

Understanding Stress and Psychological Distress among Medical Students: Role of Burnout and Coping Pattern

¹Deeksha Bansal*, ²Prof. (Dr.) Anjum Mahdi

¹Research Scholar, Department of Psychology, Apex University, Jaipur, Rajasthan, India.

²Research Supervisor, Department of Psychology, Apex University, Jaipur, Rajasthan, India.

*Corresponding Author: Deeksha Bansal

Abstract

Undergraduate students' mental health is a significant public health concern on a global scale. Due to the responsibilities of both school and home, university students experience a great deal of psychological stress, which can result in major illnesses and mental health problems. This study focuses on the relationship between perceived stress levels and general psychopathology symptoms among postgraduate medical students. Also to analyse the interplay between burnout and coping pattern among postgraduate medical students. This study provides evidence that, among postgraduate medical students, perceived stress and general psychopathology, as well as burnout and coping patterns, exhibit no significant linear relationships. Retaining H₀₁ and H₀₂ highlights students' potential psychological independence, informing tailored wellness programs to preempt risks in demanding training. By prioritising systemic supports, medical education can enhance trainee well-being without over-relying on isolated symptom pathways

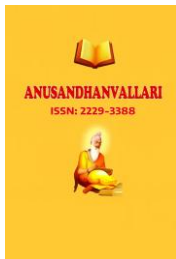
Keywords: Medical, students, burnout, general psychopathology, coping patterns

1. Introduction:

Globally, mental health among undergraduate students represents an important public health entity. University students face considerable demands in school and family, resulting in significant psychological stress that may lead to serious disorders and mental health issues such as depression and anxiety (Bantjes et al., 2022). As a result, university students' academic performance, physical well-being and mental health may substantially worsen over the academic career and could only be detected at an advanced stage. Additionally, studies conducted among medical school graduates showed that psychological distress was associated with suboptimal quality of patient care, patient safety and professionalism (Panagioti et al., 2018).

It is generally established that the emotional and intellectual strains of medical school can increase students' risk of developing mental health issues. Increased stress, burnout, and associated psychopathological symptoms including anxiety, depression, and insomnia are caused by the complex interplay of academic pressure, personal goals, and professional obligations. In this high-pressure atmosphere, coping mechanisms and personal resources like resilience, optimism, and self-efficacy play an important role in regulating mental health outcomes (Chen et al., 2025). Farrell et al., (2019), noted that attention is currently being paid to the health of aspiring physicians.

The British Medical Association (BMA) has made a commitment to comprehending medical students' welfare concerns. Gade et al., (2014), intended to identify these vulnerable students early on during their first year of medical school and offer them crucial assistance in the form of an intervention program to mitigate the harmful effects of stress. Saeed et al., (2016), identified the frequency of and contributing

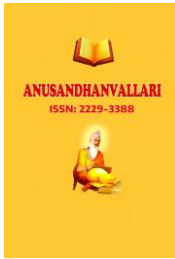


factors to medical students' perceptions of stress. Burnout is a mental health problem that develops as a long-term response to continuous interpersonal pressures on the work, marked by emotional tiredness, depersonalisation, and a low feeling of personal success. Burnout was first examined in the caregiving and service professions, but it has now expanded to other professional domains, notably high-stakes contexts including education, healthcare, and the business sector. Schepis et al., (2021), examined the variations in alcohol, cannabis, and mental health symptoms between before and after college closures. Boni et al., (2018), examined the frequency of burnout among medical students in their early years of undergraduate study as well as potential contributing factors. Medical schools in a number of nations have expressed concern about the mental health of their students.

In addition to the demands and responsibilities associated with their studies, medical students face numerous obligations because the field is focused on patient care and has a low threshold for error, which encourages the development of stress and anxiety. High degrees of emotional tiredness, depersonalisation, or professional cynicism and professional scepticism are the three main signs of burnout, a multifactorial occupational condition that primarily affects medical students in its early stages. Erschens et al., (2019), compiled the information that is currently available regarding the frequency of professional burnout among medical students.

McKinley et al., (2020), sought to evaluate how these parameters were affected by demographic factors like sex, grade, and speciality. Burnout was found to be significantly correlated with a student's gender, academic achievement, extracurricular activities, year of study, housing, and social, personal, and psychosomatic states (Bolatov et al., 2022). Di Vincenzo et al., (2024), evaluated medical students' burnout using globally validated instruments. Due to their exposure to certain risk factors, including the subject matter of medical training, the possibility of illness and death, and a demanding academic schedule, medical students are the perfect target group for enhancing mental health and mental wellbeing. Burnout is a long-term psychological response to persistent work-related stress that is marked by emotional tiredness, disengagement from one's position, and a lessened sense of success. General psychopathology, which is generally thought of as a unifying component of mental health problems, has received a lot of attention in recent years because of its ability to explain the common elements that underpin a wide range of psychological diseases. Bhugra et al., (2019), focused on the broader implications of mental health in doctors, using data to recommend policy-level changes. They stressed that the training and work environments greatly affect doctors' mental health, requiring improved support services, awareness, and accessibility to address general psychopathological concerns.

Pokhrel et al., (2020), identified the predictors of depression, anxiety, and burnout in a sample of medical students and residents at a medical school, as well as the prevalence of these conditions and the characteristics that are linked to them. Numerous studies have revealed that medical students and residents have experienced burnout, anxiety, and despair. Heinen et al., (2017), determined using structural equations modelling the relationships between emotional discomfort (depression and anxiety) and perceived stress while accounting for the activation of personal resources (resilient coping, optimism, and self-efficacy). There is a dearth of theoretical frameworks investigating potential causes for the high levels of perceived stress reported by medical students. Based on a conceptual stress model that was initially created and used for the general population, this cross-sectional study investigates the correlates of perceived stress among medical students. Compared to reference samples, medical students reported higher levels of anxiety, depression, and perceived stress.



This study focuses on the relationship between perceived stress levels and general psychopathology symptoms among postgraduate medical students. Also to analyse the interplay between burnout and coping pattern among postgraduate medical students.

2. Literature Review:

The demanding academic atmosphere of medical education frequently exposes students to high levels of stress, resulting in emotional depletion and burnout. Prolonged exposure to such stressors can harm academic performance, reduce empathy, and raise the likelihood of mental health problems.

Burnout, which is characterised by depersonalisation, decreased personal accomplishment, and emotional exhaustion, has arisen as a major issue in medical education. The way students handle these stresses has a substantial impact on their psychological resilience and general well-being.

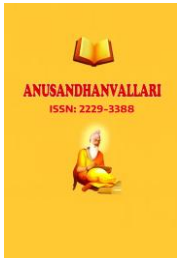
Coping mechanisms, which may range from maladaptive ones like drug abuse and avoidance to adaptive ones like problem-solving and seeking social support, are crucial in deciding how stress is handled and whether it progresses to burnout. Minnie et al., (2015), examined the experiences and coping strategies of Emergency Medical Services (EMS) workers when they were exposed to everyday or regular stressful incidents.

Muteshi et al., (2024), aimed to determine the degree of burnout among medical residents, as well as their perceptions of coping strategies and the perceived influence on patient care in a low-income nation. Emotional weariness, depersonalisation, and poor personal successes are the hallmarks of burnout, a syndrome brought on by ongoing working stress.

Research indicates that medical professionals have higher degrees of burnout than the general population. Negative coping mechanisms including alcohol addiction and medical blunders have been directly connected to workplace burnout. Workload, overwhelming wealth of information, financial constraints, family dynamics, and examination pressure further increases the stress (Hill et l., 2018; Mahmud, 2021).

Medical students report higher levels of psychological distress than their same-age peers (Dyrbye et al., 2007; Ghodasra et al., 2011; Dyrbye et al., 2014), despite having similar or healthier profiles than peers at the outset of medical school (Braau et al., 2014). This implies that students' discomfort is exacerbated by medical education itself. According to studies, stress levels do rise during medical school and either peak in the second year (Rosal et al., 1997) or when students start working in the hospital wards (Compton et al., 2008). High levels of stress among medical students are linked to depression, burnout, and somatic problems, even while some stress may improve academic performance (Dyrbye et al., 2010; Fares et al., 2016; Almutairi et al., 2022).

Higher levels of psychological distress have been associated with decreased empathy, serious thoughts about quitting medical school, suicidal thoughts, and subpar academic performance (Yamada et al., 2014; Haykal et al., 2022). Anxiety and depression have also been linked to medical students' vulnerability to stress. Previous research has explored student vulnerability to stress (Mavor et al., 2014; Heinen et al., 2017), and several studies have documented major stressors for medical students, including academics, lack of balance, relationships, poor student guidance/support, volume of information, finances, uncertainty of the future, lack of time to oneself, time and responsibility, and the need to succeed (Chng et al., 2012; Maslach & Leiter, 2016). In addition, a recent review described six major themes associated with student



distress: adjustment, ethical concerns, exposure to patient death and suffering, student mistreatment, personal life events, and educational debt.

Burnout is a group of symptoms which arises in professionals in relation to work. Pressure to perform in medical education can make an erstwhile, hardworking and committed person increasingly dissatisfied or disillusioned with various aspects of work and life (Rosenstein, 2025). Evidence suggests that mental illness during medical training may predict later problems in terms of personal suffering or patient care (Satinsky et al., 2021). Medical students do not seek professional help for themselves which they would otherwise render to their patients in similar situations (Baklola et al., 2023; Shahaf-Oren et al., 2021). Medical student exposure to stressors is associated with depression, burnout, somatic distress, decreases in empathy, serious thoughts about dropping out of medical school, suicidal ideation, and poor academic performance. Medical schools and residency programmes are responsible for ensuring that future doctors are well prepared to deliver high-quality patient-centred care, uphold ideals of the profession and be leaders within evolving health care systems.

3. Research Methodology:

The study conducts a quantitative approach where the data collected would be exposed to a format where the quantification of the results is done. The data for the quantitative approach is collected from both primary and secondary sources. While the secondary sources of data collected from different journal articles, books reports and online resources help in designing the sampling and research instrument, the primary sources of data would be mainly used for quantification of the results. The research instrument used in the study to conduct the survey is a structured questionnaire. The demographics of the medical students was used to investigate using a nominal scale where options were provided representing different categories. In order to investigate the main factors of the study, a five-point Likert type scale was used. In this scale, the respondent provided their perspective in a scale from one to 5 which would show their levels of agreement in each aspect. Responses were collected from 400 medical students pursuing post-graduation of both the gender enrolled in accredited medical schools or programs. It also includes students from various medical specialties or programs to capture diverse experiences and perspectives.

4. Results:

This study focuses on the relationship between perceived stress levels and general psychopathology symptoms among postgraduate medical students.

H₀₁: There is no significant relationship between Perceived stress levels and general psychopathology symptoms among postgraduate medical students.

		PSS	GP
PSS	Pearson Correlation	1	.054
	Sig. (2-tailed)		.282
	N	400	400

GP	Pearson Correlation	.054	1
	Sig. (2-tailed)	.282	
	N	400	400

A Pearson correlation analysis was conducted to measure the relationship between Perceived Stress Levels (PSS) and General Psychopathology (GP) among postgraduate medical students. The results show a positive but very weak correlation ($r = 0.054$) between the two variables, with a p-value of 0.282, which is greater than the 0.05 significance threshold. This indicates that the relationship between perceived stress and general psychopathology symptoms is not statistically significant. These findings demonstrate that the null hypothesis (H_{01}) cannot be rejected, indicating no significant relationship between perceived stress and general psychopathology in this sample.

Although the direction of the correlation is positive suggesting that higher stress levels may be associated with slightly higher psychopathology symptoms the strength of this relationship is negligible and likely due to random variation rather than a systematic pattern.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.054 ^a	.003	.000	.39047	.003	1.160	1	398	.282

a. Predictors: (Constant), GP

A simple linear regression analysis was conducted to examine the relationship between Perceived Stress Levels (PSS) and General Psychopathology (GP) among postgraduate medical students. The model summary shows a correlation coefficient (R) of 0.054 and an R^2 value of 0.003, indicating that only 0.3% of the variance in perceived stress can be explained by general psychopathology symptoms. The remaining 99.7% of variation is influenced by other factors not included in the model.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.177	1	.177	1.160	.282 ^b
	Residual	60.681	398	.152		
	Total	60.858	399			
a. Dependent Variable: PSS						
b. Predictors: (Constant), GP						

The ANOVA results ($F(1,398) = 1.160, p = 0.282$) indicate that the regression model is not statistically significant, as the p-value exceeds the 0.05 threshold. This means there is no meaningful linear relationship between general psychopathology and perceived stress in this sample.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.029	.177		17.140	.000
	GP	.058	.054	.054	1.077	.282
a. Dependent Variable: PSS						

The coefficients table further supports this finding. The unstandardized coefficient ($B = 0.058$) suggests that for every one-unit increase in GP scores, perceived stress scores increase by 0.058 units. However, this effect is not significant ($p = 0.282$), indicating that changes in general psychopathology do not reliably predict changes in perceived stress levels. These results suggest that while there is a slight positive trend between psychopathological symptoms and stress, the relationship is weak and statistically insignificant. This implies that postgraduate medical students' perceived stress levels are not directly influenced by their general psychopathology symptoms.

To analyse the interplay between burnout and coping pattern among postgraduate medical students.

H_{02} : *There is no significant relationship between burnout and coping patterns among postgraduate medical students.*

Table 5: Correlations

		CP	EE	DP	PA
CP	Pearson Correlation	1	-.043	-.050	.047
	Sig. (2-tailed)		.393	.318	.349
	N	400	400	400	400
EE	Pearson Correlation	-.043	1	.025	.044
	Sig. (2-tailed)	.393		.611	.375
	N	400	400	400	400
DP	Pearson Correlation	-.050	.025	1	.043
	Sig. (2-tailed)	.318	.611		.393
	N	400	400	400	400
PA	Pearson Correlation	.047	.044	.043	1
	Sig. (2-tailed)	.349	.375	.393	
	N	400	400	400	400

The correlation analysis was conducted to explore the relationship between Burnout dimensions namely, Emotional Exhaustion (EE), Depersonalisation (DP), and Personal Accomplishment (PA) and Coping Pattern (CP) among postgraduate medical students. The results show that CP is weakly and negatively correlated with EE ($r = -0.043$, $p = 0.393$) and DP ($r = -0.050$, $p = 0.318$), while it shows a weak positive correlation with PA ($r = 0.047$, $p = 0.349$). However, all p-values are greater than 0.05, indicating that none of these correlations are statistically significant. This suggests that coping patterns do not have a measurable linear association with any of the burnout components in this sample. Similarly, the inter-correlations among the burnout subdimensions (EE, DP, and PA) are also weak and statistically insignificant, implying that these components function independently in the present dataset without a strong overlap in response patterns. These findings indicate that the null hypothesis (H_{02}) cannot be rejected, demonstrating that burnout and coping patterns do not show a significant interplay in this sample.

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.083 ^a	.007	-.001	.36134	.007	.908	3	396	.437

a. Predictors: (Constant), PA, DP, EE

The regression analysis was conducted to examine the interplay between burnout dimensions- Emotional Exhaustion (EE), Depersonalisation (DP), and Personal Accomplishment (PA) and Coping Pattern (CP) among postgraduate medical students.

As shown in the model summary (Table 6), the overall model produced an R value of 0.083, with an R² of 0.007, indicating that only 0.7% of the variance in coping patterns is explained by the combined burnout dimensions. The adjusted R² value of -0.001 further confirms that the model does not significantly improve prediction beyond chance levels.

Table 7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.356	3	.119	.908	.437 ^b
	Residual	51.704	396	.131		
	Total	52.060	399			

a. Dependent Variable: CP

b. Predictors: (Constant), PA, DP, EE

Also to analyse the interplay between burnout and coping pattern among postgraduate medical students.

The F-test (F = 0.908, p = 0.437) in the ANOVA table also demonstrates that the overall regression model is not statistically significant, suggesting no meaningful linear relationship between burnout components and coping patterns.

Table 8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.347	.144		23.257	.000
	EE	-.025	.028	-.044	-.873	.383
	DP	-.026	.025	-.051	-1.019	.309
	PA	.026	.026	.051	1.019	.309

a. Dependent Variable: CP

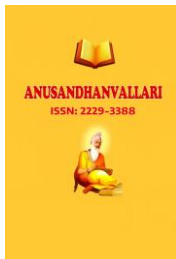
Examining the coefficients (Table 4.29), Emotional Exhaustion ($\beta = -0.044$, $p = 0.383$) and Depersonalisation ($\beta = -0.051$, $p = 0.309$) both exhibit weak negative but non-significant effects on coping patterns, implying that higher burnout levels in these dimensions do not predict poorer coping behaviors. Conversely, Personal Accomplishment ($\beta = 0.051$, $p = 0.309$) shows a weak positive but insignificant relationship, suggesting that feelings of professional efficacy are not strongly associated with improved coping strategies.

5. Conclusion:

The current study examined two key relationships among postgraduate medical students: perceived stress levels (measured by PSS) and general psychopathology symptoms (GP), as well as burnout dimensions (emotional exhaustion [EE], depersonalisation [DP], and personal accomplishment [PA]) and coping patterns (CP). Contrary to expectations, both null hypotheses were retained, revealing no statistically significant associations.

For H_{01} , the Pearson correlation and regression analysis indicated a negligible positive link between PSS and GP, with GP explaining just 0.3% of variance in stress. This aligns with mixed findings in prior research; while some studies report moderate correlations between stress and psychopathology in medical trainees (Dyrbye et al., 2014), find weak or absent links due to cultural resilience factors or underreporting. The insignificant result may reflect postgraduate students' adaptive mechanisms, such as professional maturity, buffering stress from escalating into psychopathology, though the positive direction hints at potential thresholds not captured here.

Similarly, H_{02} results showed weak, non-significant correlations between CP and burnout subscales and minimal explanatory power in regression. EE and DP trended negatively with CP, while PA trended positively, but effects were trivial. These findings contrast with literature linking maladaptive coping to burnout (Somville, 2024), yet echo studies in high-pressure medical cohorts where coping independence prevails amid workload demands (Hutsell, 2024). Inter-burnout correlations were also weak, suggesting these dimensions operated distinctly in this sample, possibly due to India's resource-constrained training environments fostering compartment lid responses.

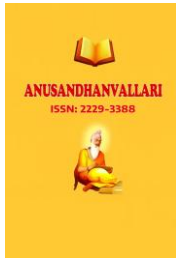


The absence of significant relationships underscores multifactorial influences on mental health in postgraduate medical students, including unmeasured variables like social support or workload intensity. These results challenge assumptions of direct linear pathways, emphasising resilience in this demographic.

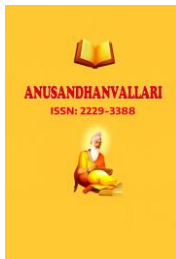
This study provides evidence that, among postgraduate medical students, perceived stress and general psychopathology, as well as burnout and coping patterns, exhibit no significant linear relationships. Retaining H_{01} and H_{02} highlights students' potential psychological independence, informing tailored wellness programs to pre-empt risks in demanding training. By prioritising systemic support, medical education can enhance trainee well-being without over-relying on isolated symptom pathways (Maslach & Leiter, 2016).

References:

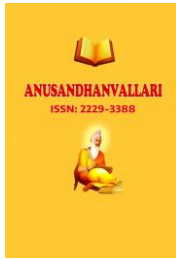
1. Almutairi, H., Alsubaieci, A., Abduljawad, S., Alshatti, A., Fekih-Romdhane, F., Husni, M., & Jahrami, H. (2022). Prevalence of burnout in medical students: A systematic review and meta-analysis. *International Journal of Social Psychiatry*, 68(6), 1157-1170.
2. Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. (2023). Job demands–resources theory: Ten years later. *Annual review of organisational psychology and organisational behavior*, 10(1), 25-53.
3. Baklola, M., Terra, M., Elsayat, M. A., Abdelhady, D., El-Gilany, A. H., & collaborators, A. T. O. (2023). Pattern, barriers, and predictors of mental health care utilisation among Egyptian undergraduates: a cross-sectional multi-centre study. *BMC psychiatry*, 23(1), 139.
4. Bantjes, J., Hunt, X., & Stein, D. J. (2022). Public health approaches to promoting university students' mental health: A global perspective. *Current psychiatry reports*, 24(12), 809-818.
5. Bergmann, C., Muth, T., & Loerbroks, A. (2019). Medical students' perceptions of stress due to academic studies and its interrelationships with other domains of life: a qualitative study. *Medical education online*, 24(1), 1603526.
6. Bhugra, D., Sauerteig, S. O., Bland, D., Lloyd-Kendall, A., Wijesuriya, J., Singh, G., & Ventriglio, A. (2019). A descriptive study of mental health and wellbeing of doctors and medical students in the UK. *International Review of Psychiatry*, 31(7-8), 563-568.
7. Biggs, A., Brough, P., & Drummond, S. (2017). Lazarus and Folkman's psychological stress and coping theory. *The handbook of stress and health: A guide to research and practice*, 349-364.
8. Bolatov, A. K., Seisembekov, T. Z., Smailova, D. S., & Hosseini, H. (2022). Burnout syndrome among medical students in Kazakhstan. *BMC psychology*, 10(1), 193.
9. Boni, R. A. D. S., Paiva, C. E., De Oliveira, M. A., Lucchetti, G., Fregnani, J. H. T. G., & Paiva, B. S. R. (2018). Burnout among medical students during the first years of undergraduate school: Prevalence and associated factors. *PloS one*, 13(3), e0191746.
10. Brazeau C.M., Shanafelt T, Durning S.J., et al.(2014). Distress among matriculating medical students relative to the general population. *Acad Med*. 2014;89:1520–1525.
11. Chang, E., Eddins-Folensbee, F., & Coverdale, J. (2012). Survey of the prevalence of burnout, stress, depression, and the use of supports by medical students at one school. *Academic Psychiatry*, 36(3), 177-182.



12. Chen, H., Cao, Z., Zhang, X., Duan, H., Jiang, S., & Cai, C. (2025). The association between perceived stress and resilience among medical staff during public health emergencies: mediating effect of self-efficacy. *BMC psychology*, 13(1), 1-10.
13. Chye, S. M., Kok, Y. Y., Chen, Y. S., & Er, H. M. (2024). Building resilience among undergraduate health professions students: identifying influencing factors. *BMC Medical Education*, 24(1), 1168.
14. Compton, M. T., Carrera, J., & Frank, E. (2008). Stress and depressive symptoms/dysphoria among US medical students: results from a large, nationally representative survey. *The Journal of nervous and mental disease*, 196(12), 891-897.
15. Di Vincenzo, M., Arsenio, E., Della Rocca, B., Rosa, A., Tretola, L., Toricco, R., & Fiorillo, A. (2024). Is there a burnout epidemic among medical students? Results from a systematic review. *Medicina*, 60(4), 575.
16. Dyrbye, L. N., Power, D. V., Massie, F. S., Eacker, A., Harper, W., Thomas, M. R., ... & Shanafelt, T. D. (2010). Factors associated with resilience to and recovery from burnout: a prospective, multi-institutional study of US medical students. *Medical education*, 44(10), 1016-1026.
17. Dyrbye, L. N., Thomas, M. R., Eacker, A., Harper, W., Massie, F. S., Power, D. V., ... & Shanafelt, T. D. (2007). Race, ethnicity, and medical student well-being in the United States. *Archives of internal medicine*, 167(19), 2103-2109.
18. Dyrbye, L. N., West, C. P., Satele, D., Boone, S., Tan, L., Sloan, J., & Shanafelt, T. D. (2014). Burnout among US medical students, residents, and early career physicians relative to the general US population. *Academic medicine*, 89(3), 443-451.
19. Erschens, R., Keifenheim, K. E., Herrmann-Werner, A., Loda, T., Schwille-Kiuntke, J., Bugaj, T. J., & Junne, F. (2019). Professional burnout among medical students: systematic literature review and meta-analysis. *Medical teacher*, 41(2), 172-183.
20. Fares, J., Al Tabosh, H., Saadeddin, Z., El Mouhayyar, C., & Aridi, H. (2016). Stress, burnout and coping strategies in preclinical medical students. *North American journal of medical sciences*, 8(2), 75.
21. Farrell, S. M., Kadhun, M., Lewis, T., Singh, G., Pennstadler, L., & Molodynski, A. (2019). Wellbeing and burnout amongst medical students in England. *International Review of Psychiatry*, 31(7-8), 579-583.
22. Gade, S., Chari, S., & Gupta, M. (2014). Perceived stress among medical students: To identify its sources and coping strategies. *Archives of Medicine and Health Sciences*, 2(1), 80-86.
23. Ghodasara, S. L., Davidson, M. A., Reich, M. S., Savoie, C. V., & Rodgers, S. M. (2011). Assessing student mental health at the Vanderbilt University School of Medicine. *Academic Medicine*, 86(1), 116-121.
24. Haykal, K. A., Pereira, L., Power, A., & Fournier, K. (2022). Medical student wellness assessment beyond anxiety and depression: A scoping review. *PLoS One*, 17(10), e0276894.
25. Heinen, I., Bullinger, M., & Kocalevent, R. D. (2017). Perceived stress in first year medical students-associations with personal resources and emotional distress. *BMC medical education*, 17(1), 4.
26. Hill, M. R., Goicochea, S., & Merlo, L. J. (2018). In their own words: stressors facing medical students in the millennial generation. *Medical education online*, 23(1), 1530558.



-
27. Hutsell, C. (2024). Emotional Intelligence, Perceived Stress, Coping Strategies and Burnout in High Stress Nursing Job Types.
28. Lobel, A., Muise, D., & McCabe, R. E. (2021). Coping styles and burnout in medical residents: A meta-analysis. *Journal of Graduate Medical Education*, 13(4), 512–520.
29. Long, K. (2021). Page A Qualitative Study Exploring Perceptions of Supports, Coping Mechanisms, and Resilience for Unmatched Medical Students (Doctoral dissertation, University of Pittsburgh)
30. Mahmud, R. (2021). Learning in the shadows: Parents' investments, family burden, and students' workload in Dhaka, Bangladesh. *Asia Pacific Education Review*, 22(1), 41-52.
31. Maslach, C., & Leiter, M. P. (2016). Understanding the burnout experience: recent research and its implications for psychiatry. *World psychiatry*, 15(2), 103-111.
32. Mavor, K. I., McNeill, K. G., Anderson, K., Kerr, A., O'Reilly, E., & Platow, M. J. (2014). Beyond prevalence to process: the role of self and identity in medical student well-being. *Medical education*, 48(4), 351-360.
33. McKinley, N., McCain, R. S., Convie, L., Clarke, M., Dempster, M., Campbell, W. J., & Kirk, S. J. (2020). Resilience, burnout and coping mechanisms in UK doctors: a cross-sectional study. *BMJ open*, 10(1), e031765.
34. Minnie, L., Goodman, S., & Wallis, L. (2015). Exposure to daily trauma: The experiences and coping mechanisms of Emergency Medical Personnel. A cross-sectional study. *African journal of emergency medicine*, 5(1), 12-18.
35. Muteshi, C., Ochola, E., & Kanya, D. (2024). Burnout among medical residents, coping mechanisms and the perceived impact on patient care in a low/middle income country. *BMC Medical Education*, 24(1), 828.
36. Panagioti, M., Geraghty, K., Johnson, J., Zhou, A., Panagopoulou, E., Chew-Graham, C., & Esmail, A. (2018). Association between physician burnout and patient safety, professionalism, and patient satisfaction: a systematic review and meta-analysis. *JAMA internal medicine*, 178(10), 1317-1331.
37. Pokhrel, N. B., Khadayat, R., & Tulachan, P. (2020). Depression, anxiety, and burnout among medical students and residents of a medical school in Nepal: a cross-sectional study. *BMC psychiatry*, 20, 1-18.
38. Radcliffe, C., & Lester, H. (2003). Perceived stress during undergraduate medical training: a qualitative study. *Medical education*, 37(1), 32-38.
39. Rosal, M. C., Ockene, I. S., Ockene, J. K., Barrett, S. V., Ma, Y., & Hebert, J. R. (1997). A longitudinal study of students' depression at one medical school. *Academic medicine*, 72(6), 542-546.
40. Rosenstein, A. H. (2025). Physician Dissatisfaction, Stress, and Burnout and Their Impact on Patients. *Distracted Doctoring: Returning to Patient-Centered Care in the Digital Age*, 87.
41. Saeed, A. A., Bahnassy, A. A., Al-Hamdan, N. A., Almudhaibery, F. S., & Alyahya, A. Z. (2016). Perceived stress and associated factors among medical students. *Journal of Family and Community Medicine*, 23(3), 166-171.
42. Satinsky, E. N., Kimura, T., Kiang, M. V., Abebe, R., Cunningham, S., Lee, H., ... & Tsai, A. C. (2021). Systematic review and meta-analysis of depression, anxiety, and suicidal ideation among Ph. D. students. *Scientific Reports*, 11(1), 14370.



-
43. Schepis, T. S., De Nadai, A. S., Bravo, A. J., Looby, A., Villarosa-Hurlocker, M. C., Earleywine, M., & Norms, S. (2021). Alcohol use, cannabis use, and psychopathology symptoms among college students before and after COVID-19. *Journal of psychiatric research*, 142, 73-79.
44. Shahaf-Oren, B., Madan, I., & Henderson, C. (2021). "A lot of medical students, their biggest fear is failing at being seen to be a functional human": disclosure and help-seeking decisions by medical students with health problems. *BMC medical education*, 21(1), 599.
45. Somville, F. (2024). *Burnout among emergency physicians: from detection to prevention*. University of Antwerp.
46. Steinauer, J. E., Teherani, A., Preskill, F., Ten Cate, O., & O'Sullivan, P. (2019). What do medical students do and want when caring for "difficult patients"? *Teaching and Learning in Medicine*, 31(3), 238-249.
47. Weber, J., Skodda, S., Muth, T., Angerer, P., & Loerbroks, A. (2019). Stressors and resources related to academic studies and improvements suggested by medical students: a qualitative study. *BMC medical education*, 19(1), 312.
48. Yamada, Y., Klugar, M., Ivanova, K., & Oborna, I. (2014). Psychological distress and academic self-perception among international medical students: the role of peer social support. *BMC medical education*, 14(1), 256.