficient = 0.95] developed by Beck, Steer, and Brown, that measures the severity of depression as per the standard case definition under Diagnostic and Statistical Manual of Men-

tal Disorders- Fourth Edition (DSM-IV). [17] A 4-point Likert scale with an attainable score ranging from 0 to 63. Among these 1-10 points were categorized as normal; mild mood disturbance was denoted by 11-16; 17-20 categorized as borderline clinical depression; 21-30 meant for moderate depression; 31-40 noted as severe depression; and >40 were diagnosed as extreme depression.

**Statistical Analysis:** The data was entered in a Microsoft Excel spreadsheet, and the final analysis was done using Statistical Package for Social Sciences (SPSS) software, IBM, Chicago, USA, version 16.0. The data normality was checked using the Kolmogorov-Smirnov test, where a P value<0.05 denoted a lack of normality in data. Spearman Rho correlation coefficient is calculated as both BAI and BDI were not normally distributed. Univariate binary logistic regression was performed using the ‘Enter’ method to identify factors associated with two outcomes: moderate to severe anxiety and moderate to severe depression. Binary logistic regression was used to identify risk in terms of odds ratio (OR) for having moderate to severe depression and moderate to severe anxiety. Statistical significance was considered at a P value < 0.05.

**RESULT**

**Background Characteristics:** The total number of participants was 86. The majority, i.e., 61 (70.9%) of them, were aged between 26 and 40 years. Nine were aged up to 25 years (10.5%), and 16 of them were aged more than 40 years (18.6%). The mean (SD) age was 32.9 (7.9) years and ranged from 19 to 57 years, with a median of 31 years. Among them, 45 (52.3%) were male. Most of them, i.e., 48 people, had education up to the graduate level (53.5%), followed by 38 up to the postgraduate level (44.2%), and only two (2.3%) had education up to the higher secondary level. Among them, 80 participants (93%) were Hindu, four (4.7%) were Muslim, and one of each belonged to a Christian or Indigenous religion. Almost two-thirds of them, i.e., 57 of them (66.3%), belonged to the nuclear family, followed by 20 from the joint (23.2%), and 9 from the semi-nuclear family (10.5%) (mentioned as the others in Table 1). Almost three-fourths of them, i.e., 65 of them (75.6%), had an urban residence, followed by 25 from semi-urban (18.6%), and 5 from rural (5.8%). Among them, 47 participants were married (57%). The proportion of unmarried and widowed participants was 40.7% and 2.3%, respectively. Regarding socioeconomic status, the majority of them did not attempt the question in the Google Proforma, so it could not be included.

In the study, 34 participants (39.5%) had no depression. A total of 33 (38.3 %) of the participants had complaints of either moderate, severe, or extreme depressive symptoms, among which severe and extreme depression were found among 7 (8.1%). Five participants in the group had comorbid severe anxiety along with severe depression.

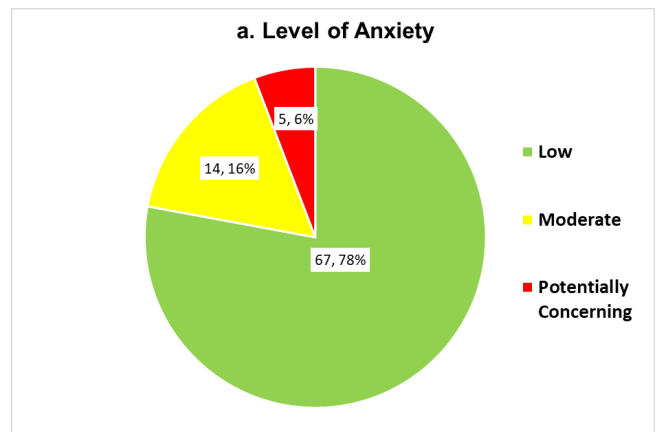


Figure 1: Level of Anxiety among Study Subjects (n = 86)

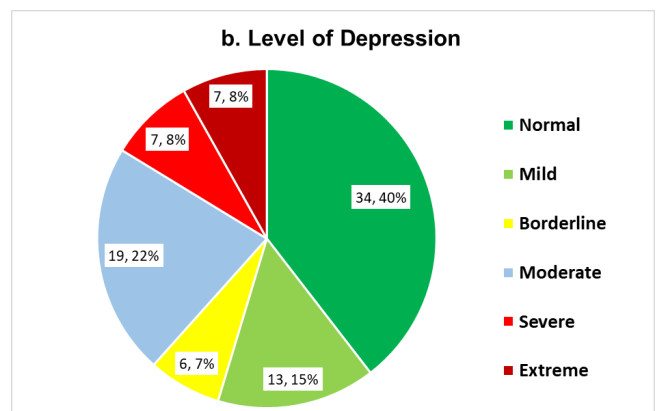


Figure 2: Level of Depression among Study Subjects (n = 86)

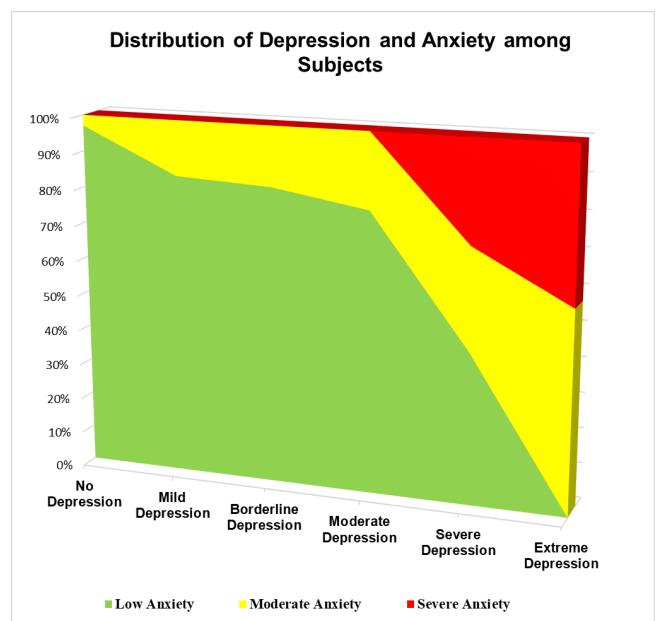


Figure 3: Distribution of Anxiety and Depression among Subjects (n = 86)

**Level of Depression and Anxiety:** The majority had low anxiety (77.9%). The proportion of Moderate and potentially concerning anxiety were 16.3% and 5.8% respectively. [Figure 1 ] Mean (SD) BAI score was 13.2 (10.9) and ranged from 0 to 43 with a median (IQR) of 9.5 (5-19). The responses to various anxiety symptoms are shown in Table 1 . More than one-third (39.5%) had normal or no clinical depression. Some (15.1%) had mild mood disturbances. The proportions of borderline, moderate, severe and extreme depression were 7%, 22.1%, 8.1% and 8.1% respectively. [Figure 1 ]. Response to various depressive symptoms is shown in Table 2 . The mean (SD) BDI score was 17.5 (14.1) ranging from 0 to 58 with a median (IQR) of 15 (5-26). Most of the participants who had low anxiety had no depression (49.3%), or mild depression (16.4%). Only three (4.4%) participants had low anxiety and severe depression. None of the subjects with low anxiety had extreme depression. Most of the participants with moderate anxiety had either moderate depression (28.6%) or severe depression (14.3%) or extreme depression (28.6%). Five participants who had severe anxiety had either severe depression (40%) or extreme depression (60%). [Figure 2 ]

**Risk factors of Depression and Anxiety :** It is a well-established fact that people with both depression and anxiety have higher mental co-morbidity and an increased future risk of psychiatric emergencies like self-harm, suicide, and poor quality of life. As moderate to severe depression and/or anxiety are very detrimental and usually require both pharmacological and nonpharmacological intervention, we have tried to find out the risk factors for moderate to severe depression and moderate to severe anxiety. Age, education, religion, family type, residence, and marital status were not significantly associated with moderate to severe anxiety. Female gender showed an 8.96 times higher risk of having moderate to severe anxiety compared to males, which was statistically significant (P value = 0.001) (Table 3). Those who had moderate to severe depression had a 10.21 times higher risk of having moderate to severe anxiety, and this was statistically significant. (P value<0.001). Age, gender, education, religion, family type, residence, and marital status were not significantly associated with moderate to severe depression. Only a statistically significant positive association between moderate to severe depression and moderate to severe anxiety was noted (P value<0.00). Positive associations indicated people with severe anxiety are more likely to develop severe depression and vice versa. (Table 4)

| Parameters |                         | BAI    |
|------------|-------------------------|--------|
| BDI        | Spearman Rho $\Upsilon$ | 0.729  |
|            | P Value                 | <0.001 |

**Table 5: Correlation between Beck's Anxiety Inventory score and Beck's Depression Inventory Score (n = 86)**

$\Upsilon$  Spearman Rho is used as both scores were not normally distributed, as evident from Kolmogorov Smirnov test P value <0.05. A good and statistically significant positive correlation was noted among BAI and BDI scores [Spearman Rho correlation coefficient 0.729, P value <0.001], (Table 5) which denotes a significant increase in the level of anxiety with an increase in depression.

## DISCUSSION

The COVID-19 pandemic has drastically disrupted lifestyles globally, imposing various restrictions and challenges on daily life. Healthcare workers have been at the forefront of the pandemic response, addressing the nation's healthcare needs tirelessly. Unfortunately, several of them have contracted the illness, and a significant number of fatalities have been reported among healthcare workers. The persistent uncertainty surrounding life, inadequate knowledge about future waves, and the devastating impact of the second wave in India have collectively exacerbated stress levels, negatively impacting the mental health of healthcare workers. [18, 19]

In this study, among 86 participants, the majority were aged 26–40 years (70.9%), with a mean age of 32.9 years. This age distribution likely reflects the limitations of conducting an online survey, as younger populations are generally more adept at using social media. [20] Most participants were male (52.3%), graduates (53.5%), from nuclear families (66.3%), and resided in urban areas (75.6%). Additionally, 57% were married. A similar online survey by Grover et al. involving 1,871 participants yielded comparable socio-demographic findings. [21]

A significant proportion of participants exhibited a low level of anxiety (77.9%), while 22.1% experienced symptoms of severe or extreme anxiety. Symptoms included tingling sensations, fever, unsteady legs, restlessness, nervousness, and dizziness. A study by Bhowmick et al. in 2020 identified significant anxiety symptoms in 89.4% of healthcare workers in West Bengal. [22] Similarly, a meta-analysis by Dutta et al. in 2021, which included 33 studies, reported a 32.5% prevalence of stress among healthcare workers. [23] Mathur et al. noted acute stress reactions in 9.5% of Indian healthcare workers. [24]

Regarding depression, 39.5% of participants in this study showed no symptoms, while 38.3% exhibited moderate to extreme depressive symptoms. Among these, severe depression was found in 8.1%, and five individuals reported co-morbid severe anxiety and depression. Chatterjee et al. (2020) reported a 34.9% prevalence of depression among healthcare workers. [11] Similarly, Grover et al. observed that during the first wave of COVID-19, 50.7% of participants exhibited depressive symptoms. [25] The lower prevalence in this study could be attributed to participants' adaptation over prolonged exposure to the pandemic. Female participants were nine times more likely to experience anxiety or depression. Similar findings were observed in a study

| Symptoms                     | Not at all No.(%) | Mild No. (%) | Moderate No. (%) | Severe No. (%) |
|------------------------------|-------------------|--------------|------------------|----------------|
| Feeling numbness or tingling | 57 (66.3)         | 22 (25.6)    | 5 (5.8)          | 2 (2.3)        |
| Feeling hot                  | 55 (64)           | 20 (23.2)    | 9 (10.5)         | 2 (2.3)        |
| Wobbliness in legs           | 64 (74.4)         | 14 (16.3)    | 8 (9.3)          | 0 (0)          |
| Unable to relax              | 30 (34.9)         | 33 (38.4)    | 13 (15.1)        | 10 (11.6)      |
| Fear of the worst happening  | 27 (31.4)         | 35 (40.7)    | 14 (16.3)        | 10 (11.6)      |
| Dizzy or lightheaded         | 51 (59.3)         | 18 (20.9)    | 11 (12.8)        | 6 (7)          |
| Heart pounding / racing      | 43 (50)           | 26 (30.2)    | 10 (11.6)        | 8.1 (7)        |
| Unsteady                     | 50 (58.1)         | 21 (24.4)    | 12 (14)          | 3 (3.5)        |
| Terrified or afraid          | 42 (48.8)         | 29 (33.7)    | 9 (10.5)         | 6 (7)          |
| Nervous                      | 31 (36)           | 31 (36)      | 13 (15.2)        | 11 (12.8)      |
| Feeling of choking           | 66 (76.7)         | 11 (12.8)    | 7 (8.2)          | 2 (2.3)        |
| Hands trembling              | 63 (73.3)         | 12 (14)      | 8 (9.2)          | 3 (3.5)        |
| Shaky/unsteady               | 62 (72.2)         | 15 (17.4)    | 8 (9.2)          | 1 (1.2)        |
| Fear of losing control       | 52 (60.5)         | 22 (25.6)    | 8 (9.2)          | 4 (4.7)        |
| Difficulty in breathing      | 65 (75.6)         | 17 (19.7)    | 3 (3.5)          | 1 (1.2)        |
| Fear of dying                | 59 (68.6)         | 16 (18.6)    | 5 (5.8)          | 6 (7)          |
| Scared                       | 38 (44.2)         | 30 (34.9)    | 13 (15.1)        | 5 (5.8)        |
| Indigestion                  | 32 (37.2)         | 33 (38.4)    | 10 (11.6)        | 11 (12.8)      |
| Faint / lightheaded          | 62 (72.1)         | 15 (17.4)    | 5 (5.8)          | 4 (4.7)        |
| Face flushed                 | 60 (69.8)         | 16 (18.6)    | 7 (8.1)          | 3 (3.5)        |
| Hot / cold sweats            | 45 (52.3)         | 30 (34.9)    | 9 (10.5)         | 2 (2.3)        |

**Table 1: Symptoms of Anxiety among Study Subjects (n = 86)**

by Mi et al. in China, where females and individuals with pre-existing psychiatric conditions exhibited higher psychological impact.<sup>[26]</sup> Hazarika et al. also found a higher risk in females and individuals with mental health issues. Studies indicate that the pandemic's mental health impact on healthcare workers exceeds that experienced by the general population.<sup>[3, 6, 27, 28]</sup> For instance, Selvaraj et al. noted significantly higher stress and insomnia levels among 777 Indian doctors compared to the general population.<sup>[5]</sup> Tan et al. highlighted greater anxiety and stress levels among non-medical and allied healthcare workers.<sup>[29]</sup>

Approximately 5.8% of this study population exhibited concerning anxiety symptoms, while 16.2% reported severe or extreme depressive symptoms. This indicates a significant mental health burden among healthcare workers, which adversely impacts their personal lives, professional responsibilities, and patient care quality.

The adverse mental health effects necessitate urgent interventions. Pharmacological treatments, including antidepressants and anxiolytics are essential for severe cases. Psychotherapy approaches like CBT, mindfulness techniques effectively address anxiety and stress.<sup>[30, 31]</sup> Stress management strategies such as relaxation exercises, maintaining sleep hygiene, and engaging in regular physical activity are also beneficial. Telephonic or online consultation services have emerged as viable solutions during pandemic restrictions. Premier institutes such as NIMHANS in Bangalore have pioneered such initiatives to expand mental healthcare access.<sup>[13]</sup> The Indian government also announced the launch of a National Tele-Mental Health Program in the Union Budget 2022–2023, ensuring 24/7 tele-counseling services.<sup>[32]</sup>

The uniqueness of our study is that it is the first study of its kind to be done during the third wave of the COVID-19 pandemic. Apart from frontline healthcare workers (doctors,

| Symptoms                    | Not at all No.(%) | Mild No.(%) | Moderate No.(%) | Severe No.(%) |
|-----------------------------|-------------------|-------------|-----------------|---------------|
| Sadness                     | 23 (26.7)         | 33 (38.4)   | 22 (25.6)       | 8 (9.3)       |
| Pessimism                   | 42 (48.8)         | 25 (29.1)   | 12 (14)         | 7 (8.1)       |
| Past Failure                | 40 (46.5)         | 29 (33.7)   | 11 (12.8)       | 6 (7)         |
| Loss of Pleasure            | 33 (38.4)         | 32 (37.2)   | 17 (19.7)       | 4 (4.7)       |
| Guilty Feelings             | 45 (52.3)         | 21 (24.4)   | 14 (16.3)       | 6 (7)         |
| Punishment Feelings         | 50 (58.1)         | 19 (22.1)   | 12 (14)         | 5 (5.8)       |
| Self-Dislike                | 52 (60.5)         | 17 (19.7)   | 13 (15.1)       | 4 (4.7)       |
| Self-Criticalness           | 43 (50)           | 25 (29)     | 12 (14)         | 6 (7)         |
| Suicidal Thoughts or Wishes | 71 (82.6)         | 13 (15.1)   | 2 (2.3)         | 0 (0)         |
| Crying                      | 50 (58.2)         | 16 (18.6)   | 10 (11.6)       | 10 (11.6)     |
| Agitation                   | 38 (44.2)         | 27 (31.4)   | 19 (22.1)       | 2 (2.3)       |
| Loss of Interest            | 39 (45.3)         | 26 (30.3)   | 14 (16.3)       | 7 (8.1)       |
| Indecisiveness              | 40 (46.5)         | 23 (26.7)   | 12 (14)         | 11 (12.8)     |
| Worthlessness               | 51 (59.3)         | 17 (19.8)   | 15 (17.4)       | 3 (3.5)       |
| Loss of Energy              | 33 (38.4)         | 26 (30.2)   | 14 (16.3)       | 13 (15.1)     |
| Changes in Sleeping Pattern | 36 (41.9)         | 24 (27.9)   | 15 (17.4)       | 11 (12.8)     |
| Irritability                | 38 (44.2)         | 24 (27.9)   | 17 (19.8)       | 7 (8.1)       |
| Changes in Appetite         | 42 (48.8)         | 25 (29.1)   | 10 (11.6)       | 9 (10.5)      |
| Concentration Difficulty    | 33 (38.4)         | 18 (20.9)   | 28 (32.6)       | 7 (8.1)       |
| Tiredness or Fatigue        | 26 (30.2)         | 26 (30.2)   | 20 (23.3)       | 14 (16.3)     |
| Loss of Interest in Sex     | 60 (69.7)         | 14 (16.3)   | 9 (10.5)        | 3 (3.5)       |

**Table 2: Symptoms of Depression among Study Subjects (n = 86)**

nurses), other nonmedical healthcare staff of the hospital, such as people in administration, pharmacy, etc., are also included in this study.

## CONCLUSION

An alarming proportion of anxiety and depression was noticed among HCWs. The prevalence of anxiety and depression (severe grade) among HCWs is 6% and 8% respectively. The ongoing prolonged pandemic situation and currently the third wave of COVID-19 infection have taken a toll on the mental health of frontline healthcare workers. Prolonged working hours, inadequate rest, isolation from family members, uncertainty regarding the health of themselves and their families, a lack of proper healthcare infrastructure, and dealing with the mortality and morbidity due to COVID-19 on an everyday basis—all these are responsible for increased mental health issues in this population. Despite that, there is a lack of awareness among healthcare workers and doc-

tors regarding the mental healthcare of health workers, and no proper treatment facility or proper treatment guidelines are widely available. To overcome this situation, we must increase psychiatric awareness among the medical profession and healthcare workers and also need a strong infrastructure for timely diagnosis, screening, and management of mental health issues in this population.

## LIMITATIONS

A small sample size and no control group are included for comparison purposes. Also, we could not assess the participants for any medical co-morbidity as the question was not attempted by many, which can be a precipitating factor for the worsening of mental health.

## REFERENCES

1. World Health Organisation. WHO Coronavirus Disease

| Variable                      | Groups         | N  | Moderate to Severe Anxiety |                    |                   |
|-------------------------------|----------------|----|----------------------------|--------------------|-------------------|
|                               |                |    | No.(%)                     | OR (CI)            | P value           |
| Age                           | Up to 25       | 9  | 1 (11.1)                   | 1                  | -                 |
|                               | 26 to 40       | 61 | 14 (23)                    | 2.38 (0.27-20.72)  | 0.431             |
|                               | > 40           | 16 | 4 (25)                     | 2.67 (0.25-28.44)  | 0.417             |
| Gender                        | Male           | 45 | 3 (6.7)                    | 1                  | -                 |
|                               | Female         | 41 | 16 (39)                    | 8.96 (2.37-33.84)  | <b>0.001*</b>     |
| Education                     | Up to Graduate | 48 | 11 (22.9)                  | 1.12 (0.39-3.12)   | 0.836             |
|                               | Post Graduate  | 38 | 8 (23.8)                   | 1                  | -                 |
| Religion                      | Hindu          | 80 | 19 (23.8)                  | 1                  | -                 |
|                               | Others         | 6  | 0 (0)                      | 0 (0-0)            | 0.999             |
| Family Type                   | Nuclear        | 57 | 12 (21.1)                  | 1                  | -                 |
|                               | Others         | 29 | 7 (24.1)                   | 1.19 (0.41-3.45)   | 0.745             |
| Residence                     | Urban          | 65 | 15 (23.1)                  | 1.28 (0.37-4.37)   | 0.699             |
|                               | Others         | 21 | 4 (19)                     | 1                  | -                 |
| Marital Status                | Married        | 49 | 10 (20.4)                  | 1                  | -                 |
|                               | Others         | 37 | 9 (24.3)                   | 1.25 (0.45-3.49)   | 0.665             |
| Moderate to Severe Depression | No             | 53 | 4 (7.5)                    | 1                  |                   |
|                               | Yes            | 33 | 15 (45.5)                  | 10.21 (2.99-34.86) | <b>&lt;0.001*</b> |

\* Statistically Significant

**Table 3: Factors of Moderate to Severe Anxiety - Univariate Logistic Regression (n = 86)**

(COVID-19) Dashboard; 2020. Available from: <https://covid19.who.int/>.

- Coronavirus:When will COVID-19 third wave end? Know what experts say; 2022. Available from: <https://timesofindia.indiatimes.com/life-style/health-fitness/health-news/coronavirus-when-will-covid-19-third-wave-end-know-what-experts-say/articleshow/88891201.cms>.
- De Kock JH, Latham HA, Leslie SJ, Grindle M, Munoz SA, Ellis L. A rapid review of the impact of COVID-19 on the mental health of healthcare workers: implications for supporting psychological well-being. *BMC Public Health*. 2021;21(1):104–104. doi:10.1186/s12889-020-10070-3.
- 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(8):664–71.
- Selvaraj P, Muthukanagaraj P, Saluja B, Jeyaraman M, Anudeep TC, Gulati A. Psychological impact of COVID-19 pandemic on health-care professionals in India - A multicentric cross-sectional study. *Indian J Med Sci*. 2020;72(3):141–148.
- Muller AE, Hafstad EV, Himmels J, Smedslund G, Flottorp S, Stensland SØ et al. The mental health impact of the COVID-19 pandemic on healthcare workers, and interventions to help them: A rapid systematic review. *Psychiatry Res*. 2020;293(113441):1–11. doi:<https://doi.org/10.1016/j.psychres.2020.113441>.
- Postpone NEET PG 2022. Student's Association Writes To Health Ministry To Postpone Medical Entrance.; 2022. Available from: <https://www.ndtv.com/education/postpone-neet-pg-2022-students-association-writes-to-health-ministry-to-postpone-medical-entrance-nbe-edu-in-mcc>.
- Sharma M, Haider T. Delhi doctor dies by suicide, was treating Covid patients in ICU for a month ; 2021. Available from: <https://www.indiatoday.in/cities/story/doctor-treating-covid-patients-for-a-month-dies-by-suicide-1797053-2021-05-01>.
- Kolkata: Junior doctor jumps off 6th floor of Covid-19 hospital, dies. ; 2020. Available from:

| Variable                   | Groups         | N  | Moderate to Severe Depression |                    |         |
|----------------------------|----------------|----|-------------------------------|--------------------|---------|
|                            |                |    | No.(%)                        | OR (CI)            | P value |
| Age                        | Up to 25       | 9  | 1 (11.1)                      | 1                  | -       |
|                            | 26 to 40       | 61 | 25 (41.0)                     | 5.56 (0.65-47.25)  | 0.116   |
|                            | > 40           | 16 | 7 (43.8)                      | 6.22 (0.62-62.16)  | 0.120   |
| Gender                     | Male           | 45 | 14 (31.1)                     | 1                  | -       |
|                            | Female         | 41 | 19 (46.3)                     | 1.91 (0.79-4.61)   | 0.149   |
| Education                  | Up to Graduate | 48 | 17 (35.4)                     | 1                  | -       |
|                            | Post Graduate  | 38 | 16 (42.1)                     | 1.33 (0.55-3.18)   | 0.527   |
| Religion                   | Hindu          | 80 | 30 (37.5)                     | 1                  | -       |
|                            | Others         | 6  | 3 (50)                        | 1.67 (0.32-8.79)   | 0.547   |
| Family Type                | Nuclear        | 57 | 23 (40.4)                     | 1.29 (0.51-3.26)   | 0.597   |
|                            | Others         | 29 | 10 (34.5)                     | 1                  | -       |
| Residence                  | Urban          | 65 | 27 (41.5)                     | 1.78 (0.61-5.17)   | 0.292   |
|                            | Others         | 21 | 6 (28.6)                      | 1                  | -       |
| Marital Status             | Married        | 49 | 19 (38.8)                     | 1.04 (0.43-2.51)   | 0.929   |
|                            | Others         | 37 | 14 (37.8)                     | 1                  | -       |
| Moderate to Severe Anxiety | No             | 67 | 18 (26.9)                     | 1                  | -       |
|                            | Yes            | 19 | 15 (78.9)                     | 10.21 (2.99-34.86) | <0.001* |

\* Statistically Significant

**Table 4: Factors of Moderate to Severe Depression - Univariate Logistic Regression (n = 86)**

Available from: <https://indianexpress.com/article/cities/kolkata/kolkata-junior-doctor-suicide-r-g-kar-medical-college-hospital-covid-19-6388954/>.

10. Med student found hanging in Midnapore college hostel. ; 2021. Available from: <https://timesofindia.indiatimes.com/city/kolkata/med-student-found-hanging-in-midnapore-college-hostel/articleshow/87635271.cms>.
11. Chatterjee SS, Bhattacharyya R, Bhattacharyya S, Gupta S, Das S, Banerjee BB. Attitude, practice, behavior, and mental health impact of COVID-19 on doctors. *Indian J Psychiatry*. 2020;62(3):257–65.
12. Galagali PM, Ghosh S, Bhargav H. The Role of Telemedicine in Child and Adolescent Healthcare in India. *Curr Pediatr Rep Curr Pediatr Rep*. 2021;9(1):154–61.
13. Naik SS, Rahul P, Harihara S, Pahuja E, Chithra NK, Ramachandraiah S et al. Telephonic follow-up during COVID-19 to maintain continuity of care for persons with psychiatric disorders. *Asian J Psychiatr*. 2021;57(102564):1–4.
14. Charan J, Biswas T. How to Calculate Sample Size for Different Study Designs in Medical Research? *Indian J Psychol Med*. 2013;35(2):121–127.
15. Beck AT, Epstein N, Brown G, Steer RA. An inventory for measuring clinical anxiety: Psychometric properties. *J Consult Clin Psychol*. 1988;56(6):893–900.
16. Richter P, Werner J, Heerlein A, Kraus A, Sauer H. On the validity of the Beck Depression Inventory: A review. *Psychopathology*. 1998;31(3):160–168.
17. Bell CC, Dsm-iv. Diagnostic and Statistical Manual of Mental Disorders. *JAMA*. 1994;272(10):828–837.
18. Raj R, Koyalada S, Kumar A, Kumari S, Pani P, Nishant et al. Psychological impact of the COVID-19 pandemic on healthcare workers in India: An observational study. *J Family Med Prim Care*. 2020;9(12):5921–5927. doi:<https://doi.org/10.4103/jfmprc.jfmprc121720>.
19. Spoorthy MS, Pratapa SK, Mahant S. Mental health problems faced by healthcare workers due to the COVID-19 pandemic-A



- review. *Asian J Psychiatr.* 2020;51(102119):1–4. doi:<https://doi.org/10.1016/j.ajp.2020.102119>.
20. Mulder J, de Bruijne and M. Willingness of Online Respondents to Participate in Alternative Modes of Data Collection. *Survey Practice.* 2019;12(1):2–10. Available from: <https://www.surveypractice.org/api/v1/articles/8356-willingness-of-online-respondents-to-participate-in-alternative-modes-of-data-collection.pdf>.
21. Grover S, Sahoo S, Mehra A, Avasthi A, Tripathi A, Subramanyan A. Psychological impact of COVID-19 lockdown: An online survey from India. *Indian J Psychiatry.* 2020;62(4):354–62.
22. Bhowmick S, Parolia S, Kundu JS, Choudhury D, Das D, N. A study on the anxiety level and stress during Covid19 lockdown among the general population of West Bengal. *India J Family Med Prim Care.* 2021;10(2):978–84.
23. Dutta A, Sharma A, Torres-Castro R, Pachori H, Mishra S. Mental health outcomes among healthcare workers dealing with COVID-19/severe acute respiratory syndrome coronavirus 2 pandemic: A systematic review and meta-analysis. *Indian J Psychiatry.* 2021;63(4):335–382.
24. Mathur S, Sharma D, Solanki RK, Goyal MK. Stress-related disorders in health-care workers in COVID-19 pandemic: A cross-sectional study from India. *Indian J Med Specialities.* 2020;11(4):180–180.
25. Grover S, Mehra A, Sahoo S, Avasthi A, Rao T, Vaishnav M. Evaluation of Psychological Impact of COVID-19 on Health-Care Workers. *Indian J Psychiatry.* 2021;63(3):222–229.
26. Mi L, Jiang Y, Xuan H, Zhou Y. Mental health and psychological impact of COVID-19: Potential high-risk factors among different groups. *Asian J Psychiatr.* 2020;53:102212–102212.
27. Simone L, Gnagnarella C. Differences Between Health Workers and General Population in Risk Perception, Behaviors, and Psychological Distress Related to COVID-19 Spread in Italy. *Front Psychol.* 2020;11:2166–2166.
28. Vizheh M, Qorbani M, Arzaghi SM, Muhidin S, Javanmard Z, Esmaeili M. The mental health of health-care workers in the COVID-19 pandemic: A systematic review. *J Diabetes Metab Disord.* 2020;19(2):1967–78.
29. Tan B, Chew N, Lee G, Jing M, Goh Y, Yeo L et al. Psychological Impact of the COVID-19 Pandemic on Health Care Workers in Singapore. *Ann Intern Med.* 2020;173(4):317–320. doi:[10.7326/M20-1083](https://doi.org/10.7326/M20-1083).
30. Gautam M, Tripathi A, Deshmukh D, Gaur M. Cognitive Behavioral Therapy for Depression. *Indian J Psychiatry.* 2020;62(2):223–232.
31. Mackenzie MB, Kocovski NL. Mindfulness-based cognitive therapy for depression: trends and developments. *Psychol Res Behav Manag.* 2016;9:125–157.
32. Union Budget 2022-23: National Tele-mental health programme will effectively counter India's mental health epidemic.; 2022. Available from: <https://health.economictimes.indiatimes.com/news/industry/union-budget-2022-23-national-tele-mental-health-programme-will-effectively-counter-indias-mental-health-epidemic/89271908>.

**How to cite this article:** Ghosh S, Bag S, Mondal A, Roy S. Burden of Mental Morbidities among Health Care Workers in a Tertiary Care Hospital Of West Bengal during Third Wave of COVID-19 Pandemic: A Cross-Sectional Study. *Perspectives in Medical Research.* 2024;12(3):29–37  
DOI: [10.47799/pimr.1203.06](https://doi.org/10.47799/pimr.1203.06)