

Original Research Article

Prevalence of stress, anxiety, depression and its associated factors among undergraduate medical students of Thrissur district during COVID-19 pandemic: a cross-sectional study

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ABSTRACT

Background: The COVID-19 pandemic and lockdown has aggravated mental health problems among the student community. But due to pandemic restrictions the medical students lack the clinical exposure and interaction with patients and were forced to learn through online platform, which affected their procurement of clinical and communication skills. This led to lot of stress among medical students, which needs to be evaluated and managed. Objectives were to study the prevalence of stress, anxiety, depression and its associated factors among undergraduate medical students of Thrissur district during COVID-19 pandemic.

Methods: A cross-sectional study was undertaken among undergraduate medical students from July 2021 to Jan 2022. Total 205 undergraduate medical students from all batches were included in the study and data was collected with the help of Google forms and a self-administered DASS 21 questionnaire was used as a tool for assessing the prevalence of depression, anxiety and stress among medical students.

Results: Out of 205 undergraduate medical students, 106 (51.7%) were suffering from anxiety, 70 (34.1%) were suffering from stress and 119 (58%) were suffering from depression. Around 112 (54.6%) of students faced difficulty in paying academic fees and 127 (62%) of students had difficulty due to cut shorting of clinical postings. The female students had higher prevalence of stress and anxiety compared with males which was statistically significant ($p=0.04$, 0.01 respectively).

Conclusions: The presence of depression, anxiety and stress was prevalent among medical students. It has to be addressed with mentorship programmes, counselling and by ensuring leisure activities in the campus.

Keywords: Anxiety, Depression, Kerala, Medical undergraduate, Stress

INTRODUCTION

Mental health is state of wellbeing in which an individual realizes his or her own abilities, can cope with the normal stress of life, can work productively and is able to make a contribution to his or her community. COVID-19 pandemic had a large impact on mental health of an individual. It has been observed that globally, COVID-19 pandemic triggered 25% increase in prevalence of depression and anxiety.¹ Undergraduate medical education comprises strenuous study and training for 5-6

years. The curricular objectives are dynamic due to expanding knowledge and evolving therapies. During this period, medical students should acquire adequate professional knowledge, skill, and attitudes in order to prepare themselves to deal with lifelong professional challenges independently. However, demands of the learning and training might adversely affect the student's physical and mental health. Medical education can impose significant psychological stress on the undergraduates.

The strategies like implementation of nationwide lock down, social distancing and restriction of public gathering had impacted general mental health. Since the implementation of lock down was sudden, there was a sudden break in routine academic activities. Most of the theory classes were converted into online platform, where students are made to sit at home with no direct face to face interaction with faculty. In a developing country like India, students often face network problems as their residence were at remote areas with poor network connectivity. The medical education comprises of clinical postings with bedside examination and acquisition of clinical and communication skills, which were lacking in online platforms. They also had to appear for online assessments regularly during this period. Many could not bring their books from their hostels due to the sudden lockdown. Hence, they had to solely depend on the online study materials provided to them by the faculties. They were facing social isolation and uncertainty regarding semester and final exams. All these factors were increasing their mental burden. The global pandemic had already created a fear of catching infection among them and their loved one. The economic crisis faced by the family members during the time of lock down also caused another contributing factor to this stress. There have been studies that indicate the relationship between intolerance of uncertainty.² Due to the social distancing norms most students are confined to their homes and have very less social interaction. Loss of social connections and friendships over time coupled with dissatisfaction in social and psychological support are associated with depression in adolescence and emerging adulthood.³

The previous studies from India had shown that prevalence of depression, anxiety and stress among medical students were 17.2%, 15.8% and 10.8% respectively.⁴ Another study from Tamil Nadu had shown a higher prevalence of anxiety -75.5% and depression 74.6% among medical students during COVID-19.⁵ A similar study was conducted in the state of Kerala, with prevalence of depression, anxiety and stress as 55.1%, 33.2% and 29.4% respectively, with higher prevalence among private medical college students.⁶ The most of the previous studies had assessed the prevalence of depression, anxiety and stress among medical students, but the factors contributing to these mental status were not covered. Hence the present study was undertaken with an objective to assess the prevalence of stress, anxiety, depression and its associated factors among undergraduate medical students of Thrissur district Kerala during COVID-19 pandemic

Objectives

Objectives were to assess the prevalence of stress, anxiety and depression among undergraduate medical students of Thrissur district Kerala during COVID-19 pandemic, to enumerate the factors associated with stress, anxiety and depression among undergraduate medical students of Thrissur district Kerala during COVID-19 pandemic and

to determine the association between the prevalence of stress, anxiety, depression and its associated factors among undergraduate medical students of Thrissur district Kerala during COVID-19 pandemic.

METHODS

A cross-sectional study was undertaken among undergraduate medical students from a private medical college in Kerala during July 2021 to Jan 2022. The sample size was calculated using the formula $4PQ/d^2$ taking p as proportion of medical students suffering from anxiety as 33.2% from similar study done in Kerala.⁶ The calculated sample size was 201. All undergraduate medical students from 2017 to 2020 batches who were willing to participate in the study were included. The data was collected using self-administered questionnaire by Google forms. The depression, stress and anxiety were assessed using DASS 21 questionnaire. The questionnaire also included the other factors contributing to depression, anxiety and stress like demographic characteristics, economic crisis, difficulties faced by students while attending online platform etc. The DASS 21 questionnaire is validated self-administered tool used for assessing the Depression, Anxiety, stress of medical students in past one week. Each sub scale consists of 7 questions. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest, anhedonia, inertia. Anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety and subjective experience of anxious effect.

Stress scale is sensitive to level of chronic nonspecific arousal, it assesses difficulty in relaxing, nervous arousal, and being easily upset, irritable, over-reactive and impatient. Scores for depression, anxiety, and stress are calculated by summing the score for relevant items. Scores on the DASS-21 multiplied by 2 to calculate the final score. Final score of DASS 21 questionnaire is classified as mild, moderate, severe and extremely severe depression, anxiety and stress accordingly.

The collected data was coded and entered into MS excel and appropriate statistical methods like percentage, proportion, chi square was used for analysis. Epi software was used for analysis. The institutional ethical clearance was obtained before the start of the study and consent was obtained from the participants.

RESULTS

There were 205 undergraduate medical students. The more than half 57 (27.8%) of them belongs to second and 56(27.3%) sixth semester. The majority 151 (73.7%) of medical students were females. The age distribution of medical students ranges from 19 to 26 with a mean age, out of 205 undergraduate medical students, 119 (58%), 106 (51.7%) and 70 (34.1%) were suffering from the depression, anxiety as well as stress respectively (Figure 1).

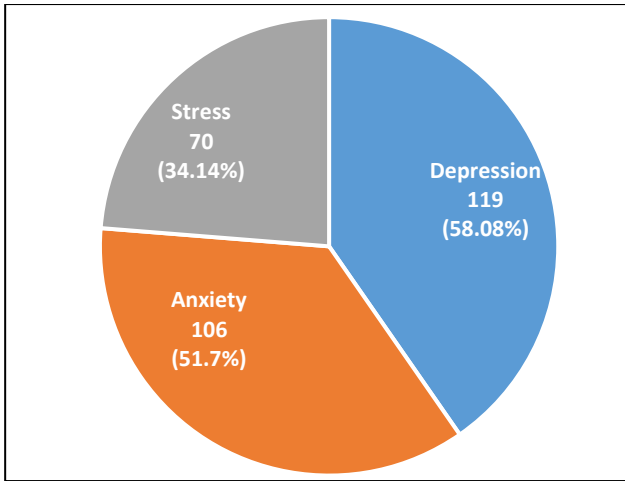


Figure 1: Prevalence of depression, anxiety and stress among undergraduate medical students.

Among medical students, 24 (11.7%) of them were suffering from extremely severe depression and 46 (22.4%) were suffering from moderate depression. Out of total students, 21 (10.2%) of them had extremely severe anxiety and 44 (21.5%) of them reported that they had moderate anxiety. When stress was analysed it was found that only 5 (2.4%) were suffering from extremely severe stress and 20 (9.8%) had moderate stress. The grading of depression, anxiety and stress was given in the Table 1.

Table 1: Categorization of depression, anxiety and stress among undergraduate medical students (n=205).

Parameters	N	Percentage (%)
Depression category		
No depression	86	42
Mild depression	25	12.20
Moderate depression	46	22.40
Severe depression	24	11.70
Extremely severe depression	24	11.70
Anxiety category		
No anxiety	99	48.30
Mild anxiety	18	8.80
Moderate anxiety	44	21.50
Severe anxiety	23	11.20
Extremely severe anxiety	21	10.20
Stress category		
No stress	135	65.90
Mild stress	31	15.10
Moderate stress	20	9.80
Severe stress	14	6.80
Extremely severe stress	5	2.40

Out of 205 undergraduate medical students, majority 185 (90.2%) were staying at their own house along with their parents during lockdown, but 11 (5.4%) of them were staying along with relatives and 9 (4.4%) of them were

staying along with grandparents. More than half 112 (54.6%) of them had difficulty in paying semester fees and 127 (62%) of them were anxious about cut shorting their clinical posting during COVID-19 lock down. These contributing factors for depression, anxiety and stress were given in Table 2.

Table 2: Contributing factors for depression, anxiety and stress among undergraduate medical students, (n=205).

Parameters	Classification	N	Percent (%)
Stay during lockdown	House with parents	185	90.20
	Grandparents' house	9	4.40
	Relatives house	11	5.40
Difficulty in paying college fees during lockdown	Yes	112	54.60
	No	93	45.40
Anxious over cut shorting of clinical posting	Yes	127	62
	No	78	38
Anxiety over conduction of online exam	Yes	75	36.60
	No	130	63.40

The present study showed that the female gender had more anxiety than males. The percentage of females suffering from mild, moderate, severe and extremely severe anxiety were 41.7%,10.6%,13.6% and 3.7% respectively while in males it was 3.7%,18.5%,3.7% and 7.4% respectively. This difference was statistically significant p=0.01 (Table 3).

The female gender also showed more stress than their male counterparts during COVID 19 pandemic. The percentage of females with severe, and moderate stress were 7.9%, 11.3% respectively, while in males it was 3.7% and 5.6%. This difference was statistically significant p=0.04.

Out of total 112 medical students who had difficulty in paying semester fees, more than half 67 (59.8%) of them were having anxiety, 68 (60.7%) of students had depression and 43 (38.4%) of them had stress. There was a statistically significant association between anxiety and paying semester fees p=0.01 (Table 5).

Out of total 127 students who had difficulty due to cut shorting clinical posting, more than half 73 (57.4%) of them had anxiety and out of those students who had no difficulty due to cut shorting clinical posting only 33 (42.3%) of them were anxious. This difference was statistically significant p=0.03 (Table 6).

Table 3 Association between gender and Anxiety categorization.

Gender	Anxiety categorization					Total, n (%)	Statistical significance
	No anxiety	Mild	Moderate	Severe	Extremely severe		
Male	36 (66.7)	2 (3.7)	10 (18.5)	2 (3.7)	4 (7.4)	54 (100)	Chi-square=11.84, p=0.01
Female	63 (41.7)	16 (10.6)	34 (22.5)	21 (13.6)	17 (11.3)	151 (100)	
Total	99	18	44	23	21	205	

Table 4: Association between gender and stress categorization.

Gender	Stress Categorization					Total, n (%)	Statistical significance
	No stress	Mild	Moderate	Severe	Extremely severe		
Male	44 (81.5)	3 (5.6)	3 (5.6)	2 (3.7)	2 (3.7)	54 (100)	Chi-square=10.01, p=0.04
Female	91 (60.3)	28 (18.5)	17 (11.3)	12 (7.9)	3 (2)	151 (100)	
Total	135	31	20	14	5	205	

Table 5: Association between difficulty in paying semester fees and anxiety, depression and stress among undergraduate medical students.

Variables	Anxiety, n (%)		Statistical significance
	Present, n=106	Absent, n=99	
Difficulty in paying semester fees			
Yes, n=112	67 (59.8)	45 (40.2)	Chi-square=6.509, p=0.01
No, n=93	39 (41.9)	54 (58.1)	
Depression			
	Present, (n=119)	Absent, (n=86)	Chi-square=0.72, p=0.39
Yes	68 (60.7)	44 (39.3)	
No	51 (54.8)	42 (45.2)	
Stress			
	Present, (n=70)	Absent, (n=135)	Chi-square=1.97, p=0.159
Yes	43 (38.4)	66 (61.6)	
No	27 (33)	66 (77)	

Table 6: Association between difficulty in cut shorting clinical posting and anxiety, depression and stress among undergraduate medical students.

Variables	Anxiety, n (%)		Statistical significance
	Present, n=106	Absent, n=99	
Difficulty in cut shorting clinical posting			
Yes, n=127	73 (57.4)	54 (42.5)	Chi-square=4.45, p=0.03
No, n=78	33 (42.3)	45 (57.7)	
Depression			
	Present, n=119	Absent, n=86	Chi-square=2.36, p=0.123
Yes	79 (62.2)	48 (37.8)	
No	40 (51.2)	38 (48.7)	
Stress			
	Present, n=70	Absent, n=135	Chi-square=1.21, p=0.27
Yes	47 (37)	80 (63)	
No	23 (29.5)	55 (70.5)	

DISCUSSION

The prevalence rate of depressive and anxiety symptom are in line with the findings from similar studies assessing prevalence and predictors of stress, anxiety and depression among health care workers managing COVID-19 pandemic in India: A nationwide observation study which is 3.7% for stress, 11.4% for depression, 17.7% for anxiety.⁷ However a group of our participants still have moderate to severe anxiety (33.7%) and depression (34.1%) which is clinically relevant. A closer look into

the baseline prevalence of stress, depression and anxiety among medical undergraduate students of Kashmir revealed a same pattern depression (25%), anxiety (12%), stress (9.35%) the present study showed higher overall prevalence depression (58%), anxiety (51.7%), stress (34.1%).⁸ This may be due to the impact of COVID-19 pandemic. An analysis of risk factors for stress, depression and anxiety symptoms from another study revealed that female gender was a significant predictor. Women were at approximately 2 times higher odds to develop these conditions. This finding is in agreement

with the findings reported by the study-a systemic review of depression, anxiety and stress among medical students in India.⁹ The present study also showed a higher prevalence of anxiety and stress is higher for female students. Another study done among youngsters studying in higher education in India showed that 65.96% of students were facing financial problems and 68.51% of students reported that they were not learning properly through online platform.¹⁰ Our study also showed about 54.6% of medical students had difficulty in paying semester fees. Another study from Bangladesh showed that one of the factors for stress among medical students was symptoms of COVID-19 among their family members.¹¹ Another study from Maharashtra among medical students showed that 69% of students preferred online method of teaching.¹² These are few factors addressed in previous studies related with anxiety, depression and stress among medical student.

CONCLUSION

The prevalence of anxiety, depression and stress among undergraduate medical students were 41.7%, and 58% respectively. There was a statistically significant association between gender and anxiety. The significant contributing factors associated with anxiety among medical students were difficulty in paying semester fees and difficulty in cut shorting clinical posting. Students counselling services need to be made available in medical college. Cultural activities like arts, sports should be conducted. Conduct mentorship programme for relieving anxiety among medical student.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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