



# Study of Anxiety and Depression in Post Graduate Residents during Active Phase of COVID-19 Duty in a Tertiary Care Hospital: A Pilot Study

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## Abstract

**Objective:** Study of Depression and Anxiety in post graduate residents during active COVID-19 duties.

**Materials and Methods:** The participants were selected from various specialties, from different Residency years 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> posted in Acharya Shri Chander College of Medical Sciences and Hospital (ASCOMS) and Hospital's COVID-19 Wards and a comparative analysis was done based on number of duties and number of working hours. The scales used for the assessment were general anxiety disorder (GAD)-7 and patient health questionnaire (PHQ)-9.

**Results:** Out of 28 participants 57.14% were males, 42.86% were females. According to these scales taken, the total number of PG residents facing Mild Depression were 50% (n = 14), which was of significant concern followed by Minimum Depression in 18% (n = 5) and Moderate Depression 18% (n = 5) followed by Moderately Severe Depression in 7% (n = 2) and Severe Depression in 7% (n = 2).

Similarly in Anxiety using GAD-7 scale, 32% (n = 9) were facing and dealing with Moderate Anxiety, followed by Mild Anxiety in 28% (n = 8), Moderately Severe Anxiety in 25% (n = 7) and Severe Anxiety in 14% (n = 4).

**Conclusion:** This survey was conducted during the active duties of COVID-19. The survey was done on post graduate residents of various specialties. Anxiety and depression were found to be significant in number of Residents involved in active COVID-19 duties. This data was collected in 3 to 4 months of subsequent duties during the peak of COVID -9 wave. This further helps us in assessing the psychiatric morbidity among the frontline workers like doctors, nurses, and paramedical staff, which played a pivotal role in COVID-19 pandemic.

## INTRODUCTION

This unprecedented COVID-19 Pandemic has caused disease in 11.36 million people and deaths of 158725 people till March 15<sup>th</sup>, 2021 as per Ministry of Health and Family Welfare (MoHFW).<sup>1</sup> It has caused a marked distress among the general population.

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According to the study done by Jiaqi Xio Ng *et al.*,<sup>2</sup> there were high rates of psychological distress (34.43–38%) and stress (8.1–81.9%) in China, Spain, Italy, Iran, US, Turkey and Nepal. A meta-analysis was also done by Nader Salari *et al.* to analyze the currently available research outcomes with respect to the prevalence of stress, anxiety, and depression during the COVID-19 pandemic and it was found that, it has caused immense physical health concerns and resulted in a number of psychological disorders.<sup>3</sup>

This distress is even caused to the health care workers (HCWs) especially the junior doctors (PG Residents) who are working as frontline warriors in these COVID-19 wards.

JZ Huang *et al.* found that the anxiety incidences in medical staff in a tertiary infectious disease hospital for COVID-19 was 23.04% and anxiety faced by female HCW's was higher than male HCW's.<sup>4</sup>

Depressive and anxiety signs and symptoms were studied and were found to be prevalent in junior doctors giving COVID-19 duties in these wards. HCW's who have contracted the disease while working in the hospital have developed a deep psychological impact in the form of anxiety, depression, and stress of transferring infection to the family members.

The family members of these HCWs also faced anxiety and Depression. The main risk factor was 'time (hours)' spent thinking about COVID-19, by family members. "Parents and kins of HCWs were at risk for developing depressive symptoms"<sup>5</sup> as studied by Ying *et al.*

According to Aggarwal *et al.*,<sup>6</sup> the most common problems associated with using cumbersome PPE kits was excessive sweating (100%), fogging of goggles, spectacles, or face shields (88%), suffocation (83%), breathlessness (61%), fatigue (75%), headache because of prolonged use (28%), and pressure marks on the skin at one or more areas due to repeated use (19%).

Study by Kang *et al.* in 2020 found out that doctors had 36.9% sub threshold mental health disturbances, 34.4% had mild disturbances, 22.4% had moderate disturbances, and 6.2% had severe disturbance as per PHQ-9, GAD, and Insomnia Severity Index.<sup>7</sup> These similar scales PHQ-9 and GAD-7 were used in our study to assess the outcome.

Medical staff also experienced emotional stress during the COVID-19 pandemic<sup>8</sup> including Doctors, nurses, and other hospital staff.

There are many studies done for measuring the impact of COVID-19 on general mass, but none has been done on the post graduate residents, this study is done to fill that gap.

## METHOD

### Participants

Post graduate residents from 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup>, year from various specialties like medicine, anesthesia, surgery, obstetrics/gynecology, ENT, ophthalmology, psychiatry were included who were working in Tertiary Care Hospital (ASCOMS and HOSPITAL, Jammu). These doctors based on their Residency years had different working hours during their COVID-19 ward duties from April to June 2021.

The selection criteria for age included 25 to 45 years excluding any significant medical and psychiatric morbidities.

### Working Hours

A total of 42 hours/week i.e., 6 duties per week, that included 5 day duties (5 X 6 = 30 hours) and one night duty (1 X 12=12 hours), hence total 42 hours. Third year Medicine Residents gave 72 hours duty per week. Anesthesia residents were giving 72 hours duty per week.

Scales used were PHQ-9 (patient health questionnaire) and GAD-7 (generalized anxiety

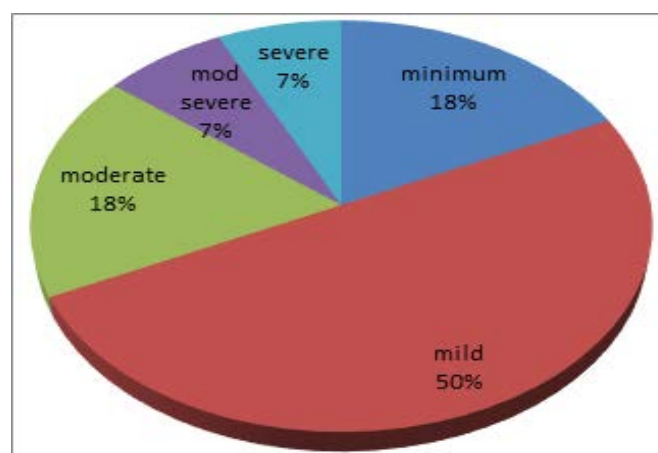


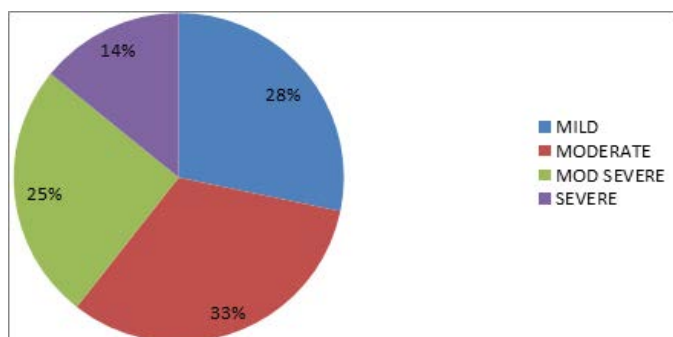
Figure 1: Depression : PHQ -9

disorder). The residents were asked to fill up the questionnaire given to them. This questionnaire was subjective and thoroughly explained to the residents before filling (Figures 1 and 2).

Consent for the participation in the study was taken by the residents and confidentiality regarding it was maintained.

## Statistical Analysis

The data was exported and analysed with IBM statistical package for the social sciences (SPSS). The parametric analysis was done using analysis of variance (ANNOVA) technique. All results with  $p < 0.05$  were considered statistically significant, these responses were not known earlier before the analysis was performed.



**Figure 2:** Anxiety: GAD-7

**Table 1:** Sociodemographic data

Data	Number (n)	Percentage (%)
<i>Gender</i>		
Males	16	57.14
Females	12	42.86
<i>Marital status</i>		
Married	5	17.86
Unmarried	23	82.14
<i>Specialities</i>		
Gynaecology	3	10.71
ENT	2	7.14
Ophthalmology	3	10.71
Medicine	7	25
Psychiatry	4	14.29
Anaesthesia	6	21.43
Surgery	3	10.71

## RESULTS

The total of 28 post graduate students, out of which male  $n = 16$  (57.14%), female  $n = 12$  (42.86%). people who were married  $n = 5$  (17.86%), un-married  $n = 23$  (82.14%); belonging to various specialties obstetrics and gynaecology  $n = 3$  (10.71%), ENT  $n = 2$  (7.14%), ophthalmology  $n = 3$  (10.71%), medicine  $n = 7$  (25%), psychiatry  $n = 4$  (14.29%), anaesthesia  $n = 6$  (21.43), surgery  $n = 3$  (10.75), as given in Table 1, with the mean working hours of  $49 \pm 13.22$  and duty hours were  $4.03 \pm 0.69$ .

The total mean depression came out to be  $8.85 \pm 6.06$  and mean anxiety came out to be  $9.03 \pm 5.67$ .

Amongst these residents  $n = 5$  (17.86%) were also tested positive during the course of duties and  $n = 1$  (3.57%) medicine resident developed lung patches who was unable to resume duty for a month.

The mean working hours in 1<sup>st</sup> year residents ( $42 \pm 0$ ), 2<sup>nd</sup> year ( $64.5 \pm 15$ ) and 3<sup>rd</sup> year ( $66 \pm 13.14$ ), and a p-value for them was  $< 0.001$ .

On comparing the mean duty hours of 1<sup>st</sup> year, 2<sup>nd</sup> year and 3<sup>rd</sup> year residents, the P value is significant i.e.  $p < 0.05$ . Addressing to the duty hours there were significant results which showed the higher amounts of depression and anxiety states in 1<sup>st</sup> year residents as compared to 2<sup>nd</sup> and 3<sup>rd</sup> year residents amounting to the more number of duty hours for them in the same period of time. Statistically depression in 1<sup>st</sup> year residents ( $9.57 \pm 6.25$ ), 2<sup>nd</sup> year ( $8.75 \pm 8.85$ ) and 3<sup>rd</sup> year ( $3.8 \pm 1.69$ ), with a significant p value of  $< 0.05$  (mild depression).

Similarly for anxiety, 1<sup>st</sup> year residents ( $9.57 \pm 6.25$ ), 2<sup>nd</sup> year ( $8.75 \pm 7.5$ ) and 3<sup>rd</sup> year ( $6.2 \pm 2.16$ ), with a significant p value of  $< 0.05$  (mild to moderate anxiety).

Married junior doctors, who were 17.86% ( $n = 5$ ) of our study, were facing distress of managing their personal lives along with this professional crisis surge.

According to these scales taken, the total number of PG residents facing mild depression were 50% ( $n=14$ ), which was of significant concern followed by minimum depression in 18% ( $n = 5$ ) and moderate depression 18% ( $n = 5$ ) followed by Moderately severe depression in 7% ( $n = 2$ ) and severe depression in 7% ( $n = 2$ ).

Similarly in anxiety using GAD7 scale, 32% (n = 9) were facing and dealing with moderate anxiety, followed by mild anxiety in 28% (n = 8), moderately severe anxiety in 25% (n = 7) and severe anxiety in 14% (n = 4).

## DISCUSSION

The post graduate residents taken up for the study endorsed mild depressive symptoms and mild to moderate anxiety after the responses to PHQ-9 and GAD-7, respectively. This unaddressed symptomatology occurring in the residents negatively impacts the functioning of the PG's even without any previous co-morbid psychiatric or medical conditions. According to a similar study done by Lai *et al.* in 2020 using the similar scale PHQ9, GAD and insomnia severity index it was found that 50.4% reported symptoms of depression and we have found similar results in our study for mild depression which was evaluated to be 50% and was consistent with our study.<sup>9</sup>

According to study conducted by Young *et al.*<sup>10</sup> on Health care worker's, mental health and quality of life during COVID-19 found approximately 40% of health care workers who responded to report serious psychiatric symptoms.

Study done by Deying *et al.*<sup>11</sup> on the frontline nurses, found out that they reported moderate level of burnout. The workload was associated with 23% increase in the likelihood of burnout. From 40 to 50% of the frontline nurses experienced anxiety or depression. A similar study done in INDIA by Chatterji *et al.* " Impact of COVID-19 on doctors",<sup>12</sup> also has concluded that 34.9% doctors were depressed and 39.5% were found to have any type of Anxiety and 7.2, 17.8, 6.6, and 7.2% participants were having mild, moderate, severe, and extremely severe anxiety, respectively measured by the depression, anxiety, and Stress Scale-21. Levels of social support were significantly associated with self-efficacy and sleep quality and negatively associated with the degree of anxiety and stress<sup>13</sup> as found by a cross sectional study by Xiao *et al.* on medical staff (doctors and nurses).

There was a lot of vicarious traumatisations as studied by Li *et al.*<sup>14</sup> in the form of decreased appetite, sleep disturbances, irritability, fear among

general population and frontline nurses. "The presence of probable post-traumatic stress disorder (PTSD) reported in doctors was found to be more than nurses and other local health care workers".<sup>15</sup>

Disease itself multiplied hence forced quarantine were started to combat COVID-19. Nationwide lockdowns may produce acute panic, anxiety, obsessive behaviors, hoarding, paranoia, depression, and PTSD in the long run.<sup>16</sup>

## LIMITATIONS

This was a small study comprising of 28 post graduate residents, that is a small sample size. The data found out significant anxiety and depression rates in them. This study was done in one tertiary care hospital in the UT of Jammu and Kashmir, this could be extended to the other various medical institutes in the state, who were assigned Covid wards and junior doctors were the frontline warriors in them.

## CONCLUSION

This survey was conducted during the active duties of COVID-19. This data was collected in 3 to 4 months of subsequent duties during the peak time. Such meaningful surveys help us to take care of the frontline workers especially the Doctors. We must understand the risks and challenges of the work and such deepened and unavoidable mental health care concerns and the burden of COVID-19 on them. Insufficient knowledge and treatment for this pandemic also added to the challenges.

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