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## Stress study in 1<sup>st</sup> year medical students

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### Abstract

As stress is a very common feature in medical students, we performed a cross-sectional study in 1<sup>st</sup> year medical students to know the prevalence of stress in students, severity of stress & to find the symptoms associated with stress. A pre-designed & pre-tested questionnaire was distributed to 60 students (31 girls & 29 boys) randomly selected. After analyzing the data in the questionnaires, we found that major cases of stress were stress of school performance, stress of school/leisure conflict, stress of future uncertainty and stress due to other factors, all of which were reported by more than 85% of all the students. We also found that stress of future uncertainty & stress of school/leisure conflict is responsible for mild stress in all students. Stress of school performance & stress of future uncertainty is responsible for moderate stress in all students. Stress of other factors is responsible for severe in all students. Many of the students suffered from symptoms like poor concentration, restlessness, mood changes, decreased appetite, palpitations etc. Thus our study shows high prevalence of stress in undergraduate medical students.

**Keywords:** Stress, medical students, school performance, physical symptoms.

### 1. Introduction

Fractures Stress is a universal phenomenon faced by humans in response to the stressors. Stress affects both physical and mental well being of the person either in positive or negative way depending on the person.[1] Stress is particularly common in medical students adversely affecting their physical and cognitive capacities[2-5], whilst few studies have shown beneficial effects of stress in girl students.[6] Medical education is inherently stressful. A medical student is subjected to various stressors like academic performance, homesickness, regularity to the course, financial problems, relationship problems peer pressure, familial problems, leisure conflict, high expectations from parents and others like dealing with the illnesses and dying, hostel food.[2-6] In response to this medical students often suffer from psychological cognitive and physical impairments like depression, suicidal tendencies, anxiety, impaired concentration, poor memory retention and recall, low academic performance, insomnia.[2-7] Stress is handled by medical students by coping techniques like positive reframing, acceptance,

planning, or many times by adverse techniques like alcohol/substance abuse or by self blaming.[8]

Also the stress in preclinical medical level is likely to continue in the clinical, postgraduate level & professional life which may have a grave outcome. So it is of utmost importance to the find out prevalence of stress, various stressors, effect of stress on mental, physical & academic life of students, various coping techniques used by the pre-clinical medical students. Hence the present study is undertaken to find out the prevalence of stress in undergraduate medical students.

### 2. Materials and methods

The present cross-sectional study was performed in 60 students (31 girls & 29 boys) of 1<sup>st</sup> year of MBBS batch admitted in year 2014. 60 student participants were selected for the study by simple random sampling. The purpose & procedure of the study was explained to all participants. Informed and written consents of all students were obtained. Approval of the ethics committee was also

obtained. All students were given a pre-designed & pre-tested questionnaire.

Questionnaire consisted of following information:-

Various stress factors-

- 1) Stress of home life
- 2) Stress at school performance
- 3) Stress of school attendance
- 4) Stress of romantic relationships
- 6) Stress of peer pressure

7) Stress of teacher interaction

8) Stress of future uncertainty

9) Stress of school/leisure conflict

10) Stress of financial pressure

11) Stress of emerging adult life

Each of the above stress factors was evaluated different sub-questions and participants had to answer them in one out of five options.

Following is an example:-

**Stress of school performance**

Sr. No.	Name of the event	Not at all stressful	A little stressful	Moderately stressful	Quite stressful	Very stressful
1	Having to study things you do not understand					
2	Teachers expecting too much from you					
3	Difficulty with some objects					
4	Keeping up with school work					
5	Having to study things you are not interested in					
6	Having to concentrate too long during school hours					
7	Pressure of study					

Students who marked in any stress grade at least once, that stress factor were considered to contribute to the stress. Each of the stress factors was analyzed in the following way

- a. Twice or more marked against quite/very stressful→ Severe grade stress
- b. Marked at least once against quite/very stressful & twice against moderately stressful→ Severe grade stress

c. Marked at least twice against moderately stressful & at least once against little stressful→ Moderate grade stress

d. All other markings except above three→ Mild grade stress.

The questionnaire also consisted of various symptoms from which participants might suffer. The questionnaire was analyzed for the most stressful factors in students & the association between the different grades of stress & stress factors was studied by applying Chi – square test.

### 3. Observations & results

**Table 1: Questionnaire analysis**

Stress factor	For all students(n=60)		For boys only (n=29)		for girls only (n=31)	
	YES	NO	YES	NO	YES	NO
stress of home life	81.67%	18.33%	86.21%	13.79%	77.42%	22.58%
Stress of school performance	98.34%	1.66%	100%	0%	96.78%	3.22%
Stress of school attendance	81.67%	18.33%	86.21%	13.79%	77.42%	22.58%
Stress of romantic relationships	63.34%	36.66%	75.87%	24.13%	51.62%	48.38%
Stress of peer pressure	81.67%	18.33%	93.11%	6.89%	70.97%	29.03%
Stress of teacher interaction	76.67%	23.33%	79.32%	20.68%	74.2%	25.8%
Stress of future uncertainty	85%	15%	86.21%	13.79%	83.88%	16.12%
Stress of school/ leisure conflict	86.67%	13.33%	93.11%	6.89%	80.65%	19.35%
Stress of financial pressure	78.34%	21.66%	93.11%	6.89%	64.52%	35.48%
Stress of emerging adult responsibility	65%	35%	75.87%	24.13%	54.84%	45.16%
Stress of other factors	96.67%	3.33%	96.56%	3.44%	96.78	3.22%

From the above table, it can be seen that, all of the above stress factors are responsible for causing stress in the students. However we considered only those stress factors which were reported by more than 85% of all students (by boys & girls combined) for

further analysis. These factors are stress of school performance, stress of future uncertainty, stress of school/leisure conflict & stress of other factors. Peer pressure was also reported by 93.11% of boys as a cause of stress.

**Table 2: Symptoms reported by all students (n=60) while suffering from stress**

Symptom	% of all students suffering from the symptom
Poor concentration	86%
Mood changes	80%
Restlessness	79%
Gastrointestinal like decrease in appetite & altered motions	57%
Excess perspiration & overheating	17%
Palpitations	8%

**Table 3: Grades of Stress (For All Students)**

Grades of stress	Stress of school performance (n=59)	Stress of future uncertainty (n=51)	Stress of school / leisure conflict (n= 52)	Stress of other factors ( n=58)
Mild	14	16	17	5
Moderate	21	16	12	17
Severe	14	19	23	3

**Table 4: Chi square table**

Grade of Stress	Stress of school performance		Stress of future uncertainty		Stress of school/ leisure conflict		Stress of other factors		Total
	O	E	O	E	O	E	O	E	
Mild	14	14	16	12	17	12	5	14	52 (23.63%)
Moderate	21	18	16	15	12	16	17	17	66 (30%)
Severe	24	27	19	24	23	24	36	27	102 (46.36%)
	59		51		52		58		220

O: Observed value, E: Expected value

Chi square value for degree of freedom 6 is 15.76, corresponding to P value of less than 0.02.

So we can infer that:

- Stress of school performance is responsible for moderate stress in all students.
- Stress of future uncertainty is responsible for mild & moderate stress in all students.
- Stress of school/leisure conflict is responsible for mild stress in all students.
- Stress of other factors is responsible for severe stress in all students.

#### 4. Discussion

In our study we found that, more than 85% of students (both boys & girls) reported school performance, future uncertainty, school/leisure conflict & other factors like-public speaking, public image, raging, change in environment, poor food quality, lack of family support, relationship insecurity, parental unemployment as the major factors responsible for stress. Stress of home life, stress of school attendance and stress of peer pressure was perceived by 81.67% of all students. Stress of financial pressure was reported by 78.34 % of all students. Stress of teacher interaction was reported by 76.67 of all students. 65% of students noted the stress of emerging adult responsibility & stress of romantic relationship was reported by 63.34% of all students.

While under stress, 86% of all students experienced poor concentration, 80% of students

experienced mood changes, 79% of students suffered from restlessness, 57% of students experienced gastrointestinal symptoms like decrease in appetite & altered motions, 17% of students experienced excess perspiration & overheating, 8% of all students suffered from palpitations.

We also found that stress of future uncertainty & stress of school/leisure conflict is responsible for mild stress in all students. Stress of school performance & stress of future uncertainty is responsible for moderate stress in all students. Stress of other factors is responsible for severe in all students.

Results of our study are in agreement with other studies.[2-8]

Shaikh *et al*[2] in their cross-sectional study showed that, more than 90% of all students felt stressful at one or more times. They found exams & academics as the most powerful stressors. Financial problems & travelling between campus & home were the other factors responsible for stress. Symptoms of the stress like low moods, inability to concentrate, short temper, insomnia, fatigue were reported by many of the students.

Marjani *et al*[3] studied stress in Gorgan medical students. Results showed mild, moderate & severe stress in 26.22%, 20.5% & 14.75% of the study subjects. They found statistically significant association ( $p = 0.04$ ) between stress levels & years of study. Their results showed decrease in psychological health of first year medical students.

Mostafa *et al*[4] performed a study on male & female medical students in Egypt. IN their study stressors were reported by 94.5 % of all students with equal gender proportion. But two stressors viz. relationship problems with teachers & substance abuse were significantly less associated with females. They found that male & female students were similar on level of perceived stress, number of stressors & clinical anxiety, but females had significantly higher depression & neuroticism score than male counterparts.

Abdulghani *et al*[5] studied the prevalence of stress & association between stress & academic year, regularity & physical problems. Prevalence of psychological stress was 57% & severe stress was present amidst 19.6% of subjects. The main stressor in their study was studies (60.3%) & other like home environment (2.8%). Limitation of their study was that only male students were selected for the study.

Mukesh Kumar *et al*[6] studied causes of stress in 114 under graduate medical students & explored the correlation of stress, gender, attendance & academic performance. Their findings showed medium level of stress in 53% of students & 29% of students showed high level of stress. They concluded that stress had a negative impact on academic performance in male students, might be due to deterioration of cognitive skills. But in female students stress improved the academic performance might due be to eustress.

Elzubeir *et al*[7] in their review article, mentioned that high prevalence of psychological stress, depression & anxiety was present in Arab medical students. They noted relationship problems, academic performance, environmental conditions, low socioeconomic conditions as the main causes of stress.

Sreeramreddy *et al*[8] performed a cross-sectional, questionnaire based study in 407 undergraduate medical students of Nepal to assess the prevalence of psychological morbidity, sources & severity of stress, and coping strategies. They found overall prevalence of psychological morbidity was 20.9%. Academic & psychosocial problems were most common sources of stress. Factors like staying in hostel, high parental expectations, vast syllabus, exams & lack of recreation were the causes of severe stress.

The results in our study confirm the fact that under graduate medical students are exposed to enormous amount of stress.

Stress of future uncertainty like concern about own future, making decision about future work or education, putting pressure on oneself to meet the

future goals is responsible for mild & moderate stress in all students. It means that students need proper guidance about the future professional life they may pursue.

Stress of school/leisure conflict like not getting enough time for leisure, for activities outside college hours, for fun, having too much homework accounted for mild stress in all students. It means students need more interactive & friendly environment in the campus.

Stress of school performance like having to study things which they do not understand, difficult subjects, high teacher expectations, having to study things not interested in, pressure of study accounted for moderate stress in all students. To counteract this problem different teaching-learning methods like group discussion, problem based learning may be used. Use of different teaching learning media like audio visual aids may facilitate student learning.

Stress of other factors like public speaking, public image, parents staying separately, raging in college, change in environment, poor quality of food, medical history of self, death of family member, accidents, lack of family support, involvement in misdoings, physical dependence on others, relationship insecurity, parental unemployment is responsible for severe stress in all students. The effect of this stress can be decreased by proper counseling of the students.

The physical symptoms associated with stress in our students may be explained by the fact that stress causes stimulation of sympathetic nervous system & by the release of stress hormones.[9]

## 5. Summary and conclusion

Undergraduate medical students are exposed to a large amount of stress. Major causes of stress in students in our study were – Stress of school performance, Stress of school/leisure conflict, stress of future uncertainty and stress of other factors.

Students in our study also suffered from various symptoms like- poor concentration, mood changes, restlessness, gastrointestinal symptoms like decrease in appetite, excess perspiration and overheating, palpitations.

As the nation's health and progress of medical science resides in the hands of these undergraduate medical students, it is of utmost importance to maintain the psychological health of these students. Proper steps should be taken to ameliorate the stress in these students.

Use of different de-stressing techniques like regular practice of Yoga & pranayam[10], listening to music, deep breathing & meditation, self

instruction & biofeedback[11] should be promoted in students.

Screening of students should be done at regular intervals to find out the students suffering from psychological illnesses so that proper counseling may be done.

Use of more recreational activities, extra-curricular activities may help to reduce the stress in the students.

Limitations of our study are its cross-sectional design. We also did not co-relate stress with academic performance of the students.

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