Original Research Article

Risk and relationship of eating disorders with body image, stress and self-esteem among university students

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ABSTRACT

Background: The study was conducted to find the prevalence rates of eating disorders, body dissatisfaction, low self-esteem and levels of stress in the students of JSSAHER and to also find out the relationship between the same with eating disorders.
Methods: A survey was conducted among 160 participants and they were asked to fill out questionnaires containing EAT-26, PSS-4, Rosenberg self-esteem scale and contour drawing scale which assesses risk of eating disorder, stress, self-esteem and Body image satisfaction respectively. The data was analyzed.
Results: It was found that the 16.9% of the participants were prone to eating pathologies. Among 160 students 60% were not satisfied by their bodies, 37.5% reported high levels of stress and 20% had low self-esteem. A statistically significant association was found between eating disorders risk and body dissatisfaction whereas no significant association was found between stress and self-esteem with eating disorders in our study.
Conclusions: This study showcases that eating disorders are an upcoming issue and that more research is required to find the etiological factors which lead and predispose people to eating disorders in India.

Keywords: Eating disorders, Body image dissatisfaction, Stress, Low self-esteem, University students

INTRODUCTION

According to DSM-V, feeding and eating disorders are characterized by a persistent disturbance of eating or eating-related behavior that results in the altered consumption or absorption of food, which significantly impairs physical health or psychosocial functioning. These conditions are more prevalent in female adolescents and young adults in western countries. Unfortunately, the diagnosis of eating disorders can be elusive, and more than one-half of all cases go undetected.[1]

Eating disorders include-pica, rumination disorder, avoidant/restrictive food intake disorder, anorexia nervosa, bulimia nervosa, and binge-eating disorder.

Eating disorders have a multifactorial etiology with several factors like perception of self-physique, obligatory attitude for exercising, childhood obsessive compulsive disorders, low self-esteem, perfectionism and stressful conditions being implicated.[2-5]

It is evident that in the transition from pre-pubertal to mid-adolescence there is a significant gender variation in the body growth pattern and this oftentimes leads to body dissatisfaction and a distorted body image. There is an increased desire to be thin especially among young women which becomes the root cause of the problem.[6]

Research on eating disorders in India and other Asian countries has been neglected and very limited. With the advent of technology and increasing westernization, it is of utmost importance to research this in India as well.

This cross-sectional study was conducted to assess the risk of development of eating disorders among university students and its relationship with varying levels of stress, body dissatisfaction, and self-esteem among the study participants in JSSU, Mysuru.

Objectives

Objectives of the study were to estimate the frequency of risk of eating disorders, body dissatisfaction, low self-esteem and levels of stress among university students and to assess the relationship between low self-esteem, body dissatisfaction, and stress with the development of eating disorders in university students.

METHODS

A cross sectional study was conducted in JSS academy of higher education and research (JSSAHER), Mysuru. The study was conducted in June-August 2019 period.

The sample size was determined according to a study conducted by Vijayalakshmi et al in which the prevalence of eating disorders (using the EAT26 questionnaire) among college students was found to be 10.6%. Therefore, with a 5% allowable error and 10% non-response rate, the sample size was estimated to be 160.[7]

The subjects included were students from JSS medical college, Mysuru, JSS college of pharmacy, Mysuru, JSS dental college, Mysuru, and JSS faculty of life sciences, Mysuru. From each of these mentioned colleges (All the constituent colleges of JSSAHER) 40 students were selected for the study. The exclusion criteria included students who were already diagnosed with any of the eating disorders or students who did not give consent to participate in the study.

The approval of the JSS medical college institutional ethics committee was obtained. The participants were administered questionnaires via Google forms (internet) after taking their informed consent. The questionnaire contained- Socio-demographic details, anthropometric measurements such as height, current weight, (based on which BMI was calculated).

The questionnaire comprised of the following standardized tools; EAT-26: It is a popularly used standardized measure of symptoms and concerns characteristic of eating disorders. Subjects were divided into two groups based on their scores, subjects with scores below 20 (low-risk individuals), and subjects with scores equal to 20 or above 20 (at-risk individuals).

Rosenberger's self-esteem scale

It is a standardized self-report measure for the assessment of self-esteem. Subjects were divided into two groups by their test scores, subjects with scores below 15 (low self-

esteem) and subjects with scores of 15 and above, (normal range).

Perceived stress scale 4 (PSS-4)

It is a widely used psychological instrument for measuring the perception of stress.

The subjects with scores between 0-8 were considered one group (comparatively less stressed) and subjects with scores between 9 and 16 were categorized as the second group (higher stress levels).

Contour drawing scale

The measure of body dissatisfaction was calculated by asking the subjects their current body shape (from the images 1-9) and their ideal body shape (from images 1-9). The numbers corresponding to both the images were subtracted and the difference was considered to be the index of dissatisfaction. Separate images were used for men and women (Figure 1).
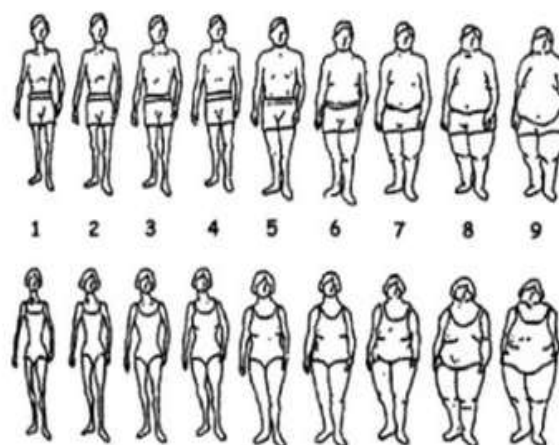

Figure 1: Contour drawing scale.

The subjects were divided into 3 categories based on their scores;

Positives scores: Above their desired weight-subjects who consider themselves heavy and would ideally like to lose weight.

Zero score: At their desired weight-subjects who were 'satisfied' with their body weight.

Negative score: Below their desired weight-subjects who consider themselves underweight and would ideally like to gain some weight.

Statistical analysis

All the collected data was entered in Microsoft excel 2010 and analyzed using the statistical software SPSS

(statistical package for social sciences) version 22.0 (licensed to JSSAHER).

EAT-26, PSS-4, and RSS scores were categorized and represented in percentage.

The association of the risk of developing eating disorders was calculated with self-esteem, body dissatisfaction, and stress using chi-square tests for each independent variable separately. Using chi-square and fisher's exact test, p< 0.005 have been considered statistically significant.

RESULTS

In the current study, among the study population 58 (36.25%) were males and 102 (63.75%) were females. The mean age of participant was 20.14±1.52 years (Table 1).

Table 1: Demographic details of the study population.

Variables	Male (%)	Female (%)	Total
Gender	58 (36.25)	102 (63.75)	160
Mean age of respondents, (Years)	20.14±1.52		

The prevalence of at risk of getting eating disorders with ETA score more than 20 was found in 27 (16.9%) students among total of 160 students. In students who had risk of EDs majority were females that is 19 (70.4%), 8 (29.6%) male participants were found to be at risk. Low self-esteem was found in 20% of the participants with PSS-4 score between 9 to 16. In that again females were

more in number [39(65%)] compared to males [21(35%)]. The high stress levels were found in 37.5% of students having RSS<15. The stress level was high among females compared to males. In the study majority of the participants that is 60% of them reported being dissatisfied with their bodies. 43.1% of them felt that they were having weight above desired level and on other side 16.9% of the students felt they weigh below the desired weight (Table 2).

The association between eating disorder risk and body image dissatisfaction was analysed using chi square test. The test showed the p=0.006 which is <0.05. This suggests a statistically significant association between students who have eating disorders risk and their body image dissatisfaction (Table 3).

Using the chi square test, the association between eating disorder risk and stress level among students was analysed. Though there is visible high stress level among 40.7% of students who are at risk of eating disorders, the association was found to be statistically not significant (p>0.05) (Table 4).

The association between eating disorder risk and self-esteem of the students was tested using the chi square test. However, the result was not statistically significant as the p=0.752. Among students who are at risk of eating disorders 22.2% students have low self-esteem compared to those who are not at risk (Table 5).

The relationship between gender and risk of eating disorders was found to be statistically not significant (Table 6).

Table 2: Gender-wise distribution of risk of eating disorders, low self-esteem, high stress and body image dissatisfaction, (n=160).

Variables	Groups	Male (%)	Female (%)	Total (%)
EAT-26 score	<20	50	83	133 (83.1)
	>20	8 (13.79)	19 (18.62)	27 (16.9)
PSS-4 scores	0-8	37	63	100 (62.5)
	9-16	21 (36.2)	39 (38.2)	60 (37.5)
RSS scores	>15	48	80	128 (80)
	<15	10 (17.24)	22 (21.56)	32 (20)
Body-image dissatisfaction	Above desired weight	22	47	69 (43.1)
	Satisfied with their physique	29	35	64 (40%)
	Below desired weight	7	20	27 (16.9)

Table 3: Association between eating disorders and body image dissatisfaction.

Eating disorders	Body image dissatisfaction			Total (%)	P value*
	Below desired weight (%)	At desired weight (%)	Above desired weight (%)		
Low risk	22 (16.50)	60 (45.10)	51 (38.30)	133 (100)	
At risk	5 (18.50)	4 (14.80)	18 (66.70)	27 (100)	0.006
Total	27 (16.87)	64 (40)	69 (43.13)	160 (100)	

*Chi square test

Table 4: Association between eating disorders risk and stress level.

Eating disorders	Stress levels		Total (%)	P value*
	Low stress (%)	High stress (%)		
Low risk	83 (62.40)	50 (37.60)	133 (100)	
At risk	16 (59.30)	11 (40.70)	27 (100)	0.829
Total	99 (61.87)	61 (38.13)	160 (100)	

*Chi square test

Table 5: Association between eating disorders risk and self-esteem.

Eating disorders	Self-esteem		Total (%)	P value*
	Low (%)	Normal (%)		
Low risk	26 (19.54)	107 (80.45)	133 (100)	
At risk	6 (22.22)	21 (77.77)	27 (100)	0.752
Total	32 (20)	128 (80)	160 (100)	

*Chi square test

Table 6: Association between eating disorders risk with gender.

Gender	Eating disorders		Total (%)	P value*
	Low risk (%)	At risk (%)		
Male	50 (86.20)	8 (13.80)	58 (100)	
Female	83 (81.40)	19 (18.60)	102 (100)	0.514
Total	133 (83.1)	27 (16.9)	160 (100)	

*Chi square test

DISCUSSION

Eating disorders are among the most common psychological disorders, affecting the youth globally. In our study, the majority of the study participants belonged to the age group of 17-25 years and they were in the 4th year of their graduation. The prevalence of the risk of eating disorders was found to be 16.9% in our study. The prevalence of eating disorders was found to vary across the globe in different studies. Nishizawa et al in their study on Japanese high school students, found that the rate of eating problems was 11.2% in girls and 2.4% in boys.[2] Studies in India show variation in the prevalence as well, Bendria et al reported a prevalence rate of 9% whereas Nivedita et al noted 26.06%.[8,9]

Body dissatisfaction was observed in 60% of our study's participants, whereas in a study done by Vijayalakshmi et al the number of participants having unsatisfied physique was found to be even higher, that is 81.6%.[7]

In our study, high stress was found among 38% of study participants. Similar results were reported in a study done by Nimetha et al which showed 20% of moderate stress and 6% of severe stress among medical students.[10] The scale used by this study was PSS-10 in contrast to our study where we have used PSS-4.

We found a statistically significant association between eating disorders and body image dissatisfaction. This is in accordance with the study conducted by Rosewall et al which found that body dissatisfaction is an event which

often precedes eating pathologies and that there is a relationship between body dissatisfaction and eating disorders.[11] A similar association was found in the study by Balhara et al, Gupta et al.[12,13]

In our study, there was no statistically significant relationship found between stress or self-esteem and eating disorders which contradicts the hypotheses by Silverstone, which stated that chronic low self-esteem is the final common pathway through which the multiple etiological factors involved in the causation of eating disorders act.[14] This lack of an association can be explained by the study conducted by Sassaroli and Ruggiero which demonstrates the role of stress in the association between low self-esteem and eating disorders. They reported that low self-esteem was associated with the measures of eating disorders only during stressful situations.[5] This also supports the absence of an association between eating disorders and stress alone in our study.

Our study shows no statistically significant association between gender and eating disorder, which is in contrast to the study done by Vijayalakshmi et al which shows gender being one of the important predictors for eating disorder, where binge eating was found to be more common in females than males.[7]

Limitations

Less sample size, certain statistical tests were not able to perform because of the less sample size. Equal

representations of participants from all the academic years were not taken which would have given additional about academic stress and eating disorder relationship.

CONCLUSION

In our study, we concluded that 16.9% of the participants had their EAT-26 scores above 20 and were at risk for the development of eating disorders. It was found that 60% of the participants were not satisfied with their bodies, 38% reported being in high amounts of stress and 29% of participants reported having low self-esteem. A statistically significant association between eating disorders and body dissatisfaction was found but no such statistically significant association was found between stress or self-esteem and eating disorders in our study. Significant relationship between eating disorders and body image dissatisfaction calls for the need of individual counseling coupled with batch wise sessions on the implications of eating disorders, body image dissatisfaction, coping skills for stress control, role playing sessions on building self-esteem to ensure that the university churns out healthy students who become healthy professionals- an asset to the growing nation.

ACKNOWLEDGEMENTS

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