



ORIGINAL ARTICLE

PREVALENCE AND SOURCES OF PSYCHOLOGICAL DISTRESS AMONG UNDERGRADUATE MEDICAL STUDENTS OF AYUB MEDICAL COLLEGE, ABBOTTABAD

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Background: Psychological distress can adversely affect both physical and emotional well-being and may arise when an individual's ability to cope with stress is exceeded. Medical students are exposed to multiple academic and personal stressors that may contribute to psychological distress. This study aimed to determine the prevalence of psychological distress and identify major sources of stress among undergraduate medical students. **Methods:** A cross-sectional study was conducted among 326 MBBS students from first to final year at Ayub Medical College, Abbottabad, of whom 202 responded to the questionnaire. Students were selected through convenience sampling. Psychological distress was assessed using the standardized Kessler Psychological Distress Scale (K10), while sources of stress were identified using the Medical Students Stressor Questionnaire (MSSQ). **Results:** The overall prevalence of psychological distress was 60.5%. Psychological distress was significantly higher among females than males (74.2% vs. 46.4%; $p < 0.001$). It was also significantly higher among students in clinical years compared with those in non-clinical years ($p = 0.032$) and among hostel residents compared with students living at home ($p = 0.019$). Major sources of stress included poor academic scores, tests and examinations, lack of time for revision, heavy workload, poor motivation to learn, large amounts of content to be covered, and falling behind the reading schedule. **Conclusion:** Psychological distress was highly prevalent among undergraduate medical students at Ayub Medical College, affecting more than half of the participants.

Keywords: Kessler psychological distress (K10), Medical students, Psychological distress

Pak J Physiol 2026;22(3):161–4, DOI: <https://doi.org/10.69656/pjp.v22i3.1967>

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INTRODUCTION

Medical students have to manage difficulties unique to medical school in addition to the typical stresses of daily living. These include being overloaded with information and input, being indebted, not having enough free time, and facing pressures related to work, relationships at work, and professional decisions. It is well known that the prevalence of psychological distress including depression, anxiety and other related mental health problems among medical students is consistently higher than their non-medical peers.¹ According to L'hote *et al.* the prevalence of depression or depressive symptoms in medical students is higher than in the general population: 28.8% in 2014 vs. 3.8% according to the Institute of Health Metrics and Evaluation, based on 2019 data. The same holds true for anxiety (33.8% in 2019 vs 4.1% in 2016) according to the World Health Organization's data, the 12-month prevalence of suicidal ideation in medical students was 11.1% and 1.6% for suicide attempts.²

Due to the specific nature of the studies, medical students are exposed to particular risks. Several studies revealed that, in medical students', the volume of information to learn, forms of evaluation, competition, time constraints, fear of failure ethical challenges and exposure to human suffering were

stressors that could be responsible for this distress. While a certain level of distress is a characteristic constituent of medical education and may function as a driving force for certain individuals, not every student may perceive distress as beneficial.³ Many people experience feelings of worry, inadequacy, worthlessness, fury, and shame as a result of distress, which has been connected to both physical and psychological disorders as it can hinder students' ability to master academic material by affecting their ability to focus, solve problems, make decisions, finish tasks, and perform other skills that are essential for learning.¹

Research on medical students' sources of stress typically identifies three areas: financial difficulties, social troubles, and academic pressure. Medical students report higher levels of stress, anxiety, and sadness than their age-matched counterparts who are not medical students, according to prior studies showing that mental health is especially affected.⁴ Understanding medical students' psychological distress is crucial to explaining how it relates to their career goals and stability in the profession, given their prominent role in the healthcare system.

In order to bridge this gap, this study used a representative sample medical students to evaluate the

prevalence of psychological distress among medical students and investigate its causes. The results of this study will be crucial for improving medical students' well-being and for identifying those who need specialized mental health care, which will help address the shortage of healthcare workers in Pakistan.

METHODOLOGY

It was a cross sectional study. Convenience sampling was used to choose 326 MBBS students from first to final year out of which 202 filled the questionnaire (response rate=61.96%). Sampling was done by using WHO formula by keeping confidence level 95% , expected prevalence 50%, margin error 5% and $z=1.96$ and adding 10% non-response rate. The study was done at Ayub Medical College Abbottabad from June to July 2026. Ethical approval was taken from College Ethical Committee (Ref.No.RC-EA-2026/208).

The Kessler 10-item psychological distress scale (K10), which was created by Kessler *et al.* to measure psychological symptom severity and degree of distress, was used to gather data to know about respondents' current (1-month) discomfort.⁴ The Kessler Psychological Distress Scales (K-10 and K-6) are reliable tools for measuring psychological distress in general and clinical populations ($\alpha=0.93$). The K10 consists of ten questions that ask, 'How often did you feel...?' and provides a list of particular symptoms. The five alternative answers, which span from 'none of the time' to 'all of the time,' are given a score between 1 and 5, which is then added up to produce a maximum possible score of up to 50. The cut-off scores recommended by the authors were used: <20 for no stress, 20–24 for mild stress, 25–29 for moderate stress, and 30–50 for severe stress.

A similar questionnaire, the Medical Students Stressor Questionnaire (MSSQ), was used to identify sources of stress. The items on MSSQ represent 40

events that have been reported to be possible sources of stress in medical students. Respondents were asked to rate each event in themselves during the last four weeks by choosing from five responses: 'causing no stress at all to mild stress (score: 0–1)', 'causing moderate stress (score: 1.01–2)', 'causing high stress (2.01–3)' and 'causing severe stress (3.01–4)'.⁵ MSSQ was developed to identify sources of stress in medical students based on the literature, expert opinions, and several stress models. MSSQ identifies various sources of stress in medical students, which are categorized as follows: academic, interpersonal, teaching and learning, social, drive/desire, and group activity.

MSSQ has been validated in many countries, such as Malaysia, the Netherlands, Romania, Nepal, India, and Sri Lanka. The students received assurance about privacy and confidentiality of their answers and that their names would not be kept on file.

The results of categorical variables were tabulated as frequencies and percentages. The p was calculated by Mann-Whitney U-test and Kruskal Wallis test by SPSS-22, and $p \leq 0.05$ was considered significant.

RESULTS

A total of 202 students filled the questionnaires. Data were Non-normally distributed. Median age was 20.00 with interquartile range 16–25 years. Median Stress score was 22.00 with a wider interquartile range of 10–48. Students affected by psychological distress stress were 122 (60.5%). Both variables (Age and Stress Score) failed the Shapiro-Wilk and Kolmogorov-Smirnov tests ($p < 0.05$), indicating non-normal distributions. Mann-Whitney U-test and Kruskal Wallis tests were applied to see significance level of results. The results are summarized in the following tables.

Table-1: Medical students' psychological distress levels on the Kessler 10-item psychological distress scale (K10) based on demographics

Variable	Number	%	Stress severity (n within group)				p value
			No stress	Mild stress	Moderate stress	Severe stress	
Gender							
Male	97	48.0	52 (53.6)	18 (18.6)	17 (17.5)	10 (10.3)	0.000 (Mann Whitney U test)
Female	105	52.0	27 (25.7)	31 (29.5)	20 (19)	27 (25.7)	
Year of study							
1 st year MBBS	93	46.0	39 (41.9)	22 (23.7)	18 (19.4)	14 (15.1)	0.001 (Kruskal Wallis test)
2 nd year MBBS	48	23.8	23 (47.9)	12 (25.0)	8 (16.7)	5 (10.4)	
3 rd year MBBS	20	9.9	4 (20.0)	5 (25.0)	3 (15)	8 (40.0)	
4 th year MBBS	19	9.4	2 (10.5)	6 (31.6)	3 (15.8)	8 (42.1)	
5 th year MBBS	22	10.9	11 (50.0)	4 (18.2)	5 (22.7)	2 (9.1)	

Table-2: Kessler 10-item psychological distress scale (K10)

Classification	K-10 cut off scores	Number (n)	Percentage
No stress	<20	79	39.1
Mild stress	20–24	49	24.3
Moderate stress	25–29	37	18.3
Severe stress	30–50	37	18.3
Total		202	100

Table-3: Medical students distributed according to Kessler (K-10) scores.

Variable	Number	Percentage	Stress severity n (%age within group)				p value
			No stress	Mild stress	Moderate stress	Severe stress	
Academic group							
Pre-clinical	141	69.8	62 (44)	34 (24.1)	26 (18.4)	19 (13.5)	0.032 (mann whitney u test)
Clinical	61	30.2	17 (27.9)	15 (24.6)	11 (18)	18 (29.5)	
Living accommodation							
Home	123	60.9	56 (45.5)	31 (25.2)	22 (17.9)	14 (11.4)	0.019 (mann whitney u test)
Hostel	79	38.6	24 (29.5)	18 (23.1)	15 (19.2)	22 (28.2)	
Motivation to study medicine							
Self	155	76.7	64 (41.3)	41 (26.5)	24 (15.5)	26 (16.8)	0.090 (kruskal wallis test)
Family pressure	36	17.8	12 (33.3)	5 (13.9)	11 (30.6)	8 (22.2)	
No choice	11	5.4	3 (27.3)	3 (27.3)	2 (18.2)	3 (27.3)	

Table-4: Stressors (identified by the MSSQ) mean degree of psychological distress in medical students

Item	Mean±SD
Factors causing moderate to severe stress	
Getting poor marks	2.63±1.00
Tests / examinations	2.39±1.04
Lack of time for revision	2.27±1.08
Heavy workload	2.09±1.22
Poor motivation to learn	2.06±1.19
Large amount of contents to be learnt	2.03±1.16
Falling behind in reading schedule	2.02±1.13
Factors causing mild to moderate stress	
Unable to answer the teachers' questions	1.91±1.11
Not enough medical skill practice	1.88±1.11
Need to do well (imposed by others)	1.87±1.13
Unwillingness to study medicine	1.85±1.11
Learning context – full of competition	1.72±1.11
Having difficulty understanding the content	1.64±1.13
Parental wish for you to study medicine	1.55±1.15
Lack of time for family and friends	1.54±1.18
Feeling of incompetence	1.53±1.25
Uncertainty of what is expected of me	1.52±1.18
Participation in class discussion	1.52±1.26
Quota system in examinations	1.51±1.18
Talking to patients about personal problems	1.40±1.29
Inappropriate assignments	1.39±1.13
Teacher – lack of teaching skills	1.26±1.25
Frequent interruption of work by others	1.20±1.22
Unjustified grading process	1.18±1.18
Lack of recognition for work done	1.15±1.15
Participation in class presentation	1.05±1.10
Factors causing no stress to mild stress	
Not enough feedback from teacher(s)	0.99±1.15
Unable to answer questions from patients	0.95±1.11
Not enough study material	0.94±0.98
Facing illness or death of the patients	0.94±1.05
Conflicts with other students	0.92±0.93
Family responsibilities	0.87±0.90
Verbal or physical abuse by other student(s)	0.82±1.10
Lack of guidance from teacher(s)	0.77±1.11
Need to do well (self-expectation)	0.72±1.13
Conflict with personnel(s)	0.61±1.05
Verbal or physical abuse by teacher(s)	0.60±1.12
Working with computers	0.50±1.15
Verbal or physical abuse by personnel(s)	0.50±1.17
Conflict with teacher(s)	0.50±1.10

*Degree of stress classification: 0–1.00 is 'causing nil to mild stress', 1.01–2.00 is 'causing mild to moderate stress', 2.01–3.00 is 'causing moderate to high stress' and 3.01–4.00 is 'causing high to severe stress'

DISCUSSION

This study assessed the prevalence of psychological distress and perceived sources of stress among undergraduate medical students at a medical college of Abbottabad. Psychological distress was identified in majority of participants, indicating a substantial burden among medical students. This finding is comparable with the prevalence reported among medical students in Iran.¹ The similarity may reflect common challenges of medical education, including heavy academic workload, frequent examinations, extensive curricular content, limited time, and pressure to achieve good academic performance.

A significant difference in psychological distress was observed between male and female students, with a higher prevalence among females. This finding is consistent with previous studies reporting greater anxiety and depressive symptoms among female medical students.⁶ Possible explanations include differences in perceived academic pressure, coping strategies, social expectations, and willingness to report psychological symptoms. However, these factors were not directly assessed in the present study and therefore cannot be considered established explanations.

Clinical students demonstrated significantly greater psychological distress than pre-clinical students, with a higher proportion experiencing moderate and severe distress.⁷ This may be related to the additional demands of clinical education, including patient interaction, clinical responsibilities, performance expectations, and exposure to illness and death. Previous studies have identified academic demands, evaluation, time constraints, fear of failure, and exposure to human suffering as important stressors during medical training. Nevertheless, these factors were not independently measured in this study.

Hostel residents also showed significantly greater psychological distress than students living at home which is in accordance with a study by Chauhdary *et al.*⁸ Separation from family, adjustment to communal living, and reduced access to familiar social support may potentially contribute to this difference. However, social support, loneliness, financial circumstances, and adjustment to hostel life were not assessed and therefore causal explanations cannot be confirmed. Motivation for

studying medicine was not significantly associated with psychological distress ($p=0.090$), although differences were observed among students reporting family pressure or limited choice in selecting medicine. A similar finding was reported by Koochaki *et al* in their study on Iranian undergraduate students.¹ This finding suggests that motivation may warrant further investigation in larger studies.

MSSQ findings demonstrated that academic-related stressors were the most prominent perceived sources of stress. The highest-rated stressors were poor marks, tests/examinations, lack of time for revision, heavy workload, poor motivation to learn, large amounts of content to be learned and falling behind the reading schedule. These findings are consistent with previous MSSQ-based study by Rath *et al* identifying examinations, workload, and extensive course content as major sources of stress.⁹ Other stressors, including difficulty understanding content, parental expectations, competition, insufficient skills practice, and feelings of incompetence, were rated as mild to moderate, indicating that stress extended beyond academic workload to interpersonal, motivational, and performance-related domains.

LIMITATIONS

The cross-sectional design prevents determination of causal or temporal relationships. Convenience sampling from a single institution limits generalizability. Self-reported K-10 and MSSQ responses may be influenced by individual perceptions and response patterns. Important factors such as socioeconomic status, sleep, coping strategies, social support, and previous mental health history were not assessed. MSSQ findings represent perceived sources and intensity of stress and do not establish causation.

CONCLUSION

Psychological distress was common among

undergraduate medical students, with 60.5% scoring above the K-10 cut-off for psychological distress, with predominance in females, clinical-year students, and hostel residents. Prospective multicenter studies should evaluate the effectiveness of targeted stress-reduction interventions. Targeted psychological support, academic guidance and stress-management strategies are recommended to improve students' well-being.

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Received: 7 Jul 2026

Reviewed: 19 Sep 2026

Accepted: 30 Sep 2026

Contribution of Authors:

Authors approved the draft and are accountable in ensuring that questions related to accuracy or integrity of the work are duly investigated and resolved.

MS: Conception and study design

NI: Data analysis and interpretation

AN: Proof reading

AT: Data collection

RN: Results compilation/ data entry

SK: Data collection

Conflict of Interest: No conflict of interest is declared

Funding: No funds have been received from any agency