

Available online at <http://www.ijims.com>

ISSN: 2348 – 0343

## Prevalence of Stress Levels Among First Year Medical Undergraduate Students

Selvi Thangaraj and Lilian D'souza\*

Bangalore Medical College and Research Institute, Bangalore, India

\*Corresponding Author: Lilian D'souza

### Abstract

Medicine is one of the most sought after careers. Students with outstanding marks gain entry into medical colleges. High level of competition, parental pressure, excess workload and new environment put the medical trainees under constant stress. This study was thus undertaken to assess the levels of stress among first year medical students. Very few studies are available that assess the stress levels at such an early stage in the medical career. The stress levels were assessed using the Cohen's Perceived Stress Scale (PSS-10), which is an internationally validated ten item questionnaire. All the 250 first year medical students of the government medical college in Bangalore answered the questionnaire along with demographic details. They were in the age group of 17-20years and the mean Perceived Stress score was 20.29 (SD = 6.24). The scores were arbitrarily divided, and it was found that 37 students (14.8%) had Low Perceived Stress, 171 students (68.4%) had Moderate Perceived Stress and 42 students (16.8%) had High Perceived Stress. With such high stress levels, we can see the urgent need to conduct more studies to further identify the causes of stress and help students take appropriate steps to combat stress.

**Keywords:** medical, Cohen's, perceived, stress, students

### Introduction

Stress is a state of emotional or mental strain resulting in a number of normal bodily reactions to retain self preservation<sup>1</sup>. Surtees and Miller studied medical students in their first year of medical training at Edinburgh and found that half disclosed high levels of neurotic symptoms at the beginning of the academic year, one-third reporting symptoms at follow-up six months later.<sup>2</sup>

Medical education is still one of the most sought after professional courses. It is considered to be a noble profession and gives a prestigious place in society, good financial security and service to mankind. It takes about ten years of hard work, discipline and determination to be a doctor specialized in any field of medicine. Every Indian family takes prides in the fact that there is someone in the family who is a doctor. Medical students score outstanding grades in their entrance exams. They are highly competitive, disciplined and meticulous by nature. Due to such aura and respect around this job, a large number of highly meritorious students find themselves being coaxed to pursue this profession by their families. Choice of the medical profession more often happens based on the score card than the aptitude and interest of the student. Every medical student starts of his medical career with great aspirations and determinations. In the overall development of a medical student, a growing concern these days is the student's mental health. This can be attributed to the fact of vast syllabus, unable to score top ranks, new studying environment, educational debt, poor learning environment and many more. A first year medical student in particular has just moved from the cocooned environment of his home and college to the unknown, competitive world of medicine. With such changes in the life of a medical student and the immense pressure to perform, there is bound to be huge amounts of stress. This leads to a vicious cycle of poor academic performance, low self esteem, anxiety, panic attacks and depression.<sup>3</sup> Very few studies have identified this prevalent stress among the young budding doctors.

Hence this study was done, to find out the prevalent stress levels in students of first year MBBS. This stressful period

in the nascent stages of the medical career must be identified early. It will enable students to face the various hurdles of medical education in the years of training ahead.

## Objective

To determine the prevalence of perceived stress levels among first year medical students.

## Materials and Methods

*Study design:* This is a descriptive cross sectional study.

*Study subjects:* All the First year Medical students were included in the study

*Study period:* The study was done between October 2013 to December 2013. This period was chosen at a time when the students are relatively free from any acute stressors like an examination.

*Study Setting:* Bangalore Medical College and Research Institute, Bangalore

*Questionnaire:* The students were given self administered questionnaire. It consists of two aspects- demography and the Stress Assessment tool.

*Study Tool:* The tool used was Cohen's Perceived Stress Scale (PSS -10)<sup>4,5</sup>, which is a widely used internationally validated instrument. It is a 10 item self administered questionnaire. It requires the student to recollect his life as a whole and not just pertaining to academics over the last one month. The questions tap how unpredictable, uncontrollable and overloaded students find their lives.

*Assessment of PSS score:* The score ranges from 0 to 40. The answers are graded on a 5-point Likert Scale ranging as Never = 0, Almost Never = 1, Sometimes = 2, Fairly Often = 3 and Very Often = 4. Positively framed questions 4, 5, 7 and 8 are reverse scored, that is Never = 4 to Very Often = 0 and the scores are summed, with higher scores indicating more perceived stress.<sup>Table 1</sup>

Score is arbitrarily divided as

Low Perceived Stress	0 – 13	<sup>6</sup>
Moderate Perceived Stress	14 – 26	and
High Perceived Stress	27 - 40	

*Data Collection :* All the students of first year MBBS were told about the Objective of the study and were then invited to participate in it . Informed consent was taken and strict confidentiality was assured to all the participants. The students were instructed and then given fifteen minutes to complete the questionnaire.

*Data Analysis :* Statistical Analysis was done using Microsoft Word Excel 2007 and SPSS Version 16 .

## Results

Table 2 illustrates that a total of 250 (n) first year medical students answered the questionnaire. There was a 100% response rate. A total of 141 (56.4%) males and 109 ( 43.6%) females participated in the study.

Table 3 shows they belonged to the age group of 17- 20 years. The Mean age among males was 18.162 years (SD=0.544) and among females was 18.188 years (SD = 0.565)

Table 4 distributes as per religion where, 237students (94.8%) were Hindus, 9 students (3.6%) were Muslims, 2 students (0.8%) were Christians and the last 2 students (0.8%) belonged to other groups.

Table 5 illustrates the mean Perceived Stress score was 20.29 (SD = 6.24, Range 28). The minimum score was 5 and the maximum score was 33. The mean perceived stress scores among males was 19.60 (SD = 6.25, Range 25) minimum of 8 to maximum of 33. The mean perceived stress scores among females was 21.18 (SD = 6.25, Range 27) minimum of 5 to maximum of 32.

Figure 1 is a bar graph where the total scores when arbitrarily divided based on previous studies, it was found 37 (14.8%) had Low Perceived Stress, 171 (68.4%) had Moderate Perceived Stress and 42 (16.8%) had High Perceived Stress.

## Discussion

In this study the overall Mean Perceived Stress score was 20.29 (SD = 6.24). In males it is lower at 19.60 (SD = 6.25) and in females the mean score is higher at 21.18 (SD = 6.25). The stress score is slightly lower when compared to a study done by Mane Abhay et al the mean PSS Score among medical students was 27 (SD = 7.2, 95% CI 25.3-28.6).<sup>7</sup> The overall mean PSS score in that study population was 26.6 (SD = 6.5, 95 % CI 25.8-27.3) which included students from Dental and Nursing.

As is observed from this study 37 (14.8%) suffered low stress, a maximum number of students 171 (68.4%) suffered from moderate stress and 42(16.8%) high perceived stress. When compared to a study by Amr M et al in Egypt 75.4% of students suffered mild to moderate stress.<sup>(8)</sup> In another study by Brahmhatt et al in a medical college in Mangalore 42.5% stress levels was found.<sup>(9)</sup> Another study done in Seth GS Medical College, Mumbai found 73.5% stress levels was indentified.<sup>(10)</sup> Wide variations is due to different stress tools being applied and also environment of the medical student. But the stress levels are predominantly high irrespective of the tool used. Stress has profound effects on the future of each student. It could lead to deleterious effects on the career of the students. It could result in burnout, lack of empathy towards patients, personal family conflicts and sometimes can get even as serious as suicide.<sup>1</sup>

Studies have shown burnout in pre clinical years leads to serious professional misconduct in later practice<sup>11,12</sup>. Previous studies show that depression in medical students is similar to general population when they enter, but this increases disproportionately over the years of their training.<sup>13,14,15</sup>. Coupled with prior research, this study brings out high levels of perceived stress. This calls for urgent corrective measures in the crucial formative years of medical college training.

Tackling stress in medical college is not purely related to academic performance, there are several other factors like sleep deprivation, eating and physical activity habits, financial commitments, broken relationships, in addition to the rigorous medical training.

Focussed Group Discussions need to be organized to have a one-on-one talk with the students about the challenges they face in overcoming the various hurdles of medical college, be it professional or personal. This would also help in identifying what the students feel are the stressors of medical training.

*Limitation* : This study cannot be representative of all medical students across all the other years and across other medical colleges. But this can form a firm base for further research and literature in the Mental Health of trainee doctors.

The Cohen's Perceived Stress Scale is not a diagnostic tool. The data must be compared with Normative Data of the general population which is lacking in this particular setting. Also the arbitrary cut offs are not well standardized leading in discrepancies in the categories of stress levels.

## Conclusion

This study has shown predominantly moderate levels of perceived stress. This is the right time to adopt preventive strategies to prevent these prevalent stress levels from rising further. Academic training in terms of vast syllabus, frequent examinations and hospital duties are part of the process to becoming a seasoned professional. Appropriate support must be provided to these students to be able to face all the challenges of medical training.

Appointing a full time counsellor is a step towards early identification of stressors in the students' life. All students must participate in some form of stress reducing activities. Regular monitoring and evaluation of students is necessary in terms of academic performance, getting involved in social circles and participation in extracurricular activities. Further prospective studies need to be undertaken to identify their reasons for such high stress levels. Identifying students with high stress levels can be the first step to tackling mental stress and producing balanced doctors in the society.

## References

1. Sharma B, Prasad S, Pandey R et al. Evaluation of stress among post graduate medical and dental students: a pilot study. *Delhi Psychiatry Journal*. 2013 Oct;16(2)
2. Miller PMcC, Surtees PG. Psychological symptoms and their course in first-year medical students as assessed by the Interval General Health Questionnaire (I-GHQ). *BrJ Psychiatry* 1991;159: 199-207
3. Jafari N, Loghmani A, Montazeri A. Mental health of medical students in different levels of training. *Int J Prev Med*. 2012 Mar;3(Supp 11): S107–S112.
4. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *Journal of Health and Social Behav* 1983;24:386-96.
5. Cohen, S. and Williamson, G. Perceived Stress in a Probability Sample of the United States. Spacapan, S. and Oskamp, S. (Eds.) *The Social Psychology of Health*. Newbury Park, CA: Sage 1988.
6. Bhat R, Sameer MK, Ganaraja B. Eustress in education : analysis of the perceived stress score (PSS) and blood pressure (BP) during examinations in medical. *Journal of Clinical and Diagnostic Research*. 2011;5(7 Suppl 2): 1331-1335
7. Abhay M, Krishnakumar MK, Paul N et al: Differences in perceived stress and its correlates among students in professional courses. *Journal of Clinical and Diagnostic Research* 2011 Nov;5(6 Suppl 1): 1228-1223
8. Amr M, El gilany AH, El Hawary A. Does gender predict students' stress in Mansoura, Egypt?. *Med Educ Online* 2008 Aug 14;13:12.
9. Brahmabhatt KR, Nadeera VP, Prasanna KS et al. Perceived stress and sources of stress among medical undergraduates in a private Medical College in Mangalore, India. *IJBAR* 2013;4(2):128-136.
10. Supe AN: A study of stress in medical students at Seth G.S. medical college. *J Postgrad Med* 1998; 44 (1):1-6.
11. Yates J, James D. Risk factors at medical school for subsequent professional misconduct: Multicentre retrospective case-control study. *BMJ* 2010;304:1173-80
12. Dyrbye LN, Massie FS Jr, Eacker A et al. Relationship between burnout and professional conduct and attitudes among US medical students. *JAMA* 2010;304:1173-80
13. Givens JL, Tjia J. Depressed medical students' use of mental health services and barriers to use. *Acad Med* 2002;77:918-21
14. Rosal MC, Ockene IS, Ockene JK et al. A longitudinal study of students' depression at one medical school. *Acad Med* 1997;72:542-6.

15. Hirata FC, Lima mC, de Bruin VM, Nobrega PR, Wenceslau GP et al. Depression in medical school : The influence of morningness-eveningness. *Chronobiol Int* 2007;24:939-46.
16. Dyrbye L, Thomas M, Shanafelt T. Medical student distress: causes, consequences and proposed solution Available from URL <http://www.mayoclinicproceedings.com/content/80/12/1613> [Accessed May 2014].

**Table 1 : Cohen's Perceived Stress Scale PSS-10 along with the scoring**

<b>IN THE LAST MONTH HOW OFTEN HAVE YOU::</b>	<b>Never</b>	<b>Almost Never</b>	<b>Sometimes</b>	<b>Fairly Often</b>	<b>Very Often</b>
1.been upset because of an unexpected event disturbing your schedule	0	1	2	3	4
2.felt that you were unable to control the important things in your life	0	1	2	3	4
3.felt nervous or stressed	0	1	2	3	4
4.felt confident about your ability to handle your personal problems	4	3	2	1	0
5.felt that things were going your way	4	3	2	1	0
6.felt that you could not cope with the things that you normally do	0	1	2	3	4
7.been able to control the irritations in your life	4	3	2	1	0
8.felt that you were in control of all things	4	3	2	1	0
9.been angered that things were out of your control	0	1	2	3	4
10.felt the difficulties were piling up so high that you could not overcome them	0	1	2	3	4

Total scores can range from Minimum of 0 to Maximum of 40

**Table 2: Gender distribution among first year medical students**

<b>Sex</b>	<b>Percentage (%)</b>
Male	141 (56.4%)
Female	109 (43.6%)
<b>Total (n)</b>	<b>250 (100%)</b>

**Table 3: Age distribution among first year medical students**

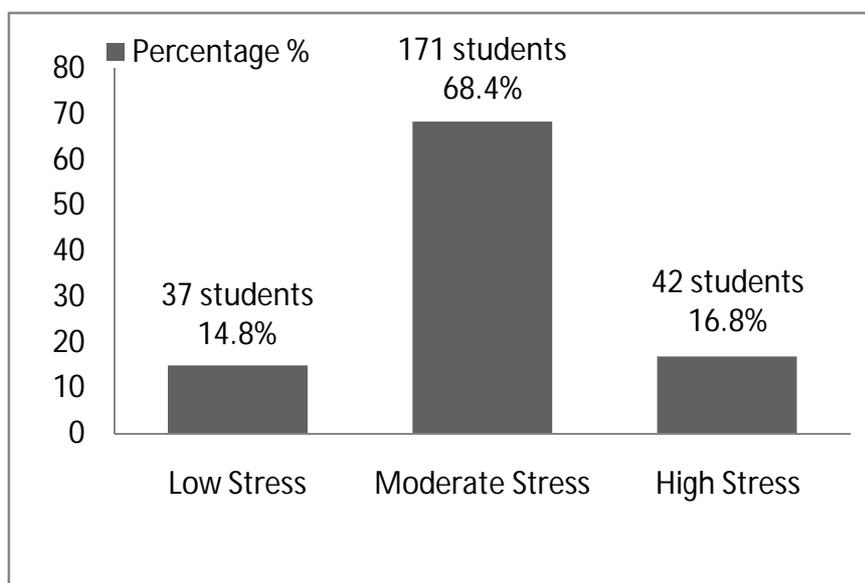
Age in years	Percentage (%)
17	15 (6%)
18	183 (73.2%)
19	48 (19.2%)
20	4 (1.6%)
<b>Total (n)</b>	<b>250(100%)</b>
<b>Mean ± SD = 18.162 ± 0.532</b>	

**Table 4: Distribution as per religion**

Religion	Percentage (%)
Hindu	237 (94.8%)
Muslim	9 (3.6%)
Christian	2 (0.8%)
Others	2 (0.8%)
<b>Total (n)</b>	<b>250 (100%)</b>

**Table 5: Perceived Stress scores among first year medical students**

Sex	Mean ± SD	Minimum	Maximum	Range
Overall	20.29 ± 6.24	5	33	28
Males	19.60 ± 6.25	8	33	25
Females	21.18 ± 6.25	5	32	27



**Fig 1: Category of Perceived Stress**