



Original Article

Comparative analysis of perceived medical school stress among freshman & graduate year senior students

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Abstract

Background: Research indicates that medical students are exposed to higher stress levels due to the extensive academic programs and intense workload. In order to control this public health issue, it is important to understand the significance and impact of stress on the personal as well as professional life of the medical school students. To compare the perceived medical school stress (PMSS) among freshman and graduate year students of medical school.

Methodology: This cross-sectional study was conducted on a sample of 200 medical students from three different private medical colleges at Lahore. No gender or age-related biasness was considered, subjects details including sociodemographic characteristics and PMSS scores were recorded using a structured questionnaire. The data was analyzed using SPSS version 21 & Microsoft Excel 2017.

Results: Out of the 200 students, 100 were freshman with a mean age of 19 ± 0.5 years and 100 were graduate year students with a mean age of 22.9 ± 0.8 years. There were 29.5% males while the remaining 70.5% were females. The mean difference between the two groups of students in the PMSS academic domain was -0.59 ($p = 0.587$) and the mean difference in the psychosocial domain was 0.54 ($p = 0.788$). The mean difference in the total PMSS score was 0.05 ($p = 0.999$).

Conclusion: After careful consideration, it is concluded that the mean PMSS score among medical students does not differ much between freshman and graduate year students.

Keywords

Medical School Stress, Medical Students, Perceived Stress, Medical Education.



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Introduction

Medical education is deemed to be among the most demanding and challenging profession not only physically in terms of long and strenuous workhours but also mentally. During the course of the training, medical students undergo many psychological changes¹. Thus, the metamorphosis from an undergraduate student to a full-fledged physician is laced with several strains and pressures¹. Competitive environment, human suffering and exposure to death are some of the recognized academic medical school stressors². These stressors negatively affect the health and quality of life of the students and the physicians leading to decreased performances which itself contributes to stress^{2,3}. Therefore, to break this vicious cycle it is important to understand the association between stress and performance during medical education. There is ample evidence supporting the belief that a high level of psychological distress is experienced during the difficult training leading to adverse consequences on student's performance. Stress is prevalent in as much as 90% of the medical students worldwide and the statistics indicate that doctors mostly suffering from stress are in early undergraduate years⁴⁻⁶. It is worth noting that stress, under normal circumstances and in controlled levels, is a beneficial aspect of human behaviour. It may help students learn more in shorter spans of time and to get more work done and succeed against odds. Thus stress, in an optimal level, is beneficial but the acute burst of energy and the enhanced performance comes with a physical and psychological cost. Moreover, over-experiencing stress can lead to physical and mental health problems and impairing cognitive functioning and learning abilities of medical students^{7,8}.

It may not be just a coincidence that student's mental health progressively deteriorates as they move through their educational and training years. Reviewing evidence from different studies leads us to believe that studies conducted on medical students in

their later years of education and training reported the worst levels of stress, however, owing to the different study settings and varied educational environments, the results cannot be generalized and thus direct comparative evidence is much needed^{9,10}. Perceived Medical School Stress (PMSS) Instrument is the most validated stress tools for medical school students¹¹, addressing stress induced by workload, competition and financial uncertainties. It mainly focuses and predicts the problems associated with mental health of the medical students¹². The aim of this study was to examine the perceived stress among freshman and graduate year medical School students measured using the PMSS scores.

Methodology

A cross-sectional multicenter study was conducted upon a sample of 200 medical students from three different private medical colleges at Lahore including Lahore Medical and Dental College, Avicenna Medical and Dental College & Shalamar Institute of Health Sciences. These students were then divided based on their academic performances as freshman and graduate year students including 100 students in each group. Data like sociodemographic details and score of the PMSS were recorded.

The PMSS is a 13-item questionnaire, responses are recorded on a 5-point Likert scale (ranging from 1 = I strongly disagree; 5 = I strongly agree). This questionnaire has a good reliability with Cronbach's alpha value of 0.81. The recorded data was analyzed using SPSS version 21 & Microsoft Excel 2017. Where all continuous variables were presented using mean and standard deviation. For association the chi-square test was applied used and p-value < 0.05 was considered significant.

Result

A total of 200 medical school students were selected for the study with 100 students in each group i.e. freshman and graduate year, with a mean age of 19 ± 0.5 years and 22.9 ± 0.8



years respectively. Out of the total, there were 29.5% males while the remaining 70.5% were females.

The mean difference between the two groups of students in the PMSS academic domain

was - 0.59 ($p = 0.587$) and the mean difference in the psychosocial domain was 0.54 ($p = 0.788$). The mean difference in the total PMSS score was 0.05 ($p = 0.999$).

Table 1: Comparative analysis of perceived stress among freshman and graduate year students of medical schools

	Freshman	Graduate year students	p-value
Psycho-Social Domain	25±3.1	24.4±3.4	0.788
Academic Domain	22±2.8	22.6±3.1	0.587
PMSS Score	47.1±4.9	47±5.3	0.999

*PMSS-Perceived Medical School Stress.

*Values are given as mean ± SD.

*P-value<0.05 is considered significant.

Discussion

It is evident from previous literature that stress is prevalent among medical students, a national study in support concluded that around 90% of the enrolled medical students experienced stress at one or more points during their educational and training years¹³. Another study from Thailand showed high stress level among 61.4% of the medical students¹⁴. Based on our results there was no significant difference in the mean PMSS score among freshman and graduate year students.

The studies mentioned above used different stress scales and students of different academic professions were selected, having different curricula and catered to different responsibilities. Which might be the reasons behind variations in the levels of stress however, one thing is certain that the level of stress was high than levels that may be deemed healthy among the students enrolled in all of these studies¹³⁻¹⁵. The literature reports abundantly that female medical students suffer from stress more often than their male counterparts. In our research, the mean PMSS scores reported by female medical students were significantly higher than the mean PMSS scores reported by male medical students. One of the reasons for this

may be the cultural constraints faced by females¹⁶.

The study also strengthens the fact that academic and training related stressors are the main reasons for the aggravated stress levels among medical students. As reported in our study, academic factors had a stronger role to play than other psychosocial factors promoting stress among enrolled students. The stress, once it sets-in, then spills over to other aspects of a student's life and manifest several adverse effects¹⁷. It is interesting to note that not only does stress from one source affect others but relief acquired from one aspect of the life helps alleviate stress from other aspects, and this is documented by a research from the United States that suggests that physical exercise, healthy lifestyle and a positive social environment reduce the cumulative stress level among students, thus highlighting opportunities for better health and highlighting the need of active incorporation of healthy co-curricular and extra-curricular activities in a medical students life¹⁸.

The study had several limitations including sample size and population diversity. Moreover, many of the potential cofounders were not observed. The students mental and



physical health and the previous academic records would also be helpful if assessed. No correlations were observed with respect to age and gender. The study was limited to three centers of Lahore only which provides the diversity but the results are not sufficient enough to provide generalized view nationally. Our study adds up to the need for highlighting these mental health issues existing among medical students and physicians which is mostly associated with their workload. Therefore, PMSS is a beneficial tool that should be used to identify stress initially and to cope with it accordingly.

Conclusion

It is concluded from the study results that the mean PMSS among medical students does not differ much between the different years i.e. similar findings were observed among freshman and graduate year students. However, despite not being much different, both are higher than what may be considered healthy for medical students. Thus factors, other than increasing educational years and the resultant increase in difficulty of the course may be explored.

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