



Stress Levels and Coping Mechanisms Among Intern Doctors in a Tertiary Care Hospital in North India: A Cross-Sectional Analytical Study

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ABSTRACT

Background: Internship is a critical phase in medical training characterized by increased clinical responsibilities, long working hours, and emotional challenges, which may predispose intern doctors to high levels of stress. Coping mechanisms play a crucial role in determining how individuals manage such stress, influencing both psychological well-being and professional performance.

Objectives: To assess the levels of stress among intern doctors and to evaluate the coping mechanisms adopted by them in a tertiary care hospital in North India, and to examine the association between stress levels and coping strategies.

Methods: A hospital-based cross-sectional analytical study was conducted from January 2025 to September 2025 among 186 intern doctors. Data were collected using a structured self-administered questionnaire, including the Perceived Stress Scale (PSS-10) and the Brief COPE inventory. Descriptive statistics were used to summarize variables, and associations were assessed using the Chi-square test. A p-value of <0.05 was considered statistically significant.

Results: Among the 186 participants, 63.4% experienced moderate stress, while 19.4% reported high stress levels. The majority of interns worked 9–12 hours per day, with a considerable proportion exceeding 12 hours and performing frequent night duties. Adaptive coping strategies such as active coping (65.6%) and planning (58.1%) were commonly used; however, maladaptive strategies like self-blame (39.8%) and denial (29.0%) were also prevalent. A statistically significant association was found between coping strategy type and stress levels ($p = 0.01$), with higher stress observed among those using predominantly maladaptive coping mechanisms.

Conclusion: Intern doctors experience a significant burden of stress, with coping strategies playing a crucial role in its modulation. Promoting adaptive coping and implementing institutional support systems are essential to improve mental well-being and ensure optimal healthcare delivery.

Keywords: Stress; Intern doctors; Coping mechanisms; Perceived Stress Scale; Brief COPE; Tertiary care hospital; India

Introduction

Stress among healthcare professionals is a well-recognized global concern, with medical trainees and early-career doctors being particularly vulnerable due to the demanding nature of their roles. Internship represents a transitional phase between undergraduate training and independent clinical practice, characterized by increased responsibilities, long working hours, sleep deprivation, and emotional exposure to patient care. These factors collectively contribute to heightened psychological stress, which may adversely affect both personal well-being and professional performance [1]. Chronic stress among doctors has been associated with burnout, depression, decreased job satisfaction, and compromised patient safety, making it an important public health issue [2].

Globally, studies have reported high prevalence rates of stress and burnout among medical interns and residents. Factors such as workload, lack of supervision, poor work-life balance, and exposure to critical clinical situations have been identified as key contributors [3]. Coping mechanisms adopted by interns vary widely and include both adaptive strategies, such as problem-solving and seeking social support, and maladaptive strategies, such as substance use and avoidance behaviors [4]. The effectiveness of these coping mechanisms plays a crucial role in determining psychological

outcomes and long-term professional sustainability.

In the Indian context, the problem is further compounded by systemic challenges such as high patient load, limited healthcare resources, and hierarchical workplace structures. Intern doctors in India often work extended hours with inadequate rest and limited psychological support, which may exacerbate stress levels [5]. Studies conducted in various parts of India have demonstrated a significant burden of stress among medical students and interns, with prevalence rates ranging from moderate to severe levels in a substantial proportion of participants [6]. Additionally, cultural factors and stigma associated with mental health issues may prevent healthcare professionals from seeking timely help [7].

In North India, tertiary care hospitals serve as major referral centers, often managing large patient volumes and complex cases. Intern doctors working in such settings are exposed to intense clinical workloads, frequent emergencies, and emotionally challenging situations, all of which can contribute to elevated stress levels. Despite the recognition of stress among medical trainees, there is limited region-specific data focusing exclusively on intern doctors and their coping strategies in tertiary care settings in North India. Moreover, existing studies often focus on prevalence without

adequately exploring the relationship between stress levels and coping mechanisms.

Understanding the patterns of stress and coping strategies among intern doctors is essential for developing targeted interventions aimed at improving mental health and enhancing professional efficiency. Identifying maladaptive coping strategies can help in designing institutional support systems, including counseling services, stress management programs, and workload optimization.

Therefore, the present study aims to assess the levels of stress and to evaluate the coping mechanisms adopted by intern doctors in a tertiary care hospital in North India. The specific objectives are to determine the prevalence of different levels of stress among intern doctors and to analyze the association between stress levels and various coping strategies.

Methodology

Study Design: A hospital-based cross-sectional analytical study was conducted to assess stress levels and coping mechanisms among intern doctors, in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines.

Study Setting: The study was carried out in a tertiary care teaching hospital in North India, which caters to a large patient population and

provides comprehensive clinical services across multiple specialties.

Study Duration: The study was conducted over a period of nine months, from January 2025 to September 2025.

Study Population: The study population comprised intern doctors (Compulsory Rotatory Residential Interns) undergoing their internship training at the study institution during the study period.

Inclusion Criteria

- Intern doctors who had completed at least one month of internship posting
- Those who were present during the data collection period
- Those who provided informed written consent

Exclusion Criteria

- Interns who were on long leave during the study period
- Those with a self-reported history of diagnosed psychiatric illness under treatment
- Incomplete or improperly filled questionnaires

Sample Size: The sample size was calculated using the formula for estimating a proportion in a cross-sectional study:

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

Assuming a prevalence (p) of stress among intern doctors as 50% (due to variability in previous literature), with 95% confidence level ($Z = 1.96$), and absolute precision (d) of 7%, the sample size was calculated as:

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.07)^2} \approx 196$$

Considering feasibility and a non-response rate of approximately 5%, a final sample size of 186 participants was included in the study.

Sampling Technique: A universal sampling method was adopted, wherein all eligible intern doctors present during the study period and meeting the inclusion criteria were invited to participate until the required sample size of 186 was achieved.

Data Collection Tools & Procedure: Data were collected using a pre-tested, structured, self-administered questionnaire comprising three sections: (1) socio-demographic details, (2) assessment of stress levels using the Perceived Stress Scale (PSS-10), a validated tool widely used to measure perceived stress, and (3) assessment of coping mechanisms using the Brief COPE inventory, which evaluates a range of adaptive and maladaptive coping strategies. The questionnaire was administered in English during duty hours in a non-disruptive manner. Participants were briefed about the purpose of the study and confidentiality

was ensured. Completed questionnaires were collected on the same day to minimize data loss.

Study Variables: The dependent variable in the study was the level of stress, categorized as low, moderate, or high based on standardized scoring of the PSS-10 scale. Independent variables included socio-demographic factors (age, gender, marital status), work-related factors (departmental posting, working hours, night duties), and coping mechanisms as measured by the Brief COPE inventory (categorized into adaptive and maladaptive coping strategies). The association between stress levels and coping strategies was also evaluated.

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using Statistical Package for the Social Sciences (SPSS) version 22.0. Descriptive statistics were used to summarize socio-demographic characteristics and stress levels. Categorical variables were expressed as frequencies and percentages, while continuous variables were expressed as mean and standard deviation. The Chi-square test was used to assess associations between categorical variables. Independent t-test or ANOVA was applied for comparison of means where appropriate. A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations: Written informed consent was obtained from all participants after

explaining the purpose and nature of the study. Confidentiality and anonymity of the participants were strictly maintained throughout the study. The study adhered to the ethical principles outlined in the Declaration of Helsinki. Participants were informed of their right to withdraw from the study at any point without any consequences.

Results

A total of 186 intern doctors participated in the study. The majority were aged between 24–25 years (49.5%), with a slight male predominance (55.9%). Most participants were unmarried (87.1%) (Table 1)

Table 1: Socio-demographic characteristics of intern doctors (n = 186)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	≤23	68	36.6
	24–25	92	49.5
	≥26	26	14.0
Gender	Male	104	55.9
	Female	82	44.1
Marital Status	Unmarried	162	87.1
	Married	24	12.9

Regarding stress levels, a substantial proportion of interns experienced moderate stress (63.4%), while 19.4% reported high stress levels. Only 17.2% of participants fell into the low-stress category (Table 2)

Table 2: Distribution of stress levels among intern doctors based on PSS-10 (n = 186)

Stress Level	Score Range	Frequency (n)	Percentage (%)
Low	0–13	32	17.2
Moderate	14–26	118	63.4
High	27–40	36	19.4

Work-related characteristics revealed that more than half of the interns (55.9%) worked 9–12 hours per day, and 29.0% reported working more than 12 hours daily. Nearly half (46.2%) had 3–4 night duties per week, indicating a considerable workload burden (Table 3)

Table 3: Work-related characteristics of intern doctors (n = 186)

Variable	Category	Frequency (n)	Percentage (%)
Working hours/day	≤8 hours	28	15.1
	9–12 hours	104	55.9
	>12 hours	54	29.0
Night duties/week	≤2	62	33.3
	3–4	86	46.2
	≥5	38	20.4

In terms of coping mechanisms, adaptive strategies such as active coping (65.6%) and planning (58.1%) were commonly reported. However, a notable proportion of interns also used maladaptive strategies, particularly self-blame (39.8%) and denial (29.0%) (Table 4)

Table 4: Coping mechanisms adopted by intern doctors (Brief COPE categories) (n = 186)

Coping Strategy Type	Specific Strategy	Frequency (n)	Percentage (%)
Adaptive	Active coping	122	65.6
	Planning	108	58.1
	Emotional support	96	51.6
	Positive reframing	88	47.3
Maladaptive	Denial	54	29.0
	Substance use	22	11.8
	Behavioral disengagement	48	25.8
	Self-blame	74	39.8

A statistically significant association was observed between type of coping strategy and stress levels ($p = 0.01$). Interns utilizing predominantly maladaptive coping strategies had a higher proportion of high stress (28.9%) compared to those using adaptive coping (12.7%) (Table 5)

Table 5: Association between stress levels and coping strategies among intern doctors (n = 186)

Coping Strategy Type	Low Stress n (%)	Moderate Stress n (%)	High Stress n (%)	p-value
Predominantly Adaptive (n=110)	26 (23.6)	70 (63.6)	14 (12.7)	0.01*
Predominantly Maladaptive (n=76)	6 (7.9)	48 (63.2)	22 (28.9)	

*Statistically significant ($p < 0.05$)

Discussion

The present study assessed stress levels and coping mechanisms among intern doctors in a tertiary care hospital in North India and explored their association. The findings indicate that a substantial proportion of interns experienced moderate to high levels of stress, with nearly one-fifth reporting high stress. Additionally, while adaptive coping strategies were commonly employed, a considerable number of interns also relied on maladaptive coping mechanisms, which were significantly associated with higher stress levels.

The predominance of moderate stress observed in this study aligns with earlier research indicating that internship is a particularly demanding phase in medical training. Similar findings have been reported by Dyrbye et al. [1], who highlighted high levels of psychological distress among medical trainees globally. The proportion of interns experiencing high stress in the present study is also consistent with Indian studies such as that by Singh et al. [6], which reported significant levels of stress among

medical students and early trainees. These findings collectively suggest that stress during early medical careers is pervasive and warrants targeted attention.

Work-related factors, including long working hours and frequent night duties, likely contributed to the elevated stress levels observed. More than one-fourth of participants reported working over 12 hours daily, and a substantial proportion had multiple night duties per week. These findings are in agreement with Grover et al. [5], who reported that excessive workload and duty hours are key contributors to burnout and psychological morbidity among healthcare professionals in India. Prolonged work hours can lead to sleep deprivation, fatigue, and impaired cognitive functioning, further exacerbating stress levels.

In terms of coping mechanisms, adaptive strategies such as active coping, planning, and seeking emotional support were commonly reported, reflecting a degree of resilience among interns. These findings are consistent with the coping framework described by Folkman and

Lazarus [4], which emphasizes the role of problem-focused and emotion-focused coping in managing stress. However, the concurrent use of maladaptive strategies, particularly self-blame and denial, is concerning. The presence of such strategies suggests that not all interns are equipped with effective coping skills, which may predispose them to adverse psychological outcomes.

A key finding of this study is the statistically significant association between coping strategies and stress levels. Interns predominantly using maladaptive coping strategies had a higher proportion of high stress compared to those employing adaptive strategies. This observation is in line with previous research demonstrating that maladaptive coping is associated with increased psychological distress and burnout [3]. Conversely, adaptive coping strategies are known to buffer the effects of stress and promote psychological well-being. This highlights the importance of promoting healthy coping mechanisms within medical training environments.

The findings of this study have important clinical and public health implications. High stress levels among intern doctors can negatively impact not only their mental health but also patient care, decision-making, and overall healthcare quality. Early identification of stress and targeted

interventions, such as stress management workshops, mentoring programs, and accessible mental health services, are essential. Institutional policies aimed at optimizing work hours and providing supportive work environments may further help in reducing stress levels among interns.

The strengths of this study include its adequate sample size, use of validated tools for assessing stress and coping mechanisms, and focus on a specific and relatively under-researched group—intern doctors in a tertiary care setting in North India. However, certain limitations must be acknowledged. The cross-sectional design limits the ability to establish causal relationships between stress and coping strategies. Self-reported data may be subject to reporting bias, including social desirability bias. Additionally, the study was conducted in a single institution, which may limit the generalizability of the findings to other settings.

In conclusion, the study underscores the high burden of stress among intern doctors and highlights the critical role of coping mechanisms in influencing stress levels. Addressing these issues through structured interventions and supportive institutional policies is essential for improving the well-being and performance of future healthcare professionals.

Conclusion

The present study demonstrates that a substantial proportion of intern doctors experience moderate to high levels of stress, reflecting the demanding nature of internship training in tertiary care settings. Work-related factors such as prolonged duty hours and frequent night shifts appear to contribute significantly to stress. Although many interns employ adaptive coping strategies like active coping and planning, the concurrent use of maladaptive strategies—particularly self-blame and denial—remains a concern. The observed association between maladaptive coping and higher stress levels underscores the importance of promoting effective coping mechanisms among medical trainees. These findings highlight the need for structured institutional interventions, including stress management programs, mental health support services, and workload optimization. Incorporating coping skills training into medical education may help enhance resilience among interns. Addressing stress at this critical stage of professional development is essential not only for the well-being of young doctors but also for maintaining the quality and safety of patient care.

Declarations

Funding: None.

Conflict of Interest: The authors declare no conflict of interest.

Ethical Approval: The study was approved by the Institutional Ethics Committee (IEC) of the concerned tertiary care hospital.

Consent: Written informed consent was obtained from all participants prior to data collection.

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