

Research Article

Perceived Stress and Psycho-Social Determinants among Undergraduate Medical Students in Government Medical College, Ongole

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ABSTRACT

Background: The World Health Organization recognised stress as the global health epidemic of the 21st century. Perceived stress is associated with increased levels of depression, alcohol and drug abuse, relationship difficulties, anxiety, and suicide. Medical students are prone to high levels of perceived stress and anxiety, which can negatively impact their academic performance, as well as their physical and mental health.

Objectives: (1) To assess the levels of perceived stress by using the PSS-14 scale, (2) To assess psycho-social determinants of stress and their association with perceived stress, and (3) To assess the coping mechanisms practised by the students.

Materials & Methods: A cross-sectional study was conducted among undergraduate medical students by using structured questionnaire to assess Perceived stress using the Perceived Stress Scale-14, psycho-social stressors and coping mechanisms practised by the students.

Results: A total of 228 students filled out the questionnaire of which 41.2% are males and 58.8% are females. The prevalence of mild, moderate, and severe stress was 4.4%, 91.7%, and 3.9% respectively. Difficulty reading textbooks (65.8%), High parental expectations (63.6%), and Loneliness (60%) showed a significant association with perceived stress. The coping mechanisms practised by most of the students include talking with friends or family (94.3%), sleeping (87.3%), and listening to music or dancing (81.6%).

Conclusion: The study revealed that moderate stress was higher in female students.

Keywords: Perceived Stress, Psycho-Social Stressors, Coping Mechanisms, Etc.

INTRODUCTION

"Stress" is a term that refers to the sum of physical, mental, and emotional strains or tensions on a person. It has been described as the "Health Epidemic of the 21st Century" by the World Health Organization.^[1] Stress is defined as a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize.^[2] Stress is an inevitable and important part of student life; it motivates and stimulates learning. However, chronic, intense stress can arouse feelings of fear, uselessness, anger, incompetence, and guilt. Perceived stress is associated with increased levels of depression, alcohol and drug abuse, relationship difficulties, anxiety, and suicide.^[3] Medical students are prone to high levels of perceived stress and anxiety, which can negatively impact their academic performance, as well as their physical and mental health. Different studies conducted worldwide among

medical students have reported a prevalence of stress ranging from 29-93%^[4-16]. The students of Government Medical College, Ongole, are from South Indian states and some North Indian states with diverse cultural, socio-economic, and educational backgrounds. During their training at the institute, students are exposed to a new learning environment where they must establish new social networks and adapt to unfamiliar surroundings, which can be particularly stressful during the formative first and second years of their course^[17]. There are few studies in Andhra Pradesh on the assessment of perceived stress among medical students and the factors causing perceived stress. By knowing the factors responsible for causing stress, appropriate intervention strategies will be proposed at the institutional level to reduce the stress and enhance the academic performance of the students. So, this study aims to assess the level

of perceived stress and the psycho-social factors determining the perceived stress.

AIM: To know the levels of Perceived Stress and Psycho-social determinants among Undergraduate Medical Students

OBJECTIVES

1. To assess the levels of Perceived Stress by using the PSS-14 scale among students.
2. To assess psycho-social determinants of stress and their association with perceived stress among students
3. To assess the coping mechanisms practised by students.

METHODOLOGY

This Cross-Sectional Study was carried out in Government Medical College, Ongole, Andhra Pradesh, among first and second year MBBS students from November to December 2024. Out of 240 students, 228 students gave complete responses. Data was collected after obtaining consent from the Institutional Scientific Committee and Ethics Committee. The data collection tool consisted of a questionnaire containing details about socio-demographic, the perceived stress scale (PSS-14) developed by Cohen et al., psycho-social factors, and coping mechanisms. Daily, 15 students were approached after the completion of their academic activities and were explained about the purpose of the study and the questionnaire in detail, after which consent was taken and the students gave responses. The students were assured of the confidentiality of their data.

The perceived stress scale (PSS) is one of the most commonly used psychological tool for assessing perceived stress. It measures the extent to which individuals evaluate situations in their lives as stressful. The scale is designed to assess how unpredictable, uncontrollable, and overloaded respondents perceive their lives to be. It also includes direct questions related to the individual's current experience of stress. The PSS is intended for use in community-based populations with at least a junior high school level of education. The items are simple and easy to understand, and the response options are straightforward. Furthermore, the questions are general in nature and are not specific to any particular subgroup, making the

scale broadly applicable across different populations. The items refer to feelings and thoughts experienced during the previous month, and respondents are asked to indicate how frequently they experienced each situation.

The Perceived Stress Scale-14 item version (PSS-14) is scored on a 5-point Likert scale ranging from 0 (never) to 4 (very often) based on the frequency of feelings and thoughts experienced during the previous month. The scale contains 14 items, of which seven items (4, 5, 6, 7, 9, 10, and 13) are positively worded and reverse scored (0=4, 1=3, 2=2, 3=1, 4=0). After reversing these items, the scores of all 14 items are summed to obtain the total perceived stress score, which ranges from 0 to 56. Higher total scores indicate greater levels of perceived stress. For interpretation the scores are categorized as mild perceived stress (0-18), moderate perceived stress (19-37), and severe perceived stress (38-56).

Inclusion Criteria: All the First and Second Year MBBS Students.

Exclusion Criteria: Students who are not willing to participate and did not give consent.

Statistical Analysis: The data was entered in Microsoft Excel and all the variables were given numerical coding and analysed by using SPSS software for descriptive statistics (like frequencies (%)). A Chi-square test was used to find an association between perceived stress and psychosocial determinants, taking a p-value < 0.05 as significant.

RESULTS

Government Medical College, Ongole, admits 120 students each year for the MBBS course, so the first and second professional years include 240 students. Out of these students, 228 students participated in the study, giving a response rate of 95%. Among the study participants, 94 (41%) were male and 134 (59%) were female, among whom 84.2% were Hindu by religion, 8.3% were Muslim and 7.5% were Christian. 71.5% of them belonged to upper-class and 44% to upper-middle-class socio-economic status. 53.1% of the participants are from urban areas. 85.5% are local, that is, from Andhra Pradesh, and 14.5% are from other states.

Table 1: Socio-Demographic Details of the Study Subjects

Variable	n (%)
Gender	

Male	94 (41)
Female	134 (59)
Age	
≤ 20	199 (87.2)
> 20	29 (12.8)
Year studying	
First year	114 (50)
Second year	116 (50)
Religion	
Hindu	192 (84.2)
Muslim	19 (8.3)
Christian	17 (7.5)
Socio-economic status	
Upper class	163 (71.5)
Upper Middle class	44 (19.3)
Middle class	21 (9.2)
Residence	
Urban	121 (53.1)
Rural	107 (46.9)
State	
Andhra Pradesh	195 (85.5)
Outside Andhra Pradesh	33 (14.5)

Table 2: Students' Response to Perceived Stress Scale

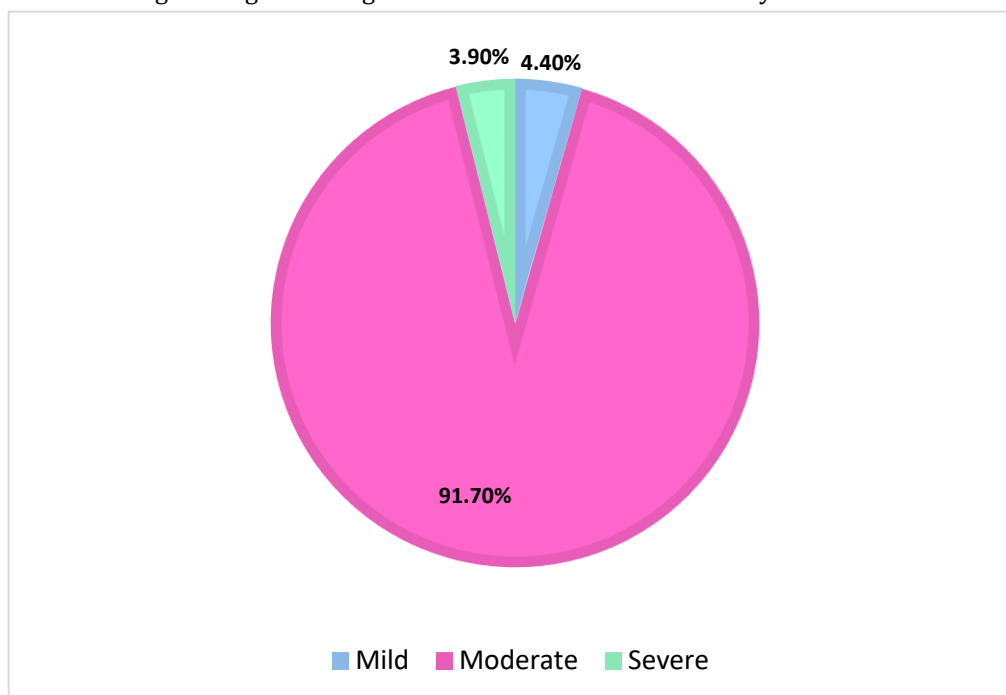
Statement	Never n (%)	Almost Never n (%)	Sometimes n (%)	Fairly Often n (%)	Very Often n (%)
1. In the last month, how often have you been upset because of something that happened unexpectedly ?	34(14.9)	35(15.4)	126 (55.3)	27 (11.8)	6 (2.6)
2. In the last month, how often have you felt that you were unable to control the important things in your life ?	37(16.2)	41(18.0)	106(46.5)	31(13.6)	13(5.7)
3. In the last month, how often have you felt nervous and "stressed" ?	23(10.1)	45(19.7)	118(51.8)	31(13.6)	11(4.8)
4. In the last month, how often have you dealt successfully with day to day problems ?	18(7.9)	21(9.2)	94(41.2)	73(32.0)	22(9.6)
5. In the last month, how often have you felt that you were effectively coping with important changes that were occurring in your life ?	19(8.3)	37(16.2)	94(41.2)	62(27.2)	16(7.0)
6. In the last month, how often have you felt confident about your ability to handle your personal problems ?	7(3.1)	18(7.9)	100(43.9)	76(33.3)	27(11.8)
7. In the last month, how often have you felt that things were going your way ?	21(9.2)	53(23.2)	110(48.2)	38(16.7)	6(2.6)
8. In the last month, how often have you found that you could not cope with all things that you had to do ?	23(10.1)	43(18.9)	122(53.5)	31(13.6)	9(3.9)
9. In the last month, how often have you been able to control irritations in your life ?	14(6.1)	43(18.9)	103(45.2)	53(23.2)	15(6.6)

10. In the last month, how often have you felt that you were on top of things ?	28(12.3)	74(32.5)	103(45.2)	18(7.9)	5(2.2)
11. In the last month, how often have you been angry because of things that were outside of your control ?	25(11)	36(15.8)	110(48.2)	41(18)	16(7)
12. In the last month, how often have you found your -self thinking about things you have to accomplish ?	7(3.1)	32(14.0)	133(58.3)	46(20.2)	10(4.4)
13. In the last month, how often have you been able to control the way you spend your time ?	20(8.8)	44(19.3)	88(38.6)	63(27.6)	13(5.7)
14. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them ?	33(14.5)	58(25.4)	99(43.4)	26(11.4)	12(5.3)

To calculate the PSS-14 total, responses for the seven positively phrased items (4, 5, 6, 7, 9, 10, and 13) were reverse-coded (e.g., 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) and then summed with the remaining items. Total scores range from 0

to 56, with higher values indicating greater perceived stress. 91.7% of the students experienced a moderate level of stress, 4.4% experienced mild stress and 3.9% experienced a severe level of stress.

Fig.1: Image Showing the Level of Stress As Perceived By the Students



The main psycho-social stressors as reported by the students include difficulty in reading textbooks (65.80%), high parental expectations

(63.60%), living conditions at hostel/home (61.80%), loneliness (60.10%), and family problems (56.10%).

Table 3: Students' response to Psycho-social Determinants of stress

Psycho-social Determinants	Never n (%)	Rarely/Sometimes n (%)	Often/Always n (%)
High parental expectations	51 (22.4)	32 (14.0)	145 (63.6)
Loneliness	65 (28.5)	26 (11.4)	137 (60.1)
Family problems	92 (40.4)	8 (3.5)	128 (56.1)

Accommodation away from home	48 (21.1)	77 (33.8)	103 (45.2)
Relations with opposite gender	175 (76.8)	6 (2.6)	47 (20.6)
Difficulty reading textbooks	61 (26.8)	17 (7.5)	150 (65.8)
Lack of entertainment in the institution	48 (21.1)	60 (26.3)	120 (52.6)
Difficulty in the journey back home	89 (39)	41 (18)	98 (43)
Financial strain	107 (46.9)	18 (7.9)	103 (45.2)
Inability to socialize with peers	96 (42.1)	18 (7.9)	114 (50.0)
Living conditions in the hostel / home	54 (23.7)	33 (14.5)	141 (61.8)
Adjustment with roommate	100 (43.9)	44 (19.3)	84 (36.8)
Lack of personal interest in medicine	145 (63.6)	9 (3.9)	74 (32.5)

The majority of the students followed positive mechanisms to cope with their stress, like talking with friends/family (94.30%), sleeping (87.30%), and listening to music/dancing (81.60%).

Table 4 Coping mechanisms practised by students (n=228)

Coping Mechanism	Yes n (%)	No n (%)
Sleeping	199 (87.3)	29 (12.7)
Listening to music/dancing	186 (81.6)	42 (18.4)
Talking with friends/family	215 (94.3)	13 (5.7)
Watching movie/TV	160 (70.2)	68 (29.8)
Yoga and praying	87 (38.2)	141 (61.8)
Being alone and self-evaluation	140 (61.4)	88 (38.6)
Binge eating	165 (72.4)	63 (27.6)
Social media	179 (78.5)	49 (21.5)
Substance abuse	6 (2.6)	222 (97.4)

The results showed a significant association of Perceived Stress with stressors like Difficulty in reading textbooks (P 0.018), High parental expectations (P 0.004), and Loneliness (P 0.001).

Table 5: Association of Perceived Stress with Socio-demography and Psycho-social Determinants (n=228)

Variable	Stress level			Total	p-value
	Mild (n=10)	Moderate (n=209)	Severe (n=9)		
Gender					
Male	4	86	4	94	1.000
Female	6	123	5	134	
Residence					
Rural	5	100	2	107	0.359
Urban	5	109	7	121	
Inability to socialize with peers					
Never	3	91	2	96	0.083
Rarely/Sometimes	0	15	3	18	
Often/Always	7	103	4	114	
Difficulty in reading textbooks					
Never	5	56	0	61	0.018*
Rarely/Sometimes	0	14	3	17	
Often/Always	5	139	6	150	
High parental expectations					
Never					

Rarely/Sometimes Often/Always	6 1 3	45 27 137	0 4 5	51 32 145	0.004*
Loneliness Never Rarely/Sometimes Often/Always	7 0 3	58 22 129	0 4 5	65 26 137	0.001*
Lack of personal interest in medicine Never Rarely/Sometimes Often/Always	7 0 3	132 9 68	6 0 3	145 9 74	1.000
Living conditions at hostel/home Never Rarely/Sometimes Often/Always	4 0 6	49 32 128	1 1 7	54 33 141	0.551
Financial problems Never Rarely/Sometimes Often/Always	6 0 4	96 17 96	5 1 3	107 18 103	0.794
Difficulty in journey back to home Never Rarely/Sometimes Often/Always	7 0 3	81 38 90	1 3 5	89 41 98	0.083
Lack of entertainment in the institution Never Rarely/Sometimes Often/Always	2 1 7	45 53 111	1 6 2	48 60 120	0.076
Relation with opposite gender Never Rarely/Sometimes Often/Always	10 0 0	159 6 44	6 0 3	175 6 47	0.359
Family problems Never Rarely/Sometimes Often/Always	5 0 5	84 8 117	3 0 6	92 8 128	0.909
Accommodation away from home Never Rarely/Sometimes Often/Always	2 4 4	44 71 94	2 2 5	48 77 103	0.947
Adjustment with Roommate Never Rarely/Sometimes Often/Always	6 1 3	89 43 77	5 0 4	100 44 74	0.547

*Calculated using fishers exact test (due to cells with expected counts <5)

DISCUSSION

Medical students experience significant academic pressure because of the vast syllabus and change in the environment. Several studies

done worldwide have shown that medical students experience stress during their medical course and during internship at different stages. Hence, the present Cross-sectional study

conducted among students of the first and second professional years of Medicine, explored the levels of perceived stress, major Psycho-social determinants of stress, and also the coping mechanisms practised by the students to cope with their stress.

Among the 228 students who participated in the study, 94 (41%) were male and 134 (59%) were female. Perceived stress was observed to be 91.7%, which is moderate as per PSS-14 assessment scale, and it is consistent with studies done across India and worldwide, where the prevalence of perceived stress ranged from 88.9% to 94.3%^[5-8] but it contrasts with other studies where the prevalence ranged from 29% to 74.2%^[9-16], which might be due to the usage of different stress scales in the studies and environment. Most of the students reported difficulty in reading textbooks (65.8%), high parental expectations (63.6%), living conditions at hostel or home (61.8%), and loneliness (60.1%) as the major stressors, which is similar to other studies done across the world.^{5,7,9,10,12-20}

The results showed a significant association of stress with difficulty in reading textbooks (P 0.018), high parental expectations (P 0.004), and loneliness (P 0.001).

The coping strategies employed by students included talking to friends or family (94.3%), sleeping (87.3%), and listening to music/dancing (81.6%), which is similar to the studies done by Mathur M et al.^[4], Shah M et al.^[15] and Agrawal N et al.^[19]

The findings of the study emphasized that reviewing the academic curriculum periodically can reduce the academic overload on the students. The examination schedule should be planned at adequate intervals so that there will not be an overload and burnout of the students. Institutions can gather feedback from students to identify specific areas of stress and subsequently offer student-friendly, confidential counselling services with the help of the psychiatry department. Implementing a mentorship program can facilitate both the academic and psychological development of the students. Additionally, conducting workshops focused on stress management may contribute to fostering a healthy environment that enhances students' well-being.

Limitations

The study has certain limitations. First, as the study was conducted within a single medical college and with a small sample size, the results

may lack generalizability. Second, the use of a self-administered questionnaire may have introduced the risk of information bias. Finally, the cross-sectional design of the study limits the ability to establish a causal relationship between the observed determinants and outcomes.

CONCLUSION

The current study aimed to assess the levels of perceived stress and the psycho-social factors among medical students. The majority of the students suffered from a moderate level of stress, with female students experiencing a higher level of stress compared to males. The main psycho-social stressors included difficulty in reading textbooks, high parental expectations, living conditions, and loneliness, which showed a significant association with stress. The coping mechanisms practiced by the students are on the positive side, which include talking to family/friends, sleeping, and listening to music.

Conflicts of Interest: There are no conflicts of interest.

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