

Original Research Article

Association of emotional factors with dietary behaviors and body weight status among college students: a cross-sectional study

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ABSTRACT

Background: Transitions of college life often lead to changes in eating habits, psychological well-being, and body weight, which can have an impact on young adults' nutritional status and general health. The purpose of this study was to examine the relationship between eating attitudes, emotional appetite, and Body Mass Index (BMI) among college students.

Methods: A cross-sectional study including 356 college students aged 15 to 30 years was carried out at SRM Institute of Science and Technology in Chennai, India. Eating attitudes were measured with the Eating Attitudes Test (EAT-26), and emotional appetite was measured with the Emotional Appetite Questionnaire (EMAQ). The Body Mass Index (BMI) was computed using basic anthropometric measurements. Statistical analyses were used to examine the relationships between eating habits, emotional appetite, and BMI.

Results: The majority of individuals (64.9%) had healthy eating attitudes, while 32.3% had poor eating behaviors. A statistically significant relationship was found between eating attitudes and BMI ($p=0.034$), with normal-weight participants more likely to report good eating habits. Emotional appetite patterns showed that negative emotions were often connected with lower appetite and positive emotions with increased food intake. However, there was no statistically significant relationship between emotional appetite and BMI.

Conclusions: Healthy eating attitudes were substantially connected with normal BMI among college students, whereas emotional appetite had no effect on BMI despite impacting eating habits. These findings emphasize the need to combine nutrition education and mental health measures to encourage good eating habits and improve college students' overall well-being.

Keywords: College students, Eating pattern, Emotions, Weight status

INTRODUCTION

The complexity and the impact of the transition to college life on students on their eating patterns, well-being, and Body weight status can be understood fully through the ecological model that focuses on the multi-faceted nature of behavior and multiple levels of influences from individual psychology to broad structures in society. The ecological model is particularly appropriate in understanding dietary behaviors in its emphasis on the

interaction between dispositional and environmental elements (Figure 1).^{1,2} The ecological model illustrates the interconnectedness of the influences at different levels. At the individual level, the knowledge, attitudes, and beliefs of students concerning health and nutrition are critical.³ Experiences related to early childhood feedings, such as those involving parental control or modeling, tend to have a long-lasting impact on food preferences and perceptions concerning body weight in adulthood. Such early experiences can form the basis for the way individuals relate to food in the more independent college

environment. Group members may promote healthful behaviors or encourage unhealthy behaviors based on group norms.⁴



Figure 1: Ecological model of influences on eating pattern and weight status among college students.

At the environmental/institutional level, the physical and policy aspects of campus life are significant factors in influencing the eating behaviors of students. Some of these include university dining services, food availability, labeling systems, pricing, and meal plans. Research indicates that environmental changes, such as making healthy food available, labeling, and visibility of the same, can influence the decisions of students.⁵ In conclusion, the ecological model recognizes the interrelationship of the three types of factors.

Eating habits are daily choices of when, how, and what to eat. They are influenced by cultural expectations, personal preferences, financial constraints, and psychological factors. College students are mainly susceptible to being influenced by the mentioned factors. This can lead to the development of eating disorders (EDs) such as anorexia, bulimia, binge eating, and others.^{6,7}

College students' emotional and psychological well-being is an important element of their overall health since it has a direct impact on academic achievement, interpersonal interactions, and lifestyle choices such as eating habits. Recent studies have indicated that about one-third of college students in different parts of the world suffer from moderate and severe depression and anxiety symptoms.⁸ It is important to note that there is a reciprocal relationship between psychological issues and eating habits. On the one hand, stress and mood disorders could be associated with the development of maladaptive eating behaviors; on the other hand, unhealthy nutrition could be a factor that causes negative mental states.⁹

Body weight fluctuations are typically measured through the BMI. Emotional wellness is both a predictor and an outcome of weight status (Figure 2). 10 College students are particularly susceptible to impairments in dietary habits, mental health, and weight management due to their interactions with stress, irregular schedules, and newly discovered independence. Feeding behavior,

emotional health, and body weight are deeply connected aspects of human well-being. In young adults/late adolescents, these factors form a complex triad and have a significant impact on long-term health outcomes. So, this study investigated the relationship between eating attitudes, emotional well-being, and weight status among college students.

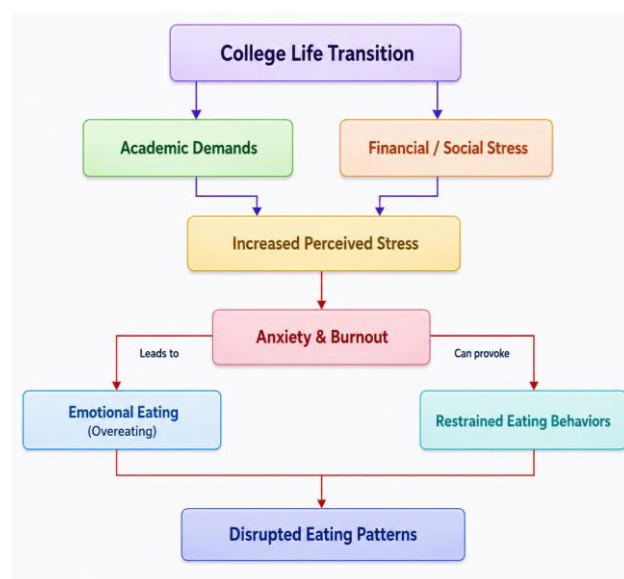


Figure 2: Stress-induced eating behaviour among college students.

METHODS

Study design and participants

The current research study adopted a cross-sectional descriptive research design amongst college-going students aged 15 to 30 years, registered at various programmes in SRM University, Chennai, India, to explore the relationship between food habits, psychological factors, and body weight conditions. The convenience sampling technique was used for the recruitment of participants. The selected participants were those who had provided their written consent to be a part of the study.

Inclusion criteria

The inclusion criteria involved college students studying at SRM University aged 15 to 30 years, who were enrolled in undergraduate, postgraduate, or Ph.D. level studies, who provided informed consent, and were willing to participate.

Exclusion criteria

Participants who were suffering from clinically confirmed eating disorders, who were on any medications, and unwilling to disclose information regarding height,

weight, or emotional well-being were excluded from the study.

Data collection procedure

The data collection process involved administration of a structured and validated questionnaire and the use of standardized tools to assess demographic characteristics, emotional eating behavior, and eating attitudes among participants. Data were collected directly by the researcher through a face-to-face interview method conducted in a controlled academic environment to ensure clarity, consistency, and accuracy of responses.

Demographic data

Demographic information, including age, gender, educational qualification, and place of residence, was collected. Anthropometric measurements such as height and weight were measured using a standardized stadiometer and electronic weighing machine following established protocols. BMI was calculated using the standard formula: weight in kilograms divided by height in meters squared (kg/m^2), to classify participants' weight status.

Assessment of emotional appetite

The assessment of emotional appetite was measured using an established psychometric scale, the Emotional Appetite Questionnaire (EMAQ). It evaluates changes in food intake in relation to participants' emotional experiences.¹¹ The EMAQ contains 22 items divided into categories of positive and negative emotions. In the context of the current research, selected emotions include positive emotions like happiness and enthusiasm, while negative emotions involve sadness, boredom, frustration, loneliness, depression, tiredness, and anger. The Likert-type rating scale used in the questionnaire consisted of nine responses ranging from "much less" to "much more" to assess behavioral change in food consumption due to emotional experiences.

Assessment of eating attitudes

The eating attitudes test (EAT-26) questionnaire is used to assess disordered eating attitudes and behaviors. The EAT-26 is one of the most reliable scales to assess problems associated with dieting behavior, food preoccupation, and bulimic symptoms.¹² A score of ≥ 20 on the 26 questions on the test suggests disordered eating behavior and the requirement of further examination through a nutritionist or a psychologist.

Ethical considerations

Ethical approval for the present study was obtained from the Institutional Ethics Committee of SRM Medical College Hospital and Research Centre before commencement of data collection. Ethics Clearance

number: SRMIEC-ST0325-2177. All participants gave their informed consent; participation was completely voluntary, and the study's confidentiality and anonymity were preserved.

Statistical analysis

The collected data were tabulated, interpreted, and subjected to statistical analysis.

RESULTS

Results on demographic data

The demographic details of the collected sample size are listed in (Table 1).

BMI-weight status

The distribution of BMI categories within the sample population indicates that the majority of participants (57%) fell within the normal BMI range, indicating a healthy weight status. However, (20%) were classified as overweight and (9%) as obese, suggesting that nearly one-third of the sample may be at increased risk for weight-related health conditions. Additionally, (14%) of participants were categorized as underweight, highlighting the presence of both ends of the weight spectrum within the college student population (Figure 3).

Eating attitudes of college students

The eating pattern among the college students was assessed using EAT-26. The majority (65%) of the students have healthy eating attitudes. However, a significant portion, nearly one-third (32%), showed poor eating attitudes, which may reflect disordered eating patterns or underlying emotional issues such as stress, anxiety, or body image dissatisfaction (Figure 4).

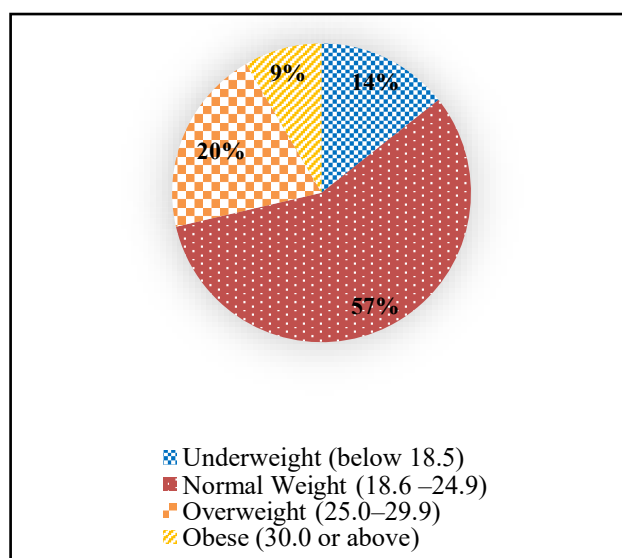


Figure 3: BMI Range of the participants

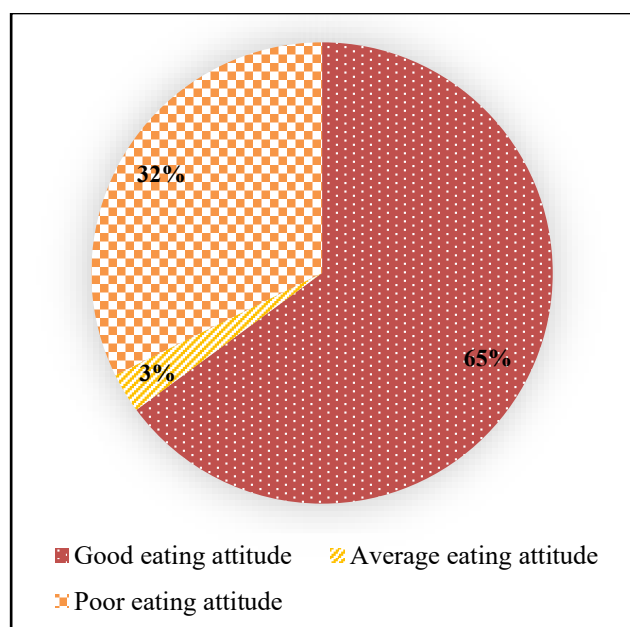


Figure 4: Eating attitude of the participants

Association between eating attitude and BMI categories among participants

The results suggested that individuals' eating attitudes were related to their BMI status. Specifically, a greater proportion of individuals with a normal BMI demonstrated good eating attitudes (58%), whereas obese individuals were under-represented in this group (6.1%). A statistically significant difference of ($p=0.03$) was observed between eating attitude and weight status (Table 2).

Food intake patterns according to emotional states among participants

The results collected using the emotional appetite questionnaire indicated that the emotional state of a

person has a significant influence on food intake patterns among the college students. Participants' food intake was less (48.3%) when they were in a sad emotional state.

Whereas food intake was normal when they were frustrated (18.3%) and enthusiastic (18%). Food intake was comparatively more when they were extremely happy (49.4%) and bored (46.3%). A significant relation was observed in sad, frustrated, anxious, and happy emotional states (Table 3).

Association between emotion-related food intake and eating attitudes

The Association between the various emotions and their effect on food intake and eating attitudes was assessed using the emotional appetite questionnaire. The emotional appetite questionnaire reveals that emotional status influences the food intake and eating attitudes of the college students. Emotions like sadness, boredom, frustration, depression, loneliness, anxiety, tiredness, happiness, and enthusiasm were influenced by food intake patterns. A statistically significant difference was observed between food intake and emotional states of sadness (p value=0.036) and happiness (p value=0.043) (Table 4).

Relationship between emotions and body mass index

The results indicated that there was no statistically significant difference observed, even though some were approaching significance, which may warrant further exploration: Depressed, which was Close to significance ($\chi^2=11.619$, $p=0.071$), suggested a potential relationship between depressive feelings and weight status. Whereas other emotions like frustration, anxiety, tiredness, and happiness show no significant relationship with body weight status (Table 5).

Table 1: Demographic details of the participants.

Variables	Categories	No. of samples	Percentage
Age (in years)	15-19	117	32.9
	20-24	194	54.5
	25-30	45	12.6
Gender	Male	132	37.1
	Female	224	62.9
Education	UG	243	68.2
	PG	99	27.8
	Ph.D.	14	3.9
Department	Engineering	96	26.9
	Medical	171	48
	Others	89	25.2
Residence	Day scholar	213	59.83
	Hosteller	143	40.16

Table 2: Association between eating attitude and BMI categories.

Eating attitude	Underweight n (%)	Normal n (%)	Overweight n (%)	Obese n (%)	Total	χ^2	P value
Good eating attitude	38 (16.5)	134 (58.0)	45 (19.5)	14 (6.1)	231 (100)	13.667	0.034*
Average eating attitude	1 (10.0)	9 (90.0)	0 (0.0)	0 (0.0)	10 (100)		
Poor eating attitude	12 (10.4)	60 (52.2)	27 (23.5)	16 (13.9)	115 (100)		
Total	51 (14.3)	203 (57.0)	72 (20.2)	30 (8.4)	356 (100)		

*Significant at $p \leq 0.05$.**Table 3: Food intake during different emotional states.**

Emotional state	Less intake n (%)	Normal intake n (%)	More intake n (%)
Sad	172 (48.3)	54 (15.2)	130 (36.5)
Bored	137 (38.5)	54 (15.2)	165 (46.3)
Frustrated	154 (43.3)	65 (18.3)	137 (38.5)
Depressed	159 (44.7)	61 (17.1)	136 (38.2)
Lonely	164 (46.1)	53 (14.9)	139 (39.0)
Anxious	165 (46.3)	49 (13.8)	142 (39.9)
Tired	155 (43.5)	61 (17.1)	140 (39.3)
Happy	118 (33.1)	62 (17.4)	176 (49.4)
Enthusiastic	144 (40.4)	64 (18.0)	148 (41.6)

Table 4: Association between food intake and eating attitude.

Emotions	Food intake	Eating attitude			Total	Person chi-square	P value
		Good	Average	Poor			
Sadness	Less intake	116	07	49	172	10.260	0.036
		67.5%	4.1%	28.5%	100%		
	Normal intake	41	01	12	54		
		75.9%	1.9%	22.2%	100%		
	More intake	74	02	54	130		
		56.9%	1.5%	41.5%	100%		
Boredom	Less intake	231	10	115	356	5.473	0.242
		64.9%	2.8%	32.3%	100%		
	Normal intake	90	05	42	137		
		65.7%	3.6%	30.7%	100%		
	More intake	41	0	13	54		
		75.9%	0.0%	24.1%	100%		
Frustration	Less intake	100	05	60	165	7.969	0.093
		60.6%	3.0%	36.4%	100%		
	Normal intake	231	10	115	356		
		64.9%	2.8%	32.3%	100%		
	More intake	106	04	44	154		
		68.8%	2.6%	28.6%	100%		
Depression	Less intake	48	01	16	65	6.039	0.1962312
		73.8%	1.5%	24.6%	100%		
	More intake	77	05	55	137		
		56.2%	3.6%	40.1%	100%		

Continued.

Emotions	Food intake	Eating attitude			Total	Person chi-square	P value
		Good	Average	Poor			
	Normal intake	46	1	14	61		
		75.4%	1.6%	23.0%	100%		
	More intake	79	5	52	136		
		58.1%	3.7%	38.2%	100%		
	Total	231	10	115	356		
		64.9%	2.8%	32.2%	100%		
Loneliness	Less intake	110	04	50	164	4.312	0.3654288
		67.1%	2.4%	30.5%	100%		
	Normal intake	39	01	13	53		
		73.6%	1.9%	24.5%	100%		
	More intake	82	05	52	139		
		59%	3.6%	37.4%	100%		
Total	231	10	115	356			
	64.9%	2.8%	32.3%	100%			
Anxious	Less intake	120	04	41	165	8.831	0.0654739
		72.7%	2.4%	24.8%	100%		
	Normal intake	30	01	18	49		
		61.2%	2.0%	36.7%	100%		
	More intake	81	05	56	142		
		57%	3.5%	39.4%	100%		
Total	231	10	115	356			
	64.9%	2.8%	32.3%	100%			
Tiredness	Less intake	99	5	51	155	3.912	0.418003
		63.9%	3.2%	32.9%	100%		
	Normal intake	45	0	16	61		
		73.8%	0.0%	26.2%	100%		
	More intake	87	5	48	140		
		62.1%	3.6%	34.3%	100%		
Total	231	10	115	356			
	64.9%	2.8%	32.3%	100%			
Happiness	Less intake	81	04	33	118	9..857	0.043
		68.6%	3.4%	28%	100%		
	Normal intake	48	0	14	62		
		77.4%	0.0%	22.6%	100%		
	More intake	102	6	68	176		
		58%	3.4%	38.6%	100%		
Total	231	10	115	356			
	64.9%	2.8%	32.3%	100%			
Enthusiastic	Less intake	95	3	46	144	4.091	0.394
		66.0%	2.1%	31.9%	100%		
	Normal intake	47	2	15	64		
		73.4%	3.1%	23.4%	100%		
	More intake	89	5	54	148		
		60.1%	3.4%	36.5%	100%		
Total	231	10	115	356			
	64.9%	2.8%	32.3%	100%			

Emotions	Underweight	Normal	Overweight	Obese	Pearson Chi-Square	P value
Frustration					4.187 ^a	0.651
Depressed					11.619 ^a	0.071
Lonely					11.520 ^a	0.074
Anxious					4.745 ^a	0.577
Enthusiastic					8.733 ^a	0.189
Tired					2.269 ^a	0.893

*Significant at $p \leq 0.05$; ^aPearson's Chi-square test

DISCUSSION

This study sample consisted primarily of male students aged 20–25 years (37.2%), with females constituting the majority (62.9%). This gender skew is consistent with recent findings indicating that female students more actively participate in health and nutrition-related surveys, particularly those addressing emotional health and dietary practices.¹³ The BMI distribution showed that most individuals fell within the normal range (57%), with a significant number classified as overweight (20.2%) or obese (8.4%). These proportions align closely with current trends identified in nationwide student health assessments, where lifestyle stressors, irregular meal timing, and emotional eating behaviors are prevalent among urban youth populations.¹⁴

Findings from EAT-26 indicate that while the majority of college students (64.9%) maintain positive eating attitudes, a noteworthy 32.3% exhibit poor or disordered eating attitudes, potentially placing them at risk for eating disorders. These outcomes were consistent with recent studies that reported a similar prevalence of disordered eating behaviors among students at Tabriz University using EAT-26 metrics.¹⁵ Emotional triggers such as loneliness, relationship issues, and academic pressure were frequently observed as reasons for loss of control over eating.¹⁶

The study's findings of the association between eating attitudes and BMI indicated that students with healthy eating attitudes were more likely to have a normal BMI, whereas overweight and obese individuals had poorer eating attitudes. A study by Sifre et al revealed a similar behavioral pattern, finding that disordered eating attitudes were significantly associated with greater BMI among university students.¹⁷ The authors suspected that unfavorable eating attitudes might lead to bad dietary habits and weight-related issues. These findings highlight the importance of healthy eating attitudes in promoting adequate weight status and general well-being in college students.

The EMAQ has consistently demonstrated a strong link between negative emotional states and disordered eating patterns. Emotional states such as sadness, boredom, frustration, depression, loneliness, anxiety, and fatigue were frequently associated with disruptions in appetite, often manifesting as either undereating or overeating—both of which were linked to poorer emotional well-being and

psychological distress. When experiencing sadness, 48.3% of students reported eating less, while 36.5% reported eating more indicating that both hyperphagic and hypophagic responses may be expressions of dysregulated emotion processing. These patterns are often tied to depressive symptoms. A study by Smith et al confirms that individuals with depressive tendencies show altered appetite regulation, reflecting either reduced or increased intake depending on emotional coping strategies.¹⁸

The most common emotional triggers for overeating were boredom (46.3%) and frustration (38.5%), indicating boredom as a key antecedent of emotional eating, particularly involving overeating.¹⁹ Emotional eating in such cases serve as a short-term coping mechanism to alleviate negative effects. Anxiety and depression were also found to have a significant impact on eating behavior. Students reporting either increased or decreased intake in response to these emotional states exhibited higher levels of distress. Notably, those who maintained a stable food intake despite emotional fluctuations reported lower levels of negative emotions, indicating a potential protective effect of consistent eating habits.²⁰

Emotional status does not show a significant relationship with BMI among the participants. Although emotions were found to influence food intake patterns, their effects were not expressed in changes in body weight categories. This research suggests that weight status can be influenced by factors other than emotional well-being, such as eating habits, physical activity, metabolic parameters, and other lifestyle behaviors. However, emotions may have an indirect impact on weight-related outcomes by altering eating habits and dietary choices over time.²¹

CONCLUSION

The study's findings highlight the complex relationship between emotional well-being, eating attitudes, and weight status among college students. Even though the majority of participants had healthy eating attitudes and a normal BMI, a significant number had bad eating attitudes, which were substantially related to overweight and obesity. Emotional states have been found to influence food intake patterns, with both negative emotions (sadness, anxiety, loneliness, and depression) and positive emotions (happiness) influencing hunger and eating behaviors. However, no significant association was

observed between emotional status and BMI, suggesting that emotions may not directly influence body weight. Nevertheless, emotions may indirectly affect weight-related outcomes through their impact on eating behaviors and dietary choices over time. These findings emphasize the importance of promoting healthy eating attitudes and addressing emotional well-being through integrated nutrition and mental health interventions to support the overall health and well-being of college students.

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