

Psychological Distress in Medical Undergraduates: A Cross-Sectional Study

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Abstract: ***Background:** Medical students face unique stressors related to academic rigor, social expectations, and lifestyle disruptions. These challenges contribute to elevated rates of psychological conditions, including depression, anxiety, and stress. **Aims/Objective:** To assess the prevalence and severity of depression, anxiety and stress among MBBS students of 18-25 years age group in Uttar Pradesh, India. **Material and Methods:** A cross-sectional study involving 300 M. B. B. S students of 1st year, 2nd year and 3rd year of Jaunpur Medical College, Uttar Pradesh, aged 18–25yrs was conducted using the DASS-21 questionnaire. Data were analyzed using SPSS to calculate mean, median, mode, and proportional distributions. **Results:** Among the participants, 57.3% exhibited depressive symptoms, 73% showed signs of anxiety, and 41% reported various levels of stress. Only 17.33% had normal scores across all three parameters. Mean scores were 6.51 (Depression), 6.63 (Anxiety), and 6.89 (Stress). **Conclusion:** The findings revealed a high prevalence of psychological distress among medical students, underscoring the need for institutional mental health support, preventive screening programs, and curriculum-integrated wellness initiatives.*

Keywords: DASS-21, M. B. B. S, Anxiety, Stress

1. Introduction

Urbanization, globalization, and intense competition in the medical field may contribute to increased stress and depression among medical students. Among younger age group depression is the foremost reason for serious developmental and functional consequences further leading to academic failure or persistent psychosocial problems. [1] In medical students several factors like interpersonal issues, substance abuse, academic performance are known to be associated with depression. In a Korean study it was concluded that decreased interpersonal support enhances the risk of depression more than tenfold. [2] These risk factors may differ by different geographic locations, which influences the prevalence and causes of depression. [3]

Among medical students, special mental health concerns are anxiety and depression, which leads to deranged quality of life, poor academic performance, and long-term disability. Previous researches also support that the current educational system may inadvertently affecting the mental health of medical students. The stress among medical students can negatively affect their academic performances, personal well-being, and future professional abilities. [4]

Students suffering from anxiety disorders tend to show a passive approach to studies, with poor interest, poor performances, and difficulty to cope up with academic expectations. Raised anxiety scores have been associated with unhealthy eating habits, prolonged screen time, and poor quality of sleep. Increased stress leads to poor academic performances which reflects poor outcomes. [5]

Medical students are subjected to various stressors like-examinations, as shown in a 2014 study in Morocco [6]. Beside this, a 2019 longitudinal study showed the leading stressors as specified by the students were financial issues, personal life aspects, individual's competency, as well as syllabus and surroundings [6]. The prevailing stress and anxiety due to vast medical syllabus followed by consecutive examinations, fear of being failed and competition among peers, as well as adjusting in new environments, socializing, and often financial limitations, all influence a student's quality of life [7].

With this background, the present study was conducted to assess the prevalence of depression, anxiety and stress level among medical students. In this context, identification of the magnitude of the problem helps in taking appropriate interventional measures for medical students.

2. Materials and Methods

Study design

The study was cross-sectional type of observational study which was conducted among medical students at Jaunpur, Uttar Pradesh, India.

Ethical issues

The present study was conducted in the Jaunpur Medical College and Attached Hospitals, at Uttar Pradesh, India after getting approval from the scientific and ethical committee. After explaining about purpose and procedure of the study, written informed consent was obtained from the participants, before commencement of the study.

Sample size estimation

Using a 90% confidence interval and a 5% margin of error, a minimum sample size of 260 students were analysed based on a review of a previous study (Fawzy and Hamed, 2017), in which prevalence rates was found to be 65%, 73%, and 59.9% for depression, anxiety and stress respectively, among medical students. [8] We have collected data from 300 M. B. B. S students.

Sampling procedure

The study included 300 M. B. B. S students of 1st year, 2nd year and 3rd year of Jaunpur Medical College, Uttar Pradesh, age group 18-25 years. Convenience sampling method was used. The participants were assured confidentiality and after explaining the procedure, written informed consent was obtained from each one of them.

Study tools

The Depression, Anxiety and Stress levels, were assessed by using Depression, Anxiety, Stress Scale- 21 (DASS-21). The DASS Depression emphasises on reports of low mood, motivation, and self-esteem. DASS-anxiety focuses on physiological arousal, fear and perceived panic and DASS-stress emphasises on tension and irritability. [9]

Method of data collection

The investigators collected the data by using a DASS21 questionnaire, including personal details like age, gender etc.

Data analysis

Data were transferred to Excel sheet. Data were analyzed by using Statistical Package for Social Sciences for windows (SPSS). Mentioned data were expressed in terms of percentages and proportions. Mean, median and mode were also calculated for all the 3 mental parameters.

3. Observation

Table 1: Number of students having different levels of Depression, Anxiety & Stress

Level	Depression	Anxiety	Stress
Normal	128	81	177
Mild	43	29	59
Moderate	58	84	37
Severe	33	39	25
Ext. Severe	38	67	2
Total	300	300	300

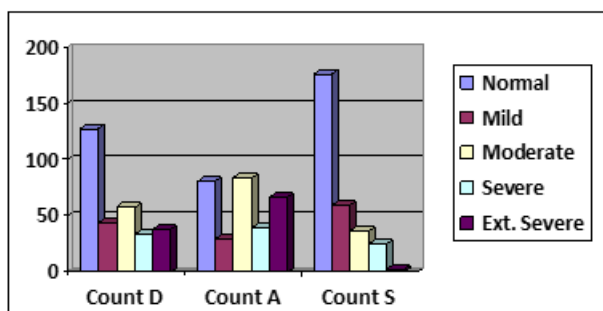


Figure 1: Severity Level Distribution

Table 2: Percentage (%) of students having various depression, anxiety & stress level

Level	Depression (%)	Anxiety (%)	Stress (%)
Normal	42.67	27	59
Mild	14.33	9.67	19.67
Moderate	19.33	28	12.33
Severe	11	13	8.33
Ext. Severe	12.67	22.33	0.67
Total	100	100	100

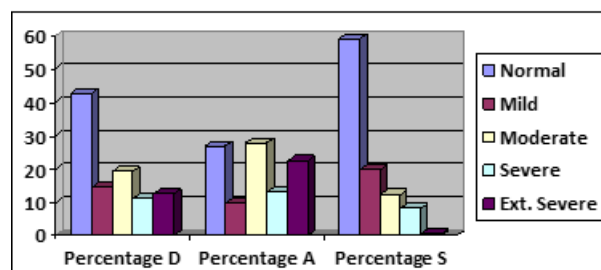


Figure 2: Percentage Score

Table 3: Mean, Median and Mode values of Depression, Anxiety & Stress levels

	Depression	Anxiety	Stress
Mean	6.513	6.633	6.893
Median	6	6	7
Mode	6	3	9

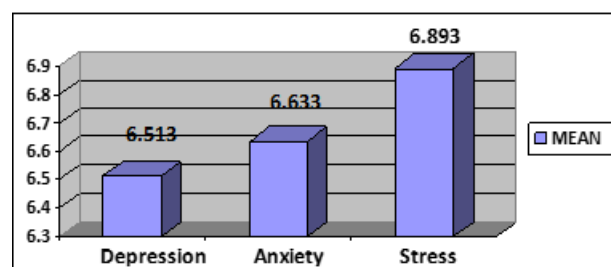


Figure 3: Mean Value of D, A, S

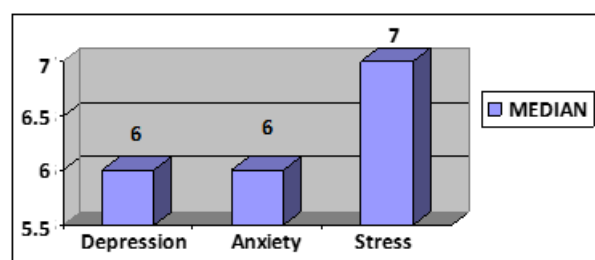


Figure 4: Median Value of D, A, S

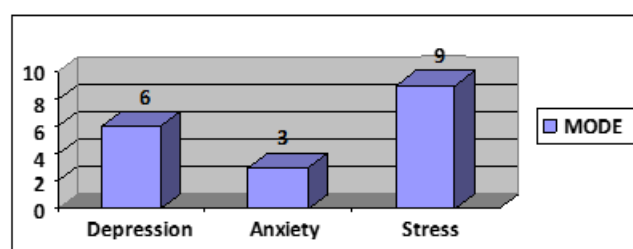


Figure 5: Mode Value of D, A, S

4. Results

A total of 300 participants were selected. All participants were in age group of 18-25 years including males and females

M. B. B. S students of 1st year, 2nd year and 3rd year of Jaunpur Medical College, Uttar Pradesh, who were informed about the study and written informed consent were taken from them. After obtaining basic data related to personal information like-age, gender, address, contact number etc., DASS-21 questionnaire was given to all the participants. Data were entered in excel sheet & analysed. Bar diagrams were also drawn based on data result. Out of 300 participants 43 participants (14.33%) had mild depression, 58 individuals (19.33%) had moderate depression, 33 students (11%) had severe level of depression while 38 individuals (12.67%) showed extreme severe level of depression. Highlighting the severity of anxiety, we encountered that among 300 subjects, 29 individuals (9.67%) had mild anxiety, 84 students (28%) had moderate anxiety, 39 students (13%) had severe level of anxiety while 67 participants (22.33%) showed extreme severe level of anxiety. While stress level analysis revealed that 59 subjects (19.67%) were having mild stress, 37 subjects (12.33%) had moderate stress, 25 individuals (8.33%) showed severe stress & 2 participants (0.67%) were having extreme severe level of stress. Among all 300 participants of this study, only 52 individuals were having normal level of all the three mental parameters i. e depression, anxiety and stress. Rest all participants were found to have some level of depression, anxiety or stress or all of them. Mean Score for depression, anxiety and stress is 6.51, 6.63 and 6.89 respectively. Median score for depression and anxiety are similar that is 6, and for stress is 7. Mode values were came out to be 6, 3 and 9 for depression, anxiety and stress respectively.

5. Discussion

In current study, the prevalence of depression, anxiety and stress among 300 MBBS students of 18-25 years of both genders were assessed by using DASS-21 questionnaire at Jaunpur, Uttar Pradesh, India. In addition to normal stressors of everyday life, medical students also face pressure related to medical education which results in high prevalence of psychological illnesses among them (Jadoon et al., 2010). [10] In 2016, there was a study conducted in Sudanese university, by using depression, anxiety, and stress scale (DASS 21) found that moderate degrees of anxiety i. e 22% and stress which was 16% among medical students [11]. In a study conducted by Inam (2007) in Saudi Arabia, among first year medical students reported the prevalence rates of depression in males were 60% and in females were 89.7% respectively [12], which was similar to our study in which 19.33% had moderate depression, 11% had severe level of depression while 12.67% individuals showed extreme severe level of depression. Similarly, anxiety score was also higher in our study in which 28% had moderate anxiety, 13% had severe level of anxiety while 22.33% participants showed extreme severe level of anxiety. The cause of stress in medical students could be from various modalities such as personal, academic, and/or economic conditions that have negative impact on student's health, personal behaviour and academic performances (Wolf, 1994) [13]. Jadoon et al. (2010) concluded that prevalence of depression and anxiety were higher among first professional MBBS students in Pakistan and reduces progressively by fourth professional [10]. In contrast to worldwide prevalence of anxiety among medical students (33.8%), it was most prevalent among Middle

Eastern and Asian students. [14]. We found in our study that most of the students had mild stress levels (19.67%), followed by mild, severe and extremely severe stress levels, which were almost similar at 12.33%, 8.33% and 0.67% respectively. As suggested in a study done in Morocco in 2014, there are exposure of various provoking stressors for medical students such as examinations, rich medical syllabus etc. [15]. Beside this, a longitudinal study in 2019 reflected that the leading stressors as mentioned by the students were financial aspects, personal life aspects, individual's capability, huge syllabus and surroundings [15]. Amita et al, conducted a study in general population by using DASS-42 scale in which assessment of depression, anxiety and stress levels were done which was found to be quiet lower, [16] as compared to the current values which is observed in MBBS students.

The mean scores for stress, anxiety, and depression among the M. B. B. S. students under study were 6.89, 6.63, and 6.51, respectively. Regarding the median of mental distress were 6, 6 and 7 suffered from depression, anxiety, and stress respectively. Regarding the mode of depression was 6, that of anxiety was 3 and for stress mode was 9. The results of the current study were in alignment with those of Abdel Wahed and Hassan (2017), which was a cross-sectional study conducted among 442 medical students in which DASS 21 was used and the finding was that depression was present in 60.8%, stress was found in 62.4% and anxiety was detected in 64.3% of the population under study. [17] Fawzy and Hamed (2017) also conducted a study among medical students in public university in Upper Egypt, in which 700 participants were included and DASS 21 questionnaire was used to measure the prevalence of depression, anxiety, and stress and they revealed that the levels of depression (65%), anxiety (73%) and stress (59.9%) were high. [8]

In the study conducted by Wolf et al [13] depressed and distressed students, reported feeling lonesome, isolation from social gatherings and less involvement with their families, and reported presence of chronic physical illness in significant level as compared to normal students ($p < 0.05$). Insomnia has been reported by both anxious and depressed students in significant level ($p < 0.001$). Among the lifestyle changes like reduced sleep, leisure and recreational activities are caused by Psychiatric (Wolf, 1994). [13] As far as hectic academic schedule is concerned, consecutive lectures' timetable and study pattern leads to less self-study hours per day were found to be significantly associated with anxiety and stress among medical students ($p < 0.05$), while, exam pattern was significantly associated with depression ($p = 0.018$), and lack of interaction with teaching staff was significantly linked with stress ($p < 0.001$). [13] According to a study conducted in Nepal, the most common reason of stress among medical students were excessive parental expectations, residing in hostel, magnitude of curriculum etc. (Sreeramareddy et al., 2007). [18] According to previous studies, most frequent unhealthy eating patterns like missing breakfast and having infrequent meals were associated with stress among medical students in Iraq (60.4% and 56.7% respectively) [19]. While, adopting a healthy eating habits were found to be associated with lower perceived stress levels. In addition to this, a cross-sectional study involving students from 7 countries found that elevated stress leads to poor eating behaviors [20]. Many

maladaptive behaviors have been identified relevant to be associated with increased stress such as infrequent physical activity, alcohol consumption, smoking, sleep disorders, and poor eating habits [21]. Altered Psychological parameters can lead to negative outcomes like reduced efficiency in work, inter-relationship issues, medical school dropout, and other health issues. Murray and Lopez, 1996, deduced that adequate attention to the psychological well being of medical students is much needed. [22] The establishment of students' counselling unit in medical schools, encouraging student well-being, providing supportive, preventive, and curative mental health services to facilitate students to deal with their new stage of life is recommended. Medical schools should promote students to spend more time on their social activities and leisure activities should be incorporated in curriculum to promote better psychological health of medical students.

6. Strengths and Limitations

The present study is conducted among medical students of Uttar Pradesh, India, to find out the level of Depression, anxiety & stress. The strength of this study is large sample size. Being a cross-sectional study limits the conclusiveness of some results that need longitudinal or qualitative studies, to find out the dependent variables.

7. Recommendations

Further research study should be focused on the consideration of different factors that may cause or contribute to depression, anxiety and stress. Measures such as close student follow-up can be beneficial. Several universities should implement academic supervision programs, like mentor-mentee meetings at regular interval, in which a member of the faculty staff closely follows a small group of students to deal with their problems. Such measures if implemented correctly can help students in various aspects comprising effective learning, efficient studying methods and can help in early detection and referral of students to proper mental health care service, if needed.

8. Conclusion

Among our study population, 57.3% individuals were diagnosed with different level of depression ranging from mild to extremely severe. 73 % of participants scored high on anxiety scale, and 41% students showed mild, moderate, severe and extreme severe level of stress. These results emphasises the need of establishment of mental health screening programs for medical students at regular intervals, early diagnosis of prone individuals, and early interventions for impaired mental health by maintaining confidentiality of individuals, to prevent further harm to the health of medical students. Stress reduction program like- Yoga and meditation should be implemented as integrated part of their curriculum. Encouraging medical students to indulge in different activities and to practise their specific hobbies are found to be related and helpful in reducing the levels of stress and embracing and enhancing their lifestyle.

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References

- [1] Mojs E, Warchol-Biedermann K, Głowacka MD, Strzelecki W, Ziemska B, Marcinkowski JT. Are students prone to depression and suicidal thoughts? Assessment of the risk of depression in university students from rural and urban areas.
- [2] Jeong Y, Kim JY, Ryu JS, eun Lee K, Ha EH, Park H. The associations between social support, health-related behaviors, socioeconomic status and depression in medical students. *Epidemiology and health*. 2010 Nov 24; 32: e2010009.
- [3] Kumar GS, Jain A, Hegde S. Prevalence of depression and its associated factors using Beck Depression Inventory among students of a medical college in Karnataka. *Indian journal of Psychiatry*. 2012 Jul 1; 54 (3): 223-6.
- [4] Al-Dubai SA, Al-Naggar RA, Alshagga MA, Rampal KG. Stress and coping strategies of students in a medical faculty in Malaysia. *The Malaysian journal of medical sciences: MJMS*. 2011 Jul; 18 (3): 57.
- [5] Ibrahim D, Ahmed RM, Mohammad AZ, Ibrahim B, Mohammed T, Mohamed ME, Abdelgadir T, Mohammed B, Ibrahim M, Shaaban KM. Prevalence and correlates of generalized anxiety disorder and perceived stress among Sudanese medical students. *BMC psychiatry*. 2024 Jan 23; 24 (1): 68.
- [6] Loubir DB, Serhier Z, Diouny S, Battas O, Agoub M, Othmani MB. Prevalence of stress in Casablanca medical students: a cross-sectional study. *Pan African Medical Journal*. 2014 Oct 15; 19 (1).
- [7] Vaez M, Laflamme L. Health behaviors, self-rated health, and quality of life: a study among first-year Swedish university students. *J Am Coll Health*. 2003; 51 (4): 156–162.
- [8] Fawzy M, Hamed SA. Prevalence of psychological stress, depression and anxiety among medical students in Egypt. *Psychiatry research*. 2017 Sep 1; 255: 186-94.
- [9] Alagiakrishnan K, Sclater A. Psychiatric disorders presenting in the elderly with type 2 diabetes mellitus. *The American Journal of Geriatric Psychiatry*. 2012 Aug 1; 20 (8): 645-52.
- [10] Jadoon NA, Yaqoob R, Raza A, Shehzad MA, Zeshan SC. Anxiety and depression among medical students: a cross-sectional study. *JPM. The Journal of the Pakistan Medical Association*. 2010 Aug 1; 60 (8): 699-702.
- [11] Dafaalla M, Farah A, Bashir S, Khalil A, Abdulhamid R, Mokhtar M, Mahadi M, Omer Z, Suliman A, Elkhalfifa M, Abdelgadir H. Depression, anxiety, and stress in Sudanese medical students: a cross sectional study on role of quality of life and social support. *Am J Educ Res*. 2016; 4 (13): 937-42.
- [12] Inam SB. Anxiety and depression among students of a medical college in Saudi Arabia. *International journal of health sciences*. 2007 Jul; 1 (2): 295.
- [13] Wolf T. Stress, coping and health: enhancing well-being during medical school. *Medical education*. 1994 Jan; 28 (1): 8-17.
- [14] Tian-Ci Quek T, Wai-San Tam W, X. Tran B, Zhang M, Zhang Z, Su-Hui Ho C, Chun-Man Ho R. The global prevalence of anxiety among medical students:

- a meta-analysis. International journal of environmental research and public health.2019 Aug; 16 (15): 2735.
- [15] Ben Loubir D, Serhier Z, Diouny S, Battas O, Agoub M, Bennani Othmani M. Prevalence of stress in Casablanca medical students: a cross-sectional study. Pan Afr Med J.2014 (5): 19 -149.
- [16] Amita, Kumar AK, Manoj K. Assessment of Depression and Anxiety Levels among Type 2 Diabetes Mellitus Patients and Healthy Individuals: A Cross Sectional Observational Study. Int J Pharm Clin Res.2022; 14 (12): 443–451.
- [17] Abdel Wahed WY, Hassan SK. Prevalence and associated factors of stress, anxiety and depression among medical Fayoum University students. Alexandria Journal of Medicine.2017; 53 (1): 77–84.
- [18] Sreeramareddy CT, Shankar PR, Binu VS, Mukhopadhyay C, Ray B, Menezes RG. Psychological morbidity, sources of stress and coping strategies among undergraduate medical students of Nepal. BMC Medical education.2007 Aug 2; 7 (1): 26.
- [19] Al-Asadi JN. Perceived stress and eating habits among medical students. International Journal of Medicine and Pharmaceutical Sciences.2014 Jun; 4 (3): 81-90.
- [20] Du C, Adjepong M, Zan MC, Cho MJ, Fenton JI, Hsiao PY, Keaver L, Lee H, Ludy MJ, Shen W, Swee WC. Gender differences in the relationships between perceived stress, eating behaviors, sleep, dietary risk, and body mass index. Nutrients.2022 Feb 28; 14 (5): 1045.
- [21] Kandiah J, Yake M, Jones J, Meyer M. Stress influences appetite and comfort food preferences in college women. Nutrition Research.2006 Mar 1; 26 (3): 118-23.
- [22] Murray CJ. A Comprehensive Assessment of Mortality and Disability from Disease, Injuries and Risk factors in 1990 and projected to 2020. The global burden of disease.1994; 1.