

Association of Perceived Stress and Disordered Eating Patterns with Overweight Among Medical Students in Rewa, Madhya Pradesh

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Abstract: Background: There is significant stress, both academic and lifestyle-related, faced by students in the medical field, which can impact their eating habits and their weight. There is a lack of research on the correlation between stress, disordered eating, and being overweight in medical students in Madhya Pradesh. This research was performed to investigate these aspects and their relationships in medical students from Rewa. **Methods:** The research done was cross-sectional in nature and included 350 MBBS students and interns from Shyam Shah Medical College. The research was conducted between August and November 2025. The sampling was done convenience-wise, and the Perceived Stress Scale (PSS-10) which involved 10 questions was used to measure how stressed the participants feel. This was then followed by the Eating Attitudes Test (EAT-26), and the measurement of the height and weight of the respondents to determine their BMI. The analysis for the study was done using descriptive statistics, Chi-square test statistics as well as Pearson's correlation. Statistical significance was set at $p < 0.05$. **Results:** Out of the 350 individuals surveyed, 54.3% believed they faced moderate stress and 25.7% experienced considerable high stress. The commonest form of eating disorder was emotional eating, being reported by 31.4% of the respondents. The remaining eating disorders were identified as follows: omission of the meal (27.1%) and binge eating (21.4%). 20.0% of people exhibited normal eating patterns. As for the ratio of participants and obesity rates, 51.4% were reported as having normal mass index, 24.3% were overweight, 12.9% were classified as obese and 11.4% were underweight. There is a strong positive correlation between the scores of PSS-10 and EAT-26, ($r = 0.42$, $p < 0.01$). **Conclusion:** The results show a high level of perceived stress and disordered eating among medical students, with an increase in the level of stress being linked to inappropriate eating behaviour. The presence of combination of both behavioural and psychosocial problems with overweight and obesity indicates the necessity of the implementation of the integrated early interventions aimed at student health in medical education.

Keywords: Perceived stress; Disordered eating; Eating behaviour; Body mass index; Medical students; Overweight.

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INTRODUCTION

Medical students are under pressure due to their academic responsibilities, exams, clinical tasks, and daily schedules, leading to psychological issues affecting their health and general well-being [1]. Stress is a factor that impacts how people view and respond to challenging situations, which includes health-related activities [2]. Changes in food habits are one type of activity affected by stress and other psychological factors. Not all food habits are related to eating disorders, how it is diagnosed and classified [3]. The

Perceived Stress Scale (PSS-10) shows the level of stress perceived by people, and it is widely used in studies of stress level in people [4]. Medical students have to face special stresses due to the nature of medical training that presupposes both academic work and clinical practice [5]. Also, drug addicts are known for having irregular eating habits, like skipping meals or changing the way they eat, which affects their bodies [6]. The problems of being overweight and obesity are great threats to public health and the causes of many diseases [7].

Thus, it seems appropriate to comprehend stress, eating habits, and obesity together through analysing the direct and indirect effects between these three phenomena. Relationship between stress, eating behaviours, and obesity has been described in literature so that it was suggested that psychological stress might determine eating behaviours. It is also worth mentioning that medical students have been demonstrated to experience high levels of stress and apply different coping techniques. It has been suggested that stress might influence one's appetite and food decisions through neuroendocrine and brain reward systems. Emotional eating in particular might be due to psychological stress resulting in attempts to experience emotions via food consumption. EAT-26 (Eating Attitudes Test-26) which is a popular and widely used inventory for assessing eating attitudes was used in this research. Research conducted in India has confirmed that there are issues with stress, obesity, and overweight in medical students.

Researchers have suggested a correlation between eating behaviors and stress levels congruent with the idea that lifestyle and psychological factors interact during the period of being medical student [15]. Stress and eating habits are also affected by general psychological and behavioral processes suggesting that stress eating should be understood in context rather than in isolation [16]. Regardless of the given evidence, there is little data available regarding the relation among stress, eating disorder practices, and obesity among medical students in Madhya Pradesh. Due to this, the present research was conducted with the purpose to measure perceived stress and the occurrence of disordered eating and the body mass indexes of graduates and interns of Shyam Shah Medical College, Rewa, and to analyze the connections between the stress levels, disordered eating, and BMI.

MATERIALS AND METHODS

The study was carried out in the cross-sectional study among the MBBS students and interns of Shyam Shah Medical College, Rewa, Madhya Pradesh, which was conducted from August to November 2025. The purpose of the study was to assess stress perception, eating habits and BMI status of the students participating in the study.

The study population of the research has been formed by MBBS students and interns of the said college. The sample size of the research study had been determined based on the formula $n = Z^2pq/d^2$, noting the prevalence level of 30% based on previous studies done in this

field [1], along with confidence level of 95% with the absolute precision of 5%. The calculated sample size that was the minimum sample size is 323. To ensure the number of observations raised, the number of participants was increased to 350.

Participants were selected through convenience sampling. The students and interns who were willing to participate in the study with informed consent were selected. As for the students diagnosed with psychiatric disorders, and eating disorders, and diseases, which may have affected their body weight respectively were excluded from the research sample.

A structured and pre-tested questionnaire was used to collect the data that were then analyzed using the SPSS version 25.0. The 10-item Perceived Stress Scale (PSS-10) was used to measure perceived stress. The Eating Attitudes Test (EAT-26) was used to measure disordered eating. Standard methods were used for anthropometric measurements. The height and weight were also used to calculate body mass index (BMI) in kg/m^2 . The BMI categories were made based on the World Health Organization criteria.

The categorical data has been analyzed using frequencies and percentages and the continuous data has been analyzed using appropriate descriptive statistics. The Chi-square test was applied to evaluate relationships between categorical variables and the correlations were analyzed using Pearson correlation coefficient. A significance level of $p < 0.05$ has been accepted.

The research has received ethical approval from the Institutional Ethics Committee of Shyam Shah Medical College, Rewa (IEC/040/25). Prior to the data collection, participants provided written consent for participation in the study. During the research process, confidentiality of the collected data from the participants was maintained.

RESULTS

There were 350 medical students and interns that took part in this research study. The socio-demographic characteristics of the participants can be seen in Table 1 below. Of the participants, there were 190 males (54.3%) and 160 females (45.7%). Participants were found to be present in all years of medical education including internship, while residing mostly in hostels (61.4%) and also in rented places (28.0%) and day scholars (10.6%).

Table 1. Socio-demographic profile of study participants (N=350)

Variable	Category	n	%
Gender	Male	190	54.3
	Female	160	45.7
Year of study	1st Year	70	20.0



	2nd Year	65	18.6
	3rd Year	75	21.4
	Final Year	80	22.9
	Internship	60	17.1
Residence	Hostel	215	61.4
	Rented accommodation	98	28.0
	Day scholar	37	10.6

When looking at the perceived stress among participants, it can be noted that 190 people (54.3%) were suffering from moderate stress, 90 from high

stress (25.7%), while 70 from low stress (20.0%) as shown in Table 2 below.

Table 2. Distribution of stress levels among participants

Stress level	Disordered eating present, n (%)	Disordered eating absent, n (%)	Total	p-value
Low	25 (35.7)	45 (64.3)	70	
Moderate	115 (60.5)	75 (39.5)	190	
High	75 (83.3)	15 (16.7)	90	
Total	215 (61.4)	135 (38.6)	350	<0.05

In relation to disordered eating patterns presented in Table 3, emotional eating was reported the highest at number of 110 or 31.4% of total cases, followed by

meal skipping with 95 cases (27.1%) as well as binge eating with 75 cases (21.4%). 70 participants had the normal eating behavior (20.0%).

Table 3. Distribution of reported disordered eating patterns

Eating behaviour	n	%
Emotional eating	110	31.4
Binge eating	75	21.4
Meal skipping	95	27.1
Normal eating behaviour	70	20.0

According to stress levels that are depicted in Table 4, 25 participants had disordered eating among the people with low stress, 115 had disordered eating among the people with moderate stress and 75 had disordered

eating among those with high stress. There is a significance link found with respect to the level of stress by people and experiencing disordered eating behavior ($p < 0.05$).

Table 4. Association between stress level and disordered eating

Stress level	n	%
Low stress	70	20.0
Moderate stress	190	54.3
High stress	90	25.7

Chi-square test applied; $p < 0.05$ was considered statistically significant.

BMI distribution is shown in Table 5. A total of 180 participants (51.4%) had normal BMI, 85 (24.3%) were overweight, 45 (12.9%) were obese, and 40 (11.4%)

were underweight. Thus, 37.2% of participants were classified as overweight or obese. (Table 5)

Table 5. Distribution of BMI categories among participants

BMI category	n	%
Underweight	40	11.4
Normal	180	51.4
Overweight	85	24.3
Obese	45	12.9

According to the study's findings, those who exhibited disturbed eating habits had more overweight and obese participants among their ranks than those who reported eating normally. The data presented in the paper reflect

this circumstance; however, it must be noted that the tables do not include a separate statistical test investigating the relationship of eating habits and BMI. At the same time, the Pearson's correlation provides



evidence of moderate positive correlation between PSS-10 and EAT-26 scores ($r=0.42$, $p<0.01$) indicating that

higher PSS scores could be associated with the greater EAT-26 results (Table 6).

Table 6. Correlation between perceived stress and disordered eating scores

Variables	Correlation coefficient (r)	p-value
PSS-10 score vs EAT-26 score	0.42	<0.01

DISCUSSION

The study showed that medical students and interns from Shyam Shah Medical College, Rewa experience high levels of stressful feelings and disordered binge eating. Around 54.3% of respondents said they experienced moderate stress, while 25.7 of them said they experience high stress. This means that psychological stress is a serious issue for students in Medical College. The current findings may have relevance for interpreting the prior findings showing that lifestyle and health-related behaviours are related to being overweight and obese among young people from Rewa [1]. Stress can affect a person's ability to cope with academic and clinical situations, which in turn can affect their behaviour [2]. The field of medical education may be particularly affected by the above challenges because medical students are expected to undertake an extended period of sustained academic study, along with examinations and clinical responsibilities and expectations. Past studies have shown that medical students tend to experience high levels of psychological distress [5]. The current study also found a high prevalence of disordered eating among participants, with the most commonly reported type being emotional eating (31.4%), followed by meal skipping (27.1%) and binge eating (21.4%). It is important to differentiate between the types of problematic eating attitudes described above and actual eating disorders. How eating-related issues are measured via self-report measures has been highlighted in the literature, especially when it comes to identifying eating attitudes and behaviours in community and non-clinical samples [3]. In the present research, disordered eating attitudes and behaviours were screened via EAT-26, in alignment with the well-known psychometric validity of the instrument for assessing eating issues [12].

An especially significant outcome was the correlation between perceived tension and eating disorder. The percentage of individuals having an eating disorder steadily increased from 35.7% among low-tension individuals to 60.5% among people with medium tension and 83.3% among those suffering from high tension. The connection between stress-severity level and eating disorder is statistically valid ($p<0.05$). Furthermore, the PSS-10 data has shown moderate levels of positive correlation with EAT-26 scores ($r=0.42$, $p<0.01$), which means that participants with a higher level of stress are prone to show more eating disorder symptoms. The PSS-10 is a standardized tool which measures the people's image of their situations

as being stress-causing and serves as a good base for studying perceived stress in student sample [4]. Findings in the present study corroborate findings from earlier research on the relation between stress, dietary habits, and obesity-related consequences [8]. Previous studies on medical students also demonstrated that stress was high and that students had to resort to various coping mechanisms in response to academic pressures [9]. Emotional eating turned out to be the most common eating style reported in this study. This finding is especially interesting because emotional eating occurs when food is consumed as a reaction to negative feelings. Earlier studies confirmed the significance of psychological factors in emotional eating and established that emotions might have an impact on dietary choices [11]. Skipping meals was also somewhat common in this study. This can be attributed to disrupted schedule, academic obligations, and difficulty to stick to regular eating patterns, although the cross-sectional design of the current research does not allow us to clarify the reasons behind skipping meals. Eating patterns and dietary practices of students across universities have demonstrated the same inconsistency [6]. There is a biological rationale for the association between stress and eating behaviour. Stress has the potential to impact appetite control and reward pathways, thus having influence on food choices, consumption amount, and reactions to very tasty foods [10]. This may help with understanding some changes in food behaviour due to stress. However, eating behaviour is also affected by numerous social and psychological factors, so the relationship described should not be seen as straightforward. The importance of stress-and-eating behaviour connection has been also supported by broader evidence stating that there is a complex connection between the two variables [16]. With reference to nutrition status, 24.3% of participants are overweight and 12.9% are obese, so the total number of overweight or obese people is 37.2% within the studied population. This outcome implies a significant direct weight issue within the observed population [7]. The mentioned result is in line with the previous studies on medical students demonstrating the connection between weight issues and stress [13]. The coexistence of excess body weight with problematic eating behaviours is an important issue in prevention health. The eating behaviour and body weight may be influenced by a variety of overlapping lifestyles and psychosocial conditions. The interesting finding is that the present study showed a higher number of overweight and obese people compared to those with regulated eating habits. However, due to the fact that



the separate statistical test and its effect estimate related to disordered eating and BMI were not reported in the present article it was impossible to consider the observed phenomenon as a statistical association.

The results of this study are consistent with similar findings from Indian studies on stress and eating behaviours among Indian medical students [14]. Other studies have also found some association between stress and eating habits amongst similar population groups [15]. To conclude, this research shows the importance of taking into account stress and eating behaviour in student health programmes in addition to traditional approaches used in nutrition and lifestyle programmes. Although the relationship observed in the current research does not represent causation, it may be of practical significance for preventive interventions. Medical schools are an ideal environment for the application of integrated measures concerning student well-being due to the public health implications involved. Various measures such as screening for clinically relevant psychological distress, increasing availability of psychological counselling facilities, nutrition education, and establishing supportive mentor–mentee relationships, can be used to detect students who would need help in recognizing their problems. The focus should be on healthy coping strategies and eating habits and prevention of obesity rather than on the stigmatization of students who admit having problematic eating habits. This is important as medical students will become healthcare professionals in the future, so developing healthy habits during education would be beneficial for the future of public health. The research has its merits as it encompassed students of varying stages of medical education and incorporated the measures of stress perception, eating behavior and the evaluation of anthropometric characteristics. The research provides evidential proof from Rewa, a region for which only limited details exist regarding the association between stress, eating habits, and weight among medical students. However, certain limitations are also present. The research was conducted at one institution and used convenience sampling which limits the applicability of results to medical students in other regions. Since the research was cross-sectional, temporal or causal inference cannot be established and therefore it cannot be determined whether stress led to disturbed eating or bad eating caused a higher level of stress or whether both of the aspects were influenced by other factors. What's more, stress and eating behaviors were measured by self-reporting and could be prone to bias. The analysis reported did not control for possible confounding variables, such as physical activity, sleep, socioeconomic situation, or academic load.

Future multi-center and longitudinal studies are needed to better understand the relationship over time among perceived stress, eating habits, and body weight among medical students. Studies using a larger and more

representative sample, determining relevant lifestyle and psychosocial confounders, and using multivariate statistics could yield more insights into the contribution of the factors under investigation. Research based on interventions could also tell us if the implementation of integrated stress management and healthy eating programs has an effect on problematic eating habits, and ultimately allow medical students to maintain a healthier weight.

CONCLUSION

Among medical students and interns in the study at Shyam Shah Medical College, Rewa, perceived stress and disordered eating were common. Most participants (80.0%) experienced moderate or high stress and disordered eating was prevalent among participants (61.4%). Higher levels of stress are strongly associated with disordered eating, demonstrated by a progressive increase in the proportion of participants with disordered eating in the low to high stress categories. Additionally, perceived stress scores positively correlated with disordered eating scores, revealing a crucial connection between psychological stress and eating behavior in this population. Take into account the body composition, where 24.3% of the participants were overweight and 12.9% were obese, indicating there is a significant average excess weight among the students.

All the observations discussed here stress that one must consider psychological aspects along with normal health promotion techniques when dealing with students in medical programs. Integrated student health programs that involve stress management techniques, teaching how to eat well and how to spot eating disorders could help medical students. Nevertheless, the outcomes of this study should be viewed more as correlations rather than proofs of causation because it was conducted at one site using cross-sectional methods. For a deeper understanding of how stress correlates with eating and weight issues, there should be more multicenter studies.

Ethics Approval and Informed Consent

Ethical approval was obtained from the Institutional Ethics Committee, Shyam Shah Medical College, Rewa (IEC/040/25). Written informed consent was obtained from all participants before participation. Confidentiality of participant information was maintained throughout the study.

Conflict Of Interest Statement

The authors declare that they have no conflict of interest.

Funding Statement

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Data Availability Statement

The data supporting the findings of this study are not publicly available because they contain participant-level information. Data may be made available by the



corresponding author on reasonable request, subject to applicable ethical and institutional requirements.

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