An assessment of Eating Disorders among college students in South Goa

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ABSTRACT
Background: Education institutions are the cradle to adulthood, patterns followed by an individual during this period have a comprehensive effect on the individual. Eating disorders are mental disorders in which, early screening and nutritional education can help prevent its ill effects in adulthood.
Objective
To find prevalence and determinants of eating disorders among college students in South Goa
Materials and methods
This was a questionnaire based cross sectional study conducted amongst college students of South Goa district using Eating Attitude Test Scoring (EATS)-26 Tool and was carried out from 1st September to 31st October 2021. Undergraduate students who have completed more than 1 year in college were eligible to participate in the study. Data was collected using Google Forms and analysed using SPSS Version 25.
Results
480 students participated in the study consisting of 265 (55%) females and 215 (45%) males. 182 (38%) of the students had EAT-26 score ≥20, suggestive of presence of risk of eating disorder, EAT-26 subscales, i.e., a) Dieting 4.1351 ±0.8479 b) Bulimia and Food Preoccupation 4.7290±0.8927, and c) Oral Control 4.0974 ±0.8173 and the mean EAT-26 score was 18.73±12.17.
167 students had normal BMI (18.5-23),86 had BMI <18.5 and 227 had BMI >23.There was a significant association between abnormal BMI and high EAT-26 score $\chi 2$ =83.70 at p=0.000 OR =9.837 (5.6841 AND 17.0241). Sex seems to be an effect modifier of the association between eating behavior and college students.
Conclusion
The study shows a high prevalence of eating disorders among the college students hence it is important to provide nutritional education to college students to reverse the trend.

KEYWORDS: BMI, Eating Disorders, Student

INTRODUCTION

Eating disorders (ED) are defined by persistent disturbed eating behaviors that result in altered consumption or absorption of food and physical or psychological dysfunction.[1] Unhealthy dietary habits is a main factor that potentially has adverse effects on weight status in college students which impacts their future health as adults.[2] WHO states that most of the adult disease burden is due to health risk behaviours that take shape during adolescence .[3]
The transition from college to adulthood is an important period in the life of an individual[4]. The changes that are adapted during this period would persist into adulthood having a lasting effect on their future.[5] Various factors determine the eating habits of a college student and it is important to identify these and provide nutrition education which has a beneficial change in dietary habits and choice of of students. [6,7,8,9]
The aim of the current study was to assess the prevalence of disordered eating behaviors among college students in South Goa.

Materials and Methods

A questionnaire-based cross-sectional study was conducted among college students of South Goa between September 1st to October 31st. Data was collected using Google forms and Eating Attitude Test Scoring (EATS)-26 Tool was used to screen for eating disorders after taking informed consent from the study participants. The data was analysed using SPSS version 25.
Study Tool:
The Eating Attitude Test (EAT-26) is a widely used 26-item screening tool which assesses a broad range of symptoms of Anorexia Nervosa or Bulimia Nervosa. The EAT-26 alone does not yield a specific diagnosis for an eating disorder; however, it is a good first step to use as a screening process and is useful in assessing "eating disorder risk". EAT-26 contains three sub-scales: Dieting (13 items), Bulimia and Food preoccupation (6 items) and Oral control (7 items). The dieting scale relates to the avoidance of fattening foods and a preoccupation with thinness while bulimia and food preoccupation scale relates to food thoughts and bulimia. The oral control scale points to displaying self-control around food and the perceived pressures from others to eat more and gain weight. The subscale scores are computed by summing all items assigned to that subscale. The sum of all three subscale scores constitutes the total score. Higher EAT total scores indicate higher risk for eating disorders. An EAT score ≥ 20 is considered a positive EAT score, i.e., greater possibility of an eating disorder.
Two colleges from each of the 8 talukas were selected and 30 students were recruited from each college using stratified random sampling to obtain the sample size of 480 students. Undergraduate students who had completed ≥1 year in college. After obtaining consent from the participants the Socio-demographic details, height, weight was obtained. The participants filled the EAT-26

questionnaire. BMI was calculated as underweight as BMI <18.5 kg/m^2 , normal BMI (18.5-22.99 kg/m^2), ,overweight BMI (23 to 24.99 kg/m^2) and obese > 25 kg/m^2 .
Permission was taken from the Institutional Ethics Committee, GMC before the start of the study

Results
480 students (215 males & 265 females) participated in the study, who were aged between 16 to 30 years (Mean age 21.81±2.58). A majority of them were Hindus 282 (60%), Christian 157(32%) , Muslim 27(5%),others 14 (3%) . The mean weight was 62.84±15.9 kgs, height 1.6495±0.1038 meters and BMI 22.867±4.822 kg/m^2. (Table 1)
The Eating Attitude Test (EAT-26) was used to screen and score the students for Eating Disorders scores ranged from 0 to 50 with mean score 18.73±12.17. A score ≥ 20 indicates a need for further investigation by a qualified professional. 182 (38%) students had a score of ≥20 and 298(62%) had a score less than 20. Besides, the mean scores of the EAT-26 subscales, i.e., a) Dieting 4.1351 ±0.8479 b)Bulimia and Food Preoccupation 4.7290±0.8927, and c)Oral Control 4.0974 ±0.8173. (Figure 1)
The prevalence of eating disorders was higher in females 39% (105 of 215) compared to 36% (77 of 215) in males.Prevalence of eating disorder risk was 10% (17 in 167) in people with normal BMI,43%(37 in 86)in underweight ,51%(43 in 83) among overweight and 59%(85 in 144) among Obese (Figure 2)
The study found was an association between BMI and eating disorders (Table 2)
Sex seems to be an effect modifier of the association between eating behavior and college students as there is a significant difference between eating behavior of males and Females (TABLE 3)

DISCUSSION
The present study was done to screen for eating disorders and determine the risk factors of eating disorders in college students across Goa. Our study showed 40% of students had a EAT-26 score above 20 similar to prevalence of eating disorder risk by a study among private university students (37.6%) conducted in Bangladesh by Pengpid S Et El [10] This is explained by the fact that both Goa and Dhaka are highly urbanised places in South East Asia.
The prevalence was 26.06% in students of Mysore, India by Nivedita N Et El. [11] Could be based on the fact that only 27 % of the study participants had an abnormal BMI and eating disorders are mostly associated with abnormal BMI. But , university students in India by Balhara YPS Et El (4%)[13],Malaysia Kaun PX Et El (13.7% females, 5.6% males) [12]. Which can be explained by changing lifestyle patterns and increased westernization
Abnormal BMI and EATING DISORDERS were having a significant association [13,14,15] and our study found similar findings. Abnormal BMI had a significant association with eating disorders, and high BMI had a higher prevalence of eating disorder than low BMI or normal BMI similar to study conducted by Curtola G Et Al and Fairburn CG Et Al [16,17]
There was a significant correlation between sex and eating behaviors with females more likely to lose weight, use medications for weight loss vomit possibly because females more concerned about their physical appearance and [12,18,19] .Our study has significant difference in eating disorders between males and females among the study participants ,previous study shows that females are more likely to have eating disorders but the difference between them was narrowing with time [20,21]
The mean EAT-26 SCORE was 18.6 similar to studies conducted by [20,22-26]. Which explains the gravity of the problem in the college students.
Funding and Conflict of interest
No funding and nil conflict of interest
Approval was taken from Institutional Ethics Committee, Goa Medical College.

Conclusion:
Eating disorders are increasing in the student population. Screening, early diagnosis and treatment of them is of paramount importance for their well-being and the health of the future adults.

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Table 1 : distribution of weight ,height and BMI among study participants

	Number of students	Percentage (%)	Mean
A) Weight in kgs			
a) 30-50	131	27	62.84 ± 15.90 Kgs
b) 51-70	229	48	
c) 71-90	100	21	
d) 91-110	20	4	
B) Height in meters			
a) 1.30 -1.49	28	6	1.64 ± 0.1038 meters
b) 1.50-1.69	281	60	
c) 1.70-1.89	157	33	
d) 1.90-2.19	4	1	
C) BMI in kg/m^2			
a) Underweight	86	18	BMI 22.867±4.822 kg/m^2
b) Normal	167	35	
c) Overweight	83	17	
d) Obese	144	30	

FIGURE 1: EAT -26 Scoring

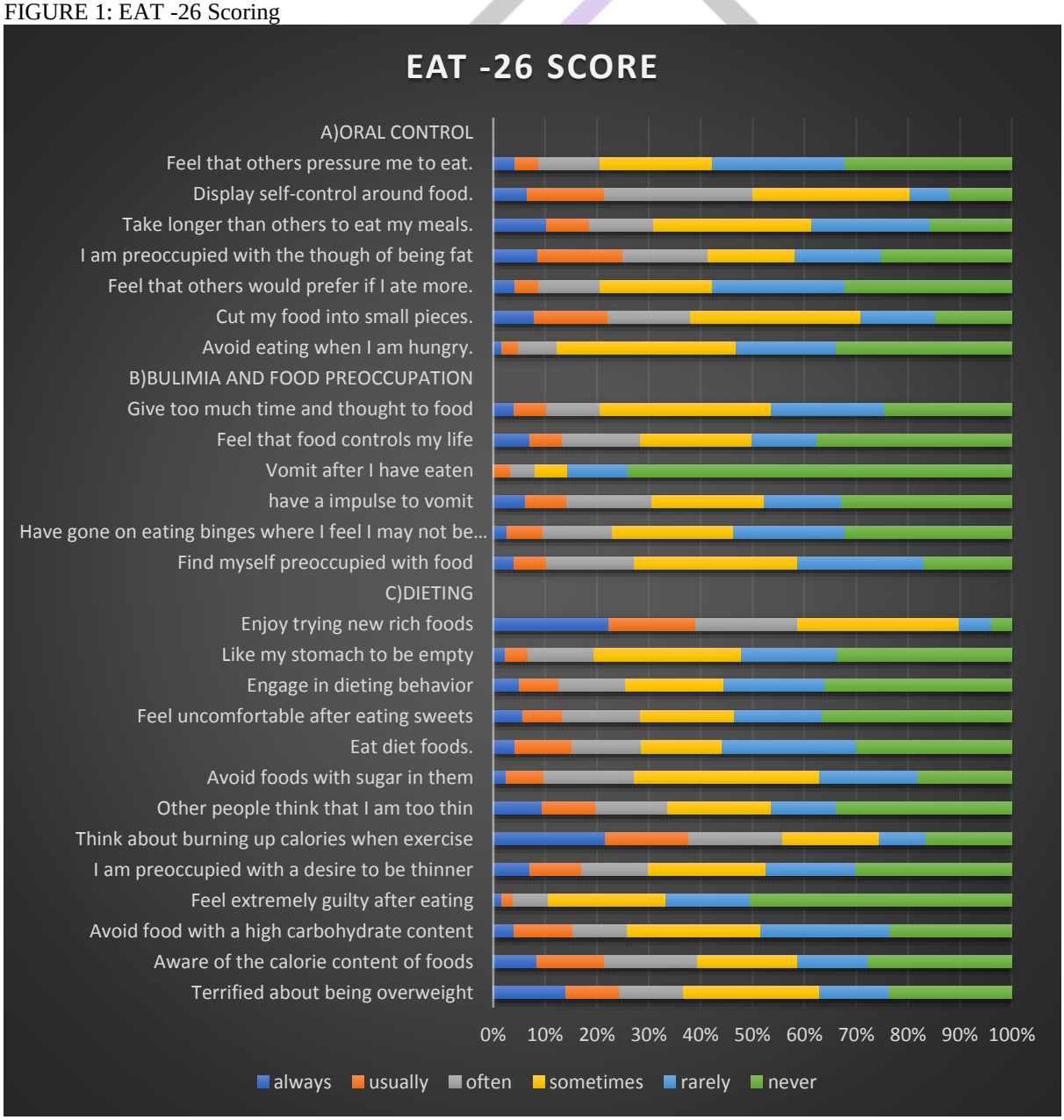

FIGURE 2: Students at risk of eating disorders according to Sex and BMI

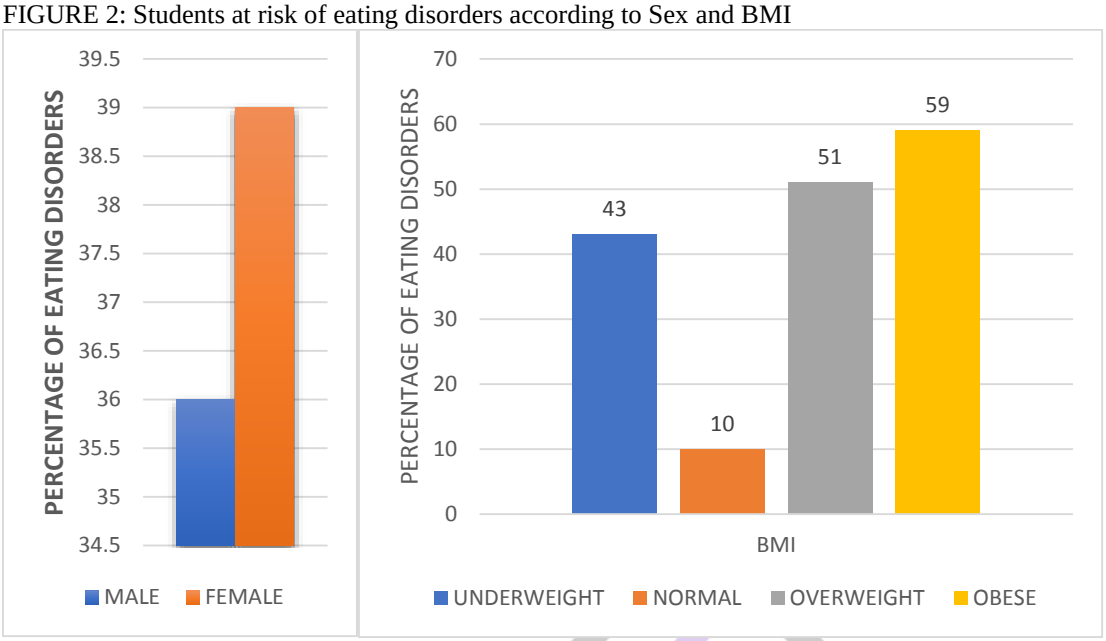

TABLE 2: Association of BMI and Risk of eating Disorder

BMI	Risk of Eating disorder		χ^2 =83.7 df =1 P=0.000
	Present	Absent	
Abnormal BMI	165	148	Odds Ratio = 9.837 at C.I(5.6841 &17.0241)
Normal BMI	17	150	

TABLE 3: Gender and Eating behavior

	Sex	Mean	T Test	Df	P value
1) GONE ON EATING BINGES WHERE YOU FEEL THAT YOU MAY NOT BE ABLE TO STOP?	Male Female	3.91 4.72	-5.09	478	0.000
2) EVER MADE YOURSELF SICK (VOMITED) TO CONTROL YOUR WEIGHT OR SHAPE?	Male Female	5.11 5.71	-5.05	478	0.000
3) EVER USED LAXATIVES, DIET PILLS OR DIURETICS (WATER PILLS) TO CONTROL YOUR WEIGHT AND SHAPE	Male Female	5.27 5.88	-3.87	478	0.000
4) EXCERCISED FOR MORE THAN 60 MINUTES PER DAY TO LOSE WEIGHT?	Male Female	3.94 5.15	-8.3	478	0.000
5) LOST 20 POUNDS OR MORE IN THE PAST 6 MONTHS?	Male Female	1.07 1.11	-1.3	478	0.172