



Original Article

The physical manifestations of stress among the Medical Students of TSMU, Georgia: An Original Study

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Abstract

Background: Medical students experience stress due to their daily routines, which tend to be responsible for higher burnout rates. The mental stress experienced by these students manifests itself in various physical situations. As a result, they might acquire various coping strategies with positive and negative outcomes.

Methodology: A survey was designed and circulated among the medical students of TSMU, Georgia, with questions to collect data related to the subject.

Results: In the conducted survey, a total number of 203 responses was recorded. A majority, 65.5% (n=133) were females. The percentage of male participants in the survey was 34.5%. This study aims to observe the various physical manifestations of stress in pre-clinical and clinical year medical students from Tbilisi State Medical University. Multiple factors like age, year of study, prior medical conditions, etc., were considered to understand how physical manifestations exhibit themselves and how the different stress levels worsen them.

Conclusion: This study proves the prevalence of various physical manifestations of stress among medical students. The highest percentage was reported among the age group of 22, with female students being more affected. First-year students also experienced increased stress due to adaptability issues.

Keywords

Stress, Physical, Psychology, Medical Students.



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Introduction

The importance currently placed on mental health is monumental. Due to the various challenges in the healthcare community, this conversation has been amplified. Medical students and Doctors in training also experience chronic stress daily. A person may develop stress due to many factors, including academics, occupation, relationships, and society, among many others. Stress reduces an individual's productivity or zest to accomplish day-to-day activities or goals. These moments bud from lack of rest and many daily tasks the students are expected to carry out. Medical students experience physical manifestations of this stress in the form of headaches, panic attacks, hair fall, gastrointestinal problems, sleep deprivation, binge eating, etc¹. Studies have shown first-year medical students experience stress mainly due to high parental expectations¹. Mental health has become an important issue to consider over recent years. Medical students need regular counseling and periods of leisure to recharge and invigorate themselves. Universities need to place importance on students' mental health and overall well-being. The adverse effects of stress could have harmful implications for patient care, as previous studies have shown that anxious medical students were less empathetic and less enthusiastic when caring for patients with chronic illnesses². De-stigmatization of mental illnesses and promoting help-seeking behavior is vital to sustain student's overall mental wellness². Without effective outlets to relieve stress, negative coping mechanisms such as the use of substances and alcohol could be utilized by students. We also believe that healthcare professionals being open about their mental health struggles will forge a path for more discussion about the subject. This study aimed to determine the most common physical manifestations of stress prevalent in

the medical student population of TSMU, Georgia.

Methodology

The data collection for this study was conducted using a survey made from reading through different psychological questionnaires, consisting of 19 questions, created on Google Forms, circulated on various social media platforms to reach the target audience. The inclusion criteria were medical students from Tbilisi State Medical University.

The survey was designed to collect data on the overall mental health status of the students and the physical symptoms they experienced during this time. Patients were asked for consent to use data before filling out the survey, and responses of those who did not want to be added were excluded.

The survey was anonymous, and no participant emails were collected. The survey consisted of multiple-choice questions and open-ended questions. There was also no time limit given.

The first question in the survey required the consent of the participant. Upon giving their consent to move forward with the survey, the following questions were asked:

- Please specify your age
- Please specify your sex
- Year of Study
- Do you experience stress as a medical student?

If the participant answered 'yes,' the questions asked next were:

- Do you find yourself stressed out due to the following reasons? (e.g., fear of examinations, lack of leisure time, etc.)



- When do you find yourself particularly stressed out? (during examinations or frequently throughout the semester)
- If you have any pre-existing psychological condition for which you currently take medications, kindly specify the condition.
- What do you do to relieve stress? (e.g., smoking, drinking alcohol, meditating, etc.)

On a scale of 1 to 5 (with 1 being the least and 5 being the highest), the rate at which of the following physical symptoms do you tend to experience stress:

- Chest Pain
- Heart Palpitations
- Fatigue (without any strenuous exercise)
- Insomnia
- Headache
- GI symptoms (e.g., vomiting, diarrhea, abdominal pain)
- Panic Attacks
- Hyperventilation
- Poor Appetite
- Disturbances in the menstrual cycle (provided no pre-existing hormonal conditions such as PCOS, thyroid, etc.)

- Please specify if you experience any symptoms other than the ones listed above.

Upon completing the survey, the participants clicked submit, and the data was collected.

Result

The duration of this study was 2.5 months, from April to mid-June. After the survey was closed, data analysis of the study was conducted to clean the data by removing incomplete or incorrectly completed responses, and we used descriptive analysis to create and understand the trends in the responses.

The survey does not report students' mental status but mentions the physical symptoms seen when under a lot of stress, which can be due to multiple factors.

This study is to observe the various physical manifestations of stress in pre-clinical and clinical year medical students from Tbilisi State Medical University. A survey was conducted using Google Forms, and a total of 203 responses were recorded. The age of the participants ranged from 18-32 (Table 1).

Table 1: Study Participants Age

Age of Participants	Responses (%)
18	4.9
19	17.2
20	14.8
21	18.7
22	20.2
23	12.8
24	0.5
25	6.4



26	1.5
27	0.5
28	0.5
29	0.5
30	0.5
31	0.5
32	0.5

The curated survey consisted of 19 questions. A response rate of 96.5% was received when asked if the participants experienced stress. A total of 203 responses were recorded, and 195 usable responses were considered to calculate.

In the conducted survey, a total number of 203 responses was recorded. A majority, 65.5% (n=133) were females. The percentage of male participants in the survey was 34.5% (Table 2).

Table 2: Study participant's distribution on Gender base

Sex of Participants	Responses (%)
Females	65.5
Males	34.5

So what are the signs of stress, and what coping skills along with stressors are observed?

Factor analysis revealed three hidden factors for stress in this group, namely, depression, nervousness, and age. Stress that's left unchecked can contribute to many health problems, such as high blood pressure, heart disease, menstrual problems, obesity, and diabetes.

The most commonly seen physical signs are (Table 3)

1. Among 139 responses for chest pain, 47.5%(n=66) of students experience mild chest pain, while 2.9% (n=4) experience severe chest pain during stress.
2. 22.3%(n=35) students experience mild heart palpitations and 8.3%(n=13) of students suffer from severe heart palpitations during stress.
3. Among 153 responses for panic attacks, 30.7%(n=47) of students experience mild panic attacks, while 12.4%(n=19) of students experience severe panic attacks during stress.
4. Among 131 responses for menstrual cycle disturbances, 42%(n=55) of students experience mild disturbances, while 15.3%(n=20) of students experience severe disturbances during stress.

Table 3: Commonly physical signs observed by Study Participants

	Scale Level	Responses (%)
Chest Pain	1	47.5
	2	21.6
	3	24.5
	4	3.5
	5	2.9



Panic Attacks	1	30.7
	2	19
	3	19
	4	18.9
	5	12.4
Disturbance in the Menstrual Cycle	1	42
	2	11.5
	3	14.5
	4	16.8
	5	15.2

Hence, the coping methods used and how harmful they are is an understatement. Among the 195 responses, 20% (n=137) students said they sleep when they feel stressed, 16.5% (n=90) students said they binge eat, and 13.5% (n=65) students said they do exercise are the top three coping mechanisms observed. Failure to recognize manifestations of stress and to assist with the development of positive coping skills causes detrimental effects on one's mental, physical, and emotional health (Table 4).

Table 4: Stress Relievers Commonly Used by Medical Students

Stress Relievers	Responses (%)
Sleeping	20
Binge Eating	16.5
Exercise	13.5
Smoking	12.8
Meditation	9.5
Drinking Alcohol	6.2
Hobbies	5.5
Doing Nothing	4.5
Use of Recreational Drugs	4
Watching television	3
Social Media	2
Confide in a Friend	1.5
games	1

Discussion

In psychological sciences, stress is a feeling of mental pressure and tension. Low levels of stress might be desired, useful, and even healthy. Stress, in its positive form, can improve biopsychosocial health and facilitate performance. However, high levels

of stress could have potentially harmful implications.

A high prevalence of stress among medical students indeed requires attention as it may impair their learning ability and may ultimately affect the quality of patient care they provide after graduation. From our



curated survey, a majority of students reported that they experience stress. This is in concordance with medicine being one of the most challenging professions.

A sizable number of participants reported stress due to the fear of examinations. This is in concordance with a study by Sanjukta Padhi, who reported that school examinations were one of the major stressors in students³. This could be due to the voluminous amount of information they are required to learn and retain in a short amount of time. It has also been reported that pre-clinical students experience higher stress due to fear of examinations. Possible reasons are adaptation issues, anxiety due to new subjects, and a new environment.

This stress could, in turn, inhibit and suppress learning, which is called 'unfavorable stress' and is associated with the inhibition of students' academic performance, leading to accelerated levels of stress during exams⁴.

A study found that academic stress was correlated to a high degree with financial and social stress, which can be related to the fact that a majority of the participants are immigrants, and a change in the social environment and surviving on their own can impose difficulties⁵. This can be further reinforced by a study that stated: "As immigrant youth adapt and acculturate, they encounter a multitude of new challenges and stressors"⁵. High parental pressure was also noted as one of the major stressors. This could be due to unrealistic or high expectations set by parents, which result in anxiety and stress in students.

Lack of leisure time was also noted to be one of the stressors due to the high workload, tight schedules, and deadlines for medical students. Financial problems are a stressor because medicine is an expensive course in

many countries, and plenty of students immigrate for education, which increases their expenditure. Relationship disharmony, either familial, romantic, or peer, has also been noted as one of the less prominent stressors.

A majority of the participants responded that they were more stressed throughout the semester than only during the examinations, again in concordance with the heavy workload and responsibilities for medical students, which impacted their mental well-being.

Some participants reported pre-existing psychological conditions such as depression, anxiety, panic attacks, and insomnia. These conditions, coupled with stress, could exert abundant emotional pressure on the participants.

A set of physical manifestations was given, and the participants were asked if they experienced these symptoms when stressed. The majority of people responded that they experienced severe headaches (intensity 5). The other physical manifestations reported were fatigue without strenuous exercise, insomnia, heart palpitations, poor appetite, panic attacks, hyperventilation, GI symptoms, chest pain, and disturbances in the menstrual cycles.

Exposure to stress results in alterations of the brain-gut interactions ("brain-gut axis"), ultimately leading to the development of a broad array of gastrointestinal disorders. This explains the manifestation of GI symptoms among the participants⁶.

Positive and negative coping mechanisms were noted in the participants. The major positive coping method that was recorded was sleep, followed by exercise and meditation, and a few others, like confiding



in a friend, praying, and engaging in hobbies, were recorded in the participants.

Negative coping mechanisms like binge eating, alcohol consumption, smoking, use of recreational drugs, procrastination, and binge-watching shows were also noted.

A few limitations observed during data collection were the small sample size, the frequency and intensity of alcohol consumption, the frequency of nicotine intake, psychosomatic symptoms, and emotional disturbances that could cause a menstrual cycle in females that could point to gender bias.

Conclusion

This study provides evidence of various physical manifestations of stress among medical students. The highest percentage was reported among the age group of 22, with female students being more affected. The most common symptoms seen were chest pain, menstrual cycle disturbances, and panic attacks. Coping mechanisms adopted by these students were sleeping, binge eating, and exercising.

Recommendations

Early detection of these symptoms is necessary for managing these stressors as well as to provide mental & physical stability for medical students. Medical universities must look to initiate policies to help their students cope with their daily activities and

the psychological stress accompanying them.

Acknowledgment

This study is dedicated to all stress and trauma survivors.

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