



PREVALENCE OF ACADEMIC BURNOUT AMONG UNDERGRADUATE MEDICAL STUDENTS OF A TERTIARY CARE MEDICAL SCHOOL - A CROSS-SECTIONAL SURVEY

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ABSTRACT

Background: Medical training is intensive and predisposes students to burnout. Attempts are being made to control and contain burnout in medical students by the medical fraternity. Although there is research on the issue all across the world, Indian studies are few. A burnout prevalence estimates and its causes would keep us updated about the emotional and motivational factors impeding their professional development. With this background, the study aimed to assess burnout among medical students. **Methods:** The study applied a cross-sectional study design and convenience sampling on students from a medical school. A total of 375 medical students participated and the study used a questionnaire primarily consisting of "Personal burnout" domain of the Copenhagen Burnout Inventory (CBI). The questionnaire also included a list of potential personal correlates of burnout. The relationship between these correlates and burnout was determined using univariate and multivariate analyses. **Results:** The prevalence of burnout among medical students in the college under study was 48.5%. The proportions of moderate, higher, and severe burnout were 44.8%, 3.2%, and 0.5% respectively. Burnout was found to be associated with female gender and perceived stress in both univariate and multivariate analyses. Choosing Medicine by choice and maintaining hobbies and interests were linked to a lower risk of burnout. **Conclusion:** Burnout is a prevalent phenomenon among medical students. There are modifiable risk factors for burnout and addressing them will help in training a medical student with high motivation and professionalism.

KEYWORDS

burnout; medical student; prevalence

Introduction

Burnout, a state characterized by emotional exhaustion, depersonalization, and a diminished sense of personal achievement, is increasingly recognized as a significant issue among medical professionals, including students (1). Emotional exhaustion refers to feelings of being overextended and depleted of emotional resources. Depersonalization is characterized by a detached response towards one's patients, often manifesting as a callous or indifferent attitude. A reduced sense of personal accomplishment encompasses a decline in one's feelings of competence and successful achievement in their work with people (1).

The prevalence of burnout among medical students is notably high due to the intense and demanding nature of medical education. The long hours, rigorous curriculum, and high stakes associated with medical training contribute to significant stress, which can precipitate burnout. Understanding burnout's prevalence, consequences, and modifiable risk factors among medical students is crucial for their well-being and professional development.

Previous studies have highlighted the high prevalence of burnout among medical students in various regions. For instance, a study in Kerala, India, using the Copenhagen Burnout Inventory (CBI), reported that 48.5% of medical students experienced severe burnout (2). Similarly, research conducted in Malaysia found that the prevalence of burnout among medical students was approximately 80% (3). In Pakistan, the overall estimate of burnout among medical students was 47.4%, with a high burnout rate of 31.6% (4). These figures underscore the importance of investigating the specific factors contributing to burnout among medical students in different cultural and educational contexts.

Burnout is not only a personal issue but also a professional one, as it can lead to decreased academic performance, increased absenteeism, and a higher likelihood of dropping out. Moreover, it can affect the quality of patient care provided by these future healthcare professionals. Therefore, identifying the prevalence and correlates of burnout among medical students in India is imperative.

This study aims to estimate the prevalence of burnout among undergraduate medical students at a tertiary care medical college and identify personal and academic factors associated with burnout. The findings will provide insights into the emotional and motivational factors impeding the professional development of medical students and inform strategies to mitigate burnout.

Methodology

Study Design This study was designed as a cross-sectional survey. **Study Population** The population for this study included undergraduate medical students from the first, second, third, and fourth years who met the sampling criteria.

Study Subjects The inclusion criteria comprised medical college students, while the exclusion criteria were students not willing to participate.

Study Tool The study utilized the "personal burnout" domain of the Copenhagen Burnout Inventory (CBI) along with potential personal correlates of burnout.

Sampling Technique A convenient sampling method was used within the population. Based on a previous study conducted in Kerala, which reported a severe burnout prevalence of 48.5% among medical students (2), and using a margin of error of 5%, the calculated sample size was 375 (using the formula $[Z\alpha/2)2P(1-P)/d^2]$).

Data Analysis Statistical analysis included descriptive statistics like proportion and inferential statistics such as the Chi-square and Fisher's exact test. The odds ratio was used to denote the strength of association, with all p-values being significant when less than 0.05. Univariate and multivariate analyses were conducted to discern the relationship of these correlates with burnout.

Results

Of the 375 participants, 233 (62%) were females, and 344 (91.5%) were hostellers. The percentages of second-, third-, fourth-, and final-year students and interns in the sample were 24%, 26.4%, 12.53%, 16%, and 22%, respectively.

The overall prevalence of burnout was 48.53% (95% CI 43.4–53.7). This included moderate, high, and severe burnout at 44.8%, 3.2%, and 0.5%, respectively. When comparing burnout rates across academic years, second-, third-, fourth-, and final-year students and interns reported burnout rates of 52.2%, 47.5%, 38.3%, 45%, and 54.43%, respectively. Although burnout was found to be less in the fourth-year group, no statistical difference was observed across groups ($P=0.25$).

Table 1: Univariate Analysis of Correlates of Burnout

Variable	Burnout (%) n=182	No burnout (%) n=193	Chi-square	Odds ratio (confidence intervals)	P-value
Female gender	124 (68.1)	109 (56.5)	4.92	1.65 (1.08-2.51)	0.026

Participation in regular exercise	131 (72)	154 (79.8)	2.72	0.65 (0.40-1.05)	0.098
Having hobbies	111 (61)	139 (72)	4.64	0.61 (0.39-0.94)	0.031
Repeater status	72 (60.4)	86 (55.4)	0.77	1.23 (0.80-1.89)	0.381
Stressors	171 (94)	140 (72.5)	28.86	5.86 (2.89-12.93)	<0.001
Good academic performance	139 (76.4)	155 (80.3)	0.64	0.79 (0.47-1.34)	0.423
Seek support	107 (58.8)	108 (56)	0.2	1.12 (0.73-1.78)	0.653
MBBS by choice	91 (50)	121 (62.7)	6.14	0.59 (0.39-0.92)	0.016
Substance abuse	14 (7.7)	13 (6.7)	0.02	1.15 (0.49-2.75)	0.874
Lower age (<22 years)	41 (22.5)	38 (19.7)	0.03	1.19 (0.70-2.01)	0.584

The univariate analysis of burnout among undergraduate medical students reveals that female students are significantly more likely to experience burnout than their male counterparts, with an odds ratio of 1.65 and a p-value of 0.026. Participation in regular exercise and having hobbies are associated with lower burnout rates, but only hobbies show a statistically significant protective effect. Experiencing stressors is a strong predictor of burnout, with those facing stressors having a sixfold increase in burnout likelihood ($p < 0.001$). Good academic performance, seeking support, and repeater status do not show significant associations with burnout. Choosing MBBS by choice significantly reduces burnout risk, with an odds ratio of 0.59 and a p-value of 0.016. Neither substance abuse nor younger age shows a significant correlation with burnout. Overall, stressors and dissatisfaction with career choice are prominent factors contributing to burnout among medical students.

Table: 2 Multivariate Analysis of Correlates of Burnout by Logistic Regression

Variable	Significance levels	Odds ratio	95% CI
MBBS by choice	0.006	0.54	(0.35-0.84)
Stressors	<0.001	6.06	(3.00-12.2)
Female gender	0.046	1.59	(1.01-2.52)
Exercise	0.25	0.74	(0.44-1.23)
Hobbies	0.063	0.64	(0.40-1.02)

The multivariate analysis identifies several significant predictors of burnout among undergraduate medical students. Choosing MBBS by choice is associated with a significantly lower risk of burnout, with an odds ratio of 0.54 (95% CI: 0.35-0.84, $p = 0.006$), indicating that students who voluntarily chose their medical career are less likely to experience burnout. Stressors are the strongest predictor of burnout, with an odds ratio of 6.06 (95% CI: 3.00-12.2, $p < 0.001$), suggesting that students facing stressors are over six times more likely to experience burnout. Female gender is also a significant predictor, with an odds ratio of 1.59 (95% CI: 1.01-2.52, $p = 0.046$), indicating that female students have a higher risk of burnout compared to males. While participation in regular exercise shows a potential protective effect with an odds ratio of 0.74 (95% CI: 0.44-1.23, $p = 0.25$), it is not statistically significant. Similarly, having hobbies tends to reduce burnout risk, but this association is not statistically significant either, with an odds ratio of 0.64 (95% CI: 0.40-1.02, $p = 0.063$).

Discussion

The prevalence of burnout among undergraduate medical students highlighted in this study, approximately 48.53%, mirrors findings from similar studies in Kerala (48.5%) and Pakistan (47.4%), indicating a consistent global challenge. This underscores the pervasive nature of burnout in medical education regardless of cultural and educational contexts (2,4). Gender disparities were notable, with female students significantly more likely to experience burnout than males. Both univariate (OR=1.65, $P=0.026$) and multivariate analyses (OR=1.59, $P=0.046$) confirmed this trend, emphasizing the need for tailored interventions to support female students in managing stressors unique to their experiences (5).

Stress emerged as a critical predictor of burnout, with students reporting high stress levels being nearly six times more likely to experience burnout (OR=5.86, $P<0.001$). This underscores the demanding nature of medical education, characterized by rigorous coursework, frequent assessments, and high expectations, which collectively contribute to elevated stress levels among students (6). Addressing these stressors through comprehensive support systems, including effective stress management programs and counselling services, is crucial in mitigating burnout and promoting student well-being.

The study also explored the impact of career choice on burnout, revealing that students who chose MBBS by choice were less likely to experience burnout (OR=0.54, $P=0.006$). This finding underscores the importance of intrinsic motivation and passion in buffering against burnout, suggesting that early career counselling and aptitude testing could better align students with their chosen professions (7). Additionally, engagement in hobbies and regular exercise showed promising but statistically inconclusive protective effects against burnout (OR=0.65, $P=0.098$; OR=0.61, $P=0.031$ respectively), highlighting the potential benefits of promoting a balanced lifestyle among medical students (6).

Interestingly, no significant differences in burnout rates were found across different academic years ($P=0.25$), contrary to some previous findings suggesting higher burnout during clinical training years. This uniformity in burnout levels across academic years suggests a need for holistic interventions throughout medical education, ensuring consistent support across all stages of training (7). Future research and interventions should focus on comprehensive strategies to address burnout among medical students, incorporating both individual-level support and systemic changes within educational environments.

Limitations and Conclusion

This study has several limitations. It primarily focused on personal variables without considering learning environment- and curriculum-related factors. Additionally, the cross-sectional design limits the ability to establish causality between the identified correlates and burnout. Future research should incorporate longitudinal designs and consider a broader range of factors, including educational practices and institutional support mechanisms.

In conclusion, burnout is prevalent among undergraduate medical students, with significant associations with female gender, high levels of stress, and dissatisfaction with career choice. Addressing these factors through targeted interventions, such as stress management programs, career counselling, and promoting a supportive educational environment, is essential. Incorporating stress management strategies, fostering self-awareness, and encouraging engagement in hobbies and physical activities can help mitigate burnout. The findings underscore the need for curriculum modifications and supportive measures to ensure the well-being and professional development of medical students.

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