

# The Relationship between Normal Weight Obesity and Eating Attitudes among Undergraduate Students at Jazan University, KSA

## Research Article

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### Abstract

**Objectives:** Present study aimed to find the prevalence of eating disorders (EDs) among the undergraduate students, Jazan University, Kingdom of Saudi Arabia, and find the relationship between EDs and normal weight obesity (NWO) and its factors.

**Methods:** A cross-sectional study was conducted among undergraduate students at Jazan University from November 18, 2019, to May 30, 2020. The subjects were 158 students aged 18 and over, and Body Mass Index (BMI) between 18.5 to 24.9 were recruited from two groups according to the degree programs: health and non-health related programs. Eating Attitudes Test 26 (EAT-26) questionnaire was distributed among the students to assess eating attitudes. Weight, height, and % fat mass were measured, and BMI was calculated.

**Results:** The prevalence of EDs was significantly high in the non-health program (25%) compared to health program students (14%) P-value<0.05, females (25%) had high prevalence compared to male students (10%) P-value<0.05, married (35%) students had high prevalence compared to single students (13%) P-value<0.05. Female students in the non-health program had a significantly higher bulimia and food preoccupation score in EAT-26 subscale P-value<0.05 compared to the others that showed a higher in the dieting score in EAT-26 subscale. Regarding NWO, female students had a higher EAT-26 score than male students but statistically not significant.

**Conclusion:** Among undergraduate students, NWO students had a higher prevalence of EDs. The present study found a high prevalence of EDs in non-health programs married female undergraduate students at Jazan University. Nutrition education and counseling are essential to establishing and maintaining healthy body fat composition and eating behavior.

**Keywords:** Normal Weight Obesity (NWO); Eating Disorders (EDs)

## Introduction

College students are at risk of developing eating disorders (EDs), resulting from practicing abnormal eating behaviors, such as skipping meals, taking diet pills, and restricting or eating the minimal amount of food to lose weight. EDs are a group of psychiatric problems characterized by changes in eating or absorption food, such as anorexia and bulimia nervosa. Body image dissatisfaction, stress, and marital status are some factors that increase the risk of EDs among college students'. The prevalence of increasing body fat has been noted among college students. According [1] college students are at high risk of gaining fat mass due to the transition from high school

to college, which is a critical period for establishing abnormal eating behaviors. In Saudi Arabia, the prevalence of overweight and obesity has increased and become trended among the populations [2]. That may lead to an increase in abnormal eating behavior, trying to lose weight.

Typically, obesity has been identified by means of the body mass index (BMI), a person with a BMI of  $\geq 30.00$  kg/m<sup>2</sup> is indicated obese (WHO) associated with obese people, such as diabetes, and cardiovascular diseases [3-6]. However, BMI does not differentiate between body fat mass and lean body mass on the body [7-9]. Individuals may have a high body fat mass percentage but having

a healthy or normal BMI. This concept is known as normal weight obesity (NWO). It describes a person who has a normal body weight when defined by BMI (18.50 – 24.99 kg/m<sup>2</sup>) and has a high amount of body fat ( $\geq 25$  in males &  $\geq 32$  in females, respectively) [10]. People with NWO have increased risks of metabolic syndrome [11]. Abnormal eating behaviors to lose weight through unhealthy weight control methods lead to an increase in the prevalence NWO among the students [12] found an association between the prevalence of NWO and diet behavior among students, high body fat mass linked to diet behavior. However, the prevalence and relationship between NWO, marital status and EDs among students at Jazan University have not studied. Conduction of screening studies for the prevalence and association between NWO, and EDs will contribute to an early detection between these components, which may be useful in decreasing the risk of prevalence of EDs and NWO among students. Therefore, the objectives of the study were to investigate the prevalence of EDs, and NWO among Jazan University students; and to identify the relationship between NWO, associated factors, and EDs among Jazan University students.

## Methods

A cross-sectional study was undertaken from November 18, 2019 to May 30, 2020 at Jazan University. The study included 158 students from both genders (60 females & 98 males) adult students who were age 18 and over and Body Mass Index (BMI) between 18.5 to 24.9 were recruited from the university with different programs. Students younger than 18 years, pregnant, and BMI were  $<18.50$  or  $\geq 25$  were excluded from the study.

Students were asked to fill out a demographic questionnaire to collect information about age, gender, study year or level, marital status, and study major. Students were also asked to complete Eating Attitudes Test 26 (EAT-26) questionnaires.

The EAT-26 scale measure is used to identify EDs, but this questionnaire is not designed to make a diagnosis of EDs. The EAT-26 scale has three subscales: Dieting, Bulimia, and Food Preoccupation, and Oral Control. Each question in this questionnaire contains six options with a corresponding point value: always (3), usually (2), often (1), sometimes (0), rarely (0), and never (0). Getting score equal to or more than 20 is determined as having a characteristic of EDs [13]. EAT-26 scale is a validated questionnaire and was used in several studies to assess EDs [14-16].

Anthropometric measurements were assessed by using a calibrated scale for the measurement of weight to the nearest 0.1 kg, and height without shoes was measured using a wall-mounted stadiometer to the nearest 0.5 cm. BMI was calculated as kg/m<sup>2</sup>. Bioelectrical impedance analyzer (Omron HBF-306C Handheld) was used to assess fat percentage.

This study was approved by the Scientific Research Ethics Committee at Jazan University. Participants informed of the nature and scope of the study then signed an informed consent form. The participants were informed that participation in this study was voluntary, that they may stop participating at any time, and that their names would not be disclosed when the study findings were reported.

Data analysis was performed using Statistical Package for Social Sciences (SPSS) 21.0 version for windows. The results for continuous variables were expressed in descriptive statics mean, and standard deviations and student-t test for two independent variables were applied for testing the significant difference. Logistic regression (Odds ratio) and 95% confidence interval of odds ratio were calculated for finding the strength of relation, and the chi-square test was applied for testing the association between categorical variables. The differences were considered statistically significant at P value  $< 0.05$ .

## Results

Among 158 participants, 98 were male students, and 60 were female students (Figure 1). Comparison of mean and standard deviations for different variables between health and non health programs are reported in Table-1. Male students were found taller than the female students in both programs, health programs ( $169.28 \pm 4.46$  cm) compared to ( $153.88 \pm 5.39$  cm) and non-health programs ( $159.08 \pm 27.10$  cm) compared to ( $152.51 \pm 5.70$  cm). The differences between health and non health program student heights showed a

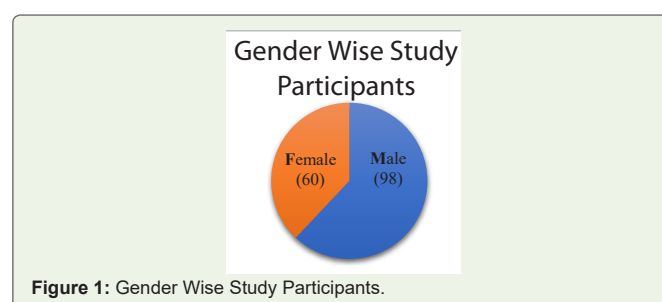


Figure 1: Gender Wise Study Participants.

Table 1: Comparison between Health and Non Health programs

Variable	Health Programs			Non Health Programs			Total	P-value
	Male	Female	Total	Male	Female	Total		
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD	
Number	85	29	114	13	31	44	158	
Age	22.75±1.22	22.17±1.65	22.61±1.36	22.54±1.33	22.13±1.62	22.23±1.53	22.50±1.41	0.158
Height	169.28±4.46	153.88±5.39	165.36±8.21	159.08±27.10	152.51±5.70	154.45±15.39	162.33±11.72	0.000*
Weight	61.41±6.88	51.08±8.05	58.78±8.47	58.46±6.70	50.80±4.50	53.07±6.26	57.19±8.30	0.000*
BMI	21.26±2.14	22.11±2.27	21.48±2.19	20.88±1.59	21.94±1.782	21.63±1.78	21.52±2.08	0.654
Fat%	17.31±5.71	27.42±6.21	19.89±7.30	18.1±4.64	24.35±6.97	22.51±6.95	20.61±7.28	0.039*
EAT-26	12.85±7.53	15.03±9.68	13±8.141	9.38±6.95	18.81±9.19	16.02±9.56	14.14±8.61	0.114

\*Significance (P-value  $< 0.05$ ) and \*\*highly significance (P-value  $< 0.01$ ). Values are reported as mean  $\pm$  Standard deviation. **Abbreviations:** BMI (Body Mass Index), Fat% (Fat Percentage), EAT-26 (Eating Attitudes Test 26).

highly statistically significant ( $P$ -value  $<0.01$ ) (Table 1). The same findings also were found in accordance with weight. Male students gained more weight than the female students in the both programs, health programs ( $61.41 \pm 6.88$  Kg) compared to ( $51.08 \pm 8.05$  Kg) and non-health programs ( $58.46 \pm 6.70$  Kg) compared to ( $50.80 \pm 4.50$  Kg). The differences between health and non health program student weights showed a highly statistically significant ( $P$ -value  $<0.01$ ). However, female students had higher fat mass% than male students in both programs, health programs ( $27.42 \pm 6.21\%$ ) compared to ( $17.31 \pm 5.71\%$ ) and non-health programs ( $24.35 \pm 6.97\%$ ) compared to ( $18.1 \pm 4.64\%$ ). The differences between health and non health program student fat mass (%) showed statistically significant ( $P$ -value  $<0.05$ ). The prevalence of EDs among students is depicted in Table 2. In accordance with programs, 25% among non- health program students had EDs significantly more compared to 14% among health program students. Odds ratio 2.381, 95% confidence interval 0.985-5.756 and  $P$ -value  $<0.05$ . Therefore the probability for a non- health program student having the risk of EDs is 70%. In comparison between genders, female students had significantly higher prevalence of EDs 25% compared to 10% in male students. Odd ratio 2.933, 95% confidence interval 1.220-7.051 and  $P$ -value  $<0.05$ . Therefore, the probability for a female student having the risk of EDs is 75%. In case with marital status, married students had significantly more prevalence of EDs than unmarried students. Among 17 students 6 (35%) had EDs where as in 141 unmarried students only 19 (13%) had EDs Odds ratio 3.502, 95% confidence interval 1.156-10.585 and

$P$ -value  $<0.05$ . Therefore, the probability for married students having the risk of EDs is 78%. In comparison between obese and non-obese students according to fat%, obese had slightly higher prevalence of EDs, but statistically not significant ( $P$ -value  $>0.05$ ).

Fat percentage classifications among the students showed in Table 3. The prevalence of NWO between health and non – health programs were not show any statistical differences (15% and 14% respectively). Although the prevalence of NWO according to the fat% higher in female (17%) compare to male (12%) and married students (18%) compare to single (14%), the results were not identified any statistical differences between them ( $P$ -value  $>0.05$ ). EAT-26 questions were divided into three subscales: Dieting, Bulimia and Oral Control and are represented in (Table 4, Table 5, Table 6). Normal (EAT-26 Score  $<20$ ) students had a significantly higher proportion (84.2%) in all items of attitudes and behaviors compared to (15.8%) were disorders (EAT-26 Score  $\geq 20$ ).  $P$ -values were  $<0.05$  in most of the items except only for the items of “enjoy trying new rich foods”, “Find myself preoccupied with food”, “Have gone on Eating binges where I feel that may not be able to stop”, and “Feel that food controls my life” which did not differ significantly between respondents. The highest dietary subscale item (88%) in the disorder (EAT-26 Score  $\geq 20$ ) students was found to be “Vomit after eating” followed by “Have the impulse to vomit after meals” was 84%, “Enjoy trying new rich foods” were found 68% and “Preoccupied with desire to bethinner” found 28%.

**Table 2:** Prevalence of Eating Disorders among the Students.

Variable		EAT-26 Score			$\beta$ Value	P- Value	Odds Ratio	95% CI
		Normal ( $<20$ )	Disorder ( $\geq 20$ )	Total				
Program	Non Health	33(75%)	11(25%)	44(100%)	0.868	0.05*	2.381	0.985-5.756
	Health	100(88%)	14(12%)	114(100%)				
	Total	133(84%)	25(16%)	158(100%)				
Gender	Female	45(75%)	15(25%)	60(100%)	1.076	0.016*	2.933	1.220-7.051
	Male	88(90%)	10(10%)	98(100%)				
	Total	113(84%)	25(16%)	158(100%)				
Marital Status	Married	11(65%)	6(35%)	17(100%)	1.253	0.026*	3.502	1.159-10.585
	Single	122(87%)	19(13%)	141(100%)				
	Total	133(84%)	25(16%)	158(100%)				
Fat%	NW	114(84%)	21(16%)	135(100%)	0.134	0.824	1.143	0.353-3.698
	NOW	19(83%)	4(17%)	23(100%)				
	Total	133(84%)	25(16%)	158(100%)				

\*Significance ( $P$ -value  $<0.05$ )

**Table 3:** Fat Percentage Classifications among the Students

Variable		Fat %			$\beta$ Value	P- Value	Odds Ratio	95% CI
		NW	NWO	Total				
Program	Non Health	38(86%)	6(14%)	44(100%)	0.104	0.839	1.110	0.407-3.028
	Health	97(85%)	17(15%)	114(100%)				
	Total	135(85%)	23(15%)	158(100%)				
Gender	Female	50(83%)	10(17%)	60(100%)	0.268	0.557	1.308	0.534-3.202
	Male	85(88%)	13(12%)	98(100%)				
	Total	135(85%)	23(15%)	158(100%)				
Marital Status	Married	14(82%)	3(18%)	17(100%)	0.260	0.703	1.296	0.342-4.920
	Single	121(86%)	20(14%)	141(100%)				
	Total	135(85%)	23(15%)	158(100%)				

NW: (Normal Weight). NWO: (Normal Weight Obesity).

**Table 4:** Dieting Subscale Scores of the Participants.

Dieting Attitudes	Normal (EAT-26 Score<20) N=133(84.2%)	Disorder (EAT-26 Score ≥20) N=25(15.8%)	χ <sup>2</sup>	P value
Terrified about being overweight	98(73.7%)	8(32.0%)	16.561	0.000
Aware of calorie content of food I eat	113(85.0%)	14(56.0%)	11.193	0.001
Avoid food with high carbohydrate content	116(87.2%)	16(64.0%)	8.252	0.004
Feel guilty after eating	126(94.7%)	17(68.0%)	17.508	0.000
Am preoccupied with desire to be thinner	130(77.4%)	7(28.0%)	24.324	0.000
Think about burning up calories when exercising	72(54.1%)	1(4.0%)	21.281	0.000
Am preoccupied with the thought of having fat on my body	90(67.7%)	4(16.0%)	23.313	0.000
Avoid foods with sugars in them	112(84.2%)	14(56.0%)	10.369	0.001
Eat diet food	121(91.0%)	14(56.0%)	20.700	0.000
Feel uncomfortable after eating sweets	109(82.0%)	8(32.0%)	27.330	0.000
Engage in dieting behaviour	117(88.0%)	10(40.0%)	30.706	0.000
Like my stomach to be empty	118(88.7%)	15(60.0%)	13.034	0.000
Enjoy trying new rich foods	111(83.5%)	17(68.0%)	3.269	0.071*

\*Not significant

**Table 5:** Attitudes of Bulimia and Food Preoccupation Subscale Scores

Attitudes of Bulimia and Food Preoccupation	Normal (EAT-26 Score<20) N=133(84.2%)	Disorder (EAT-26 Score ≥20) N=25(15.8%)	χ <sup>2</sup>	P value
Find myself preoccupied with food	81(60.9%)	13(52.0%)	0.692	0.405*
Have gone on Eating binges where I feel that may not be able to stop	99(74.4%)	14(56.0%)	3.512	0.061*
Vomit after eating	130(97.7%)	22(88.0%)	5.470	0.019
Feel that food controls my life	98(73.7%)	15(60.0%)	1.935	0.164*
Feel that others pressure me to eat	89(66.9%)	10(40.0%)	6.517	0.011
Have the impulse to vomit after meals	130(97.7%)	21(84.0%)	9.389	0.002

\*Not significant

**Table 6:** Behaviours about Oral Control Subscale Scores of Participants

Attitudes of Oral Control	Normal (EAT-26 Score<20) N=133(84.2%)	Disorder (EAT-26 Score ≥20) N=25(15.8%)	χ <sup>2</sup>	P value
Avoid eating when hungry	116(87.2%)	15(60.0%)	11.003	0.001
Cut my food into small pieces	96(72.2%)	10(40.0%)	98.70	0.002
Feel others prefer if I eat more	89(66.9%)	9(36.0%)	8.540	0.003
Other people think I am too thin	76(57.1%)	7(28.0%)	7.168	0.007
Take longer than others to eat my meal	95(71.4%)	6(24.0%)	20.527	0.000
Display self-control around food	87(65.4%)	6(24.0%)	14.905	0.000
Feel that others pressure me to eat	89(66.9%)	10(40.0%)	6.517	0.011

**Table 7:** EAT-26 sub scale scores between health and non-health programs

Variable	Health Programs			Non Health Programs			Health Program	Non Health Program	Total	P-value
	Male	Female	p-value	Male	Female	P-value				
	Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD		Mean ± SD			
Number	85	29		13	31		114	44	158	
Dieting Scale items	5.01±5.16	7.86±7.40	0.024*	2.85±4.58	9.3±6.99	0.006**	5.74±5.91	7.20±6.94	6.15±6.225	0.185
Bulimia and food preoccupation scale items	2.86±2.49	2.52±2.35	0.520	1.46±1.94	3.74±3.57	0.036*	2.77±2.45	3.07±3.3	2.85±2.72	0.540
Oral control sub scale items	4.99±3.95	4.66±3.89	0.694	5.08±5.12	6.03±4.5	0.542	4.90±3.92	5.75±4.67	5.14±4.14	0.251
Total	12.86±7.53	15.03±9.68	0.215	9.38±6.95	18.81±9.19	0.002**	13.41±8.14	16.02±9.56	14.14±8.61	0.087

\*Significance (P-value &lt;0.05) and \*\*Highly significance (P-value &lt;0.01).

EAT-26 sub scale scores between health and non - health programs are reported in Table 7. EAT-26 comprises 26 questions with scores and it includes 3 subscales. Dieting scale items including 13 questions, Bulimia and food preoccupation scale contains 6 questions and oral control scale contains 7 questions. When these questions were analyzed between health and non-health program students few characteristic differences were identified. Female students in the both programs had higher mean of "Dieting Scale items" ( $7.86 \pm 7.40$  &  $9.3 \pm 6.99$ ), in health program between male and female was statistically significant ( $P$ -value < 0.05), and in non-health programs was highly significant ( $P$ -value < 0.01). In addition, female in non-health programs reported significantly higher mean of "Bulimia and food preoccupation scale items" ( $3.74 \pm 3.57$ ) and ( $P$ -value = 0.036). In the other subscales, although male students had lower mean of EAT-26 sub scale scores than the female students in both health and non-health programs except bulimia and food preoccupation scale item in the health program, the findings were not found to be statistically significant ( $P$ -value > 0.05).

EAT-26 sub scale scores among marital status are presented in Table 8. In this table EAT-26 items are compared with marital status. In dieting scale items, married participants had higher mean score  $9.18 \pm 7.884$  than the unmarried participants  $5.78 \pm 5.925$  and difference was found to be statistically significant ( $P$ -value < 0.05). Even in unmarried participants, females had mean score  $8.16 \pm 6.908$  is higher than the males mean score  $4.67 \pm 5.069$ . The difference was found statistically highly significance ( $P$ -value < 0.01). In the table it captured that females are having better mean scores than males. While the other subscales, female students had slight high mean scores of EAT-26 sub scales than the male students except oral control sub scale items, but the result wasn't found to be statistically significant ( $P$ -value > 0.05).

EAT-26 sub scale scores among students with fat percentage classifications are presented in Table-9. In this table it was seen that non obese female students ( $n=50$ ) were found to have mean ( $8.46 \pm 7.06$ ) higher than males ( $4.32 \pm 4.97$ ) and it was highly statistically significant ( $P$ -value < 0.01) in dieting scale items. Among the other subscales, male students had lower mean of EAT-26 sub scale scores than the female students in except bulimia and food preoccupation scale item, and oral control sub scale items in the obese participants., however this wasn't found to be statistically significant ( $P$ -value > 0.05).. Almost similar results were found with Bulimia and food preoccupation scale items and oral control sub scale items.

## Discussion

The main objective of this study was to examine and identify the relationships between EDs, NWO and its associated factors among Jazan University students. Present study compared the prevalence of EDs among the students according to study programs (health & non-health), gender, marital status and fat percentages (NWO & NW) (Table 2). The results depicts that the health program students 88% were normal in EDs and only 12% were in the risk of EDs. In same line [17] study the majority of medical students 88.9% were categorized as "Normal", in EDs and only 11.0% in as a risk of EDs. Moreover, female students in non-scientific fields, such as arts related programs, had higher EAT-26 scores than female students in scientific/medical fields [18] '16. These results indicated that health program students may have more knowledge about nutrition and health which is may associate with more healthy eating behaviors.

The prevalence of EDs among genders between the university students showed statistically significant difference. EDs prevalence was higher in females 25% compared to males 10%. The most recent studies confirm that EDs are highly prevalent worldwide, especially in female [19, 20]. A study by Yu and Tan 20found parallel results, female

**Table 8:** EAT-26 sub scale scores among marital status

Variable	Married			Single			Married	Single	Total	P-value
	Male	Female	p-value	Male	Female	P-value				
	Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD		Mean ± SD			
Number	2	15		96	45		17	141	158	
Dieting Scale items	7.50±9.192	9.40±8.034	0.760	4.67±5.069	8.16±6.908	0.001**	9.18±7.884	5.78±5.925	6.15±6.225	0.033`
Bulimia and food preoccupation scale items	2.00±2.828	2.87±2.924	0.699	2.69±2.472	3.24±3.156	0.257	2.76±2.840	2.87±2.710	2.85±2.72	0.886
Oral control sub scale items	7.00±5.657	5.27±3.955	0.582	4.96±4.081	5.40±4.382	0.559	5.47±4.002	5.10±4.168	5.14±4.14	0.728
Total	16.50±17.67	17.53±9.99	0.899	12.3±7.35	16.80±9.49	0.003**	17.41±10.34	13.74±8.33	14.14±8.61	0.097

'Significance ( $P$ -value < 0.05) and \*\*Highly significance ( $P$ -value < 0.01)

**Table 9:** EAT-26 sub scale scores among Students with Fat Percentage Classifications

Variable	NW			NWO			NW	NWO	Total	P-value
	Male	Female	p-value	Male	Female	P-value				
	Mean ± SD	Mean ± SD		Mean ± SD	Mean ± SD		Mean ± SD			
Number	85	50		13	10		135	23	158	
Dieting Scale items	4.32±4.974	8.46±7.063	0.000**	7.38±5.455	8.50±8.003	0.695	5.85±6.147	7.87±6.539	6.15±6.225	0.151
Bulimia and food preoccupation scale items	2.69±2.526	3.34±3.230	0.199	2.54±2.106	2.20±2.044	0.703	2.93±2.813	2.39±2.039	2.85±2.72	0.378
Oral control sub scale items	5.00±4.074	5.68±4.293	0.360	5.00±4.359	3.80±3.824	0.498	5.25±4.153	4.48±4.088	5.14±4.14	0.409
Total	12.01±7.57	17.48±9.33	0.000**	14.92±6.89	14.50±10.69	0.909	14.04±8.65	14.74±8.53	14.14±8.61	0.719

'not significance, "significant and \*\*highly significant



college students had a higher prevalence of EDs 11.6 % compared to male college students 5.7%. [21] found in US college that 13% of female have disordered eating attitudes compared to only 3.6% of male. Increasing the prevalence of EDs among female students may be due to the body image dissatisfaction that has been reported more in female students and associated with developing EDs [22].

Present study compared between married and single students to see the prevalence of EDs between them. Married students had a significantly higher prevalence of EDs compared to single students [23] noted that patients with EDs who live with a partner showed higher eating symptomatology and psychopathology. Moreover, [24] study depicted that 69% of the Japanese female patients had EDs due to marital problems, separation, or divorce. These results may indicate that marital problems associated with increasing the risk of EDs among the population.

Our study compared between EAT-26 questions that were divided into Dieting, Bulimia and Oral Control subscales (Table 4, Table 5, Table 6). Overall, the majority of participants had Normal (EAT-26 Score < 20) in all items of attitudes and behaviors compared to (15.8%) were disorders (EAT-26 Score ≥ 20). The highest dietary subscale item (88%) in the disorder students, around 88% reported "Vomit after eating" and 84% "Have the impulse to vomit after meals" [25] found more than 70% of the disorder EAT participants reported that "Think about burning up calories when exercising" followed by "Terrified of being overweight" and "Preoccupied with desire to be thinner". These results indicated that college students practice abnormal eating behaviors in order to maintain the body shape.

Current study compared EAT-26 subscales between health and non-health program students (Table 7). The major findings were that in both programs, female students practice significantly more than male students in dieting. In addition, females in non-health programs had significantly more bulimia and food preoccupation than male students. [25] -study found that a high prevalence of EDs was among female students and [26] study identified that students who in nutrition program which is a part of the health programs did not have more EDs compared to students from other degrees. In this study, students in health programs tended to restrict their food consumption to control body weight, but they did not show a high prevalence of EDs.

In the case of marital status, findings showed that married students had a significantly higher mean of "dieting scales items" and females had higher mean of "dieting scales items" than males, but the difference was not statistically significant (Table 8, Table 9) [22]. found that females reported more body dissatisfaction than males. On the other hand, Fragkos & Frangos, [4] reported that being married was one of the other risk factors, such as depressions, stress and searching for a romantic relationship that can increase the risk of developing disorder eating behavior. These results indicated that female students tend to restrict food intake to lose weight and control body shape.

When interpreting the present results, limitations of this study need to be considered. The descriptive nature of the cross-sectional design of the study is a clear limitation because it is prone to certain

biases [27]. The study included small sample size and may not reflect eating attitudes and NWO among students. The bioelectrical impedance measurement is affected by both the water and electrolyte content of the body [28]. Also, the EAT-26 used in this study to assess EDs cannot provide an accurate diagnosis, and the lack of experts in mental health assessment made the study valuable only as an initial screening method.

## Conclusion

In conclusion, among undergraduate students, NWO students had higher prevalence of EDs. Non health programs, married, and female students had higher prevalence of EDs. Therefore, nutrition education and counseling are essential to establishing and maintaining healthy body fat composition and eating behavior. The clinical nutrition department should provide nutrition education and counseling among the university for the students about healthy methods and practice in controlling and losing bodyweight and have healthy body compositions.

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