SHORT ARTICLE

Perceived Stress and Its Epidemiological Correlates among First Year Undergraduate Medical Students – An Observational Study

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ABSTRACT

Introduction: Stress is a process where environmental demands exceed an individual's ability to cope, leading to psychological and biological changes that may increase the risk of illness. In medical training, excessive stress can result in challenges like financial strain, cultural adjustment, depression, reduced concentration, academic dishonesty, and substance abuse. **Objectives**: This study aims to assess perceived stress levels among undergraduate medical students and correlate them with demographic factors. **Materials & Methods**: A cross-sectional study was conducted among first-year medical students using the Perceived Stress Scale (PSS). Participants reported their thoughts and feelings over the past month, indicating the frequency of stress-related experiences. **Observations**: Among 158 students, 84.8% reported moderate stress levels, 8.9% had high stress, and 6.3% experienced low stress. No significant associations were found with habits. **Conclusion**: Medical students face unique stressors, such as adjusting to new environments, language, and demanding curricula, which significantly contribute to increased stress levels.

KEYWORDS

Perceived Stress; Students; Medical; Habits

INTRODUCTION

Stress is defined as a process in which environmental demands strain an organism's adaptive capacity, resulting in both psychological demands as well as biological changes that could place it at risk for illness (1).

Increased stress in developing nations is a sign of unresolved mental and physical conflicts that are made worse by the rapidly shifting sociocultural, economic, and demographic context. Persistent stress has a detrimental impact on one's physical and mental well-being, as well as their risk of diabetes, obesity, heart disease, and other conditions. Stress is a dynamic concept that depends on how an individual and their environment interact, and how well an individual can manage stress will determine how it affects them (2).

Stress impacts individuals of all ages, wealth, and poverty. It is not restricted by an individual's age. Medical school is very stressful, especially for first-year students, according to numerous studies conducted in the West and Asia. A few factors are considered to induce stress levels: Examination pressure, lack of leisure time, financial problems, high parental expectations, peer pressure, family issues, anxiety, depression (at the beginning of 3rd and end of the 4th year), physical health issues (3).

In light of this, an observational survey was carried out to gauge undergraduate medical students' subjective levels of stress and establish a relationship between stress and epidemiological characteristics.

MATERIAL & METHODS

An observational research of first-year medical undergraduate students at tertiary medical colleges was carried out. Students who were present and willing to take part in the study were registered; those who refused to participate and give permission were not registered.

The study was done to estimate the prevalence of stress levels among medical students with a minimum sample size of 168 students, with a 95% confidence level, a margin of error of ±10%, and an anticipated prevalence rate of perceived stress among students of 71% (4). Using the formula n=z2p(1-p)/d2, a sample size of 168 was determined, where p is the expected prevalence rate of perceived stress among students (71%), d is the margin of error, and Z is the z statistic at the 5% level of significance.

After receiving approval from the institutional ethics committee and informed consent from the students, data was gathered from medical students via online (Google) forms. Before providing the pupils with the URLs to fill out the online forms, the purpose was explained to them. The proforma asks questions about fundamental sociodemographic information as well as questions about lifestyle, habits, and physical activity. There was questions on the perceived stress scale in the second section.

Perceived stress scale (5): A variety of tools intended to assist in measuring individual stress levels can be used to get a more accurate estimate of personal stress. The Perceived Stress Scale is the name of the first of them. One of the traditional tools for assessing stress is the Perceived Stress Scale (PSS). The instrument, which was created in 1983, is still widely used to help us comprehend how various circumstances impact our emotions and perceived stress.

Every feature was provided in a descriptive summary. For continuous variables, the summary statistics of N, mean, and standard deviation (SD) were employed. When summarizing data for categorical data, the numbers and percentages were utilized, and the data was subjected to a Chi-square test for association, a t-test for mean comparison, and diagrammatic presentation.

RESULTS

A total of 158 students enrolled in the study after repeated reminders and orientation. The mean age found was 19.75±0.765 years, with a minimum age of 18 years and a maximum of 22 years. The majority were in the age group of 19 to 20 years (81.6%), and gender-wise, boys (54%) were compared to girls (46%). Geographically majority belongs to Karnataka state (59%) followed by Maharashtra (33%).

Table 1 Distribution of students according to hours spent in library

Hours spent in	Hours	Frequency	percentage
Library	0 - 1	63	39.8%
	1 - 5	91	57.6%
	>5	04	2.6%
Sports	0 - 1	138	87.3%
	1 - 5	19	12.0%
	>5	01	0.7%
Leisure	0 - 1	38	24.0%
	1 - 5	101	63.9%
	>5	19	12.1%
Tobacco chewing	Yes	03	02%
	No	155	98%
Smoking	Yes	09	06%
	No	149	94%
Alcohol consumption	Yes	08	05%
	No	150	95%

According to the Table 1, mean hours of the time spent in library was 2.13±1.59 with minimum less than one hours (17%) and maximum 7-hours (1%). Mean hour of the time spent in sports was 0.84±0.87 with minimum less than one hours (29.7%) and maximum 8 hours (1%) was found. The minimum hours spent on leisure activities was 0.5(0.6%), the maximum was 8-hours (3.2%), and the range was from 0 to 8 hours. The perception of the students for using one or other forms of tobacco/alcohol (2%) leading to addiction was for adventure (48%) or for fun (34%), followed by parent's influence (7%) or peer pressure (10%).

Analysis of the perceived stress scale scores and classified, which shows that 84.8% of the students had moderate stress levels, whereas 8.9% had high perceived stress followed by 6.3% having the low stress levels. There is no significant association was found between the perceived stress level and gender of the students, but most boys were at a level of moderate perceived stress during the study period compared to girls.

Table 2 Distribution of students according to PSS & different habits

Habits	Variables (sub groups)	Perceived stress levels			Total	X^2 value
		Low	Moderate	High		p-value
Tobacco chewing	Not using	10	131	14	155	0.548
	Using	00	03	00	03	(0.760)
Smoking	Not using	09	125	14	148	1.396
	Using	01	09	00	09	(0.845)
Alcohol	Not using	09	127	14	150	1.968
	Using	01	07	00	08	(0.742)

According to the above Table 2, there is no significant association was found between the perceived stress level and tobacco chewing,

smoking and alcohol consumption habits of the students.

Discussion

Among 158 students who participated in the study, 84.8% (females>males) had moderate stress levels, followed by 8.9% severe and the remaining felt low perceived stress levels. No significant association was found between substance use and stress level and also with gender.

Of the 514 students, 271(52.7%) belonged to the pre-clinical group with an average age of 19±1 years, 111(21.6%) to the para-clinical group with an average age of 20.59±0.77 years, and 132(25.7%) to the clinical group with an average age of 21.83±1.03 years, according to Tariq S et al. (6)

Dwivedi D. et al. (7), during this COVID-19 pandemic lockdown, the group not using digital online e-learning methods had a much higher PSS-10 score. Medical students who do not use online digital e-learning ways report feeling stressed out a lot. To determine possible confounders, more investigation is required.

The mean PSS score as per Ujjawal Paudel et al. (8) was 27.85. Overall, 55% of students reported feeling stressed out (52% male and 60% female), with little gender variation. Students enrolled in basic science courses reported feeling more stressed than those in clinical clerkships. Higher stress is caused by academic stresses, while moderate stress is caused by other factors.

In their investigation, Saleh EG et al. (9) discovered that 89.3% of students had moderate to high stress levels (27.83±6.3). Compared to male students, female students reported far higher levels of stress ($p<0.01$). Academic-related stress (70.4%) and teaching and learning-related stress (48.75%) were the main causes of stress. 66.7% of students employed adaptive coping strategies.

Conclusion

In conclusion, students in professional courses face increased stress due to factors like being away from home, adjusting to new environments, and managing demanding schedules.

Recommendation

The requirement of de stressing activities is recommended based on the findings of the study.

Limitation of the Study

The study is limited to one medical college and hence cannot be generalized.

Relevance of the Study

Early identification and management of stress are crucial to minimize its negative impact on mental and physical health, helping students seek support and develop coping strategies for a healthier studentship.

Authors Contribution

All authors have contributed equally.

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Conflict of Interest

There are no conflicts of interest.

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Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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