

## Eating Disorders Attitudes and Behaviors among Hadhramout University Students in Mukalla, Yemen

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### Abstract

**Introduction:** Eating disorders have serious implication on all aspects of physical, psychological, and social health if left untreated. Adolescents and college students are more affected group with this disorder. The study aimed to identify eating disorders attitudes and behaviors among university students and compare with certain variables among students at Hadhramout University in Mukalla, Yemen.

**Methods:** A descriptive cross-sectional study was carried out during the period November 2022 until June 2023. The total number of participants was 369 students in the following faculties: Medicine and Health Sciences, Nursing, Faculty of Engineering, Law, Women, and Administrative Sciences. Data were gathered by a self-administered questionnaire prepared for this purpose.

**Results:** More than half of the participants were male (56.9%). A total of 314 (85.1%) students scored  $\geq 20$  points on the EAT-26 which was considered to be at low risk of disordered eating attitudes while 55 (14.9%) scored  $< 20$ , indicating a high risk of developing eating disorders. In addition, most of the students have normal weight (53.1%), underweight (22.5%) and obese represented 8.1%. Although the number of students from the scientific colleges was more than the students from the literature, the percentage of eating disorders attitudes was more prevalent among the literature faculties.

**Conclusion:** There is a growing number of university students with eating disorders. The university classes represent an ideal setting for growing eating disorders due to the influences of peers. Eating disorders attitudes progress to behavioral symptoms. The researchers recommend further studies with a large sample across multiple colleges and universities in Yemen. Comprehensive education programs among students are also necessary.

**Keywords:** Eating disorders, University Students, Mukalla, BMI.

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## اتجاهات وسلوكيات اضطرابات الأكل بين اوساط طلاب جامعة حضرموت في مدينة المكلا، اليمن

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### ملخص الدراسة

**المقدمة:** اضطراب الأكل له تأثير خطير على مختلف جوانب الصحة الجسمية والنفسية والاجتماعية إذا ترك بدون علاج. المراهقين وطلاب الكليات من أكثر الفئات تأثراً بهذا الإضطراب.

**الهدف:** تقدير اتجاهات وسلوك إضطرابات الأكل ومقارنتها بمتغيرات معينة بين طلاب جامعة حضرموت في المكلا - اليمن.

**المنهجية:** أجريت هذه الدراسة المقطعية والوصفية خلال الفترة نوفمبر 2022 حتى 20 يونيو 2023. بلغ إجمالي عدد المشاركين 369 طالباً وطالبة في الكليات التالية: (الطب والعلوم الصحية، التمريض، الهندسة، القانون، البنات، وكلية العلوم الإدارية). وتم جمع البيانات باستخدام استبيان يعبأ ذاتياً معد مسبقاً لهذا الغرض.

**النتائج:** اغلبية المشاركين (56,9%) كانوا ذكورا . وجدت الدراسة إن 314 (85,1%) من إجمالي الطلاب المشاركين تحصلوا على اقل من او يساوي 20 نقطة على مقياس سلوك اضطرابات الاكل – 26 والذي يؤثر الى خطورة منخفضة لسلوك اضطرابات الاكل ، بينما 55 (14,9%) تحصلوا على اكثر من 20 نقطة والتي تؤثر الى خطورة عالية للإصابة باضطرابات الاكل .بالإضافة اغلبية الطلاب لديهم وزن طبيعي (53,1%) و اقل من الطبيعي (22,5%) بينما الذين لديهم سمنه كانوا (8,1%) . على الرغم من إن عدد الطلاب المشاركين من الكليات العلمية كان يفوق عدد الطلاب من الكليات الأدبية إلا أن نسبة اضطرابات السلوك كانت أكثر انتشاراً لدى طلاب الكليات الأدبية.

**الإستنتاج:** وجدت هذه الدراسة تزايد في أعداد الطلاب الذين لديهم سلوكيات إضطراب الأكل. إن الجامعات تمثل موقعاً مثالي لنمو إضطرابات الأكل نتيجة لتأثير القراء. إن اتجاهات إضطرابات الأكل يؤثر لاحقاً على سلوكيات الاكل . لقد أوصى الباحثون بإجراء دراسات موسعة بعينة أكبر وكليات أشمل من جامعات مختلفة من اليمن. مع ضرورة تنفيذ برنامج تدريبي شامل حول إضطرابات الأكل للطلاب.

**الكلمات المفتاحية:** اضطرابات الأكل، طلاب الجامعات ، المكلا، مؤشر كتلة الجسم.

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## Introduction

**E**ating disorders (EDs) are defined as a disturbance in eating habits that result from either excessive or insufficient food intake. It is serious mental illnesses with significant life-threatening medical and psychiatric morbidity and mortality, and can influence every organ in the body. The risk of premature death is 6-12 times higher in women with Anorexia Nervosa (AN) as compared to the general population, adjusting with age [1].

Prevalence of EDs estimated in college students range from 11% to 17% in females and 4% in males and affect 1.25 million people in the UK [2,3]. Various studies reported that prevalence of eating disorders in college students could be associated with lower academic performance, co-morbid mental disorders, and somatic conditions. Furthermore, over 70% of individuals with EDs report co-morbid disorders, such as anxiety disorders (>50%) and mood disorders (>40%) [2, 4].

College years coincide with the typical age of onset for EDs because students in this stage face stress and many changes in habits related to physical activity and diet [5,6]. Academic life is an integral part of the life of all college students, and without a healthy attitude toward Academic goals, students may undergo stress [6]. In Arab countries; obesity is common, actually the prevalence of overweight and obesity in the Middle East has been estimated to be the second in the world, only after North America. In fact; obesity is a major driving force for disordered eating attitudes, the

higher the body weight, the higher the risk of having disordered eating attitudes [7]. University students also have several risk factors that increase their risk of eating disorders, such as peer pressure, academic stress, living in dormitories, close relationships, social interaction, and high life expectations [7]. The high stability of eating disorders symptoms together with the significant association with overweight and with a worse mental health prognosis in adulthood points to the need for early detection and intervention during childhood and adolescence [8].

Prevalence of eating disorders among adolescents in Arab countries was relatively high, especially among female adolescents [9]. In Europe, anorexia nervosa, bulimia nervosa, and binge eating disorder (BED) were reported in women (1–4%, 1–2%, and 1–4% respectively) ; most frequently occur in the high-risk group of young while do not occur in older women. Countries with the highest contributions of total Disability Adjusted Life Years (DALYs) caused by eating disorders among women aged 15 –49 years were India and China because of their large population size with over 1.32 billion and with over 1.38 billion, respectively along with the United States [10].

Because of this current situation, researchers hypothesized, that EDs is prevalent among Yemeni youth. To the best of the researchers' knowledge, there is no published studies were found in Yemen.

Therefore, it is important to investigate the current risk of eating disorders among youths to suggest necessary recommendations which

would improve the lifestyle of these groups and prevent severe clinical complications related to EDs, especially involving compromised nutritional status due to the delay in diagnosis or treatment, which can lead to metabolic, endocrine,

electrolyte, hematologic, cardiac and renal alterations [11]. Hence, this study aimed to identify the eating disorders attitudes and behaviors and compare them with certain variables among students at Hadhramout University in Mukalla, Yemen.

## Methods

### *Study design and setting*

A descriptive cross-sectional study was conducted at Hadhramout University in Mukalla city. Six faculties were randomly selected due to limited time and resources. These are (Medicine and Health Sciences, Nursing, Engineering, Law, Women, and Administrative Sciences) during the period November 2022 until June 2023.

### *Population and sample*

The list of all students in the selected faculties in the academic Year 2022-2023 were obtained from admission and registration department of Hadhramout university presidency with total number of students amounting 7779 as shown in Table (1). The sample size was calculated by the following equation:

$N = Z^2 * (p) * (1-p) / D^2$  where: N = sample size, Z= Confidence level when 95=1.96%, p = expected proportion, D= 5% error bar (default value 0.05)

$$N = \frac{(1.96)^2(0.321)(0.679)}{(0.05)^2} = 334$$

The Sample size was increased by 10% (34) to account for non-response:  $334 + 34 = 369$ . Students were sampled proportionally among the chosen 6 colleges, according to the total number of students in each college.

### *Study Tools*

Data were collected by the following tools:

#### *Part One:*

- 1- Self-administered questionnaire developed a by the researchers reviewing previous studies included: personal variables such as age, academic year, place of living.
- 2- Eating Attitudes Test (EAT-26). This is a tool developed by Garner and Garfinkel to screen eating disorders in adolescent girls and young women. The EAT-26 scale has three subscales with a total of 26 questions: 1) Dieting, 2) Bulimia and Food Preoccupation, and 3) Oral Control [12].
- 3- Behavioral questions include five questions regarding eating practices ranges from 1-6 scale, where one never done and 6 done once a day or more.

*Part Two:* Body Mass Index (BMI): Body weight and height were measured and BMI was identified as  $\text{kg/m}^2$ .

#### *Data Analysis*

The data were collected and analyzed using Statistical Package for the Social Sciences (SPSS) version 23. Descriptive and inferential statistical analyses were made. Standard Deviation (SD), univariate regression analysis to test eating disorder risk

and certain variables, and Chi-square used to test the association between eating attitudes and students' characteristics. A critical p value  $\leq 0.05$ . was considered statistically significant. The EAT-26 was classified as follows:

Eat-26 item scoring		
Score each item as indicated below		
Item #1-25	Item #26 only	
Always	=3	= 0
Usually	= 2	= 0
Often	= 1	= 0
Sometimes	=0	=1
Rarely	= 0	=2
Never	=0	=3

The total score of EAT-26 equals the sum of scores for the 26 items. Total score ranges from zero to 78, a score of  $\geq 20$  indicates a high risk of a "disordered eating attitude"[7].

## Results

In the current study, 369 students from different Faculties of Hadhramout University were enrolled with a mean age of  $22.34 \pm 2.15$  years (minimum 18, maximum 34). Most of the participants (55.3%) were in the

To assess the clarity and the possibility of applying the study tools before data collection, pretesting was conducted among 18 of the respondents (5%) who were voluntarily randomly selected from the faculty of Nursing, at Hadhramout University and excluded from the study. Therefore, necessary modifications were done (Statistical Reliability at Cronbach's Alpha = 0.823).

### *Ethical Considerations*

Approval was obtained from the Research and Ethics Committee at the Faculty of Nursing, Hadhramout University. Permission was sought from the deanship of Faculty to conduct the research. The students included in the study were informed about the study objectives and verbal consent. was obtained. Privacy and confidentiality of their information were respected during the analysis.

age group 18–22 years, while males constitute 56.9%.

In addition, the highest percentage of participants lives at family home (65%). The highest percentage of participants have normal weight (53.1%) whereas 22.5% were underweight, 16.3% overweight and 16.3% obese as illustrated in Table 1.

**Table 1:** Demographic characteristics of the participants (No=369)

Personal Data		No.	%
Sex	Male	210	56.9
	Female	159	43.1
Age (Years)	18-22	204	55.3
	23-26	157	42.5
Mean $22.34 \pm 2.15$	27-30	5	1.4
	31-34	3	0.8
	Name of College		
	Medicine and Health Sciences	15	4.1
	Nursing	85	23.0

Address	Engineering	113	30.6
	Law	25	6.8
	Women	36	9.8
	Administration Sciences	95	25.7
	Family home	240	65.0
BMI	University housing	129	35.0
	Underweight	83	22.5
	Normal weight	196	53.1
	Overweight	60	16.3
	Obesity	30	8.1

**Table 2** shows a total of 314 (85.1%) students scored  $\leq 20$  points on the EAT-26 which is considered to be at low risk of eating disorders while 55 (14.9%) scored  $> 20$  indicating a high

risk of developing an eating disorders.

**Table 2:** Eating Disorders Attitudes among Hadhramout University Students using EAT-26 Questionnaire (No=369)

Eating Attitudes Test-26 (EAT-26)	No.	%	Mean	SD
Low Risk (less than or equal to score 20)	314	85.1	1.1491	1.1491
High Risk (more than score 20)	55	14.9		

The results shown in Table 3 indicate that underweight was 2.4% among high risk compared to 97.6 % among low risk group, Normal weight Majority 83.7% at low risk while 46.6% were overweight and obese

among high risk group and 76.7% at low risk of developing eating disorders.

**Table 3:** Eating-Disorders Risk and BMI (No=369)

	high risk (n=55)	low risk (n= 314)
BMI	Underweight	(2.4%)
	Normal weight	(83.7%)
	Overweight	(76.7%)
	Obesity	(76.7%)

Table 4 shows significant differences in the dieting subscale items, bulimia and food preoccupation items with high and low-risk participants ( $p < 0.001$ ).

This indicates that there is a high degree of variation between these items in high-risk and low-risk participants. In contrast, the oral control subscale items showed no

significant differences between high-risk and low-risk participants ( $p=0.784$ ), and the chi-square 5.548

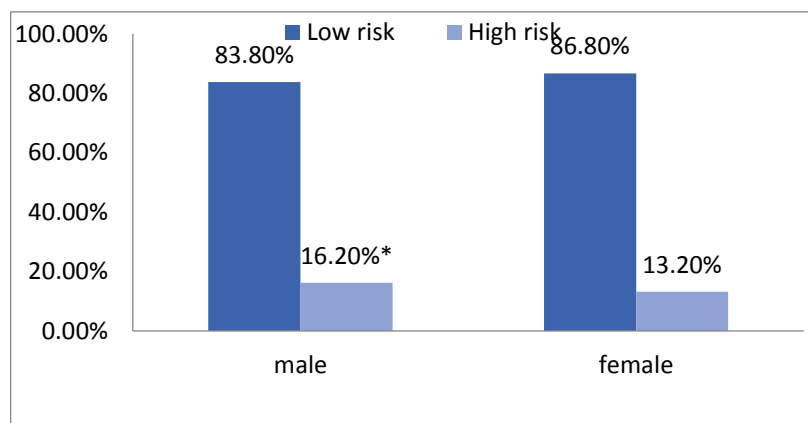
**Table 4:** EAT-26 Subscale Scores of the Participants Risk of Developing an Eating Disorder

Categories	High Risk (no= 55)		Low Risk (no= 314)		High Risk ( <i>p</i> )	Low Risk ( <i>p</i> )	$\chi^2$ ( <i>p</i> )
	No	%	No	%			
<b>Dieting scale items</b>							
Never	0.0	0.0	51	16.2			
Rarely	2	3.6	177	56.4			
Sometimes	24	43.6	79	25.2	0.001	0.001	(0.001)
Often	25	45.5	7	2.2			
Usually	3	5.5	0.0	0.0			
Always	1	1.8	0.0	0.0			
<b>Bulimia and food preoccupation scale items</b>							
Never	5	9.1	42	13.4			
Rarely	17	30.9	168	53.5			
Sometimes	20	36.4	86	27.4	0.004	0.001	(0.001)
Often	12	21.8	18	5.7			
Usually	0	0	0	0			
Always	1	1.8	0	0			
<b>Oral control subscale items</b>							
Never	0	0	25	8.0			
Rarely	7	12.7	138	43.9			
Sometimes	31	56.4	130	41.4	0.067	0.050	
Often	13	23.6	20	6.4			
Usually	4	7.3	1	0.3			
Always	0	0	0	0			

In Figure 1, male participants (16.2%) were at high risk of developing an eating disorders compared to females (13.2%).







**Figure 1:** High and Low Risk of Developing Eating Disorder by Sex.

\* $p < 0.001$ .

Participants in the Humanities and literature fields has a higher eating disorders risks (19.9%) compared to

medical and health sciences, and scientific field (11.3%) as shown in Table 5.

**Table 5:** Analysis of Eating Attitude Disorder among Scientific and Literature Faculty Students in Hadhramout University (N=369)

Faculties	High risk (No=55)	Low risk (No= 314)
Medical and Scientific	(11.3%)	(88.7%)
Human and literature	(19.9%)	(80.1%)

Table 6 displays the behavioral characteristics among high and low-risk groups as related to going on eating binges where they feel that may not be able to stop were significantly different among high and low risk groups ( $p=0.007$ ). Furthermore, students in the high-risk group self-induced vomiting were more significantly with  $p=0.004$ . On the other hand, the use of laxatives, diet pills, and diuretics were not significantly different

among low and high-risk students ( $p=0.052$ ). Analyses of exercise over the past six months to lose weight among low and high-risk students showed significant differences among both groups, where weight loss  $>9$  kg within the past six months were it is 8.3% in the low-risk students and 21.8%, in the high-risk students with a statistically significant difference ( $p=0.002$ ).

**Table (6):** Frequencies of behaviors related to eating disorder risk, as reported by participants on the eat-26

Behavioral Characteristics	Categories	High Risk		Low Risk		<i>p</i>
		No.	%	No.	%	
Have you gone on eating binges where	Never	22	40	162	51.6	(0.007)
	Once a month or less	5	9.1	26	8.3	

you feel that you may not be able to stop?	2-3 times a month	11	20	84	26.8	
	Once a week	10	18.2	24	7.6	
	2-6 times a week	7	12.7	12	3.8	
	Once a day or more	0	0.0	6	1.9	
Have you ever made yourself sick (vomited) to control your weight or shape?	Never	48	87.3	303	96.5	
	Once a month or less	0	0	3	1	
	2-3 times a month	5	9.1	6	1.9	
	Once a week	1	1.8	2	.6	(0.004)
	2-6 times a week	1	1.8	0	0	
Have you ever used laxatives or diet pills to control your weight or shape	Once a day or more	0	0	0	0	
	Never	47	85.5	301	95.9	
	Once a month or less	2	3.6	3	1.0	
	2-3 Times A Month	4	7.3	5	1.6	
	Once a week	1	1.8	2	0.6	(0.052)
Exercised more than 60 minutes a day to lose or control your weight	2-6 times a week	0	0	1	0.3	
	Once a day or more	1	1.8	2	0.6	
	Never	21	38.2	178	56.7	
	Once a month or less	6	10.9	15	4.8	
	2-3 times a month	7	12.7	51	16.2	
Have you lost 9 kg (20 pounds) or more in the past 6 months	Once a week	2	3.6	27	8.6	(0.001)
	2-6 times a week	9	16.4	29	9.2	
	Once a day or more	10	18.2	14	4.5	
Have you lost 9 kg (20 pounds) or more in the past 6 months	Yes	12	21.8	26	8.3	
	No	43	78.2	288	91.7	(0.002)

## Discussion

The current study was conducted to establish the prevalence of eating disorders attitudes among Hadhramout University students in Al-Mukalla City. The main findings of this study were measured by EAT-26 scores.

The results of the present study showed that a high risk of developing an eating disorder among participants

was 14.9% which is lower than what was reported from Saudi Arabia (24.6%), Oman (29.4%) and the United Arab Emirates (23.4%)[9] and Bangladeshi students (23.0%) in a public university[13]. Additionally, 35.4% of students were classified at risk for eating disorders in Taif University, Saudi Arabia using the cutoff score of 20 on EAT-26 test [14].

In web-based questionnaire survey, Gorrasi *et al* (2022) at Turin University, Italy indicated that 21.2% of students had eating disordered behaviors [15]. In general, the prevalence of disordered EA among adolescents in many Arab and European countries is higher compared to our study [9]. This result might reflect the socially conservative pattern of life in Mukalla, environmental influences as well as the current situation of war and instability in the country, economic situation that made interest in body image, dieting, and weight among youth less than many other countries. In contrast, in other countries, western patterns of life emphasized the association of physical appearance with sexual role with the great effect of social media on adolescents to practice dieting to lose weight due to dissatisfied body image, along with other factors such as low self-esteem, childhood abuse, and family functioning.

Correlation between BMI and both EAT-26 scores was evident in many studies [9]. In the same context, the results of this study found 23.3% overweight and obese among the high-risk group. This is consistent with the study of Saleh *et al.* (2018) which showed positive correlation between BMI and EAT-26, suggestive of items indicated that 84.5% of the high-risk individuals, were “terrified of being overweight”, 48.7% reported that “food controls their life”, and 55% reported “cutting food into pieces” [7]. This result was higher compared to the findings in Bangladeshi public university which obtained a rate of 6.0% and 2.5% [13] and lower than the result of the study at King Abdul-Aziz University in

Jeddah (38.8%) [17]. In a related context, the prevalence of overweight and obesity is 13.3% in a study by Tavalacci *et al.* about EDs among university students since the COVID-19 Pandemic [6] which might be attributed to health-related problems.

The results of the current study showed significant relationship with dieting subscale and bulimia and food preoccupation among high-risk group  $p < 0.001$  and  $0.001$  respectively). On the other hand, oral control subscale items were not significantly associated with risk outcome. This finding aligns with previous researches that high-risk group engage in dieting behaviors and onset of both anorexia and bulimia nervosa is between 18 and 20 years of age [5,6].

The results of the current study (Fig 1) showed higher risk of developing EDs among male students. This result is inconsistent with EAT-26 screen study which showed that the majority of high-risk subjects were females 92.6% [19]. Likewise, the prevalence of EDs in France 2020 among women was 29.8% and 15.7% among men [6]. Furthermore, in Musaiger *et al* (2013), the risk of EDs among females was twice as high as that among males in Jordan, Libya, Palestine, and Syria, [9]. Similarly, rates of EDs risk were significantly higher among females (17.0%) than males (5.5%) ( $p < 0.001$ ) as reported [19] and among women (32.5%; 95%CI=27.2-38.1%) with men [20]. It was agreed that adolescent girls are usually more concerned than boys about their body shape, more influenced by media than men, so

dissatisfied with their weight and practice dieting to lose weight [6,21]. The differences of the results of the present study from others might be attributed to the conservative nature of females to provide objective data, and selection bias as the available participants at the time of data collection were males 210 out of 369, and the need for more probing questions to detect probable eating disorders risk among university students group.

Although there are changes among sex in the recent years, our findings, along with other research finds increase in eating disorders and behaviors among males suggesting

This could be justified by the fact that literature field composed only of female students in women college who are more concerned about their Restriction among participants in the current study was lower than those of Sahlan *et al* (2020) [21]. Binge eating, extreme dieting, and purging all increased at a faster rate. The increased prevalence of purging that was also found in the older age group of the study of Mitchison *et al.* (2014) appears to represent a new phenomenon, as this behavior was virtually non-existent in this age group in 1998 [22].

Likewise, vomiting to control weight or shape was found to be significant among high-risk compared to low risk participants where self-induced vomiting two to three times/month 9.1%, and 1.8% vomited two to six times/week among high-risk participants. These results are consistent with the study Sahlan *et al* (2020) where self-induced vomiting was more common among males than females while the occurrence of

attention should be made among males in colleges [18].

The current study shows that the risk of eating attitude disorder among humanitarian and literature college students was higher (19.9%) than scientific field (11.3%) at Hadhramout University Students in Mukalla. This is in line with the study by Lipson *et al* (2017) who found elevated EDs risk is much more likely to report in social work majoring [18]. In this study, episodes of binge eating were significant in high-risk participants, with 18.2 %, 12.7% binge 2-6 times/week and once a week respectively. The rates of binge eating and extreme dietary restriction coincide with the study physical appearance, body image, body weight, and beauty.

other EDs did not differ by gender. However, the use of laxatives, diet pills and diuretics to control weight was not significantly associated with being in the low or high risk groups. Participants might be less influenced with dieting behaviors or/ unwillingness to report on eating disorder behavior.

As seen in this study, exercising longer than sixty minutes/day was more common among high-risk students; 16.4% of them exercised at least 2-6 times/week and 18.2% exercised at least once daily. In the same context, excessive exercise occurred more in male (28.0% vs. 20.0%) than female students [21]. The result coincides with several studies which report that doing excessive exercise as walking, swimming, home workout, and Gym among others were reported to control weight and male students

were more likely to report any occurrence of excessive exercise

[21,16]

## Conclusion

This study tried to screen eating disorders among university students. The study found growing numbers of students of eating disorders behaviors. This study found 14.9% were at high- risk of developing an eating disorders a long with high percentage among males than females. Eating Attitude Disorder among Human and Literature were higher than Scientific fields. There were significant relationship of developing an EDs between Dieting scale items, Bulimia and food preoccupation scale items among high risk Participants.

Effective screening tool to diagnose eating disorders among students are needed. The researchers recommend further studies with a large sample across multiple colleges and universities, in Yemen to investigate

different variables of eating disorders. Comprehensive education programs among students are also necessary.

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