

## A Study to Assess the Psychological Impact of Covid-19 among Medical Graduates of a Tertiary Care Hospital.

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### Abstract:

**Background:** Medical graduates, which includes post-graduates and intern doctors, were the first line of contact in most hospitals through the pandemic and have worked tirelessly and for extended hours with the constant risk of exposure and infection. It is thus important to understand the psychological impact of the Covid-19 outbreak among medical graduates.

**Aim:** To assess the psychological impact of Covid-19 related anxiety among medical graduates (interns and post-graduates) in a tertiary care hospital involved in managing Covid-19 patients.

**Materials and Method:** A cross-sectional observational study done on consenting interns and post-graduates of a tertiary care hospital, who actively worked during the first wave of the Covid-19 pandemic. Data was collected through an online platform which included a structured questionnaire and validated Covid Anxiety Scale (CAS).

**Results:** Out of 220 interns and post-graduates, 74% had moderate levels of anxiety and 12% each had low and high levels of anxiety. The total anxiety score was high in those with both physical and psychological symptoms than in those with only psychological or physical symptoms.

**Conclusion:** Varying levels of anxiety were present among the medical graduates who worked in the frontline during the pandemic. Formulating appropriate psychological interventions is essential for improving their well-being during such a crisis.

**Keywords:** Covid-19, Healthcare-workers, Medical graduates, Frontline, Psychological impact, Anxiety

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### I. Introduction

COVID-19 pandemic, a Global Public Health Crisis, due to the novelty, morbidity and mortality of the infection along with the lockdown and other restrictions, caused a major psychological impact on the population. It has affected people both personally and professionally, affecting their coping skills as well.<sup>1</sup>

The newness of the virus with its high infectivity and unavailability of effective treatment during the first wave leading to physical distancing, isolation and quarantine etc. caused psychological distress which presented as anger, boredom, depression, fear and anxiety.<sup>2,3,4,5</sup> A survey by the Indian Psychiatric Society showed a 20% increase in mental illnesses since the COVID-19 outbreak in India.<sup>6</sup> The COVID-19 mental health concerns were seen in acute and long term phases as well.<sup>7</sup>

Psychological impacts were seen among health care workers even during the SARS outbreak in 2003. Nursing staff, healthcare workers in the frontline and those with low social support and fewer years of working experience reported the worst outcomes.<sup>8</sup> Similar concerns about the mental health, psychological adjustment and recovery of health care workers treating and caring for patients was seen with the COVID-19 pandemic supported by various studies done among the healthcare workers both in Indian and international settings.<sup>9,10,11</sup>

Medical graduates, that is post-graduate and intern doctors have been the first line of contact in most hospitals through the pandemic, with extended working hours. Anxiety, depression and stress-related disorders were commonly reported in a study done in South India among medical graduates, with varying levels of anxiety and depression - 75.5% and 74.6% respectively.<sup>12</sup> In another cross-sectional study done in the Sindh province, about 78.1% had anxiety and 76.9% had depression.<sup>13</sup>

Studies were conducted among medical students in general, not specifically in interns and post-graduates who were the front line workers in tertiary care hospitals during the pandemic. Many factors might have contributed to causing this psychological impact like exposure and risk of contamination, worry about their

loved ones, extended work hours, tiresome and exhausting shifts and also staying away from their family and homes for extended periods, resulting in worsened mental health.<sup>14,15</sup> Hence, we planned to understand the psychological impact of Covid among medical graduates in a tertiary care hospital during the pandemic.

## II. Aims and Objectives

This study aimed to assess the psychological impact of the Covid-19 pandemic on the Medical graduates of a tertiary care hospital.

### Objectives:

1. To assess the prevalence and severity of Covid-related anxiety among the medical graduates.
2. To assess the nature of symptoms in those medical graduates who had varying levels of Covid-related anxiety.

## III. Materials And Methods

**Methodology:** This was a cross-sectional study conducted in a tertiary care teaching hospital in Chennai, India in August 2020 during the first wave of the pandemic.

**Inclusion criteria:** Medical graduates, which includes Interns and post-graduates who (i) worked during the first wave of the pandemic and (ii) consented to be a part of the study.

**Exclusion criteria:** Those (i) who had a history of psychiatric illness or (ii) did not consent to be a part of the study. Data was collected using google forms for ease of accessibility and to limit exposure and contact. Institutional ethical committee approval was obtained for this study.

**Instruments used:** A semi-structured questionnaire was used for collecting the basic demographic details. Information about the nature of duty done during the pandemic, participants' subjective description of their mental state and symptoms experienced by them were also collected in the same questionnaire. COVID-19 Anxiety Scale (CAS) was used to assess the prevalence and severity of Covid-related anxiety. CAS is a brief, rapidly administrable, reliable and validated 7-item instrument for use in Indian settings. 2 items for illness anxiety and 5 items for fear of social interaction are used to measure Covid-19 related anxiety.

It is scored as 1 to 4 for each item, with a minimum score of 7 and a maximum of 28.

The scoring and classification was done as mentioned by the developers as a score <13 indicating low anxiety, 13-21 being moderate anxiety and >21 indicative of high anxiety.<sup>16</sup>

The scale was used after obtaining permission from the author and developer of this scale.

**Statistical analysis:** Data was analyzed by using coGuide software, V.1.03. (1)

Descriptive analysis was carried out by mean and standard deviation for quantitative variables, frequency and proportion for categorical variables. All quantitative variables were checked for normal distribution using normality Q-Q plots and the Shapiro-Wilk test. Shapiro-Wilk test P-value of >0.05 was considered as normal distribution. Non-normally distributed Quantitative parameters were summarized by Medians and Interquartile range (IQR) and comparison between study groups was done using Mann Whitney u test (2 groups)/ Kruskal Wallis test (> 2 groups). P-value < 0.05 was considered statistically significant.

## IV. Results

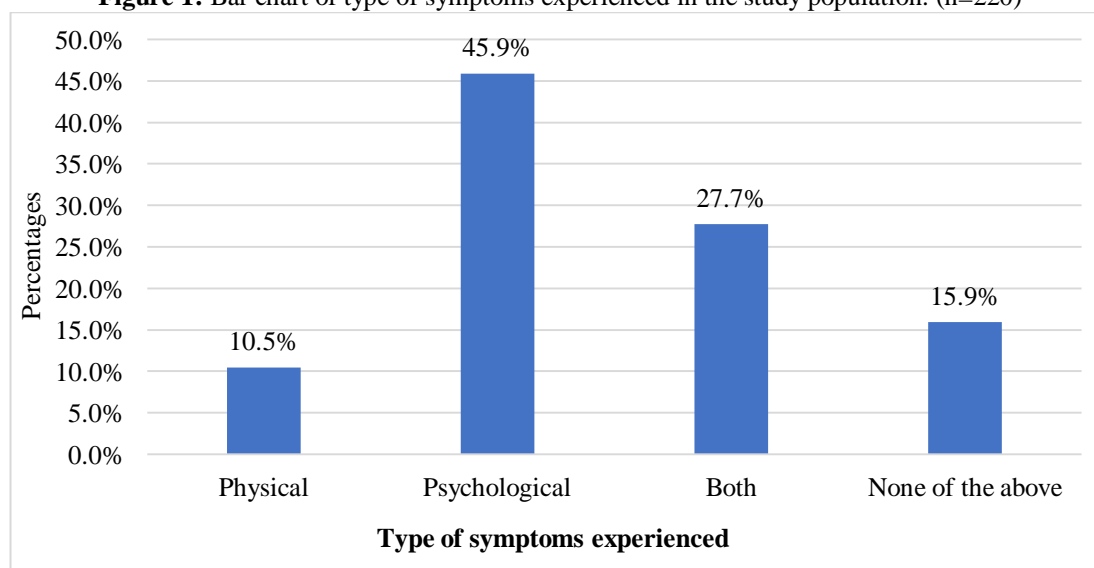
A total of 220 subjects were included in the study, of which 100 were medical interns and 120 were medical post-graduates. The mean age of the participants was  $25.03 \pm 2.58$  years. The minimum age of the participants was 21 and 38 was the maximum age. 88 (40%) participants were males and 132 (60%) were females. 27 (12.27%) were married and 193 (87.73%) were single. With respect to duty in Covid-19 management, 86 (39.09%) participants reported to have had direct interaction with a Covid-19 patient or suspected patient for case management, 83 (37.73%) participants interacted with healthcare staff (indirect interaction) directly involved in the treatment of Covid-19 patients and 51 (23.18%) participants reported to have had no interaction with Covid-19 patients or involved staff. (Table 1)

**Table 1:** Descriptive analysis of nature of duty. (n=220)

Duty In Covid-19 Management.	Frequency	Percentage
Direct interaction	86	39.09%
Interacting with health care staff who is directly involved in treatment of Covid-19 patients (Indirect interaction)	83	37.73%
No interaction with Covid-19 patients or involved staff	51	23.18%

The nature of symptoms experienced, i.e. physical and psychological symptoms two weeks prior to the study was assessed. Physical symptoms included reduced energy, sleep disturbance, change in appetite, pounding of heart, shortness of breath, dryness of mouth, tremulousness, excessive sweating, frequent headache, restlessness, panic-like attacks etc. and psychological symptoms included negative thoughts, excessive worry/apprehensions, difficulty in concentrating, agitation, difficulty in relaxing, excessive fear etc. 101 (45.91%) participants had only psychological symptoms, 23 (10.45%) had only physical symptoms while 61 (27.73%) participants had both physical and psychological symptoms. 35 (15.91%) participants had no symptoms in the two weeks prior to the study. (Figure 1)

**Figure 1:** Bar chart of type of symptoms experienced in the study population. (n=220)

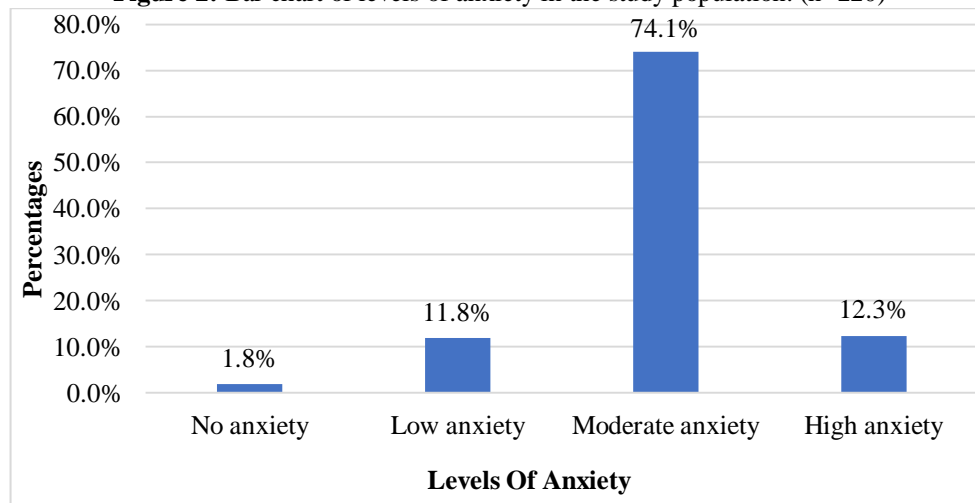


**Table 2:** Descriptive analysis of anxiety scores according to the Covid-19 Anxiety Scale (CAS) in the study population. (N=220)

Parameter	Mean ± SD	Median	Minimum	Maximum
How frequently are you feeling worried that you have acquired covid-19?	2.36 ± 0.74	2.00	1.00	4.00
How frequently is your sleep getting affected due to thoughts relating to covid-19?	1.64 ± 0.78	1.00	1.00	4.00
<i>Illness Anxiety Score</i>	4 ± 1.32	4.00	2.00	8.00
How afraid are you of acquiring covid-19 when going into public?	2.7 ± 0.82	3.00	1.00	4.00
How frequently are you avoiding conversations on covid-19 related information out of fear/anxiety?	1.74 ± 0.81	2.00	1.00	4.00
How afraid are you of acquiring covid-19 when an unknown person is coming closer to you?	2.9 ± 0.78	3.00	1.00	4.00
How anxious are you getting when knowing information on covid-19?	2.28 ± 0.92	2.00	1.00	4.00
How concerned are you when people cough or sneeze because of the fear that you may acquire covid-19?	3.2 ± 0.79	3.00	1.00	4.00
<i>Fear Of Social Interaction</i>	12.82 ± 3.05	13.00	5.00	20.00
<i>Total Anxiety Score</i>	16.82 ± 4	17.0	7.0	28.0

The mean total anxiety score using the Covid Anxiety Scale was 16.82 ± 4, with 7 being the minimum score and 28 being the maximum (Table 2). The total anxiety score was high among females [17 (15,21)] than males [16 (13,18.75)] and this difference was statistically significant (p<0.001). Among males, 65 (39.88%) had moderate anxiety followed by 15 (57.69%) with low anxiety and 5 (18.52%) with high anxiety. 3 (75%) males had no anxiety. Among females, 98 (60.12%) had moderate anxiety, followed by 22 (81.48%) with high anxiety and 11 (42.31%) with low anxiety. 1 (25%) female had no anxiety. The difference between the levels of anxiety among males and females was found to be statistically significant (p=0.014).

**Figure 2:** Bar chart of levels of anxiety in the study population. (n=220)



Participants who were involved (directly/indirectly) in Covid-19 management had higher total anxiety scores than those who did not have any interaction but this difference is not significant. Participants who had both physical and psychological symptoms [18 (16, 21)] had higher total anxiety scores than those with only psychological symptoms [17 (15, 19)] or only physical symptoms [15 (14, 19)]. This difference was statistically significant ( $p < 0.001$ ). (Table 3)

**Table 3:** Comparison of total anxiety score VS nature of duty and type of symptoms. (n=220)

Duty in Covid-19 Management	Total anxiety score Median (IQR)	Kruskal Wallis test (p value)
Direct interaction	17 (13, 20)	0.719
Interacting with health care staff who is directly involved in the treatment of Covid-19 patients.	17 (14, 20)	
No interaction with Covid-19 patients or involved staff.	16 (15, 19)	
Type of symptoms experienced		<0.001*
Physical	15 (14, 19)	
Psychological	17 (15, 19)	
Both	18 (16, 21)	
None of the above	14 (11, 17)	

## V. Discussion

Majority of our study participants were females. Among the married participants, more number of females were married as compared to males. 76.82% of the participants had direct or indirect interaction with suspected or confirmed cases and 23.18% had no such interaction.

Covid anxiety scale used in the study to assess the prevalence of anxiety among the medical graduates revealed that 98.2% had anxiety related to Covid, whereas only 1.8% had no anxiety. The prevalence rate is very high when compared to other studies in the range of 67.7% -74% done in Indian settings.<sup>17,18</sup> This could be explained by the difference in the study population as only medical interns and post graduates who were actively involved in the clinical work were part of this study as against medical students in other studies. Covid Anxiety Scale (CAS) validated in Indian settings was the only scale utilised in contrast to other studies where different scales to assess symptoms other than anxiety were used. The CAS helped to screen for anxiety symptoms during the pandemic, being influenced by multiple factors.

The total anxiety score using the Covid Anxiety Scale was  $16.82 \pm 4$  and the mean anxiety score in the 'fear of social interaction' domain was  $12.82 \pm 3.05$  and in the 'illness anxiety' domain was  $4 \pm 1.32$ . Participants had higher anxiety scores particularly while going into public, or when an unknown person came within close proximity of the participant or when someone around coughed or sneezed. Based on the scale cut-offs, a majority (74%) had moderate levels of anxiety. The cut-off score was high for females (17) than males (16), which is similar to a study done in Pakistan among post-graduate trainees.<sup>19</sup>

Participants who had both physical and psychological symptoms had higher total Covid anxiety score (18) than those with only psychological (17) or only physical symptoms (15) (p value<0.001).

## VI. Conclusion

Varying levels of anxiety were found in the medical graduates, both intern doctors and post-graduates, who worked during the pandemic. This study used a validated scale for Indian setting to specifically assess Covid-related anxiety. The main limitation being a cross-sectional study and only a specific symptom domain was assessed, due to which the long-term impact cannot be extrapolated. The mental health of medical graduates is equally important as that of the general population whose well-being gets affected during such crisis and interventions need to come into place for addressing their needs to maintain an effective health care system.

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