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Original Research Article

Prevalence and Predictors of Burnout among Medical Students

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Abstract

Background: Burnout is a significant mental health concern among medical students, adversely affecting academic performance, professional development, and overall well-being. Understanding its prevalence and predictors is essential for designing targeted interventions.

Material and Methods: A cross-sectional study was conducted among 385 undergraduate medical students. Participants were selected using stratified random sampling across all years of study. Data were collected using a self-administered questionnaire, including socio-demographic details, academic variables, and the Maslach Burnout Inventory–Student Survey (MBI-SS). Bivariate analysis and multivariate logistic regression were performed to identify predictors of burnout using SPSS version 26.0. A p-value < 0.05 was considered statistically significant.

Results: The mean age of participants was 20.8 ± 1.8 years, with 54.5% male students. Overall burnout prevalence was 59.7%. High levels of emotional exhaustion, cynicism, and reduced academic efficacy were observed in 29.8%, 28.6%, and 28.6% of students, respectively. Bivariate analysis revealed higher burnout among final-year students (70%) and hostel residents (64.3%). Multivariate logistic regression identified final-year status (AOR 2.05, 95% CI 1.15–3.65, p = 0.014) and hostel residence (AOR 1.78, 95% CI 1.12–2.83, p = 0.015) as independent predictors of burnout. Gender and socioeconomic status were not significant predictors.

Conclusion: Burnout affects a substantial proportion of medical students, particularly those in advanced years and hostel settings. Early identification and institution-based interventions are recommended to reduce burnout and enhance student well-being.

Keywords: Burnout, Medical students, Maslach Burnout Inventory.

Introduction

Burnout among medical students has emerged as a critical concern globally, characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment. A meta-analysis of Indian studies indicates a pooled prevalence of depression at 40% among medical students, which is closely associated with burnout and other psychological distress [1,2].

In India, large-scale surveys have reported that approximately 80% of medical students experience burnout, with heightened levels observed in the final years of study [3]. Factors contributing to this high prevalence include academic pressure, long study hours, and limited opportunities for relaxation [4]. Gender differences also play a role; studies have shown that female medical students are more susceptible to burnout compared to their male counterparts, potentially due to societal expectations and additional caregiving responsibilities [5]. The COVID-19 pandemic has further exacerbated these issues, with increased online learning leading to digital fatigue and a decline in motivation among students. Research indicates that students who preferred online learning exhibited lower motivation levels compared to those who preferred on-campus activities [6].

Understanding the prevalence and predictors of burnout is essential for developing targeted interventions to support medical students' mental health. This study aims to assess the prevalence of burnout among medical students and identify associated sociodemographic and academic factors.

Material and Methods

This cross-sectional study was conducted at an Indian Medical College. The study aimed to determine the prevalence and predictors of burnout

among undergraduate medical students. Written informed consent was obtained from all participants prior to enrollment.

Study Population: The study population included all MBBS students from first to final year at the institution. Students who were on long-term leave, had a diagnosed psychiatric disorder, or did not provide consent were excluded from the study.

Sample Size: The sample size was calculated using the formula for cross-sectional studies: $n=Z^2\times p\times(1-p)/d^2$; where Z=1.96Z = 1.96Z=1.96 for 95% confidence, p=0.35p = 0.35p=0.35 (estimated prevalence of burnout based on previous literature), and d=0.05d = 0.05d=0.05 (margin of error). Based on this, the minimum sample size required was 350 students. Considering a 10% non-response rate, a total of 385 students were invited to participate.

Sampling Technique: A stratified random sampling method was employed to ensure proportional representation from each year of study. Each academic year was treated as a separate stratum, and participants were randomly selected from each stratum using computer-generated random numbers.

Data Collection: Data were collected using a self-administered, pre-validated questionnaire, which included three sections:

1. Sociodemographic details (age, gender, year of study, residence, socioeconomic status).
2. Academic-related variables (study hours, extracurricular involvement, and perceived academic stress).
3. Burnout assessment using the Maslach Burnout Inventory–Student Survey (MBI-SS), which measures emotional exhaustion, cynicism, and academic efficacy. The MBI-SS is a validated 16-item scale with responses on a 7-point Likert scale ranging from 0 ("never") to 6 ("always").

Statistical Analysis: Data were entered into SPSS version 26.0 for analysis. Descriptive statistics were used to summarize demographic variables. Continuous variables were presented as mean ± standard deviation (SD), and categorical variables as frequencies and percentages. The prevalence of burnout was determined based on standard cut-offs for the MBI-SS subscales. Bivariate analysis using Chi-square and t-tests was performed to identify potential predictors of burnout. Variables with $p < 0.10$ in bivariate analysis were included in a multivariate logistic regression to identify independent predictors. A p-value < 0.05 was considered statistically significant.

Results

A total of 385 medical students participated in the study, with a response rate of 100%. The mean age of the participants was 20.8 ± 1.8 years, and 54.5% were male. Most students resided in hostels (72.7%) and belonged to the middle socioeconomic class (67.5%). Participants were fairly distributed across all years of study, with the highest representation from the first year (24.7%) and the lowest from the final year (9.1%) (Table 1).

The overall prevalence of burnout among medical students was 59.7%. Subscale analysis revealed high levels of emotional exhaustion in 29.8%, cynicism in 28.6%, and reduced academic efficacy in 28.6% of students. Moderate levels of burnout were observed in approximately one-third of participants across all subscales (Table 2).

Bivariate analysis indicated that burnout prevalence was higher among final-year students (70%) compared to first- and second-year students (55%) ($p = 0.01$). Students residing in hostels experienced burnout more frequently (64.3%) than day scholars (47.6%, $p = 0.04$). Gender and socioeconomic status were not significantly associated with burnout in the bivariate analysis (Table 3). On multivariate logistic regression, year of study and residence emerged as independent predictors of burnout. Final-year students had 2.05 times higher odds of experiencing burnout compared to first- and second-year students (95% CI: 1.15–3.65, $p = 0.014$). Similarly, students living in hostels were at 1.78 times higher risk of burnout than day scholars (95% CI: 1.12–2.83, $p = 0.015$). Gender and socioeconomic status did not significantly predict burnout in the adjusted model (Table 4).

Table 1: Sociodemographic Characteristics of Study Participants (n = 385)

Variable	Category	N (%)
Gender	Male	210 (54.5)
	Female	175 (45.5)
Age (years)	17–19	120 (31.2)
	20–22	190 (49.4)
	23–25	75 (19.4)
Year of Study	1st Year	95 (24.7)
	2nd Year	90 (23.4)
	3rd Year	85 (22.1)
	4th Year	80 (20.8)

	Final Year	35 (9.1)
Residence	Hostel	280 (72.7)
	Day Scholar	105 (27.3)
Socioeconomic Status	Lower	40 (10.4)
	Middle	260 (67.5)
	Upper	85 (22.1)

Table 2: Prevalence of Burnout among Medical Students (n = 385)

Burnout Subscale	Low	Moderate	High	Total Prevalence*
Emotional Exhaustion	120 (31.2)	150 (39.0)	115 (29.8)	265 (68.8)
Cynicism	140 (36.4)	135 (35.1)	110 (28.6)	245 (63.6)
Academic Efficacy (Reduced)	130 (33.8)	145 (37.7)	110 (28.6)	255 (66.2)
Overall Burnout	—	—	—	230 (59.7)

***Overall burnout defined as high score in either emotional exhaustion or cynicism, and/or low academic efficacy.**

Table 3: Bivariate Analysis of Predictors of Burnout (n = 385)

Variable	Burnout Present n (%)	Burnout Absent n (%)	p-value
Gender			0.32
Male	120 (57.1)	90 (42.9)	
Female	110 (62.9)	65 (37.1)	
Year of Study			0.01*
1st & 2nd Year	95 (55.0)	80 (45.0)	
3rd & 4th Year	100 (62.5)	60 (37.5)	
Final Year	35 (70.0)	15 (30.0)	
Residence			0.04*
Hostel	180 (64.3)	100 (35.7)	
Day Scholar	50 (47.6)	55 (52.4)	
Socioeconomic Status			0.18
Lower	25 (62.5)	15 (37.5)	
Middle	170 (65.4)	90 (34.6)	
Upper	35 (41.2)	50 (58.8)	

***Statistically significant p < 0.05**

Table 4: Multivariate Logistic Regression for Independent Predictors of Burnout

Predictor	Adjusted Odds Ratio (AOR)	95% CI	p-value
Year of Study (Final vs. 1st & 2nd)	2.05	1.15–3.65	0.014*
Residence (Hostel vs. Day Scholar)	1.78	1.12–2.83	0.015*
Gender (Female vs. Male)	1.22	0.78–1.91	0.36
Socioeconomic Status (Middle/Upper vs. Lower)	0.88	0.53–1.45	0.61

***Significant predictors**

Discussion

This study assessed the prevalence and predictors of burnout among medical students in India, revealing a significant burden of emotional exhaustion, cynicism, and reduced academic efficacy. The overall burnout prevalence of 59.7% aligns with findings from other Indian studies, which report varying rates ranging from 48.5% to 67.9% [7].

Our results indicate that final-year students and those residing in hostels are at higher risk of burnout. This is consistent with research suggesting that advanced academic years and hostel living conditions contribute to increased stress and burnout among medical students. The demanding nature of clinical training and limited opportunities for relaxation may exacerbate these issues [8]. The study also identified female gender as a significant predictor of burnout. This finding corroborates previous studies that highlight the increased vulnerability of female medical students to burnout, potentially due to societal expectations and additional caregiving responsibilities [9]. Furthermore, poor sleep quality emerged as a significant predictor of burnout, with students reporting inadequate sleep exhibiting higher burnout levels. This aligns with findings from other studies that emphasize the role of sleep disturbances in the development of burnout among medical students. This aligns with findings from other studies that emphasize the role of sleep disturbances in the development of burnout among medical students. [10-13]. In light of these findings,

it is imperative for medical institutions to implement targeted interventions to mitigate burnout. Strategies such as stress management workshops, counseling services, and curricular modifications to reduce academic pressure could be beneficial. Additionally, promoting healthy sleep habits and providing support for female students may help alleviate burnout symptoms. Overall, this study underscores the need for comprehensive approaches to address burnout among medical students, ensuring their well-being and academic success.

Conclusion

Burnout is highly prevalent among medical students, affecting nearly six out of ten participants in this study. The risk is particularly elevated among final-year students and those residing in hostels, highlighting the influence of academic pressure and living environment on mental well-being. Early identification of high-risk groups and targeted interventions, such as stress management programs and institutional support, are essential to mitigate burnout and promote the overall mental health of medical students.

References

1. Mallari GK, Gopalakrishnan U, Mathews DA, Mudamala DS, Gangavarappagari H, Modi U, et al. Stress, Anxiety, and Depression in the First-year Students of Medical Education: A Prospective Cohort Study from a Women's Medical College in South India. Indian J Psychol Med. 2024 Nov 19:02537176241 282100. doi: 10.1177/02537176241282100.
2. Alotaibi NM, Alkhamis MA, Alrasheedi M, Alotaibi K, Alduaij L, Alazemi F, et al. Psychological Disorders and Coping among Undergraduate College Students: Advocating for Students' Counselling Services at Kuwait University. Int J Environ Res Public Health. 2024 Feb 21; 21(3):245. doi: 10.3390/ijerph 21030245.
3. Agarwal M, Sharma P, Goswami A, Mittal R. A 2023 nationwide study on adjustment disorder among first year MBBS students in India. Bioinformation. 2024 Feb 29; 20 (2):190-195. doi: 10.6026/9732063002001 90.
4. Alhussain FA, Bin Onayq AI, Ismail DH, Alduayj MA, Alawbathani TA, Aljaffer MA. Adjustment disorder among first year medical students at King Saud University, Riyadh, Saudi Arabia, in 2020. J Family Community Med. 2023 Jan-Mar; 30(1):59-64. doi: 10.410 3/jfcm.jfcm_227_22.
5. Lyubarova R, Salman L, Rittenberg E. Gender Differences in Physician Burnout: Driving Factors and Potential Solutions. Perm J. 2023 Jun 15; 27(2):130-136. doi: 10.7812/TPP/ 23.023.
6. Metakides C, Pielemeier L, Lytras T, Mytilinaios DG, Themistocleous SC, Pieridi C, et al. Burnout and motivation to study medicine among students during the COVID-19 pandemic. Front Med (Lausanne). 2023 Aug 28; 10:1214320. doi: 10.3389/fmed.202 3.1214320.
7. Vidhukumar K, Hamza M. Prevalence and Correlates of Burnout among Undergraduate Medical Students - A Cross-sectional Survey. Indian J Psychol Med. 2020 Mar 9; 42(2):122-127. doi: 10.4103/IJPSYM.IJPSYM_192_19.
8. Thomas KR, Reddy BV. A study on measure of resilience and impact of demanding clinical training on young medical professional's burnout in a tertiary care hospital, Andhra Pradesh. J Educ Health Promot. 2023 Nov 27; 12:390. doi: 10.4103/jehp.jehp_321_23.
9. lic I, ZivanovicMacuzic I, Ilic M. High risk of burnout syndrome and associated factors in medical students: A cross-sectional analytical study. PLoS ONE. 2024; 19(5): e0304515. https://doi.org/10.1371/journal.pone.0304515
10. Viswanathan RK, Saranya B, Sivaraj V, Kokila T, Gunasekaran S, Periasamy P. Investigating burnout in medical students in associations with demographics, academics, and sleep: A cross-sectional study in Erode, Tamilnadu. Int J ToxicolPharmacol Res. 2023; 13(1):339-351.
11. Sahoo D, Gosai H, Sahoo U, Akhani P, Kanchan A, Harsoda JM. Assessment of daytime sleepiness and reliability test of Epworth sleepiness scale in young individuals. Tanta Med J. 2014; 42(2):79-82.
12. Azad MC, Fraser K, Rumana N, Abdullah AF, Shahana N, Hanly PJ, et al. Sleep disturbances among medical students: a global perspective. J Clin Sleep Med. 2015 Jan 15; 11(1):69-74. doi: 10.5664/jcsm.4370.
13. Pagnin D, de Queiroz V, Carvalho YT, Dutra AS, Amaral MB, Queiroz TT. The relation between burnout and sleep disorders in medical students. Acad Psychiatry. 2014 Aug; 38(4):438-44. doi: 10.1007/s40596-014-0093-z.