

Assessment of Level of Stress in Undergraduate Medical Students of a Private Medical College in Pakistan

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ABSTRACT

Background: Extensive and demanding medical curriculum manifests itself as stress in medical students. Different individuals perceive stress differently. Stress greatly affects academic performance and mental health of medical students. Levels of stress vary with gender, year of study and living conditions of students.

Objective: This study was performed to evaluate stress levels of undergraduate medical students in Pakistan.

Study Design: Descriptive cross-sectional study.

Duration: Two months from December 2021 to January 2022.

Setting: Multan Medical and Dental College, Multan, Pakistan.

Methods: First year, second year, third year, fourth year and final year MBBS students from Multan Medical and Dental College (MMDC), Pakistan were selected through census sampling. Students were asked to fill Perceived Stress Scale Questionnaire (PSSQ-10). After quantitative data was analyzed through descriptive studies, all students were divided into three groups: low stress, moderate stress, and high stress bearers.

Results: Among 427 students, 54 (12.65%) students had low stress, 311 (72.83%) students had moderate stress and 62 (14.52%) students had high stress. Females were more stressed compared to males. Among high stress group, 18% females were affected compared to 9% males. 73.94% females had moderate stress compared to their male counterparts i.e., 71.08%. Male boarders were less stressed compared to female boarders. Students of first year had lowest perceived stress (M=9, SD=3.82), whereas final year students had highest stress (M=30.5, SD= 2.8), followed by third year, fourth year, second year and first year students.

Practical implication: This study is intended to give an insight into level of stress that medical students are encountering. Early intervention by concerned authorities for high levels of stress can enable students to handle stress in a better way in years to come and prevent them from developing any psychiatric disorders. Students with mild and moderate stress levels can be helped to prevent more serious stress conditions. A less stressful environment is congenial for students for academics and mental health.

Conclusion: The study highlights the issue of prevalence of perceived stress among medical students, which is affecting their academic performance and health.

Keywords: Moderate Stress, Under-Graduate Perceived Stress Scale, Discomfort, Academic,

INTRODUCTION

World Health Organization has called stress as the “health epidemic of 21st century” (1). A high prevalence of stress is found among medical students in the study conducted in Saudi Arabia and Malaysia (2,3) [2,3]. In behavioral sciences, stress is defined as: “perception of threat, with resulting anxiety discomfort, emotional tension, and difficulty in adjustment.” (4) [4]. However, stress is objective. Different individuals depending upon their emotional intelligence and coping skills may perceive same level of stress differently (5) [5]. Therefore, it is important to know how students perceive stress.

The environment of medical college is very competitive. Continuous stress in medical students leads to burn out. Medical students face exhaustion (6) [6]. It has been recorded that half of the medical students are stressed in Brazilian Medical University (7) [7]. A Pakistani study reported prevalence of stress to be 51.6% (8) [8]. Most of the students experience stress due to their academic workload, helplessness in exam studies, emotional tensions, vast curriculum, or any personal life affair (9) [9]. Medical students feel pressure to study in their free time. They face constant stress and feels guilty about their unhealthy lifestyle (10) [10]. Medical curriculum is not only tough but also very vast. Besides curriculum, examination and constant fear of failure adds on to stress. To keep pace, one has to devote majority of time to studies. Due to lack of time, medical students have poor social life. (11) They are unable to give time to their family and friends. A medical student hardly finds time for healthy activities like sports, exercise and meditation. Unfortunately, sports and co-curricular activities are also not promoted in Pakistan’s medical colleges (12) They are conducted on annual basis as events rather than

considering them as integral part of life. Our future health professionals are severely lacking in mental health and wellbeing. (13) A study conducted in a Private Medical College, Mangalore depicted that 17% students had mild stress, 77.3% had moderate stress and 5.7% students had severe stress. However, the academic stress was found relatively higher in students (11) [1]. Another study conducted in a public sector medical university of Pakistan reported 51.5% prevalence of stress: final year students, males and hostilities being more effected (12,13) [15].

This is an alarming situation that almost one-third of medical students are suffering from high stress. Therefore, this study aims to find levels of perceived stress among undergraduate medical students (from first year to final year).

METHODS

Descriptive Cross-sectional study was conducted from December 2021 to January 2022 at Multan Medical and Dental College. Ethical committee of mmhc accorded approval of the study. 440 students filled questionnaires through census sampling. Data was collected from the students of 1st year, 2nd year, 3rd year, 4th year and final year through census. Students who were diagnosed with any psychiatric disorder were excluded. Students were asked to fill Perceived Stress Scale Questionnaire-10 (PSSQ-10) Questionnaires were distributed among students in the start of lectures after taking permission from their respective teachers. Students who were absent in class that day were asked to fill the questionnaire upon their availability, which was conveyed through class representatives. Students were explained the nature of study, utilization, confidentiality, and anonymity. Written informed consent was taken from students. They were assured that results

of this study would not affect their academic performance. They were explained that their participation is voluntary and there is no obligation whatsoever and that they can leave the study at any time and will cause no harm. Students were given enough time to fill the questionnaires and any confusion faced on their part was clarified. Positively worded items are reverse scored, and the ratings are summed, with higher scores indicating more perceived stress. PSSQ-10 scores are obtained by reversing the scores on the four positive items: Questionnaires were distributed among students in the start of lectures after taking permission from their respective teachers. Students who were absent in class that day were asked to fill the questionnaire upon their availability, which was conveyed through class representatives. Students were explained the nature of study, utilization, confidentiality, and anonymity. Written informed consent was taken from students. They were assured that results of this study would not affect their academic performance. They were explained that their participation is voluntary and there is no obligation whatsoever and that they can leave the study at any time and will cause no harm. Students were given enough time to fill the questionnaires and any confusion faced on their part was clarified. Positively worded items are reverse scored, and the ratings are summed, with higher scores indicating more perceived stress. PSSQ-10 scores are obtained by reversing the scores on the four positive items: Individual scores on the PSSQ-10 can range from 0 to 40 with higher scores indicating higher perceived stress.

- Scores ranging from 0-13 would be considered low stress.
- Scores ranging from 14-26 would be considered moderate stress.
- Scores ranging from 27-40 would be considered high perceived stress.

Data acquired from Perceived Stress Scale Questionnaires was entered into Statistical Package for Social Sciences (SPSS) version 23. Scores of all ten questions was added after reversing the scores of items 4,5,7, and 8. The added score was the perceived stress score of each student. Frequency of students for low, moderate, and high stress was taken. Percentage, mean and standard deviation of stress of all classes were measured and compared. Stress was also measured and compared in male and female students, male and female boarders.

RESULTS

The response rate was 97.04%. Out of 440 possible students, 427 students returned questionnaires. 101 students were from first year, 41 students from 2nd year, 104 students from 3rd year, 112 students from 4th year and 69 students from final year. 3 students were diagnosed psychiatric patients (2 male students from 2nd year and one female students from fourth year). They were excluded from the study. Among 427 students, 261 (61.12%) students were females, and 166 (38.87%) students were males. 111 (25.96%) students were boarders (47 males, 64 females) and 316 (74%) students were non-boarders (119 males, 197 females). 9 (2.1%) students were married and among which 4 were males and 5 were females. Average age of total population was 20.492. Table (I) shows demographic profile of students.

Table I: Demographic Profile of Students

	1 st year (n)	2 nd year (n)	3 rd year (n)	4 th year (n)	Final year (n)
Female	38	25	68	79	51
Male	63	16	36	33	18
Average age	18.41	19.83	20.01	21.63	22.58
Boarder	31 F*: 8 M*: 23	18 F: 10 M: 8	24 F: 18 M: 6	25 F: 19 M: 6	13 F: 9 M: 4
Day scholar	70 F: 30 M: 40	23 F: 15 M: 8	80 F: 50 M: 30	87 F: 60 M: 27	56 F: 42 M: 14
Married	00	00	04 F: 2 M: 2	02 F: 2	03 F: 2 M: 1

*F: Female *M: Male

Table 2: Year Wise Level of Stress Among Students

Year of study	Low stress n (%)	Moderate n (%)	High stress n (%)
First year	10 (2.34%)	85 (20%)	06 (1.41%)
Second year	06 (1.4%)	26 (6.09%)	09 (2.11%)
Third year	16 (3.75%)	69 (16.16%)	19 (4.45%)
Fourth year	13 (3.04%)	81 (18.87%)	18 (4.22%)
Final year	09 (2.11%)	50 (11.71%)	10 (2.34%)
Total (n) (%)	54 (12.65%)	311 (72.83%)	62 (14.52%)

Table 3: Level of Stress Among Female Students

	1 st year (n)	2 nd year (n)	3 rd year (n)	4 th year (n)	Final year (n)	Total n (%)
Low Stress	00	01	07	09	04	21 (8.05%)
Moderate Stress	38	17	43	58	37	193 (73.94%)
High Stress	0	7	18	12	10	47 (18.01%)

Table 4: Level of Stress Among Male Students

	1 st year (n)	2 nd year (n)	3 rd year (n)	4 th year (n)	Final year (n)	Total n (%)
Low Stress	10	05	09	04	05	33 (19.88%)
Moderate Stress	47	09	26	23	13	118 (71.08%)
High Stress	06	02	01	06	00	15 (9.04%)

Among 427 students, 54 (12.65%) students had low stress, 311 (72.83%) students had moderate stress and 62 (14.52%) students had high stress as shown in table (II).

According to gender, 19.88% males had low stress compared to females (8.05%). 71.08% males had moderate stress while 73.94% females had moderate stress. 9.04% males had high stress. Females were twice higher stressed compared males i.e., 18.01% (table III) (table IV).

Male boarder students to were less stressed compared to female boarder students. Among male boarders, 36.17% students had low stress, 68.08% students had moderate stress and 17.02% students had high stress. Among female boarders, 12.5% students had low stress, 70.31% students had moderate stress and 25% students had high stress (Table V).

Table 5: Level of Stress in Male Boarder Students

	1 st year (n)	2 nd year (n)	3 rd year (n)	4 th year (n)	Final year (n)	Total n (%)
Low stress	10	03	02	01	01	17 (36.17%)
Moderate stress	18	04	04	03	03	32 (68.08%)
High stress	06	01	01	00	00	08 (17.02%)

Table 6: Level of Stress in Female Boarder Students

	1 st year (n)	2 nd year (n)	3 rd year (n)	4 th year (n)	Final year (n)	Total n (%)
Low Stress	01	04	02	00	01	08 (12.5%)
Moderate Stress	08	07	08	16	06	45 (70.31%)
High Stress	07	00	06	01	02	16 (25%)

Table 7: Mean and Standard Deviation of Perceived Stress Scores Among All Classes

	1 st year	2 nd year	3 rd year	4 th year	Final year
Low stress	9±3.82	10.21±2.16	9.94±4.04	11.34±1.83	9.45±3.13
Moderate stress	20.11±3.12	20.42±4.01	20.4±3.56	20.12±3.46	20.12±3.23
High stress	27.67±0.52	28.67±1.59	29.63±2.34	29.06±2.31	30.5±2.8

Students of first year had lowest stress ($M=9$, $SD=3.82$) (Table VII). In moderate stress group, students of second year had highest stress ($M=20.42$, $SD=4.01$). Highest stress among all classes was found in final year students ($M=30.5$, $SD=2.8$) followed by third year, fourth year, 2nd year and 1st year.

DISCUSSION

High levels of discomfort have been seen among undergraduate medical students, according to various published literatures.

The ability of a student to learn and perform well academically may be hampered by stress, coupled with social, emotional, physical, and family issues. Excessive stress can have a severe impact on a student's academic performance as well as their physical and mental health. The main source of stress for the majority of medical students is how they perform on college and university level exams. Exams, both formative and summative, are an essential component of students' evaluations. The Result of our study shows that stress levels of females are higher than male students. These findings correspond with other international studies (13,4,15,16) [13,14,15,16]. Medical students in third year were more stressed than medical students in second year. Third year students are introduced to clinical studies as well as they attend patients in person. This new transition in their lives can be a reason of increased stress. This finding of my study was in line with research conducted in medical college of Saudi Arabia (15) [15]. Results of my study also shows that stress levels are highest in final year students which can be due to extensive curriculum, tough clinical duties and worries of future. This contrasted with another study in which first year students were most stressed followed by final year students while 4th year students were least stressed (17, 18) [17]. In my study, 14.52% students had high stress, 72.83% had moderate stress and 12.65% had mild stress. Local and international studies showed different levels of stress compared to my study (19,20), which can be due to difference in curriculum, clinical practice, schedule of students and different tools to measure stress. In a study done in Ethiopia, 24.4% had high stress and 27.6% had mild stress (21,22). A study conducted in Pakistan showed high levels of stress in 20.83% students while 7.5% students had low levels of stress (8) [8]. In a study done in Egypt, 18.8% students had high stress (18) [18] while a study in India stated that 43.8% students were affected by stress (23,24) [19].

CONCLUSION

This study explored stress levels. A significant number of students were facing high and moderate stress. High levels of stress can affect academic performance as well as health of medical students. Psychological make up developed during medical college is likely to continue in professional career too.

Limitations: This study was carried out in private medical college in one city of Pakistan. This may have issues of generalizability of findings since data is not collected from multiple colleges of private and public nature. Perceived stress was calculated through self-administered questionnaire. Information bias cannot be excluded, as there can be inaccuracies in responses or participants' feelings to answer questions in certain ways, which are not true. Sometimes students may misunderstand a question and give wrong answer, which gives skewed results (20). PSSQ-10 contains Likert scale. Due to social desirability, the validity of measurement of attitude can be compromised, which is a limitation of Likert scale (21) [21].

Conflict of Interest / Disclosure: We declare no conflict of interest.

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