

Research Article

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Correlation Between Chronic Stress Levels Among Undergraduate Medical Students with Tea/Coffee Consumption and Its Impact on Academic Performance

Dr Bhavna Tomar¹, Dr Shubhangi Nayak², Dr Anshuman Sharma^{3*}, Dr Himanshi Yadav⁴, Dr. Ratan Priya Gupta⁵

¹Junior Resident, Department of Community Medicine, Shyam Shah medical college, Rewa, (M.P.), India

²Associate Professor, Department of Community Medicine, Shyam Shah medical college, Rewa (M.P.), India

³Associate Professor, Department of Community Medicine, Shyam Shah medical college, Rewa (M.P.), India

⁴Junior Resident, Department of pharmacology, Shyam Shah medical college, Rewa (M.P.), India

⁵Junior Resident, Dept. of Community Medicine, Shyam Shah Medical College, Rewa (M.P), India

*Corresponding Author: Dr Anshuman Sharma

Email: anshumansharma1988@gmail.com

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Abstract: Medical education is widely recognized as a highly demanding and stressful academic discipline. Undergraduate medical students frequently encounter multiple stressors including extensive academic workload, frequent examinations, clinical responsibilities, lack of sleep, and adjustment to a competitive learning environment. Persistent exposure to these stressors may adversely affect students' mental health and academic performance. Previous studies have reported that stress is highly prevalent among medical students and may contribute to various behavioral adaptations and lifestyle changes. Tea and coffee are among the most commonly consumed caffeinated beverages worldwide, particularly among students. Caffeine consumption is often used as a strategy to combat fatigue, improve alertness, and enhance concentration during periods of academic stress. However, excessive consumption may be associated with anxiety, sleep disturbances, increased stress perception, and impaired academic functioning. Several studies have suggested that students experiencing higher levels of stress tend to consume greater quantities of caffeinated beverages. While moderate caffeine intake may temporarily improve cognitive performance, chronic excessive consumption may adversely affect sleep quality and psychological well-being, thereby influencing academic achievement. Understanding the relationship between stress, tea/coffee consumption, and academic performance is important for developing effective student wellness programs. Therefore, the present study aimed to assess the correlation between chronic stress levels among undergraduate medical students and tea/coffee consumption and to evaluate their impact on academic performance.

Keywords: Lifestyle changes, tea and coffee, stress, sleep, academic workload, Medical education.

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INTRODUCTION

Medical training usually involves strong academic and psychological demands, which are often associated and related to the medical training. Medical students have to manage a heavy syllabus, regular testing/evaluation, clinical posting/clinical duty, high workload and high academic performance pressure in undergraduate studies. These problems can cause a lot of stress and can affect one's mental health and academic performance. Previous studies have demonstrated that stress is a problem faced by medical students and can impact on their daily habits, health habits and academic performance [1,2].

Among students, the most common drinks consumed are tea and coffee, which are often taken to increase alertness, decrease fatigue and increase concentration,

especially when taking examinations or during periods of intensive study. Caffeine can have a stimulant effect in the short term but over-consumption can be associated with sleep disturbances, nervousness, anxiety and heightened perception of stress [3,4].

Research done on university students has found a link between stress and consumption of caffeinated drinks. Caffeine can improve concentration and mental function, but can also impair sleep quality and mental well-being if used too often. These effects can, in turn, impact learning efficiency and achievement [5].

Considering the possible interactions between psychological stress, caffeine intake and academic performance, they were examined in medical students. Awareness of these connections could inform

institutions in determining effective strategies to encourage healthy coping behaviors, help students thrive, and foster learning. Hence the present study was conducted to check the correlation of chronic stress level with tea/coffee consumption among undergraduate medical students and to find out the association of chronic stress with academic achievement of the students.

Aim

To assess the correlation between chronic stress levels among undergraduate medical students with tea/coffee consumption and to determine their impact on academic performance.

Objectives

1. To determine the severity of stress among undergraduate medical students.
2. To assess the pattern of tea and coffee consumption among undergraduate medical students.
3. To evaluate the association between stress levels and tea/coffee consumption.
4. To assess the relationship between stress and academic performance.

MATERIALS AND METHODS

The cross-sectional analytical study was carried out in Shyam Shah Medical College, Rewa, Madhya Pradesh for a period of 6 months from 1st January 2025 to 30th June 2025. The study included under-graduates of MBBS (first year to final year). In total, 310 undergraduate medical students took part in the study. Convenient sampling was conducted. Study population comprised of i) undergraduate MBBS students who were willing to participate and ii) students on duty during the data collection period. While students unwilling to provide consent were excluded from the study. A structured questionnaire that included: i) Sociodemographic details, ii) General Health Questionnaire (GHQ-12), iii) Medical Student Stressor Questionnaire (MSSQ-20), iv) Tea and coffee consumption questionnaire (frequency and daily intake) and v) Academic performance (percentage marks secured in the last university examination) was used to collect data.

With informed consent, student self-administered questionnaires were completed. All data were collected anonymously and confidentially. The data were entered into the Microsoft excel and analyzed by SPSS version

20.0. The descriptive data were presented as mean, standard deviation, frequency and percentage. Chi-square test was used to assess associations between categorical variables. Pearson's correlation coefficients were used to assess the relationships between stress scores, tea/coffee consumption, and academic performance. P value < 0.05 was regarded as statistically significant.

RESULTS

This study involved a total of 310 undergraduate medical students, whose mean age was 20.32 ± 1.74 years. Among them, 172 (55.4%) were males and 138 (44.6%) were females.

In fact, the prevalence of psychological stress among medical undergraduates was high as over half of the students (52.3%) had moderate to severe stress. It was found that the level of stress among medical students was higher in the first years of their studies.

As far as caffeine consumption was concerned, 196 (63.2%) of the students said they drink tea/coffee regularly, and 114 (36.8%) said that they do not. The tea/coffee consumption was significantly related to the stress ($\chi^2 = 24.87$, $p < 0.001$). Higher stress rated students were more likely to drink tea and coffee regularly.

There was a negative correlation between academic performance and stress. The mean academic scores were best in students experiencing mild stress ($74.2 \pm 7.6\%$) and were lowest in students experiencing severe stress ($63.8 \pm 9.5\%$).

The results of correlation analysis showed that there was a significant negative correlation between stress and academic performance ($r = -0.273$, $p = 0.001$), which means that the higher the stress level, the lower the academic performance. Also, the study found a strong positive correlation between stress and tea/coffee consumption ($r = 0.302$, $p < 0.001$), indicating that as stress increased, students increased their consumption of tea/coffee.

In conclusion, the results suggest that stress is a significant problem among medical students, that students who experience stress consume more tea or coffee, and that stress negatively impacts academic performance.

Table 1. Sociodemographic Characteristics of Participants (n=310)

Variable	Frequency (n)	Percentage (%)
Male	172	55.4
Female	138	44.6
First MBBS	82	26.5
Second MBBS	79	25.5
Third MBBS Part-I	72	23.2
Final MBBS Part-II	77	24.8
Mean Age (Years)	20.32 ± 1.74	-



Table 2. Distribution of Stress Levels among UG Medical Students (MSSQ-20)

Stress Level	Frequency (n)	Percentage (%)
Mild	58	18.7
Moderate	90	29.0
High	106	34.2
Severe	56	18.1
Moderate to Severe Stress	162	52.3

More than half of the participants (52.3%) experienced moderate to severe levels of stress.

Table 3. Tea/Coffee Consumption among Participants

Tea/Coffee Consumption	Frequency (n)	Percentage (%)
Regular Consumers	196	63.2
Non-Regular Consumers	114	36.8

Nearly two-thirds (63.2%) of the students reported regular tea/coffee consumption.

Table 4. Association between Stress Levels and Tea/Coffee Consumption

Stress Level	Regular Consumers n (%)	Non-Regular Consumers n (%)	Total
Mild	25 (43.1)	33 (56.9)	58
Moderate	53 (58.9)	37 (41.1)	90
High	77 (72.6)	29 (27.4)	106
Severe	41 (73.2)	15 (26.8)	56
Total	196 (63.2)	114 (36.8)	310

$\chi^2 = 24.87, p < 0.001$

A statistically significant association was observed between stress levels and tea/coffee consumption. Students with higher stress levels reported significantly greater tea/coffee consumption compared with those having lower stress levels.

Table 5. Academic Performance According to Stress Levels

Stress Level	Mean Academic Score (%) $\pm$ SD
Mild	74.2 $\pm$ 7.6
Moderate	71.1 $\pm$ 8.3
High	67.5 $\pm$ 8.8
Severe	63.8 $\pm$ 9.5

Academic scores declined progressively with increasing stress levels.

Table 6. Correlation between Stress and Academic Performance

Variables	Correlation Coefficient (r)	p-value
Stress Score vs Academic Performance	-0.273	0.001

There was a statistically significant negative correlation between stress scores and academic performance ($r = -0.273, p = 0.001$), indicating that students with higher stress levels tended to achieve lower academic scores.

Table 7. Correlation between Stress and Tea/Coffee Consumption

Variables	Correlation Coefficient (r)	p-value
Stress Score vs Tea/Coffee Consumption Score	0.302	<0.001

A significant positive correlation was found between stress levels and tea/coffee consumption ($r = 0.302, p < 0.001$), suggesting that students experiencing greater stress were more likely to consume tea or coffee regularly.

DISCUSSION

The present study examined the relationship between stress, tea/coffee consumption, and academic performance among undergraduate medical students. More than half of the participants (52.3%) experienced moderate to severe stress, indicating a considerable psychological burden among medical students. Similar findings have been reported by Abdulghani *et al.* [1] and Fawzy and Hamed [2], who documented high

levels of stress among medical students due to academic demands and professional expectations.

The prevalence of stress was found to be higher among students in the initial years of medical education. This observation is consistent with findings reported by Yusoff *et al.* [6], who suggested that adaptation to the medical curriculum and examination-related pressure

contribute significantly to stress among preclinical students.

Regular tea/coffee consumption was reported by 63.2% of the participants. The present study demonstrated a significant association between stress levels and tea/coffee consumption ($p < 0.001$). Students with higher stress levels were more likely to consume caffeinated beverages regularly. Similar observations have been reported by Richards and Smith [7] and Kelly *et al.* [8], who found that caffeine consumption increases during periods of academic stress and examination preparation.

A significant positive correlation was observed between stress scores and tea/coffee consumption ($r = 0.302$, $p < 0.001$). This finding suggests that students may use caffeinated beverages as a coping mechanism to manage academic workload, fatigue, and stress. However, excessive caffeine intake may contribute to sleep disturbances and heightened anxiety, potentially exacerbating stress levels [4,9].

The present study also found a significant negative correlation between stress and academic performance ($r = -0.273$, $p = 0.001$). Students experiencing higher stress levels achieved lower academic scores. This finding is consistent with previous studies by Sohail [10] and Dyrbye *et al.* [11], which reported that stress adversely affects concentration, memory, and learning efficiency.

The findings highlight the need for stress-management programs, counselling services, and awareness regarding healthy caffeine consumption among medical students. Institutional measures aimed at improving psychological well-being may contribute to better academic outcomes and overall student health.

CONCLUSION

Stress is very common among medical students in undergraduate education, and is strongly correlated with tea/coffee consumption. Students whose stress level is high are more likely to drink tea and coffee, and have poorer academic outcomes. Awareness of caffeine and encouragement of healthy coping strategies may be

associated with better mental health and academic performance for medical students if stress is identified early in the medical school experience.

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