

Original Research Article

PREVALENCE OF STRESS RELATED DISORDERS AMONG MBBS STUDENTS

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ABSTRACT

Background: The escalating prevalence of stress related disorders among students pursuing a MBBS degree underscores the imperative for a thorough investigation into the underlying factors contributing to the conditions like headache, ulcers, inflammatory bowel diseases, gastrointestinal disorders and various physical manifestations. Understanding the factors contributing to stress related disorders at different academic stages will enable the development of corrective measures that resonate with the specific needs of students. This study was designed to find the relationship between the stress related disorders in different academic years of MBBS students.

Materials and Methods: A questionnaire based cross sectional study was done with validated questionnaire among the first year and final year MBBS students studying in Apollo Institute of Medical Sciences and Research, Hyderabad in July 2024 to find the correlation between stress-related disorders and the academic year among MBBS students. A total of 210 students participated for the study of which there were 97 students of final year MBBS and 113 students of first year MBBS.

Results: It was found that the final year students had a higher prevalence of headaches (68.8%) and increased frequency of gastrointestinal problems (66.7%) in comparison to the first year MBBS students which was 48.7% and 33.3% respectively.

Conclusion: There is increase in stress related disorders in senior students which has impacted their academic performance and also changes in their behaviour. Early identification of the disorders and taking appropriate measures for stress management can provide a healthy learning environment.

Keywords: Stress, students, stress related disorders, performance, behavior.

INTRODUCTION

In recent years, there has been an increase in stress-related disorders, anxiety, and depression among young adults and college students worldwide.^[1-3] This has led to an increase in physical manifestations such as headache, gastrointestinal disorders, inflammatory bowel diseases, sleep disorders, and other psychosomatic symptoms, which have become a major public health concern.^[1,3] These conditions are particularly common among college students and contribute to reduced attendance, impaired academic performance, and decreased participation in extracurricular activities.^[2,3]

The MBBS curriculum is tightly packed, extensive, and academically demanding, placing considerable stress on medical trainees throughout their period of study.^[1,4] Therefore, it is essential to undertake an in-depth examination of the unique stressors experienced by students in the academic environment. Medical students represent a population exposed to distinctive pressures, including increased academic demands, frequent assessments, and the expectation of excellence in medical education.^[1,4]

In the present study, first-year MBBS (junior) and final-year MBBS (senior) students were included because the factors contributing to stress-related disorders may differ across various stages of medical training.^[1,5] Students in the later years of the MBBS

course encounter additional challenges such as increasing clinical responsibilities, preparation for postgraduate entrance examinations, career planning, job placement, and family expectations regarding future responsibilities.^[1,4,5] Understanding the factors contributing to stress-related disorders at different academic stages will facilitate the development of targeted interventions that address the specific needs of medical students throughout their educational journey. The aim of this study is to assess selected physical manifestations of stress among students in different academic years so that appropriate preventive measures can be developed to address the challenges faced at each stage of medical training.

MATERIALS AND METHODS

The study was conducted at the Apollo Institute of Medical Sciences and Research (AIMSR), Hyderabad, Telangana. The design of the study was cross-sectional design in order to investigate the correlation between stress-related disorders like stress, headaches, migraines, gastro intestinal problems and the academic year among MBBS students. The study spanned a defined period to ensure a snapshot of stress-related disorders across academic years. The study involved two groups' seniors (students of Final Year MBBS) and juniors (students of First Year MBBS).

Eligibility criteria: Inclusion criteria comprised of participants of both sexes who were enrolled in the MBBS course of AIMSR, aged between 18-25 years. Exclusion criteria were students with a history of severe mental illness or anybody receiving treatment for any stress-related disorders.

Duration of Study: Data collection took place over 2 months, balancing the need for comprehensiveness with practical constraints.

Permission from both Institutional ethical committee and Institutional research committee of Apollo Institute of Medical Sciences and Research, Hyderabad was taken to undertake a cross-sectional study on 1st year and final year MBBS students vide letter no. EC/NEW/INST/1527/2023/09/126. Prior to the study, all the participants were provided with detailed information about the study. Participation was voluntary, and participants were assured of confidentiality and privacy. Informed consent was obtained and confidentiality was maintained by the use of an anonymous questionnaire.

For our study, 210 students participated of which there were 97 seniors and 113 juniors. 22 students did not respond to the questionnaire. The lack of a control group aligns with the cross-sectional design, focusing on comparative analysis.

Sample size: Assuming 95% confidence interval (CI) with prevalence of STAI-T, anxiety score was 32.4 and precision was 7%, the required sample size was 172.^[6]

The study was a questionnaire-based study for which two separate sets of questionnaires were used. One questionnaire was the State-Trait Anxiety Inventory (STAI) which included components from established measures and is used in clinical settings for diagnosis of anxiety.^[7] Reliability was 0.734 for STAI. According to STAI the result was categorized into three levels. Low level was less than or equal to 37, medium level was between 38 to 44 and high level was above or equal to 45. This questionnaire was for assessing the stress levels. Another questionnaire was self-designed and was validated by the department of Physiology and Psychiatry of AIMSR. The reliability of the self-designed questionnaire was 0.769. The self-designed questionnaire was used to assess the symptoms. Google Docs was used as the platform for distribution of the two questionnaires to both the senior and junior MBBS students. Both the questionnaire was shared among both the group of students and were given sufficient time to go through the forms, fill it honestly without discussing anything with their peers and submit it on time.

Statistical analysis: The responses obtained from the questionnaires were subjected to statistical analysis. Descriptive statistics was employed to summarize the demographic characteristics and prevalence of stress-related disorders. Comparative analysis between academic years was done using t-Test and Chi Square test was used to study the association for qualitative variables, respectively. Risk estimates were calculated using binary logistic regression model of STAI with symptomatic disorders. Step wise multiple logistic regression model was used to predict the best set of variables among symptomatic disorders. P value was considered as <0.05. IBM SPSS version 24.0 was used for all statistical analysis.

RESULTS

Total 210 students (113 First Year MBBS and 97 of Final Year MBBS) participated in our study. The comparison between senior and junior students revealed differences in anxiety levels and symptoms. For the State-Trait Anxiety Inventory (STAI), a higher percentage of seniors exhibited an increased anxiety value of 76.5% compared to juniors of 66.0% [Table 1], but it is not significant ($p > 0.05$). Mean STAI scores were significantly higher ($p < 0.05$) in seniors (49.9) than juniors (47.1).

Table 1: Distribution (%) of STAI and mean score by academic category

Academic category	n	STAI (%) Levels			Chi Square value	p-value	Mean±SD	P value
		Low ≤37	Medium 38-44	High ≥45				
Seniors	85	8.2	15.3	76.5	3.9	0.145	49.9±9.56	0.020
Juniors	103	6.8	27.2	66			47.1±6.84	

Subjective reports of stress levels indicated that 77.4% of seniors and 69.6% of juniors reported feeling under stress. Chi-square tests were used to confirm the statistical significance of these differences: subjective stress levels ($p = 0.204$, $\chi^2 =$

1.6), headaches ($p = 0.003$, $\chi^2 = 3.6$), gastrointestinal problems ($p < 0.001$, $\chi^2 = 23.1$), and increased frequency after joining MBBS ($p = 0.001$, $\chi^2 = 25.6$). [Table 2].

Table 2: Associations of symptomatic disorders and academic category

Variables	Seniors (n=93)	Juniors (n=115)	Chi Square value	p-value
Subjective Stress	77.4%	69.6%	1.6	0.204
Experienced Headaches	68.8%	48.7%	3.6	0.003
Gastro problems	66.7%	33.3%	23.1	0.001
Increasing Frequency	48.4%	25.6%	25.6	0.001
What is your Gender? (Female)	65.6%	66.4%	0.014	0.511
Would you say being in MBBS has played a role?	61.3%	37.6%	11.6	0.001
Are you currently on medication for depression/anxiety?	7.5%	6%	0.199	0.43

Based on the symptoms, final year MBBS students reported a significant ($p < 0.01$) higher prevalence of headaches of 68.8% in comparison to first year MBBS students which was 48.7%. The frequency of gastrointestinal problems in final year students was 66.7% and in first year students it was 33.3%. A significant proportion of final year students reported an increase in the frequency of these episodes after

joining MBBS compared to first year students - 48.4% and 25.6%, respectively. Gastro intestinal problems, development of symptoms, current medication was significantly different across STAI levels. Symptomatic disorders like gastro problems, development of symptoms has 2.2 times risk with STAI and currently students using medication have 25% low risk [Table 3].

Table 3: Prevalence and risk estimates of STAI by symptomatic disorders

Variables	No	Yes	P-value	OR (95%CI)	p-value
Stress	68.8%	71.4%	0.725	1.14 (0.56-2.32)	0.725
Headache	68.4%	72.3%	0.564	1.21 (0.64-2.28)	0.564
Gastro problems	63.3%	78.9%	0.019	2.17 (1.13-4.16)	0.020
Increasing frequency	69.2%	73.5%	0.528	1.24 (0.64-2.40)	0.528
Development of symptoms	62.9%	79.1%	0.014	2.24 (1.17-4.29)	0.016
Currently on Medication for anxiety	72.5%	40%	0.028	0.25 (0.07-0.94)	0.039

Stepwise multiple logistic regression analysis revealed that development of symptoms and students currently on medication were best predictors of STAI.

DISCUSSION

In recent years stress-related disorders, spanning anxiety, depression, and various physical manifestations have shown a concerning uptick. This trend is particularly obvious among college students. The escalating prevalence of these among MBBS students specifically, underscores the need for a thorough investigation of the unique factors contributing to these conditions.

The results from this study showed significant differences in anxiety levels among seniors compared to juniors. This indicates a correlation between academic advancement and stress. Vincenza La Fauci, et al also observed a direct relationship between academic advancement and stress in university going students in comparison with the general population.^[8]

Bindu Menon and Kinnera had also found in their study, a high prevalence of headache which was 68% along with migraine of 42% in medical students. In their study, 31% of the students reported of increase in intensity and frequency of headache and 44% had severe headache. They also reported of

accompanying symptoms like dizziness, allodynia and neck stiffness.^[9]

In our study, we found that the incidence of gastrointestinal problems in final year students is 66.7%, as opposed to 33.3% in first year students. Labanski et al., showed that multiple afferent and efferent pathways are modulated by stress that connect the gut and, thereby leading to activation of the gut brain axis and leading to alterations in micro biota composition and gut barrier function, both of which are implicated in gastrointestinal disorders.^[10] In our study, we also found that the incidence of headaches in final year students is 68.8% which is higher in comparison to the first-year students which is 48.7%. Cathcart et al, in their study found that stress-induced alterations in central nervous system function contributed to the development of stress-related headaches.^[11] Souza and Rocha had done a cross-sectional study on 380 university students by using Headache impact test (HIT-6) and Hospital Anxiety and Depression Scale to find any relation between academic performance and absenteeism. From their study they found that high headache was associated with absenteeism and discipline failure.^[12] Balaban et al in their study on 250 medical students found that students with migraine were diagnosed with post-traumatic stress disorder more frequently than those without migraine. They also found out that majority of the students suffering with migraine did

not visit a neurologist or psychiatrist as a result of which there was lack of diagnosis and treatment.^[13] Several factors may contribute to these heightened levels of stress and associated symptoms in seniors. First, final year students face the peak of clinical training requirements, leading to increased pressure and workload. As students' progress through their MBBS curriculum, they encounter more complex coursework, higher stakes examinations, and greater responsibilities in patient care settings. This academic intensity and high societal expectations can increase stress, as students strive to meet the demands of their training within the stipulated period of time. Additionally, seniors may experience increased stress related to their transition into clinical practice. As they approach graduation, they have to make critical decisions about their future careers - such as residency, post graduate entrance preparation and specialty decisions.^[14,15] Chronic exposure to stressors may take a toll on the physical and mental wellbeing of students such as, sleep deprivation, emotional strain, anxiety, depression, and somatic symptoms. Seniors may experience increased stress due to the demanding nature of clinical rotations. Seniors experience heightened stress due to the clinical rotations and patient care responsibilities.

CONCLUSION

In conclusion, our study has provided insights into the prevalence of stress-related disorders among MBBS students, highlighting a significant increase in headache, gastrointestinal problems, development of symptoms and increase in frequency among seniors compared to juniors. These findings underscore the need to address the mental and physical well-being of medical students, emphasizing the need for targeted interventions and support mechanisms within the academic environment. According to the State-Trait Anxiety Inventory (STAI), a higher percentage of the final year students exhibited high anxiety levels compared to first year students. Additionally, subjective reports of stress levels indicated that final year students reported feeling under stress at a higher rate than the first-year students. The development of symptoms current medication were strong predictors of STAI.

To understand the impact of stress in education, future research should look at the interplay between stressors, academic demands, personal factors, and institutional policies. Longitudinal studies tracking the mental health trajectories of students throughout their entire academic course could offer a comprehensive understanding of stress evolution. Investigating the effectiveness of interventions, such as stress management programs or mentorship

programs, can provide evidence-based strategies for creating a healthier learning environment.

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