Prevalence of the Alarming Symptoms of Eating Disorders Among KSAU-HS Students, Riyadh, Saudi Arabia

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Abstract

Introduction: Eating disorders are considered one of the severe major illnesses which may lead to serious conditions and possibly fatality. They cause severe disturbances in a persons eating behaviours.

Aim: This study aimed to estimate the prevalence of symptoms of eating disorders among medical students at the King Saud bin Abdulaziz University for Health Sciences (KSAU-HS)who were at the basic science level.

Results: Of the 249 students, 75.1% were males. 44.2% of the students were either overweight or obese. The prevalence of students with symptoms of eating disorders according to the EAT-26 questionnaire was 26.5%. No significant differences were observed in the prevalence of eating disorders in terms of age and gender.

Conclusion: The prevalence of eating disorders with symptoms among medical students was 26.5%. Eating disorders(ED) were widely prevalent in overweight or obese students but there was no significance in terms of age and gender. A call for future research that could support and expand the understanding of the prevalence of ED in our region and what factors cause it to be warranted.

Keywords: Eating disorder, EAT-26, prevalence, KSAU-HS students

Introduction

The social context, including family and friends, as well as other elements like the media and the accessibility of fast food outlets, all have an impact on the eating habits of adolescents (1). A class of psychological issues known as eating disorders are characterised by abnormalities in eating behaviours and dissatisfaction with one's physical appearance. Anorexia nervosa (AN), bulimia nervosa (BN), and eating disorders not otherwise described (EDNOS) are three forms of the illness. Self-starvation, which occurs when people consciously eat too little out of a pathological dread of gaining weight, is a hallmark of AN. Even when they are extremely underweight, AN patients perceive themselves as overweight (2). On the contrary, bulimia nervosa is characterised by recurrent binge eating (eating an excessively large amount of food in a short period of time, in an out-of-control manner) followed by severe weight-controlling measures such protracted fasting, self-induced vomiting, and abusing laxatives and diuretics (3). Due to the alarming statistics of eating disorders in adolescents and their profound effects on morbidity and mortality, health professionals now give eating disorders a great deal of attention. Recent epidemiological study data indicates an increased incidence among college students(4,5). The two subtypes of bulimia nervosa are the non-purging type, which is characterised by excessive exercise, fasting, or strict diets, and the purging type, which is characterised by episodes of binge-eating followed by compensatory behavior, such as self-induced vomiting, laxative abuse, and diuretic abuse (6).

Recent epidemiological study data indicates an increased incidence among college students (7,8). Each organ in the body might be impacted by eating disorders. Due to poor musculoskeletal health, people who suffer from the illness may face greater levels of cardiovascular issues, infertility, digestive issues, insomnia, anxiety, sadness, and suicide as well as fatigue, discomfort, and activity limits (9). Additionally, of all psychiatric illnesses, eating disorders have the highest fatality rate. To address the concerning statistics surrounding eating disorders in this population , screening studies for these conditions must be conducted (10).

Regarding the epidemiology of eating disorders countries with high populations were found to be in highest contributions to DALY's of eating disorders, or instance, China, India, and the USA. On the other hand, African and Asian countries were difficult to find information from due to lack of data (11). A study was conducted in Taif University, Saudi Arabia using a cut off score of 20 using EAT-26 and the results showed that 34.5% of students were considered at risk of developing eating disorders (12) Medical and obese students scored significant EAT -26 scores. Other research published in the Iranian Red Crescent Medical Journal, found a prevalence of 24.6% of girls in specific school were at risk of developing eating disorders (13). Furthermore, a study was conducted in two Arab countries in comparing to USA data, and found depression, anxiety and eating disorders are significantly higher in college students in Qatar and Lebanon than in the USA (14).

The incidence of eating disorders is unknown locally. Indeed, a lack of reporting is a serious concern in the Arabic world, particularly in Saudi Arabia. The lack of data made us question what is the prevalence of the symptoms of eating disorders In Saudi Arabia and to initiate a study. We hope that this study will provide an initiative for further nationwide studies to help us better understand the prevalence of eating disorders amongst our student population as well as in the wider adult community. Our aim is to improve our knowledge about how common are symptoms of eating disorders among students of KSAU-HS and help to estimate the prevalence. We believe that our study will add valuable data to existing literature.

Methods

We used a cross-sectional questionnaire-based study among medical students at King Saud bin Abdulaziz University for Health Sciences in Riyadh, Saudi Arabia. A self-administered questionnaire was used to assess eating behaviours.

The tool that was used to conduct the study was the EAT-26 (Eating Attitude Test 26) . The test consisted of 2 parts:

A) Demographical data - (Independent variables, Height, Weight, Date of birth, and Gender)
B) Outcome variable(s) – Any student who scores above 20 will be considered as high risk

Minimum Test score is 0, and maximum test score is 78.

EAT-26 items are from three sub-scales (i.e. Dieting, Bulimia and Food Preoccupation and Oral Control) and sub-scale scores are computed by summing all items assigned to that particular scale (Dieting scale items: 1, 6, 7, 10, 11, 12, 14, 16, 17, 22, 23, 24, 25; Bulimia & Food Preoccupation scale items: 3, 4, 9, 18, 21, 26; Oral Control sub-scale items: 2, 5, 8, 13, 19, 20) and the last 6 questions are behavioural questions.

Data was gathered by a form paper-based survey which was distributed to students through PBL sessions and lecture halls in the King Saud bin Abdulaziz University for Health Sciences (KSAU-HS), College of Medicine, Riyadh Campus. The study included medical students of both genders from the third and fourth year of study. The estimated sample size was 234 based on a 50% outcome response at 95% level of confidence and ± 5% Margin of error. The population size was estimated to be 500-600 students hence the sample size of 234 students. Data was collected, reviewed, and entered in MS Excel. Statistical analysis was conducted using JMP Software v.14. Categorical variables were measured by frequencies and percentages. Continuous variables were calculated by Mean and Standard deviation. A Chi-square test was used to compare gender with score. Descriptive statistics were presented as numbers and percentages (%) for all categorical variables. Univariate and multivariate analyses were performed to determine the independent significant

predictors of eating disorders. A P-value of 0.05 was used to indicate statistical significance. All statistical data were analyzed using Statistical Packages for Social Sciences (SPSS) version 26 (Armonk, NY: IBM Corp, USA).

Results

A total of 249 students completed the questionnaire. Table 1 presents the basic demographic characteristics of the students. Approximately 50.6% were aged between 22-23 years old with three quarters (75.1%) being males. Regarding their BMI level, 26.9% were overweight and 17.3% were obese.

In Figure 1, the prevalence of students identifying with an eating disorder was 26.5%.

In Figure 2, 56.6% had experienced eating binges in the last 6 months. A similar proportion, (56.6%), had exercised more than 60 minutes per day to lose or control weight, 17.3% had lost 20 pounds in weight or more, 11.2% had used laxatives or diuretics to control their weight or shape and 8.8% had forced themselves to vomit to control their weight or shape.

Regarding the behaviour of students and their eating habits (with or without the symptoms of eating disorder (Table 2)), we found there was an increased risk of eating disorders among students who used laxatives, diet pills, or diuretics to control their weight. This was as much as 4.31 times higher (AOR=4.31; 95% CI=1.39 – 13.3; p=0.011). Also, we observed that students who exercised for more than 60 minutes per day were more likely to increase the risk of developing an eating disorder by at least 2.19 times (AOR=2.19; 95% CI=1.13 – 4.25; p=0.020). Those who had lost 20 pounds in weight or more in the past 6 months had an increased risk of developing an eating disorder by at least 2.22-fold (AOR=2.22; 95% CI=1.07 – 4.59; p=0.032). On the contrary, binge eating, and self-induced vomiting to control weight did not show a significant effect on the symptoms of eating disorder (p>0.05).

In Table 3, we show that being obese or overweight was the sole independent significant predictor of an eating disorder. Compared to students with normal or underweight BMI levels, students who were obese or overweight were predicted to increase the risk of eating disorders by as much as 2.19 times (AOR=2.19; 95% CI=1.22 – 3.93; p=0.009) Gender and age group were not predicted to influence eating disorder symptoms in the group of students (p>0.05).

Table 1: Basic demographic characteristics of the students (n=249)

Study data		N (%)
Age group		
	22 – 23 years	126 (50.6%)
	>23 years	123 (49.4%)
Gender		
	Male	187 (75.1%)
	Female	62 (24.9%)
BMI level		
	Underweight (<18.5 kg/m2)	21 (08.4%)
	Normal (18.5 – 24.9 kg/m2)	118 (47.4%)
	Overweight (25 – 29.9 kg/m2)	67 (26.9%)
	Obese (≥30 kg/m2)	43 (17.3%)

Table 2: Students' behavior on eating disorder with or without the symptoms of eating disorder [n=249]

Statement	Eating disorder		AOR (95% CI)	P-value
	Positive N (%) [n=66]	Negative N (%) [n=183]		
Gone on eating binges where you feel that you may not be able to stop				
• Yes	45 (68.2%)	96 (52.5%)	1.32 (0.69 – 2.52)	0.396
• No	21 (31.8%)	87 (47.5%)	Ref	
Ever made yourself sick (vomited) to control your weight or shape?				
• Yes	11 (16.7%)	11 (06.0%)	0.74 (0.21 – 2.57)	0.633
• No	55 (83.3%)	172 (94.0%)	Ref	
Ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?				
• Yes	16 (24.2%)	12 (06.6%)	4.31 (1.39 – 13.3)	0.011 **
• No	50 (75.8%)	171 (93.4%)	Ref	
Exercised more than 60 minutes a day to lose or to control your weight?				
• Yes	49 (74.2%)	92 (50.3%)	2.19 (1.13 – 4.25)	0.020 **
• No	17 (25.8%)	91 (49.7%)	Ref	
Lost 20 pounds or more in the past 6 months				
• Yes	18 (27.3%)	25 (13.7%)	2.22 (1.07 – 4.59)	0.032 **
• No	48 (72.7%)	158 (86.3%)	Ref	

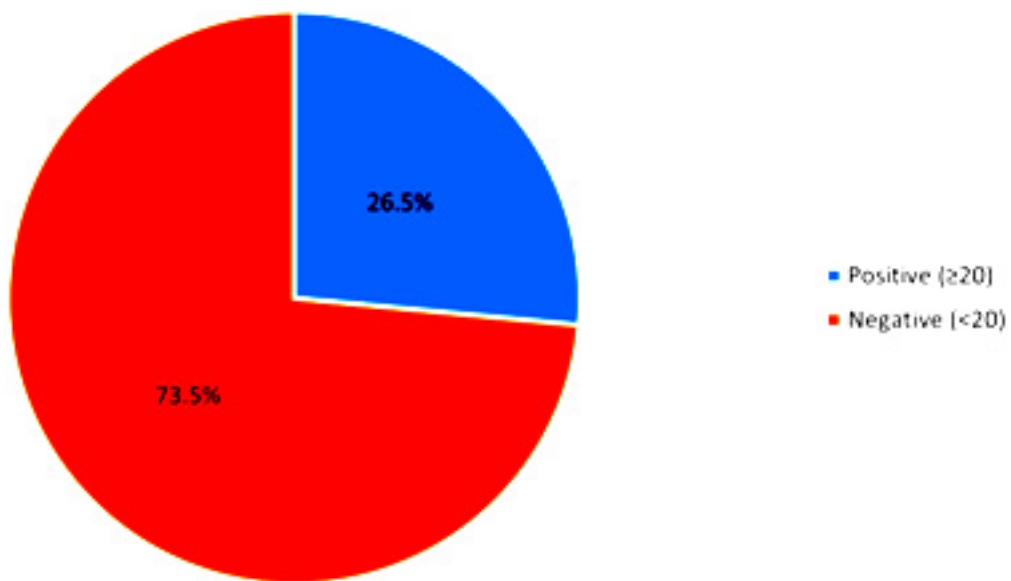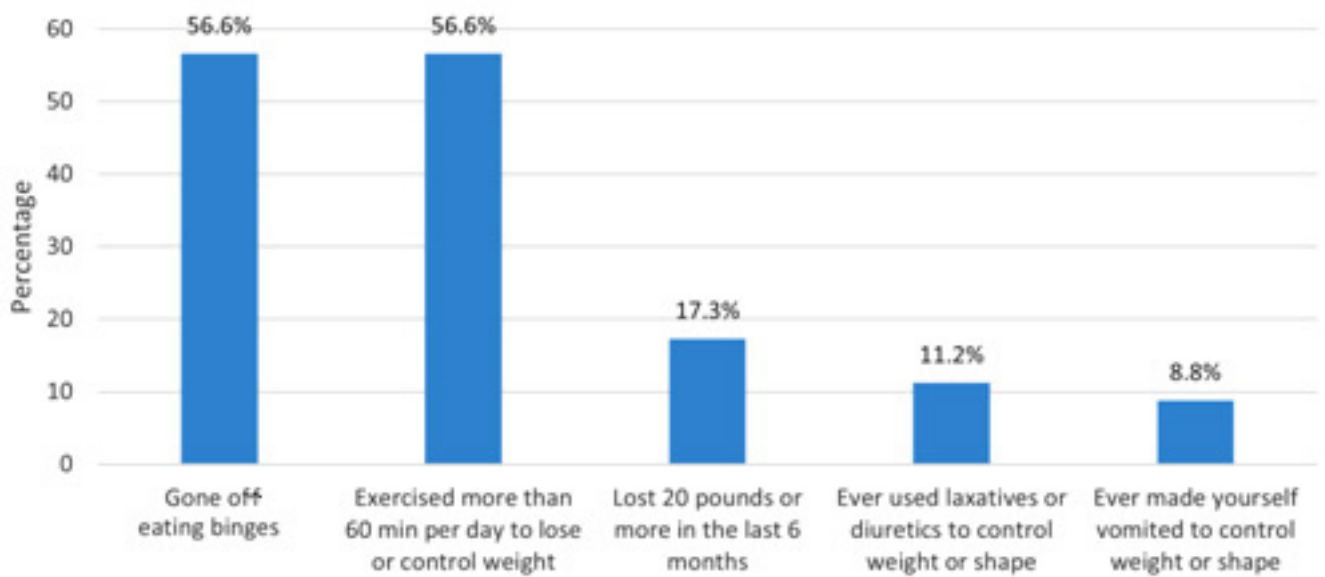AOR – Adjusted Odds Ratio; CI – Confidence Interval.
** Significant at $p<0.05$ level.

Table 3: Univariate and multivariate analysis to determine the influence of eating disorders in regard to the basic demographic characteristics of the students [n=249]

Statement	Eating disorder		AOR (95% CI)	P-value
	Positive N (%) [n=66]	Negative N (%) [n=183]		
Age group				
• 22 – 23 years	34 (51.5%)	92 (50.3%)	Ref	
• >23 years	32 (48.5%)	91 (49.7%)	0.95 (0.54 – 1.69)	0.872
Gender				
• Male	49 (74.2%)	138 (75.4%)	Ref	
• Female	17 (25.8%)	45 (24.6%)	1.29 (0.65 – 2.54)	0.462
BMI level				
• Normal or underweight	28 (42.4%)	111 (60.7%)	Ref	
• Obese or overweight	38 (57.6%)	72 (39.3%)	2.19 (1.22 – 3.93)	0.009 **

AOR – Adjusted Odds Ratio; CI – Confidence Interval.
** Significant at $p<0.05$ level.

Figure 1: Prevalence of eating disorders based on EAT-26

Figure 2: Students' behavior about oral control

Discussion

This study was carried out to determine the prevalence of eating disorders (ED) among KSAU-HS medical students in Riyadh, Saudi Arabia. The findings of this study revealed that there was a high prevalence of medical students who had symptoms of ED. Based on EAT-26 criteria, approximately one out of four (26.5%) of the students were positive for ED while the rest were normal (73.5%). Consistent with our findings, a review article conducted by Fatima et al.(16) found that the overall prevalence of ED in Arabic countries was approximately 26.9% with the highest prevalence amongst adolescennets in Saudi Arabia and the UAE. In South India, the prevalence of students who were at a high risk of developing ED was 13% lower than our report (17). A study carried out among American college students supported this claim and found that the prevalence of ED was 13.5% in females and 2.5% in males with 20% having received mental health treatment in the past year (18). The high prevalence of ED in the young population is concerning, and it is critical that we develop strategies to address this trend.

This study indicates that medical students who were obese or overweight had an increased risk of developing ED. This is consistent with the study done among university students in Taif (19). According to their research, medical and obese students achieved the highest significant ratings in EAT scores. The researchers emphasized the need for a national screening programme for the early detection and management of this disorder. Consistent with these reports, several studies conducted in Saudi Arabia proved that increased BMI was associated with an increased risk of ED whether they were university students(20), female adolescents (21), or people engaged in sports (22). In contradiction to these reports, a survey conducted among Indian college students (23), found that a lower body mass index was found among subjects with abnormal eating behaviour and that this was in agreement with a study carried out among Lebanese Health Science students and healthcare practitioners (24).

According to the report by Alhazmi and Al Johani (25), the prevalence of ED was significantly higher in females and those students aged 22 years or less. This was replicated in a study by Bizri et al (26), where female medical students and those aged between 22-25 years old were significantly more likely to be identified as at a higher risk of ED. However, in our results, gender and age were not identified as significant predictors of ED. This has been similarly documented by Iyer and Shriraam( ), as well as Al-Jumayan et al.( ) . Both studies indicated that there were no significant differences in the rates of eating disorders between genders. The effect of gender and age in terms of disturbed eating behavior was not conclusive, thus, more investigation is needed.

In terms of behavioural eating control, we have learned that more than half of the medical students (56.6%) had experienced eating binges in the past 6 months and were exercising daily for more than 60 minutes (56.6%) to lose or to control their weight. In addition, some students indicated that they had lost 20 pounds in weight or more (17.3%), or they used laxatives or diuretics to control their weight or shape (11.2%), and fewer than 9% had made themselves vomit to control their weight or shape. Accordingly, we noticed that behaviours such as exercising for more than 60 minutes per day, losing 20 pounds or more in the past 6 months, and taking laxatives, diet pills, or diuretics to control weight were also determined as significant predictors for an increased risk of ED. This is generally consistent with the findings of Hoteit et al( ). Based on their reports, binge eating, self-induced vomiting, the use of laxatives, diet pills, and diuretics, and losing 9 kg or more of body weight were significantly more in higher risk individuals. Previous reports documented the influence of behaviour on eating control, however, in a study by Al-Jumayan et al( ), eating disorder symptoms were linked to participants who were influenced by social media. They were 'encourgaed' to be slim and perceived that social media influencers motivated them to visit the gym. Further, similar associations were seen among participants who perceived that exercise was very important and therefore, the study highlighted the need for a screening programme to identify higher-risk individuals so that appropriate intervention and management planned.

Limitations
This study is subjected to some limitations. Firstly, our sample was not large (n=249). It would have been interesting to see a bigger sample which could generate more results which could give a greater understanding of the prevalence of ED in our region. Secondly, gender distribution was not equally collected, thus, we cannot generalize the comparison of ED between male and female students. Finally, being cross-sectional in nature is prone to disadvantages including any cause-and-effect relationships, and is prone to bias.

Conclusion

The prevalence of medical students with symptoms of eating disorders was 26.5%. Eating disorders were widely prevalent in overweight or obese students but there was no significance in terms of age and gender. Students who used methods to control their weight such as regular exercise and taking laxatives, diet pills, or diuretics were more likely to exhibit abnormal eating behaviours as compared to the rest of the students. Eating disorders may have severe consequences if left untreated, therefore, it is vital we develop a strategy and programme to prevent the incidence of ED. Collective efforts among government agencies and university institutions are needed to address the increasing trend of eating disorders among the young population. Long-term programmes for health education including raising the awareness of the importance of a good diet, nutrition and a healthy lifestyle would be beneficial. Future research is warranted.

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