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ORIGINAL RESEARCH

Perceived Stress among Undergraduate Medical and Dental students – A Cross Sectional Study

[1]Dr. S Prasanna Latha, [2]Dr. Mamatha Bellamkonda, [3]Dr. S.Priyalatha

[1]Assistant Professor, Department of Psychiatry, Bhaskar Medical College and General Hospital, Hyderabad, Telangana, India
[2]Assistant Professor, Department of Psychiatry, Dr. Patnam Mahender Reddy Institute of Medical Sciences, Chevella, Rangareddy, Hyderabad, Telangana, India
[3]Assistant Professor, Department of Prosthodontics, Government Dental College and Hospital, Afzulgunj, Hyderabad, Telangana, India

Corresponding Author
Dr. S.Priyalatha
Assistant Professor, Department of Prosthodontics, Government Dental College and Hospital, Afzulgunj, Hyderabad, Telangana, India
Email: priyalathasuvvati16284@gmail.com

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ABSTRACT

Background: Medical and dental education is inherently stressful, often leading to psychological distress among students. This study aimed to assess perceived stress levels among undergraduate medical and dental students and compare their stress patterns. **Methods:** A cross-sectional study was conducted among 250 undergraduate students (129 medical and 121 dental). Stress levels were measured using the Perceived Stress Scale (PSS-10). Demographic variables, including age, gender, place of residence, socio-economic status, and history of psychological illness, were recorded. Statistical analyses, including the Chi-square test and Mann-Whitney U test, were performed to compare stress levels between disciplines. **Results:** The study revealed that 40.8% of students experienced high stress, 32% moderate stress, and 27.2% low stress. The prevalence of high stress was comparable between medical (41.1%) and dental (40.5%) students ($p = 0.592$). The mean PSS-10 rank scores for medical and dental students were 122.88 and 128.29, respectively, with no significant difference ($p = 0.555$). The results also indicated that stress levels were independent of gender, residence, and socio-economic status. Coping strategies varied among students, with a mix of problem-focused, emotion-focused, and avoidance-based methods. **Conclusion:** A significant proportion of undergraduate medical and dental students experience moderate to high stress, with no substantial difference between the two disciplines. These findings highlight the need for effective stress management programs and institutional interventions to promote student well-being and academic performance.

Keywords: Perceived stress, medical students, dental students, PSS-10, academic stress, coping strategies, psychological well-being

INTRODUCTION

Medical and dental education is inherently demanding, characterized by a rigorous curriculum, extensive clinical exposure, and high expectations for academic excellence. As a result, students in these fields often experience significant stress, which can impact their psychological well-being, academic performance, and overall quality of life [1]. Perceived stress, defined as an individual's subjective assessment of stressors and their ability to cope with them, is a critical determinant of mental health and professional development among medical and dental students [2].

Several studies indicate that stress levels among healthcare students are higher than in the general population and other academic disciplines [3]. Factors contributing to stress include academic workload, competitive environments, sleep deprivation, clinical responsibilities, and the pressure to achieve high grades [4]. Additionally, personal challenges such as financial constraints, social isolation, and uncertainty about the future further exacerbate stress levels [5]. Chronic stress in medical and dental students is associated with burnout, anxiety, depression, and even suicidal ideation, underscoring the need for effective stress management interventions [6].

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The assessment of perceived stress among medical and dental students is crucial for understanding its impact on their mental health and for developing targeted interventions to promote resilience and well-being. While previous studies have explored stress levels in various healthcare settings, there remains a need for region-specific data to account for variations in academic structures, cultural influences, and coping mechanisms [7]. Therefore, this study aims to assess the perceived stress levels among undergraduate medical and dental students and identify the associated factors contributing to stress. Findings from this study can inform institutional policies and mental health programs to enhance student well-being and academic performance.

MATERIALS AND METHOD

A cross-sectional study was conducted among undergraduate medical and dental students to assess their perceived stress levels. The study was carried out at Bhaskara Medical College, a tertiary medical and Shri Balaji dental college in Hyderabad, Telangana. The study was conducted over a 3months (August-October 2022)

The study population included undergraduate students from both medical and dental disciplines enrolled in different academic years, following inclusion and exclusion criteria.

Inclusion Criteria

- Students currently enrolled in undergraduate medical or dental programs.
- Students who provided informed consent to participate in the study.
- Students attending regular academic sessions at the institution.

Exclusion criteria

- Students with a known history of psychiatric illness diagnosed before admission.
- Students on long-term leave or not attending regular academic sessions.

A sample size of 250 was determined using the formula for cross-sectional studies. A stratified random sampling method was employed, ensuring adequate representation of students from different academic years and courses.

Data Collection Tool and Procedure

Data were collected using a structured, self-administered questionnaire comprising two sections:

1. **Demographic Information** – Age, gender, academic year, discipline (medical/dental), place of residence (hostel/day scholar), and history of prior psychological illness.
2. **Perceived Stress Scale (PSS-10)** – The Perceived Stress Scale (PSS-10), developed by Cohen et al. (1), was used to measure perceived stress. The PSS-10 is a widely validated instrument consisting of 10 items, each rated on a 5-point Likert scale (0 = never to 4 = very often), with total scores ranging from 0 to 40. Higher scores indicate higher perceived stress levels.

The questionnaire was distributed electronically via Google Forms and in paper format for students who preferred physical copies. The study objectives and participation details were explained before data collection, and students were assured of confidentiality.

Statistical Analysis

Collected data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics such as mean, standard deviation, and frequency distribution were used to summarize demographic characteristics and PSS-10 scores. The association between stress levels and demographic variables was assessed using chi-square tests and independent t-tests as appropriate. A p-value <0.05 was considered statistically significant.

OBSERVATION AND RESULTS

In the study total 250 student were included and their socio demographic profiles were given bellow.

Table 1: Distribution of demographic profiles among study population.

Parameters	Frequency	Percentages
Age		
18 - 20 Years	87	34.8
21 - 22 years	65	26
23 - 25 Years	98	39.2
Gender		
Male	119	47.6
Female	131	52.4
Discipline		
Medical	129	51.6
Dental	121	48.4
Place of Residence		
Day Scholar	122	48.8
Hosteler	128	51.2

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History of Prior Psychological Illness		
Yes	119	47.6
No	131	52.4
Socio Economic Status		
Lower	43	17.2
Lower Middle	53	21.2
Middle	46	18.4
Upper	48	19.2
Upper Middle	60	24

Above table presents the characteristics of the study population based on age, gender, discipline, place of residence, history of prior psychological illness, and socio-economic status. The participants are primarily distributed across three age groups, with the majority (39.2%) falling in the 23–25 years range, followed by 34.8% in the 18–20 years group and 26% in the 21–22 years group. Gender distribution is nearly equal, with females (52.4%) slightly outnumbering males (47.6%). The study population is also divided based on their academic discipline, with 51.6% pursuing medical education and 48.4% enrolled in dental studies. In terms of residence, 51.2% of participants are hostelers, while 48.8% are day scholars. A significant proportion (47.6%) reported a history of prior psychological illness. Regarding socio-economic status, the largest group belongs to the upper middle class (24%), followed by the lower middle (21.2%), upper (19.2%), middle (18.4%), and lower class (17.2%).

Table 2: Distribution of demographic profiles among study population.

Perceived Stress Scale	Frequency	Percent
Low Stress	68	27.2
Moderate Stress	80	32
High Stress	102	40.8

Above table describes the distribution of stress levels among the study participants based on the **Perceived Stress Scale (PSS-10)**. The data reveals that 40.8% of students experience high stress, while 32% report moderate stress levels, and 27.2% fall within the low-stress category. This indicates that a significant proportion of students experience considerable stress, with nearly three-fourths reporting moderate to high stress.

Table 3: Perceived stress scale between medical and dental students

PSS-10	Discipline			Chi-square Test	p-value
	Medical	Dental	Total		
Low Stress	38(29.50%)	30(24.80%)	68(27.20%)	1.043	0.592
Moderate Stress	38(29.50%)	42(34.70%)	80(32%)		
High Stress	53(41.10%)	49(40.50%)	102(48.80%)		
Total	129(100%)	121(100%)	250(100%)		

Above table examines the distribution of PSS-10 scores across disciplines. While a slightly higher proportion of medical students (29.5%) report low stress compared to dental students (24.8%), the difference is not statistically significant (p = 0.592). Similarly, the distribution of moderate stress is slightly higher in dental students (34.7%) than in medical students (29.5%), while high stress is reported in nearly equal proportions (41.1% in medical students and 40.5% in dental students). These findings suggest that stress levels are relatively comparable between both disciplines.

Table 4: Mean PSS-10 Rank score between medical and dental students

Discipline	Mean Rank	Sum of Rank	Mann-Whitney U	p-value
Medical	122.88	15851.5	-0.592	0.555
Dental	128.29	15523.5		

Above table presents the mean rank scores of PSS-10 between medical and dental students using the Mann-Whitney U test. The results indicate that medical students have a mean rank score of 122.88, while dental students have a slightly higher mean rank of 128.29. However, the difference is not statistically significant (p = 0.555), suggesting that the stress levels between the two groups do not differ substantially.

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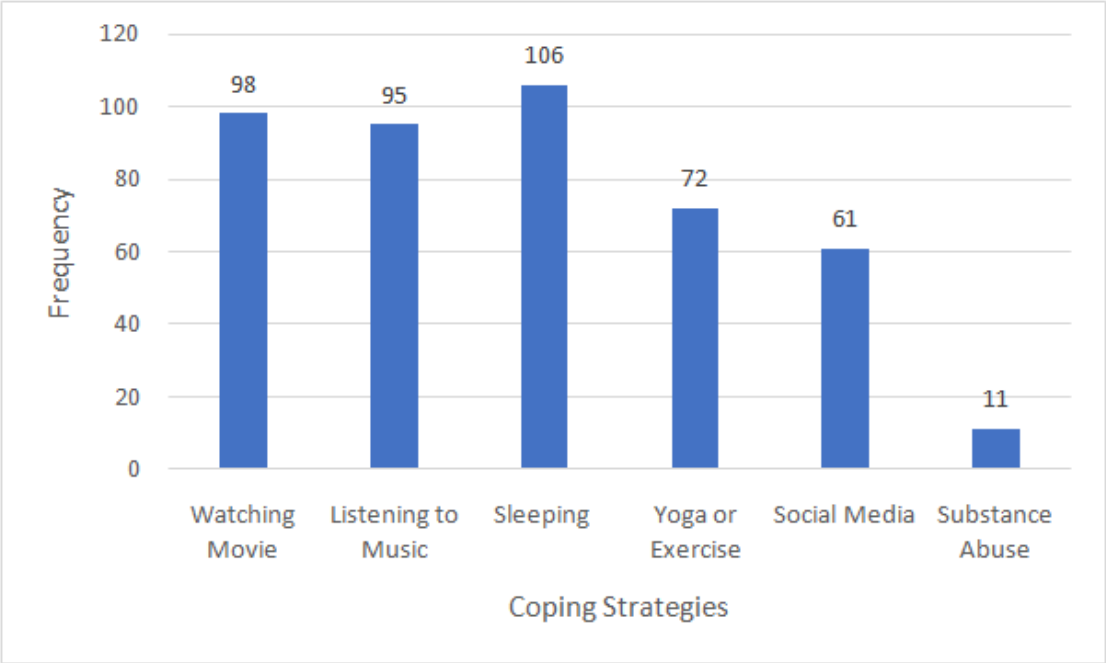

Figure 1: Distribution of coping strategies among students

Above figure illustrates the distribution of coping strategies among students. This visual representation provides insight into how students manage stress, categorizing their coping mechanisms into different strategies. It helps in understanding whether students rely more on problem-focused, emotion-focused, or avoidance-based coping mechanisms.

DISCUSSION

The present study assessed the perceived stress levels among undergraduate medical and dental students and examined its association with demographic factors. The findings indicate that a significant proportion of students experience moderate to high stress levels, with 40.8% reporting high stress, 32% moderate stress, and only 27.2% falling in the low-stress category. This high prevalence of stress is consistent with the demanding academic environment of medical and dental education, characterized by extensive coursework, clinical responsibilities, and examinations.

A comparison of stress levels between medical and dental students revealed no significant difference, with high stress reported in 41.1% of medical students and 40.5% of dental students ($p = 0.592$). These findings suggest that both groups experience similar stress burdens despite differences in academic structure and clinical exposure. Previous studies conducted in India have reported similar results. A study by Gupta et al. found that 43.2% of medical students experienced high levels of stress, comparable to the present study's findings [8]. Similarly, Sinha et al. reported that nearly 38% of dental students exhibited high stress levels, reinforcing that both medical and dental education significantly impact student well-being [9].

The study also explored factors such as gender, place of residence, and history of psychological illness as potential contributors to stress levels. Although females slightly outnumbered males in the study population (52.4% vs. 47.6%), stress levels were comparable across genders. However, previous research has indicated that female students often experience higher stress due to additional academic and social pressures [10]. Additionally, hostelers (51.2%) formed a larger proportion of the study population than day scholars (48.8%), which aligns with studies that suggest hostel life can contribute to increased stress due to social and academic adjustments [11].

The mean PSS-10 scores between medical and dental students were 122.88 and 128.29, respectively, with no statistically significant difference ($p = 0.555$). This is consistent with findings by Patel et al., who reported that both medical and dental students have comparable stress scores despite variations in their academic schedules [12]. Furthermore, a study conducted at a South Indian medical college found that the mean PSS-10 scores among students ranged from 24 to 28, indicating moderate to high stress, which aligns with the present study's results [13].

The coping mechanisms adopted by students, as illustrated in Figure 1, indicate a diverse approach to managing stress, including problem-focused, emotion-focused, and avoidance-based strategies. Prior research has highlighted that students frequently employ problem-focused coping methods, such as time management and academic planning, to reduce stress [14]. However, some students resort to maladaptive coping mechanisms, such as avoidance, which may contribute to long-term psychological distress [15].

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Overall, the study emphasizes the high prevalence of stress among medical and dental students and the need for effective stress management programs, including peer support, counseling services, and mindfulness training. Future research should focus on longitudinal assessments of stress to determine its long-term effects on academic performance and psychological well-being. Interventions such as structured relaxation techniques, academic workload adjustments, and mentorship programs may significantly improve students' mental health and academic success.

CONCLUSION

The study highlights that moderate to high stress is prevalent among both medical and dental students, with no significant differences between the two disciplines. The findings are consistent with previous Indian studies, reinforcing the need for institutional measures to enhance student resilience and coping strategies. Given the high-stress levels in medical education, universities should implement targeted psychological interventions to mitigate academic stress and improve student well-being.

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REFERENCES

1. Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. *Mayo Clin Proc.* 2005;80(12):1613-22.
2. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav.* 1983;24(4):385-96.
3. 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 Med Educ.* 2007;7:26.
4. Abdulghani HM, AlKanhal AA, Mahmoud ES, Ponnamperuma GG, Alfaris EA. Stress and its effects on medical students: a cross-sectional study at a College of Medicine in Saudi Arabia. *J Health Popul Nutr.* 2011;29(5):516-22.
5. Fares J, Al Tabosh H, Saadeddin Z, El Mouhayyar C, Aridi H. Stress, burnout and coping strategies in preclinical medical students. *N Am J Med Sci*. 2016;8(2):75-81.
6. Dyrbye LN, Harper W, Durning SJ, Moutier C, Thomas MR, Massie FS Jr, et al. Patterns of distress in US medical students. *Med Teach*. 2011;33(10):834-9.
7. Sohail N. Stress and academic performance among medical students. *J Coll Physicians Surg Pak.* 2013;23(1):67-71.
8. Gupta S, Choudhury S, Das M. Perceived stress among medical students in India: A cross-sectional study. *J Med Educ Res*. 2021;24(3):56-61.
9. Sinha R, Sharma S, Joshi R. Stress levels and coping mechanisms among dental students: A comparative study. *Int J Dent Sci Res*. 2020;8(2):112-8.
10. Singh R, Bhardwaj A, Jha D. Gender differences in stress perception among undergraduate medical students. *Indian J Psychol Med*. 2019;41(1):42-7.
11. Verma A, Yadav S, Rao N. Impact of hostel life on stress and mental health among medical students. *J Clin Psychiatry India*. 2020;15(2):78-83.
12. Patel M, Goyal R, Shah S. Perceived stress in medical and dental students: A comparative analysis. *J Med Sci Educ*. 2018;29(4):301-7.
13. Reddy KJ, Menon KR, Thattil A. Academic stress and its sources among medical students in South India. *J Med Health Sci*. 2019;26(3):134-9.
14. Kumar P, Dutta S, Sharma N. Coping strategies among medical students: A systematic review. *Asian J Psychol Health*. 2021;12(1):44-53.
15. Rajendran R, Shenoy R, Fernandes M. Coping mechanisms and stress reduction strategies in Indian medical students. *J Med Res India*. 2018;32(2):98-105.