

Stress in Medical Students

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ABSTRACT

Aim: To assess the level of stress and its pre-disposing factors in medical students.

Study Design: Descriptive cross-sectional study.

Place of Study: Lahore Medical & Dental College (LMDC), Lahore.

Duration of Study: Four weeks in May, 2014.

Methodology: The Student Stress Scale (SSS) was administered among 342 MBBS students in all five years, by using convenience sampling. Additional information on gender, age and year of study were obtained using a structured questionnaire. Data was managed in SPSS 20. Kruskal-Wallis and Chi square tests were used to analyze associations. The p value ≤ 0.05 was used as the cut off point for statistical significance.

Results: Among the study participants, 58% were female, 53% were either 22 years of age or older, 23% were from 1st year, 12% were from 2nd year, 17% were from 3rd year, 26% were from 4th year and 22% were from final year. Stress was present in all students, 29% had mild, 43% had moderate and 28% had severe stress. Moderate to severe stress was more common in age group 18-21 years (76%) and first year students (82%). The top academic stressor was serious argument with instructor (100%), the main social stressor was death of a close family member (97%) and the significant personal stressor was sex problems (100%).

Conclusion: Medical students are under considerable stress. Interventions are needed to tackle stress and improve their physical and psychological well-being.

Recommendations: Early diagnosis, case finding and effective psychological services may possibly prevent and control future stress in medical students.

Keywords: stress, medical students, stressors

INTRODUCTION

Stress can be defined as “a state of mental or emotional strain or suspense” and also as “a number of normal reactions of the body (mental, emotional, and physiological) designed for self-preservation”¹. The professional education can be stressful experience and medical students are exposed to high levels of stress in both theoretical and clinical components of their educational program². Overwhelming burden of information leaves a minimal opportunity to relax and recreate and sometimes leads to serious sleep deprivation^{3,4}. A review of the literature by Dyrbye et al (2005) showed the likely causes would be adjustments to the environment, ethical and moral dilemmas, exposure to human suffering, abuse, personal life events and debt. With passing years, the research highlights worsening distress and this can lead to impairment in academic performance, mental health problems and burnout⁵. Perceived stress

is associated with increased levels of depression^{6,7,8} drug abuse, relationship difficulties, anxiety and suicide⁹. Moreover, tired, tense and anxious doctors will not provide as high a quality of care as do those who do not suffer from these conditions¹⁰.

Few studies have looked at stress in students, and even fewer are those related to medical students. The present study was conducted to assess the level of stress and its pre-disposing factors in medical students.

MATERIALS AND METHODS

A descriptive cross sectional study was conducted in May 2014, among MBBS students from first, second, third, fourth and final years of Lahore Medical & Dental College (LMDC), Lahore. Out of 500 registered students in the five classes, 342 participated in the present study (response rate=68%). The participants of the study were asked to complete The Student Stress Scale [SSS]¹¹ which is an adaptation of Holmes and Rahe's Life Event Scale¹². In SSS, 31 events are given, and each event is given a score from 20-100, that represents the amount of readjustment a person has to make in life as a

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result of the change. Each respondent was asked to indicate the number of life events (e.g., death of close family member, trouble with parents, first semester in college, changes in living conditions) that they had experienced within the past year. Each event is weighted, and scores on SSS are interpreted as <150=no stress, 150-199=mild stress, 200-299=moderate stress and ≥ 300 =high level of stress. Additional information on gender, age and year of study were obtained using a structured questionnaire. Data was entered, cleaned and analyzed using SPSS version 16 computer package. Kruskal-Wallis test was run to detect relationship between age groups and year of study and Chi square test was applied to analyze association of gender with level of stress. Statistical significance was determined with $p \leq 0.05$ as the cut-off point. Verbal consent was taken from students for publication of the study.

RESULTS

In the present study, out of 342 study participants, 144(42%) were males and 199(58%) were females, 162(47%) were between age group 18-21 years and 180(53%) were either 22 years of age or older. Among the respondents, 81(23%) were from 1st year, 40(12%) were from 2nd year, 57(17%) were from 3rd year, 89(26%) were from 4th year and 75(22%) were from final year. Stress was present in all students interviewed though level of stress differed, as 100(29%) had mild stress, 147(43%) had moderate stress and 95(28%) had severe stress (Fig. 1).

Fig. 1: Level of stress in 342 medical students.

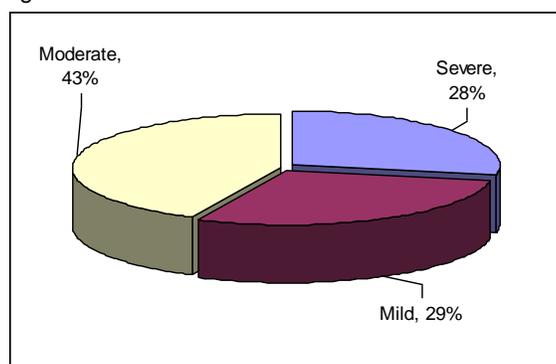


Table I depicts that gender did not have any significant association with stress level. However, age and year of study had a statistically significant bearing on stress status of medical students. In age group 18-21 years, 76% suffered from moderate to severe stress and in age group

22-23 years, 78% presented with mild to moderate stress was ($p=0.02$). Regarding year of study, in first year majority of students had moderate to severe stress (82%). In second year, 40% students had mild and 60% of students had moderate to severe stress. In third year, around 79% of students suffered from moderate to severe stress. In fourth year, 85% students had mild to moderate stress. Similarly, in final year, 79% of students suffered from mild to moderate levels of stress ($p=<0.001$).

As depicted in Figure 2, there were a number of academic stressors, which had statistically significant impact on the well-being of medical students. The frequency of students who suffered moderate and severe stress was higher among those who had an experience of stressful academic exposure than those who had no such experience. In a descending order, academic stressors and proportion of exposed students having moderate to severe stress included change of a major subject 29(91%), serious argument with instructor (100%), change of college (97%), coping with the first few months of the college (91%), too many missed classes (91%), failing an important course (88%), getting lower grades than expected (84%), dropping of more than one class (82%), an outstanding achievement in the class (82%) and increased workload at college (80%).

Similarly, as seen in Figure 3, those respondents who were exposed to social stressors manifested higher level of stress than those who were not exposed. The social stressors and the proportion of students showing moderate to severe stress included in a descending order, death of a close family member (97%), death of a close friend (96%), change in health of family member (90%), trouble with parents (94%), change in social activities (92%), change in number of family get-togethers (86%) and serious argument with close friend (85%).

Proportion of moderate to severe stress experienced by students experiencing the personal stressors mentioned in Figure 4, was significantly higher than those who did not experience these events and included in a descending order, sex problems (100%), change in living conditions (96%), marriage (95%), major personal injury or illness (95%), change in financial status (95%), new girl- or boyfriend (94%), pregnancy (90%), minor traffic violations (88%), change in sleeping habits (84%) and change in eating habits (89%).

Table I. Comparison of stress levels and characteristics of the 342 medical students

Characteristics	Stress Level			p value
	Mild	Moderate	Severe	
Gender				
Male (144)	39(27.1%)	59(41%)	46(31.9%)	p= 0.34
Female (198)	61(31.8%)	88(44.4%)	49(24.7%)	
Age group (Years)				
18-21 (162)	39(24.1%)	67(41.4%)	56(34.6%)	p= 0.02
22-23 (180)	61(33.9%)	80(44.4%)	39(21.7%)	
Year of study				
First year (81)	14(17.3%)	32(39.5%)	35(43.2%)	p= <0.001
Second year (40)	16(40%)	12(30%)	12(30%)	
Third year (57)	12(21.1%)	26(45.6%)	19(33.3%)	
Fourth year (89)	28(31.5%)	48(53.9%)	13(14.6%)	
Final Year (75)	30(40%)	29(38.7%)	16(21.3%)	

Figure 2
Academic Predictors of Stress in 342 Medical Students

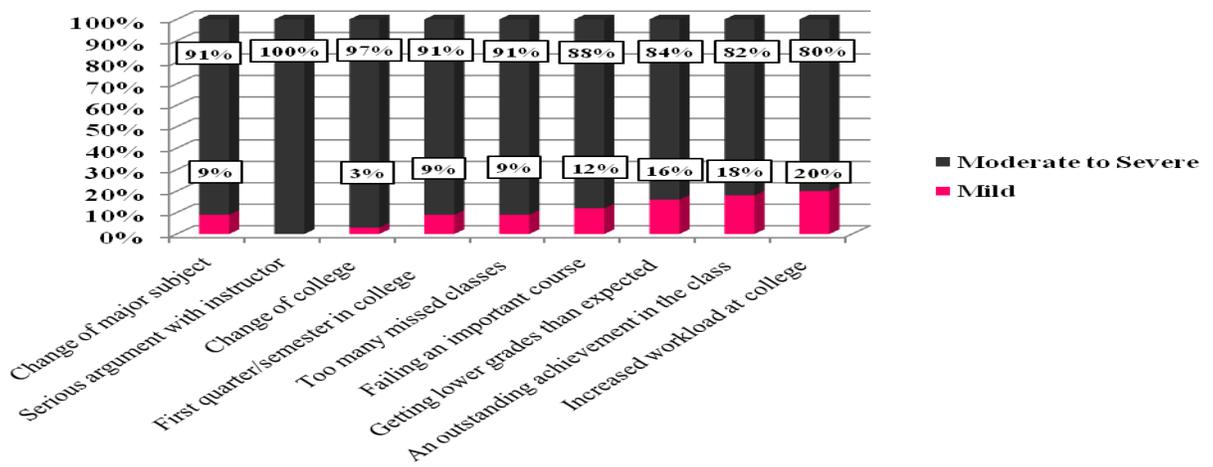
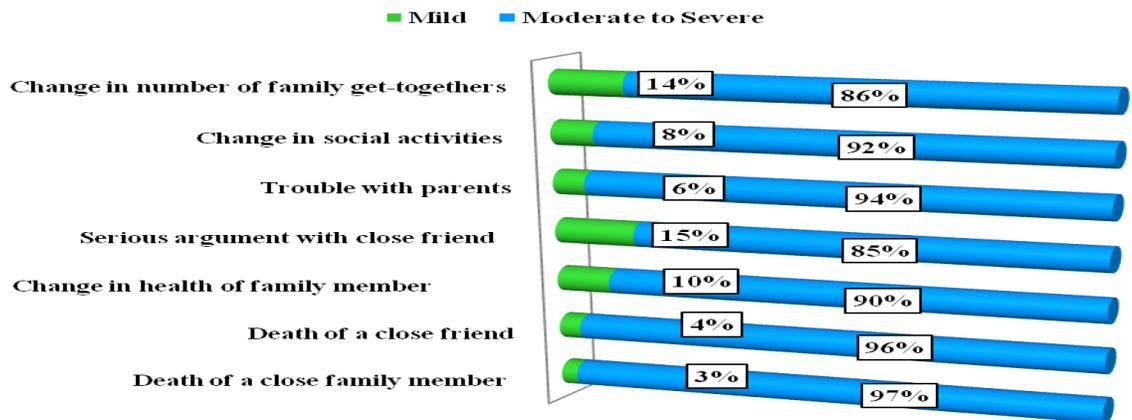
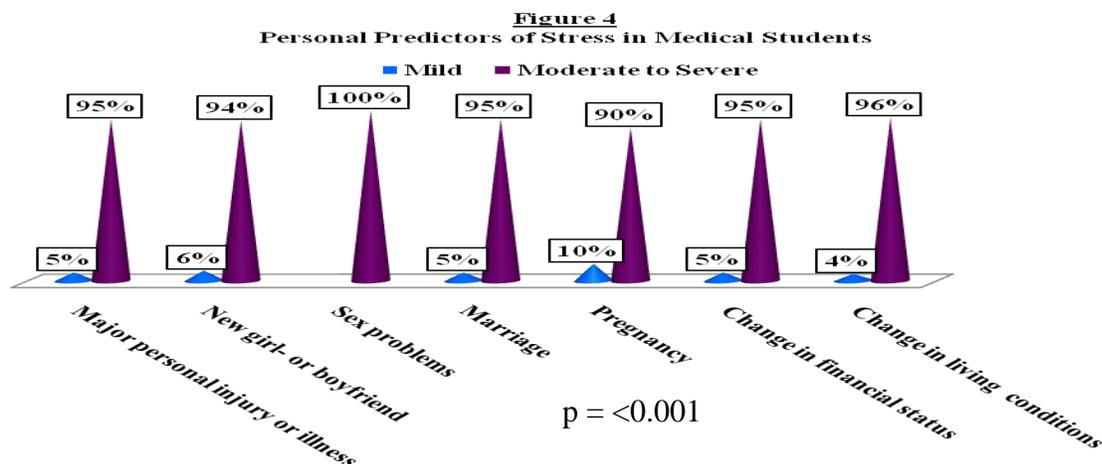


Figure 3
Social Predictors of Stress in 342 Medical students





The top ten stressors identified in our study were serious argument with instructor (100%), sex problems (100%), change of college (97%), death of a close family member (97%), death of a close friend (96%), marriage (96%), change in living conditions (96%), chronic car trouble (96%), major personal injury or illness (95%) and change in financial status (95%).

DISCUSSION

The occurrence of stress among our medical students was considerably higher (100%) than that reported from similar studies conducted by Shaikh et al. (2004) in Karachi (90%)¹³, Mannapur et al. (2010) in India (90%)¹⁴, Siddiqui et al. (2009) in Rawalpindi (73%)², Koochakiet al. (2011)¹⁵ and Marjaniet al. (2008) in Iran (61%)¹⁶, Saipanish (2003) in Thailand (61%)¹⁷, Abdulghani (2008) in Saudi Arabia (57%)¹⁸ and Sherina et al (2004) in Malaysia (42%)⁷.

Participants of our study exhibited stress in varying levels, i.e., mild (29%), moderate (43%) and severe (28%). Siddiqui et al. reported from Islamic International medical college- a private medical college in Rawalpindi (2009), that among the 73% of their study participants, who were in stress, 21% were mildly stressed, 39% were moderately stressed and 13% were severely stressed.² In his study, Abdulghani stated that in College of Medicine, King Saud University, Riyadh, Saudi Arabia (2008), frequency of stress among medical students was around 57%, with 21% having mild stress, 16% having moderate stress and 20% having severe stress¹⁸.

In the present study, moderate to severe stress was more common ($p=0.02$) in age group 18-21 years (76%) compared with those who were 22-23 years old (66%).

In our study, the frequency of moderate to severe stress was highest in first year (83%), reducing in second year (60%), increasing again in third year (79%) and then gradually decreasing in fourth year (68%) and final year (60%) of

medical studies ($p= < 0.001$). Highest stress levels in first year students was also reported by Yusoff et al. from Malaysia (2011)¹⁹, Shah et al. 2009 from India (2009)²⁰, Siddiqui et al. from Rawalpindi,² Abdulghani from Saudi Arabia (2008)¹⁸. Marjani from Iran (2008)¹⁶ and Dahlin et al from Sweden (2005).²¹ These studies found that major stressors in first year were mainly related to academic and university issues and income status of parents.

In our study, the moderate to severe stress exhibited by 83% of students reduced in second year MBBS to 60%, followed by resurgence in the clinical years of study, i.e., 79% in 3rd and 85% in 4th year. Interestingly, in final year, higher level of stress decreased to 60% while mild stress increased to 40% ($p=<0.001$). Supporting the present findings, Compton et al. (2008) reported that students entering the wards reported greater stress, more bad mental health days, and greater depressive feelings than their pre-clinical peers²². In a similar study in Thailand, Saipanish (2003) also discovered that stress was as its highest among 3rd year medical students, who were just entering the clinical scenario¹³. Yusoff et al. (2010) stated that in their study in Malaysia, medical students in year 3 and 4 experienced higher level of stress, which lowered in students of final year.¹⁹ One possible reason for the low stress prevalence in final year students could be that they may have developed skills to manage their studies and therefore are better able to cope with stress, in comparison to students in other years of study. Students in their first, third and fourth years may experience more stress

compared to other years of study because they are struggling to adjust their learning approaches according to the new phase requirements.

Limitations of the study: As our study was a cross-sectional one, it provided only a snapshot of the stress frequency while causality to any of the factors mentioned could not be confirmed. It is recommended that a longitudinal study be performed to investigate the real pattern and trend of stress among medical students.

CONCLUSION

Our study concludes that medical students are under considerable stress. Interventions are needed to tackle stress and improve students' physical and psychological well-being.

RECOMMENDATIONS

Early diagnosis, case finding and effective psychological services may possibly prevent and control future stress in medical students. More attention should be given to students during transitional periods: notably first and third years. One potential intervention program that could be implemented to reduce stress levels of students is a structured orientation program that addresses issues such as expectations for each phase, how the students are going to be evaluated, how to cope with study in each phase and how to get through each phase smoothly.

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