

# An Analysis of the Factors Leading to Stress in Indian Medical Students

Pallavi Panchu, Biju Bahuleyan, Vineetha Vijayan

Department of Physiology, Jubilee Mission Medical College and Research Institute, Thrissur, Kerala, India

## Abstract

**Background and Aim:** Tertiary education, especially medical education is highly stressful and demanding as a career. Academic pressure producing stress in a student is not surprising, but this is not the only source of stress among them. A multitude of other factors namely the social environment, changes in the teaching styles may also contribute to the distressed state of the learner. These other factors that may result in the production of stress among students may compound academic-related stress (ARS). Therefore, the aim of the present study is to explore the various sources of stress. **Methods:** Medical students stress questionnaire, a validated tool was given to 1<sup>st</sup> year MBBS students, in this cross-sectional study. Data obtained was tabulated and analyzed using ANOVA and multivariate analysis using Statistical Package for Social Sciences version 22. **Results:** ARS forms the highest stressor followed by intra- and inter-personal-related stress, least being desire and drive related stress. These stresses are high in intensity. **Conclusion:** To have competent medical students and thereby doctors, a stress-free environment must be provided to them. By changing medical curriculum and making the college personnel aware of the stresses faced by the students, the intensity of stress may be alleviated.

**Keywords:** Medical curriculum, medical students, medical students stress questionnaire, stress

*Received:* 09<sup>th</sup> December, 2016; *Revised:* 31<sup>st</sup> January, 2017; *Accepted:* 15<sup>th</sup> February, 2017

## INTRODUCTION

A state of mental, physical, emotional, and psychological strain resulting in an undue, exaggerated and detrimental body response is known as stress.<sup>[1]</sup> Individuals exposed to the same stress may respond differently depending on their ability to cope and their perception of the stressor. The path of advancement for an individual is often full of challenges to which, if he rises, forms eustress. However, prolonged, continuous, and severe stress can result in psychosomatic disorders, and such a stress is termed as distress.<sup>[2]</sup>

Tertiary education has been regarded as a highly stressful environment for students.<sup>[3]</sup> The students of 1<sup>st</sup> year of medicine stand on the brink of transition as they journey from a phase of rote learning to self-directed learning. This sudden transition for a student, along with a hectic curriculum and rapid dynamism of his social environment activates in him, the distress cycle. While it is well documented that, irrespective of the chosen field in tertiary education, academic stress stands out as a major contributor of distress in students, the role and importance

of the other contributors of stress is often undermined. To minimize the impact of academic related stress (ARS) on the students, providing an ambience devoid of other stress would go a long way in creating a nourished, holistic and ideal study environment, ensuring overall development of the learner. With this aim in mind, the present study was designed to explore the role of various factors that might contribute to the development of stress in the students of 1<sup>st</sup> year medicine.

## MATERIALS AND METHODS

The present study was conducted on 91 1<sup>st</sup> year medical students studying in a medical college in South India after obtaining the institutional ethics clearance. Medical students' stress questionnaire, a validated tool was used for this

**Address for correspondence:** Dr. Pallavi Panchu,  
Department of Physiology, Jubilee Mission Medical College and Research  
Institute, Thrissur - 680 005, Kerala, India.  
E-mail: drpallavipanchu@gmail.com

### Access this article online

#### Quick Response Code:



**Website:**  
www.ijcep.org

**DOI:**  
10.4103/ijcep.ijcep\_58\_16

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

**For reprints contact:** reprints@medknow.com

**How to cite this article:** Panchu P, Bahuleyan B, Vijayan V. An analysis of the factors leading to stress in Indian medical students. *Int J Clin Exp Physiol* 2017;4:48-50.

study after obtaining due permission from the authors. The students (91 out of 100) who consented to participate in the study were administered the questionnaire during college hours and the results obtained were tabulated and analyzed.

### Medical students' stress questionnaire

This is a validated tool containing twenty questions which are marked based on the Likert scale from 0 to 4 (no stress at all to severe stress, respectively). Each of the questions in this questionnaire can be a potential source of stress in student in his academic life. The factors causing stress are further grouped into six domains namely, ARS, intra- and inter-personal related stress (IRS), teaching and learning related stress (TLRS), social-related stress (SRS), desire and drive related stress (DRS), and finally group activity-related stress (GARS). The mean score obtained reflects on the overall stress status of the participant. Individual domain means were also calculated. Further based on the scoring pattern, the stress levels were graded as mild (<1), moderate (1.01–2), high (2.01–3), and severe (>3). Mild stress indicates a near absence of stress while moderate shows the ability of the student to manage well. High score shows that emotions maybe labile whereas severe stress indicates the difficulty in coping with day-to-day activities.<sup>[4-6]</sup>

### Statistical analysis

ANOVA and multivariate analysis was the statistical tool employed and the Statistical Package for Social Sciences version 22 was the software used.

## RESULTS

Table 1 shows the overall mean of the various factors which act as stressors with ARS having the highest mean of 2.38 followed by IRS (1.80). DRS was found to be the lowest with the mean of 0.78 and the other types (TLRS, SRS, and GARS) under the moderated grade of stress. Statistical analysis by ANOVA showed high significance with  $P < 0.001$ .

Table 2 classified each stress type into mild (mean <1), moderate (1.01–2), high (2.01–3), and severe (>3) categories.

**Table 1: The overall mean of stress scores in each domain**

Dependent variable	Overall mean $\pm$ SD	Grand mean	
		95% CI	
		Lower bound	Upper bound
ARS	2.38 $\pm$ 0.63	2.25	2.51
IRS	1.80 $\pm$ 1.1	1.57	2.03
TLRS	1.50 $\pm$ 0.88	1.31	1.68
SRS	1.49 $\pm$ 0.93	1.30	1.68
DRS	0.78 $\pm$ 0.93	0.59	0.97
GARS	1.60 $\pm$ 0.81	1.43	1.77

The analysis was done by ANOVA. ARS: Academic-related stress, IRS: Inter- and intra-personal-related stress, TLRS: Teaching and learning related stress, SRS: Social-related stress, DRS: Desire and drive related stress, GARS: Group activity-related stress, CI: Confidence interval, SD: Standard deviation

Although the overall mean for ARS shows that students have high-stress levels, detailed analysis revealed that 10 out of 91 participants had severe stress (mean >3). The majority of the students have high IRS (group mean - 1.8) while the majority of the students showed mild levels of DRS (mean <1). Multivariate analysis corresponded to a  $P < 0.001$  ( $F = 225.27$ ).

## DISCUSSION

Stress among students is a global phenomenon and studies have revealed that medical students have severe stress levels.<sup>[2]</sup> On analysis of the factors influencing the occurrence of stress, academic stress provides a major contribution. This is an expected outcome supported by various other studies conducted both in India and elsewhere.<sup>[7-12]</sup> ARS occurs due to the perception of having a heavy workload, inadequate time to master the study content, leading onto falling behind schedule and poor performance in tests. All these aspects highlight the importance of restructuring the medical curriculum both in terms of the time frame allotted for the course completion and the vastness of the study syllabus involved. The present undergraduate Indian medical curriculum allows 1 year for the completion of basic medical sciences (anatomy, physiology, and biochemistry) and of this 1 year, few precious days are lost to examinations, holidays, and extracurricular activities. The net allotted days add up a little over 9 months for a 12-month course. Suffice to say that this time is grossly inadequate and results in higher academic pressure on the students. This stress is compounded by the presence of a transition phase from school to medical school wherein the system does not consider the time required for acclimatization to this intensive course.

Our study reveals that students also suffer from IRS. To have an optimal performance from the students, they are often pressurized from different quarters, namely from parents, teachers, and college personnel, with a disregard for their transition phase ultimately causing the birth of high amounts of IRS.<sup>[13]</sup> This further brings to light the detrimental effects of a shorter course duration of the 1<sup>st</sup> year of MBBS. On analysis of the other stress types, DRS was found to be the lowest highlighting the stability and strength offered to the learners by their families and the society in general. Studies done in another medical school shows that after ARS, TLRS is the major source of stress.<sup>[9,14-16]</sup> A study done in Kolkata has findings similar to ours and uses the same scale of measurement too.<sup>[4]</sup>

Table 2 grades students according to the severity of stress in each domain of stress. From the present study, students seem to be satisfied with the teaching and learning methods. They had minimal social and group related stress and a near absence of DRS while 9 students presented with severe stress in the IRS domain and 10 students in the academic stress-related domain. These results call for the awakening in the teaching and allied personnel to provide a supportive and understanding environment to the 1<sup>st</sup> year students so that they cope better.

**Table 2: Gradation of stress severity among the different stress domains**

	Group											
	ARS		IRS		TLRS		SRS		DRS		GARS	
	<i>n</i>	Mean±SD	<i>n</i>	Mean±SD	<i>n</i>	Mean±SD	<i>n</i>	Mean±SD	<i>n</i>	Mean±SD	<i>n</i>	Mean±SD
≤1	1	1±0	29	0.5±0.39	35	0.6±0.33	33	0.45±0.42	67	0.31±0.4	29	0.69±0.34
1.01-2	29	1.7±0.25	21	1.58±0.3	32	1.62±0.28	31	1.65±0.31	16	1.72±0.26	39	1.66±0.29
2.01-3	51	2.57±0.26	32	2.63±0.26	22	2.57±0.3	26	2.54±0.26	6	2.67±0.26	22	2.59±0.29
>3	10	3.48±0.25	9	3.56±0.37	2	3.47±0.19	1	3.33±0	2	3.5±0	1	4±0
Total	91	2.38±0.63	91	1.8±1.1	91	1.5±0.88	91	1.49±0.93	91	0.78±0.93	91	1.6±0.81

Analysis was done by ANOVA. ARS: Academic-related stress, IRS: Inter- and intra-personal-related stress, TLRS: Teaching and learning related stress, SRS: Social-related stress, DRS: Desire and drive related stress, GARS: Group activity-related stress, SD: Standard deviation

To reduce ARS, an increase in the duration of the course to 18 months maybe recommended, keeping in mind the importance of the basic medical sciences.

Basic sciences being the foundation course, more time and effort would definitely not hinder the process of production of competent doctors. Decreasing the duration of this foundation course and further, increasing the duration of the clinical years has worsened the condition of the already stressed out medical student. An increase in ARS must ring alarm bells in the minds of the curriculum setters and calls for radical measures to be urgently instituted instead of turning a blind eye to this troublesome scenario, which is a harbinger of serious mental and psychosomatic problems.

### Limitations of the study

Following up of these students in the clinical years would reveal the dynamism of the stress factors and reveal their ability to cope with them. Further, the impact of these stresses on the academic performance needs to be evaluated.

### CONCLUSION

In spite of having a strong and supportive social and family background, our students are still stressed out. The logical explanation for these points toward the flaws in the present day 1<sup>st</sup> year medical curriculum which acts as a root cause of stress. At present, the need of the hour is to create awareness in the minds of all the personnel involved in medical education regarding the kinds of stress the student faces and to help them have as much of a stress-free environment as possible in the 1<sup>st</sup> year of MBBS.

### Acknowledgment

We wholeheartedly thank the students for their active participation and to Mr. Tom Thomas, Biostatistician, and Department of Biostatistics for providing us his time and statistical analysis during the entire period of the project work.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

### REFERENCES

1. Sravani G, Manisha J, Rupali R. Role of body mass index on perceived stress in undergraduate medical students. *Int J Curr Med Appl Sci* 2016;10:50-4.
2. Behere SP, Yadav R, Behere PB. A comparative study of stress among students of medicine, engineering, and nursing. *Indian J Psychol Med* 2011;33:145-8.
3. Sherina MS, Lekhraj R, Nadarajan K. Prevalence of emotional disorder among medical students in a Malaysian university. *Asia Pac Fam Med* 2003;2:213-7.
4. Gupta S, Choudhury S, Das M, Mondol A, Pradhan R. Factors causing stress among students of a medical college in Kolkata, India. *Educ Health (Abingdon)* 2015;28:92-5.
5. Habeeb KA. Prevalence of stressors among female medical students Taibah university. *J Taibah Univ Med Sci* 2010;5:110-9.
6. Yusoff MS. A confirmatory factor analysis study on the medical student stressor questionnaire among Malaysian medical students. *Educ Med J* 2011;3:44-3.
7. Reang T, Bhattacharjya H. A study to assess the emotional disorders with special reference to stress of medical students of Agartala government medical college and Govinda Ballabh pant hospital. *Indian J Community Med* 2013;38:207-11.
8. Saipanish R. Stress among medical students in a Thai medical school. *Med Teach* 2003;25:502-6.
9. Panchu P, Ali SL, Thomas T. The interrelationship of personality with stress in medical students. *Int J Clin Exp Physiol* 2016;3:134-9.
10. Radcliffe C, Lester H. Perceived stress during undergraduate medical training: A qualitative study. *Med Educ* 2003;37:32-8.
11. Vitaliano PP, Maiuro RD, Mitchell E, Russo J. Perceived stress in medical school: Resistors, persistors, adaptors and maladaptors. *Soc Sci Med* 1989;28:1321-9.
12. Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: A cross-sectional study. *Med Educ* 2005;39:594-604.
13. Al-Dubai SA, Al-Naggar RA, Alshagga MA, Rampal KG. Stress and coping strategies of students in a medical faculty in malaysia. *Malays J Med Sci* 2011;18:57-64.
14. Agolla JE, Ongori H. An assessment of academic stress among undergraduate students: The case of university of Botswana. *Educ Res Rev* 2009;1:63-70.
15. Supe AN. A study of stress in medical students at Seth G.S. medical college. *J Postgrad Med* 1998;44:1-6.
16. Waghachavare VB, Dhumble GB, Kadam YR, Gore AD. A study of stress among students of professional colleges from an urban area in India. *Sultan Qaboos Univ Med J* 2013;13:429-36.