

ORIGINAL ARTICLE

PREVALENCE AND ASSOCIATED FACTORS OF EATING DISORDERS AMONG STUDENTS IN TAIBA UNIVERSITY, SAUDI ARABIA: A CROSS-SECTIONAL STUDY

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ABSTRACT

This cross-sectional study aimed to determine the prevalence and associated factors of eating disorders among health specialties students in Taiba University. Stratified and systematic random sampling technique were employed to select 342 students. The validated Eating Attitude Test (EAT-26) was used to measure eating disorders. The majority aged ≤ 22 years (64.6%), 25.4% were overweight and 9.9% were obese. High risk eating disorders was reported by 28.7% of respondents. The majority had GPA of ≤ 2.49 . High risk eating disorders was significantly higher among females (OR=2.6, 95%CI 1.6-4.2), among those aged ≤ 22 years (OR=2.2, 95%CI 2.2-3.8), among those who had a GPA more than 2.49 (OR=2.2, 95%CI 1.2-4.3) and among those who are obese compared to underweight (OR= 3.1, 95% CI 1.6-9.0). In conclusion, high risk eating disorders was relatively high and it was associated with gender, BMI, age and GPA.

Keywords: attitudes, eating disorders, health specialties, psychiatric disorders

INTRODUCTION

Eating disorders (ED) are chronic psychiatric disorders characterized by abnormal eating habits^{1,2}. ED predominantly occurs as a result of mental effect preoccupied by one's self-esteem regarding individual's ideal body weight, body shape and dietary patterns³. Population-based studies in western countries reported that the prevalence of ED ranged between 0.1% and 7.3%⁴, while global prevalence of ED reported higher rates, ranging between 14% and 22% in young adults⁵. The etiology of ED remains unknown but occurs predominantly in women, believed to be influenced by the triads of biological, psychological and/or environmental factors⁶. Studies reported that Western socio-cultural influences may have catalyzed the eagerness towards body thinness and muscularity in the East, exacerbating body dissatisfaction and unhealthy eating behaviors in young adults⁷. Psychological stress has been suggested to be related with ED, particularly among medical students or trainees due to academic pressure and demands^{8,9}. A study from the USA found that almost 15% of female medical students suffered from ED¹⁰. Literature highlighted an increase of ED risks among healthcare workers and students¹¹⁻¹³. Albeit this population has access to biomedical knowledge and responsibilities towards ED diagnoses and treatment, they delay seeking medical treatment when diagnosed with ED, believed to be in fear of being stigmatized or queried about their suitability for clinical

practice¹⁴. It was postulated that the prevalence of ED can be influenced by gender, age or daily professional duties among this population¹⁵. Looking at this context and emerging reports on the importance of exploring the burden of ED from the Eastern population, this study aimed to determine the prevalence of ED and its' associated factors among a sample of health specialties students at the Taibah University, Medina, Saudi Arabia.

METHODS

Study setting and population

This cross-sectional study was conducted among 342 health specialties students in Taiba University, AL Madinah city, Saudi Arabia. List of all student was accessed from the Deanship of Students Affairs. A stratified sampling was employed to select a representative and proportional sample from each specialty. Then, a systematic random sampling was employed to select the required sample size from 2973 students.

Study instruments

A self-administered questionnaire was used to collect data. It included two parts. The first part included questions on the sociodemographic variables such as gender, age, height, weight and GPA (grade point average). The second part included the validated Eating Attitude Test (EAT-26) which is used to measure eating disorders. It consists of 26 items referring to various eating attitudes and behaviors. Each item was answered in

a six-point Likert-type scale ranging from ‘always’ to ‘never’. A score of 3 was given for ‘always’, 2 for ‘usually’, 1 for ‘often’, and 0 for ‘sometimes’, ‘rarely’ and ‘never’. For item number 26, 0 was given for ‘always’, ‘usually’, and ‘often’, and 1, 2, and 3 for ‘sometimes’, ‘rarely’ and ‘never’ respectively. The 26 items were summed to obtain the total score. A score of 20 or more indicates the participant is at risk of eating disorders. The internal consistency of the tool was reported to be 0.90¹⁶, while in this study it was calculated to be 0.85. Body mass index was categorized according to the WHO criteria into four categories: underweight (BMI<18.5), normal weight (18.5 ≥ BMI ≤ 24.9), overweight (BMI ≥ 25) and obese (BMI ≥ 30)¹.

Ethical statement

This study protocol was approved by the ethical committee of the Institutional Review Board in Al Madinah, Saudi Arabia. Participants confidentiality and anonymity were assured. Consent was obtained from those who agreed to participate.

Statistical analysis

Statistical analysis was carried out by using Statistical Package for the Social Sciences (SPSS®) (version 20). Cronbach’s alpha of the Eating Attitude Test (EAT-26) scale was obtained to assess the Internal consistency. The total score of Eating Attitude Test (EAT-26) was classified into two

categories based on a cut-off point of 20. Chi square test was employed to assess association between Eating Attitude and categorical data. The accepted level of significance was set below 0.05 (p<0.05).

RESULTS

Sociodemographic characteristics of the respondents:

Males and females were distributed equally (50% each). The majority aged 22 years or less (64.6%). The majority had normal body mass index (53.55%). About 11.1% were underweight, 25.4% were overweight and 9.9% were obese. The majority had GPA of ≤2.49 (Table1).

Prevalence and associated factors of eating disorders:

The mean (SD) of EAT-26 was 14.9(11.3) with a minimum = 1 and maximum=54. Ninety-eight of respondents (28.7%) had high risk eating disorders in this study. High risk eating disorders was significantly higher among females compared to males (OR=2.6, 95%CI 1.6-4.2), among those aged 22 years or less compared to those who aged more than 22 years (OR=2.2, 95%CI 2.2-3.8), among those who had a GPA more than 2.49 (OR=2.2, 95%CI 1.2-4.3) and among those who are obese compared to underweight (OR= 3.1,95% CI 1.6-9.0) (Table 2).

Table 1: Socio-demographic characteristics of the respondents

Variable	Frequency	%
Gender		
Male	171	50.0
Female	171	50.0
Age		
≤22	221	64.6
>22	121	35.4
BMI		
Underweight	38	11.1
Normal	183	53.5
Overweight	87	25.4
Obese	34	9.9
GPA		
>2.49	75	21.9
≤2.49	267	78.1

DISCUSSION

This study aimed to determine the prevalence and factors associated with high risk eating disorder (ED) among health specialties students at Taibah University, Medina. The prevalence of ED in this study was 28.7%. The estimated prevalence rate of ED was relatively higher than that found in young Finnish adults (4.6%)¹⁷, adolescents in Northwest Iran (24.2%)¹⁸, and university students from

Southern Brazil (22.4%)³, Egypt (11.4%)¹⁹, Poland (12.6%)²⁰, Czech Republic (11.7%)²¹ and Pakistan (22.7%)¹. Apart from stressful life situations in college and peer pressure affecting eating habits²², the ED phenomenon afflicting the Arabic population could be attributed to westernized socio-cultural influences through media exposures that advocates weight loss programs, challenging individual’s self-esteem to maintain a lean bodily image based on western lifestyle standards^{13,18,23}.

Table 2: Association between eating disorders and sociodemographic characteristics

Variable		Eating disorders		OR	95%CI	P value
		High risk n (%)	No risk n (%)			
Gender	Male	33(19.3)	138 (80.7)	2.6	1.6-4.2	<0.001
	Female	65 (38.0)	106 (62.0)			
Age	≤22	75 (33.9)	146 (66.1)	2.2	1.3-3.8	0.004
	>22	23 (19.0)	98 (81.0)			
BMI	Underweight	7 (18.4)	31(81.6)	1		
	Normal	58 (31.9)	124 (68.1)	2.1	0.9-4.9	0.104
	Overweight	18 (20.7)	69 (79.3)	1.2	0.4-3.0	0.771
	Obese	14 (41.2)	20 (58.8)	3.1	1.6-9.0	0.038
GPA	>2.49	85 (31.8)	182 (68.2)	2.2	1.2-4.3	0.014
	≤2.49	13 (17.3)	62(82.7)			

Studies highlighting the associations between gender and ED showed mixed variations. The bulk of literature found that women had higher odds than men to be affected with ED^{1,13,17,24,25}, however one study from Northwest Iran found a fairly high prevalence of ED affecting men¹⁸, while another two studies from Spain found non-significant associations between gender and ED^{26,27}. This study found that women were more likely to be affected with ED as compared to men and this association was statistically significant. A plausible explanation for such associations could be attributed to the concomitant redefinition of a woman's beauty standards as portrayed by the media or social interface, conveying a re-modeled aesthetics and social representations of their beauty, thus catalyzing behavioral actions towards immense dietary restrictions³. This study found that younger aged students were more likely to be vulnerable to ED as compared to older aged ones and this association was statistically significant. Similar finding was noted in a previous study¹⁸.

Notable explanation for such notion is that younger aged groups tend to make their own food choices based on cost, availability of fast-food and adoption of snacking habits as part of their behavioral transitions from living with family to living with peers in campus or living alone²². With regards to BMI, this study found that respondents being underweight and overweight were more likely to have high risk ED in comparison to respondents being obese and this association was statistically significant. Similar consistency was found in a previous study from Pakistan¹. A plausible explanation for such finding could be attributed on a psychological basis; with overweight individuals who tend to have higher ED to achieve a lean bodily image, while those being underweight or normal tend to have a psychological satisfaction after achieving the desired body shape, thus propelling themselves to continue behavioral strategies for maintaining current bodily standards¹. This study found that respondents with higher grade point

average (GPA) had lower odds of being vulnerable to high risk ED.

A plausible reason is that respondents with better academic performance may have better knowledge on good eating behaviors and lifestyle adaptations²² and are aware of serious medical complications of ED such as purpura, liver dysfunction, osteoporosis or acrocyanosis¹. Limitations of the current study should be acknowledged. The cross-sectional nature of the study conducted at a single center could not establish temporality between variables and limits the generalizability of the study findings. Self-reported measures have tendencies towards overestimation of ED prevalence and recall bias is anticipated.

CONCLUSION

The prevalence of ED among health specialties students in this study was 28.7%. Gender, age, BMI and academic performance were significant attributes of ED in this sample. Early detection of factors influencing ED is important for psycho-behavioral interventions in curbing such disorders among future physicians for greater efficiency in practice.

Competing Interests: Non

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REFERENCES

1. Memon AA, Adil SE, Siddiqui EU, et al. Eating disorders in medical students of Karachi, Pakistan-a cross-sectional study. *BMC Res Notes*. 2012; 5:84.
2. Micali N, Hagberg KW, Petersen I, et al. The incidence of eating disorders in the UK in 2000-2009: findings from the General Practice Research Database. *BMJ Open*. 2013; 3:e002646.
3. Pereira LDNG, Trevisol FS, Quevedo J, et al. Eating disorders among health science

- students at a university in southern Brazil. *Rev Psiquiatr Rio Gd Sul*. 2011; **33**(1): 14-19.
4. Makino M, Tsuboi K, Dennerstein L. Prevalence of eating disorders: a comparison of Western and Non-Western Countries. *Medscape Gen Med*. 2004; **6**(3):49.
 5. Swanson SA, Crow SJ, Grange DL, et al. Prevalence and correlates of eating disorders in adolescents. *Arch Gen Psychiatry*. 2011; **68**(7):714-723.
 6. Olden K, White SL. Health-related disparities: influence of environmental factors. *Med Clin North Am*. 2005; **89**(4):721-738.
 7. Chang W, Nie M, Kang Y, et al. Subclinical eating disorders in female medical students in Anhui, China: a cross-sectional study. *Nutr Hosp*. 2015; **31**(4):1771-1777.
 8. Konttinen H, Mannisto S, Sarlio-Lahteenkorva S, et al. Emotional eating, depressive symptoms and self-reported food consumption. A population-based study. *Appetite*. 2010; **54**(3): 473-479.
 9. Loxton NJ, Dawe S, Cahill A. Does negative mood drive the urge to eat? The contribution of negative mood, exposure to food cues and eating style. *Appetite*. 2011; **56**(2): 368-374.
 10. Herzog DB, Pepose M, Norman DK, et al. Eating disorders and social maladjustment in female medical students. *J Nerv Ment Dis*. 1985; **173**(12):734-737.
 11. Balhara YP, Mathur S, Kataria DK. Body shape and eating attitudes among female nursing students in India. *East Asian Arch Psychiatry*. 2012; **22**:70-74.
 12. Gerada C, Jones R. Young female doctors, mental health, and the NHS working environment. *BMJ*. 2014; **348**:g1.
 13. Bosi MLM, Nogueira JAD, Alencar CH, et al. *Epidemiology (Sunnyvale)*. 2016; **6**(4): 1000256.
 14. Crane A, Treasure J, McConville S. Eating disorders on the wards. *Student BMJ*. 2007; **15**: 80-81.
 15. Treasuare J, Zipfel S, Micali N, et al. Anorexia nervosa. *Nat Rev*. 2015; **1**: 1-21.
 16. Fatima W, Ahmad LM. Prevalence of disordered eating attitudes among adolescent girls in Arar City, Kingdom of Saudi Arabia. *Health Psychol Res*. 2018; **8**; **6**(1): 7444.
 17. Lahteenmaki S, Saarni S, Suokas J, et al. Prevalence and correlates of eating disorders among young adults in Finland. *Nord J Psychiatry*. 2014; **68**:196-203.
 18. Rauof M, Ebrahimi H, Jafarabadi MA, et al. Prevalence of eating disorders among adolescents in the Northwest of Iran. *Iran Red Crescent Med J*. 2015; **17**(10): e19331.
 19. Nasser M. Screening for abnormal eating attitudes in a population of Egyptian secondary school girls. *Soc Psychiatry Psychiatr Epidemiol*. 1994; **29**(1):25-30.
 20. Włodarczyk-Bisaga K, Dolan B. A two-stage epidemiological study of abnormal eating attitudes and their prospective risk factors in Polish schoolgirls. *Psychol Med*. 1996; **26**(5):1021-1032.
 21. Janout V, Janoutova G. Eating disorders risk groups in the Czech Republic - cross-sectional epidemiologic pilot study. *Biomed Papers*. 2004; **148**(2):189-193.
 22. Ganasegeran K, Al-Dubai SAR, Qureshi AM, et al. Social and psychological factors affecting eating habits among university students in a Malaysian medical school: a cross-sectional study. *Nutr J*. 2012; **11**:48.
 23. Harrison K, Cantor J. The relationship between media consumption and eating disorders. *Journal of Communication*. 1997; **47**(1):40-67.
 24. Pope HG, Hudson JI, Todd DY, et al. Prevalence of anorexia nervosa and bulimia in three student populations. *Int J Eat Disord*. 1984; **3**(3):45-51.
 25. Sample C, Katzman MA, Wolchik SA, et al. The prevalence of frequent binge eating and bulimia in a nonclinical. *Int J Eat Disord*. 1984; **3**(3):53-62.
 26. Canals J, Domenech E, Carbajo G, et al. Prevalence of DSM-III-R and ICD-10 psychiatric disorders in a Spanish population of 18-year-olds. *Acta Psychiatr Scand*. 1997; **96**(4):287-94.

27. Pelaez FMA, Labrador FJ, Raich RM. Prevalence of eating disorders among adolescent and young adult scholastic population in the region of Madrid (Spain). *J Psychosom Res.* 2007; **62**(6):681-690.