

## Assessment Of The Prevalence Of Stress And Its Levels In Students Of A Medical College In Mumbai - A Cross Sectional Study

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**Abstract:** Background: Stress in medical students is increasing nowadays & leading to untoward incidences. It is necessary to identify the stress levels & its causes at earliest so that early interventional measures can be adopted. This study aimed to find out prevalence of stress in medical students & to compare level of stress in males and females. Methodology: Total 338 medical students were evaluated for the presence of stress and its levels (mild/moderate/severe) using the Kessler Psychological Distress Scale (K10). Gender difference for stress levels was compared using student's 't' test. Reasons for stress were evaluated by a questionnaire. Results: The total prevalence of stress was 57.9% and the prevalence of severe stress was 10.6%. It was found that level of stress was significantly higher ( $p < 0.05$ ) among females (mean =  $22.60 \pm 7.11$ ) as compared to males (mean =  $20.86 \pm 8.05$ ). The main reason for stress in males was found to be academic problems and in females, problems related to hostel. Conclusion: Overall stress prevalence was 57.9%, which is high and thus needs to be addressed. Females have higher stress than males. The main source of stress in females being hostel problems and in males academic problems. Thus, various programs need to be arranged along with counselling to combat this stress. [Patkar U NJIRM 2016; 7(2):9-13]

**Key Words:** K10 Scale, stress, medical students.

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**Introduction:** Stress has become very common in this age of competition in various fields. Medical field is one of the fields that are thought to be stressful<sup>1,2</sup> Severe stress may be detrimental to the medical students as it may affect their cognition, health as well as the ability to perform well in the exams. Presence of stress, if any, should be addressed and efforts should be directed towards its removal. Also medical students are the ones who will become physicians and be a major, responsible part of health care system. There are studies which showed that stress may continue during the internship, postgraduate study period, and later into physician's practical life<sup>3,4</sup>. Thus, they should be stress free at early stage.

With increase in competition, stress levels needs to be assessed. Various studies have been done across the years to study stress and its effects<sup>5</sup>. So this study was conducted to determine the prevalence of stress and its levels in medical students in a Mumbai based medical college. We also compared if there is any gender difference noted in stress levels. So that accordingly various programs can be arranged and numerous methods can be adopted by the teachers while teaching to reduce stress levels in students. Knowledge of stress and its reasons will go a long way in helping medical students and thus the society in the long run.

**Material and Methods:** The presence and level of stress was determined using the "Kessler Psychological Distress Scale (K10)"<sup>6</sup>.

K10 is a simple measure of psychological distress. It involves 10 questions about emotional states, each with a five level response scale. The measure can be used as a brief screen to identify the levels of distress. The questions concern how the person has been feeling over the past 30 days with responses being one of these five- "none of the time", "a little of the time", "some of the time", "most of the time" or "all of the time".

The study was carried out at T N Medical College, Mumbai, Maharashtra, India. Out of 600 students present at the time of study in this institute, 400 Students (males and females) were selected depending on the willingness of participation. Students were selected from second year (first semester and third semester) to final year of M.B.B.S. First year students were excluded from the study as per Ethics Committee's suggestion. Any student who has a known psychiatric disorder or/and is on any antipsychotic, antidepressant medication was excluded from the study. Students having exam within two months of the day of study were also excluded from the study.

After taking Institutional ethics committee approval all the M.B.B.S. students were explained in brief about

the purpose of this study. Prior permission was taken from the concerned teacher on the day of study and the last 20-25 minutes of a 1 hour lecture was utilized for the study. Instructions regarding filling of the K10 questionnaire were given to the students.

Written informed consent was taken from each participant. But, names not asked to enter on the questionnaire to maintain anonymity and thus to avoid restrain on the part of students to give adequate responses.

The questionnaire was administered to the students in the respective lecture hall. Additional questions regarding cause of the stress were included on a separate form which was given to each student. The questions were as under:

1. Tick the gender: Male/Female
2. Tick against the box/boxes which may be the reason/reasons for your stress.. If there is any other source of stress, tick against the box for "other reasons":
  - Busy schedule
  - Harassment by seniors
  - Harassment by teachers
  - Fear of teachers
  - Need to meet the required attendance
  - Financial problems for paying fees, books etc
  - Relationship issues
  - Seeing patient problems/diseases
  - Seeing patient's death in wards or emergency
  - Tough syllabus
  - Lengthy syllabus
  - Difficulty in understanding the lectures
  - Strong competition between colleagues
  - Staying at hostel
  - Missing home and parents while at hostel
  - Roommate problems while at hostel
  - Any Other reasons

Each student was allotted 15 minutes to answer the questionnaire and the form. The questionnaires along with the forms were collected after 15 minutes. Finally they were scored as under K10 Scoring as follows,

- Each item in this questionnaire was scored from one (none of the time) to five (all of the time).
- Scores of the responses to 10 items were then summed yielding a minimum score of 10 and a maximum score of 50.

- Low scores indicate low levels of psychological distress and high scores indicate high levels of psychological distress.

K10 Score: Likelihood of having a mental disorder (psychological stress)

10-19: likely to be well

20-24: likely to have a mild stress disorder

25-29: likely to have a moderate stress disorder

30-50: likely to have a severe stress disorder

Data entered in Microsoft Excel & Statistical analysis was done by using SPSS software (version 20). Prevalence of stress was calculated by calculating percentage of students having stress. Comparison of stress in both genders calculated by using student's 't' test with the P value of less than 0.05 considered as statistically significant.

**Results:**

Out of approximately 400 students who are participated in the study 338 completed the questionnaire.

**Table 1: Distribution of the students**

Study variable	Total no.	Percentage
Male	174	51.74
Female	164	48.52
Year of the study		
Second (first semester)	78	23.07
Second(third semester)	114	33.72
Third ( first part)	82	24.26
Final ( second part)	64	18.93

The total prevalence of stress was 57.9% and the prevalence of different level of stress was as shown in

**Table 2: Prevalence of stress**

Total students N=338	No. of students having stress	Percentage
Stress	195	57.9
Mild stress	90	26.62
Moderate stress	70	20.71
Severe stress	35	10.35

It was found that level of stress was significantly higher ( $p < 0.05$ ) among females (mean=22.60±7.11) as compared to males (mean=20.86±8.05) as shown in

**Table 3: Comparison of level of stress among study groups**

Sex (n=338)	mean± S.D.	t value	P value
Male (n=174)	20.86±8.05	2.103	0.036*
Female (n=164)	22.60±7.11		

\*statistically significant as less than 0.05

**Table 4: Percentage distribution of different reasons of stress in Males & Females**

Reason for stress	Males (%)	Females (%)
Academic Problems	70	28
Hostel Problems	05	33
Harassment by seniors/teachers	07	11
Personal Problems	07	13
Other Problems	11	15

**Discussion:** As such stress is normal, desirable & beneficial part of our lives that can help us to learn and grow but prolonged, uninterrupted, unexpected & unmanageable stress is damaging<sup>7</sup>.

In this study we tried to find out the prevalence of stress & the gender differences in the stress among medical students. The overall prevalence of stress in the study (57.9 %) was similar to the Saudi Arabia study (63.7%)<sup>8</sup> and Thai study (61.4%)<sup>9</sup> but higher than a study in Egypt (43.7%)<sup>10</sup> or a Malaysian study (41.9%)<sup>11</sup> and a British study (31.2%)<sup>12</sup>. This could be either due to the different methods used in other studies or it could be a difference in environmental, cultural conditions or could be real difference.

It was found that prevalence of stress was higher ( $p < 0.05$ ) among females mean=22.60±7. as compared to males(mean=20.86±8.05) which was very similar to Saudi arabia study<sup>5</sup>, but other studies have shown that the gender differences in stress symptoms and overall prevalence or mean scores did not turn out to be a significant factor in reporting of stress<sup>13,14,15</sup>.

Previous research studies showed that females tend to perceive more stress than males & females are more likely to become depressed in response to stressor than in males<sup>16,17</sup>. Studies have consistently demonstrated that female students report greater

level of stress<sup>18,19</sup>. Many studies concluded that females were the most affected gender than males when it comes to academic stress<sup>20,21,22</sup> which is contrary to our study may be because we have conducted at least two months prior to any exam.

Female students having more stress levels than males, may be because cortisol plays an important role in managing stress in human being. It is hypothesized that gender difference in cortisol reactivity to stress may be associated with hormonal variation occurring at the time of menstruation<sup>23</sup>. Also we could not ignore effect of influence of gonadal hormones on affect & cognition in response to stress<sup>17,24</sup>. However, this issue could not appropriately be explained by our study and requires further investigation.

Further, in our study, main reason for the stress in males was found to be academic problem which was 70% as shown in table no. 4. But in females, hostel related problems dominate. The different reasons for stress may be because of differences in personality & psychology<sup>12</sup>. But still needs further evaluation & research.

The negative effects of long and tiring medical education on the psychological status of students have been shown in several studies. Results of a study in UK showed that one-third of psychologically-ill students did not graduate from the college<sup>24</sup>. The changes relating to becoming a medical student appear to have a significant impact on the psychological status of students. With early identification and effective psychological services, possible future illnesses may be prevented. It is very important to start stress-prevention strategies in students who have any level of psychological stress to prevent the development of more serious conditions in future relating to stress. Wellness and mental health programmes are also needed to help students make smooth transition between different learning environments with changing learning demands and a growing burden on their mental and physical capacity.

**Conclusion:** The finding of the study showed that the prevalence of stress is high in medical students and thus needs to be addressed. Females have higher stress than males. The main source of stress in females is hostel related problems and in males academics related problems. The major finding of high psychological stress in the students of the medical

college in Mumbai points to the need for making it a policy to measure the stress levels periodically to take corrective measures.

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