

## ORIGINAL ARTICLE

# A CROSS-SECTIONAL STUDY ON THE SOURCES AND LEVELS OF STRESS AMONG SECOND YEAR UNDERGRADUATE MEDICAL STUDENTS

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## ABSTRACT

**Background:** Stress is common in medical students. Medical school is recognized as a stressful environment that often exerts a negative effect on the academic performance, physical health and psychological wellbeing of the students. Very few studies documenting the sources and levels of stress has been done in Indian medical students.

**Objectives:** The current study was undertaken to assess the levels & sources of stress among second year undergraduate medical students.

**Methods:** We did a cross-sectional study using Medical Student Stressor Questionnaire (MSSQ) to estimate the sources, levels of stress & compared the stress levels between female and male undergraduate medical students. Totally 69 students participated in the study out of which 41 were females & 28 were males.

**Results:** Upon analysis, the Academic Related Stress (2.26), Intrapersonal & interpersonal related stress levels (2.03) was high among the second year undergraduate students. So Academic Related & Intrapersonal & interpersonal related were the major sources of stress among the students followed by Group activities related stress (1.87), Social related stress (1.82), Teaching and learning related stress (1.55) and Drive and desire related stress (1.43) in that order, in all of whom the stress levels was mild.

**Conclusion:** The current study revealed the levels & sources of stress among second year undergraduate medical students. It also indicated that academic problems were the main sources of stress compared to non-academic problems. Females had comparatively more stress levels than their male counterparts.

**Keywords:** Stress, sources, levels, medical students

## INTRODUCTION

The medical education in India is demanding as far as students' efforts are concerned. It has been observed that medical school environments in India are extremely stressful and has lead to suicide and suicidal attempts by the students. Fear of failure, vast amount of content that has to be mastered, inability to cope with the high expectations of parents and peers are found to be the most commonly observed sources of stress.<sup>1</sup>

Tertiary medical training has always been regarded as being highly stressful. Many studies have described the stressors of medical training and the

associated negative consequences on the mental and physical health of medical students.<sup>2,3</sup>

Medical school is recognized as a stressful environment that often exerts a negative effect on the academic performance, physical health and psychological well being of the student. A study among undergraduate medical students in the United States of America found that 57% were under psychological stress.<sup>4</sup>

Stress is defined as the body's nonspecific response or reaction to demands made on it, or to disturbing events in the environment. It is not just a stimulus or a response but it is a process by which

we perceive and cope with environmental threats and challenges. Personal and environmental events that cause stress are known as stressors. In short, stress is emotional disturbances or changes caused by stressors.<sup>5</sup>

Linn & Zeppa stated that some stress in medical school training is needed for learning. Stress which promotes and facilitates learning is called 'favourable stress' and stress which inhibits and suppresses learning is called 'unfavourable stress'. The same stressors may be perceived differently by different medical students, depending on their cultural background, personal traits, experience and coping skills.<sup>6</sup>

Studies have reported an association of excessive stress level with lowered medical students' self-esteem, anxiety and depression, difficulties in solving interpersonal conflicts, sleeping disorders, increased alcohol and drug consumption, cynicism, decreased attention, reduced concentration and academic dishonesty. It is also associated with inhibition of students' academic achievement and personal growth development. Excessive has also been linked with suicides in medical students. As a result, medical students may feel inadequate and unsatisfied with their career as a medical practitioner in the future. It is noteworthy that many researchers have stated the importance of early diagnosis as well as effective intervention programme, which can prevent possible future illnesses among medical students.<sup>5</sup>

Studies from developing countries like India, Nepal, Pakistan, Thailand have reported stress among medical students & have underscored role of academics as a potential stressor<sup>7,8</sup> but have not related to the gender i.e male and female students. Since the perception of stress is frequently influenced by gender, socio-cultural factors, ethnicity & educational systems,<sup>9</sup> the results of studies in one region cannot be generalized to the others.

In view of this, the study was conducted to determine both the levels & sources of stress in second year undergraduate medical students of Basaveshwara Medical College & Hospital, Chitradurga, Karnataka.

The objectives of the present study were to find out the sources of stress in these students; to determine the levels of stress among second year undergraduate medical students; and to compare the stress levels between female and male students

## METHODOLOGY

This cross-sectional study was conducted in the department of Pharmacology at Basaveshwara Medical College & Hospital, Chitradurga, Karnataka in the month of June 2014. Study was conducted in accordance with the principles of good clinical practice and declaration of Helsinki. A total of 69 second year undergraduate Medical students were selected as the respondents.

In this study, the Medical Students Stressor Questionnaire (MSSQ)<sup>5</sup> was used to identify sources of stress. The items on MSSQ represent 40 events that have been reported to be possible sources of stress in medical students. Respondents were asked to rate each event in themselves during the recent weeks by choosing from five responses: 'causing no stress at all', 'causing mild stress', 'causing moderate stress', 'causing high stress' and 'causing severe stress'. The MSSQ is scored by assigning a value of zero to four for each of the respective responses. For example, a response of 'causing no stress at all' would be scored as zero and a response of 'causing severe stress' scored as four.<sup>10</sup>

The questions in the MSSQ were addressed to 6 domains of stress which included, **Academic related:** involving examination, learning context, competition, falling behind in schedule etc. **Intrapersonal & interpersonal:** verbal/physical abuse, conflicts with peers & teachers, health problems etc; **Teaching related:** inadequate study material, lack of guidance, teaching skills, feedback from teachers etc; **Social related:** interruption by peers, lack of time for friends and families, **Drive related:** parental wish, unwillingness; **Group activities related:** peer pressure, performance and discussion.<sup>10</sup>

Demographic data (age, gender) was obtained within the same questionnaire. Identities of the volunteers were kept confidential by randomly allocating IDs to the study participants. They were allowed to fill the questionnaire, seal the envelopes & drop them in a drop box.

Data collection was performed in the midst of 2013/2014 academic session. We chose this period to avoid the stressful examination period, which could potentially contribute to measurement bias. Thus, we reasoned that the level measured was representative of the natural level of stress in medical students.

The questionnaire was semi-structured, self-administered and distributed to the medical students during face-to-face sessions in a lecture hall. The students were told to follow the instructions. The process of filling in the questionnaire took on

an average about 15 minutes to complete and they were to be returned on the same day. Verbal consent was obtained from all participants. Completion of the questionnaires was voluntary and would not affect their progression on the medical course. Clearance was obtained from Institutional ethics committee before the start of the study.

Descriptive analysis was done using Statistical Package for Social Sciences (SPSS) version 16. Following observations were made.

**RESULTS**

Mean age for this study was 19 years. Out of 69 students 41 (59.42%) were females & 28 (40.58%) were males. Upon analysis, the Academic Related Stress (2.26), Intrapersonal & interpersonal related stress levels (2.03) was high among the second year undergraduate students. So Academic Related & Intrapersonal & interpersonal related were the major sources of stress among the students followed by Group activities related stress (1.87), Social related stress (1.82), Teaching and learning related stress (1.55) and Drive and desire related stress (1.43) in that order, in all of whom the stress levels was mild.

When we compared the stress levels in female and male students, the stress levels of ARS, IRS, DRS, GARS was more in females as compared to males. But TLRs & SRS was high in male students.

**DISCUSSION**

A life without any challenge or pressure, i.e., “stress,” would be under stimulating and deadly boring. Everyone needs a certain amount of “pressure” to perform at their best. But when the pressures exceed a person’s ability to cope, the result is stress. And, prolonged stress can set up a cycle of distress and cut down the ability to cope with ordinary situations too. Stress has been also described as a double-edged sword that can either stimulate and motivate the students to peak performance or reduce the students to ineffectiveness.<sup>11</sup>

The present study revealed that female students perceived more stress levels than their male counterparts. In a study done on Malaysian Medical students, the academic/non-academic stressors were more commonly seen among male medical students as per Johari et al.<sup>12</sup> A higher percentage of female students confessed to have stress compared to their male counterparts, though the difference was not statistically significant. Some other studies have also revealed higher levels of stress in

female students,<sup>13,14</sup> though Indian study by Supremanthran<sup>15</sup> does not reveal any gender predilection.

**Table 1: Sources of stress in study population**

Sources of stress	Scores*
Academic related stressors (ARS)	2.26 ±0.64
Intrapersonal & interpersonal related stressors (IRS)	2.03 ±0.80
Teaching and learning related stressors (TLRS)	1.55 ±0.62
Social related stressors (SRS)	1.82 ±1.13
Drive and desire related stressors (DRS)	1.43 ±0.91
Group activities related stressors (GARS)	1.87 ±0.81

\*Mean score ± S.D

0.00 to 1.00 – mild stress

1.01 to 2.00 – moderate stress

2.10 to 3.00 – high stress

3.01 to 4.00 – severe stress

**Table – 2: Comparison of Stress between Female and Male Students**

Sources of stress	Mean scores (±S.D)	
	Females	Males
Academic related stressors (ARS)	2.41 ±0.65	2.04 ±0.57
Intrapersonal & interpersonal related stressors (IRS)	2.08 ±0.82	1.96 ±0.78
Teaching and learning related stressors (TLRS)	1.54 ±0.65	1.57 ±0.58
Social related stressors (SRS)	1.66 ±0.71	2.06 ±1.55
Drive and desire related stressors (DRS)	1.48 ±0.98	1.35 ±0.80
Group activities related stressors (GARS)	1.92 ±0.84	1.81 ±0.77

It may be that longer duration of study and greater duration required to complete professional degree, coupled with higher expectations from parents of same background serving as role models,<sup>16</sup> poses a greater degree of stress on medical students.

The possible inducers of stress in medical students could be infrastructural factors such as unsatisfactory living conditions in the hostel and inadequate library facilities, academic factors such as pressure of studies and frequent examinations, and interpersonal factors such as excessive competitive attitude among students, political conflicts, jealousy and peer rivalry over love affairs, all of which could come in the way of natural friendship and cooperation. Limited data are available regarding the exact contribution of these factors to student distress and its impact on academic performance, dropout rates and professional development.<sup>17</sup>

Stress in medical students can have professional ramifications, including damaging effects on empathy, ethical conduct, and professionalism, as well as personal consequences such as substance abuse, burnouts, broken relationships & suicidal ideation.

Therefore, it is the responsibility of the society in general and medical schools in particular, to acknowledge stress among future doctors, identify sources of stress, assess the individual student's coping ability, and undertake appropriate measures.<sup>18</sup>

Some of the suggested stress reducing measures could be improving the living conditions and infrastructural facilities available to students; reducing the incidence of campus conflicts; giving more importance to ongoing academic performance rather than on marks obtained in summative evaluations, ensuring availability of well-trained student counsellors and specific programs to promote stress resilience, self-care in medical students.<sup>19</sup> Encouraging measures to improve social networking on campus, such as college festivals & sports are important stress-alleviating measures. Efforts to reduce student distress should be viewed as an essential component of broader programs to promote overall student well-being.

With this study, we want the policy makers and the medical fraternity to make a note of this neglected aspect of medical education. More elaborate and longitudinal studies would be required to conclusions on the incidence, causes and consequences of stress in future doctors.

## CONCLUSION

The current study revealed the levels & sources of stress among second year undergraduate medical students. It also indicated that academic problems were the main sources of stress compared to non-academic problems. Females had comparatively more stress levels than their male counterparts. Once the quality and levels of stress are identified, coping strategies can be adapted which will help in preventing stress-related problems.

“No one can calm the ocean's waves; but by stress management techniques one can learn to surf the ocean” – Anonymous

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