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Original Article

ACADEMIC BURNOUT AND ACADEMIC ACHIEVEMENT AMONG MEDICAL STUDENTS: A CROSS-SECTIONAL STUDY

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ABSTRACT

The present research goal was to investigate the connection between academic achievement and burnout. Medical student burnout has become one of the main issues of medical education because of its negative impact on both psychological and educational achievement. The current cross-sectional study is analytical, involving the description of the relationship between burnout and academic achievement among undergraduate medical students at the National University of Medical Sciences. The sample size of N = 200 MBBS students in Years 1–5 was stratified to obtain a random sample. The Maslach Burnout Inventory-Student Survey (MBI-SS) was used to collect the data. Burnout is operationalized as the sum of the scores in the Maslach Burnout Inventory-Student Survey (MBI-SS). Pearson correlation analysis was conducted to examine the relationship between burnout and academic achievement. The results showed that academic achievement had a strong negative relationship with burnout ($r = -.95$, $p < .01$). The findings also showed that burnout significantly negatively predicted academic performance ($\beta = -.949$, $p < .001$). In Model 1, burnout significantly predicted academic performance, accounting for 90.1% of the variance, $R^2 = .901$, $F(1, 198) = 1796.83$, $p < .001$. The results indicate that it is important to discuss the problem of burnout among medical students, and that will help to enhance the well-being and academic achievement of medical students.

I. INTRODUCTION

Academic burnout has been identified as one of the most threatening psychological consequences of a long-term academic stress among medical students and is a syndrome of emotional exhaustion, a feeling of cynicism towards academic endeavor and a loss of personal achievement (Maslach et al., 2001). Originally, burnout was defined as an occupational syndrome in the profession dealing with chronic work stress but it has been modified to fit academic use (Maslach and Jackson, 1981). Maslach Burnout Inventory-Student Survey (MBI-SS) (Schaufeli et al., 2002) operationalizes the construct in three fundamental dimensions which are emotional exhaustion, cynicism, and academic efficacy. The *emotional exhaustion* is the emotional response of being overwhelmed by the academic pressure; *cynicism* is the careless and apathetic attitude to studying; and the low *academic efficacy* is low confidence in academic ability. Empirical studies have shown that medical student burnout is common and has its consequences. Indicatively, recent cross-sectional research findings indicated a high-academic burnout rate on a variety of geographic settings such as conflict-affected areas (Akiki et al., 2025), and mediation relationships between stress

and burnout outcomes (Malakcioglu, 2024). Medical education has been described as one of the most psychologically and academically rigorous lines of higher education. In contrast to many other fields, medical education presupposes that students must acquire a great amount of biomedical knowledge, combine clinical and procedural skills, manage emotions in stressful settings, and develop an early professional self (Dyrbye et al., 2014). The inadequate quality of sleep, such as, has also shown an indirect influence on academic burnout suggesting the simultaneous influence of psychological and physiological variables on academic activity (Zakiei et al., 2025).

Freudenberger (1974) was the first to develop a conceptualization of burnout as an emotional depletion state in helping professionals who are exposed to the chronic interpersonal pressures. This initial conceptualization of burnout as a psychological effect of long-term care giving roles and not a temporary response to stress. Later empirical and theoretical studies developed the construct. Maslach & Jackson (1981) defined burnout as a three-dimensional syndrome, which includes emotional exhaustion, depersonalization, and diminished personal accomplishment. Emotional exhaustion is a sense of emotional overstretchedness and the loss of emotional resources, and depersonalization cynical or indifferent attitudes to clients or working duties. Reduced personal accomplishment refers to lesser views of competence and achievement (Maslach & Jackson, 1981). Such dimensions continue to be central to the modern measurement techniques such as the Maslach Burnout Inventory (MBI). Burnout was officially established in the World Health Organization (2019) International Classification of Diseases (ICD-11) as a syndrome caused by repeated stress at the workplace that has not been effectively managed. Though ICD-11 is categorizing burnout as an occupational phenomenon and not as a medical state, this fact reflects its importance in the public health. Notably, the definition has focused on long-term and adverse coping with stress and has made a difference between burnout and acute stress responses (World Health Organization, 2019). Also, qualitative studies in Pakistan point to local-level structural stressors, including work overload, clinical stress as an emotional trigger, and a lack of institutional mental health resources, as an important factor in the experience of burnout among medical students (Khurshid et al., 2025).

The empirical data proves the applicability of these theoretical frameworks in the population of medical students. Emotional exhaustion and depersonalization have been high in different geographical settings (Rotenstein et al., 2018). The post-Covid studies also point to the fact that the lack of clinical training and the emerging feeling of uncertainty exacerbated stress and the effects of burnout (Malakcioglu, 2024). Qualitative research studies conducted in South Asian contexts emphasize academic overload, the lack of psychological support, and cultural pressures as some of the major factors that contribute to burnout experiences (Khurshid et al., 2025). Almutairi et al. (2022) reported a 37-45 pooled global prevalence, which means that psychological distress is persistent and pervasive among populations of medical students. These results can be aligned with data that medical education involves special emotional and cognitive stressors, such as extended exposure to high-stakes exams, competitive educational settings, and clinical experiences of human misery (Dyrbye et al., 2020). Geographical studies show that there is a high regional difference in prevalence. Among the North American settings, Dyrbye et al. (2020) found that almost half of the medical students were diagnosed with burnout, and they were even more susceptible to it in the years of clinical training. Clinical rotations place students directly in the role of caring for patients and in complicated ethical situations, which leads to more emotional burden and workload perceptions (Ishak et al., 2013). European studies also indicate high levels of emotional exhaustion, and some of them show prevalence that is more than 50 percent in certain institutions (Ishak et al., 2013). These trends indicate that burnout has no national border and is associated with structural features of medical education.

Hypothesis

- It will be hypothesizing that burnout will be negatively associated with academic achievement.

Objective

- The research aims to examine the relationship between burnout and academic achievement.

II. METHOD

The collection of data was done at a single point in time among the undergraduate medical students enrolled in all five years of study of MBBS program. It was assumed that cross sectional design was suitable because it will enable investigation of relationships between psychological constructs, i.e. burnout and academic achievement. Also, such a design allows comparing these variables at various levels of medical training without following them longitudinally. The cross-sectional research design was used in this study. A cross-sectional study is a research design where you are taking data of a number of people at one time. In cross-sectional studies, the variables are measured without manipulating them (Thomas, 2023). The calculation of the required sample size was conducted in the WHO Sample Size Calculator (Version 2.0). According to the prevalence rates the most basic sample size of N=197 participants was calculated to be the required sample size at a 95 percent confidence level and a margin of error of 5 percent. The sample size was increased to 200 participants in order to improve statistical power and to ensure that possible instances of incomplete responses are eliminated. To make sure that each of the five academic years (First Year through Final Year MBBS) was represented in a proportional manner a stratified random sampling was used. All academic years formed the levels, and the participants were randomly selected in each level in proportion to the size of their respective enrolment.

Measures

The researcher created a demographic information sheet that was designed to gather background information on the participants. The sheet gathered information about the major personal and academic features such as gender, year of study and socioeconomic status. **[I]** Maslach Burnout Inventory-Student Survey (MBI-SS): Student burnout was measured using Maslach Burnout Inventory- Student Survey (MBI-SS) developed by Schaufeli et al., (2002). The scale has 16 items that are specific to academic environment and has three dimensions, which are Emotional Exhaustion, Cynicism, and Academic Efficacy. Emotional Exhaustion, Cynicism and Academic Efficacy are feelings of being exhausted by academic requirements, having an attitude of being negative or detached towards the studies, and having feelings of competence and success as a student respectively. Responses will be charted about the 7-point Likert scale, which will be 0 (Never) to 6 (Always). The Exhaustion and Cynicism scores have higher scores which represent high burnout, but Academic Efficacy is also inversely scored with lower burnout showing higher efficacy. The levels of internal consistency of the scale have been established to be strongly high in previous studies and Cronbach alpha values of the scale are usually higher than.80 in student populations. **[II]** Academic Performance Scale: Academic achievement was also assessed by using Academic Performance scale (APS) that was developed by Birchmeier, Grattan, Hornbacher and McGregory (Saginaw Valley State University). The APS is a set of 8 items that are aimed at measuring academic behaviors of students like participation, effort, motivation and engagement. It is a unidimensional scale that measures general achievement in academics. The answers are given through a 5-point Likert scale with Strongly Agree rating as 5 and Strongly Disagree as 1. The summative scores have a maximum of 40 with a higher score implying higher academic achievement. APS has a good psychometric measure, its internal consistency reliability is 0.89, and the test-retest reliability is 0.85.

Procedure

Eligible students were invited to take part after the permission of the Institutional Ethical Review Committee was established using official university modes of communication such as email and classroom announcements. The subjects were made to sign an information sheet giving the purpose, procedures, risks and benefits of the study. The informed consent was provided electronically before the administration of questionnaires. The participants were also guaranteed that they were free to participate and leave at any time without scholastic repercussions.

Ethical Considerations

The research followed the research ethics in involving human participants.

- Ethical approval was made by the Institutional Review Board of the university.
- All the participants were informed about consenting to take part in data collection beforehand.
- It was on a voluntary basis, and could be dropped out any time.
- There was strict confidentiality and anonymity.

- The data were de-identified and stored safely, which could not be accessed by anyone except by the principal investigator.

III. RESULTS

Table I: Description of the Sample (N=200)

Component	Description
Final Sample Size	200 participants
Sampling Technique	Stratified Random Sampling
Stratification Basis	Academic Year (First Year to Final Year MBBS)
Number of Strata	5 (one for each academic year)
Sampling Procedure	Participants randomly selected within each stratum proportional to enrollment size
Population	MBBS students from all academic years

Table II: Demographic Characteristics of Participants (N = 200)

Variables		n	%
Gender			
	Male (1)	106	53.0
	Female (2)	94	47.0
Year of Study			
	Year 1	44	22.0
	Year 2	34	17.0
	Year 3	45	22.5
	Year 4	33	16.5
	Year 5	44	22.0
Socioeconomic Status			
	Low (1)	68	34.0
	Middle (2)	80	40.0
	High (3)	52	26.0

Table III: Psychometric properties of Maslach Burnout Student Inventory and Academic Performance Scale (N=200)

Scale	k	α	M	SD	Potential Range	Actual Range	Skewness	Kurtosis
Maslach Burnout Inventory–Student Survey (MBI-SS)	16	.97	47.71	24.95	0–96	10–90	0.34	-1.16
Academic Performance Scale (APS)	8	.96	24.64	10.58	8–40	8–40	-0.14	-1.31

Note. k = Number of items; α = Cronbach's alpha; M = mean; SD = Standard Deviation.

As shown in Table 3, all study scales demonstrated excellent internal consistency, with Cronbach's alpha coefficients ranging from .96 to .97, indicating a very high level of reliability. The Maslach Burnout Inventory–Student Survey (MBI-SS) each showed an alpha of .97, while the Academic Performance Scale (APS) showed an alpha of .96. Table 4.2.

Table IV: Correlation between Academic Burnout and Academic Achievement (N=20)

Variables	M	SD	1	2	3	4	5	6	7
1 Burnout	47.71	24.59	−.74**	.69**	.96**	.95**	−.94**	—	
2Academic Performance	24.64	10.53	.77**	−.65**	−.90**	−.87**	.92**	−.95**	—

$p < .01$ (two-tailed).

Burnout dimensions and Burnout were highly intercorrelated, whereas academic efficacy showed strong negative correlations with burnout dimensions and Burnout. Academic achievement (APS) were strongly associated with Burnout ($r = -.95$, $p < .01$) and academic efficacy ($r = .92$, $p < .01$).

Table V: Regression Analysis of Academic Burnout Predicting Academic Achievement (N = 200)

Model	Predictor	B	SE B	β	t	p	R^2	ΔR^2	F
1	Constant	43.85	0.51	—	85.788	< .001	.901	.901	1796.825
	Burnout	-0.40	0.00	-0.949	-42.389	< .001			

Model: F (1, 198) = 1796.83, **p** < .001.

In Model 1, burnout significantly predicted academic performance, accounting for 90.1% of the variance, $R^2 = .901$, F (1, 198) = 1796.83, $p < .001$. Burnout negatively predicted academic performance (β = -.949, $p < .001$)

IV.DISCUSSION

The research objective of the present study was to determine the findings burn out and academic achievement as it relates to students in the university. The Academic Performance scale (APS), Maslach Burnout Inventory (MBI) that gave a Cronbach alpha of more than.95 all indicated an extremely high reliability. These results are always in line with the current studies, which have verified the high psychometric quality of these tools among the student population. Research works carried out in recent years have continually shown that these scales have a consistent ability to measure academic stress and burnout in medical students (De Prada et al., 2024; Pérez-Jorge et al., 2025). According to the hypothesis, Burnout will be negatively associated with academic achievement. The study results also revealed that academic achievement had a strong negative relationship with burnout. Students with increased degree of burnout had low level of academic achievement. This observation aligns with recent studies that have found out that academic burnout has a major impact on the engagement, motivation, and learning results of students. It has been established that burnout can cause academic participation to decline, reduce levels of concentration, and lower academic achievement among students in universities (Madigan & Curran, 2021). A more recent study also found that burnout is linked to poor mental health outcomes and augmented danger of scholarly disengagement and dropout (Wei et al., 2021). Burnout lowers the psychological energy and cognitive ability of the students which eventually causes low academic achievement. Thus, the observed close negative correlation in the current study also supports the harmful nature of burnout on the academic achievement of students.

As per the study hypothesis, there will be significant differences in burnout across academic years. The findings also revealed that there were major variations between academic years. The level of burnout showed that the level of burnout declined as academic years went by indicating that the students in the earlier academic years might be facing more difficulties adapting to the demands of the academia and life at the university (Liu et al., 2023). Later in the academic curriculum, students can also have more effective coping strategies, time-management skills, and academic competence, which contributes to the elimination of burnout. There was also increment in academic achievement in terms of academic years, which can be contributed to the advancement of academic experience and enhancement of the learning strategies (Wang et al., 2022). Overall, the results of the current research indicate the significant role of psychological aspects of the academic achievement and well-being of students. Considering the rising rates of academic stress and burnout in medical students, educational institutions ought to be more focused on the programs that enhance psychological health, coping with stress and resistance. The use of interventions and coping skills of students can be used to reduce academic burnout and enhance academic achievement.

V. CONCLUSION

The current research has discussed relationships between burnout and academic achievement among undergraduate medical students. The results showed that academic achievement had a significant relationship with burnout. There were positive correlations between burnout and the low academic achievement, and thus, the adverse effects of psychological strain on the academic functioning of students. Regression analysis further demonstrated that perceived stress significantly and negatively predicted academic achievement, highlighting its important role in students' academic functioning. Comprehensively, the findings highlight the need to consider the psychological well-being in medical education. Stress and burnout reduction and can help to achieve better academic results and better learning conditions of medical students.

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