JOURNAL OF PAKISTAN PSYCHIATRIC SOCIETY
(Reviewed Manuscript - Version of Record to Follow)

ORIGINAL ARTICLE:

PERCEIVED STRESS LEVEL AMONG MEDICAL STUDENTS

Shafiq ur Rahman[1], Ameer Afzal Khan[2], *Rahman Syed[3], Waqar Ahmad[4], Hamayun Khan[5], Ishaq Ahmad[6], Muhammad Dawood[7]

[1,4,5,6,7] House officer, Department of medicine, Saidu group of teaching hospital (SGTH), Swat.
[2]Fourth year MBBS Student, Saidu Medical College, Swat
[3]Fourth year MBBS Student, Swat Medical College, Swat
Corresponding Author: Rahman Syed, drrahmansyed1939@gmail.com, Swat Medical College, Swat, Khyber Pakhtunkhwa, Pakistan. Contact number: +923170636556

Submitted: 22 October 2024
Accepted: 30 September 2025

ABSTRACT

OBJECTIVE

To examine the level of perceived stress among students at a medical college.

STUDY DESIGN

Cross-sectional study

PLACE AND DURATION OF THE STUDY

The research was carried out in Saidu Medical College over a period of 3 months from 10 May to 11 August 2024.

METHOD

This quantitative, descriptive study enrolled students who consented for participation, while non-consenting were excluded. The Perceived Stress Scale (PSS-14) was employed to measure variables understudy. Means for continuous parameters and frequencies for categorical parameters were used for analysis.

RESULTS

Out of 180 students, 150 completed questionnaires. The sample included 61 females (40.6%) and 89 males (59.4%). Most respondents were boarders (72.6%) and single (93.3%). Stress levels revealed 24 students (16%) with low stress, 37 (24.6%) with moderate stress, and 89 (59.3%) with high stress. Males reported 23.6% low, 23.6% moderate, and 52.8% high stress, while females reported 28.26% low, 18.03% moderate, and 53.69% high stress. First-year students had the lowest stress, while final-year students experienced the highest overall stress.

CONCLUSION

The study concludes that medical students, specifically in final professional year of study, report high levels of stress, with substantial gender differences. These results highlight the necessity of focused treatments to improve the wellbeing of students and deal with particular pressures in medical school.

KEY WORDS

Perceived Stress, Medical Students, Stress Level

INTRODUCTION

Globally, mental health in medical colleges is a major public health issue. According to the WHO mental health is an indispensable component of health[1]. It is well known that medical schools are stressed places where students' health, academic success, and physical and emotional health often suffer. Medical students all over the world are supposed to be responsible, learn a huge amount of knowledge, do a lot of different things, and put in a lot of effort while having little restrained resources. Thus, this pressure can cause stress and burnout among medical students[2].

Stress being a ubiquitous experience that affects individuals across various walks of life, manifesting differently depending on the context. For students, stress might revolve around academic performance and future prospects; for working professionals, it could be job security, deadlines, and workload. Athletes might experience stress related to performance and competition, while caregivers might feel overwhelmed by the demands of supporting loved ones. Medical students, in particular, face a unique blend of academic rigor, clinical pressures, and the weight of future responsibility for human lives, making their stress especially intense and multifaceted. Despite these differences, the common thread is the potential for stress to impact mental and physical health, underscoring the importance of effective stress management strategies across all walks of life.

For medical students, stress is a pervasive and often overwhelming experience. The demands of medical school, including rigorous coursework, clinical responsibilities, and high-stakes exams, can create an environment of intense pressure. Medical students often sacrifice sleep, social relationships, and personal time to meet expectations, leading to burnout and mental health challenges. The stakes are high, and the fear of failure can exacerbate stress levels.

Recognizing the signs of stress and developing healthy coping mechanisms are essential for medical students to maintain their well-being and thrive in their demanding profession. Stress as the body's reaction to different triggers that cause psychophysiological adaptation, and it has a huge effect on the overall health of the individual. These triggers can have either good or bad effects, but if they keep happening over time, they can effect mental and physical health[3]. Several studies over the last several years have demonstrated a worrisome trend: medical students had considerably greater incidence of mental illnesses than the general population[4-7]. This worrying finding shows the unique problems that people who want to work in health-related areas have to deal with. Medical students are more likely to be stressed if they have long classes, a lot of exams, high academic expectations and the fear of failing, not enough free time, too much work, not getting enough sleep or bad sleep, having a lot of career options, and worrying about the future[8,9]. When these risk factors are present, students may experience stress.

Stress in medical institutions in Pakistan is a serious concern, influenced by various academic, environmental, and psychosocial factors. A study found that 72.83% of medical students reported moderate stress, while 14.52% experienced high stress[10]. Another research among Pakistani undergraduate students indicated that 85% of students reported feeling stressed, with significant levels of stress associated with academic pressures[11]. Similarly, another study found medical students in Pakistan have a moderate stress, with a mean score of 29.79±5.3, particularly higher in 2nd year students and younger age groups[12].

While there is existing research on perceived stress among medical students but it is not conclusive, this study was designed to generate recent data of perceived stress among medical students. The main aim of this study is to examine the levels of perceived stress among medical pupils and determine the factors that influence their stress levels.

SUBJECTS AND METHODS

Participants

This quantitative, descriptive cross-sectional study was done at Saidu Medical College in Swat over a three-month period from May 10 to August 11, 2024. The WHO sample size calculator was used to determine the sample size, taking into account the targeted degree of prevention and the overall population size. A simple random sampling method was applied to select participants. Inclusion criteria consisted of currently enrolled students at Saidu Medical College who willingly consented to participate in the survey. Students who chose not to participate were excluded.

Instruments

The study questionnaire consisted of two sections: 1) Demographic information: Gathered details about participants' age, gender, academic year, and other relevant information. 2) Perceived Stress Scale (PSS-14): It comprises of ten statements that measure perceived stressful occurrences of last one month. It has a 5-point Likert type scale to rate the stress level, ranging from "never" (0) to "very often" (4). The highest score is 40; higher the scores, more sense of stress. Scores of 0 to 13 are considered low stress, scores between14 to 26 are labeled as moderate stress, and scores of 27 to 40 are rated as severe stress.

Procedure

The ethical approval was obtained. The pilot study was conducted before the main study. A google form was created that had first section for informed consent. A link to the questionnaire was sent to the students.A computerized database was used for analysis. Continuous variables in the descriptive analyses were expressed as medians, while categorical variables were represented using frequencies and proportions.

RESULTS

Out of 180 possible pupils, 150 completed surveys. 18 pupils were from the 1st year, 20 from the 2nd year, 32 from the 3rd, 35 from the 4th, and 45 from the final year. Among the 150 pupils, 61 (40.6%) were female and 89 (59.4%) were male. 109 students (72.6%) were boarders, while 41 (26.4%) were non-boarders. The mean ± SD perceived stress scale (PSS) value among the students was found as 25.85± 10.17. Table 1 showed demographic profile of students**.**

Table 1

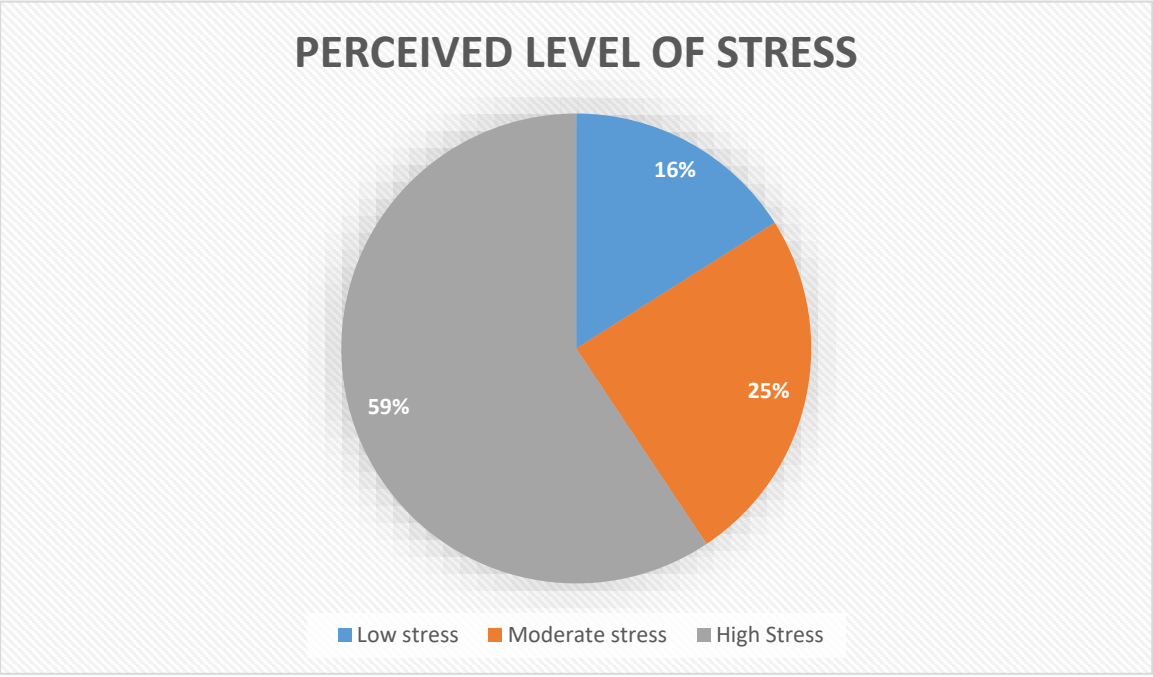
Demographic characteristics of undergraduate medical students

VARIABLE	FREQUENCY (%)
GENDER	
MALE	89(59.4)
FEMALE	61(40.6)

AGE	
LESS THAN 20 YEARS	**11(7.7)**
20-21 YEARS	**32(21.4)**
22-23 YEARS	**58(38.5)**
24-25 YEARS	**40(26.5)**
26 YEARS OR ABOVE	**8(5.6)**
YEAR OF STUDY	
IST YEAR MBBS	**18(12.0)**
2ND YEAR MBBS	**20(13.5)**
3RD YEAR MBBS	**32(21.4)**
4TH YEAR MBBS	**35(23.1)**
FINAL YEAR MBBS	**45(29.9)**
LIVING ARRANGMENTS	
BOARDERS	**109 (72.6)**
NON-BOARDERS	**41 (26.4)**
MARITAL STATUS	
SINGLE	**140(93.3)**
MARRIED	**10(6.7)**

Figure 1 showed that among 150 students, 24 (16%) had low level of stress, 37 (24.6%) had moderate level of stress, and 89 (59.3%) had high level of stress.

Figure 1: Pie chart depicting perceived level of stress among medical students.



Compared to women (28.26%), men (23.6%) reported feeling low stress. Moderate stress was experienced by 18.03% of women and 23.6% of men. Stress levels were high in 52.8% of men and 60.6% of women (table 2).

Table 2

Gender wise level of stress among undergraduate medical students

LEVEL OF STRESS	MALE N (%)	FEMALE N (%)
LOW STRESS	21 (23.59)	13 (28.26)
MODERATE STRESS	21(23.59)	11 (18.03)
HIGH STRESS	47 (52.8)	37 (60.6)

First-year students had the least amount of stress. Third-year students had the highest levels of stress in the moderate stress group. According to Table 3, final-year students experienced the highest levels of stress of any class, followed by those in their fourth, second, third, and first years.

Table 3

Year wise stress level among undergraduate medical students

LEVEL OF STRESS	IST YEAR MBBS	2ND YEAR MBBS	3RD YEAR MBBS	4TH YEAR MBBS	FINAL YEAR MBBS
LOW STRESS	4(22.2)	4 (22.3)	5(15.62)	2(5.73)	2 (4.44)
MODERATE STRESS	5 (27.8)	3(16.6)	9 (28.12)	8 (22.85)	10(22.2)
HIGH STRESS	9 (50)	11 (61.1)	19(59.37)	25(71.42)	33(73.3)

DISCUSSION

The study has provided valuable insights into the undergraduate medical students' stress , an issue of growing concern in medical education. Understanding the students' level of stress is important for their health and academic success as they deal with tough schedule of classes, professional duties, and the cognitive demands of healthcare training.

With a response rate of nearly 83.3%, this study matched or exceeded response rates from other studies[13-15]. Our study finding showed that 16% of undergraduate students had low stress, 24.6% of students had moderate stress while 59.3% of students had high stress. A prior study done among medical students of Mysore Medical College discovered that low level, moderate level, and high level of stress were reported at 20%, 74%, and 6%, respectively[16]. Furthermore, according to a survey conducted in Bosnia and Herzegovina, the majority of students indicated moderate (70.6%)

or low levels of stress (27.5%)[17]. A prior study done among Saudi medical students indicated that low, moderate, and high stress among pupils were 20.4%, 18.2%, and 25.2%, respectively[18]. Another study done among medical pupils in preclinical years showed that students with no, low level, moderate level, and high level of stress was discovered to be 28.3%, 21.7%, 31.7%, and 18.30%, respectively[19]. A research done in Pakistan among medical students discovered that 25.2% had little stress, 48.4% experienced moderate stress, and 26.3% reported high stress levels[20]. This means that the quantity and intensity of stress experienced by medical students appear to differ depending on their curriculum, medical school environment, and most crucially, the sort of psychometric assessments employed.

Our study also indicated that final year students had the highest level of stress across all courses, followed by fourth year, second year, third year, and first year. A previous study discovered a considerable difference in levels of stress between first and last-year medical students, with first-year students feeling higher levels of stress[21]. Similarly, previous research done in Multan, Pakistan found that students in the first year had the lowest felt stress, while last-year pupils had the highest stress[22]. In contrast, a study of South African undergraduate pupils found that there are no significant differences in the sense of stress in the medical students among the groups who had started clinical rotation or not[23]. Furthermore, a research conducted in India found that first-year students had the greatest rate of stress, followed by internship students and final-year students[24]. The difference in stress levels between first-year and final-year students yields inconsistent results. According to some studies, first-year students are more stressed because of the adjustment to college life, unfamiliar surroundings, and the pressure to adapt socially and academically[21]. Other research suggests that final-year students are more stressed, owing to the demands of upcoming graduation, job searches, and the need to finish rigorous schoolwork[22].

The study has several limitations. There is potential sampling bias if participants are not representative of the broader population, which affects generalizability. The use of self-administered scales may create a bias in responding, and the cross-sectional design does not allow to draw causal inference. External factors, such as personal and financial pressures, may influence stress but are not considered. Lastly, voluntary participation may lead to self-selection bias, as those who chose to participate might differ in their stress perceptions compared to those who did not.

CONCLUSION

This study showed that the stress levels of undergraduate medical students were quite high and majority of the respondents perceive themselves to be under a lot of stress. Such high perception of stress is more common among the final year students, thus providing evidence that academic and clinical requirements increase as students proceed in their studies. As the results indicated that there are some differences in the stress levels which further suggest that some interventions are needed. At the same time, lessened stress through systems of institutional support, stress management education, and services of psychological counseling is imperative in enhancing the welfare and academic performance of students in profession subsequent practice. More complex and longitudinal studies may help capture differences in stress levels over time, while incorporating the changes in society as a result of stress factors influenced by the conditions of socio-economy in the research area of medical education.

ACKNOWLEDGMENTS
None

DISCLOSURE
None

FUNDING
None

CONFLICT OF INTEREST
None

REFERENCES

1. UN Office of the High Commissioner for Human Rights (OHCHR), Fact Sheet No. 31, The Right to Health, June 2008, No. 31.

2. Prevalência da Síndrome de Burnout e fatores sociodemográficos e laborais em professores de escolas municipais da cidade de João Pessoa, PB [Article in Portuguese] Batista J, Carlotto M, Coutinho A, Augusto L. Rev Bras Epidemiol. 2010;13:502–512.
3. Nechita F, Nechita D, Pîrlog M-C, Rogoveanu I. Stress in medical students. Rom J Morphol Embryol. 2014;55:1263–6.

4. McKerrow I, Carney PA, Caretta-Weyer H, Furnari M, Miller Juve A. Trends in medical students' stress, physical, and emotional health throughout training. Med Educ Online. 2020;25(1).
5. Quek TTC, Tam WWS, Tran BX, Zhang M, Zhang Z, Ho CSH et al. The global prevalence of anxiety among medical students: a meta-analysis. Int J Environ Res Public Health. 2019;16(15).

6. Heinen I, Bullinger M, Kocalevent RD. Perceived stress in first year medical students - associations with personal resources and emotional distress. BMC Med Educ. 2017;17(1):1–14.

7. Miranda IMM, Tavares HHF, Silva HRS, Braga MS, Santos RO, Guerra HS. Quality of life and graduation in Medicine. Rev Bras Educ Med. 2020;44(3):e086.

8. Rtbey G, Shumet S, Birhan B, Salelew E. Prevalence of mental distress and associated factors among medical students of University of Gondar, Northwest Ethiopia: a cross-sectional study. BMC psychiatry. 2022 Aug 2;22(1):523.

9. Paudel K, Adhikari TB, Khanal P, Bhatta R, Paudel R, Bhusal S, Basel P. Sleep quality and its correlates among undergraduate medical students in Nepal: A cross-sectional study. PLOS Global Public Health. 2022 Feb 18;2(2):e0000012.

10. Umbrin I, Shah S, Siddiqui S, Rehman S, Asad W, Ambreen U. Assessment of level of stress in undergraduate medical students of a private medical college in Pakistan. Pakistan Journal of Medical & Health Sciences. 2022 Dec 11;16(10):495-.

11. Rahman DK, Nadeem A, Riaz B. Perceived Stress, The Sources, Severity and Coping Mechanisms Among Undergraduate Medical Students in a Pakistani Medical School. Pakistan Armed Forces Medical Journal. 2022 Sep 26;72(4):1379-83.

12. Din MU, Ahsan K, Aslam W, Siddique U, Majeed S, Mujahid A. A Survey to Assess the Prevalence of Stress and Stressors among Medical Students. Pakistan Journal of Medical & Health Sciences. 2022;16(12):218-.

13. Eva EO, Islam MZ, Mosaddek AS, Rahman MF, Rozario RJ, Iftekhar AF, et al Prevalence of stress among medical students: A comparative study between public and private medical schools in Bangladesh BMC Res Notes. 2015;8:327

14. Nulty DD. The adequacy of response rates to online and paper surveys: What can be done? Assess Eval High Educ. 2008;33:301 14

15. Saeed A, Bahnassy A, Al-Hamdan N, Almudhaibery F, Alyahya A. Perceived stress and associated factors among medical students. J Family Community Med. 2016;23(3)

16. Bhavani Nivetha M, Ahmed M, Prashantha B. Perceived stress and source of stress among undergraduate medical students of Government Medical College, Mysore. International Journal of Community Medicine and Public Health. 2018 Aug;5(8):3513.

17. Racic M, Todorovic R, Ivkovic N, Masic S, Joksimovic B, Kulic M. Self-perceived stress in relation to anxiety, depression and health-related quality of life among health professions students: a cross-sectional study from Bosnia and Herzegovina. Slovenian Journal of Public Health. 2017 Oct 9;56(4):251-9.

18. Abdulghani HM, AlKanhal AA, Mahmoud ES, Ponnamperuma GG, Alfaris EA. Stress and its effects on medical students: a cross-sectional study at a college of medicine in Saudi Arabia. Journal of health, population, and nutrition. 2011 Oct;29(5):516.

19. Al Sunni A, Latif R. Perceived stress among medical students in preclinical years: A Saudi Arabian perspective. Saudi Journal for Health Sciences. 2014 Sep 1;3(3):155-9.

20. Mansoor S, Azad N, Zubair UB, Khan KH. ASSOCIATION OF PERCEIVED STRESS AND COPING STRATEGIES WITH DEPRESSIVE SYMPTOMS IN STUDENTS AT A PRIVATE MEDICAL COLLEGE IN ISLAMABAD: Perceived Stress and Depression Coping Strategies. Pakistan Armed Forces Medical Journal. 2021 Oct 31;71(5):1676-81.

21. Augesti G, Lisiswanti R, Saputra O, Nisa K. Differences in stress level between first year and last year medical students in medical faculty of Lampung University. Jurnal Majority. 2015;4(4):50-6.

22. Umbrin I, Shah S, Siddiqui S, Rehman S, Asad W, Ambreen U. Assessment of level of stress in undergraduate medical students of a private medical college in Pakistan. Pakistan Journal of Medical & Health Sciences. 2022 Dec 11;16(10):495-.

23. Vawda N. *Perceived stress, coping behaviour, and health outcomes among South African undergraduate medical students* (Doctoral dissertation).

24. Jyotsna, S., Waghmare., Arvind, V., Gaikwad., Mohan, K., Doibale., Pooja, H., Roy. Prevalence of stress and its association with resilience among medical students in a tertiary care center, aurangabad, maharashtra, india. International journal of advanced research. 2023;11(02):203-211.

S. No	Author's Name	Affiliation	Contribution
1	Shafiq Ur Rahman	House officer, Department of medicine, Saidu group of teaching hospital (SGTH), Swat	principal investigator, conceptualization, data analysis, final manuscript approval
2	Ameer Afzal Khan	Fourth year Mbbs Student, Saidu Medical College, Swat	Manuscript writing, data analysis, final manuscript approval
3	Rahman Syed	Fourth year Mbbs Student, Swat Medical College, Swat	Manuscript writing , Data collection, final manuscript approval
4	Waqar Ahmad	House officer, Department of medicine, Saidu group of teaching hospital (SGTH), Swat	Data collection, referencing, manuscript compiling
5	Hamayun Khan	House officer, Department of medicine, Saidu group of teaching hospital (SGTH), Swat	data collection, manuscript writing
6	Ishaq Ahmad	House officer, Department of medicine, Saidu group of teaching hospital (SGTH),	data collection, data compiling

		Swat	
7	Muhammad Dawood	House officer, Department of medicine, Saidu group of teaching hospital (SGTH), Swat	data collection, manuscript review,