Original Research Article

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20200934

Do the undergraduate medical students perceive stress and what are the stressors?

Kevin A. John, Poonam R. Naik*

Department of Community Medicine, Yenepoya Medical College, Mangalore, Karnataka, India

Received: 02 February 2020 **Revised:** 16 February 2020 **Accepted:** 17 February 2020

*Correspondence: Dr. Poonam R. Naik,

E-mail: drpoonamnaik@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Medical students have been reported to suffer from higher perceived stress compared to general population and students in the other academic fields. The objective of the study was to estimate the prevalence of stress and to identify the potential stressors among undergraduate medical students using perceived stress scale (PSS). **Methods:** A cross sectional study was conducted among 301 undergraduate medical students at a private medical college in Dakshina Kannada district, Karnataka. The extent of the stress was assessed using PSS-10 and a questionnaire was used to identify the potential academic, psychosocial and environmental stressors.

Results: The mean PSS score was found to be 26.34 ± 3 in this study. Moderate stress was observed in 68% of the study participants. The PSS score was higher among the 2^{nd} year MBBS students. Stress was observed more among female medical students (74%). Inadequate study leave (92.4%), vastness of academic curriculum (84.1%), poor quality of food in mess or home (70.4%), accommodation away from home (60.1%) and high parental expectations (48.5%) were found to be the potential stressors in this study.

Conclusions: The study results thereby highlight the need to plan tailored interventions to address the various stressors and prevent stress among the medical students.

Keywords: Perceived stress, Stressors, Medical students

INTRODUCTION

Stress has been identified as a 20th century disease and is viewed as a complex transaction between individuals and their environments. Worldwide, 10 to 20% of children and adolescents experience mental disorder. Depression is the leading cause of DALY in young children and adolescent. Stress is one of the important part of being a student. It helps in motivating and stimulates learning process. On the other hand, chronic and intense stress can arouse feelings of fear, uselessness, anger, incompetence and guilt. If it is not properly managed, stress can cause high levels of depression, substance abuse, sleep problems, relationship problems, anxiety and suicide.² Stress has been defined as the extent to which persons

perceive their demands exceed their ability to cope.² It is understood as a perceived imbalance between the demands encountered in daily living and person's ability to respond to it. Medical students have been reported to suffer from higher perceived stress compared to general population and students in the other academic fields.³ Medical education promises a well respected career because of its esteemed place and financial security in the Indian society, but brings lot of tough demands on students which includes tight schedules and a vast course compacted in a short duration.⁴

Studies globally have reported a prevalence of increased stress among medical students from 27% to 73%.⁵ According to a 2002 survey of first and second year

United states medical students, it was found that 24% of them were having stress.⁶ Studies from developing countries like Pakistan, India, Thailand and Malaysia has reported increased stress among medical students and have underscored the role of academics as a source of stress.⁷ Sources of stress can be different, in medical college, some stressors have been identified like academic, personal related etc. Medical college is been recognized as a stressful environment which might have a negative effect on student's academic performance, physical health and psychosocial wellbeing. Studies suggest that the mental health become worse after the students join medical school and remain poor throughout the training.²

In this medical college, there are students from different states of India coming from different cultural, educational and socioeconomic backgrounds. These students are exposed to a new learning environment and also adapting to a different world during their training in the institution. This may be a stressful experience during their course. Stress is an external constraint that directly upsets the individual both mentally and physically. Students in a stressful situation is influenced by their mental ability to carry out ongoing tasks.8 Studies have revealed that there is high rates of psychological morbidity in medical students and found that stress is associated with depression, anxiety, interpersonal conflict, disturbances and poor academic performance.9 Further perceived stress have shown to negatively correlate with cognitive and behavioural aspects of academic performance. Additionally, the same perceived stress might lead to different emotional responses, which affects the eventual cognitive and psychomotor responses. This is described as "trinity of stress" where emotional responses towards stress govern the cognitive performance.¹⁰ It is necessary for the students to have adequate knowledge of mental health problems, their early symptoms and the most effective treatment modalities.

Medical Council of India has currently highlighted the role of foundation course in medical curriculum among the first year medical undergraduates highlighting the importance of overall development of the students. This will also enable the students to be familiar with the new academic environment and reduce anxiety. There is a gap in identifying the reasons for stress in medical students. This study results will enable us to identify the stress perceived by the medical undergraduates and the role of various stressors. This will also facilitate development of specific modules for the foundation course and also address these concerns along the different years of medical education. The objective of this study was to estimate the prevalence of stress and identification of the potential stressors among the undergraduate students of a medical college hospital in Dakshina Kannada district.

METHODS

Institutional Ethics Committee approval and permission from the institutional head was obtained before conducting the study. This was a cross sectional study conducted in Yenepoya Medical College hospital situated in Mangalore taluk, Dakshina Kannada district, Karnataka. Study population was undergraduate students from 2nd year to final year. Study period was from June to July 2019. Complete enumeration was followed to enrol the students in the study and the total sample size accounted to 390. The researchers made two attempts to reach out to the study participants, but they were not able to enrol all due to few students being absent on the day of data collection. Thereby, the final sample size was 301. Data was collected using a self -administered tool to capture information on certain selected socio demographic variables (age, sex, year of MBBS, day scholar or hostellers, marital status etc). It also included section to assess the role of potential academic, psychosocial and environmental stressors.

Perceived stress scale-10 (PSS -10) was used to measure the degree to which situations in one's life are appraised as stressful. The questions in this scale ask about the feelings and thoughts of the participants during the last one month. It is a 10 -item questionnaire with responses in the form of how often participants did experience certain situations from 0-never to 4-very often. Scores ranging from 0 to 13 were considered low stress. Scores ranging from 14 to 26 was considered as Moderate stress. Scores ranging from 27 to 40 was considered as high perceived stress. Data collected was entered in Microsoft Excel and descriptive statistics are reported as frequency and percentage. Chi square test was applied to study the association between demographic variables and perceived stress categories.

RESULTS

The mean age of the students was 21 ± 2 years. The mean perceived stress score was 26.34 ± 3 . Moderate stress has been observed in 68% of the study participants. The PSS was higher among 2nd year MBBS students. Among the academic stressors identified, inadequate study leaves and vastness of academic curriculum was found to be the potential stressors. High parental expectation, lack of sleep and loneliness were the potential psychosocial stressors. Poor quality of food in mess/home and accommodation away from the home were the potential environmental stressors (Table 2).

There was significant association found between gender and perceived stress categories (p<0.05). Moderate and higher stress was more seen among female medical students (74% and 74%). Mild stress was observed more among males (68.4%) (Table 3).

Table 1: Demographic details of the study participants (n=301).

Demographic details	N (%)			
Gender				
Male	115 (38.2)			
Female	186 (61.8)			
Year of studying MBBS				
Second year	116 (38.5)			
Final MBBS part 1	124 (41.2)			
Final MBBS part 2	61 (20.3)			
Place of residence				
Hostel	255 (84.7)			
Home (day scholar)	46 (15.3)			

The association between the year of studying MBBS and perceived stress categories was also found to be statistically significant (p<0.05). Higher stress was observed among the 2nd year MBBS students (47.4%). Mild and moderate stress was seen more among the final year MBBS part 1 students (55.2% and 44.6% respectively) (Table 4).

Table 2: Distribution of different type of stressors among the study participants (n=301).

	N (%)				
Academic stressors					
Vastness of academic curriculum	253 (84.1)				
Too frequent examination	82 (27.2)				
Competition with peer group	92 (30.60)				
Fear of failure in examination	220 (73.1)				
Lack of time for recreation	216 (71.8)				
Inadequate study leave	278 (92.4)				
Psychosocial stressors					
High parental expectation	146 (48.5)				
Loneliness	100 (33.2)				
Lack of sleep	114 (37.9)				
Family problems	63 (20.9)				
Financial problems	77 (25.6)				
Environmental stressors					
Accommodation away from home	181 (60.1)				
Poor quality of food in mess/home	212 (70.4)				
Poor living conditions in hostel/home	88 (29.2)				
Difficulty in adjusting with roommates or neighbours	52 (17.3)				

Table 3: Association of gender with perceived stress categories (n=301).

Perceived stress categories	Males	Females	Total	P value	
	N (%)	N (%)	N (%)		
Mild stress	26 (68.4)	12 (31.6)	38 (12.6)		
Moderate stress	74 (36)	132 (74)	206 (68.4)	0.002	
High stress	15 (26)	42 (74)	57 (20)	0.003	
Total	115	186	301		

Table 4: Association of year of studying MBBS with perceived stress categories (n=301).

Perceived stress categories	2nd year MBBS	Final year MBBS part 1	Final year MBBS part 2	Total	P value
categories	N (%)	N (%)	N (%)	N (%)	
Mild stress	9 (23.7)	21 (55.2)	8 (21.1)	38 (12.6)	
Moderate stress	80 (38.9)	92 (44.6)	34 (16.5)	206 (68.4)	0.004
High stress	27 (47.4)	11 (19.3)	19 (33.3)	57 (20)	0.004
Total	116	124	61	301	

DISCUSSION

Some amount of stress is helpful for students to meet challenges in medical school, but persistent and high stress can lead to physical, psychological and behavioural ill health. In this study, the mean perceived stress score was 26.34±3. Moderate stress was found in 68% of the study participants. This was similar to a study conducted by Anuradha et al in Tamil Nadu, in which the mean perceived stress score was found to be 25.64±5.44. 12 These findings were contrary to a study conducted by Kumar et al among medical students in Mysore, Karnataka in which the stress was less among the study

subjects. 13 This can be attributed to the different lifestyle, culture and academic management.

Vastness of academic curriculum, inadequate study leave, high parental expectations, and poor quality of food in mess or home were the potential stressors found out in this study. These results were similar to the studies conducted by Anuradha et al in a private medical college in Tamil Nadu, Chowdhury et al in a study conducted among undergraduate medical students in Kolkata and Rebello et al in a study conducted in Karwar, Karnataka. 5,12,14

Association between gender and the level of stress was found to be statistically significant in our study (p<0.05). Moderate and higher stress was more among the females in our study. Mild stress was seen more in males. This finding was contrary to a study conducted by Shaktivel et al, where the moderate and higher stress was more among males (50%) when compared to girls (39%).¹¹⁻¹⁵

There was significant association between the year of studying MBBS and the perceived stress score. PSS was more among the 2nd year MBBS students in this study. Mild stress and Moderate stress were seen among Final year MBBS part 1 and part 2. This finding was contrary to a study conducted by Bhavani Nivetha et al, in which the stress was higher among the first year MBBS students and Final year MBBS students.² In a study conducted by Kumar et al among undergraduates in Mysore, Karnataka.¹³ It was observed that there was no significant association between stress and age group, gender and year of study of medical students.

The study results highlight the need to plan tailored interventions to address the various stressors and prevent stress among the medical students. Academic and environmental stressors need to be addressed by the teachers by planning mentoring sessions to plan study schedule and handle stress. Stakeholders of the institution need to focus on the environmental stressors and this will be a major step in prevention of stress development. The study results facilitate development of specific modules for stress prevention and also address these concerns along the different years of medical education. The medical school should adopt simple relaxation program for highly stressed students and provide support for them through periodic counseling sessions.

The present study is less generalizable since the study setting was limited to only one medical college. Chance of reporting bias cannot be eliminated since the study was based on the results from a self -administered questionnaire. Since the PSS questions are based on the experience of the students in the previous month, there is chance for memory or recall bias. A prospective study is required to identify the stress among students and its effect on their academic performance to draw a conclusion. Additional research is also required to identify personal and program factors which can promote student wellbeing and its potential to improve competency.

CONCLUSION

Moderate stress was observed among 68% of the participants. Inadequate study leaves and vastness of academic curriculum, high parental expectation and poor quality of food in mess were perceived as reasons of stress by majority of the participants. The study results thereby highlight the need to plan tailored interventions to address the various stressors and prevent stress among the medical students. There is a need to address these

stressors by student counselling, modifications in teaching and evaluation system, improving the living conditions of the students and encouraging them to get involved into activities like exercise, meditation, yoga and music.

ACKNOWLEDGEMENTS

The authors thank all the undergraduate students who participated in this study for their support and valuable time given by them for filling up the questionnaires.

Funding: No funding sources Conflict of interest: None declared

Ethical approval: The study was approved by the

Institutional Ethics Committee

REFERENCES

- 1. Sethia R, Sharma G, Shekhawat K, Aacharya K, Acharya R, Meena RR. Study of perceived stress and stressors among undergraduate medical students. Int J Community Med Public Health. 2019:6:1690-4.
- 2. Bhavani Nivetha M, Ahmed M, Prashantha B. Perceived stress and source of stress among undergraduate medical students of Government Medical College, Mysore. Int J Community Med Public Health. 2018;5:3513-8.
- 3. Heinen I et al. Perceived stress in first year medical students associations with personal resources and emotional distress. BMC Med Educ. 2017;17(4):1-14.
- 4. Abraham J, Navya CJ, Joshy V. Perceived stress and coping strategies among post graduate students of a medical college in Thrissur, Kerala. Int J Community Med Public Health. 2019;6:814-7.
- Rebello CR, Kallingappa PB, Hegde PG. Assessment of perceived stress and association with sleep quality and attributed stressors among 1st-year medical students: A cross-sectional study from Karwar, Karnataka, India. Tzu Chi Med J. 2018;30(4):221-6.
- 6. Dyrbye LN, Thomas MR, Shanafelt TD. Medical Student Distress: Causes, Consequences and Proposed Solutions. Mayo Clin Proc. 2002;80(12):1613-22.
- 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.
- 8. Chaudhary V, Upadhyay D, Singh SP, Singh A, Joshi HS, Katyal R. A Cross sectional study to assess perceived stress and stressors associated with it among undergraduate medical students in a private medical college of Uttar Pradesh, India. Int J Community Med Public Health. 2016;3:1752-8.
- 9. Anandhalakshmi S, Sahityan V, Thilipkumar G, Saravanan A, Thirunavukarasu M. Perceived stress

- and sources of stress among first-year medical undergraduate students in a private medical college Tamil Nadu. Natl J Physiol Pharm Pharmacol. 2016;6:9-14.
- Gupta R, Singh N, Kumar R. Longitudinal predictive validity of emotional intelligence on first year medical students perceived stress. BMC Med Educ. 2017;17:139.
- Cohen S, Williamson G. Perceived Stress in a Probability Sample of the United States. In: Spacapan S, Oskamp S. (eds). The Social Psychology of Health. Newbury Park, CA: Sage; 1988.
- Anuradha R, Dutta R, Patil AB. Stress and Stressors among Medical Undergraduate Students: A Crosssectional Study in a Private Medical College in Tamil Nadu. Indian J Community Med. 2017;42(4):222-5.
- 13. Kumar SD, Kavitha HS, Kulkarni P, Siddalingappa H, Manjunath R. Depression, anxiety and stress

- levels among medical students in Mysore, Karnataka, India. Int J Community Med Public Health. 2016;3:359-62.
- 14. Chowdhury R, Mukherjee A, Mitra K, Naskar S, Karmakar PR, Lahiri SK. Perceived psychological stress among undergraduate medical students: Role of academic factors. Indian J Public Health. 2017;61:55-7.
- 15. Shakthivel N, Amarnath VM, Ahamed F, Rath RS, Sethuraman AR, Suliankatchi RA. Level of Perceived stress and coping strategies prevailing among 1st year medical undergraduate students: A Cross sectional study from South India. Int J Med Public Health. 2017;7(2):111-5.

Cite this article as: John KA, Naik PR. Do the undergraduate medical students perceive stress and what are the stressors?. Int J Community Med Public Health 2020;7:877-81.