Prevalence and Risk Factors of Eating Disorders among Students in Guntur, South India: A Cross-Sectional Study

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Abstract

Back ground Given the limited research on eating disorders (EDs), which are marked by disordered eating habits affecting mental and social well-being, there is a pressing need for more studies, especially amongst the Indian university student populations. This study aims to bridge this research gap by estimating the prevalence of eating disorders and assessing the associated risk factors among students in Guntur, South India, an area currently underrepresented in existing literature.

Objectives: To estimate the prevalence of eating disorders among students, To assess the associated risk factors for the eating disorders

Methods and Material: A cross-sectional study was carried out involving 300 students from various colleges, selected through convenience sampling method. Measurements of their height and weight were taken. The study utilized four primary questionnaires distributed to the participants: Demographic Information, Eating Attitudes Test (EAT26), Body Shape Questionnaire (BSQ34), and the Perceived Stress Scale (PSS). The gathered data were compiled and analysed using the SPSS software version 21.0.

Results: The percentage of students who had high risk for eating disorder was 23.3% (70). High risk for eating disorder was associated with severe body shape concerns (p<0.01). Total students with body shape concern were 165 (55%) with 50 (16.6%) students exhibiting high risk for eating disorder. 28 (9%) Students exhibited high perceived stress levels of which 12 (4%) students exhibited high risk for eating disorder. Other risk factors such as peer pressure 174 (58%), excessive exercise 25 (8.3%) and behavioural symptoms 177 (59%) were also noted among students.

Conclusions: A substantial number of university students face the risk of eating disorders, often influenced by worries about body image. These eating disorders were also associated with behavioural manifestations and difficulty among friends.

Key words: eating disorders, body shape concerns, students.

Introduction

Eating disorders, largely under-researched in India, involve abnormal eating habits leading to detrimental physical and mental health effects. Common types include binge eating disorder, bulimia nervosa, and anorexia nervosa. In India, these disorders often present in less distinct forms, highlighting a need for more tailored understanding and research. [1]

Eating disorders represent critical health concerns impacting individuals across various age groups, with a notable prevalence among college students. [2]

The Multi-Service Eating Disorders Association (MEDA) disclosed that approximately 15% of females aged 17 to 24 are affected by some form of eating disorder. Previously considered a problem primarily in Western cultures, it's now evident that eating disorders affect adolescents from all racial and socioeconomic backgrounds, with over 75% of these instances starting during the adolescent years[3]

Eating disorders, marked by severe psychiatric conditions, are linked to high levels of illness and death. They mainly involve intense concerns about body weight, shape, and food habits. Numerous elements, including economic status, stress, and media influences, contribute to these disorders. However, the extent of their impact remains largely unexplored. [4]

Eating disorders often coincide with additional mental health issues such as depression and anxiety, which can increase their severity and risk of fatality. Furthermore, diagnosing these disorders can be challenging, resulting in over half of the cases remaining unrecognized. Specifically in India, there is a notable deficiency in awareness and a vague diagnostic approach for identifying eating disorders. [5]

Implementing thorough screening programs is vital to prevent complications from advanced eating disorders. While psychiatrists diagnose these conditions, regular questionnaires and interviews, followed by professional referrals, aid early detection and treatment. Educating youth about symptoms and characteristics is crucial for both primary and secondary prevention. [6]

The Eating Attitudes Test (EAT26), authored by Garner and colleagues, stands as the most commonly utilized instrument for screening eating disorders. [7]

Stress is a widespread phenomenon, particularly intensified in high-stress environments. The Perceived Stress Scale (PSS), created by Cohen, is often used to measure stress levels in these settings. [8]

Prompt detection is crucial for minimizing the occurrence and complications associated with these illnesses. However, there is a scarcity of research focused on eating disorders and their related risk factors within the Indian demographic. [9]

Therefore, this study aims to determine the prevalence of eating disorders and associated risk factors like stress, body mass index (BMI), concerns about body shape, and other elements among college students across academic disciplines.

Objectives

- To estimate the eating disorders prevalence among students.

- To assess the associated risk factors for the eating disorders.

Material and methods

Study design - Cross sectional study.

Study setting and population -University students. BBA-1st, 2nd and 3rd year students and BSE-Agriculture honour's-2nd year students.

Duration of study- Two months: November - December 2023

Study population

Inclusion criteria- Students only between the ages of 18 to 24 years.

Students willing to participate in study post informed written consent.

Exclusion criteria- Students absent on day of survey, students suffering from chronic medical condition and students suffering from mental health issues.

Sample size -300 (calculated sample size was 288)

$n= Z^2 \cdot p \cdot (1-p)/e^2$

(n- Sample size, Z- confidence interval -1.96, p-prevalence- 25.02% [17], e is margin of relative error- 20%)

Sampling technique – Convenience sampling.

Sampling method- The investigator approached the students from various classes, each comprising 160 students divided into two sections. The research study was explained to the students, highlighting its significance and objectives. Participation was voluntary, and students were invited to contribute to the study. After receiving written consent from those willing to participate, they were provided with detailed instructions on how to complete the questionnaire. The target sample size for the study

was set at 300. Once this number was reached, the investigator expressed gratitude to the students for their participation and concluded the data collection phase.

Study tools:

Eating Disorders - EAT26:

The EAT26 questionnaire, a primary screening tool for eating disorders, encompasses three sections focusing on dieting, food obsession, and oral control. It consists of 26 questions with a scoring system where 'Always' equals 3 points, 'Usually' 2, 'Often' 1, and 'Sometimes', 'Rarely', and 'Never' score 0. Exceptionally, question 26 is scored in reverse. Scores of 20 or higher indicate a high risk of an eating disorder, necessitating further evaluation, while scores below 20 suggest lower risk. EAT26 is widely used for early detection of eating disorders, aiding in identifying individuals who may need professional intervention. [7]

Stress – PSS:

The Perceived Stress Scale (PSS) is a brief survey measuring how much individuals feel overwhelmed and unable to control important events in their lives. It's widely used for assessing perceived stress. This questionnaire reflects thoughts and feelings from the past month. Scoring is categorized as follows: scores from 27 to 40 indicate high stress, 13 to 27 signify moderate stress, and below 13 represent low stress levels. This scale is key in understanding individual stress perceptions. [8]

Body Dissatisfaction - BSQ 34:

The Body Shape Questionnaire (BSQ), devised by Cooper et al. in 1987, is a self-assessment tool assessing concerns about body shape. It measures discomfort and preoccupation with body shape over the past four weeks. The BSQ's maximum score is 204, with higher scores indicating increased dissatisfaction with body shape. Interpretation of scores is as follows: over 140 suggests serious concern, 111-140 indicates moderate concern, 80-111 reflects mild concern, and below 80 denotes minimal or no concern about body shape. This tool is essential for understanding individual perceptions of body image. [10]

Method of statistical analysis:

Data was entered in Microsoft excel sheet 2016 and analysed using IBM SPSS Statistics, version 24. Categorical variables were expressed in frequency, percentages. To investigate the relationship between eating disorders and various identified risk factors, a chi-square test was conducted. P value less than 0.05 was considered to be statistically significant.

Results

The study involved the participation of 300 students, with a nearly equal distribution of frequencies across the four different classes involved. The age range of the participants was between 18 and 24 years. Among these respondents, 30.7% identified as male and 69.3% as female.

Table 1: Demographic profile of study population (N=300)

Variables	N [%]
Course	
BBA- 1st Year	69 (23%)
BBA- 2nd Year	76 (26%)
BBA- 3rd Year	80 (26.67%)
BSE- Agriculture	75 (25%)
Age in years	
18 - 20 Years	235 (78.33%)
21-22 years	41 (13.67%)
23-24 Years	24 (8%)
Gender	
Male	92 (30.67%)
Female	208 (69.33%)
Place of Stay	
Apartment / Lodging with friends	22 (7.33%)
Home	162 (54%)
Hostel	116 (38.67%)

The research involved 300 students from diverse academic backgrounds. The breakdown by year was: 69 first-year BBA students (23%), 76 in their second year (26%), and 80 in their third year (26.67%). Additionally, 25% (75 students) were from BSE-Agriculture. Age-wise, 235 participants (78.33%) were 18-20 years old, 41 (13.67%) were 21-22, and 24 (8%) were 23-24 years old. There were more females (208, 69.33%) than males (92, 30.67%). Living arrangements varied: 22 students (7.33%) stayed in apartments, 162 (54%) lived at home, and 116 (38.67%) in hostels.

Table 2: Association of eating disorders with risk factors among study participants (n=300)

Associated risk factors	Eating disorder		Total	P-value
History of counselling for weight	**Yes (≥20)**	**No (<20)**		
Yes	28	37	65	
No	42	193	235	**0.0001***
Eating disorder & Difficulty with friends	**Yes (≥20)**	**No (<20)**	**Total**	**P-value**
Usually,	11	9	20	
Sometimes	25	55	80	**0.0001***
Rarely	11	62	73	
Never had problems	23	104	127	
Eating disorder with Age	**Yes (≥20)**	**No (<20)**	**Total**	**P-value**
18-20	54	181	235	
21-22	9	32	41	**0.772**
23-24	7	17	24	
Eating disorder with place of stay	**Yes (≥20)**	**No (<20)**	**Total**	**P-value**
Hostel	28	88	116	
Home	35	127	162	**0.549**
Apartment/ Lodge	7	15	22	
Eating Disorder with BMI	**Yes (≥20)**	**No (<20)**	**Total**	**P-value**
<18	17	53	70	
18-25	29	125	154	**0.126**
25-30	15	38	53	
≥30	9	14	23	
Eating Disorder with Gender	**Yes (≥20)**	**No (<20)**	**Total**	**P-value**
Male	21	71	92	**0.89**
Female	49	159	208	
Eating disorder with exercise routine	**Yes (≥20)**	**No (<20)**	**Total**	**P-value**
Daily	21	50	71	**0.335**
Never	25	109	134	

1-3 days	13	39	52	
3 days a week	11	32	43	
Eating disorder with body shape concern	**Yes (≥20)**	**No (<20)**	**Total**	**P-value**
Marked concern with shape	9	12	21	
Mild concern with shape	20	50	76	**0.0013***
Moderate concern with shape	21	47	68	
No concern with shape	20	115	135	
Eating disorder with perceived stress	**Yes (≥20)**	**No (<20)**	**Total**	**P-value**
High Stress	12	28	40	
Moderate stress	50	157	207	**0.214**
Low stress	8	45	53	

Prevalence of eating disorder among the study participants

The study examined the prevalence of eating disorders among different student groups, considering their course, age, gender, and living arrangements. For the course-wise distribution, out of 69 BBA 1st Year students, 17 (24.63%) were at high risk and 59 (85.51%) at low risk for eating disorders. Among the 76 BBA 2nd Year students, 14 (18.42%) were high risk and 55 (73.36%) low risk. In the BBA 3rd Year group of 80 students, 18 (22.50%) were high risk, and 62 (77.50%) low risk. In the BSE-Agriculture course with 75 students, 21 (28.00%) were identified as high risk and 54 (72.00%) as low risk.

Age-wise, among the 235 students aged 18-20 years, 54 (22.97%) were high risk and 181 (77.02%) low risk. In the 21–22-year age group of 41 students, 9 (21.95%) were high risk and 32 (78.04%) low risk. Among the 24 students aged 23-24 years, 7 (29.16%) were high risk and 17 (70.83%) low risk.

Gender-wise, of the 92 male students, 21 (22.82%) were at high risk and 71 (77.17%) at low risk. Among the 208 female students, 49 (23.56%) were high risk and 159 (76.44%) low risk.

Regarding their living situation, of the 22 students living in apartments or with friends, 7 (31.81%) were high risk and 15 (68.19%) low risk. Of the 162 students living at home, 35 (21.60%) were high risk and 127 (78.39%) low risk. Among the 116 students staying in hostels, 28 (24.13%) were high risk and 88 (75.86%) low risk.

This study explored the relationship between various factors and eating disorders among students. Of the 65 students (21.6%) who received counselling for body weight issues, 28 (43.07%) were at high risk for eating disorders, a significant contrast to the 42 (17.87%) at high risk among the 235 students (78.3%) without such counselling, with a p-value of <0.001.

Friendship difficulties were also significantly associated with eating disorders. Among 20 students (6.6%) with usual friendship issues, 11 (55%) were at high risk, compared to 18.11% (23 out of 127 students) without such difficulties, also showing a significant association (p-value <0.001). The Body Shape Questionnaire (BSQ) results indicated 7% (21 students) had marked body shape concerns, with 42.8% (9 out of 21) of these also at high risk on the EAT26 scale, a significant association (p=0.0013). However, no significant association was found between stress levels and eating disorders (p-value 0.214), despite 30% (12 students) of the high-risk group being highly stressed.

Additionally, the study examined behavioural manifestations in relation to EAT-26 scores. Of the

70 students identified for high risk eating disorder, 80% (56 students) exhibited one or more related symptoms, demonstrating a significant association with high EAT-26 scores (p-value 0.0001). This comprehensive analysis underscores the multifaceted nature of factors influencing eating disorders in a student demographic

Discussion

   The study reveals that 23.3% (70 students) at the university struggle with eating disorders, aligning with Md. Hasan Al Banna et al.'s research, which found a 23% prevalence (84 students) among Bangladeshi public university students. [11]

The incidence of the eating disorder appeared to be nearly identical among both males and females, an uncommon observation since typically, in many demographic groups, males exhibit a lower incidence. [12] This study underscores the importance of comprehensive screening for eating disorders in males, highlighting their substantial vulnerability to these conditions.

In this study it was found that eating disorder was positively associated with history of counselling with total students who had gone for counselling being 65 (21%) of which 28 (9.3%) reported positive history for eating disorder. Paradoxically other studies report a decrease in eating disorder on counselling. Reported 51% improvement and recovery from eating disorder post counselling in a study by Emily A. Carrino, Rachael E. Flatt e.t.al. [13]

The study found a significant association (p < 0.001) between eating disorders and friendship difficulties: 55% (11 out of 20 students) who often struggle with friends showed high risk for eating disorders. This aligns with Nandini Datta's findings, where 83.34% (17 out of 20) with eating disorders reported friendship difficulties. [14]

Balhara and Mathur's 2012 study highlighted a significant link between body shape concerns and eating disorders, especially in adolescents' volatile body image, increasing their vulnerability. [15] Our study confirms this, showing 55% (165 students) with body shape concerns, and 16.6% (50 students) at high risk for eating disorders, with a significant p-value of 0.0013.

Study by Wu, X. Y., Yin, W. Q., Sun, H. W. e.t.AL showed a significant association between eating disorder and behavioural symptoms with 50% of students with eating disorder showing positive association with behavioural symptoms, with p value <0.001**. [16]

Our study also shows significant association between eating disorder and behavioural symptoms. With total of 177 (59%) students reporting for positive behavioural symptoms and 56 (18.6%) students from this population reporting positive for high risk eating disorder. With p value <0.001**.

Conclusions

The incidence of eating disorder risk is notably elevated among university students. Concerns about body shape, along with behavioural manifestations and difficulty with friends are closely linked to these disorders.

Limitations:

1. Sample Size: The study's sample size of 300 students, obtained through convenience sampling, may not represent the entire university student population accurately.
2. Sampling Method: Convenience sampling might introduce bias as participants are selected based on ease of access. This could limit the study's ability to make broad conclusions about the entire student population.
3. Self-Reporting: The study relies on self-reported data from participants, which could be prone to social desirability bias or inaccuracies in responses, especially regarding sensitive topics like eating behaviors and mental health.

Recommendation: Routine screening and referral services in academic institutions are crucial for addressing mental health issues from eating disorders. Their implementation can lead to early detection and intervention, potentially diminishing prevalence and severity among students.

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Conflicts of Interest: Nil

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