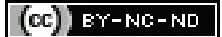# Prevalence of Depression, Anxiety, and Stress among Medical Students before their Final Examinations at a Private Medical College of Tamil Nadu, India: A Cross-sectional Study

GAUTAM BABU[1], DHANASEKAR GURUPATHAM[2], RAJSRI THUTHIKADU RAJASEKARAN[3]

ABSTRACT

Introduction: Due to their susceptibility to mental health problems, medical students should have their prevalence of stress, anxiety, and depression checked before their final examinations.

Aim: To assess the prevalence of stress, anxiety, and depression among medical students at a private medical college in Tamil Nadu, India, four weeks before their final examinations.

Materials and Methods: A cross-sectional study was conducted at a private medical college, Tamil Nadu, India, including 297 Bachelor of Medicine and Bachelor of Surgery (MBBS) students, using Depression, Anxiety, and Stress Scale-21 (DASS-21) questionnaire in December 2022 The survey was completed independently by the students with verbal agreement obtained; the response rate was 68.2%. The short form and history of usage of the DASS-21 in comparable medical student research led to its selection.

Results: The mean age of the study participants was 20.48±1.23 years. The DASS-21 revealed prevalence rates of 60.9% for depression, 72.7% for anxiety, and 40.4% for stress among 297 first- to third-year medical students. There was no discernible effect of gender on these rates. With a depression frequency of 69% and significantly higher rates of severe depression (18.6%), first-year students demonstrated the highest scores, which were statistically significant (p<0.05).

Conclusion: The study highlights the need for preventative actions, such as professional counselling, early detection of mental health problems, and educational programs on healthy coping mechanisms. To support medical students from the start of their academic journey and ultimately promote their resilience and mental health, these interventions should be specially designed.

Keywords: Anxiety, and stress scale-21, Depression, Professional counselling, Screening campaigns

INTRODUCTION

Elevated stress levels in medical education are closely associated with the competitive nature of the sector, which has a substantial negative influence on students' mental and physical health [1,2]. Globally, medical students are gravely concerned about the prevalence of depression, which is marked by a wide range of symptoms from low mood to severe manifestations like self-harm and suicide ideation [3]. Similarly, the mental health landscape of medical students is further complicated by the sensation of anxiety, which is frequently accompanied by chronic worry and bodily signs [4]. Furthermore, stress-a complicated phenomenon that causes both physiological and psychological reactions-contributes greatly to the entire load that these students must bear [5]. The World Health Organisation (WHO) has recognised mental health as a crucial aspect of total well-being and has drawn attention to the growing concerns over the global decline in mental health among medical professionals and students [6].

Interestingly, studies have shown that medical students are more likely than their counterparts in other academic fields to have signs of anxiety and depression, which emphasises how critical it is to treat mental health concerns in this particular population [7]. Previous studies, such as a 2016 meta-analysis by Putrhan et al., have shown that up to 28% of medical student's worldwide experience depression, demonstrating the widespread nature of mental health issues in this population [7]. The severity of the situation is further compounded by the association that has been shown between depression and a higher probability of suicidal

ideation. This correlation is especially strong in the medical profession, where suicide rates are higher than in the general population [8]. Furthermore, several studies have shown that anxiety and depression are alarmingly common, with rates among medical students as high as 51% [9,10].

Although numerous research projects have employed diverse instruments to evaluate the mental health condition of medical students worldwide, there is still a discernible deficiency in studies that particularly focus on the time frame leading up to final university examinations. Everyone agrees that this is a stressful time for medical students, and knowing how common sadness, anxiety, and stress are during this period may help create treatments for mental health issues that work [11-13].

In particular, populations dealing with mental health issues, such as medical students, have found the Depression, Anxiety, and Stress Scale-21 (DASS-21) to be a reliable and popular tool in assessing psychological well-being [11]. Its briefness and proven validity make it the best option for encapsulating the various emotional nuances that people encounter, such the intricate relationship between stress, anxiety, and depression that is common among medical students [11]. This tool has been used in a variety of international situations, such as Nepal, Vietnam, and India, demonstrating its adaptability to various educational and cultural contexts [1,2,11].

The DASS-21 is a thorough tool that offers useful insights into the prevalence of depression, anxiety, and stress which are the three major factors that have an impact on medical students' well-being, given the complex nature of mental health issues [11]. The

utilisation of this tool in this research allows for a more sophisticated comprehension of the psychological obstacles that students encounter, particularly prior to their final university examinations. This is a crucial period marked by elevated stress levels and heightened susceptibility to mental health problems [11]. Notwithstanding its efficacy, it is crucial to recognise the constraints of the DASS-21, particularly its dependence on self-reporting, which might not comprehensively encompass the intricacy and gravity of mental health disorders [11].

The present research attempts to offer a thorough examination of medical students' mental health by utilising the DASS-21. By doing so, it hopes to shed light on how common depression, anxiety, and stress are in this susceptible group of people. Consequently, this lays the groundwork for creating customised therapies and support systems that can successfully tackle the mental health issues encountered by medical students, thereby improving their general welfare and educational experience. The principal objective of the research is to evaluate the prevalence of depression, anxiety, and stress among medical students enrolled in a private medical college, using the Depression, Anxiety, and Stress Scale-21 (DASS-21), within the designated timeframe prior to their final university examinations.

MATERIALS AND METHODS

A cross-sectional study was conducted on all first- and third-year medical students at a private medical college in Tamil Nadu, India. The dates of data collecting were December 27, 2022, and December 28, 2022, which happened to fall within four weeks before the upcoming final university examinations. The study was approved by Institutional Ethics Committee (IEC No.-AMC/IEC/Proc. No. 15/2021). Students from each batch were asked to assemble in classrooms and after giving them instructions their responses were obtained by convenience sampling. Out of a total student population of 450, authors obtained responses from 297 students which was a response rate of 68.2%.

Inclusion and Exclusion criteria: The study participants, who were over the age of 18 years, were selected from the first second, and third-year MBBS batches and the final year students were excluded from the study.

Sample size calculation: With a population percentage of 50%, a margin of error of 6%, and a confidence interval of 95%, the estimated sample size for the study came to be 267.

Study Procedure

Students were self-administered the Depression, Anxiety, and Stress Scale-21 (DASS-21) questionnaire after verbal, informed consent was acquired. By using the DASS-21 questionnaire, the researchers were able to obtain comprehensive information about the mental health state of the cohort of medical students, giving them a more nuanced knowledge of the prevalence and severity of stress, anxiety, and depression within the particular setting of the study.

DASS-21 questionnaire and scoring criteria:

- **Selection of DASS-21:** Because of its shortness and proven methods, the Depression, Anxiety, and Stress Scale-21 (DASS-21) was selected to accurately gauge the medical students' levels of stress, anxiety, and depression.
- **Scoring structure:** There are 21 items in the DASS-21, including seven items for each of the three subscales-stress, anxiety, and depression. Each item on the scale had to be rated by the participants on a range of 0 to 3, representing the intensity of their encounters with each subscale.
- **Scoring system:** The total of each subscale's scores was multiplied to determine the final results. The following categories applied to the scoring ranges:

- **Normal:** Depression, anxiety, or stress scores that fall within a given range and represent a typical level.
- **Mild:** Scores that fall within a specific score range and indicate a minor degree of stress, anxiety, or depression.
- **Moderate:** Scores that fall within a certain range and represent a moderate amount of stress, anxiety, or depression.
- **Severe:** Within a predetermined range, scores signifying a severe amount of stress, anxiety, or sadness.
- **Very severe:** Scores that, within a certain range, indicate an exceptionally severe level of stress, anxiety, or despair.

STATISTICAL ANALYSIS

Version 21.0 of IBM Statistical Package for the Social Sciences (SPSS) was used to analyse data. The data were summarised using descriptive statistics including means, standard deviations, and frequencies. Each participant's DASS-21 scores were examined, allowing for an insight of the prevalence of stress, anxiety, and depression in the study population. To identify significant differences between the variables, inferential statistics were used, such as chi-square and t-tests. The main goals of the study were to determine the prevalence of mental health issues, look into the effects of different demographic characteristics, and find any meaningful relationships between the variables. The data analytic approach made it possible to conduct a thorough assessment of the participants' mental health, providing insights on the frequency and intensity of stress, anxiety, and depression among the cohort of medical students.

RESULTS

The overall characteristics of the study participants are presented in [Table/Fig-1]. It shows that 196 (66.0%) were females and 101 (34.0%) of the 297 participants overall were males. The participants' average age was 20.48±1.23 years. With 113 (38.0%) participation, the bulk of the participants were from the 2021-22 batch. Furthermore, 66 (22.2%) of the participants lived at home, whereas 231 (77.8%) stayed in hostels. [Table/Fig-2] shows how depression is associated with gender. It displays the breakdown of depression ratings between participants who were male and female. With 116 (39.1%) participants, the table shows that the majority of participants fell into the "Normal" depression grade category, with a corresponding p-value 0.179 and the Chi-square value of 6.390.

Variables	Category	Frequency	Percentage (%)
Sex	Male	101	34.0
	Female	196	66.0
Age (in years)	Mean±SD	20.48±1.23	
Batch (Year of joining)	2019-20	84	28.3
	2020-21	100	33.7
	2021-22	113	38.0
Residence	Home	66	22.2
	Hostel	231	77.8

[Table/Fig-1]: General characteristics of study participants.

Depression grade	Gender		Total	Chi-square, p-value
	Male	Female		
Normal (0-9)	37 (36.6%)	79 (40.3%)	116 (39.1%)	
Mild (10-13)	21 (20.8%)	26 (13.3%)	47 (15.8%)	
Moderate (14-20)	18 (17.8%)	54 (27.6%)	72 (24.2%)	6.390, 0.179
Severe (21-27)	10 (9.9%)	16 (8.2%)	26 (8.8%)	
Very severe (28+)	15 (14.9%)	21 (10.7%)	36 (12.1%)	
Total	101 (100%)	196 (100%)	297 (100%)	

[Table/Fig-2]: Association of depression between gender.
Values presented as n (%)

The relationship between gender and anxiety has been shown in [Table/Fig-3]. The distribution of anxiety ratings for both male and female individuals is shown. It was evident that, 81 participants (27.3%), the largest percentage of participants fell into the "Normal" anxiety grade category. With a corresponding p-value of 0.604, the Chi-square value was 2.730. [Table/Fig-4] illustrates the correlation between gender and stress. It shows how the stress levels of the male and female participants were distributed. With a total of 177 participants (59.6%), the majority of participants fell under the "Normal" stress grade group. With a corresponding p-value of 0.507, the Chi-square value was 3.309.

| Anxiety grade | Sex | | Total | Chi-square, p-value |
	Male	Female		
Normal (0-7)	28 (27.7%)	53 (27.0%)	81 (27.3%)	
Mild (8-9)	11 (10.9%)	17 (8.7%)	28 (9.4%)	
Moderate (10-14)	29 (28.7%)	46 (23.5%)	75 (25.3%)	2.730, 0.604
Severe (15-19)	12 (11.9%)	35 (17.9%)	47 (15.8%)	
Very severe (20+)	21 (20.8%)	45 (23.0%)	66 (22.2%)	
Total	101 (100%)	196 (100%)	297 (100%)	

[Table/Fig-3]: Association of Anxiety between gender.
*Statistically significant if p<0.0; Values presented as n (%)

| Stress grade | Sex | | Total | Chi-square, p-value |
	Male	Female		
Normal (0-9)	59 (58.4%)	118 (60.2%)	177 (59.6%)	
Mild (15-18)	14 (13.9%)	21 (10.7%)	35 (11.8%)	
Moderate (19-25)	17 (16.8%)	41 (20.9%)	58 (19.5%)	3.309, 0.507
Severe (26-33)	11 (10.9%)	14 (7.1%)	25 (8.4%)	
Very severe (34+)	0 (0.0%)	2 (1.0%)	2 (0.7%)	
Total	101 (100%)	196 (100%)	297 (100%)	

[Table/Fig-4]: Association of stress between gender.
*Statistically significant if p<0.05; Values presented as n (%)

The association between batches and depression is displayed in [Table/Fig-5]. It displays the range of depression ratings among individuals from various batches. The table indicates that individuals from the 2019-20 batch had the highest prevalence of depression. With a corresponding p-value of 0.019, the Chi-square value was 18.267. The relationship of anxiety between batches is seen in [Table/Fig-6]. It displays the range of anxiety ratings among individuals from various batches. The table presents the individuals from the 2019-20 batch as having the highest prevalence of anxiety. With a corresponding p-value of 0.194, the Chi-square value was 11.141. The association between batches and stress is displayed in [Table/Fig-7]. It shows how participants from various batches are distributed in terms of stress grades. The table presents the individuals from the 2020-21 batch as having the highest prevalence of stress. With a corresponding p-value of 0.074, the Chi-square value was 14.301.

| Depression grade | Batch (Year of joining) | | | Total | Chi-square, p-value |
	2019-20	2020-21	2021-22		
Normal (0-9)	31 (36.9%)	50 (50.0%)	35 (31.0%)	116 (39.1%)	
Mild (10-13)	15 (17.9%)	19 (19.0%)	13 (11.5%)	47 (15.8%)	
Moderate (14-20)	23 (27.4%)	16 (16.0%)	33 (29.2%)	72 (24.2%)	18.267, 0.019
Severe (21-27)	7 (8.3%)	8 (8.0%)	11 (9.7%)	26 (8.8%)	
Very severe (28+)	8 (9.5%)	7 (7.0%)	21 (18.6%)	36 (12.1%)	
Total	84 (100%)	100 (100%)	113 (100%)	297 (100%)	

[Table/Fig-5]: Association of depression between batches.
*Statistically significant if p<0.05; Values presented as n (%)

| Anxiety grade | Batch (Year of joining) | | | Total | Chi-square, p-value |
	2019-20	2020-21	2021-22		
Normal (0-7)	21 (25.0%)	33 (33.0%)	27 (23.9%)	81 (27.3%)	
Mild (8-9)	12 (14.3%)	10 (10.0%)	6 (5.3%)	28 (9.4%)	
Moderate (10-14)	21 (25.0%)	23 (23.0%)	31 (27.4%)	75 (25.3%)	11.141, 0.194
Severe (15-19)	10 (11.9%)	12 (12.0%)	25 (22.1%)	47 (15.8%)	
Vary severe (20+)	20 (23.8%)	22 (22.0%)	24 (21.2%)	66 (22.2%)	
Total	84 (100%)	100 (100%)	113 (100%)	297 (100%)	

[Table/Fig-6]: Association of anxiety between batches.
*Statistically significant if p<0.05; Values presented as n (%)

| Stress grade | Batch (Year of joining) | | | Total | Chi-square, p-value |
	2019-20	2020-21	2021-22		
Normal (0-9)	46 (54.8%)	71 (71.0%)	60 (53.1%)	177 (59.6%)	
Mild (15-18)	12 (14.3%)	9 (9.0%)	14 (12.4%)	35 (11.8%)	
Moderate (19-25)	21 (25.0%)	11 (11.0%)	26 (23.0%)	58 (19.5%)	14.301, 0.074
Severe (26-33)	5 (6.0%)	9 (9.0%)	11 (9.7%)	25 (8.4%)	
Very severe (34+)	0 (0.0%)	0 (0.0%)	2 (1.8%)	2 (0.7%)	
Total	84 (100%)	100 (100%)	113 (100%)	297 (100%)	

[Table/Fig-7]: Association of stress between batches.
*Statistically significant if p<0.05; Values presented as n (%)

DISCUSSION

According to numerous reports, the prevalence of anxiety and depression in developing nations ranges from 10% to 44% [6,7]. Given that depression is the second most common cause of morbidity, it is imperative that depression be properly diagnosed [12]. Because of the rigorous nature of their curriculum and the pressures they receive from society, medical students are especially vulnerable to high levels of stress [11].

According to the results of the current study, medical students had significantly higher rates of stress, anxiety, and depression (60.9%, 72.7%, and 40.4%, respectively) prior to their university examinations. These percentages were significantly higher than those found in two earlier studies conducted in Kashmir by Naqshbandi I et al., in 2019 [13] and in Delhi by Taneja N et al., in 2018 [11], which revealed rates of 32%, 40.1%, and 43.8%. Research undertaken in Brazil and Nepal has revealed that medical students have differing rates of depression (ranging from 29.9% to 34.6%), anxiety (from 37.2% to 41.1%), and stress (from 27% to 47.1%) [14,15]. Remarkably, the study produced surprising findings: in contrast to the expected rise before examinations, the rate of stress was relatively lower than the rates of anxiety and depression [12,16]. Contrary to studies conducted certain studies that were conducted previously, have reported significantly higher rates of depression, anxiety, and stress among female medical students, it is interesting that the current study did not find a significant difference in these conditions between male and female students [15-20].

Validated assessment instruments, including the Depression, Anxiety and Stress Scale (DASS-21) questionnaire, are frequently utilised in psychological research to classify depression and its severity levels [6]. Based on the results of the questionnaire, this scale has set cut-off values for various degrees of depression, from mild to severe and extremely severe [7]. The DASS-21 total score, with multiple score ranges corresponding to varying degrees of depression, is the basis for the criteria used to identify the severity of depression in the study [12]. These standards are derived from the particular scale that is employed as well as the relevant research that has

verified the scale's cut-off points for various degrees of depression severity [7].

The results of this investigation showed a statistically significant incidence of depression among first-year MBBS students, which is consistent with earlier findings from research carried out in Nepal by Adhikari et al., (2017) [1] that also showed a high prevalence of mental health issues among trainee doctors. Additionally, the study's findings supported those of Azad N et al., (2017) [6], who found that anxiety and sadness were significantly more common among medical students attending a private medical college.

In contrast, Pham T et al.,'s (2019) [2] study conducted in Vietnam investigated the prevalence of depression among medical students, highlighting the need of looking into related risk factors. Furthermore, the results of this study support the conclusions made by Sobowale K et al., (2014) [8], who showed that medical students in China experience depression and suicidal thoughts and argued in need of wellness curricula. As highlighted by Dyrbye LN et al., (2008) [9], this study has limitations, even if it provides insight into the prevalence of depression. It emphasises the importance of assessing burnout and suicidal ideation among medical students. Baldassin S et al., (2008) [21] underscored the significance of comprehending the attributes of depressive symptoms in medical education and training, underscoring the necessity of thorough evaluations to gain a deeper understanding of the mental health obstacles encountered by medical students. As suggested by Azim SR and Baig M (2019) [22], more research should look at these areas in order to give a more comprehensive picture of medical students' mental health and to make it possible to create successful intervention plans.

Limitation(s)

The present study had a few acknowledged shortcomings. First off, the study's cross-sectional design made it more difficult to prove a relationship between the students' individual experiences and the observed psychological states. Furthermore, because self-reported measures are subjective, relying solely on them-such as the DASS-21 questionnaire-may have resulted in response bias and inaccurate reporting. Furthermore, because cultural variations, instructional styles, and societal influences may differ throughout medical colleges and locations, the study's single-centre design may restrict the generalisability of the findings. A more detailed understanding of the complex interaction of variables influencing medical students' mental health was further hampered by the lack of comprehensive data on other potential contributing factors, such as socioeconomic background, personal life stressors, and coping techniques. Furthermore, the lack of longitudinal follow-up hindered the investigation of how psychological states change over time and if, they could be related to general well-being and academic achievement.

CONCLUSION(S)

Consistent with worldwide research patterns, the study emphasises the high frequency of stress, anxiety, and depression among first-year MBBS students. This emphasises how important it is to provide customised wellness programs and timely treatments, such as early screening campaigns and counselling services. It is crucial to create a support network that allows children to voice their worries in a nonjudgmental setting. Moreover, the study highlights the significance of considering potential risk factors such as burnout and suicide thoughts, recommending a comprehensive approach that takes into account a variety of personal and educational aspects. Subsequent research endeavors ought to evaluate the effects of curriculum, course distribution, and socioeconomic variables on the mental well-being of students. There is a pressing need to incorporate mental health education and support services into medical education in order to address the significant effects

that mental health issues have on both academic achievement and general well-being. This entails creating long-lasting initiatives that emphasise mental health, stress reduction, and resilience. Fostering a culture that normalises talking about mental health concerns can help create an atmosphere where students feel free to ask for assistance without worrying about being judged or facing consequences. By recognising the intricate interactions between various elements that impact medical students' mental health and taking preventative action, one can create a more positive learning environment that supports the overall growth and welfare of future healthcare providers.

REFERENCES

[1] Adhikari A, Dutta A, Sapkota S, Chapagain A, Aryal A, Pradhan A. Prevalence of poor mental health among medical students in Nepal: A cross-sectional study. BMC Med Educ. 2017;17(1):232. Doi: 10.1186/s12909-017-1083-0. PMID: 29183315; PMCID: PMC5704530.

[2] Pham T, Bui L, Nguyen A, Nguyen B, Tran P, Vu P, et al. The prevalence of depression and associated risk factors among medical students: An untold story in Vietnam. PLoS One. 2019;14(8):e0221432. Doi: 10.1371/journal.pone.0221432. PMID: 31430339; PMCID: PMC6701769.

[3] Depressive disorder- Depression: A global crisis [Internet] World Federation of Mental Health. 2012. Available from: https://www.who.int/news-room/fact-sheets/detail/depression/?gclid=Cj0KCQiAgK2qBhCHARIsAGACuzm7hTXq9iS5XnJem6E82bj-K5S0kuR5Pszz-Rltg6rSr0dpyHcUmdYaAtu3EALw_wcB.

[4] Craske MG, Rauch SL, Ursano R, Prenoveau J, Pine DS, Zinbarg RE. What is an anxiety disorder? Depress Anxiety. 2009;26(12):1066-85. Doi: 10.1002/da.20633. PMID: 19957279.

[5] Baum A. Stress, intrusive imagery, and chronic distress. Health Psychol. 1990;9(6):653-75. Doi: 10.1037//0278-6133.9.6.653. PMID: 2286178.

[6] Azad N, Shahid A, Abbas N, Shaheen A, Munir N. Anxiety and depression in medical students of a private medical college. J Ayub Med Coll Abbottabad. 2017;29(1):123-27. PMID: 28712190.

[7] Puthran R, Zhang MW, Tam WW, Ho RC. Prevalence of depression amongst medical students: A meta-analysis. Med Educ. 2016;50(4):456-68. Doi: 10.1111/medu.12962. PMID: 26995484.

[8] Sobowale K, Zhou N, Fan J, Liu N, Sherer R. Depression and suicidal ideation in medical students in China: A call for wellness curricula. Int J Med Educ. 2014;5:31-36. Doi: 10.5116/ijme.52e3.a465. PMID: 25341209; PMCID: PMC4207186.

[9] Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W, et al. Burnout and suicidal ideation among U.S. medical students. Ann Intern Med. 2008;149(5):334-41. Doi: 10.7326/0003-4819-149-5-200809020-00008. PMID: 18765703.

[10] Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: A cross-sectional study. Med Educ. 2005;39(6):594-604. Doi: 10.1111/j.1365-2929.2005.02176.x. PMID: 15910436.

[11] Taneja N, Sachdeva S, Dwivedi N. Assessment of depression, anxiety, and stress among medical students enrolled in a medical college of New Delhi, India. Indian J Soc Psychiatry. 2018;34:157-62.

[12] Saraswathi I, Saikarthik J, Senthil Kumar K, Madhan Srinivasan K, Ardhanaari M, Gunapriya R. Impact of COVID-19 outbreak on the mental health status of undergraduate medical students in a COVID-19 treating medical college: A prospective longitudinal study. Peer J. 2020;8:e10164. Doi: 10.7717/peerj.10164. PMID: 33088628; PMCID: PMC7571415.

[13] Naqshbandi I, Bashir N, Qadri SY, SM Khan S. Prevalence of stress, anxiety, and depression among medical undergraduate students of Kashmir- A cross-sectional study. International Journal of Contemporary Medical Research. 2019;6(5):E6-E8.

[14] Moutinho IL, Maddalena NC, Roland RK, Lucchetti AL, Tibiriçá SH, Ezequiel OD, et al. Depression, stress and anxiety in medical students: A cross-sectional comparison between students from different semesters. Rev Assoc Med Bras (1992). 2017;63(1):21-28. Doi: 10.1590/1806-9282.63.01.21. PMID: 28225885.

[15] Kunwar D, Risal A, Koirala S. Study of depression, anxiety and stress among the medical students in two medical colleges of Nepal. Kathmandu Univ Med J (KUMJ). 2016;14(53):22-26. PMID: 27892436.

[16] Mohd Sidik S, Rampal L, Kaneson N. Prevalence of emotional disorders among medical students in Malaysian university. Asia Pac Fam Med. 2003;2(4):213-17.

[17] Kumar B, Shah MAA, Kumari R, Kumar A, Kumar J, Tahir A. Depression, anxiety, and stress among final-year medical students. Cureus. 2019;11(3):e4257. Doi: 10.7759/cureus.4257. PMID: 31139516; PMCID: PMC6519980.

[18] Roy PP. Depression, anxiety and stress among first year undergraduate medical students. Asian J Biomed Pharm Sci. 2015;05(45):37-38. Doi: 10.15272/ajbps.v5i45.716.

[19] Jadoon NA, Yaqoob R, Raza A, Shehzad MA, Zeshan SC. Anxiety and depression among medical students: A cross-sectional study. J Pak Med Assoc. 2010;60(8):699-702. PMID: 20726214.

[20] Iqbal S, Gupta S, Venkatarao E. Stress, anxiety and depression among medical undergraduate students and their socio-demographic correlates. Indian J Med Res. 2015;141(3):354-57. Doi: 10.4103/0971-5916.156571. PMID: 25963497; PMCID: PMC4442334.

[21] Baldassin S, Alves TC, de Andrade AG, Nogueira Martins LA. The characteristics of depressive symptoms in medical students during medical education and training: A cross-sectional study. BMC Med Educ. 2008;8:60. Doi: 10.1186/1472-6920-8-60. PMID: 19077227; PMCID: PMC2621219.

[22] Azim SR, Baig M. Frequency and perceived causes of depression, anxiety and stress among medical students of a private medical institute in Karachi: A mixed method study. J Pak Med Assoc. 2019;69(6):840-845. PMID: 31189292.

PARTICULARS OF CONTRIBUTORS:
1. Assistant Professor, Department of Community Medicine, Annapoorana Medical College and Hospitals, Salem, Tamil Nadu, India.
2. Professor, Department of Community Medicine, Annapoorana Medical College and Hospitals, Salem, Tamil Nadu, India.
3. Assistant Professor, Department of Community Medicine, Faculty of Medicine, Sri Lalithambigai Medical College and Hospital, Dr. MGR Educational and Research Institute, Chennai, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Gautam Babu,
Assistant Professor, Department of Community Medicine, Annapoorana Medical College and Hospitals, Veerapandi Union Salem-Kochi Highway,
Salem-636308, Tamil Nadu, India.
E-mail: dr.gautambabu@gmail.com

AUTHOR DECLARATION:
• Financial or Other Competing Interests: None
• Was Ethics Committee Approval obtained for this study?   Yes
• Was informed consent obtained from the subjects involved in the study?   Yes
• For any images presented appropriate consent has been obtained from the subjects.   NA