

# Estimation of Depression and Anxiety among Intern Doctors of One Medical College in Bogura City during COVID-19 Pandemic

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## Abstract

**Introduction:** In December 2019, an outbreak of a novel coronavirus pneumonia occurred in Wuhan City, China, and 28.32 million confirmed cases worldwide and 0.33 million cases in Bangladesh till September 2020. The prevalence of anxiety, fear, depression, insomnia, somatization, and obsessive compulsive symptoms has been higher among health care workers. Medical interns are at the front line in combating COVID-19, which can lead to a high level of stress resulting in anxiety and depression. This study hopes to shed light on the impact of the pandemic on the mental health of our intern doctors.

**Methods:** An 18- question survey- based cross- sectional study was carried out in a tertiary hospital of Bangladesh of intern doctors during the COVID-19 pandemic. The primary objective was to identify the impact of the pandemic on mental health in the form of major depressive disorder (MDD) and general anxiety disorder (GAD). The study incorporated the patient health questionnaire (PHQ-2), which is validated for screening of MDD, and generalized health questionnaire (GAD-2), which is validated for screening of GAD.

**Results:** There were 38 respondents. The mean age was  $24.97 \pm 0.01247$  years with female predominance 26(68.42%). Mostly were unmarried 26(86.42%). History of taking psychiatrics consultation was 06(15.79%) and 05(13.16%) had been suffering from severe insomnia. Total 21(55.26%) were remain every time in anxiety or worry that through them their family members may be affected by COVID-19. In this study 25(65.79%) intern doctors reported as having depressive symptom and symptoms of GAD 19(50.00%). Compared to males, females had statistically significant higher score in; PHQ-2  $\geq 3$  (84.62%), GAD-2  $\geq 3$  (15.38%) ( $p=0.002$ ). Most of the medical interns who had positive for GAD were also positive for MDD. The prevalence of MDD was 100% among the interns who had a previous history of taking psychiatrics consultation and 83.33% regarding GAD ( $p=0.006$ ).

**Conclusion:** This study shows a significant prevalence in symptoms of GAD and depressive symptoms in medical interns during the COVID-19 pandemic than other healthcare professionals.

**Key world:** COVID-19 pandemic; MDD, GAD, Intern doctors

*Journal of Green Life Med. Col. 2021; 6(1): 7-11*

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**Received:** 05.11.2020

**Accepted:** 26.12.2020

## Introduction:

In December 2019, an outbreak of a novel coronavirus pneumonia occurred in Wuhan City, China, and spread throughout the whole of country in a short period.<sup>1</sup> The novel coronavirus was officially named ‘SARS CoV-2’ by the International Committee on Taxonomy of Viruses, and disease infected by this virus was termed ‘COVID-19.’<sup>2</sup>

The COVID-19 pandemic has taken its toll on the wellbeing of patients across the world, with 28.32 million confirmed cases worldwide and 0.33 million cases in Bangladesh till September 2020.<sup>3</sup>

Healthcare professionals (HPs) are not immune to both physical and mental health impact of the pandemic. Physicians are struggling to cope to dealing with unprecedented demand for healthcare services which cause significant burden on their shoulders. They re- assigned to duties in such places which is not their area of expertise and beyond their comfort zone, such as covering emergency departments, intensive care units or medical COVID-19 wards.<sup>4</sup>

Prevalence of anxiety, fear, depression, insomnia, somatization, and obsessive compulsive symptoms have been higher among health care workers during this pandemic, especially among those who work in high-risk units, such as emergency department and intensive care unit.<sup>5</sup>

Medical interns are the final year medical students or first year junior doctors.<sup>6</sup> A high level of stress can be developed in medical interns who are at the front line in visiting COVID-19 patients resulting in anxiety and depression. A crisis like the current COVID19 pandemic can intensify tensions due to the risk of exposure to the virus, limitations of educational programs, higher workloads, and concerns about lack of protective equipment.<sup>5</sup>

Research around COVID-19 focuses predominantly on physical health, but the mental health impact of this infection may be far wider reaching than expected and should not be neglected. Since no data are available on psychological status of intern doctors, the study, therefore, hope to shed light on the impact of the pandemic on the mental health of our intern doctors. Through raising awareness of these issues, there is an opportunity to take action before there is a significant detriment to the workforce and our patients.

#### **Methods:**

This survey- based cross- sectional study was carried out in a tertiary hospital of Bangladesh from 25 to 31 August 2020 of intern doctors during the COVID-19 pandemic. The survey was kept brief (18 questions) to promote completion.

The primary objective was to identify and characterize the impact of the pandemic on mental health in the form of major depressive disorder (MDD) and general anxiety disorder (GAD). Demographic data was collected including age, gender, marital status, use of any medicine for depression, COVID-19 status and clinical grade to identify subgroups which were most affected.

The nine- question patient health questionnaire (PHQ-9) is a self- administered questionnaire validated for the assessment of major depressive disorder as per the diagnostic and statistical Manual of Mental Disorders 4 (DsM- IV) criteria in primary care settings. The first two questions, known as the PHQ-2 can be used for screening. PHQ-2 score greater than 2 has sensitivity of 82.9% and specificity of 90.0% for MDD<sup>7</sup>.

The seven- item generalized anxiety disorder questionnaire (GAD-7), is a self- administered questionnaire validated for the assessment of GAD. for screening, the first two items known as GAD-2 have been shown to have a sensitivity of 86% and specificity of 83% for GAD<sup>8</sup>. The PHQ-2 and GAD-2 were included in the survey to estimate the prevalence of MDD and GAD in the responders. A question on previously seeking treatment for mental health conditions was included to explore if past experiences sensitized respondents to current stressors.

Complete questionnaires finished within seven days from 25 to 31 August 2020 were recognized as eligible and included in the following analysis. Incomplete questionnaires were excluded. Respondents were allowed to abstain from answering. Abstainers were treated as having not sought support from wellbeing services. The survey was distributed through person to person. Ethical permission has been taken from Institute keeping compliance with Helsinki Declaration for medical research involving human subject 1964, the study subject was informed verbally about the study design, the purpose of the study and right for withdrawing themselves from the project at any time, for any reason, what so ever. Persons who were given informed written consent to participate voluntarily in the study were included as study sample. The SPSS version 20.0 was used for data analysis.

#### **Results:**

The presented study was intended to estimate the prevalence of mental health status of intern doctors during this COVID-19 pandemic. In this study we received 38 responses. Mean age were 24.97 years (SD±0.01247). Total 12 (31.58%) were male and 26 (68.42%) were female. Most of them were unmarried 26 (68.42%). Further breakdown by demographics is shown in Table I.

**Table I**  
Breakdown of the demographics of survey respondents.  
(n=38)

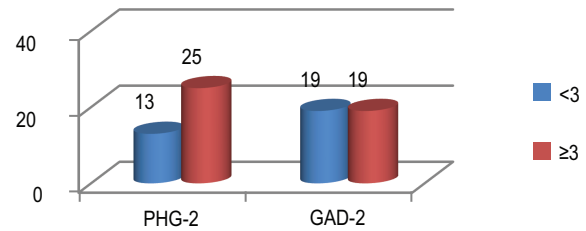
	Number of respondents	Percentage (%)
Age( Yrs)		
24	09	23.68
25	22	57.89
26	6	15.79
27	01	02.64
Gender		
Male	12	31.58
Female	26	68.42
Marital status		
Married	12	31.58
Unmarried	26	68.42

Interns who had previous history of taking psychiatric consultation was 06 (15.79%) and 05 (13.16%) had been suffering from severe insomnia. Total 21(55.26%) were remain every time in anxiety or worry that through them their family members may be affected by COVID-19. Details distributions are shown in Table II.

**Table II**  
Breakdown according to history of previous psychiatric consultation, insomnia and anxiety to contamination to family member. (n=38)

	Number of respondents	Percentage (%)
Previous Psychiatric consultation		
Yes	06	15.79
NO	32	84.21
Insomnia		
Never	13	34.21
Rarely	16	42.11
Often	04	10.53
Every Time	05	13.16
Anxiety to contamination to family member		
Never	06	15.79
Rarely	05	13.16
Often	06	15.79
Every Time	21	55.26

In this study 25 (65.79%) intern doctors found MDD and GAD 19 (50.00%). Details are shown in Figure I.



**Figure-1:** Distribution according to PHQ-2 & GAD-2 Score. (n=38)

Compared to males, females had statistically significant higher score in; PHQ-2 ≥3 (84.62%); depressive symptoms, GAD-2 ≥3 (15.38%); anxiety symptoms shown in Table III.

**Table III**  
Distribution of Depressive symptoms and Anxiety symptoms in different gender. (n=38)

	Male (n=12)	Female (n=26)	
Depressive symptoms	03(25.00%)	22(84.62%)	$\chi^2=9.564$ , df=1,
Anxiety symptoms	03(25.00%)	16(15.38%)	p=.002)

There is a positive correlation between depressive symptoms and GAD of medical interns (r=0.670). Total 17 had both depressive symptoms and GAD, 08 respondents had only depressive symptoms and only 02 had GAD. It is observed that most of the GAD intern doctors had been suffering from depressive symptoms. (Table-IV)

**Table IV**  
Correlation between Depressive symptoms and GAD scores of survey respondents. (n=38)

	Mean	Std. Deviation	N
PHQ-2	3.26	2.152	r=.670
GAD-2	2.71	2.229	P=.000

There is significant positive correlation between the intern doctors who had history of taking psychiatric consultation and MDD or GAD, were 06 (100.00%) had MDD and GAD 05 (83.33%), shown in Table V.

**Table V**

*Distribution of Depressive symptoms and GAD among taking psychiatrics consultation and not taking psychiatrics consultation. (n=38)*

	Previous history of psychiatrics consultation		
	Yes (n=06)	No (n=32)	
Depressive symptoms	06(100.00%)	19(59.38%)	$\chi^2=9.471$ , df=1, p=.006
Anxiety symptoms	05(83.33%)	14(43.75%)	

**Discussion:**

The COVID-19 has confronted many HPs with unexpected, life-threatening experiences for which they had not been trained. Although they are used to witnessing trauma and to regularly dealing with loss, the high morbidity and mortality rates of this pandemic, the shortage in personal protective equipment, the fear of they or their family members becoming infected, the absence of an effective treatment/vaccine on the immediate horizon and the new restrictive public health policies activated in most countries, have changed their normal scenario.

Therefore, during the pandemic, the majority of them have experienced unpleasant emotions, including fear, hyperarousal, intrusive memories and insomnia, as well as some related to sadness or emotional exhaustion. The more they were exposed to unexpected life-threatening situations or uncertainty, the more mental distress they were likely to experience. However, most HPs have chosen to take care of patients with COVID-19 infections despite the risk to themselves and their families.<sup>9</sup>

There were 38 intern doctors in our survey, 57.89% were the age of 25 year with over twice as many females than males taking part. 68.42% were unmarried.

In the current study it was observed that the estimated likely prevalence of GAD (50.00%) and MDD (65.79%) in this cohort was significantly greater than the general population (05.70 and 04.60% respectively)<sup>10,11</sup> which cannot be ignored regardless of the cause.

The prevalence of GAD and MDD was higher among intern doctors who participate in this study compared to Iranian medical students 38% and 27.6% respectively.<sup>5</sup>

Presently most studies report a high prevalence of anxiety (ranging from 30% to 70%) and depressive symptoms (20–40%).<sup>9</sup>

Every time sleep disturbance was found 06.60% among the interns during this COVID-19 pandemic era<sup>12</sup>, also found poor sleep quality in medical staffs 2.63±0.98

(M±SD)(t=31.76 & p= <.001) and worrying about family infection 4.64 ± 0.64 (M±SD)(t= 45.13 & P= <.001). In the current study it was observed that 24.09% respondents every time worry about family contamination through them.

This study showed that MDD and GAD is significantly more in female than male (84.62% vs 25.00% and 15.38% vs 25.00% respectively)(p=.002). In a study it is also identified that females scored significantly higher for symptoms of generalized anxiety disorder and major depressive disorder as compared to males.<sup>13</sup> A systematic review by Remes *et al* found that in the general population, females were almost two times more likely to be affected by GAD than men and this was consistent across different countries and co-existing health conditions.<sup>14</sup>

**Limitation:**

This study was conducted on small cohort single center medical interns and assessed anxiety and depression after 5 months of the first case in Bangladesh. PHQ-2 and GAD-2 is only a screening tool, so exact prevalence and long-term psychological consequences of COVID-19 on medical interns could not be assessed. The confounding factors were also not assessed.

**Conclusion:**

This study, in the first of its kind, shows a significant incidence in symptoms of GAD and depressive symptoms in medical interns during the COVID-19 pandemic. Action should be promptly taken, and awareness raised, to help prevent adverse mental health outcomes of our medical interns during this challenging circumstances COVID-19 pandemic. A study can be done with large cohort intern doctors of multicenter. To find out the exact figure of depressive symptoms and GAD positive individuals can be assessed with PHQ-9 and GAD-7 with long term follow up. It is better to find out confounding variables to resolve the problem.

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