

Original Research Article

A STUDY OF PSYCHOLOGICAL DISTRESS, BURNOUT AND SLEEP QUALITY AMONG POSTGRADUATE MEDICAL STUDENTS IN A PRIVATE MEDICAL COLLEGE IN KARNATAKA

Supreet Kaur¹, Dhanashree Akshatha Gowda², Nikhilesh B. Shirahatti³, Sathyanarayana M.T.⁴

¹Postgraduate Resident, Department of Psychiatry, Sri Siddhartha Medical College and Hospital, Sri Siddhartha Academy of Higher Education (SSAHE), Tumakuru, Karnataka, India.

²Professor & Head, Department of Psychiatry, Sri Siddhartha Medical College and Hospital, Sri Siddhartha Academy of Higher Education (SSAHE), Tumakuru, Karnataka, India

³Assistant Professor, Department of Psychiatry, Sri Siddhartha Medical College and Hospital, Sri Siddhartha Academy Of Higher Education (SSAHE), Tumakuru, Karnataka, India

⁴Proessor Emiratus, Department of Psychiatry, Sri Siddhartha Medical College and Hospital, Sri Siddhartha Academy Of Higher Education (SSAHE), Tumakuru, Karnataka, India

Received : 10/05/2026
Received in revised form : 29/06/2026
Accepted : 14/07/2026

Corresponding Author:

Dr. Nikhilesh B. Shirahatti
Assistant Professor, Sri Siddhartha
Medical College and Hospital,
Tumakuru, Karnataka
Email: nikileshbs@gmail.com

DOI: 10.70034/ijmedph.2026.3.185

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (3); 1158-1164

ABSTRACT

Background: Postgraduate medical students experience demanding academic and clinical responsibilities that increase their risk of psychological distress, burnout, and poor sleep quality. The objective is to assess psychological distress, burnout, and sleep quality among postgraduate medical students in a private medical college in Karnataka and to evaluate the relationship between these variables.

Materials and Methods: This cross-sectional, questionnaire-based observational study included 138 postgraduate medical students. Data were collected using a structured questionnaire comprising a sociodemographic proforma, Depression Anxiety Stress Scale-21 (DASS-21), Oldenburg Burnout Inventory (OLBI), and Pittsburgh Sleep Quality Index (PSQI). Data were analyzed using SPSS version 26.0. Chi-square test, Pearson's correlation, and multiple logistic regression analyses were performed, with $p < 0.05$ considered statistically significant.

Results: Depressive symptoms were observed in 50.0% of participants, anxiety in 58.0%, and stress in 54.3%. Poor sleep quality was present in 55.8%, while high overall burnout was identified in 18.1%. Burnout demonstrated significant positive correlations with depression ($r=0.612$), anxiety ($r=0.544$), and stress ($r=0.683$) (all $p < 0.001$). Poor sleep quality was significantly associated with high exhaustion, disengagement, and overall burnout ($p < 0.001$). High burnout (AOR=3.48), moderate-to-severe depression (AOR=2.96), hostel residence (AOR=2.14), third-year residency (AOR=2.06), and working more than 80 hours per week (AOR=2.42) were independent predictors of poor sleep quality.

Conclusion: Psychological distress, burnout, and poor sleep quality are common and closely interrelated among postgraduate medical students. Early identification, institutional mental health support, workload regulation, and wellness interventions are essential to improve residents' well-being and professional performance.

Keywords: Psychological distress; Burnout; Sleep quality; Postgraduate medical students; DASS-21.

INTRODUCTION

Postgraduate medical education is a crucial stage in the development of medical professionals, requiring

trainees to balance demanding academic commitments, extensive clinical responsibilities, patient care duties, and research activities. The transition from undergraduate education to residency

training is often associated with increased workload, long working hours, frequent night shifts, and high expectations from supervisors and patients. These challenges can significantly affect the mental and physical well-being of postgraduate medical students, making them particularly susceptible to psychological distress, burnout, and poor sleep quality.^[1]

Psychological distress refers to a state of emotional suffering characterized by symptoms of anxiety, depression, and stress that may impair an individual's ability to function effectively.^[2] Studies conducted among medical trainees have demonstrated that academic pressure, fear of making medical errors, interpersonal conflicts, and inadequate coping mechanisms contribute substantially to psychological distress.^[3] Research from India has further highlighted the high prevalence of stress-related symptoms among postgraduate medical students due to heavy workloads and demanding clinical environments.^[4]

Burnout is recognized as a work-related syndrome resulting from chronic occupational stress and is characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment.^[5] It has become a major concern among healthcare professionals worldwide, particularly among resident doctors and postgraduate trainees.^[6] Burnout not only affects personal well-being but also has serious professional consequences, including decreased productivity, reduced empathy, impaired decision-making, and increased risk of medical errors.^[7] Several studies have reported a high prevalence of burnout among medical residents, emphasizing the need for early identification and intervention.^[8]

Sleep quality is an essential component of overall health and plays a vital role in cognitive functioning, emotional regulation, and professional performance.⁹ However, postgraduate medical students frequently experience sleep disturbances due to irregular schedules, prolonged duty hours, and overnight emergency responsibilities.^[10] Poor sleep quality has been associated with increased levels of stress, anxiety, depression, and burnout among medical trainees.^[11] Sleep deprivation may impair concentration, memory, judgment, and clinical performance, thereby compromising patient safety and healthcare quality.^[12]

Recent studies have highlighted a strong interrelationship between psychological distress, burnout, and poor sleep quality, suggesting that these conditions often coexist and exacerbate one another.^[13] Understanding these factors is particularly important in the context of postgraduate medical education, where trainee well-being directly influences learning outcomes and patient care.^[14] Despite growing recognition of these issues, limited data are available from private medical colleges in Karnataka. Therefore, the present study aims to assess psychological distress, burnout, and sleep quality among postgraduate medical students in a

private medical college in Karnataka and explore the relationship between these variables.^[15]

MATERIALS AND METHODS

This cross-sectional, questionnaire-based observational study was conducted among postgraduate medical students enrolled at Sri Siddhartha Medical College, Karnataka, over a period of eight months following approval from the Institutional Ethics Committee. The study aimed to assess psychological distress, burnout, and sleep quality among postgraduate students and to evaluate the relationship between these variables.

The study population comprised postgraduate medical students aged 22–40 years who were actively enrolled in various clinical, paraclinical, and preclinical departments. Participants were recruited using a voluntary sampling approach. Students were informed about the objectives and procedures of the study, and participation was entirely voluntary. Written informed consent was obtained electronically through a structured Google Form before data collection. Confidentiality and anonymity of participant responses were strictly maintained throughout the study.

The minimum sample size was calculated using the standard formula for estimation of a population proportion: $n = Z^2pq/d^2$, considering an anticipated prevalence of poor sleep quality of 95.4%, a confidence level of 95%, and a margin of error of 3.5%. The calculated sample size was 138 participants, which constituted the final study sample. Data collection was performed using a structured Google Form consisting of four sections. The first section included a semi-structured sociodemographic proforma capturing information such as age, gender, year of postgraduate study, marital status, residence type, living arrangement, religion, and department type. Psychological distress was assessed using the Depression Anxiety Stress Scale-21 (DASS-21), which measures symptoms of depression, anxiety, and stress. Burnout was evaluated using the Oldenburg Burnout Inventory (OLBI), comprising exhaustion and disengagement domains. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI), a validated instrument for evaluating subjective sleep quality and sleep-related behaviors.

Participants with known psychiatric illness diagnosed before joining postgraduate training, those currently undergoing psychiatric treatment or psychotherapy, those who withdrew consent, and those who submitted incomplete questionnaires were excluded from the study.

Data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) version 26.0. Descriptive statistics were expressed as frequencies, percentages, means, and standard deviations. Associations between categorical variables were assessed using the Chi-

square test. Pearson's correlation analysis was performed to determine relationships among psychological distress, burnout, and sleep quality scores. Multiple logistic regression analysis was conducted to identify independent predictors of poor sleep quality. A p-value less than 0.05 was considered statistically significant.

RESULTS

The socio-demographic profile showed that most participants were aged 26–30 years (80.4%), female (51.4%), third-year postgraduate students (42.7%), single (78.3%), residing in urban areas (60.9%), living in hostels (52.9%), and belonged to the Hindu religion (78.3%) [Table 1].

Table 1: Socio-Demographic Characteristics of Study Participants (n=138)

Variable	Category	Total n (%)
Age Group	≤25 years	8 (5.8)
	26–30 years	111 (80.4)
	31–35 years	19 (13.8)
Gender	Male	67 (48.6)
	Female	71 (51.4)
Year of Postgraduation	First Year	51 (37.0)
	Second Year	28 (20.3)
	Third Year	59 (42.7)
Marital Status	Single	108 (78.3)
	Married	28 (20.3)
	Others	2 (1.4)
Residence Type	Urban	84 (60.9)
	Rural	25 (18.1)
	Semi-urban	29 (21.0)
Living Arrangement	Hostel	73 (52.9)
	PG/Rented Accommodation	36 (26.1)
	Own House	21 (15.2)
	Others	8 (5.8)
Religion	Hindu	108 (78.3)
	Muslim	18 (13.0)
	Christian	10 (7.2)
	Others	2 (1.4)

DASS-21 assessment revealed that 50.0% of participants had depressive symptoms, 58.0% had anxiety, and 54.3% had stress, with mean scores of

11.82 ± 7.34, 10.45 ± 6.91, and 13.76 ± 7.82, respectively [Table 2].

Table 2: Distribution of DASS-21 Severity Categories among Participants (n=138)

Severity Category	Depression n (%)	Anxiety n (%)	Stress n (%)
Normal	69 (50.0)	58 (42.0)	63 (45.7)
Mild	24 (17.4)	25 (18.1)	31 (22.5)
Moderate	27 (19.6)	29 (21.0)	25 (18.1)
Severe	12 (8.7)	18 (13.0)	13 (9.4)
Extremely Severe	6 (4.3)	8 (5.8)	6 (4.3)
Variable	Mean ± SD		
Depression Score	11.82 ± 7.34		
Anxiety Score	10.45 ± 6.91		
Stress Score	13.76 ± 7.82		

Poor sleep quality (PSQI >5) was observed in 55.8% of participants, while the mean global PSQI score

was 6.84 ± 2.72, with an average sleep duration of 6.48 ± 2.35 hours per night [Table 3].

Table 3: Sleep Quality Profile According to Pittsburgh Sleep Quality Index (PSQI) Among Participants (n=138)

Variable	Category	Frequency (n)	Percentage (%)
Overall Sleep Quality	Good Sleep Quality (PSQI ≤5)	61	44.2
	Poor Sleep Quality (PSQI >5)	77	55.8
Subjective Sleep Quality	Very Good	28	20.3
	Fairly Good	92	66.7
	Fairly Bad	11	8.0
	Very Bad	7	5.0
Sleep Medication Use	Not during past month	114	82.6
	Less than once/week	15	10.9
	Once or twice/week	5	3.6
	Three or more times/week	4	2.9
Variable	Mean ± SD		
Global PSQI Score	6.84 ± 2.72		
Sleep Duration (hours/night)	6.48 ± 2.35		
Sleep Latency (minutes)	17.05 ± 12.69		

High exhaustion, high disengagement, and high overall burnout were observed in 46.4%, 34.1%, and 18.1% of participants, respectively, indicating a

considerable burden of burnout among postgraduate medical students [Table 4].

Table 4: Oldenburg Burnout Inventory (OLBI) Scores Among Participants (n=138)

OLBI Domain	Category	Frequency (n)	Percentage (%)	Mean ± SD
Exhaustion	High Exhaustion	64	46.4	2.61 ± 0.56
Disengagement	High Disengagement	47	34.1	2.34 ± 0.49
Overall Burnout	High Overall Burnout	25	18.1	2.48 ± 0.42

Pearson's correlation analysis demonstrated significant positive correlations between burnout domains and psychological distress scores, with exhaustion showing the strongest correlation with stress ($r=0.703$, $p<0.001$) [Table 5].

Poor sleep quality was significantly more common among participants with high exhaustion (71.9%), high disengagement (68.1%), and high overall burnout (80.0%), demonstrating a significant association between burnout and sleep quality ($p<0.001$) [Table 6].

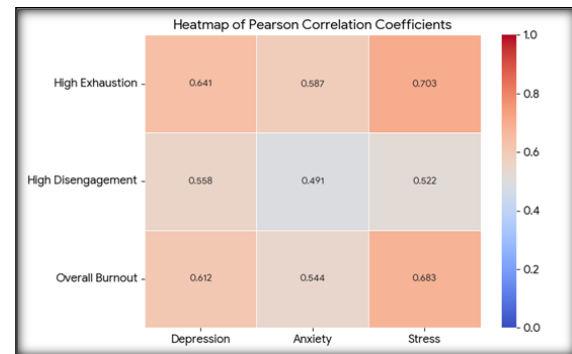


Figure 1: Heatmap of Pearson Correlation Coefficients.

Table 5: Pearson Correlation Analysis between OLBI Domains and Psychological Distress Scores (n=138)

OLBI Domain	Depression Score (r)	p-value	Anxiety Score (r)	p-value	Stress Score (r)	p-value
High Exhaustion Score	0.641	<0.001*	0.587	<0.001*	0.703	<0.001*
High Disengagement Score	0.558	<0.001*	0.491	<0.001*	0.522	<0.001*
Overall Burnout Score	0.612	<0.001*	0.544	<0.001*	0.683	<0.001*

Table 6: Association between Sleep Quality and OLBI Domains Among Study Participants (n=138)

OLBI Domain	Frequency (n)	Percentage (%)	Good Sleep Quality n (%)	Poor Sleep Quality n (%)	χ^2 value	p-value
High Exhaustion	64	46.4	18 (28.1)	46 (71.9)	20.684	<0.001*
High Disengagement	47	34.1	15 (31.9)	32 (68.1)	12.871	<0.001*
High Overall Burnout	25	18.1	5 (20.0)	20 (80.0)	14.623	<0.001*
Variable	Mean ± SD					
Exhaustion Score	2.61 ± 0.56					
Disengagement Score	2.34 ± 0.49					
Overall Burnout Score	2.48 ± 0.42					

Multiple logistic regression identified high burnout (AOR=3.48), moderate-to-severe depression (AOR=2.96), hostel residence (AOR=2.14), third-

year residency (AOR=2.06), and working more than 80 hours per week (AOR=2.42) as independent predictors of poor sleep quality [Table 7].

Table 7: Multiple Logistic Regression Analysis for Predictors of Poor Sleep Quality Among Postgraduate Medical Students (n=138). Dependent Variable: Poor Sleep Quality (PSQI >5)

Predictor Variable	Regression Coefficient (β)	Standard Error	Adjusted Odds Ratio (AOR)	95% Confidence Interval	Wald χ^2	p-value
High Burnout	1.247	0.421	3.48	1.52 – 7.96	8.77	0.003*
Moderate-Severe Depression	1.085	0.386	2.96	1.38 – 6.35	7.89	0.005*
Female Gender	0.610	0.354	1.84	0.92 – 3.67	2.97	0.081
Hostel Residence	0.761	0.382	2.14	1.01 – 4.54	3.98	0.046*
First Year	0.000	-	1.00	Reference	-	-
Second Year	0.654	0.366	1.92	0.94-3.91	3.19	0.074
Third Year	0.721	0.348	2.06	1.04-4.08	4.30	0.038*
>80 Working Hours/Week	0.884	0.401	2.42	1.10 – 5.31	4.86	0.027*
Constant	-1.526	0.528	—	—	8.36	0.004
Model Statistics Parameter	Value					
Model χ^2	42.81					
Degrees of Freedom	6					
Model p-value	<0.001					
Nagelkerke R ²	0.38					
Hosmer-Lemeshow Test p-value	0.621					
Overall Classification Accuracy	76.8%					

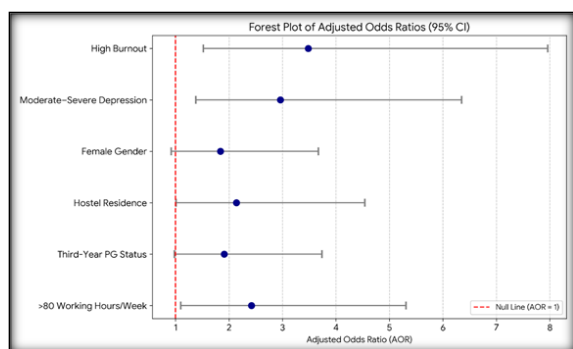


Figure 2: Forest plot for Predictors of Poor Sleep Quality Among Postgraduate Medical Students

DISCUSSION

The present study evaluated psychological distress, burnout, and sleep quality among 138 postgraduate medical students in a private medical college in Karnataka. Most participants belonged to the 26–30 years age group (80.4%), with an almost equal distribution of males (48.6%) and females (51.4%). This demographic profile is comparable to the study conducted by Chandan and Sherkhane (2017), who reported a mean age of 27.39 ± 2.84 years among postgraduate medical students, with 53.33% males and 46.67% females.¹ This age group represents the period of residency training characterized by increasing clinical responsibilities, academic demands, prolonged working hours, and frequent night duties, all of which contribute to psychological stress.

The present study found that half of the participants exhibited depressive symptoms (50.0%), while anxiety and stress symptoms were observed in 58.0% and 54.3%, respectively. Moderate-to-extremely severe depression was present in 32.6% of participants, anxiety in 39.8%, and stress in 31.8%. These findings are broadly consistent with the systematic review and meta-analysis conducted by Mata et al. (2015), who reported a pooled prevalence of depression among resident physicians of 28.8% (95% CI: 25.3%–32.5%), although prevalence varied from 20.9% to 43.2% depending on the screening instrument used.^[16] The comparatively higher prevalence observed in the present study may reflect differences in workload, institutional environment, residency structure, and assessment tools. Similarly, Chandan and Sherkhane (2017) reported that 91.67% of postgraduate medical students experienced stress, with 37.50% having mild stress and 22.50% severe stress, emphasizing the considerable psychological burden during postgraduate medical training.^[1]

Sleep quality was another major concern identified in the present study. More than half of the participants (55.8%) had poor sleep quality (PSQI >5), with a mean global PSQI score of 6.84 ± 2.72 , mean sleep duration of 6.48 ± 2.35 hours, and mean sleep latency of 17.05 ± 12.69 minutes. These findings are consistent with previous studies demonstrating a high prevalence of sleep disturbances among medical

trainees. Giri et al. (2013) reported that 17.3% of medical students had abnormal daytime sleepiness and 13.3% had borderline daytime sleepiness, indicating that sleep-related problems are common in medical education and adversely affect mood, interpersonal relationships, and academic performance.^[17] The higher prevalence of poor sleep quality in the present study may be explained by the greater clinical workload and night duty schedules encountered during postgraduate residency compared to undergraduate medical training.

Burnout was also highly prevalent in this study. High exhaustion was observed in 46.4% of participants, high disengagement in 34.1%, and high overall burnout in 18.1%. Chandan and Sherkhane (2017) reported burnout among 45.0% of postgraduate students, with significantly higher burnout among third-year residents ($p=0.016$), supporting the observation that prolonged exposure to clinical responsibilities contributes to emotional exhaustion.^[1] Likewise, Shanafelt et al. (2015) found that physician burnout increased significantly from 45.5% in 2011 to 54.4% in 2014, demonstrating that burnout remains a growing concern among practicing physicians.^[18] Dyrbye et al. (2008) similarly reported burnout in 49.6% of medical students and showed that burnout was associated with suicidal ideation, highlighting its serious psychological consequences.^[19] Furthermore, IsHak et al. (2013) concluded that approximately half of medical students experience burnout during training, which adversely affects empathy, academic performance, professionalism, and mental health.^[20]

An important finding of the present study was the strong positive correlation between burnout and psychological distress. Overall burnout demonstrated significant positive correlations with depression ($r = 0.612$), anxiety ($r = 0.544$), and stress ($r = 0.683$), while exhaustion showed the strongest correlation with stress ($r = 0.703$), all with $p < 0.001$. These findings suggest that increasing burnout is accompanied by worsening psychological distress. Similar observations have been reported by Bianchi et al. (2015), who highlighted the substantial overlap between burnout and depression, noting that both conditions share symptoms such as fatigue, reduced motivation, impaired concentration, emotional exhaustion, and functional impairment.^[21] The present findings reinforce the importance of evaluating burnout alongside depression and anxiety rather than considering it solely as an occupational phenomenon.

The study also demonstrated a significant association between burnout and poor sleep quality. Among participants with high exhaustion, 71.9% had poor sleep quality, while poor sleep was observed among 68.1% of those with high disengagement and 80.0% of those with high overall burnout ($p < 0.001$). These findings are consistent with Pagnin et al. (2014), who demonstrated a bidirectional relationship between burnout and sleep disorders among medical students, particularly between emotional exhaustion and

daytime sleepiness.^[22] Similarly, Lockley et al. (2004) showed that reducing interns' weekly working hours from 84.9 to 65.4 hours significantly increased weekly sleep duration by 5.8 hours ($p < 0.001$) and substantially reduced attentional failures during night duty, emphasizing the influence of excessive work hours on sleep deprivation.^[23]

Multiple logistic regression analysis identified high burnout (AOR = 3.48; 95% CI: 1.52–7.96), moderate-to-severe depression (AOR = 2.96; 95% CI: 1.38–6.35), hostel residence (AOR = 2.14; 95% CI: 1.01–4.54), third-year residency (AOR = 2.06; 95% CI: 1.04–4.08), and working more than 80 hours per week (AOR = 2.42; 95% CI: 1.10–5.31) as independent predictors of poor sleep quality. These findings suggest that poor sleep among postgraduate students is multifactorial, resulting from psychological, occupational, and environmental factors. Comparable evidence was provided by West et al. (2016), whose systematic review demonstrated that interventions targeting both individual resilience and organizational changes reduced physician burnout from 54% to 44%, highlighting the importance of structural interventions in improving physician well-being.^[24]

Overall, the present study demonstrates that psychological distress, burnout, and poor sleep quality are highly prevalent among postgraduate medical students and are strongly interrelated. The findings are consistent with previous Indian and international studies and emphasize the urgent need for regular mental health screening, structured mentoring, counseling services, workload regulation, duty-hour optimization, sleep hygiene education, and institutional wellness programs to promote the psychological well-being and professional development of postgraduate medical trainees.

CONCLUSION

The present study demonstrates that psychological distress, burnout, and poor sleep quality are highly prevalent among postgraduate medical students and are closely interrelated. Depression, anxiety, stress, and burnout showed significant positive correlations and were strongly associated with poor sleep quality. High burnout, moderate-to-severe depression, hostel residence, third-year residency, and prolonged working hours independently predicted poor sleep quality. These findings highlight the need for regular mental health screening, institutional wellness programs, workload optimization, counseling services, and sleep hygiene interventions to improve resident well-being and professional performance.

REFERENCES

- Chandan N, Sherkhane MS. Assessment of stress and burnout among postgraduate medical students. *National Journal of Community Medicine*. 2017 Apr 30;8(04):178-82.
- Drapeau A, Marchand A, Beaulieu-Prévost D. Epidemiology of psychological distress. *Mental illnesses-understanding, prediction and control*. 2012 Jan 5;69(2):105-6.
- Feng T, Narayanan S. Understanding stress, burnout, and behavioral patterns in medical residents using large-scale longitudinal wearable recordings. In *2024 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) 2024 Jul 15* (pp. 1-7). IEEE.
- Philip S, Molodynski A, Barklie L, Bhugra D, Chaturvedi SK. Psychological well-being and burnout amongst medical students in India: a report from a nationally accessible survey. *Middle East Current Psychiatry*. 2021 Aug 24;28(1):54.
- Maslach C, Leiter MP. Understanding the burnout experience: recent research and its implications for psychiatry. *World psychiatry*. 2016 Jun;15(2):103-11.
- Dyrbye LN, West CP, Satele D, Boone S, Tan L, Sloan J, Shanafelt TD. Burnout among US medical students, residents, and early career physicians relative to the general US population. *Academic medicine*. 2014 Mar;89(3):443-51.
- Fahrenkopf AM, Sectish TC, Barger LK, Sharek PJ, Lewin D, Chiang VW, Edwards S, Wiedermann BL, Landrigan CP. Rates of medication errors among depressed and burnt out residents: prospective cohort study. *Bmj*. 2008 Feb 28;336(7642):488-91.
- Rotenstein LS, Torre M, Ramos MA, Rosales RC, Guille C, Sen S, Mata DA. Prevalence of burnout among physicians: a systematic review. *Jama*. 2018 Sep 18;320(11):1131-50.
- Buyssse DJ, Reynolds CF 3rd, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Res*. 1989;28(2):193-213. doi:10.1016/0165-1781(89)90047-4
- Hangouche AJ, Jnien A, Aboudrar S, Errguig L, Rkain H, Cherti M, Dakka T. Relationship between poor quality sleep, excessive daytime sleepiness and low academic performance in medical students. *Advances in medical education and practice*. 2018 Sep 7:631-8.
- Valladares-Garrido MJ, Morocho-Alburquerque N, Zila-Velasque JP, Solis LA, Saldaña-Cumpa HM, Rueda DA, Chiguala CI, Jiménez-Mozo F, Valdiviezo-Morales CG, Alburquerque ES, Núñez EC. Sleep quality and associated factors in Latin American medical students: a cross-sectional and multicenter study. *BMC Public Health*. 2025 Feb 24;25(1):755.
- Shad R, Thawani R, Goel A. Burnout and sleep quality: a cross-sectional questionnaire-based study of medical and non-medical students in India. *Cureus*. 2015 Oct 21;7(10).
- Singh J, Yadav A, Saxena S. Rest or Burnout? Unveiling the Link Between Sleep Quality and Life Satisfaction in Resident Doctors: A Cross-Sectional Study. *Annals of Medicine and Medical Sciences*. 2025 Apr 28:247-52.
- Ghosh P, Dutta N, Hussain A. Burnout in Postgraduate Medical Students during COVID-19 Pandemic: A Cross-Sectional Study. *Indian Journal of Social Psychiatry*. 2023 Apr 1;39(2):116-21.
- Al Wahaibi N, Al Kindi R, Al Hinai M. Quality of life among postgraduate medical residents in Oman: A cross-sectional survey. *Oman Medical Journal*. 2023 Nov 30;38(6):e568.
- Mata DA, Ramos MA, Bansal N, Khan R, Guille C, Di Angelantonio E, Sen S. Prevalence of depression and depressive symptoms among resident physicians: a systematic review and meta-analysis. *Jama*. 2015 Dec 8;314(22):2373-83.
- Giri PA, Baviskar MP, Phalke DB. Study of sleep habits and sleep problems among medical students of Pravara Institute of Medical Sciences Loni, Western Maharashtra, India. *Annals of medical and health sciences research*. 2013 Apr 23;3(1):51-4.
- Shanafelt TD, Hasan O, Dyrbye LN, Sinsky C, Satele D, Sloan J, West CP. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. In *Mayo clinic proceedings* 2015 Dec 1 (Vol. 90, No. 12, pp. 1600-1613). Elsevier.
- Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W, Durning S, Moutier C, Szydlo DW, Novotny PJ, Sloan JA. Burnout and suicidal ideation among US medical

- students. *Annals of internal medicine*. 2008 Sep 2;149(5):334-41.
20. IsHak W, Nikraves R, Lederer S, Perry R, Ogunyemi D, Bernstein C. Burnout in medical students: a systematic review. *The clinical teacher*. 2013 Aug;10(4):242-5.
 21. Bianchi R, Schonfeld IS, Laurent E. Burnout–depression overlap: A review. *Clinical psychology review*. 2015 Mar 1;36:28-41.
 22. Pagnin D, de Queiroz V, Carvalho YT, Dutra AS, Amaral MB, Queiroz TT. The relation between burnout and sleep disorders in medical students. *Academic Psychiatry*. 2014 Aug;38(4):438-44.
 23. Lockley SW, Cronin JW, Evans EE, Cade BE, Lee CJ, Landrigan CP, Rothschild JM, Katz JT, Lilly CM, Stone PH, Aeschbach D. Effect of reducing interns' weekly work hours on sleep and attentional failures. *New England Journal of Medicine*. 2004 Oct 28;351(18):1829-37.
 24. West CP, Dyrbye LN, Erwin PJ, Shanafelt TD. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *The lancet*. 2016 Nov 5;388(10057):2272-81.