

Academic burnout and coping: A questionnaire based cross-sectional study among undergraduate students of a medical college in western Uttar Pradesh

Shubhali Batra, Tanveer Bano, Sanjeev Kumar, Ganesh Singh, Neelam S Gautam, Seema jain

Department of Community medicine and Lala Lajpat Rai memorial Medical College, Meerut, Uttar Pradesh

CORRESPONDING AUTHOR

Dr Shubhali Batra, Department of Community medicine and Lala Lajpat Rai memorial Medical College, Meerut, Uttar Pradesh

Email: batrashubh.23@gmail.com

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ABSTRACT

Background: Individuals enrolled in undergraduate medical programs exhibit a heightened susceptibility to academic burnout because the training involves heavy coursework, clinical duties, and intense expectations for academic success. Compared with their non-medical peers, those studying medicine often report greater stress and exhaustion. When students experience burnout, their academic success and mental health are both likely to suffer. Thus, to manage stress, adapting strategies are essential for students and adequate research that focuses on identifying ways to support them in reducing and managing burnout. **Aim & Objective:** 1) To evaluate the frequency of academic burnout in undergraduate medical student population; 2) To identify the specific stress-management techniques utilized by these individuals. **Settings and Design:** A cross-sectional anonymous survey, recruiting students from four professional groups of MBBS. **Methods and Material:** The sample size was determined according to burnout prevalence rates, resulting in a total of 220 completed surveys for data analysis. To measure the variables of interest, the MBI-SS (Maslach Burnout Inventory-Student Survey) and the Brief COPE inventory were administered. A semi-structured proforma was used to assess sociodemographic profile. **Statistical analysis used:** Jamovi (2.3.28) software and Microsoft Excel. **Results:** Nearly 35% of the students presented with high emotional exhaustion while over 65% of them had low professional efficacy. However, active coping was practiced by majority of them. **Conclusions:** Some of the students had high emotional exhaustion while more than 65% of them showed low professional efficacy. However, active coping was majorly practiced one.

KEYWORDS

Academic Burnout, Coping, Medical, Students, Undergraduate

INTRODUCTION

Individuals enrolled in undergraduate medical programs exhibit a heightened susceptibility to academic burnout because the training involves heavy coursework, clinical duties, and intense expectations for academic success. Compared with their non-medical peers, those studying medicine often report greater stress and exhaustion. To assess the prevalence of burnout in medical students, Maslach Burnout Inventory - Student Survey is widely recognized as the benchmark

instrument for evaluating burnout (1). Students pursuing undergraduate medical degrees face a variety of stressors, including anxiety about examinations, strong expectations from family, competition among peers, limited time for relaxation, monetary difficulties, conflicts in personal relationships, and ambitions for further education.(2)Timely recognition of burnout is a crucial approach to either averting its onset or lessening the severity of its consequences.(3) Students use various coping methods to reduce

stress levels which comprise of time management, peer support, engaging in spiritual activities, and participating in recreational activities. Focusing on these strategies in earlier years of medical school will be crucial for the psychosocial wellbeing of the future doctors (4). Research indicates that psychological well-being is significantly improved by the use of proactive coping mechanisms, specifically through optimistic reappraisal, strategic preparation, and psychological acceptance.(5)

Aim & Objective(s) 1) To evaluate the frequency of academic burnout in undergraduate medical students;

2) To identify the specific stress-management techniques utilized by these individuals.

MATERIAL & METHODS

Students across four professional phases of their MBBS training were enrolled in this anonymous, cross-sectional survey. To gather data, the study utilized the MBI-SS (7) for burnout assessment and the Brief COPE (8) to identify management strategies. A semi-structured proforma was used to assess sociodemographic profile.

Sample size calculation

The calculation of required sample size was done using 16.84% burnout prevalence rate, as established in previous research by Pharasi et al. (6). Accounting for a 0.05% margin of error and adjusting for 10% non-response rate, the study targeted atleast 216 participants, further rounded off to 220.

$$n = \frac{Z^2 \times p \times q}{L^2}$$

$$n = (1.96)^2 \times 0.17 \times 0.83 / (0.05)^2$$

$$= 216, \text{ rounded off to } 220$$

Inclusion criteria

- 1) Those who were present on the days of the study
- 2) Those who gave verbal consent

Exclusion criteria

- 1) Those who were ill or on medications
- 2) Those who did not give consent

Study area: LLRM Government Medical College, Meerut, Uttar Pradesh

Study duration: Three months duration from October 2023 to December 2023

Study settings and participants: To achieve the desired sample size, with each student getting equal chance of getting selected, 55 students from each of the four MBBS batches from Lala Lajpat Rai Memorial Medical College Meerut, fulfilling the inclusion criteria, were randomly selected for participation. Participants were chosen through a lottery-style simple random sampling method. To maintain confidentiality, questionnaires were handed out anonymously, and subjects returned their finished forms to the researcher. Ethics

approval was taken from the Institute Ethics Committee.

Study tools

Maslach Burnout Inventory(7)

Burnout was assessed using the 22-item MBI-SS scale. This tool measures three sub-scales—EE, DP, and PA—on a Likert-style frequency scale. The scoring system ranges from 0 (never) to 6 (daily), reflecting how often participants experience specific feelings. EE measures the feeling of a student being emotionally overwhelmed, by their studies. DP, also labelled as Cynicism (CY) is the negative attitudes of the students towards their academic work. DP is also related to forming inappropriate ties with industry—such as attending events funded by corporate sponsors or accepting gifts from commercial entities—can create ethical conflicts and may lead to harmful consequences for professional conduct in the future.

Brief COPE (8)

Participants completed a self-assessment to identify their situational coping responses. The survey distinguishes between effective, task-oriented methods like active planning and instrumental support. The latter refers to the pursuit of external assistance, such as soliciting information or practical help, to navigate difficult experiences Active coping is directed towards taking active steps towards the removal and reduction of source of stress. The other one is emotion-based coping in which venting, emotional support from others, humor, denial etc. are the various components. There is positive reframing too, where the students try to find out positive aspects in a stressful situation and behavioural disengagement in which the students give up on dealing with the stress.

Statistical Analysis: To analyse sociodemographic variables, descriptive statistics was used and MBI and coping subscales scores was carried out using MS excel. For all the statistical analysis, statistical significance was taken as 0.05.

RESULTS

Total 220 students were considered for the study, it was made sure that all of them returned completed proforma to include for final analysis. The participants showed mean age 20.35 (± 1.50) years, ages ranging 17–24 years, with males comprising 68%. A detailed breakdown of sociodemographic characteristics is given in Table 1. The EE domain of MBI reported mean score 12.18, which is lower than the cutoff values for burnout. In DP (cynicism), the mean score was 7.604, which is higher than the cutoff scores for academic burnout, while for PA, 18.8 was the mean score, which is lower than the severe burnout cut-off levels. In accordance with

the burnout cutoff levels, 17% of the participants met the burnout criteria in EE and DP domains. Moreover, while considering lower values on PA, 15% of the students achieved the standards for burnout. Table number 2 shows burnout prevalence and scores for severity across the MBI domains. Nearly 35% of the students presented with high emotional exhaustion while low professional efficacy was reported by over 65% of the students. Figure 1 shows insights into the coping preferences of students, highlighting a balance between problem-solving and emotion-focused approaches. Problem-based coping (e.g., planning, active coping) is prominently used, especially strategies involving direct action. Emotion-based coping shows a mix of adaptive (positive reframing, acceptance) and maladaptive (self-blame, denial) strategies, with self-blame being relatively high. Less reliance on potentially harmful strategies like substance use and behavioral disengagement is a positive takeaway. In table 4, it provides a detailed summary of the association between different subscales of burnout and their associations with students' years of study. Depersonalization has the strongest association among burnout subscales, uniformly affecting students. Low personal accomplishment significantly impacts 1st and 4th-year students, possibly due to adjustment challenges and academic culmination stress. Multivariate analysis of variables associated with academic burnout is shown in table 5. Gender, socioeconomic status, and thoughts of quitting the course have significant associations with academic burnout.

Table 1: Sociodemographic attributes of study participants (n=220)

Sociodemographic attributes	n (%)
Age (in completed years)	
17-21	103 (46.82)
22-26	113 (51.36)
>26	4 (1.82)
Gender	
Male	108 (49.09)
Female	112 (50.91)
Place of residence	
Hostel	174 (79.09)
Home	39 (17.73)
PG	7 (3.18)
Funding of studies	
Family	217 (98.64)
Self-funded	3 (1.36)
Use of medication linked to studies	
Never	143 (65)
Rarely	34 (15.45)
Sometimes	41 (18.64)
Frequently	2 (0.91)
Thoughts of quitting the course	
Never	130 (59.09)
Sometimes	77 (35.00)
Frequently	13 (5.91)
Practice of relaxation techniques	
Yes	125 (56.82)
No	95 (43.18)

Table 2 Burnout prevalence in domains of Maslach Burnout Inventory (n=220)

MBI (Maslach Burnout Inventory) domains	n (%)	Mean +SD	Median (IQR)
Emotional exhaustion (EE)			
Low <9	89 (40.45)		
Moderate 10-14	50 (22.73)	12.18 +7.25	15 (10)
High >14	81 (36.82)		
Cynicism (CY)			
Low <1	24 (10.91)		
Moderate 2-6	87 (39.55)	7.604 +5.67	7 (8)
High >6	109 (49.54)		
Professional Efficacy (PE)			
Low <22	143 (65)		
Moderate 23-27	29 (13.18)	18.8 +9.50	15 (11)
High >28	48 (21.82)		

Table 3: Mean and standard deviation of various coping subscales

Coping subscales	Mean score (SD)
Active coping	5.48 (1.58)
Using instrumental support	4.70 (1.62)
Planning	5.42 (1.49)
Self-distraction	5.15 (1.56)

Denial	4.44 (1.59)
Substance use	3.06 (1.61)
Using emotional support	4.40 (1.52)
Behavioral disengagement	3.86 (1.63)
Self-blame	4.74 (1.43)
Venting	4.55 (1.44)
Positive reframing	5.17 (1.44)

Humor	4.38 (1.63)
Acceptance	5.17 (1.50)
Religion	4.87 (1.75)

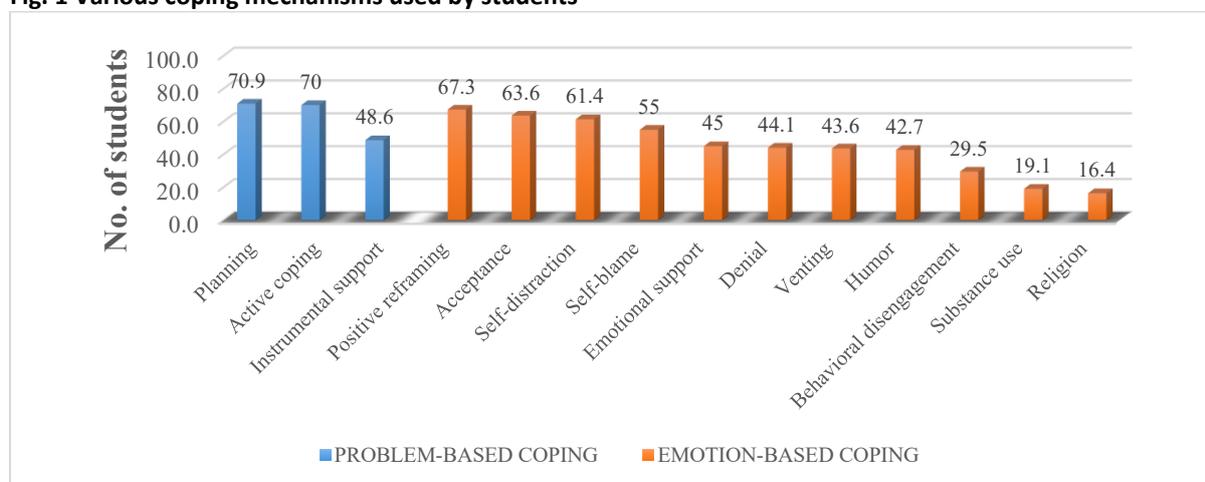
Table 4: Burnout Analysis using MBI Subscales

Subscale	Response	Total	Odds Ratio	p-value
Emotional Exhaustion	Yes	131	2.45	0.001
	No	89		
Depersonalisation	Yes	196	8.17	0.001
	No	24		
Low Personal Accomplishment	Yes	143	3.12	0.005
	No	77		

Table 5: Academic Burnout - Multivariate Analysis

Variables	Type of Test	Λ (Wilks' F)	P-Value
Academic Burnout			
Gender		0.835	6.9 <0.001
Year of Study		0.989	0.401 0.935
Place of Residence		0.912	5.32 0.102
Socioeconomic Status		0.879	4.85 0.004
Use of Medication		0.870	4.95 0.123
Linked to Studies Thoughts of Quitting		0.860	6.20 <0.001

Fig. 1 Various coping mechanisms used by students



DISCUSSION

The prevalence of burnout in our study was 36% which aligns closely with transnational data.(9) Recent meta-analyses of burnout in medical graduates worldwide stated pooled prevalence varying from 7% to 75.2%.(9) Such large differences in prevalence is mainly due to use of a variety of assessment tools and lack of uniform scoring criteria for diagnosing burnout. The prevalence of burnout in our study matches with medical students in Brazil, Britain, Pakistan, Romania, and Saudi Arabia.(10-14) Burnout among medical students of Brazil were varying from 10.3% to 12%.(12,15) In Karachi 18.2% medical students who were found to have burnout, 20.7% had rates high in EE, low PA scores in 19.8%, and high DP was exhibited by 17.8%.(13) In Riyadh, medical students had burnout levels at 13.4%.(11) The prevalence of burnout reported from Chinese and US medical students was relatively high, with figures approaching 50% in some samples.(16,17) In our own study sample, nearly 48% of participants reported elevated depersonalization, a figure that exceeds the levels reported in U.S. medical student populations.(16) High levels of depersonalisation

(DP) are specifically alarming because it is often associated with clinical coldness towards patients, often compromising with patient services and resulting in poor treatment outcomes. It may also present as lapse in professional behaviour resulting in dishonesty and other types of unethical academic conduct.(16) In our study, 84% of the participants reported low scores on PA. Low PA reflects feeling inadequate and unhappy with own achievements and often a pessimistic approach towards self-evaluation. Some authors also note that a reduced sense of personal accomplishment may reflect an aspect of self efficacy that does not align directly with experiencing burnout.(18) The proportion of students with low PA in our study is nearly two times than those reported by Cecil et al. among medical students in Manchester and also exceeded the prevalence of 64.9% found in Saudi Arabia.(11,19) In our study, males showed higher levels of DP domain which aligns to studies in China and Australia. In systematic review on perception of burnout by Chinese medical students, Chummings et al. found higher burnout scores in males.(17) Dyrbye et al., in their review, reported patterns of male students' showing higher levels of DP and female students exhibiting higher levels of EE.(16)

However, other studies have reported females experiencing higher burnouts; Isaac et al., 2018, also reporting high burnout in Australian female medical students.(20) High rates of burnout in all three domains of MBI in females was reported by Asghar et al.(13) In Riyadh, Saudi Arabia, female medical students showed higher rates of burnout in EE and DP.(11) Various scales have been used in Indian medical colleges to study burnout.(21,22) In a sample of final year medical students, using MBI, a significant reduction in PA scores reported by 46.4% , high DP scores by 41.4% and a minimal 5.1% reported burnout in domains of depression and anxiety.(21) The Oldenburg Burnout Inventory was used by Goel and colleagues longitudinally assessed burnout in medical students in first year, and unlike our sample where personal accomplishment dipped in the mid semesters then rose by the ninth semester, their findings showed a progressive increase in the disengagement dimension as students advanced through the academic years.(22) Many studies found that, burnout tends to worsen as years progress during the medical school. (16) Many studies find that the increase in burnout as medical training progresses is especially pronounced in the depersonalization domain, and higher rates of burnout have been documented in their third year of medical college, a period regarded as particularly vulnerable because students often confront intense clinical responsibilities, heightened concerns about clinical competence, and uncertainty about their future careers.(23) In our study, opting for medicine whether on their own or inspired by friends and family, did not result in significant differences in MBI scores across its subdomains. The burnout rates were not influenced by their decision to continue with medicine in future or to opt out. When choice of medicine was influenced by internal factors such as intellectual curiosity, altruism, and professional autonomy, it is more likely to be associated with lower burnout.(24)

CONCLUSION

High values of academic burnout and lower professional efficacy was reported by majority of the students. Active coping was adopted by most of them while substance abuse was least commonly used. Academic burnout levels in medical students are alarming. They are aware of the various coping mechanisms and majority of them are adapting these methods effectively. The inconsistent number of students in different years is a limitation of this study which can be further kept in mind before conducting similar research in future. Overall, addressing academic burnout is crucial for

student well-being and enhancing the educational experience.

RECOMMENDATION

Implementation of support programs like mentorship and counseling, workshops on stress management, and support groups can be done. Development of educational programs to teach students effective coping strategies, including time management skills and resources for stress reduction techniques. Regular assessment of mental health can proactively address burnout.

LIMITATION OF THE STUDY

The study was done in only one government medical college which may not reflect the experiences of medical students across different institutions, including private colleges or those in other regions with varied academic environments and support systems. Although anonymity was maintained, students might have underreported stigmatized coping behaviors such as substance use, denial, or emotional disengagement due to perceived judgment or internalized stigma, leading to potential underestimation of maladaptive coping mechanisms.

RELEVANCE OF THE STUDY

The study highlights a critical area of student well-being that directly influences learning outcomes, mental health, and future professional behavior. The findings provide essential insights for medical educators and policymakers to design targeted interventions—such as structured mentoring, psychological support, and stress management programs—to foster resilience and promote a healthier academic environment for future healthcare professionals.

AUTHORS CONTRIBUTION

All authors have contributed equally.

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Nil

CONFLICT OF INTEREST

There is no conflict of Interest.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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