

Original Research Article

Prevalence of stress and its associated factors on doctors: a cross-sectional study

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Received: 26 March 2025

Accepted: 14 May 2025

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ABSTRACT

Background: Stress is a common and natural part of daily life and its prolonged exposure can lead to very harmful effects on the body. In the modern healthcare workplace, there can be a lot of stressful conditions prevailing in the facilities. This study aimed to study the prevalence of stress and its associated factors among doctors.

Methods: The study was a cross-sectional study using stratified sampling technique.

Results: In our study population, maximum doctors were in age group of 25-34 (40%), males (60%), unmarried (70%). Moderate (50%) to high stress (30%) levels were found among doctors. Working hours per week, night shifts, sleep deprivation were associated factors.

Conclusions: The findings of this study underscore the importance addressing both work-related and personal factors in developing interventions to mitigate stress among medical professionals.

Keywords: Night shifts, Sleep deprivation, Stress

INTRODUCTION

Stress is a common and natural part of daily life, serving as a typical physiological response to internal or external pressures. However, it becomes problematic when individuals feel overwhelmed by its demands. Prolonged exposure to stress can lead to harmful effects on the body, including conditions such as depression, heart disease, cancer, stroke, ulcers, back pain, headaches, high blood pressure, and digestive issues.¹

The modern medical workplace is a demanding and complex environment, eliciting varied responses from doctors-some find it stimulating and rewarding, while others experience significant stress and burnout due to heavy workloads.² Burnout is recognized as a distinct form of psychological stress resulting from occupational and workplace demands and is classified as such in the

World Health Organization's International Classification of Diseases.^{3,4} Studies indicate that burnout affects up to 75% of doctors.⁵

Due to the nature of their professions, the mental health of doctors is not only of concern to them, but also is of concern to the greater society served by them.⁶ In India, some studies have been done on stress in medical students, but practically very few studies have been done to assess the emotional disturbances in resident doctors.

This study aims to assess the prevalence of stress among doctors and explore the key factors contributing to it. Using a cross-sectional study design, the research will examine various occupational, personal, and environmental stressors affecting doctors. Understanding these factors can help develop targeted interventions to reduce stress levels, improve job satisfaction, and

promote a healthier work environment for medical professionals. By addressing stress-related issues in the healthcare sector, this study seeks to contribute to strategies that enhance the well-being of doctors, ultimately benefiting the healthcare system as a whole. This study aimed to study the prevalence of stress among doctors. Also, to find the association of stress and its risk factor.

METHODS

Study design

A cross-sectional study was conducted to assess the prevalence of stress among doctors and its associated risk factors.

Study duration

The study was carried out over a period of six months from 01 May 2024 to 01 November 2024.

Study participants

The study included doctors working in Sri Guru Ram Das Institute of Medical Sciences & Research, Amritsar, Punjab.

Sample size

The sample size was calculated using the formula $n = Z^2 p (1-p)/d^2$ (where $Z = 1.96$ at 95% confidence interval, p = expected prevalence, d = relative precision-20% of the expected prevalence, (i.e., 7%) and taking the prevalence as above mentioned, minimum sample size came out to be 180. On adding 10% for the incomplete proforma, a sample size of 200 was taken for this study. According to a study conducted among private medical practitioners in Vellore District, Tamil Nadu, the prevalence of high job stress was found to be 35.5% in doctors.⁷

Sampling technique

A simple random sampling technique was used.

Inclusion criteria

Inclusion criteria were the doctors currently working in Sri Guru Ram Das Institute of Medical Sciences & Research, Amritsar, Punjab. Patients willing to participate in the study.

Exclusion criteria

Doctors on long-term leave or not actively practicing were excluded. Also, those who declined to participate and participants with pre-diagnosed psychiatric illnesses affecting stress levels were excluded.

Study tool

Data was collected using a structured questionnaire, which included sections on demographic details, stress assessment using a validated scale (e.g., Perceived Stress Scale - PSS), and potential risk factors associated with stress. The questionnaire was self-administered.

Following assessments were recorded in the survey;

Sociodemographic details

It included age, gender, marital status, designation, and participants' hours of working per week.

Perceived stress scale (PSS-10)⁸

The PSS-10 was used to assess perceived stress. It is one of the most widely used instruments to assess how unpredictable, uncontrollable, and overloaded the respondents find their lives and how stressful the events in life are perceived to be. It is a self-report instrument consisting of 10 items to assess perceived stress during the past month. Each of the items on the PSS-10 are rated on a 5-point Likert scale, ranging from 0 (never) to 4 (very often). Total scores range from 0 to 40, with higher scores indicating higher levels of perceived stress. A score of 0-13 is considered as low stress, 14-26 as moderate stress, and more than 27 as high stress.

Ethical considerations

The Institutional Ethics Committee gave ethical clearance for the survey before start of data collection. The Indian Council of Medical Research guidelines⁹ for biomedical research in human subjects and the code of ethics of the World Medical Association (Declaration of Helsinki) were followed as applicable. The survey form included acknowledgment for maintenance of confidentiality and consent for participation.

Statistical analysis

Statistical analysis was done using SPSS (version 25; Chicago, IL). The level of statistical significance was set at $p \leq 0.05$. Chi Square test was used for analysis of data.

RESULTS

Table 1 shows that the predominant age was found to be between 25-44 years (75%), with fewer participants in the 45-54 (15%) and ≥ 55 (10%) groups. Males comprised 60% of the sample, while females made up 40%. Most participants were found out to be married (70%), with 30% being single. Work experience was fairly distributed with 40% having 5-10 years of experience, 35% having >10 years, and 25% having <5 years of experience.

Table 2 revealed that a substantial portion of the doctors experienced stress. Specifically, 50% reported moderate stress, and 30% reported high stress. Only 20% of the

doctors reported low stress levels. This clearly shows that stress is prevalent among the study group.

Table 1: Table showing demographic characteristics of study participants.

Variable		Frequency (n=200)	Percentage (%)
Age group (years)	25-34	80	40
	35-44	70	35
	45-54	30	15
	≥55	20	10
Gender	Male	120	60
	Female	80	40
Marital status	Single	140	70
	Married	60	30
Work experience (years)	<5	50	25
	5-10	80	40
	>10	70	35

Table 2: Table showing prevalence of stress among doctors (based on Perceived Stress Scale - PSS).

Stress level	Frequency (n=200)	Percentage (%)
Low stress (0-13)	40	20
Moderate stress (14-26)	100	50
High stress (27-40)	60	30

Table 3 presents a significant association found between working hours and stress levels ($p = 0.003$). With high stress more common among doctors working >60 hours/week (41.7%) and low stress higher in those working ≤40 hours/week (50.0%). Similarly, night shifts per month showed a strong link to stress ($p = 0.001$). Doctors with >8-night shifts had higher stress (50.0%), while those with ≤4 shifts reported lower stress (62.5%).

Table 3: Table showing association between work-related factors and stress levels.

Work-related factors		Low stress (%)	Moderate stress (%)	High stress (%)	P value
Working hours per week	≤40 hours	20 (50.0)	40 (40.0)	10 (16.7)	0.003
	41-60 hours	15 (37.5)	45 (45.0)	25 (41.7)	
	>60 hours	5 (12.5)	15 (15.0)	25 (41.7)	
Night shifts per month	≤4	25 (62.5)	50 (50.0)	10 (16.7)	0.001
	5-8	10 (25.0)	35 (35.0)	20 (33.3)	
	>8	5 (12.5)	15 (15.0)	30 (50.0)	

Table 4: Table showing association between personal factors and stress levels.

Personal factors		Low stress (%)	Moderate stress (%)	High stress (%)	P value
Physical activity	Regular (≥3 days/week)	30 (75.0)	60 (60.0)	10 (16.7)	0.002
	Irregular (<3 days/week)	10 (25.0)	40 (40.0)	50 (83.3)	
Sleep duration (hours/day)	≥7	35 (87.5)	70 (70.0)	15 (25.0)	0.004
	<7	5 (12.5)	30 (30.0)	45 (75.0)	

Table 5: Table showing coping mechanisms used by doctors to manage stress.

Coping mechanisms	Frequency (n=200)	Percentage (%)
Exercise/fitness activities	70	35
Meditation/yoga	40	20
Social support (family/friends)	60	30
Recreational activities	30	15

The table 4 showed a significant association ($p = 0.002$) that was found between physical activity and stress levels. Doctors engaging in regular physical activity (≥3 days/week) were more likely to have low stress (75%), while those with irregular activity (<3 days/week) were more likely to have high stress (83.3%).

There was a significant association ($p=0.004$) between sleep duration and stress levels. Doctors who slept for 7 or more hours a day were more likely to have low stress (87.5%), and those who slept less than 7 hours a day were more likely to have high stress (75%).

This table 5 shows that the most frequently used coping mechanism was exercise/fitness activities (35%), followed by social support (30%). Meditation/yoga was also used by 20% of the participants, and recreational activities by 15%. This indicates a preference for physical and social coping strategies among the doctors.

DISCUSSION

In our study, a significant proportion of study subjects reported moderate to high levels of stress, with 50% experiencing moderate stress and 30% high stress.

In our study, it shows that the predominant age group was between 25-44 years (75%), with a lesser participant in 45-54 (15%) years even lesser in more than 55 (10%) years of age groups. Males comprised 60% of the sample, while females made up 40%. A study done by Sidhu TK et al shows that a total of 203 participants were evaluated; majority being the females (54.7%).¹⁰ Maximum were in the age category of 20-30 years (47.3%). However, in other similar studies conducted in India, maximum participants were males and age group of 25-35 years was the most common age category.¹¹⁻¹³

Most participants in this study were unmarried (70%), with 30% being married. Work experience was fairly distributed; 40% had 5-10 years of experience, 35% had more than 10 years, and 25% had less than 5 years. In a similar study by Adeolu et al, states that with regards to marital status, 65.2% of the doctors were not currently married (i.e. widowed, separated or never married).¹⁴ Of all respondents, 127 (50.2 %) were resident doctors and 201 (79.4 %) had spent less than 5 years in medical practice.

In this study, 50.0% reported moderate stress, and 30.0% reported high stress. Only 20.0% of the doctors reported low stress levels. While study by Abdulghani et al, the prevalence of stress among Saudi medical students is quite high (63%), and that severe stress (25%) is the most frequent level.¹⁵

A significant association that was found between working hours and stress levels ($p = 0.003$), with high stress more common among doctors working more than 60 hours/week (41.7%) and low stress higher in those working less than 40 hours/week (50.0%) while Shanafelt et al found a strong correlation between workload and burnout, with long working hours being a significant predictor.¹⁶ Their study, "Burnout and satisfaction with work-life balance among US physicians relative to the general US population," emphasized that excessive workloads contribute to emotional exhaustion and depersonalization.

The coping mechanisms employed by doctors in this study, with exercise/fitness activities (35%), social support (30%), meditation/yoga (20%), and recreational activities (15%) being the most prevalent, align with established stress management strategies found in broader literature. Notably, the high utilization of exercise mirrors findings in studies emphasizing its efficacy in reducing stress, such as those that corroborate the inverse relationship between physical activity and stress levels by Dishman et al.¹⁷ Similarly, the reliance on social support is consistent with research that highlights the buffering effect of strong social networks against stress, as seen in studies on the importance of social support in coping with occupational stressors Cohen & Wills et al.¹⁸ Furthermore, the adoption of meditation and yoga, although less frequent, reflects the growing recognition of mindfulness-based interventions in stress reduction, as

documented in numerous studies on the benefits of these practices for mental well-being. The comparatively lower use of recreational activities might indicate time constraints or a preference for more physically or socially oriented coping strategies among this population.

CONCLUSION

In conclusion, the study revealed a diverse demographic profile of the 200 participating doctors, with a majority aged 25-44, male, and married. Notably, a significant proportion reported moderate to high levels of stress, with 50% experiencing moderate stress and 30% high stress. The analysis demonstrated a clear association between work-related factors, such as longer working hours and increased night shifts, and higher stress levels. Similarly, personal factors, including irregular physical activity and insufficient sleep duration, were significantly linked to elevated stress. Effective coping mechanisms, particularly exercise/fitness activities and social support, were utilized by a substantial portion of the doctors. These findings underscore the importance of addressing both work-related and personal factors in developing interventions to mitigate stress among medical professionals.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Mayo Clinic Staff. Chronic stress puts your health at risk [Internet]. Rochester (MN): Mayo Foundation for Medical Education and Research; 2023. Available from: <https://www.mayoclinic.org/healthy-lifestyle/stress-management/in-depth/stress/art-20046037>. Accessed on 6 March 2025.
2. Sahasrabuddhe AG, Suryawanshi SR, Bhandari S. Stress among doctors doing residency: a cross-sectional study at a tertiary care hospital in the city of Mumbai. *Nat J Commu Medi*. 2015;6(01):21-4.
3. World Health Organization. International Statistical Classification of Diseases and Related Health Problems, 2016. Available at: <https://www.who.int/standards/classifications/classification-of-diseases>. Accessed 01 January 2025.
4. Iacovides A, Fountoulakis K, Kaprinis S, Kaprinis G. The relationship between job stress, burnout and clinical depression. *J Affect Disord*. 2003;75(3):209-21.
5. Willcock SM, Daly MG, Tennant CC, Allard BJ. Burnout and psychiatric morbidity in new medical graduates. *Med J Aust*. 2004;181(7):357-60.
6. Demir F, Pýnar AY, Erbas M, Özdil M, Yaþar E. The Prevalence of depression and its associated factors among resident doctors working in a training hospital in Istanbul Turk J Psych. 2007;18(1):31-7.

7. Shoba G, Lakshmi A. A study on job stress among private medical practitioners in Vellore district, Tamil Nadu. *Asian J Sci Res*. 2014;7(4):488-500.
8. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav*. 1983;24:385-96.
9. Indian Council of Medical Research. Ethical Guidelines for Biomedical Research on Human Participants New Delhi: Indian Council of Medical Research; 2008. Available at: https://ethics.ncdirindia.org/asset/pdf/ICMR_National_Ethical_Guidelines.pdf. Accessed 01 January 2025.
10. Sidhu TK, Kaur P, Kaur H, Kaur K. Stress among doctors: A cross-sectional study in a tertiary care hospital, North India. *Adesh University J Medi Sci Res*. 2021;3(1):18-24.
11. Mitra S, Sarkar AP, Haldar D, Saren AB, Lo S, Sarkar GN. Correlation among perceived stress, emotional intelligence, and burnout of resident doctors in a medical college of West Bengal: A mediation analysis. *Indian J Public Health*. 2018;62(1):27-31.
12. Sathiya N, Ruwaidha R, Nusrath FS, Fathima F, Gomathy T, Shailendra HK. Perceived stress levels and its sources among doctors and nurses working in a tertiary care teaching Hospital, Kancheepuram, Tamil Nadu. *Natl J Community Med*. 2016;7(07):603-8.
13. Chatterjee S, Bhattacharya A, Bhattacharya A, Baur B, Madhwani KP. A cross sectional study on stress among doctors, working in college of medicine and Sagore Dutta Hospital, Kamarhati, India. *Int J Adv Med*. 2020;7:517-22.
14. Adeolu JO, Yussuf OB, Popoola OA. Prevalence and correlates of job stress among junior doctors in the university college hospital, Ibadan. *Ann Ibad Postgrad Medi*. 2016;14(2):92-8.
15. Abdulghani HM, AlKanhil AA, Mahmoud ES, Ponnampuruma GG, Alfari EA. Stress and its effects on medical students: a cross-sectional study at a college of medicine in Saudi Arabia. *J Heal Populat Nutrit*. 2011;29(5):516.
16. Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Inter Medi*. 2012;172(18):1377-85.
17. Dishman RK. Physical activity and mental health: current opinions. *Sports Medi*. 1997;23(6):302-10.
18. Cohen S, Wills TA. Stress, social support, and the buffering hypothesis. *Psycholog Bullet*. 1985;98(2):310.

Cite this article as: Brar APS, Jammu RS, Sahni P, Brar DPS. Prevalence of stress and its associated factors on doctors: a cross-sectional study. *Int J Community Med Public Health* 2025;12:2699-703.