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Original Research Article

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Prevalance of stress and its risk factors among medical students

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ABSTRACT

Background: Studying medicine is stressful. Stress may cause serious health problems and affects their professional life. Hence establishing a database on the extent of the problem will help in the planning of measures to reduce stress. The aim of the study was to determine the prevalence and risk factors of stress among the medical students.

Methods: Cross-sectional study was done using 40 item medical student stressor questionnaire (MSSQ) to evaluate the level of stress and the stressors and hence finding the factors associated with it. Data were analysed using EPI INFO.

Results: Of the medical students who were administered questionnaire, 250 (83%) participated in the study. About 17.2% are from Tamil medium. 37.2% were first child in the family. 64.4% and 57.6% have responded that 6-8hrs sleep needed and the actual sleeping hours respectively. About 74%, 75.2%, 62.8% and 56.4% have less focus, less energy and motivation, negative mood and poor academic performance due to decreased sleep. Academic and group related activities contribute to about 29.2%, 20.8% of the total stress respectively.

Conclusions: The prevalence of stress among medical students is moderate to high. The second and final year students are having high stress levels. Academic and group related activities were the major stressors among medical students. Year of study and being the first doctor in the family were the best predictors of a medical student's stress level.

Keywords: Medical student stressor questionnaire, Sleep, Stress

INTRODUCTION

Studying medicine is stressful. Stressors of medical students have been described in many studies. "Stress is a body's non-specific response to demands made upon it, or to disturbing events in the environment". It is a course by which we feel and cope with environmental threats and challenges. Events which cause stress are referred to as stressors. Stress is nothing but the emotional disturbances or changes caused by stressors.

Stress is of two types 1. Favourable Stress - facilitates learning, 2. Unfavourable stresses-suppress learning.

Medical students may perceive the same stressors differently based on their inbuilt talents. Excessive amount of stress affect students' self-esteem, achievement and development in their field. 5,6

Studies in the United States have said that the studying of medicine produce risks to the mental health of qualified medical students high rates of psychological morbidity among them at various stages of their training. In a Singapore based study, 57% of law students and 47.3% of medical students had emotional disorder as measured by GHQ. Another study in Turkey reported that 47.9% of medical students had emotional disorder compared to

29.2% of economic and physical education students as measured by GHQ. ¹² These facts suggested a situation of elevated psychological pressure on medical students.

Studies have also shown chronic exposure to stress is associated with anxiety and depression interpersonal conflict sleep disturbances and poor academic or clinical performance. Stress was also found to decrease the quality of attention, concentration, decision-making, and reduces the students' abilities to establish good relationships with patients. Stress was also found to decrease the quality of attention, concentration, decision-making, and reduces the students' abilities to establish good relationships with patients.

As a consequence, students have reported feelings of inadequate and dissatisfactory clinical practice in the future which may affect the lives of patients and the health of a community. Moreover, stress has also been the cause of misbehaviour of medical student like suicide drug abuse and alcohol use. ¹⁸⁻²¹ A study conducted in a Malaysian university reported that 41.9% of medical students had emotional disorders based on the GHQ. ²²

Thus stress which occurs during training of the medical students can create a serious problem if it is uncontrolled. It is important to measure stress among undergraduate medical students.²³

Objectives

- 1. To determine the prevalence, risk factors of stress among the medical college students.
- To study the factors associated with stress level of the medical students.

METHODS

A cross-sectional study was carried during the period of January to March of 2016 among undergraduate students of Chennai Medical College Hospital and Research Centre, Irungalur, Trichy. Clearance was obtained prior to the study from Institutional Ethical Committee. After establishing rapport with the student, the purpose, procedure, benefits, risks and confidentiality of the study were explained. Informed written consent from the student was taken before the questionnaire was administered. The Questionnaire consisted of three parts;

- 1. Personal and socio demographic details
- 2. Factors affecting stress
- 3. The medical students stressor questionnaire (MSSQ) containing a set of 40 questions with stress scale of 0-4 to assess the stress.²³

About 250 students were included in the study. Students who were not available after three contacts were excluded from the study. Data was coded and entered in Microsoft Excel worksheet and analyzed using EPI INFO for proportions, frequencies and correlations.

Medical student stressor questionnaire (MSSQ)

The MSSQ was developed to identify the stressors of medical students as well as measure the intensity of stress caused by the stressors. The six domains of stress measured by the MSSQ were developed based on various researches.²³

It includes:

- 1. Academic related stressors (ARS)
- 2. Intrapersonal and interpersonal related stressors (IRS)
- 3. Teaching and learning-related stressors (TLRS)
- 4. Social related stressors (SRS)
- 5. Drive and desire related stressors (DRS)
- 6. Group activities related stressors (GARS)

The MSSQ consists of 40 items representing the six stressor domains. A validation study was conducted and was found that the MSSQ has good psychometric properties; it is a valid and reliable.²³ It has a high internal consistency as Cronbach's alpha coefficient value was 0.95 which is more than the acceptable cut-off point of 0.6.²⁴

RESULTS

Socio-demographic details

Out of 300 students approached, 250 samples responded; which included 76 (30.4%) second, 78 (31.2%) third and 96(38.4%) final year MBBS students. Of this, 128 (51.2%) were female and 122 (48.8%) were male. Of the 250 samples, 184 (73.6%) students were first doctors lacking professional guidance from the parents.

Out of 250 students, 120 (48%) does not have any language issues while about 69 (27.6%) find it difficult to understand medical terminologies; 43 (17.2%) are from Tamil medium and 18(7.2%) are non-resident Indians.

Out of 250 students, 93 (37.2%) were first child in the family and 62 (24.8%) have financial constraints. For 22 (8.8%) students, their one of the parents was not alive.

This study suggest that about 74%, 75.2%, 62.8% and 56.4% have less focus, less energy and motivation, negative mood and poor academic performance (Table 1).

This study suggest that about 45.2% noted that stress interferes with sleep 1-2 days a week and 8.8% noted it very often (5 days per week) (Table 2).

Of those who felt stress interferes sleep very often, 16%, 12.8%, 14.8% quoted that stress is mainly due to college environment, family problems and worries about future respectively (Table 3).

Table 1: Represents the consequences of sleep deprivation.

| Variable | Yes | | No | |
|---------------------------|-----------|-------------|-----------|-------------|
| у агіаріе | Frequency | Percent (%) | Frequency | Percent (%) |
| Hard to stay focus | 185 | 74.0 | 64 | 25.6 |
| Less energy/ motivation | 188 | 75.2 | 59 | 23.6 |
| Negative mood/ behaviour | 157 | 62.8 | 93 | 37.2 |
| Poor academic performance | 141 | 56.4 | 96 | 38.4 |

Table 2: Represents the frequency of stress interfering with sleep.

| Frequency of stress | Frequency | Percent (%) |
|---------------------|-----------|-------------|
| 5 days/week | 22 | 8.8 |
| 3-4 days/week | 53 | 21.2 |
| 2-3 days/week | 62 | 24.8 |
| 1-2 days/week | 113 | 45.2 |
| Total | 250 | 100.0 |

Table 3: Represents the cause of stress interfering sleep

| Cause | Frequency | Percent (%) |
|--------------------|-----------|-------------|
| College | 40 | 16.0 |
| Family problems | 32 | 12.8 |
| Worry about future | 37 | 14.8 |
| Others | 26 | 10.4 |

Table 4: Factors decreasing quantity and quality of sleep.

| Factors | Frequency | Percent (%) |
|--------------------------------|-----------|-------------|
| Not tired at night | 37 | 14.8 |
| Up late studying | 64 | 25.6 |
| Lack of time management skills | 42 | 16.8 |
| Extra-curricular activities | 29 | 11.6 |
| Out with friends | 10 | 4.0 |
| No sleep deprivation | 62 | 24.8 |
| No response | 6 | 2.4 |
| Total | 250 | 100.0 |

Table 5: Represents the frequency and percentage of various severities of academic related stressors (ARS).

| ARS | Frequency | Percent (%) |
|----------|-----------|-------------|
| Mild | 47 | 18.8 |
| Moderate | 120 | 48.0 |
| High | 73 | 29.2 |
| Severe | 10 | 4.0 |
| Total | 250 | 100.0 |

Of the factors reportedly affecting the quality and quantity of sleep, late studying and lack of time management skills carries maximum of 25.6% and 16.8% respondents respectively (Table 4).

Based on the 40 element MSSQ, the six domains of stress were studied and the distribution of stress is categorized as follows:

This study suggests that out of 250 students interviewed, 48% were experiencing moderate stress and 4% were experiencing severe stress due to Academic related stressors (Table 5).

This study suggests that out of 250 students interviewed, 45.2% were experiencing moderate stress and 2.8% were experiencing severe stress due to Intrapersonal and interpersonal related stressors (Table 6).

Table 6: Represents the frequency and percentage of various severities of intrapersonal and interpersonal related stressors (IRS).

| IRS | Frequency | Percent (%) |
|----------|-----------|-------------|
| Mild | 83 | 33.2 |
| moderate | 113 | 45.2 |
| High | 47 | 18.8 |
| Severe | 7 | 2.8 |
| Total | 250 | 100.0 |

Table 7: Represents the frequency and percentage of various severities of teaching and learning-related stressors (TLRS).

| TLRS | Frequency | Percent (%) |
|----------|-----------|-------------|
| Mild | 90 | 36.0 |
| moderate | 109 | 43.6 |
| High | 48 | 19.2 |
| Severe | 3 | 1.2 |
| Total | 250 | 100.0 |

This study suggests that out of 250 students interviewed, 43.6% were experiencing moderate stress and 1.2% experiencing severe stress due to Teaching and learning related stressors.

Table 8: Represents the frequency and percentage of various severities of social related stressors (SRS).

| SRS | Frequency | Percent (%) |
|----------|-----------|-------------|
| Mild | 85 | 34.0 |
| moderate | 119 | 47.6 |
| High | 43 | 17.2 |
| Severe | 3 | 1.2 |
| Total | 250 | 100.0 |

This study suggests that out of 250 students interviewed, 47.6% were experiencing moderate stress and 1.2% were experiencing severe stress due to Social related stressors.

Table 9: Represents the frequency and percentage of various severities of drive and desire related stressors (DRS).

| DRS | Frequency | Percent (%) |
|----------|-----------|-------------|
| Mild | 128 | 51.2 |
| moderate | 82 | 32.8 |
| High | 33 | 13.2 |
| Severe | 7 | 2.8 |
| Total | 250 | 100.0 |

This study suggests that out of 250 students interviewed, 51.2% were experiencing mild stress and 2.8% experiencing severe stress due to Drive and desire related stressors.

Table 10: Represents the frequency and percentage of various severities of group activities related stressors (GARS).

| Gars | Frequency | Percent (%) |
|----------|-----------|-------------|
| Mild | 85 | 34.0 |
| moderate | 104 | 41.6 |
| High | 52 | 20.8 |
| Severe | 9 | 3.6 |
| Total | 250 | 100.0 |

This study suggests that out of 250 students interviewed, 41.6% were experiencing mild stress and 3.6% experiencing severe stress due to Group activities related stressors.

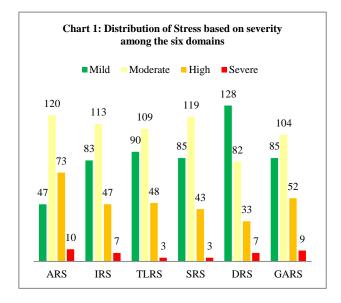


Figure 1: Depicts the distribution of Stress based on severity among the six domains.

This study suggests that out of 250 students interviewed, 4% were experiencing severe stress in Academic related stressors, 29.2% were experiencing high stress in Academic related stressors, 48% were experiencing moderate stress in Academic related stressors, 51.2% were experiencing mild stress in Drive and desire related stressors.

This study suggests that out of 250 students interviewed, 1.2% of second year student experience severe stress in Academic related stressors, 1.6% of second year student experience severe stress in Intrapersonal and interpersonal related stressors, 0.8% of final year student experience severe stress in Teaching and learning-related stressors, 1.2% of second year student experience severe stress in Social related stressors, 2% of second year student experience severe stress in Drive and desire related stressors, 2% of second year student experience severe stress in Group activities related stressors.

Following this, a cross analysis was made and the highest prevalence of severe stress is among the second year students and the lowest is among the third year students. Of all the stressors, academic and group activities related stressors are observed as the top stressors.

Table 11: Depicts the distribution of stress among medical students based on the year of study.

| Stress | Year | Mild | Moderate | High | Severe |
|--------|------|------|----------|------|--------|
| | II | 7.6 | 12.4 | 9.2 | 1.2 |
| ARS | III | 6.4 | 17.6 | 6.8 | 0.4 |
| | IV | 4.8 | 18 | 13.2 | 2.4 |
| | II | 12 | 10 | 6.8 | 1.6 |
| IRS | III | 9.2 | 16 | 5.6 | 0.4 |
| | IV | 12 | 19.2 | 6.4 | 0.8 |
| | II | 12.4 | 11.2 | 6.4 | 0.4 |
| TLRS | III | 10.8 | 15.6 | 4.8 | 0 |
| | IV | 12.8 | 16.8 | 8 | 0.8 |
| | II | 10.4 | 13.2 | 5.6 | 1.2 |
| SRS | III | 10.4 | 15.2 | 5.6 | 0 |
| | IV | 13.2 | 19.2 | 6 | 0 |
| | II | 17.6 | 6.4 | 4.4 | 2 |
| DRS | III | 12.8 | 14 | 4 | 0.4 |
| | IV | 20.8 | 12.4 | 4.8 | 0.4 |
| GARS | II | 10 | 12.4 | 6 | 2 |
| | III | 11.2 | 12.4 | 6.8 | 0.8 |
| | IV | 12.8 | 16.8 | 8 | 0.8 |

DISCUSSION

Usually successful candidates having excellent academic achievement after the stressful competitive higher secondary examination enter into the medical course. This cross-sectional study, aimed at measuring stress level among the undergraduate medical students. Based on previous studies, stress prevalence among medical students ranges from 30% to 50% which is more when compared to that of the general people and of the other course students. ^{1-6,8-10,12,20}

The relatively high response rate in this study (approximately 83%) is similar to the 70%-80% response rate obtained by other studies. 9,25 In general, academic related stressor has been stated as highly stressful. Meanwhile drive and desire related stressor contributes minimal stress probably due to job security in future.

Final year students experience more stress in academic related stressor and teaching and learning related stressor may be due to the fact that they are not allowed to carry their arrears and studying four subjects in a year. Second year students experience slightly high stress due to teaching and learning related stressor. Social related stressor, drive and desired related stressor, group activities related stressor shares nearly equal stress in all students.

Many student experiences less energy and motivation (75.2%) as a major consequence of sleep deprivation.

Students have stated that college environment contributes about 16% of stress. In this study, the significant factor impacting stress prevalence was the year of study and being the first doctor in the family. So these students should be identified and guided properly as early as possible to avoid the consequence of stress.

Limitations

As first year student was not joined in our college during the period of study they were not included in the study. Moreover it may not affect our study as they may need some period of time to be oriented to medical curriculum, but it may lack the comparability with others study.

Recommendation

As final year students and being a first doctor in their family experience high level of stress, arrangements should be made to reduce their level of stress. Mentorship program with medical teachers as mentors may help students being first doctors from their family.

CONCLUSION

The stress among medical students in the college is moderate to high, among them second and final year students are having high stress levels. Academic and group related activities were the major stressors among medical students. Year of study and being the first doctor in the family were the best predictors of a medical student's stress level.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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