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ORIGINAL ARTICLE

Prevalence and Predictors of Burnout Among Medical Students in a Private Medical College: A Cross-Sectional Study

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Abstract

Background: Medical students are consistently subjected to psychosocial stresses during their training, which can result in burnout, a condition characterised by emotional, mental, and physical weariness due to severe and protracted stress. **Objectives**: To evaluate the prevalence and associated factors of burnout among medical students at a tertiary medical college. **Methodology**: A descriptive study was conducted in a tertiary Medical college after obtaining institutional ethical approval and informed consent. The Copenhagen Burnout Inventory Scale was used to determine the prevalence and correlates of burnout related to patients, work, and personal life. After being imported into Excel, the data was sent to SPSS version 25 for analysis. Chi-square was employed as a test of hypothesis, and frequencies for demographic variables were computed using proportions. **Results:** The study found a high prevalence of burnout among medical students, especially first-year students, with personal burnout at 33.33% and work-related burnout at 48.48%. Female students, those living away from family, and students lacking regular exercise showed higher burnout levels. Patient-related burnout was generally lower but increased with academic year, peaking in final-year students due to clinical exposure. Exercise showed a protective effect across all burnout types, while smoking and alcohol use had a modest impact. The findings align with global studies, indicating burnout is multifactorial and influenced by lifestyle, support systems, and academic demands. **Conclusion:** The study concludes that burnout is highly prevalent among medical students, particularly among females, first-year students, and those lacking familial or physical support. Regular exercise and living with family appear to be protective factors. Institutional reforms and targeted interventions are essential to reduce burnout and support student well-being.

Keywords: Burnout, medical students, emotional, mental, physical stress

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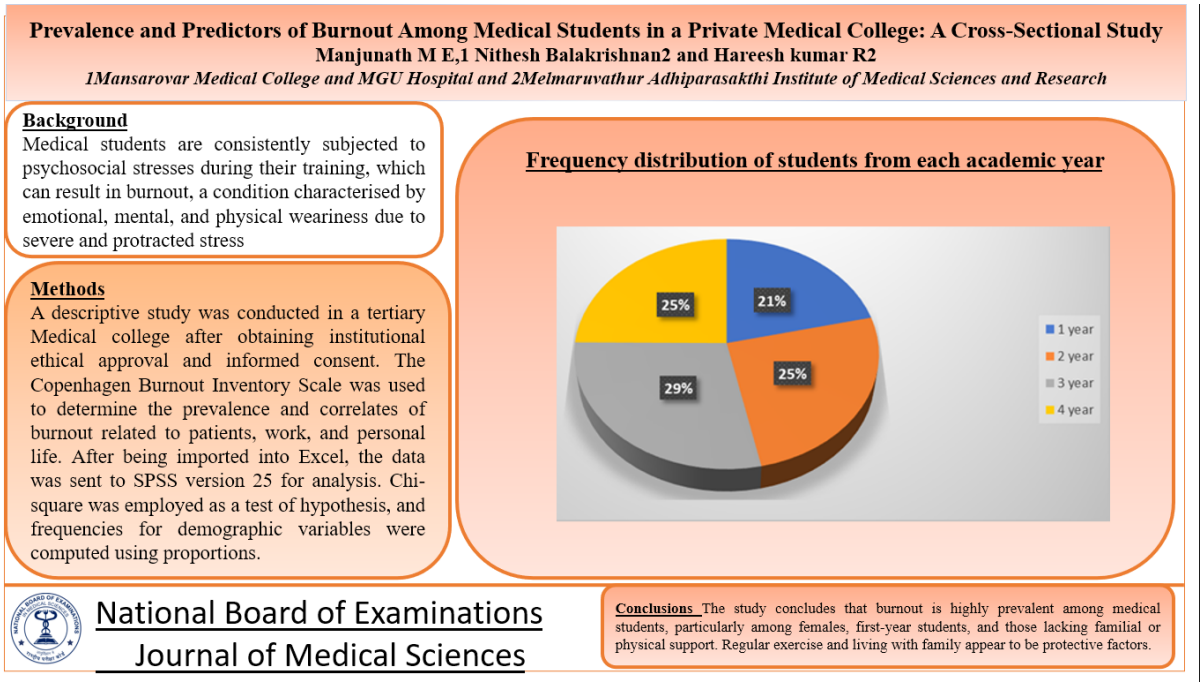
Graphical Abstract



Introduction

Infectious disease, non-communicable diseases (including mental health conditions), and other trends directly linked to globalisation, such trauma, contribute to the triple burden of disease that developing nations currently face. Similar to infectious diseases, our health is compromised by the combination of environmental pollutants and our biological vulnerabilities [1]. However, modern poisons are the result of toxic stress & trauma rather than microbes. Stress is the body's general reaction to any demands placed on it. Most individuals have fallen under its grip as it evolved like an unseen illness [2].

Burnout is a condition of extreme and persistent stress that results in physical, mental, and emotional depletion. It happens when you're too overloaded to meet continuous demands. You start to lose interest in or motivation for your task or commitment as the stress gets worse. The reason is rather insignificant and arises from the disruptions we encounter in our daily lives. There isn't a single, obvious reason to identify the true cause. A lack of leisure, family, and friend time, as well as an overwhelming workload and educational responsibilities, all add to their stress levels [3].

The three aspects of student burnout syndrome are as follows: 1) cynicism (apathy or indifference towards academic activities), 2) emotional tiredness (caused by the demands of education), and 3) low professional performance (feeling of inefficiency as a student) [4]. The National Institute for Occupational Health in Denmark created the publicly available Copenhagen Burnout Inventory (CBI). The CBI's fundamental characteristic is that it distinguishes between three types of burnout, each of which is characterised by the area of life.

Student burnout includes three components: cynicism toward academic work, emotional exhaustion from study demands, and reduced academic efficacy,

or feeling ineffective as a student. The Copenhagen Burnout Inventory (CBI), developed by Denmark's National Institute for Occupational Health, measures burnout across three domains: personal burnout (general physical and mental exhaustion), work-related burnout (exhaustion linked to one's job), and client-related burnout (exhaustion tied to working with clients). Scale scores are calculated by averaging the item responses [5].

As aspiring medical professionals, medicos must examine themselves and their goals in order to know what they are pursuing and what they are actually attempting to do in a useful way. The main query is if they truly choose to stay on their current unstructured route or manage stress. Before it's too late to undo the harm, they are doing to themselves, this has to be seriously considered. Work performance, psychological well-being, and self-esteem are all impacted by burnout syndrome, which can lead to other mental illnesses. Therefore, this study is a modest attempt to highlight the necessity to promote the adoption of preventative measures for medicos in a tertiary care hospital and to enable early diagnosis of burnout syndrome.

Methodology

The study aimed to assess the prevalence of burnout and its contributing factors among students at a tertiary medical college. After obtaining institutional ethics approval, a descriptive study was conducted over three months. MBBS students from first to final year who provided informed consent were included through convenience sampling, while those who declined participation were excluded. Using the formula $4pq/d^2$, with a prevalence (p) of 12.8% from a previous study and an absolute error (d) of 5%, the required sample size was 202. After accounting for a 10% non-response rate, the final sample size was set at 225.

Burnout was assessed using the 19-item Copenhagen Burnout Inventory (CBI), which evaluates personal burnout (6 items), work-related burnout (7 items), and patient-related burnout (6 items). Responses were scored as Always (100), Often (75), Sometimes (50), Seldom (25), and Never/Almost Never (0). The mean of item scores provided the overall score, with values below 50 considered low or absent burnout and scores above 50 classified as high. Data were entered into Excel and analyzed using SPSS version 25 (Table 1 and Figure 1)).

Results:

Table 1. Frequency distribution of medicos from each academic year (n=225)

Year of study	No of persons	%
1 year	48	21.33
2 years	57	25.33
3 years	64	28.44
4 years	56	24.89
Total	225	100.00

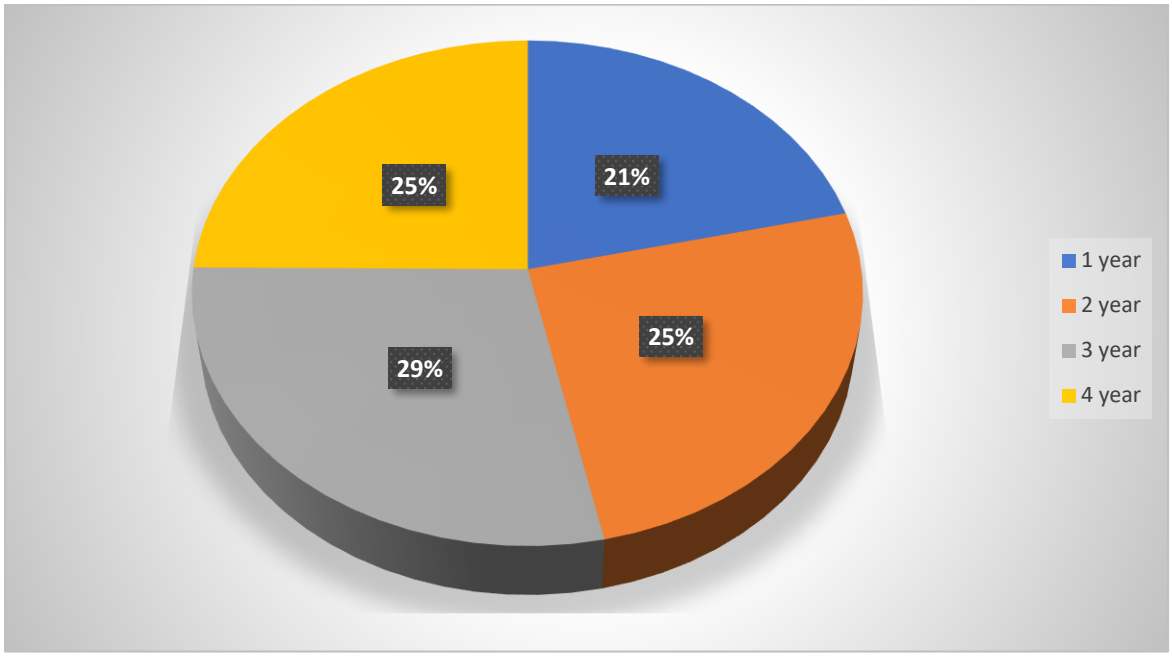


Figure 1. Frequency distribution of students from each academic year

This Table 1 illustrates the distribution of medical students across four academic years out of a total of 225 participants. The third-year students represent the highest proportion at 28.44% (64 students), followed by second-year students at 25.33% (57 students), fourth-year students at 24.89% (56 students), and first-year students at 21.33% (48 students). This distribution indicates a relatively balanced representation across all academic years, which strengthens the generalizability of the subsequent findings on burnout. The near-uniform spread ensures that no single academic group dominates the sample, thereby minimizing bias due to overrepresentation.

Moreover, the increasing percentage up to the third year and a slight drop in the fourth year might reflect cohort-specific enrollment patterns or retention factors. These could include challenges such as academic stress, clinical exposure, or shifting interests, which often intensify in later years and might influence dropout or deferral rates. Overall, this foundational demographic table sets the stage for understanding how burnout symptoms may vary depending on academic level.

Table 2. Prevalence of students with personal burnout as per Copenhagen burnout inventory

Variables	Total no of students	%	No of students with personal burnout	%	P value
Academic Year					
1 year	48	21.33	11	33.33	0.0023
2 years	57	25.33	6	18.18	0.0041
3 years	64	28.44	9	27.27	0.0061
4 years	56	24.89	7	21.21	
Gender					
Males	96	42.67	9	27.27	
Females	129	57.33	24	72.73	
Stay					
Stay with family	32	14.22	4	12.12	
Stay away from family	193	85.78	29	87.88	
exercise					
No exercise	78	34.67	14	42.42	
Some exercise	93	41.33	11	33.33	
Regular exercise	54	24.00	8	24.24	
Smoking status					
Smoking	27	12.00	6	18.18	
Non Smoking	198	88.00	27	81.82	
Alcohol Intake					
History of alcohol intake	18	8.00	4	12.12	
No history of alcohol intake	207	92.00	29	87.88	

The Table 2 explores the prevalence of personal burnout among students using the Copenhagen Burnout Inventory. It is segmented by academic year, gender, living situation, exercise habits, smoking status, and alcohol consumption. The highest

prevalence of personal burnout is seen in first-year students (33.33%), which is statistically significant with a p-value of 0.0023. This suggests that transitioning into medical education may be associated with significant psychological stress, perhaps due to academic pressure, adjustment challenges, and social isolation.

Interestingly, females report a significantly higher prevalence of personal burnout (72.73%) compared to males (27.27%), highlighting possible gender-based differences in stress perception or coping mechanisms. Students staying away from family are more affected (87.88%) than those living with family (12.12%), suggesting the emotional buffering role of familial support.

Exercise appears to play a protective role: only 24.24% of students who exercised regularly experienced personal burnout, compared to 42.42% in those who did not exercise. Similarly, smoking and alcohol intake are associated with slightly higher levels of burnout, although these variables show relatively modest differences. Overall, the table underscores that lifestyle and support systems are critical determinants of personal burnout in medical students.

Table 3. Prevalence of students with work burnout as per Copenhagen burnout inventory

Variables	Total no of students	%	**No of students with work burnout**	%	P value
Academic Year					
1 year	48	21.33	16	48.48	0.0013
2 years	57	25.33	3	9.09	0.0022
3 years	64	28.44	6	18.18	0.0031
4 years	56	24.89	8	24.24	
Gender					
Males	96	42.67	14	42.42	
Females	129	57.33	19	57.58	
Stay					
Stay with family	32	14.22	3	9.09	
Stay away from family	193	85.78	30	90.91	
exercise					
No exercise	78	34.67	16	48.48	
Some exercise	93	41.33	11	33.33	

Regular exercise	54	24.00	6	18.18	
Smoking status					
Smoking	27	12.00	4	12.12	
Non Smoking	198	88.00	29	87.88	
Alcohol Intake					
History of alcohol intake	18	8.00	2	6.06	
No history of alcohol intake	207	92.00	31	93.94	

Table 3 presents the prevalence of work-related burnout, again using the Copenhagen Burnout Inventory. The most striking finding is that first-year students report the highest rate of work burnout at 48.48%, with statistical significance ($p = 0.0013$). This is quite concerning, especially considering that first-year students are usually not involved in intensive clinical work. The likely explanation is academic overload and the stress of adjusting to the rigorous demands of medical school.

Gender does not show much variation in work burnout: males (42.42%) and females (57.58%) are relatively balanced. However, a larger difference appears when comparing students living away from family (90.91%) versus those staying with family (9.09%). This trend again suggests that family presence may act as a buffer against stress.

Exercise habits show a clear inverse relationship with work burnout: 48.48% of students who do not exercise suffer from work burnout compared to only 18.18% of those who exercise regularly. These findings advocate for physical activity as a stress-relieving measure. Smoking and alcohol consumption do not show significant variation in this table, indicating that their role in work-related burnout might be less prominent than in personal burnout. Overall, this table provides essential insights into the environmental and behavioral factors contributing to work-related exhaustion.

Table 4. Prevalence of students with patient burnout as per Copenhagen burnout inventory

Variables	Total no of students	%	No of students with patient burnout	%	P value
Academic Year					
1 year	48	21.33	1	3.03	0.0052
2 years	57	25.33	5	15.15	0.0042

3 years	64	28.44	4	12.12	0.0011
4 years	56	24.89	8	24.24	
Gender					
Males	96	42.67	11	33.33	
Females	129	57.33	7	21.21	
Stay					
Stay with family	32	14.22	4	12.12	
Stay away from family	193	85.78	14	42.42	
exercise					
No exercise	78	34.67	3	9.09	
Some exercise	93	41.33	6	18.18	
Regular exercise	54	24.00	9	27.27	
Smoking status					
Smoking	27	12.00	1	3.03	
Non Smoking	198	88.00	17	51.52	
Alcohol Intake					
History of alcohol intake	18	8.00	0	-	
No history of alcohol intake	207	92.00	18	54.55	

Table 4 analyzes the burnout experienced by students in relation to patient interactions. Unlike personal and work burnout, patient burnout appears to be significantly lower across all groups. The highest percentage is seen among fourth-year students (24.24%), likely due to increased clinical exposure and responsibilities. Interestingly, first-year students report a minimal patient burnout rate of just 3.03%, which aligns with their limited or non-existent patient contact.

Gender trends are reversed here: males report higher patient burnout (33.33%) compared to females (21.21%), which might reflect different approaches to patient care or stress perception in clinical settings. As with the previous tables, students staying away from family report more burnout (42.42%) than those living with family (12.12%), indicating a recurring theme of the impact of living arrangements.

Regular exercise again appears beneficial, with 27.27% of regular exercisers reporting patient burnout, which is slightly higher than in other categories but still lower than those who do not exercise. Smoking and alcohol consumption are associated with minimal to no increase in patient burnout. Notably, none of the students with a history of alcohol intake reported patient burnout,

though this finding should be interpreted cautiously due to the small sample size (n=18).

Overall, this table highlights that patient-related burnout is generally less prevalent than other forms but still warrants attention, especially in later academic years. The trend indicates that burnout increases with clinical responsibilities and suggests the importance of early resilience-building interventions.

Discussion

The study's findings regarding the prevalence of personal burnout, particularly among first-year students (33.33%), are consistent with worldwide patterns. According to a comprehensive review and meta-analysis by Almutairi et al.7, medical students had an overall burnout rate of 37.23%, with depersonalization at 35.07% and emotional exhaustion at 38.08%. In a similar vein, a study by Adesola et al.8 discovered that 81.1% of medical students had burnout, which they attributed to a heavy workload and insufficient breaks.

The study's greater burnout rates among first-year students are in line with research conducted in Indonesia by Daryanto et al. [9], which found that preclinical students had far higher levels of depersonalization and emotional weariness than their clinical peers. This pattern highlights the difficulties students encounter when adjusting to the rigorous setting of medical school.

Almutairi et al. [7] found that female gender was a strong predictor of burnout, supporting the study's result that female students reported greater levels of personal burnout (72.73%). The Nigerian study Adesola et al. similarly shows same tendency, with 91.7% of female students reporting burnout. These results imply that female medical students may be more prone to burnout, possibly as a result of a mix of social expectations and academic stress.

The association between staying away from family and increased burnout levels observed in the study aligns with the Nigerian research, which highlighted the role of social support in mitigating burnout. Students living away from familial support systems may lack the emotional buffering needed to cope with academic stressors.

The study highlights the protective role of regular exercise against burnout, consistent with research showing that physical activity helps reduce stress. Similarly, Ilic et al. reported that smoking and alcohol use contribute to burnout, a finding supported by Serbian research linking frequent alcohol consumption and sedative use to higher burnout risk. Despite elevated burnout levels, counseling services were underused, revealing a gap in institutional support. This underscores the importance of medical colleges not only offering mental health resources but also encouraging their use and reducing associated stigma.

Conclusion

The study's findings are consistent with global research on medical student burnout, highlighting the multifaceted nature of the issue. Addressing burnout requires a comprehensive approach that includes curricular reforms, enhanced support systems, promotion of healthy lifestyles, and targeted interventions for vulnerable groups. Future research should focus on longitudinal studies to assess the effectiveness of such interventions in reducing burnout among medical students.

Statements and Declarations

Conflicts of interest

The authors declare that they do not have conflict of interest.

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References

1. Communicable, non- communicable and mental health – WHO. https://www.who.int/our-work/communicable-and-noncommunicable-diseases-and-mental-health. Accessed on 21-05-2025
2. Froschl G. Triple Burden of Diseases: Implications for Health Systems. Center for International health. Proceedings of Symposium on Emerging Challenges of Triple Burden of Diseases and their prospects in Developing Countries. Munich, Germany; 18 March 2017.
3. Khammissa RA, Nemutandani S, Feller G, Lemmer J, Feller L. Burnout phenomenon: neurophysiological factors, clinical features, and aspects of management. Journal of International Medical Research. 2022 Sep;50(9):p1–13.
4. Qizi SM, Oglu MB. Psychopedagogical problems of emotional burnout syndrome in teachers and students. Revista Gênero e Interdisciplinaridade. 2025 Jan 12;6(01):37-61.
5. Kristensen TS, Borritz M, Villadsen E, Christensen KB. The Copenhagen Burnout Inventory: A new tool for the assessment of burnout. Work & stress. 2005 Jul 1;19(3):192–207.
6. Binub K. Prevalence of burnout and its correlates among medicos of Malappuram district. Indian Journal of Forensic and Community Medicine. 2019 Jan;6(1):6–9.
7. Almutairi H, Alsubaiei A, Abduljawad S, Alshatti A, Fekih-Romdhane F, Husni M, Jahrami H. Prevalence of burnout in medical students: A systematic review and meta-analysis. International Journal of Social Psychiatry. 2022 Sep;68(6):1157–70.
8. Adesola AA, Akoki DM, Aderemi TV, Fola-Oyetayo OC, Asogwa CS, Ojile MO, Ijezie IC. Exploring burnout in medical education: a mixed-method study among university of Ibadan medical students. BMC Medical Education. 2025 May 3;25(1):647.
9. Daryanto B, Kurniawan J, Wiranigitasari, Hioe F, Nurhadi P, Yudhantara DS. Prevalence of burnout and its associated factors among medical students during COVID-19 pandemic in Indonesia: A cross-sectional study. Plos one. 2023 Jun 29;18(6):e0285986.
10. Ilic I, Ilic M. Academic burnout syndrome among medical students in Serbia: prevalence of high risk and determinants. BMC Medical Education. 2024 Aug 30;24(1):948.
11. Kiss H, Pikó BF. Risk and protective factors of student burnout among medical students: a multivariate analysis. BMC Medical Education. 2025 Mar 15;25(1):386
12. Taylor CE, Scott EJ, Owen K. Physical activity, burnout and quality of life in medical students: A systematic review. The clinical teacher. 2022 Dec;19(6):e13525.

13. Hathaisaard C, Wannarit K, Pattanaseri K. Mindfulness-based interventions reducing and preventing stress and burnout in medical students: A systematic review and meta-analysis. Asian Journal of Psychiatry. 2022 Mar 1;69:102997.
14. Morcos G, Awan OA. Burnout in medical school: a medical student's perspective. Academic radiology. 2022 Dec 29;30(6):1223.
15. Dyrbye LN, Satele D, West CP. Association of characteristics of the learning environment and US medical student burnout, empathy, and career regret. JAMA Network Open. 2021 Aug 2;4(8):e2119110.
16. 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 Medical Education. 2022 Feb 7;22(1):83.
17. Wang Q, Sun W, Wu H. Associations between academic burnout, resilience and life satisfaction among medical students: a three-wave longitudinal study. BMC Medical Education. 2022 Apr 5;22(1):248.
18. Gil-Calderón J, Alonso-Molero J, Dierssen-Sotos T, Gómez-Acebo I, Llorca J. Burnout syndrome in Spanish medical students. BMC medical education. 2021 Apr 22;21(1):231.
19. Kilic R, Nasello JA, Melchior V, Triffaux JM. Academic burnout among medical students: respective importance of risk and protective factors. Public health. 2021 Sep 1;198:187-95.
20. Liu Y, Cao Z. The impact of social support and stress on academic burnout among medical students in online learning: The mediating role of resilience. Frontiers in public health. 2022 Jul 22;10:938132.