Original Article :

Delving into the Dynamics of Eating Disorders: Assessing Prevalence and Associated Factors Among Taibah University Undergraduates.

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Abstract

Background and Aims:
Adolescents with eating disorders frequently have health issues, and it is commonly known that women are more susceptible to eating disorders than men. The current study aimed to determine the prevalence of eating disorders were among undergraduate students, both male and female, at Taibah University in Saudi Arabia.

Methods:
An EAT-26 questionnaire surveyed 430 university students aged 18–25 to assess eating disorder prevalence among undergraduate students at Taibah University in Saudi Arabia.

Results:
Using a cut-off score of 20 on an EAT-26 test, the prevalence of positive EAT-26 scores was higher among males (52.3%) than females.

Conclusions:
Taibah University found a high prevalence of eating disorders among males. Despite being often disregarded; awareness of their struggles is growing. Mental health professionals should consider a gender-based approach for recovery.

Keywords:
Eating disorders, Bulimia, Nervosa, Taibah University, Saudi Arabia.

Introduction

Eating disorders (EDs) are a class of psychological issues characterized by abnormalities in eating behaviours and dissatisfaction with one's physical appearance. Anorexia nervosa (AN), bulimia nervosa (BN) and eating disorders not otherwise specified (EDNOS) are the three forms. Eating disorders are becom-

ing a significant public health concern, particularly among adolescents and young adults. A growing number of students are expressing concerns about their weight and a desire to achieve a lower body mass index (BMI). This trend is particularly evident among female students, who often aspire to a level of thinness that is below their ideal weight and BMI[1], while men often pursuing defined muscularity[2]. This preoccupation with thinness can be attributed to the pervasive media portrayal of extreme thinness as the beauty standard. Additionally, societal biases against obesity can contribute to body dissatisfaction and unhealthy eating behaviours among adolescents. Teenagers may feel pressured to conform to unrealistic beauty ideals, leading to a sense of social inadequacy and a tendency to engage in restrictive eating practices[3].

Malnutrition can have detrimental effects on both men and women. Eating disorders (EDs)pose significant clinical risks potentially leading to morbidity and mortality[3]. The adoption of unhealthy eating habits during this critical stage of development can have far-reaching consequences, including anxiety disorders, depression, cardiovascular issues, infections and even suicide attempts. Research from as early as 1946, by Keys, demonstrated the negative impacts of forced starvation on men between aged 20–33 years, including weight loss, depression, fatigue, oedema, bradycardia and anaemia[3].

Eating disorders in Saudi Arabia may be less prevalent due to traditional beauty standards favouring a curvier figure associated with wealth and fertility. However, the Western ideal of thinness is gaining traction in Saudi Arabia, indicating a potential link between culture and psychopathology. Research suggests that eating disorders are a global issue, and their prevalence may be higher in developing countries that adopt Western cultural norms[4].

Against this background, we assumed that the prevalence of EDs among Saudi university students is comparable to what has been noted in other countries. Given that there are cultural differences in EDs, the findings of the present study will contribute to the body of knowledge on EDs among Saudi male and female adolescents and young adults, allowing for comparison analyses with other cultural and ethnic groups. Additionally, we will explore the potential associations between body weight, academic specialization and EDs in this study, which may aid in the development of therapeutic techniques on college campuses. This may also help decision-makers and doctors to better target policies and programmes, with a better grasp of ED dynamics, over the course

of an individual's life. Previous research has shown that eating problems are very common among Saudi female university students. To the best of our knowledge, no research has examined this tendency in Al Madinah across the board for either gender. This cross-sectional study aims to comprehensively assess the prevalence of eating disorders among undergraduate students at Taibah University in Al Madinah city. Additionally, it seeks to investigate the potential associations between eating disorders and various factors, including gender, body mass index (BMI) and academic speciality.

Materials and methods

Study design

This cross-sectional study was conducted from May–August 2023 among Saudi (male/female) students at Taibah University.

Participants

A total of 500 male and female students between the ages of 18 and 25 years who were enrolled in GS 135: Introduction to Health and Nutrition (elective course in university for all students) from different colleges were invited to participate in the study. Of those, 430 students agreed to take part in the current investigation based on the inclusion criteria. Out of 430 students, eight students due to medical complications, bad habits, e.g. smoking, or pregnancy were excluded from the study.

Instruments

The researcher reviewed articles and developed a questionnaire for a survey study among the students. Numerous demographic factors were included in the questionnaire, including height, weight and academic specialism. The questionnaire also included an Arabic version of EAT-26, a widely used scale that is valid and dependable and used to determine the likelihood of developing eating disorders[3]. The participants provided measurements of their weight and height. Body mass index (BMI) was computed by dividing the square of height in metres by body weight in kilogrammes. The categorisation used was as follows: BMI > 30 implies obesity, 25 > 30 indicates overweight, 18.5 > 25 suggests a normal range, and BMI 18.5 is regarded as underweight.

EAT-26 scale.

Dieting, Bulimia and Food Preoccupation and Oral Control are three subscales of the EAT-26 scale, which includes a total of 26 questions. The six response possibilities for each item (apart from item 26) range in value from 0 to 3 (“always” = 3, “usually” = 2, “often” = 1, “sometimes” = 0, “rarely” = 0 and “never” = 0). Item 26 has a reversed score (“always”, “usually” and “often” = 0, “sometimes” = 1, “rarely”

= 2, "never" = 3)[5].

Behavioural scale

The Eating Attitudes Test-26 (EAT-26) is a self-report questionnaire that can be used to assess the risk of eating disorders (EDs). Three criteria are used to determine whether a person needs further evaluation: EAT-26 score, low body weight compared to age-matched norms and behavioural tests suggesting a potential ED. To identify the presence and frequency of extreme weight-control behaviours, five behavioural questions were added to EAT-26 in 2018. These questions probe for binge-eating, self-induced vomiting, laxative use, excessive exercise and weight loss of more than 9 kg in the past six months. Individuals who indicate any of these items are at high risk of an ED and should be evaluated by a mental health professional[5].

Ethical considerations

All respondents gave written informed consent after receiving comprehensive information about the study's nature, purpose and methods. All personal data remain confidential. Ethical approval was granted by the Taibah University Ethics and Research Review Committee (TUCDREC/041023).

Statistical Analyses

All statistical analyses were performed using SPSS version 20.21. A Kolmogorov-Smirnov test was used to assess the normality of distribution. Continuous variables were expressed as mean ± standard deviation (SD) and median (range). Categorical variables were described as frequencies (percentages). The distributions of college, gender, BMI and EAT-26 scores were not normal; therefore, non-parametric tests (Mann-Whitney U test and Kruskal-Wallis test) were used for comparisons between variables. A chi-squared test was used to compare items of disordered eating attitudes and behaviours between positive and negative EAT respondents. A multiple linear regression analysis (Pearson Test) was performed to assess independent predictors of EAT attitudes and behaviours in the students. The significance level was set at $p \leq 0.05$.

Results

Socio-demographic Characteristics

In the current study, 74.2% of the 422 students who participated in the study were female and 25.8% were male. Of these, 75.4% were theoretical students, 17.5% were scientific students and 7.1% were medical students. Their ages ranged from 18 to 25 years. Regarding the students' BMI, 19.7% were underweight, 53.1% had a normal BMI and 25.4% were overweight (Table 1).

Table 1. Socio-demographic characteristics of male and female students presented as numbers and percentages (N=422).

Variable		No.	P
Gender	Female	313	74.2
	Male	109	25.8
	Total	422	100.0
College	Theoretical	318	75.4
	Scientific	74	17.5
	Medical	30	7.1
	Total	422	100.0
Age (years)	18–20	115	27.3
	20–22	222	52.6
	22-25	80	19.0
	25 and over	5	1.2
	Total	422	100.0
BMI	Underweight	83	19.7
	Normal	224	53.1
	Overweight/0bese	107	25.4
	Total	414	100.0

Eating Patterns, Body Image and External Pressure

Table 2 shows that slightly more than half of the sample (51.2%) eat two meals per day, 29.9% eat three meals per day and only 1.5% eat five meals per day. Regarding meal frequency, 61.8% of the sample consume meals frequently, while 31.5% sometimes skip one of the main meals of the day and 27.3% always skip one of them. Additionally, 23.2% frequently skip one of the main meals of the day, and 6.6% never skip one of them. More than half of the sample (56.6%) were dissatisfied with their current weight and 52.4% were dissatisfied with their physical appearance. Only 14% faced pressure from relatives to lose weight.

Participants' family and personal medical history of eating disorders

Approximately 92.4% of the students did not have a previous history of eating disorders (EDs), while 7.6% had been diagnosed with an ED. Additionally, 8.1% of the participants had a family history of EDs, while 91.9% denied having such a history (Table 2).

Table 2. Eating patterns and societal pressures (N=422)

Variable		No.	P
Number of meals per day	One	47	11.1
	Two	216	51.2
	Three	126	29.9

Variable		No.	P
Number of meals per day	Four	28	6.6
	Five or more	5	1.2
Consume meals frequently	Yes	261	61.8
	No	161	38.2
Do you skip one of the main meals of the day?	Never	28	6.6
	Rarely	48	11.4
	Sometimes	133	31.5
	Frequently	98	23.2
	Always	115	27.3
Are you satisfied with your current weight?	Yes	183	43.4
	No	239	56.6
Are you satisfied with your physical appearance?	Yes	201	47.6
	No	221	52.4
Do you face pressure from relatives to lose weight?	Yes	59	14
	No	363	86
Have you been diagnosed with an eating disorder?	Yes	32	7.6
	No	390	92.4
Do you have a family history of eating disorder?s	Yes	34	7.6
	No	388	92.4

Eating Attitudes Test-26 Scores

Among the 422 respondents, 41.2% screened positive for an eating disorder on the EAT-26 questionnaire (score ≥ 20). Notably, the prevalence of positive EAT-26 scores was higher among males (52.3%) than females (37.4%; $p < 0.01$). EAT-26 comprises three subscales, namely, Dieting, Bulimia and Food Preoccupation and Oral Control. The results shows that the participants' mean EAT-26 score was 19.41 (SD = 10.9, median = 17, range = 2-67). The subscale means were 10.35 (SD = 7.01) for dieting, 3.34 (SD = 3.6) for bulimia and 5.74 (SD = 4.5) for oral control.

Dieting Attitudes

Table 3 shows that positive EAT students had significantly higher proportions in all dieting attitude items than negative EAT students (all $P < 0.001$), except for the item "Enjoy trying new rich foods". The highest dietary subscale item among positive EAT students was "Terrified about being overweight" (62.4%) followed by "Am preoccupied with a desire to be thinner" (62.1%). The lowest item was "Avoid foods with high carbohydrate content" (36.2%).

Attitudes to Bulimia and Food Preoccupation

Table 3 shows that positive EAT students had significantly higher proportions in all bulimia and food preoccupation atti-

tude items than negative EAT students (all $P < 0.001$). The highest bulimia and food preoccupation item among positive EAT students was "Have the impulse to vomit after meals" (60.34%), while the lowest item was "Vomit after eating" (21.26%).

Attitudes of Oral Control

Table 3 shows that positive EAT students had significantly higher proportions in all oral control attitude items than negative EAT students (all $P < 0.01$). The most common oral control item in positive EAT students was "Take longer than others to eat my meal" (64.37%), while the least common item was "Avoid eating when hungry" (38.51%).

Behavioural scale

Table 3 shows the prevalence of eating disorder behaviours among positive EAT students (score ≥ 20) and negative EAT students (score < 20). The most common behaviour was excessive exercise (66.1%), followed by laxative and diet pill use (19.5%) and vomiting (18.4%). All eating disorder behaviours were significantly more common among positive EAT students than negative EAT students.

Table 3. EAT-26 subscales (N=422)

Dieting Attitudes	EAT-26 Negative (248), No. (%)	EAT-26 Positive (174), No. (%)	$\chi 2$	p- value
Terrified about being overweight	124 (50)	126(62.4)	48.35	<0.001
Aware of calorie content of foods I eat	51 (20.6)	75(43.1)	43.08	<0.001
Avoid foods with high carbohydrate content	23 (9.2)	63(36.2)	51.49	<0.001
Feel guilty after eating	23 (9.2)	69(39.7)	69.02	<0.001
Am preoccupied with a desire to be thinner	71 (28.6)	108(62.1)	86.07	<0.001
Think about burning up calories when exercising	47 (18.5)	108(62.1)	104.73	<0.001
Am preoccupied with the thought of having fat on my body	38 (15.3)	81(46.6)	59.31	<0.001
Avoid foods with sugar in them	32 (12.9)	81 (46.6)	65.62	<0.001
Eat diet foods	31 (12.5)	72 (41.4)	50.50	<0.001
Feel uncomfortable after eating sweets	41 (16.5)	103 (59.2)	105.60	<0.001
Engage in dieting behaviour	52 (21)	108 (62.1)	89.01	<0.001
Like my stomach to be empty	49 (19.8)	96 (55.2)	64.15	<0.001
Enjoy trying new rich foods	222 (93.5)	138 (79.3)	23.36	<0.001
Attitudes to Bulimia and Food Preoccupation				
Find myself preoccupied with food	57 (30.24)	86 (49.43)	44.18	<0.001
Have gone on eating binges	39 (15.73)	73 (41.95)	47.28	<0.001
Vomit after eating	7 (2.8)	37 (21.26)	40.83	<0.001
Feel that food controls my life	30 (12.09)	74 (42.53)	55.66	<0.001
Give too much time and thought to food	29 (11.69)	80 (45.98)	72.55	<0.001
Have the impulse to vomit after meals	97 (39.11)	105 (60.34)	25.27	<0.001
Attitudes to Oral Control				
Avoid eating when hungry	33 (13.31)	67 (38.51)	43.09	<0.001
Cut my food into small pieces	50 (20.16)	93 (53.45)	51.97	<0.001
Feel others prefer if I eat more	77 (31.05)	93 (53.45)	33.26	<0.001

Dieting Attitudes	EAT-26 Negative (248), No. (%)	EAT-26 Positive (174), No. (%)	$\chi 2$	p- value
Other people think I am too thin	89 (35.89)	96 (55.17)	29.75	<0.001
Take longer than others to eat my meal	67 (27.02)	112 (64.37)	64.19	<0.001
Display self-control around food	142 (57.26)	108 (62.1)	14.09	<0.01
Feel that others pressure me to eat	42 (16.94)	98 (56.32)	76.26	<0.001
Behaviours regarding Oral Control				
Eating binges where you feel that you may not be able to stop	103 (41.5)	94 (54)	6.41	<0.01
(Vomited) to control your weight or shape	14 (5.6)	32 (18.4)	17.10	<0.001
Used laxatives or diet pills to control your weight or shape	12 (4.8)	34 (19.5)	22.75	<0.001
Exercised for more than 60 minutes per day to lose or control your weight	111 (44.8)	115 (66.1)	18.71	<0.001
Lost 9 kg (20 pounds) or more in the last six months	36 (14.5)	51 (29.3)	13.67	<0.001

Table 4 presents the univariate (Kruskal-Wallis and Mann-Whitney tests) and multivariate (multiple linear regression) associations between college, gender and BMI categories and eating disorder attitudes and behaviours. Attitude scores did not differ significantly by college or BMI ($p > 0.05$) but did differ significantly by gender ($p < 0.05$), with males having higher scores. Multiple linear regression analysis revealed that college, BMI and gender were not significant predictors of attitude scores (all $p > 0.05$). Behaviour scores did not differ significantly by college ($p > 0.05$) but did differ significantly by BMI ($p < 0.05$), with underweight and overweight/obese participants having higher scores than normal-weight participants. Behaviour scores also differed significantly by gender ($p < 0.05$), with males having higher scores. Multiple linear regression analysis revealed that BMI and gender were significant predictors of behaviour scores (both $p < 0.05$), while college was not ($p > 0.05$).

Table 4. EAT-26 scores and Associated Attitudes and Behaviours of Participants by College and BMI

Category	Attitudes towards Eating Disorders			Behaviours regarding Eating Disorders		
College	Median (Range)	P Value	Linear Regression	Median (Range)	P Value	Linear Regression
Theoretical	19 (2-67)	P=0.072	B=-1.51 p- value=0.095	1 (0–5)	P=- value=0.534	B=-0.011 p-value=0.906
Scientific	16 (3-56)			1 (0–4)		
Medical	14.5 (4-34)			1 (0–4)		
BMI		P= 0.09	B=1.31 p-value= 0.102		p-value <0.001	B=0.518 p-value<0.001
Underweight	16 (4-60)			1 (0–5)		
Normal	16 (2-60)			1 (0–5)		
Overweight/obese	20 (3-67)			2 (0–5)		
Gender		P=0.039	B= 2.34 p-value= 0.06		p-value<0.001	
Female	16 (3-60)			1 (0–5)		B=0.546 p-value<0.001
Male	20 (2-67)			2 (0–5)		

Discussion

The transition to early adulthood, particularly during the university years, marks a demanding yet transformative phase of life. While this period presents opportunities for personal growth, academic pursuits and social engagement, it can also expose an individual to different problems, e.g. vulnerability to eating disorders (EDs). These complex and multifactorial illnesses affect a diverse range of individuals across their lifespan, defying outdated societal perceptions of EDs as gender-specific. This study has explored the prevalence of eating disorders among a sample of female and male university students in Taibah and examined the association between EAT-26 scores and selected participant characteristics, including gender, body mass index (BMI) and academic specialty.

A high prevalence of eating disorders was identified in the present study, with 41.2% of participants exhibiting positive EAT-26 scores. The prevalence of positive EAT-26 scores was higher among male participants (52.3%) compared to female participants (37.4%). In comparison to similar studies conducted in Western countries, the rates for eating disorder attitudes and behaviours in the current study were higher than those reported in Bangladesh (37.6% for both males and females), Thailand (6.34% for females only) and Iran (9.5% for both males and females)[6,7,8]. The prevalence observed in the current study is also higher than that reported in Arab countries, including Egypt (33% for females only) and Palestine (28.6% for females only)[5,9]. Additionally, our findings exceed those of similar studies conducted in other cities within Saudi Arabia, namely, in Makkah (34.5% for both males and females) and in Taif (35.4% for females only)[3,10]. However, our results are slightly lower than those of a study conducted in Jeddah, which found that 53.6% of female participants exhibited eating disorders[11].

In our study, we found that the prevalence of eating disorders was higher in males (52.3%) compared to females (37.4%), which means eating problems are not just a female issue. However, as already indicated, the incidence rate in females is thought to be higher in this study when compared to some other studies. Both genders' thinking is limited to exercise, burning calories, avoiding high-calorie foods and avoiding trying new types of food. Therefore, this is not for maintaining health but mostly for preserving body shape. A reasonable explanation for these results could be that women, for example, may worry about their body form from the waist down (e.g. thighs, hips, buttocks) or their weight in terms of pounds or cloth-

ing size, since they are growing older and getting closer to marriage. Because of tremendous pressure from the media and society at large, especially from their peers, women are constantly exposed to the ideal physique. However, men usually express unhappiness with their bodies starting from the waist upwards, especially the arms and chest. This is because they are conditioned to believe that men with more muscle are more handsome and manly than guys with less muscle, so men often aspire to have more defined muscles and less fat. Hence, a man runs the danger of developing muscle dysmorphia, or reverse anorexia nervosa, in which he obsesses over the concept that his body should be more muscular or thinner[2,3].

In the current study, there were no significant differences in attitude and behaviour ratings based on academic specialization in faculties. This was unexpected, since other research has obtained different results regarding academic specialization. The study by Taha, et al. (2018) found that medical students scored higher in attitude and behaviour for eating disorders compared to theoretical and scientific students. This is because medical students experience higher stress and eating disorders due to excessive extracurricular and curricular study-related responsibilities at university. Another study found a significant correlation between academic specialization in humanities faculties and high EAT-26 and SCOFF scores compared to students studying science and engineering, who are under more academic pressure and have less spare time, while humanities students have more time for TV commercials, social media and beauty-related activities[5]. .We can explain the results obtained in this study related to academic specialization by eating disorders emerging because of the complex interaction of social, environmental and genetic variables. When they feel that other elements of their lives are difficult to control, some individuals with eating disorders may resort to drastic methods to restrict their food intake or food groupings. When someone has a food obsession, it becomes an unhealthy mechanism for coping with unpleasant feelings or emotions. Therefore, eating disorders are less about food and more about learning good coping mechanisms for one's emotions.

In the current study, while there were no significant differences in attitude ratings based on BMI, behaviour scores varied considerably by BMI, with underweight and overweight/ obese people scoring higher than normal-weight participants. Although obesity and eating disorders are typically seen as distinct issues, there are some circumstances in which they overlap. Patients with a binge eating disorder

who do not purge after meals may put on weight. On the other hand, many obese people participating in weight reduction programmes report struggling to lose weight, which puts them at risk of disordered eating because it causes them to feel ashamed, depressed and low in self-worth. The results of the current study revealed that the most frequently endorsed item was "exercised more than 60 minutes per day to lose or control your weight", "eating binges where you feel that you may not be able to stop", "lost 9 kg (20 pounds) or more in the last six months" and "vomited or used laxatives or diet pills to control weight or shape", respectively, in the EAT-26 behaviour scales. Both sexes may feel more at ease getting therapy for weight issues, but they frequently struggle to seek care for eating disorders. Male anorexics may get assistance at the recommendation of a parent or primary care-provider. According to research on masculinity, males are less likely to seek psychiatric assistance because they have more unfavourable attitudes about doing so. Frequently, men view psychiatric services as incompatible with conventional masculinity. They may also encounter gender-role conflict, which arises when gender roles negatively affect an individual or others. Because eating disorders can serve as a coping mechanism and because suffering from a disorder that is typically associated with women can result in feelings of shame, males with eating disorders may be less likely to seek treatment. Hence, mental health professionals should be aware of this relationship[2].This study's strength lies in its ability to directly compare eating disorder prevalence in male and female university students, providing valuable insights for future research with larger and more diverse samples across genders and academic specialties. While the current sample size was small, it lays the groundwork for further investigation in this important area.

Conclusion

In this study, disordered eating behaviours correlated substantially with gender and BMI, and the prevalence of disordered eating attitudes was comparatively high among male Taibah university students. These results point to the necessity of clinical screening for eating disorders and, if necessary, medical intervention.

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Declaration of conflicting interests

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