

## Original Research Article

# Perceived stress among undergraduate medical students: are academic factors responsible?

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## ABSTRACT

**Background:** Stress is body's response to physical, mental or emotional pressure. Stress is an inevitable part of our fast-paced life. Stress has been identified as an important indicator of the overall health. If we talk about students, generally, stressors are derived from academia load, classroom environment, faculty interaction, illness, and emotional concerns outside of the classroom. This might affect their academic performance, health and also make them consider suicide. Hence in order to raise concern, this is our small attempt towards our college students to assess their stress level and to deal further accordingly.

**Methods:** A cross-sectional study conducted in a medical college at Muzaffarpur, Bihar. Methods like Simple random sampling and systematic random sampling used for sampling purpose and sample size was calculated using formulae  $n = Z^2PQ/D^2$ .

**Results:** The present study finding suggested prevalence of mild stress among 11 (2.6%) moderate stress in 50 (12%) and severe stress in 356 (85.4%). Academic burden was found to be a reason.

**Conclusions:** Health education activities to be conducted among undergraduates on how to cope with the stress related to academics. Activities (like yoga) should be conducted to encourage students on releasing stress.

**Keywords:** Academics stressors, Depression, Medical students, Stress, Undergraduate

## INTRODUCTION

Stress is a common psychological response to the demands and pressures of daily life. It is a subjective experience that results from intricate interactions between an individual and his or her environment. It usually occurs when one's situational demand exceeds that of his resources.<sup>1</sup> Based on the timing, type and severity of the stimulus applied, stress can exert various actions on the body ranging from alterations in homeostasis to life-threatening effects and death.<sup>2</sup> A moderate level of stress can sometimes enhance performance. However, excessive or chronic stress has been consistently associated with negative emotional, cognitive, and physical health outcomes.

Among university students, particularly those enrolled in health-related programs, high stress levels have become an issue of global concern. Medical education is widely recognized as rigorous and demanding, often exposing students to intense academic pressures from the very beginning of their training. It has been recognized as very stressful and can have a negative impact on the student's well-being.<sup>3</sup> Undergraduate medical students frequently encounter a combination of heavy academic workloads, frequent examinations, long study hours, and high expectations for academic excellence. These demands are compounded by exposure to clinical environments, responsibility for patient care, and the pressure to develop a wide range of competencies within a limited timeframe. As a result, medical students often report higher levels of

perceived stress compared to their peers in non-medical programs. The prevalence of stress among medical students has been reported in various studies between 20.9% and 94.5%.<sup>4,5</sup>

Academic-related factors-such as curriculum overload, competitive learning environments, fear of failure, inadequate time for relaxation, and limited academic support-have repeatedly been identified as major contributors to stress among medical students.<sup>6</sup> Persistent academic stress not only affects students' psychological well-being but may also impair learning, reduce academic performance, hinder clinical decision-making, and increase the risk of burnout or dropout.<sup>1</sup>

Despite growing awareness, there remains variability in the factors contributing to stress across different institutions, years of study, and cultural contexts.

Understanding the specific academic factors associated with perceived stress in a given setting is crucial for designing targeted interventions and promoting student well-being. Therefore, this study seeks to assess perceived stress among undergraduate medical students and explore whether academic factors are significant contributors to their stress levels.

### **Objectives**

Objectives of the study were to assess the prevalence of perceived stress among under graduate students in a medical college using the PSS and to determine the academic stressors.

## **METHODS**

An anonymous questionnaire based self-reported study was carried out among the medical undergraduate students to screen them for the prevalence of perceived stress and to determine the academic stressors.

### **Study design**

It was a descriptive cross-sectional study.

### **Study location**

The study was conducted at RDJM Medical College and Hospital, Muzaffarpur, Bihar.

### **Study duration**

The duration of the study was 3 months, from August to October, 2025.

### **Study population**

Under-graduate students were selected in this study.

### **Inclusion criteria**

Medical undergraduate students of RDJM Medical College and Hospital, of either sex, and aged  $\geq 18$  years were included.

### **Exclusion criteria**

Those students who did not wish to participate were excluded.

### **Sample size**

Sample size was calculated using formulae- $z^2 PQ/d^2$

Where Z=relative deviate (1.96)

P=44%, Q=100-p=56%, d=5% calculated sample size is 379.<sup>7</sup>

10% non response=10% of 379=37.9

Total sample size=379+38=417

Total no of students along with externs=888

Sampling interval =888/417=2.12 rounded off to 2

### **Sampling and selection method**

Complete enumeration was applied to get the list of all students and interns. Every 2<sup>nd</sup> student was selected and asked to fill the google form provided to them after explaining about the study and taking consent from them. Data collection was done in the 2<sup>nd</sup> week of September 2025. A total of 417 students participated in the study with representation from all the batches of the students and interns enrolled at RDJMMCH.

### **Statistical analysis**

Data entry was done using Microsoft excel 2010 and analysis was done using Jamovi 2.3.28. Descriptive statistics like percentages, frequencies, mean were calculated and chi-square was used to find out the association,  $p < 0.05$  was considered significant.

## **RESULTS**

### **Interpretation**

A very large majority (85.4%) fall into the severe stress category. Only 14.6% fall into moderate or mild combined. Mild stress cases are very low (2.6%).

Out of 417 participants, the majority (85.4%) experienced severe stress, while 12.0% reported moderate stress and only 2.6% reported mild stress.

**Table 1: Interpretation of stress category.**

Stress category	Count	% of total
Severe	356	85.4
Moderate	50	12.0
Mild	11	2.6

**Table 2: Gender based interpretation of stress category.**

Stress category	Male	Female	Total	P value
Mild	07	04	11	<0.05
Moderate	28	22	50	
Severe	172	184	356	

**Table 3: Statistically interpretation of stress category.**

Stress category	Variables		Total	P value
	Vast syllabus (Yes)	Vast syllabus (No)		
Mild	06	05	11	<0.05
Moderate	45	05	50	
Severe	324	32	356	
	Worry about marks and exams (Yes)			
	Worry about marks and exams (No)			
Mild	02	09	11	<0.05
Moderate	30	20	50	
Severe	288	68	356	
	Family's expectation (Yes)			
	Family's expectation (No)			
Mild	02	09	11	<0.05
Moderate	32	18	50	
Sevre	287	69	356	
	Availability of learning material (Yes)			
	Availability of learning material (Yes)			
Mild	11	00	11	<0.05
Moderate	25	25	50	
Severe	114	242	356	
	Worry about practical and clinical posting (Yes)			
	Worry about practical and clinical posting (Yes)			
Mild	02	09	11	<0.05
Moderate	27	23	50	
Severe	261	95	356	

**Interpretation**

There was a statistically significant association ( $p < 0.05$ ) between stress levels and major academic stressors including vast syllabus, worry about marks and examinations, family expectations, availability of learning materials, and concern regarding practical and clinical postings. Severe stress was consistently higher among students exposed to these stressors.

Non availability of recreation materials and time, lack of guidance from faculty, competition among peers and worry about NEET PG were not statistically significant academic factors, but most of the factors were higher in mild stress.

**Interpretation**

Total sample consists of 207 males and 210 females. Severe stress is the most prevalent in both genders: Males: 172 (83.1%) and females: 184 (87.6%). Moderate stress is slightly higher among males (28) compared to females (22). Mild stress is low in both groups.

**Statistical significance**

P value  $< 0.05$ . This indicates a statistically significant association between gender and stress level. In simple terms, stress distribution differs significantly between males and females

**Table 4: Open ended question when asked about any other reason of their stress, (n=188).**

Various other reasons of stress	N	Percentage
Fees	55	29.2%
Relationship	22	11.7%
Family or own expectation in life	65	34.5%
Adjustment issues	19	10.1%
Emotional support or motivation	27	14.36%

The most common reason for stress was family or personal expectations (34.5%). Financial concerns (fees-29.2%) were the second most reported stressor. Emotional support or lack of motivation accounted for 14.36%. Relationship problems (11.7%) and adjustment issues (10.1%) were comparatively less reported.

## DISCUSSION

The present study assessed the prevalence of stress and its associated academic and personal factors among students. The findings revealed a very high prevalence of severe stress (85.4%), while 12.0% reported moderate stress and only 2.6% reported mild stress. These results indicate that stress is highly prevalent among the study population, suggesting that a large proportion of students are experiencing considerable psychological pressure.

Similar findings have been reported in previous studies among medical and health science students. It has been reported that medical students often experience high levels of stress due to academic workload and competitive environments.<sup>8</sup> Likewise, Dahlin et al observed that medical education is associated with significant psychological stress due to demanding syllabus and academic expectations. The high proportion of severe stress observed in the present study may be attributed to factors such as extensive syllabus coverage, examination pressure, and future career concerns.<sup>9</sup>

Gender differences in stress levels were also observed in this study. Severe stress was reported by 83.1% of males and 87.6% of females, and the association between gender and stress level was statistically significant ( $p < 0.05$ ). These findings suggest that female students experience slightly higher stress levels compared to male students. Similar observations were reported by Shah et al who found that female medical students tend to report higher psychological distress due to emotional sensitivity and academic pressure. In addition, Saravanan and Wilks reported that female students often demonstrate higher perceived stress levels due to social expectations and academic demands.<sup>10,11</sup>

The present study also identified several academic stressors significantly associated with stress levels, including vast syllabus, worry about marks and examinations, family expectations, availability of learning materials, and concern regarding practical and clinical postings ( $p < 0.05$ ). These findings are consistent with earlier studies that highlight academic workload as one of the major contributors to stress among students. Yusoff et al found that academic-related stressors were the most significant predictors of stress among medical students.<sup>12</sup>

The association between stress and worry about marks and examinations observed in this study further supports the findings of Bedewy and Gabriel who reported that academic performance pressure significantly increases perceived stress among university students.<sup>13</sup>

Examination-related stress may arise from fear of failure, competition among peers, and expectations for high academic achievement.

Family expectations also emerged as a significant stress factor in the present study. This finding is supported by research conducted by Sharma and Kaur who reported that parental expectations and societal pressure can significantly contribute to psychological stress among students.<sup>14</sup> In many cultures, family aspirations for academic success may increase pressure on students, thereby contributing to higher stress levels.

The availability of learning materials was also significantly associated with stress levels. Students who reported inadequate learning resources demonstrated higher levels of severe stress. This observation is consistent with the findings of Abdulghani et al who reported that lack of academic resources and insufficient institutional support can contribute to student stress.<sup>15</sup>

The study also explored open-ended responses regarding other sources of stress. The most commonly reported stressor was family or personal expectations (34.5%), followed by financial concerns related to fees (29.2%). These findings indicate that stress among students is influenced not only by academic factors but also by personal and socioeconomic challenges. Similar findings were reported by Robotham and Julian who found that financial problems, personal expectations, and relationship issues are significant contributors to stress among university students.<sup>16</sup>

## CONCLUSION

Overall, the findings of this study demonstrate that stress among students is mostly due to both academic and personal factors contributing to its development. The high prevalence of severe stress highlights the need for effective stress management programs, counselling services, and academic support systems within educational institutions to promote student mental health and well-being.

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