Original Research Article

PREVALENCE OF ANXIETY DISORDER AMONG MBBS UNDER GRADUATE STUDENTS DURING COVID-19 PANDEMIC, TAMILNADU

ABSTRACT

Anxiety disorder is one of the most common psychiatric co-morbidity found to be prevalent in many pandemic situations or while experiencing a delimiting illness to self or community . This study aimed at screening undergraduate students pursuing MBBS for anxiety disorder. It was focused on early diagnosis, intervention and creating awareness among themselves and their community. The study was done among 272 undergarduate medical students from Tamil nadu during the period when COVID- 19 infection was prevalent in the community. They were requested to fill a proforma and questionnaire and were screened with Hamilton Anxiety scale. Study reported 80.9% mild, 11.8% moderate and 5.1 % severe levels of anxiety in study population.

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Aim:

To study the prevalence of anxiety among MBBS under graduates during COVID pandemic in Tamilnadu.

Study design:cross sectional online screening and assessment study.

Place and Duration of Study:

The study was done online from Meenakshi Medical college and Research Institute, Enathur, Kanchipuram, Tamilnadu, from December 2020 to January 2021.

Methodology:

The study included 272 MBBS undergraduate students of Tamilnadu (180 female and 92 male participants; age range 18-24 years All the participants were asked to fill an online proforma questionnaire following an online consent form and were screened and assessed for anxiety disorder using Hamilton Anxiety scale. Students who had severe COVID-19 infection or non consenting individuals were excluded from the study.

Results:80% of the study population belong to age group between 19-21 years of age. This study had more female(66.2%) participants when compared to male(33.8%) . Majority of the study population belong to Hindu religion (89%) followed by Christians(5.9%) and Muslims(5.1%) . Majority of the study population belong to upper socio-economic status (76.5%) . Most of the study population were not infected by COVID-19 disease 76.8%) followed by 14.7% with past history of COVID -19 infection and 8.5% were actively infected during the study period. Most of the study population reported on anxious mood (85.3%) with various severities ranging from mild (32.7%),moderate(34.9%), severe(13.6%), very severe(4%) while only 14.7% had no anxious mood. 67.6% of the study population reported of anxious mood from mild to moderate in severity. 84.2% of study population reported on tension with various severities ranging from mild(30.5%), moderate(31.3%), severe(16.2%), very severe(6.3%), whereas 15.8% reported on absence of tension.62.1% of the study population reported of having fearfulness with varying severities mild(27.2%), moderate (25%), severe(6.6%) and very severe(3.3%) while 37.9% did not report of fear. Majority of the study population reported of insomnia (63.6%) with varying severities of mild(26.5%), moderate(16.9%), severe(13.2%) and very severe(7%) while 36.4% did not report of insomnia.71% of the study population reported of impaired attention and concentration. 71% of the study population reported of depressed mood , mild(29.8%) , moderate(19.1%), severe (16.2%)and very severe(5.9%) while 29% had no mood symptoms. Hamilton – Anxiety scale revealed that 80.9% had mild, 11.8% moderate, 2.2% severe and 5.1% had very severe anxiety levels.

Conclusion: Majority of the study population had anxiety symptom severity ranging from mild to very severe. Pandemic situation had led to an increase in the incidence of anxiety disorder even among

medical students. Early screening and management of symptoms might lead to better prognosis.

*Keywords: anxiety disorder * COVID-19* pandemic* anxiety and medical students* MBBS students and anxiety* anxiety among medical students during pandemic**

1. INTRODUCTION

Anxiety disorders were found to be one of the most common problems faced by students worldwide even before COVID-19 pandemic. Despite the fact that medical students are the ones who are exposed to vast knowledge about diseases and mental illness, prevalence of anxiety disorder was found to be prevalent as one in three medical students according to a few studies.[1,2,4.] COVID-19 pandemic had undoubtedly increased the prevalence of anxiety disorder worldwide. Precautious or disease spread controlling measures like wearing a mask, gloves, social distancing, washing hands and isolation were a few behaviors which had been associated with worsening of anxiety symptoms. The surge is seen even among medical professionals and medical students.[1,4.] This study was focused on finding the prevalence of anxiety disorders among MMBS undergraduate students from Tamilnadu, India. An early detection or diagnosis of anxiety disorder facilitates early intervention and management which leads to better outcome.

2. MATERIAL AND METHODS / EXPERIMENTAL DETAILS / METHODOLOGY

The present study is a cross sectional study conducted from Meenakshi Medical college and Research Institute, Enathur, Kanchipuram, Tamilnadu between the period December 2020 to January 2021. This was an online questionnaire and interview based study. The study population was determined to be 272 in number. Participants were MBBS undergraduate students studying in Medical colleges from Tamilnadu.

HAMILTON ANXIETY SCALE :

Gold standard scale for assessment of anxiety was developed in 1950s and originally published in 1959 with adequate internal reliability. We have used the 14 item version of Hamilton Anxiety scale for assessment which approximately took 15 minutes per participants through online interview

PROFORMA

We have used a semi structured socio-demographic questionnaire comprising of socio-demographic data, COVID -19 infection status, treatment status, substance use and dependence pattern, co-morbid medical condition, presenting complaints, past along with Hamilton anxiety scale scores and impression. 10 minutes was the approximate duration taken to complete the questionnaire.

INCLUSION CRITERIA:

Participants were MBBS undergraduate students from Tamilnadu who were between 18 to 24 years of age. Participants who gave consent to participate in the study after signing an online informed consent were included

EXCLUSION CRITERIA

Participants who did not consent to participate in the study were excluded. Participants who were seriously ill due to physical illness were excluded.

PROCEDURE

Participants who satisfied the inclusion criteria and the ones who consented to participate in the study were asked to fill an online informed consent form. Participants were asked to fill a semi structured proforma and were assessed through online using Hamilton- Anxiety scale for about not less than 20 minutes each to complete all the above procedures. The entire interview included the participants filling consent form, semi-structured proforma along with online interview with the resource person (authors) and Hamilton-Anxiety scale assessment.

STATISTICAL ANALYSIS:

Data entry was done using MS Excel 2010 and statistical analysis was done using SPSS Version 22. Means and proportions were calculated, describing the baseline characteristics. Chi square test was used to compare statistical difference in proportion with the above details. Ap value of <0.05 was considered statistically significant.

ETHICAL CONSIDERATIONS

Institute ethical committee approval and clearance was obtained before the study was started. Online Informed consent was obtained from all the participants in their own language. The study did not involve any third party funding or sponsorship. The study did not reveal any personal information about the precipitating factors/stress of the participants. The personal information of the participants was kept confidential.

3. RESULTS AND DISCUSSION

RESULTS

AGE

The participants of the study were between the ages 18 to 24 years of age . 80% of study population belong to age group between 19-21 years of age.

Table 1 : Distribution according to age of the participants.

AGE IN YEARS	NUMBER OF PARTICIPANTS	PERCENTAGE
18	14	5.1
19	61	22.4
20	98	36.0
21	71	26.1
22	22	8.1
23	4	1.5
24	2	0.7
TOTAL	272	100

GENDER:

Majority of the study population were females(66.2%) while the male participants were 33.8%.

Table 2: Distribution according to gender of the participants.

GENDER	NUMBER OF PARTICIPANTS	PERCENTAGE
FEMALE	180	66.2
MALE	92	33.8
TOTAL	272	100

RELIGION AND SOCIO-ECONOMIC STATUS

Majority of the study population belong to Hindu religion (89%) followed by Christians(5.9%) and Muslims(5.1%) . Majority of the study population belong to upper socio-economic status (76.5%)

Table showing distribution of population based on religion.

RELIGION	NUMER OF PARTICIPANTS	PERCENTAGE
HINDU	242	89
CHRISTIAN	16	5.9
MUSLIM	14	5.1
TOTAL	272	100

COVID INFECTION STATUS

Most of the study population were not infected by COVID-19 infection (76.8%) followed by 14.7% with past history of COVID -19 infection and 8.5% were actively infected during the study period.

ANXIOUS MOOD

Most of the study population reported on anxious mood (85.3%) with various severities ranging from mild (32.7%),moderate(34.9%), severe(13.6%), very severe(4%) while only 14.7% had no anxious mood. 67.6% of the study population reported of anxious mood from mild to moderate in severity.

TENSION AND FEARFULLNESS

84.2% of study population reported on tension with various severities ranging from mild(30.5%), moderate(31.3%), severe(16.2%), very severe(6.3%), whereas 15.8% reported on absence of tension.62.1% of the study population reported of having fearfulness with varying severities mild(27.2%), moderate (25%), severe(6.6%) and very severe(3.3%) while 37.9% did not report of fear.

INSOMNIA

Majority of the study population reported of insomnia (63.6%) with varying severities of mild(26.5%), moderate(16.9%), severe(13.2%) and very severe(7%) while 36.4% did not report of insomnia.

ATTENTION AND CONCENTRATION

71% of the study population reported of impaired attention and concentration.

DEPRESSED MOOD

71% of the study population reported of depressed mood , mild(29.8%) , moderate(19.1%), severe (16.2%)and very severe(5.9%) while 29% had no mood symptoms.

SOMATO-MUSCULAR AND SOMATO-SENSORY SYMPTOMS

Majority of the study population did not report of somato-muscular symptoms (64.7%)andsomato-sensory (71.7%) while 35.3% and 28.3% reported of somato-muscular and somato-sensory symptoms respectively.

RESPIRATORY AND CARDIO-VASCULAR SYMPTOMS

79.4% and 80.1% did not report while 20.4% and 19.9% of study population reported of respiratory symptoms and cardio-vascular symptoms respectively.

GASTRO-INTESTINAL AND GENITO-URINARY SYMPTOMS

69.9% and 84.6% did not report while 31.6% and 15.4% reported of Gastro-intestinal and genito-urinary symptoms respectively.

AUTONOMIC SYMPTOMS

68.4% were asymptomatic while 31.6% reported of autonomic symptoms like mouth flushing,pallor etc.

ANXIOUS BEHAVIOUR

46% of the study population exhibited anxious behavior characterized by fidgeting, restlessness, tremors during interview while 54% were asymptomatic.

Table showing severity of various anxiety symptoms discussed above:

SYMPTOMS	MILD	MODERATE	SEVERE	VERY SEVERE	ABSENCE OF SYMPTOMS
ANXIOUS MOOD	32.7%	34.9%	13.6%	4%	14.7%
TENSION AND FEARFULLNESS	30.5%	31.3%	16.2%	6.3%	15.8%
INSOMNIA	26.5%	16.9%	13.2%	7%	36.4%
ATTENTION AND CONCENTRATION	33.8%	23.9%	9.9%	3.3%	29%
DEPRESSED MOOD	29.8%	19.1%	16.2%	5.9%	29%
SOMATO-MUSCULAR SYMPTOMS	22.1%	8.5%	3.7%	1.1%	64.7%
SOMATO-SENSORY SYMPTOMS	17.3%	8.1%	1.8%	1.1%	71.1%
RESPIRATORY SYMPTOMS	11.8%	6.6%	1.5%	0.7%	79.4%
CARDIO-VASCULAR SYMPTOMS	10.7%	4.8%	4.4.%	-	80.1%
GASTRO-INTESTINAL SYMPTOMS	16.9%	9.9%	3.3.%	-	69.9%
GENITO-URINARY SYMPTOMS	9.2%	4.4%	1.5%	0.4%	84.6%
AUTONOMIC SYMPTOMS	21.7%	5.9%	4.0%	-	68.4%
ANXIOUS BEHAVIOUR	28.3%	11.0%	4.4.%	2.2%	54%
HAMILTON ANXIETY SCALE SCORE	80.9%	11.8%	2.2%	5.1%	

HAMILTON – ANXIETY SCALE

Hamilton – Anxiety scale revealed that 80.9% had mild, 11.8% moderate, 2.2% severe and 5.1% had very severe anxiety levels.

ANXIETY LEVES CORELATION
GENDER

Table 3: Distribution based on gender

		TOTAL anxiety levels				Total
		0 to 17 Mild Anxiety	18 to 24 Mild to Moderate anxiety	25 to 30 Moderate to severe anxiety	31 to 34 very severe anxiety	
GENDER	MALE	84	7	1	0	92
	FEMALE	136	25	5	14	180
Total		220	32	6	14	272

A. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 2.03, which was statistically significant.

Table 4: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.853[a]	3	.008
Likelihood Ratio	16.479	3	.001
Linear-by-Linear Association	11.603	1	.001
N of Valid Cases	272		

RELIGION

Table 5: Distribution according to religion

Religion	0 to 17 Mild Anxiety	18 to 24 Mild to Moderate anxiety	25 to 30 Moderate to severe anxiety	31 to 34 very severe anxiety	Total
Hindu	196	28	6	12	242
Christian	14	1	0	1	16
Muslim	10	3	0	1	14
Total	220	32	6	14	272

Table 6: Chi-Square Tests

Value		df	
Pearson Chi-Square	2.681a		6
Likelihood Ratio	3.196		6
N of Valid Cases			272

a. 6 cells (50.0%) have expected count less than 5. The minimum expected count .31

The above value was statistically significant.

SOCIO-ECONOMIC STATUS

below mentioned parameters were statistically significant.

Table 7: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.178[a]	3	.042
Likelihood Ratio	11.003	3	.012
Linear-by-Linear Association	.642	1	.423
N of Valid Cases	272		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.41.

Based on socio-economic status anxiety levels were found to be statistically significant among participants belonging to upper class.

Table 8:Distribution based on socio-economic status:

		TOTAL anxiety levels				Total
		0 to 17 Mild Anxiety	18 to 24 Mild to Moderate anxiety	25 to 30 Moderate to severe anxiety	31 to 34 very severe anxiety	
SOCIO ECONMIC STATUS	UPPER CLASS	170	20	4	14	208
	LOWER CLASS	50	12	2	0	64
Total		220	32	6	14	272

COVID STATUS AND ANXIETY LEVELS

Table 9: Distribution of COVID status

VALID	FREQUENCY	PERCENT	VALID PERCENT	CUMULATIVE PERCENT
AT PAST	40	14.7	14.7	14.7
CURRENTLY	23	8.5	8.5	23.2
NEVER INFECTED	209	76.8	76.8	100
TOTAL	272	100	100	

The above table denotes that majority of the study population were not affected by COVID infection(76.8%) while (23.2%) were infected with COVID either during the study period or in the past.

Table 10: Distribution If COVID positive, treated or not treated :

If positive	Frequency	Percent	Valid percent	Cumulative percent
Treated	51	18.8	18.8	18.8
Not treated	221	81.3	81.3	100
total	272	100	100	

The above table indicated that 18.8% of study population was treated for COVID infection.

Table 11: Distribution based on total anxiety levels and COVID status:

Anxiety levels	At past	Currently	Never infected	Total
0-17	32	20	168	220
18-24	5	1	26	32
25-30	2	0	6	6
31-34	1	2	14	14
Total	40	23	209	272

Table 12: chi square test

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.407a	6	.622
Likelihood Ratio	4.912	6	.555
Linear-by-Linear Association	.030	1	.863
N of valid cases	272		

7 cells (58.3%) have expected count less than 5. The minimum expected count is .51.
The above results were statistically significant. Majority of the study population had anxiety score of mild symptoms, followed by moderate, very severe and severe.

Table13: Distribution based on anxiety levels , if COVID positive:

	Treated	Not treated	total
0-17	39	181	220
18-24	7	25	32
25-30	1	5	6
31-34	4	10	14
Total	51	221	272

Table 14: chi square test

	Value	df	Asymp.sing. (2-sided)
Pearson chi square	1.260a	3	.739
Likelihood ratio	1.161	3	.762
Linear –by-linear Association	1.004	1	.316
N of valid cases	272		

cells (37.5%) have expected count less than 5. The minimum expected count is 1.13.The above results was statistically significant. There was no significant difference in anxiety levels based on the difference receiving treatment or not if participants were COVID infected.

DISCUSSION

The COVID-19 era has showed in a new norm of uncertainty, social isolation, and fearfulness. For medical students, these have exacerbated their concerns of exposure and separation from their community while the students have their academics move to an all online format .Curricular factors, such as unstructured or online learning, might promote distress and burnout among medical students, and could be contributing to anxiety.

We aimed to estimate prevalence of anxiety among medical students during the COVID-19 pandemic on anxious mood mild(80.9% %),moderate(11.8%), severe(2.2%), very severe(5.1%).A previous systematic review of anxiety among medical students outside of North America to range between 7.7 % -65.5 % by Hope et al [(7).] Similarly, a systematic review of anxiety among medical students in North America described a high prevalence rate as compared to age-matched general population [(8)] .It is not a surprise that medical students experience a much higher prevalence of anxiety compared to the general population. Anxiety can be precipitated in situations such as when self-set goals by these ambitious medical students were not met. Factors like academic workload, sleep deprivation, financial burden, exposure to death of patients and student abuse have also been postulated to be possible reasons for medical students high rate of anxiety[(9).] Lin et al. found a gradual decrease in the proportion of moderate-to-severe anxiety by grades [(10)] .Likewise which is also similar in this study which shows decrease in severity from moderate (34.9%) and severe (13.6%) but in this study students also reported of anxiety symptoms irrespective of their COVID status.

Gender (females),religion, upper socio economic status, mild severity of anxiety symptoms and not infected by COVID 19 each demonstrated a significant difference in prevalence rate.These findings are imperative to consider when assessing medical student mental health in the COVID-19 era. Most importantly, this study identified a high prevalence rate (30.6% and 24.3%) of medical students who should be further evaluated for Generalized Anxiety Disorder

.These meaningful rises in GAD along with the challenges of seeking care during the pandemic is a worrisome combination.

The survey was sent out in a way to reach the highest number of medical students possible in the state . As a result data may be less generalizable and may influence the results of the study. Over all this study identified an increase in prevalence of generalized anxiety disorder suggesting that medical students may be especially susceptible to the emotional impact of the COVID-19 pandemic and also increases awareness about the mental health during COVID-19.

4. CONCLUSION

The above study indicated that despite of exposure to medical knowledge, there has been a significant rise and prevalence of anxiety disorder even among MBBS students. The entire study population had anxiety at some level irrespective of COVID-19 status or treatment. Periodic screening among medical students for anxiety disorders may lead to better management of anxiety disorder. An early screening of medical professionals and students would lead to early intervention and management of anxiety disorders.

5. RECOMMENDATION

The study had found that a significant number of students presented with anxiety symptoms irrespective of their medical background. A periodic screening for medical students, awareness campaigns, introducing student support group or student mental health counselors , student mental health helpline, mentoring programme for mental health issues of students would result in early identification or diagnosis of ant psychiatric morbidity, anxiety disorders in this case may lead to appropriate pharmaco-therapeutic or psycho-therapeutic intervention at the appropriate time. We recommend regular screening of medical students for mental health related problems.

CONSENT (WHEREEVER APPLICABLE)

All authors declare that ‘written informed online consent was obtained from the participants for publication of this case report and accompanying images. A copy of the online written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journa.

ETHICAL APPROVAL (WHEREEVER APPLICABLE)

All authors hereby declare that all assessments/ evaluation proforma have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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