



Perceived Stress and Stressors among Undergraduate Medical Students - A Cross Sectional Study

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ABSTRACT

Background: According to WHO report, medical students are more susceptible to stress as they encounter the highly competitive medical education environment. This study aimed to identify the prevalence of perceived stress, stressors and to explore the methods adopted by them to cope with it.

Materials and method: This study was conducted among the undergraduate medical students of a medical college in Kerala. After getting informed consent; questionnaire was distributed (PSS-4 scale, stressors, methods adopted to reduce stress) and responses were analyzed by appropriate descriptive statistics (SPSS version 16).

Results: More than half of the students perceived high level of stress and majority belongs to third year part-2 (66.2%). Mean PSS score of the study population was 28.35 ± 5.79 . Mean PSS score was found to be highest in first year students and on analysis (ANOVA) the difference in mean stress score of students studying in different years was found to be statistically significant. The academic stressors were identified by the students as the major stressor. Majority of the students (37%) felt relieved of stress by sharing with their parents/friends. About half of the students (51.5%) opined that mentorship program was effective in reducing their stress.

Conclusion: It is observed that more than half of the undergraduate medical students were stressed. There may be a need to revise the curriculum, so that they are able to cope up with it in a less stressful manner and also provide better facilities in the campus for recreations.

Keywords: Coping Strategies, Mentorship, Perceived Stress, Stressors, Undergraduate Medical Students.

INTRODUCTION

Stress is a global public health issue which affects human beings physically, mentally, emotionally, socially and spiritually. Historically, the Latin word "stress" has been commonly used since the seventeenth century and was used to address hardship, adversity, or affliction. However; stress is defined as "a highly subjective phenomenon and is a

nonspecific response of body to any demand for change." Stress can be understood as a perceived imbalance between the demands encountered in daily living and a person's capability to respond. Stressor is defined as the personal or environmental event that causes stress [1].

Stress is increasingly becoming a part of our daily lives. The first definition for stress was created in 1936 by Hans Selye. He stated that stress is “the non-specific response of the body to any demand for change”. Selye’s definition allows others to understand that stress is not merely a reaction to something bad, but merely a reaction to a change in situation. Each and every individual may experience stress at one point of their life. Studies have reported that undergraduate medical students are under varying levels of stress [2, 3, 4, 5, 6].

In literature, stress has been recognized as an inevitable aspect of life, but what makes the difference in human functioning is how people cope with it. Most of the people manage to maintain reasonable health and functioning under stressful conditions. A person's response towards stress depends on whether an event is appraised as a challenge or a threat. Challenging stimulus can lead to positive outcomes such as motivation and improved task performance while threatening ones or distress can result in anxiety, depression, social dysfunction and even suicidal intention. Student faces the stress when they enter a completely new world of professional education. Higher levels of stress may have a negative impact on the students’ learning ability. This might add to the impaired performances in the classrooms, clinical practices and stress induced disorders. Perceived stress has also been linked to mental distress, depression and even suicide thoughts among medical undergraduates. Excessive stress may result in mental and physical problems and may diminish a student's sense of worth and might affect his/her academic achievements.

Various stress factors reported among medical students are academic demands, exams, inability to cope, increased psychological pressure, mental tension and too much work load. The transition from pre-clinical to clinical training has also been identified as a crucial stage of medical school regarding student stress [5, 7, 8, 9]. Coping has been viewed as a stabilizing factor that may assist an individual in psychosocial adaptation during stressful events. Coping methods often used by students, to reduce level of stress include effective time management, social support, positive reappraisal, and engagement in leisurely pursuits [10].

Several studies conducted on assessing stress among medical college/university Students found that stress can lead to academic decline, poor relationships with peers and family members and overall dissatisfaction with life. So each medical college/university has to assess its students stress in order to provide them with the suitable mental health care and the efficient methods to cope with stress. The objectives of this study is to identify the prevalence of stress and common sources of stress among medical students studying in KMCT Medical College and to identify the coping strategies employed by the students. This study provide stakeholders with scientific information related to stress level and the various stressors in the undergraduate medical students; in order to help them to avoid stress from the beginning.

MATERIALS AND METHODS:

Study design: cross sectional study

Study setting: KMCT Medical College, Mukkam

Study population: MBBS students studying in KMCT Medical College during the study period.

Inclusion criteria: all the undergraduate medical students (first year, second year, third year part-1 & part-2) who were willing to participate in the study and those who return the filled up questionnaire (response sheet) in the stipulated time.

Exclusion criteria: Students who were absent during the questionnaire distribution & those who failed to return the response sheet. Students who were having exams during the data collection period also excluded from the study population.

Study period: June-August 2018

Approval from the principal and IRB/IEC obtained to conduct the study in the undergraduate medical students studying in KMCT medical college campus. The students were sensitized about the purpose of the study. After getting informed consent; students were recruited for the study and an orientation session was conducted regarding the filling up of the questionnaire. They were assured about the confidentiality of the details provided in the questionnaire.

The questionnaire included the following sections: sociodemographic profile, PSS (perceived stress scale-14) developed by Cohen etal [2,8], sources of stress/stressors, an open ended question regarding the

methods adopted by them to reduce the stress and their perception about the effectiveness of mentorship program in reducing their stress.

PSS scale is a widely used psychological instrument to measure perceived stress. It (PSS -14) comprises 7 positively stated items & 7 negatively stated items about participant's thoughts / feelings related to the situations in their life within the last month. Each item is rated on a 5 point answer scale ranging from 0 to 4 (never to very often). The total score will be computed by reversing the scores on the positive items (from 0 to 4 for very often to never) and then adding the responses of all 14 items for each participant. Score ranges from 0- 56 and the lower scores indicate lesser stress.

Various stressors are listed under academic, psychosocial and environmental stressors. An open ended question regarding the method adopted by them to relieve their stress was included. Also, students' perception on the effectiveness of mentorship program in reducing their stress is also enquired. Students were requested to return the filled up questionnaire within 2 days.

Statistical analysis was done by using SPSS version-16. Descriptive statistics such as frequency and percentage used to describe the socio-demographic characteristics, prevalence of stress and sources of stress. The level of perceived stress of students of each year was analyzed and expressed as mean \pm SD and inter-batch comparison was done by ANOVA. Perceived stress level/score of male-female and day scholar-hostel inmates were compared by using unpaired test. The effectiveness of mentorship program (as yes/no) was expressed in frequency and percentages. Response to the open ended question regarding the methods adopted by the students to reduce their stress were categorized and expressed as frequency and percentages. p value of <0.05 considered to be statistically significant.

RESULTS:

Out of 425 medical students who received the questionnaire, 400 completed the survey, yielding an overall response rate of 94.1%. Among the study population 37% belongs to first year, 28.5% second year, 17.5% third year-part 1 and 17% third year part-2 [table 1]. The mean age was 21.17 ± 1.43 with a range of 19 to 25 years. Majority of the students of

the study sample were females (65%) and 285 students (71.2%) were staying in the hostel.

More than half of the students (54.25%) perceived high level of stress and majority belongs to third year part-2 (66.2%) followed by first year (62.2%) – [table 2]. Mean PSS score of the study population was 28.35 ± 5.79 . Mean PSS score of first year, second year, third year part-1 and part-2 students were found to be 29.22 ± 5.59 , 28.58 ± 6.28 , 27.26 ± 5.69 , 27.21 ± 5.21 respectively [table – 2]. On analysis (ANOVA) the difference in mean stress score of students studying in different years was found to be statistically significant [table 3]. Linear contrast was done for testing the statistical trend in perceived stress score and contrast parameters showed statistically significant (p value 0.005) reduction in mean value from first year to third year part-2.

The Mean PSS score for female students (28.98 ± 6.19) were found to be statistically significant compared to male students (27.19 ± 4.77) – [table 4]. Mean PSS score of hostel inmates was 29.39 ± 5.67 and of day-scholars were 225.78 ± 5.29 and the difference was found to be significant (p value-0.003).

The academic stressors were perceived by the students as the major stressor. The major academic stressors identified were vastness of academic syllabus, fear of failure/poor performance in the exams and lack of recreation. Among the psychosocial stressors loneliness, financial problems, high parental expectations and lack of intimate friends were pointed out as major stressors. Half of the students felt accommodation away from home as the major environmental stressor [table 5].

Majority of the students (37%) felt relieved of stress by sharing with their parents/friends [table-6]. Over half of the students (51.5%, n=206) opined that mentorship program was effective in reducing their stress.

DISCUSSION:

Stress is defined as “a state of psychological and physiological imbalance resulting from the disparity between situational demand and the individual's ability and motivation to meet those needs. According to a WHO report, medical students are more susceptible to stress as they encounter the highly competitive medical education environment.

Different levels of stress including burnout have been reported among medical students and health care professionals in different countries [10,11]. In our study we have identified that about 54.25 % undergraduate medical students were experiencing high level of stress due to one or more factors. This is not unexpected and is consistent with the findings reported by several other researchers from different countries including India [2, 3, 6]. Our study has found that the mean perceived stress score of students in the first year to be higher than that of the other three phases. This may attribute to the fact that 1st year students have apprehensions about the professional course with almost entirely different system. There are some studies which have reported that students found the medical course more stressful during the first year of study, but less so in subsequent years [10]. Also the female students and those who were staying in the hostel revealed a high perceived stress score. Study conducted in undergraduate medical students in Tamil Nadu agrees with these findings [2].

As perceived by the students; the academic stressors (60%) were identified as the major stressor followed by the environmental (23%) and psychosocial stressors (17%). Academic stress, among college students in particular, has been a topic of interest for many years. Indeed, there is evidence that medical students face unique academic challenges that render them more vulnerable to stress and anxiety than students of other disciplines. A cross-sectional survey conducted among the First MBBS students of NKP Salve Institute of Medical Sciences and Research Centre; Nagpur, India revealed that academic stressor is the major stressor [12]. Many previous studies also agree with the finding as academic stressor as the major contributor to the stress in undergraduate medical students [3,5,6,10]. Among the academic stressors; vastness of academic syllabus (80%) was identified as a stressor by majority of study population. It was followed by fear of failure/poor performance in exams (56%), lack of recreation (36%) and lack of proper guidance from teachers (17%). These findings are consistent with the studies conducted in many other medical schools/universities in India and other countries [2, 3, 10]. Loneliness (35%), financial problems (29%), high parental expectation (27%) and lack of intimate friends (23%) were identified as the major psychosocial stressor in

our study population. Many of the psychosocial stressors pointed out by our population slightly vary with the findings of the similar studies conducted in the undergraduate medical students in a university of Pakistan [waqasetal- 6] and Tamil nadu [anuradhaetal – 2]. It may be because of the difference in the social and cultural characteristics of the society to which they belong to. Majority of the students' opined accommodation away from home (50%) and living conditions in hostel (31%) as the major environmental factor those contributed to their stress.

Coping with stress is important for human survival; which is the process of managing external or internal demands that are perceived as taxing on personal capacities and resources [10]. We have tried to explore the methods adopted by our study population to relieve their stress with the aid of an open-ended question. Our findings are as follows: majority of them opined that by sharing with their parents or friends (37%) help them to wipe out their stress. About 29.5% of students try to engage themselves in many recreational activities (listening to music, reading, watching movies, sports, dancing, sleeping etc.). Some of them wanted to be with social networking to reduce their stress. About 11% of study population found their way out of these stress by meditation/prayers. Recently we implemented mentorship program for the undergraduate medical students of our campus. As an evaluation of the ongoing program; analysis of the students' perception about the mentorship program revealed that 51.5% of students were satisfied with the system.

CONCLUSION:

The perceived stress score is found to be higher among first year medical students. Academic, psychosocial, and environmental stressors are associated with perceived stress. There may be a need to revise the curriculum and to provide more time and facilities in the campus for recreation; to make it less stressful to the students. Mentorship program can be established to give them an opportunity to open-up; which may reduce their stress. It is important to emphasize that in addition to educating in a professional medical course it is also important to take into account the quality of life of the students during the years of medical training. Teaching stress management and self-care skills to medical students is essential. Individual and organizational

interventions are the need of the hour for prevention of stress among medical students.

LIMITATIONS OF THE STUDY:

TABLES AND FIGURES:

The present study included students of a single medical college campus; the results will be more predictive if included medical colleges in different areas of Kerala.

Table 1: Distribution of study population based on the year of study

Year of study	Frequency (percentage) of participants
First year	148 (37%)
Second year	114 (28.5%)
Third year - part I	70 (17.5%)
Third year - part II	68 (17%)
Total	400

Table 2: Perceived stress score (based on PSS – 14 items)

Year of study	Low level of stress (PSS Score <=28)		High level of stress (PSS Score 29-56)		Mean PSS Score (± SD)
	Frequency	Percentage	Frequency	Percentage	
First Year	56	37.8%	92	62.2%	29.22 (± 5.59)
Second Year	64	56.1%	50	43.9%	28.58 (± 6.28)
Third Year – Part I	40	57.1%	30	42.9%	27.26 (± 5.69)
Third Year – Part II	23	33.8%	45	66.2%	27.21 (± 5.21)
Total	183	45.75%	217	54.25%	28.35(± 5.790)

Table 3: Comparison of mean perceived stress score (PSS) of students of different batches/years -ANOVA

	Sum of Square	Df	Mean Square	F	Sig.
Between Groups	291.377	3	97.126	2.939	0.033
Within Groups	13085.920	396	33.045		
Total	13377.297	399			

Table 4: Comparison of perceived stress score (PSS) for male and female students [unpaired t-test]

PSS in	N	Mean	Std. Deviation	Sig.
Male	140	27.19	4.766	0.003

Female	260	28.98	6.191	
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Table 5: Various stressors as perceived by the students (n=400)

Stressors	Number of students perceived as stressor expressed as %
Academic stressors	
Vastness of academic syllabus	80%
Frequency of examinations	29%
Fear of failure/poor performance in exams	56%
Lack of recreation	36%
Lack of proper guidance from teachers	17%
Language problems	11%
Competition with peers	9%
Psychosocial stressors	
High parental expectation	27%
Loneliness	35%
Family problems	18%
Financial problems	29%
Parents staying abroad	10%
Lack of intimate friends	23%
Relationship with opposite sex	14%
Environmental stressors	
Travelling between college & home	21%
Accommodation away from home	50%
Accommodation away from home	6%
Lack of personal interest in medicine	17%
Difficulty to adjust with roommates	6%
Living conditions in hostel/home	31%

Table 6: Methods adopted by the students to relieve their stress (n = 400)

Methods Frequency	Frequency (%) of students
Sharing with parents / friends	148 (37%)

Engaging in recreational activities	118 (29.5%)
Engaging in social network	62 (15.5%)
Prayers and meditation	44 (11%)
Concentrating in studies	11 (2.75%)
Ignore the problems	8 (2%)
Others	9 (2.25%)

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