Determinants of Absenteeism Among Undergraduate Medical Students: A Cross-Sectional Study from a Public Medical College in Pakistan

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ABSTRACT

Background: Absenteeism among medical students is a growing concern that negatively impacts academic performance, professional development, and clinical training. In Pakistan, this issue is often underreported and poorly understood, particularly in public-sector institutions.

Objective: To identify the determinants of absenteeism among undergraduate medical students at a public medical college in Pakistan, focusing on academic, psychological, and social factors.

Methods: This cross-sectional study was conducted at Bacha Khan Medical College (BKMC), Mardan, from December 2024 to March 2025. A total of 200 MBBS students with attendance below 75% were enrolled through convenience sampling. Data were collected via a validated self-administered questionnaire covering academic stress, mental health, teaching satisfaction, learning engagement, and social influences. Statistical analysis included descriptive statistics, chi-square tests, and binary logistic regression.

Results: Key contributors to absenteeism included academic stress (78%), dissatisfaction with teaching methods (70%), mental health issues (65%), low engagement (60%), and social factors (52%). Logistic regression identified academic stress (OR = 2.78, p < 0.001), low engagement (OR = 2.43, p = 0.001), mental health issues (OR = 1.94, p = 0.018), dissatisfaction with teaching (OR = 1.88, p = 0.021), and social influences (OR = 1.67, p = 0.045) as significant predictors. No significant associations were found with gender or academic year.

Conclusion: Absenteeism among medical students in public-sector institutions in Pakistan is influenced by multiple interrelated factors, particularly academic stress and disengagement. Addressing these issues through institutional reforms, enhanced teaching methods, and mental health support could improve student attendance and overall academic performance.

Keywords: Absenteeism, Medical students, Academic stress, Mental health, Teaching satisfaction, Pakistan, Undergraduate medical education

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INTRODUCTION

Absenteeism, defined as the habitual or intentional failure to attend scheduled academic activities without valid justification, is a growing concern in medical education worldwide'. Consistent class attendance is essential in the training of future physicians, not only for the acquisition of theoretical knowledge but also for developing clinical competence, professional behavior, and patient care skills. The curriculum of medical students are integrative and immersive, having significance reliance on practical session, in-person lecture and clinical rotations . Any discrepancy in attendance can disrupt the learning process and disturbs the overall professional development and academic performance'.

Literature review indicates that there are multifactorial issues among medical students which leads to absenteeism'''''. These factors are ineffective teaching methods,Academic workload, lack of motivation, economical or social pressure all been linked to poor attendance . Previous studies revealed that there is positive correlation between students attendance and academic performance, suggesting that absenteeism can be a predictor of underperformance in exams and clinical

assessments . In addition to this chronic absenteeism can lead to poor time management, disengagement and poor academic achievements .

In Pakistan, the absenteeism is inadequately addressed and under looked, especially in public and private sector medical colleges where resources for student counseling, support and academic monitoring are limited. Several other factors including institutional factors, such as lack of academic mentorship, rigid teaching styles and stigma around mental health can further exacerbate the students disengagement in classes and clinical rotations. Despite its impact on educational quality and future patient care, there is a scarcity of local data exploring the causes of absenteeism in undergraduate medical programs.

This study was conducted to fulfill that gap by identification of the key academic, psychological, and social determinants of absenteeism among medical students at Bacha Khan Medical College (BKMC), Mardan Khyber Pakhtunkhwa Pakistan. By understanding the underlying factors, the aim is this research is to provide evidence-based recommendations for medical educationist, policy makers and intervention strategies that promote attendance, academic success, and the overall well-being of medical students.

METHODOLOGY

Study Design and Setting

This study was a cross-sectional study, and was conducted at Bacha Khan Medical College (BKMC), a public-sector medical institution in Mardan, Khyber Pakhtunkhwa Pakistan. The duration of the study was four months, from December 2024 to March 2025.

Study Population

The target population consisted of undergraduate medical students enrolled in MBBS programs at BKMC. Students from all academic years were eligible to participate.

Sampling Technique and Sample Size

A convenience sampling method was employed to recruit participants. A total of 200 students with class attendance below 75% were included in the study. This cutoff was based on the institutional attendance policy. Students currently on academic probation or with chronic medical conditions affecting attendance were excluded.

Sample size was determined using a confidence level of 95%, an estimated prevalence of absenteeism at 87.4% (based on regional data), and a 12% margin of error.

Ethical Approval

Ethical approval was obtained from the Ethical Review Committee of Mardan Medical Complex (Approval No:704/BKMC/ Dated: 02/12/2024). Written informed consent was obtained from all participants. Confidentiality and anonymity were strictly maintained throughout the research process.

Data Collection Tool

Data were collected using a self-administered questionnaire developed after a thorough literature review. The questionnaire was composed of both closed-ended and Likert-scale items covering the following domains:

• Academic stress

• Mental health status

• Satisfaction with teaching methods

• Learning engagement

• Social and demographic factors

The tool was reviewed by three experts in medical education for face and content validity, and piloted among 20 students (excluded from the final sample) to assess clarity and reliability.

Data Collection Procedure

Questionnaires were distributed in person to eligible students during class hours and collected anonymously in sealed envelopes. Participants were informed that their responses would be used solely for research purposes.

Variables

Dependent Variable:

• Absenteeism (defined as attendance below 75%)

Variable	Type	Measurement/Definition
Absenteeism	Dependent (Binary)	Attendance below 75% (Yes = 1, No = 0)
Academic Stress	Independent (Binary)	Self-reported experience of academic stress (Yes/No)
Mental Health Issues	Independent (Binary)	Self-reported psychological challenges (e.g., anxiety, depression) (Yes/No)
Teaching Satisfaction	Independent (Binary)	Dissatisfaction with teaching methods (Yes = Dissatisfied, No = Satisfied)
Learning Engagement	Independent (Binary)	Low engagement in academic activities (Yes/No)
Social Factors	Independent (Binary)	Influence of peers or part-time work on attendance (Yes/No)
Gender	Demographic (Nominal)	Male/Female
Academic Year	Demographic (Ordinal)	1st to 5th year MBBS

Table 1: Description of Study Variables

Independent Variables:

- Academic stress
- Mental health issues
- Teaching satisfaction
- Learning engagement
- Social factors (e.g., part-time job, peer influence)
- Demographic characteristics (gender, academic year)

Data Analysis

Data were entered into the latest version of SPSS version 26.0. Descriptive statistics such as (mean, frequencies and standard deviations) were used to summarize participant characteristics and response patterns. Inferential statistics included:

- **Chi-square tests** for the assessment of associations between categorical variables and absenteeism
- **Binary logistic regression** for identification of significant predictors of absenteeism

A p-value of <0.05 was considered as statistically significant.

RESULTS

Participant Characteristics

A total of **200 undergraduate medical students** from Bacha Khan Medical College participated in the study. The sample comprised **110 males (55%) and 90 females (45%),** with representation from all five academic years. The mean age of participants was **21.8 ± 1.4 years.**

Prevalence of Absenteeism Factors

The most commonly reported contributors to absenteeism were:

- **Academic stress:** reported by 156 students (78%)
- **Dissatisfaction with teaching methods:** 140 students (70%)
- **Mental health issues:** 130 students (65%)
- **Low learning engagement:** 120 students (60%)
- **Social factors (peer influence/part-time jobs):** 104 students (52%)

Association Between Factors and Absenteeism

Chi-square analysis revealed statistically significant associations between absenteeism and several independent variables:

Predictors of Absenteeism: Logistic Regression

Binary logistic regression was conducted to identify the most significant predictors of absenteeism. The model was statistically significant (χ^2 = 48.6, p < 0.001) and explained 38.2% of the variance in absenteeism (Nagelkerke R^2).
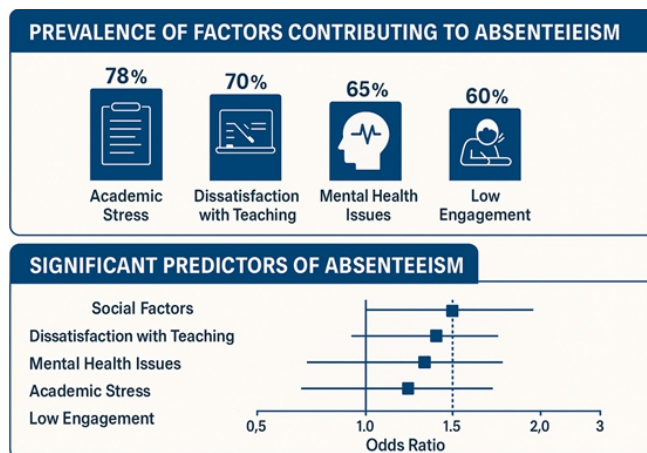

Figure 1: Summary Infographic – Determinants of Absenteeism in Undergraduate Medical Students

Variable	% Reporting Issue	p-value	Association
Academic Stress	78%	< 0.001	Strong positive association
Mental Health Issues	65%	0.012	Significant association
Dissatisfaction with Teaching	70%	0.009	Significant association
Low Learning Engagement	60%	< 0.001	Strong positive association
Social Factors	52%	0.017	Significant association
Gender	—	0.31	Not significant
Academic Year	—	0.22	Not significant

Table 2: Association Between Contributing Factors and Absenteeism (Chi-Square Analysis)

Predictor Variable	Odds Ratio (OR)	95% CI	p-value
Academic Stress	2.78	1.66 – 4.67	< 0.001
Mental Health Issues	1.94	1.12 – 3.37	0.018
Teaching Dissatisfaction	1.88	1.09 – 3.24	0.021
Low Engagement	2.43	1.42 – 4.14	0.001
Social Factors	1.67	1.01 – 2.77	0.045

Table 3: Logistic Regression Analysis of Predictors of Absenteeism

These findings indicate that **academic stress, mental health concerns, low engagement, and dissatisfaction with teaching methods** are statistically significant predictors of absenteeism, even when controlling for demographic variables.

DISCUSSION

This study investigated the determinants of absenteeism among undergraduate medical students at a public-sector medical college in Pakistan. The findings confirm that absenteeism is a multifactorial issue influenced by academic, psychological, and social variables. The most prevalent factors associated with absenteeism were academic stress (78%), dissatisfaction with teaching methods (70%), mental health
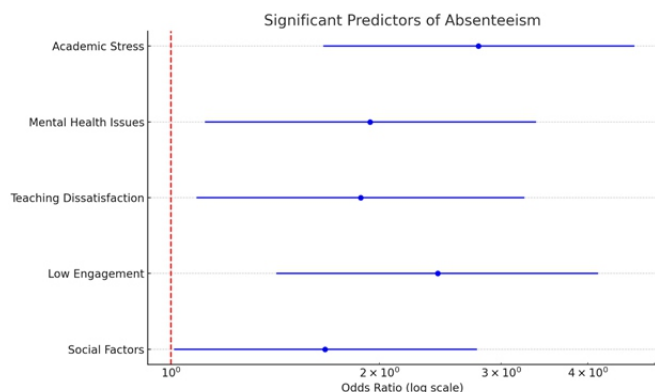
Figure 3: Prevalence of Factors Contributing to Absenteeism

issues (65%), low engagement in academic activities (60%), and social influences such as peer pressure or part-time jobs (52%).

The significant association between academic stress and absenteeism underscores the demanding nature of medical education, which often places students under sustained pressure to perform academically. This aligns with existing literature, where academic overload has been reported as a primary cause of burnout, anxiety, and disengagement in medical students – . The strong predictive power of academic stress (OR = 2.78) highlights the need for early identification and support strategies to mitigate its impact on student attendance.

The Mental health issues were reported by 65% of students and it was significantly predictor of absenteeism (OR = 1.94). This finding was consistent with previous research demonstrating that medical students are at increased risk of mental issues like depression, anxiety, and emotional exhaustion and factors leading to these issues are academic pressure and limited support resources . Although there are lot of awareness however mental health remains stigmatized in many institutions, especially in low- and middle-income countries . These results demonstrated the urgent need for mental health support services in institutes, these support services includes awareness campaigns, counseling, and de-stigmatization efforts within medical colleges.

Dissatisfaction with teaching methods is also a significant contributor (OR = 1.88) to absenteeism indicating a potential disconnect between students' learning preferences and institutional pedagogical approaches'. Inadequate use of interactive teaching, lack of feedback taking, and over-reliance on didactic lectures can reduce the student motivation and participation in the class – . Curricular reforms which incorporate student feedback, promote active learning, and utilize modern educational techniques may help address this issue.

The anther strong predictor of absenteeism was Learning

engagement (OR = 2.43), which refers to students' motivation and involvement in academic activities, . This suggests that disengaged students are more likely to skip classes, potentially setting up a cycle of poor performance and further withdrawal'"'"''.The effective strategies which will boost engagement are mentorship programs, interactive case-based learning, and peer-led academic support.

Social factors such as peer influence and part-time jobs were also significantly associated with absenteeism (OR = 1.67). While part-time employment is less common among medical students in Pakistan, peer influence and non-academic social obligations may detract from class attendance. These findings suggest a broader need to enhance institutional culture, peer accountability, and extracurricular balance.

There was no significant association between absenteeism and academic year or gender which indicate that the problem of absenteeism is widespread and not associated to any specific student subgroup. This is in contrasts with some previous studies that revealed gender-based trends, possibly reflecting local cultural or institutional differences.

This study identified a high prevalence of procrastination among undergraduate medical students. Key contributing factors included poor time management, academic pressure, and lack of motivation. A significant negative association between procrastination and academic performance was found.

The study's findings reinforce the need for comprehensive, student-centered interventions. Addressing absenteeism requires not only academic reforms but also institutional support mechanisms that promote psychological well-being and foster engagement. Establishing robust academic advising systems, reforming outdated teaching methods, and ensuring access to mental health resources are essential to improving student attendance and academic performance.

CONCLUSION

This study provides valuable additions into the multifactorial causes of absenteeism among undergraduate medical students at a public-sector institution in Pakistan. Academic stress, mental health issues, dissatisfaction with teaching methods, low learning engagement, and social influences were identified as key determinants. The most powerful predictors of absenteeism were academic stress and low engagement. These findings highlight the urgent need for medical institutions to adopt a holistic approach that not only enhances academic delivery but also addresses student well-being and engagement. It is essential to tackle absenteeism through evidence-based strategies and to improving the academic performance, professional development, and future patient

care outcomes.

Limitations:

This study has several limitations. First, it was conducted in a single medical college, which may limit generalizability. Second, the sample size was relatively small and selected through convenience sampling, increasing the risk of selection bias. Third, data were based on self-reported questionnaires, which may be prone to reporting bias or social desirability bias. Future studies should consider multi-center designs with larger, randomly selected samples.

Recommendations and Future Directions:

Further research is needed to explore longitudinal effects of procrastination and test the effectiveness of specific intervention strategies. Additionally, qualitative studies could provide deeper insights into the psychological and environmental triggers of academic procrastination in medical students.

Implications for Medical Educators and Policymakers:

These results suggest an urgent need for targeted interventions within medical colleges. Educators can incorporate time management and stress reduction workshops early in the curriculum. Policymakers should support institutional reforms such as mentorship programs and mental health support services to reduce academic procrastination and its consequences.

REFERENCES

1. Gottfried MA. Chronic Absenteeism and Its Effects on Students' Academic and Socioemotional Outcomes. J Educ Stud Placed Risk JESPAR. 2014 Apr 3;19(2):53–75.

2. Lukkarinen A, Koivukangas P, Seppälä T. Relationship between Class Attendance and Student Performance. Procedia - Soc Behav Sci. 2016 Jul;228:341–7.

3. Brauer DG, Ferguson KJ. The integrated curriculum in medical education: AMEE Guide No. 96. Med Teach. 2015 Apr 3;37(4):312–22.

4. Khanal SP. Irregular Attendance of University Students at Class and its Relation to their Academic Achievement. Tribhuvan Univ J. 2019 Jun 30;33(1):115–28.

5. Mokhtari S, Nikzad S, Mokhtari S, Sabour S, Hosseini S. Investigating the reasons for students' attendance in and absenteeism from lecture classes and educational planning to improve the situation. J Educ Health Promot. 2021 Jan;10(1):221.

6. Sharmin T, Azim E, Choudhury S, Kamrun S. Reasons of Absenteeism among Undergraduate Medical Students: A Review. Anwer Khan Mod Med Coll J. 2017 Feb 19;8(1):60–6.

7. Al Hazaa K, Abdel-Salam ASG, Ismail R, Johnson C, Al-Tameemi RAN, Romanowski MH, et al. The effects of attendance and high school GPA on student performance in first-year undergraduate courses. Cunha De AraÚjo G, editor. Cogent Educ [Internet]. 2021 Jan 1 [cited 2025 May 1];8(1).Availablefrom:https://www.tandfonline.com/doi/full/10.1080/2331186X.2021.1956857

8. Hakami AR. Effect of absenteeism on the performance of medical sciences students: gender differences. Med Educ Online [Internet]. 2021 Jan 1 [cited 2025 May 1];26(1). Availablefrom:https://www.tandfonline.com/doi/full/10.1080/10872981.2021.1875531

9. Abreu Alves S, Sinval J, Lucas Neto L, Marôco J, Gonçalves Ferreira A, Oliveira P. Burnout and dropout intention in medical students: the protective role of academic engagement. BMC Med Educ [Internet]. 2022 Dec [cited 2025 May 2];22(1). Available from: https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-021-03094-9

10. Mirza AA, Baig M, Beyari GM, Halawani MA, Mirza AA. Depression and Anxiety Among Medical Students: A Brief Overview. Adv Med Educ Pract. 2021 Apr;Volume 12:393–8.

11. Rolland F, Hadouiri N, Haas-Jordache A, Gouy E, Mathieu L, Goulard A, et al. Mental health and working conditions among French medical students: A nationwide study. J Affect Disord. 2022 Jun;306:124–30.

12. Tadese M, Yeshaneh A, Mulu GB. Determinants of good academic performance among university students in Ethiopia: a cross-sectional study. BMC Med Educ [Internet]. 2022 Dec [cited 2025 May 2];22(1). Available from:https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-022-03461-0

13. Abreu Alves S, Sinval J, Lucas Neto L, Marôco J, Gonçalves Ferreira A, Oliveira P. Burnout and dropout intention in medical students: the protective role of academic engagement. BMC Med Educ [Internet]. 2022 Dec [cited 2025 May 2];22(1). Available from: https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-021-03094-9

14. Kassab SE, El-Sayed W, Hamdy H. Student engagement in undergraduate medical education: A scoping review. Med Educ. 2022 Jul;56(7):703–15.

15. Alghamdi AA, Alyousif GF, AlQarni AM, Amer FH, Alfadhel TO, Almutairi RN, et al. Factors affecting Saudi medical

students' engagement during synchronous and asynchronous eLearning and their impacts on the students' academic achievement: a national survey. BMC Med Educ [Internet]. 2024 Mar 29 [cited 2025 May 2];24(1). Available from: https://bmcmededuc.biomedntral.com/articles/10.1 186/s12909-024-05323-3

16. Ud Din M, Fatima N, Awan S, Mariyam M, Naseer U, Aziz Tarar K. Medical Students' Perspectives Towards Absenteeism in Class. Esculapio. 2023 Nov 8;19(3):365–70.

AUTHORS CONTRIBUTIONS

I: Conception, Design of the work, Data collection, and Drafting, Reviewed, Final approval, Agreement to be accountable.

MA: Conception, Design of the work, Acquisition, Data Analysis, and Drafting, Reviewed, Final approval, Agreement to be accountable.

GA: Conception, Design of the work, Interpretation of data for the work, and Drafting, Final approval, Agreement to be accountable.

NU: Conception, Design of the work, Final approval, Agreement to be accountable.

FU: Conception, Design of the work, Reviewed, Final approval, Agreement to be accountable.

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DATA SHARING POLICY
The data that support the findings of this study are available from the corresponding author upon reasonable request

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