

ORIGINAL ARTICLE

A study to Assess Anxiety, Stress and Depression among MBBS interns working in Covid care Isolation facility of a tertiary level Hospital: An Observational study

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Abstract

Introduction: The Emergence of new Delta strain of Corona virus has created havoc with all health care systems across the globe, there has been tremendous pressure due to shortage of health care workers forcing government to involve MBBS interns to overcome the shortage of health staff in Covid care. **Aims & Objectives:** To assess magnitude of anxiety, stress and depression among MBBS interns working in Covid Isolation facility of Government Medical College, Patiala. **Material and methods:** The Google form was created and the link to the online questionnaire was circulated through whatsapp group to the MBBS Interns working in Covid isolation facility during June to July 2021. The form included two instruments the Perceived Stress Scale-4 (PSS-4) and the Patient Health Questionnaire for Depression and Anxiety-4 (PHQ-4). **Results:** A total of 144 interns participated in the survey. Patient Health Questionnaires and Perceived Stress Scale-4 (PSS-4) scores of interns were 56% and 49% respectively. Anxiety and depression symptoms requiring further evaluation were seen in 19% of the Interns. Univariate analysis of PHQ-4 and PSS-4 shows statistically significant association with past history of psychiatric ailment. **Conclusion:** Careful monitoring of psychological and mental wellbeing of interns during the pandemic will go a long way in mitigating the worsening psychological wellbeing of budding doctors and interns.

Keywords

Interns; Anxiety; Depression

Introduction

As the 2nd wave of the pandemic emerges in march 2021 and the case load of Covid cases sharply rises, the health care system of India comes under tremendous pressure to the point of break down due to severe shortage of not only drugs and consumables but also scarcity of health care workers in the Covid care Isolation facilities, forcing the Government of India to make the MBBS final year students and interns to bridge this gap of acute shortage of staff. The psychological Impact of Novel Corona Virus among HCWs have been studied in across the globe. A study done in Manipal Academy of health sciences in

India, in Karnataka have shown that there was high-level stress of 3.7%, while the prevalence rates of HCPs with depressive symptoms requiring treatment and anxiety symptoms requiring further evaluation were 11.4% and 17.7% respectively(1), while a study done in china showed mild to moderate depression in 11.4%, anxiety in 22.6% and moderate to severe fear in 43-26% of the HCWs.(2). Most of the studies have been done on HCWs and ancillary staff, but there was still paucity of data regarding psychological impact of Covid duties on the budding doctors and interns. So the current study was done, so that at the earliest counseling can be provided to those interns which come positive in screening.

Aims & Objectives

- 1) To assess magnitude of anxiety, stress and depression among MBBS Interns working in Covid Isolation facility of Government Medical College, Patiala
- 2) To determine any correlation between PHQ-4 & PSS-4

Material & Methods

Study type: Descriptive observational cross-sectional study

Study population: 250 interns who were doing the duties on rotation basis in Covid isolation ward of Government Medical College Patiala.

Study area: Government Medical college and Rajindra Hospital Covid isolation facility

Study Duration: The study was conducted during the month of 1st June to 31st July 2021

Sample size: Considering an estimated prevalence of Depression to be 11.4%, and anxiety 17.7% and High stress level to be 3.7.(1)

Absolute precision of 5% at 95% Confidence interval.

Using formula: Sample size $n = \frac{DEFF * Np(1-p)}{[(d^2/Z^2_{1-\alpha/2} * (N-1) + p * (1-p))]$

Population size(for finite population correction factor or fpc)(N): 400

Hypothesized % frequency of outcome factor in the population (p): 17.7%+/-5

Confidence limits as % of 100(absolute +/- %)(d): 5%

Design effect (for cluster surveys-DEFF):

Sample size comes out to be 144, considering 10%, non-response rate

It comes out to be 144.

Inclusion criteria: Only Interns who were working in covid Isolation facility and who voluntary participated in the study.

Strategy for collection: There were 250 interns who were doing the duties on rotation basis in Covid isolation ward, from the sampling frame of 250 students, by simple random sampling technique using lottery method, 144 students were randomly selected and were send the Google form on their whatsapp. Maximum of three reminders were sent to the Interns to fill the form. All interns submitted the duly filled forms. The study was conducted during the month of 1th June to 31th July 2021. The questionnaire consists of three sections namely baseline information, PHQ- 4 (Physical Health questionnaire) (for generalized anxiety disorder and depression) and PSS-4 (Perceived Stress Scale) for stress. PHQ-4 is a 4-item inventory rated on a four point Likert scale. A score of 3 or greater on the anxiety subscale (Questions 1 and 2) and depression subscale (Questions 3 and 4) has been identified as a cut-off to identify the potential presence of anxiety and depression, respectively. The severity is categorized as normal (0-2), mild (3-5). Moderate (6-8) and severe (9-12) based on the overall PHQ-4 scores. PSS-4 score ranges from 0-16 (low

to high), with higher scores equating to higher stress. In current study, the severity of stress level was categorized as normal (0-7), mild (8-10), moderate (11-12), and severe (13-16) based on the PSS-4 scores.

The advantage of the PHQ-4 over the PHQ-9 and GAD-7 is that it is an ultra-brief screener of both anxiety and depression. The target health force was fighting pandemic, so in a limited time and resource setting, this tool was used to assess the Psychological status. The strongest association was between the PHQ-4 and mental health (0.80), followed by social functioning and general health perceptions. (0.52 and 0.48, respectively). The correlations between the SF-20 and the PHQ-4 were as good as, or better than the PHQ-2 and GAD-2 (3)

Ethical Approval: The ethical approval was duly taken from Institute ethical committee and review board before initiating the study.

Consent: Google form was used and consent approval was incorporated in the beginning of the form and all information was kept anonymous and names were not incorporated in google form.

Results

There were total 144 interns who participated in the study, among them females constituting 62.5% (90) and males constitute 37.5% with mean age of 22.5 and 24 years respectively. 21% of the interns were staying in their home and majority of them (60%) were staying in the hostel and just 18% were residing in paying guest. Majority of them have not reported any psychiatric ailments with just 11% reported psychiatric ailment. 16% have got Covid-SARS infection during their duty in Covid Isolation ward

[Table 1](#) showed Physical Health Questionnaire score of interns. Physical Health Questionnaires score was normal in 44% of the interns and remaining 56% have abnormal PHQ-4 score. Among those with abnormal PHQ-4 score, 40% have mild, 13% have moderate and 3.5% have severe abnormality in PHQ-4 score. The univariate analysis of PHQ-4 score has not shown statistically significant results except those who have past history of psychiatric ailment. Overall only 51% of the interns have normal perceived stress scale (PSS-4) and remaining 49% have abnormal stress scale. Among those with abnormal PSS-4 scale, 42% have mild, 5 % moderate and 2% have severe stress. Univariate analysis of stress score for the variables showed statistically significant results for those with past history of psychiatric ailment only. [[Table-2](#)].

Individual mean scores of the PHQ-4 anxiety and depression subscales were shown in [Table 3](#), female interns showed higher anxiety with mean + (SD) of 1.88 +1.32 and depression 1.6 +1.47 in comparison to males with score of 1.48+ 1.43 and 1.53+ 1.61 respectively. Univariate analysis of other variables for anxiety and depression showed significantly higher mean scores of anxiety and depression among those who reported past

history of psychiatric ailment. Those who are staying in their homes showed higher mean anxiety and depression than those who are residing in hostel and paying guest although the results were not statistically significant. In our study those who got Covid infection during the duty showed less anxiety and depression than those who have not contracted Covid infection, although the results were not statistically significant. [Table-3].

There was strong positive correlation between PSS-4 and PHQ-4 ($r = 0.577$) and also between PSS-4 and anxiety ($r = 0.509$) and depression subscales of PHQ-4 ($r = 0.531$) [Table 4], [Figure 1]- [Figure 2] [Figure 3]

Discussion

In our study the anxiety and depression symptoms requiring further evaluation were seen in 19% of the Interns. Almost 50% of the interns are stressed out with 14.7% have moderate and 5.5% among them have severe stress levels. Study done in Karnataka India reported high stress levels in 3.7% and depression and anxiety in 11.4% and 17.7% respectively(1). Lesser moderate stress in our study compared to study done in Karnataka which reported 78%, was probably due to the reason that our study was done in the second wave of the pandemic, whereas study done in Karnataka was done during the first wave of the pandemic, so Health work force were more prepared during the second wave of the pandemic and vaccination against Covid also decreases the stress and fear levels among the budding doctors. (4)

A study in Jamnagar during the first wave of Covid pandemic reported prevalence of anxiety, stress, and depression in 17.20%, 15.60%, and 10.80%, respectively, in medical students (5) which corroborated the findings of our study, though they reported higher depression and stress levels. Probably the study was done in first year medical students in comparison to Medical interns in our study, who have higher stress, anxiety and depression, as reported by Taneja et al.(6)

A study done in USA reported mood disorder depression/anxiety based on PHQ-4 of >4 in 42% of HCWs and stress (PSS-4 of >8) in 49% of respondents which corroborated the findings of the current study which reported mood disorder in 40% and stress among 42% of the interns using the similar PHQ-4 and PSS-4 scale. However no significant gender influence was reported in our study in contrast to the studies done in USA, Karnataka in India and Lai et al in china where a statistically significant gender influence was reported and higher stress, anxiety and depression was reported in female doctors and nurses. (7, 1, 8).

Another multinational study done in Singapore and India by Chew et al using DASS-21 and IES-R instruments reported that 5.3% screened positive for moderate to very-severe depression, 8.7% for moderate to extremely severe anxiety, and 2.2% for moderate to extremely-severe stress, where as in our study 18% screen positive

for anxiety and depression and 2% reported severe stress levels.(9) A study done in Oman reported moderate to severe anxiety in 26% of the Physicians, which is higher than reported in our study.(10)

Another study done in Chennai, Tamil Nadu in India reported that majority of the medical students have moderate depression (15.2%), moderate anxiety (17.5%), and mild stress (13.4%). which corroborates the findings of our study which reported 18% anxiety and depression requiring further screening and moderate stress levels in 15% of the interns(11). In our study there was no statistically significant difference in anxiety and depression based on demographics variables like gender, place of residence etc. and medical interns Showed similar response to Covid pandemic irrespective of demographics like gender and residence, which was further supported by the study done in Chennai, Tamil Nadu. In contrary to our findings, studies done in Brazil (12), China (13), USA (7) and Karnataka (1) in India reported significant difference in psychological health based on demographics like gender and place of residence.

In our study there was significant higher negative impact on students who have past history of mental disorders in comparison to those who have no past history of mental disorders. Similar findings where students with higher baseline anxiety and depression are more likely to have depression and anxiety during pandemic and positive associations between pre-existing mental health problems and mental health disorders in medical students were reported in other studies. (11, 14-17)

Conclusion

The anxiety, stress and depression among the Interns will have detrimental effect on the overall health, quality of life and performance of the health care system in the future as more than half have abnormal PHQ and PSS scores and almost one fifth required immediate further psychological evaluation.

Recommendation

All the doctors, particularly Interns and medical undergraduates who are doing duties in COVID isolation wards, must be provided on campus psychological evaluations, which might comprise of personalized counselling sessions and identification of mental illness at the earliest stage. It will go a long way in mitigating the worsening psychological wellbeing of these budding doctors, which can be worse than the COVID pandemic itself, if not suitably addressed and treated at the earliest.

Limitation of the study

The study was done only in one Covid isolation facility and results cannot be extrapolated to all the interns and budding doctors which might require a large multicentric study. Secondly it is internet based anonymous survey so we cannot verify the identity or veracity of the study respondents, which can be a source of bias.

Relevance of the study

Most of the studies have been done on HCWs and ancillary staff, but there was still paucity of data regarding psychological impact of Covid duties on the budding doctors and interns who are still in the learning process of the training. So the current study will assess the psychological impact among interns so that at the earliest counseling can be provided to those interns which come positive in screening

Authors Contribution

All authors contributed equally.

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Tables

TABLE 1 UNIVARIATE ANALYSIS OF PHQ-4 SCORE AMONG STUDY POPULATION PHQ-4 (SEVERITY) N=144

Variable		Normal	Mild	Moderate	Severe	Total	P-value
Gender	Female	34 (37.7%)	39 (43%)	14 (15.5%)	3 (3.3%)	90	0.27
	Male	29 (53.3%)	18 (33.3%)	5 (9.2%)	2 (3.7%)	54	
Past history of psychiatric disorder*	Yes	1 (5.8%)	6(35.2%)	9 (53%)	1 (5.8%)	17	0.0001
	No	62 (50%)	48 (38.7%)	10 (8%)	4 (3.2%)	124	
Residence	Home	12 (40%)	12 (40%)	4 (13.3%)	2 (6.6%)	30	0.96
	Hostel	41 (46.5%)	33 (37.5%)	11(12.5%)	3(3.4%)	88	
	Paying guest	10(38.4%)	12 (46%)	4 (15.3%)	0 (0%)	26	
Got Covid infection during duty	yes	13 (56.5%)	7 (30.4%)	2 (8.6%)	1 (4.3%)	23	0.55
	No	50 (41%)	50 (41.3%)	17 (14%)	4 (3.3%)	121	

* 3 students did not disclose their history of psychiatric illness

TABLE 2 UNIVARIATE ANALYSIS OF PSS-4 SCORE AMONG STUDY POPULATION

Variable		PSS-4 (Severity)				Total	P-value
		Normal	Mild	Moderate	Severe		
Gender	Female	50(55.5%)	35(38.8%)	5 (5.5%)	0 (0%)	90	0.38
	Male	24 (44.4%)	25(46.2%)	2 (9.2%)	3 (5.5%)	54	
Past history of Psychiatric disorder	Yes	3(17.6%)	10 (58.5%)	4 (23.5%)	0 (0%)	17	0.0005
	No	71(57.2%)	48(38.7%)	2 (16.1%)	3 (2.4%)	124	
Residence	Home	15(50%)	12(40%)	1(3.3%)	2 (6.6%)	30	0.61
	Hostel	48(54.5%)	36 (41%)	4 (4.5%)	0 (0%)	88	
	Paying guest	11 (42.3%)	12 (46%)	2 (7.6%)	1 (3.8%)	26	
Got covid infection during duty	yes	10 (43.4%)	11(48%)	2 (8.6%)	0	23	0.7
	No	64 (52.8%)	49(40.4%)	5 (4.1%)	3 (2.5%)	121	

TABLE 3 UNIVARIATE ANALYSIS OF ANXIETY AND DEPRESSION AMONG STUDY PARTICIPANTS

		PHQ-4 (Anxiety and Depression)			
	Variable	Anxiety (PHQ Q 1-2)	P- value	Depression (PHQ Q3-4)	P-value
		Mean ± SD		Mean ± SD	
Gender	Female	1.88 +1.32	0.09	1.6 +1.47	0.78
	Male	1.48+ 1.43		1.53+ 1.61	
Past history of Psychiatric disorder	Yes	2.82 +1.424	0.00046	2.82 +1.467	0.00022
	No	1.58 +1.325		1.387 +1.463	
Residence	Home	2.033 + 1.35	0.252	1.766 +1.735	0.478
	Hostel	1.727 + 1.467		1.45 +1.469	
	Paying guest	1.42 +1.026		1.769 + 1.450	
Got Covid infection during duty	yes	1.30 +1.49	0.13	1.39 +1.75	0.524

TABLE 4 CORRELATION BETWEEN TOTAL PSS AND PHQ SCORE IN THE STUDY POPULATION

Variable	PSS Total (Perceived stress scale)	
PHQ Scale	R	P-Value
PHQ total	0.577	HS
Anxiety sub scale	0.509	HS
Depression subscale	0.531	HS

Figures

FIGURE 1 CORRELATION BETWEEN PSS-4 (STRESS) WITH PHO-4 SCALE

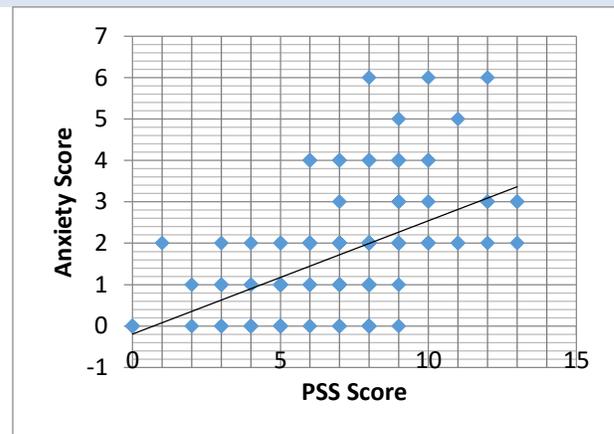
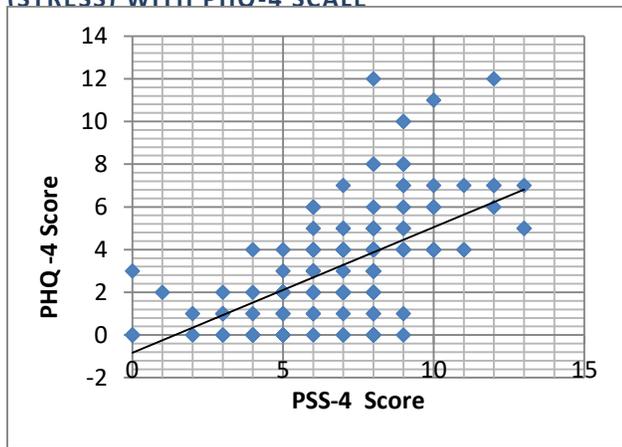


FIGURE 2 CORRELATION BETWEEN PSS-4 (STRESS) WITH DEPRESSION SUBSCALE

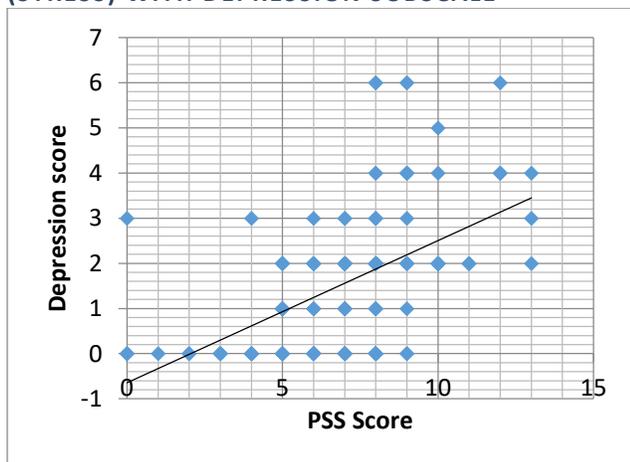


FIGURE 3 CORRELATION BETWEEN PSS-4 (STRESS) WITH ANXIETY SUBSCALE