

## Study of Stress in Medical Undergraduate Student during COVID Pandemic in Darbhanga Medical College, Laheriasarai, Bihar

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Received: 25-10-2023 / Revised: 23-11-2023 / Accepted: 26-12-2023

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Conflict of interest: Nil

### Abstract:

**Background:** The Covid-19 pandemic is affecting the entire world right now. Those who belonged to the service class were farmers, company owners, or students were all obliged to stay imprisoned in their homes. The Covid-19 Pandemic has forced the closure of universities and colleges. Every student is anxious and waiting for this illness to be permanently treated so that the environment will be proper and classes may resume at their regular speed. The purpose of this study is to evaluate how undergraduate medical students perceive stress and how they individually manage it.

**Methods:** From May 2020 to November 2020, a cross-sectional observational study was conducted. Participants were undergraduate MBBS students, and an online questionnaire (Cohen's PSS 10 scale) via Google forms was used to measure their felt stress and coping mechanisms associated to the COVID-19 timeframe. Three categories were used to classify the overall PSS score: low, moderate, and high. Based on their responses, coping strategies were divided into distinct categories.

**Results:** A total of 145 medical undergraduate student participated in the research. The overall perceived stress score for males (20.61) and females (23.21) was found to have a mean±SD of 21.703± 6.564. Participants who were female showed higher levels of stress than those who were male. They employed a variety of coping mechanisms to deal with the stress they felt as a result of the COVID-19 circumstances. The P-value for the PSS-coping and lifestyle pattern connection was determined to be 0.440 and 0.011, respectively.

**Conclusion:** According to this study, 42.07% of male and 28.96% of female medical students reported feeling moderately stressed out overall, or 71.03% of them. They adopted a variety of coping mechanisms to deal with the stress, which caused a shift in their way of life. The majority of students reported having disturbed sleep cycles, which made them feel even more stressed. Therefore, it is imperative that action be taken right now to lower medical students' stress levels.

**Keywords:** COVID-19; Perceived Stress Scale (PSS); Coping Measures; Lifestyle.

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### Introduction

A person's perception of their level of stress at any particular time is based on their feelings and thoughts. Feelings regarding the unpredictability and uncontrollability of one's life as well as self-assurance in one's capacity to handle challenges are all included in perceived stress.

People react differently to stressful experiences depending on their personality, coping mechanisms, and support system.[1] A person's perception of stress is a reflection of how they interact with their surroundings, which can have an impact on their overall health.[2] Because of the competitive environment in higher professional education, the younger student population is more vulnerable to stress.[3] Typically, the Perceived

Stress Scale (PSS 10) or a similar questionnaire is used to quantify the frequency of perceived stress. Measures of perceived stress are frequently used to investigate the connections between stress and health.[4] The recently identified infectious coronavirus COVID-19 spreads via droplets from one person to another. The virus was initially identified in Wuhan, China, and first appeared in December 2019. In January 2020, it was deemed a public health emergency of global concern. A pandemic, according to the World Health Organization (WHO), is the widespread and cross-border spread of a specific disease that affects a large number of people.[5–6]

Younger people have higher levels of stress due to the pressure to achieve, which can cause symptoms of anxiety and depression among medical students pursuing undergraduate degrees. [7]

The Covid-19 Pandemic caused an abrupt closure of schools and colleges. Every student and professional is under stress as they wait for this illness to be permanently treated, for things to return to normal, and for classes to resume as usual. Prior research indicated that illness epidemics have an effect on people's mental health and general wellbeing. There was discussion of certain risk variables. Medical students deal with stress during the COVID-19 pandemic by adopting new coping mechanisms and altered lifestyles.

We postulated that, as a result of the COVID-19 pandemic, considerable stress was linked to coping strategies and alterations in lifestyle patterns in undergraduate medical students.

### Materials and Methods

The study included 145 undergraduate students from Darbhanga Medical College located in Laheriasarai, Bihar. Every student took part voluntarily. This study, which measures subjective stress using a perceived stress questionnaire with ten items and an age range of 18 to 25 years, is based on a cross-sectional survey and will run from May 2020 to November 2020. Every student voluntarily participated in the online survey by using the link that the researcher provided on a Google form. There were both male and female young, healthy participants in the study group. The three elements of the questionnaire were consent and demographics, the PSS 10 (perceived stress score) questionnaire, coping mechanisms during the COVID-19 pandemic, and what new changes in lifestyle occurred during the COVID-19 period.

First-year through final-year medical students were asked to participate in the survey, which was based on the perceived stress score scale (PSS 10). Perceived stress was measured using the PSS-10. This is a frequently used, verified psychometric tool in many different investigations. They also inquire about any new changes to your lifestyle during the epidemic era and the steps you take to manage the stress of the pandemic at home in the questionnaire.

Simple demographic inquiries were used to get data on gender, age, sex, and whether or not they were under lockdown. The study participants' age and gender were questioned as part of their sociodemographic information. Every survey was carried out via the internet-based Google form tool.

The study participants included healthy medical students who provided a written consent to take part in it, people free from significant illnesses, and those who were neither smokers or drinkers.

This study excluded participants with no informed consent, mental illness, systemic disorders such as hypertension and diabetes mellitus, signs and symptoms of renal or endocrine diseases, and acute illnesses within the previous month.

Microsoft Excel was used to compile the data. The discrete data were expressed as no. and percentage, while the continuous data were expressed as mean  $\pm$  standard deviation (SD). The student's results are statistically significant, however  $P > 0.05$  is regarded as non-significant. The standard 5% threshold ( $\alpha = 0.05$ ) was used to determine statistical significance. Using 95% confidence intervals (CIs), effect sizes were estimated. For various parameters, the mean was computed. When required, a single sample (the student's t-test) was used. To compare the differences between the study parameter means of medical students, t and p-values were computed. The Karl Pierson's Coefficient of Correlation [r] was calculated to ascertain the relationship between study parameters and subjective stress. SPSS was used for all statistical analysis.

### Results

A total of 145 participants' data were examined. The findings showed that the entire sample of students was between the ages of 18 and 25. There were 61 females and 84 guys. According to Table 1, 71.03% of participants had moderate stress levels, 9.66% had low stress levels, and 19.31% had severe stress levels. The average PSS score for all individuals is  $21.70 \pm 6.56$ , with males scoring  $20.61 \pm 6.61$  and females scoring  $23.21 \pm 6.25$ , suggesting that females experience higher levels of stress than males. (Table 2)

**Table 1: Shows Number and percentage of Category of Stress of different gender**

		Category of Perceived Stress			Total
		Low Stress	Moderate Stress	High Stress	
Gender	Male	11	61	12	84
	Female	3	42	16	61
Total		14 (9.66%)	103(71.03%)	28(19.31%)	145

**Table 2: Mean and SD of PSS Score**

Gender	Mean	Total Number	Std. Deviation
Male	20.61	84	6.61
Female	23.21	61	6.25
Total	21.70	145	6.56

The study found that 37.24% of participants kept themselves occupied at home with various activities, 22.76% practiced yoga and meditation, 13.79% followed a healthy diet and engaged in daily exercise, 17.93% spent more time with family, 5.53% slept more, and 2.76% read books for knowledge, novels, or studies. (Table 3)

**Table 3: Shows Number of distribution of Coping Measures**

		Keep busy himself in various activities in home	yoga/ Meditation	Healthy diet and Exercise	Spend more time with family members	Sleeping	Reading book	Total
Gender	Male	30	18	10	16	6	4	84
	Female	24	15	10	10	2	0	61
Total		54(37.24%)	33(22.76%)	20(13.79%)	26(17.93%)	8(5.52%)	4(2.76%)	145

38.62 percent of participants said their sleep cycle was disturbed, 20.69% said they started exercising regularly, 17.24 percent said they felt free to do as they pleased, 8.28 percent said they developed new habits, 3.45 percent said their eating habits increased, and 11.72% said their life pattern remained the same during the pandemic. (Table 4)

**Table 4: Shows Number of distribution of new change in lifestyle during pandemic period**

		Start Regular Exercise	Sleep Cycle Disturbed	Feel Free To do they Want	Develops New Habits	Eating Habits Increased	No Change	Total
Gender	Male	9	33	18	6	4	14	84
	Female	21	23	7	6	1	3	61
Total		30(20.69%)	56 (38.62%)	25(17.24%)	12 (8.28%)	5(3.45%)	17(11.72%)	145

Table 5 presents the findings of a correlation analysis between PSS and coping measures.

The Pearson correlation coefficient is -0.065 and the p-value is.440 ( $p > 0.05$ ), indicating a non-significant inverse link between PSS and coping measures during pandemic stress.

According to Table 5 correlation analysis, there is a substantial inverse link between PSS and new

changes in life style throughout the pandemic era, with Pearson correlation values of  $r = -0.211$  and  $p = 0.011$  ( $p < 0.05$ ). Table 5 shows the results of a correlation analysis between coping mechanisms used to deal with pandemic stress and a new change in lifestyle. The Pearson correlation coefficient is  $r = 0.054$  and  $p = 0.518$  ( $p > 0.05$ ), indicating a non-significant positive relationship between the two.

**Table 5: Shows correlation analysis of Perceived stress with coping measures and change in lifestyle**

		Total perceived stress score	What measures you take to cope with this pandemic stress?	What is new change in your life style during pandemic Period?
Total perceived	Pearson Correlation	1	-0.065	-0.211*
	Sig. (2-tailed)		0.440	0.011
	No.	145	145	145
What measures you take t cope with this pandemic stress?	Pearson Correlation	-0.065	1	0.054
	Sig. (2-tailed)	0.440		0.518
	No.	145	145	145
What is new change in your life style during pandemic period?	Pearson Correlation	-0.211*	0.054	1
	Sig. (2-tailed)	0.011	0.518	
	No.	145	145	145

## Discussion

In an effort to address research problems, we conducted this study and discovered that among undergraduate medical students, COVID-19 and

unexpected lockdowns were the main sources of stress. Due to the fact that it wastes their valuable study time and primarily acts as a stressor for anxiety and sadness.

Medical students' curriculum is changing and is being closely examined because of the possible effects of COVID-19 on medical education going forward.[8]The stress levels of male and female undergraduate medical students differ significantly. Overall, participants reported a moderate level of stress. The average participant mean $\pm$ SD was 21.70 $\pm$ 6.56, for men it was 20.61 $\pm$ 6.61, and for women it was 23.21 $\pm$ 6.25, suggesting that women had higher levels of stress than men. Compared to non-medical students, medical students were more susceptible to problems with their physical and mental health. According to our survey, 90.34 percent of students reported experiencing stress. Numerous other studies have shown similar results, reporting that 73% of medical students reported feeling stressed out. A pandemic scenario could intensify these unfavorable emotions.[9] Stress negatively impacts people's mental, emotional, and physical health in a variety of ways.[10]

High levels of stress may negatively impact learning and cognitive function.[11] The brain uses the HPA axis to release the chemicals cortisol and adrenaline, preparing the body for defensive reactions like the fight-or-flight response. The body responds to the condition by taking the necessary actions. Hormones and other substances stay in the bloodstream for longer when our bodies are unable to remove a stressful circumstance.[12]

The second research question's response was that undergraduate medical students handle the stress of the pandemic in different ways. The majority of students (37.2%) attempt to occupy their time with a variety of activities at home in an effort to lessen the stress brought on by COVID-19. 22.8% of students do yoga or meditation, which promotes an increase in optimistic thinking and strengthens immunity.

13.8% of students regularly exercise and eat a healthy diet. Individuals who engage in consistent physical activity and consume a nutritious, well-balanced diet exhibit reduced stress-induced heart rate and blood pressure in comparison to individuals who engage in less physical activity and follow an unbalanced diet.[13] 17.9% of students stated that spending more time with family lowers stress levels and fosters optimistic thinking. 5.5% of students said they sleep for longer periods of time, which also lowers stress. 2.8% of students said they read books to learn academic texts or to decompress.

In response to the third research question, which asked, "What is the new change in life style of medical undergrad students during pandemic period?" 38.6% of the students said that their disturbed sleep cycle contributed to their elevated stress levels. 7% of students begin exercising every day, 17.2% say they feel free to do as they want,

8.3% form new habits, 3.4% say their eating habits have increased, maybe as a result of stress-related effects, and 11.7% say their lifestyle has not changed. Overall, the findings and response to the third research question indicate that medical students' lifestyles changed in a beneficial way during the epidemic. which results in a decrease in stress.

### Conclusion

In conclusion, the study found that there was a non-significant inverse relationship between perceived stress and coping measures, a significant inverse relationship between PSS and changes in lifestyle pattern, and a non-significant positive relationship between coping measures and changes in lifestyle pattern. These findings addressed the final research question regarding the relationship between perceived stress, coping measures, and changes in lifestyle pattern.

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