

**Eating Disorders among Female University Students
and its' Relation with their Body Attitudes and
Mindful Eating**

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Abstract:

Eating disorders are a major public health issue faced by female university students. Anorexia nervosa, bulimia nervosa, and binge eating often have a variety of irreversible and life threatening medical complications. Despite disordered eating attitudes and body image dissatisfaction are common among female college students, mindful eating makes a conscious food choices and eating healthfully. *The aim of the study was to:* Assess eating disorders among university female students and its relation to their body attitude and mindful eating behaviors. **Study design:** Correctional descriptive design. **Settings:** This study was conducted at two faculties affiliated to Tanta University that were chosen randomly. **Subjects:** A multistage randomized sample of 627 female students at the previous mentioned settings. **Study tool:** A structured questionnaire schedule was used to collect the necessary data. It consisted of four parts: Socio-demographic characteristics of the study subjects, eating disorders scale (EDDS), body attitude test (BAT) and mindful eating questionnaire. **Results:** Nearly one quarter of the studied subjects had eating disorders while 30.9% of them were at risk of developing eating disorders. Binge eating disorder was the most frequent among the studied subjects, followed by bulimia nervosa while anorexia nervosa was of the least frequency. About one third of the study subjects had negative attitude toward their body, and 61.4% of them reported moderate level of mindfulness of eating behavior. Positive correlation was observed between eating disorders and negative body attitude, while negative correlation was found between eating disorders and mindfulness of eating behaviors of the study subjects. **Conclusion ,recommendations:** Female students who had poor mindful eating and negative body attitude are more prone to eating disorders. So, community mental health nurse should implement educational programs to modify unhealthy eating habits and correct body image distortion in female university students

Key words: Body attitude; Eating disorders, Female university students, Mindful eating

Introduction:

Adolescence and young adulthood have been identified as important developmental periods for exploring and establishing eating and weight related condition, health habits, and beliefs. Because many body and weight related conditions and behaviors are established during that periods persist across the life span, the adolescence and young adulthood offer potent developmental windows for assessing predictors and risk factors eating pathology^(1,2).

Eating disorders are one of the most prevalent psychiatric problems faced by adolescent and young women. Eating disorders (EDs) are characterized by abnormal eating habits, where the individuals' attitude toward weight and shape as well as their perception of body shape are disturbed, their behaviors aiming to achieve or maintain a slim body shape⁽³⁾. There is evidence from a variety of sources that symptoms of eating disorders and dissatisfaction with body weight are pervasive in university population^(4,5). Whereby inaccurate perception of body weight can trigger abnormal eating behaviors and eating disorders among those predisposed, especially in stressful situations. Even if university students appear to be in good health, there is a

frequent onset of risky behaviors among them⁽⁶⁾.

Eating disorders are associated with functional impairment, emotional distress, and medical complication and with increased risk for obesity, anxiety disorders, chronic fatigue, chronic pain, depressive disorders, suicide attempts and substance abuse. There are three qualitatively different type of eating disorders anorexia nervosa, bulimia nervosa, and binge eating disorders⁽⁷⁾.

Anorexia nervosa (AN) and Bulimia nervosa (BN) involve excessive concern with body weight and shape, and use of inappropriate or extreme behaviors to control weight⁽⁸⁾. The hallmark of AN is the individual's refusal to maintain or attain a normal body weight. Suggested guidelines are a body mass index (BMI) of 17.5 or less, or body weight less than 85% of that expected⁽⁹⁾. Other diagnostic criteria include: fear of obesity even though the individual is underweight, amenorrhea, and disturbance in body shape and size perception⁽⁸⁾.

In BN, the individual may be slightly underweight, of normal weight, overweight, or obese. The primary criteria for a diagnosis of BN are behavioral: The individual binges and engages in compensatory methods to prevent weight

gain at least twice a week for a 3- month period on average. Other criteria include: excessive influence of body weight and shape on self-evaluation. Two subtypes of BN are identified: purging type, in which the individual uses laxative, vomiting, diuretics, or enemas to prevent weight gain, and non-purging in which the individual engages in excessive exercise as the regular method of preventing weight gain⁽⁸⁾.

Binge Eating Disorder (BED) is commonly known by compulsive overeating or consuming abnormal amounts of food while feeling unable to stop and a loss of control, often leads to development of unwanted weight gain or obesity, which can indirectly reinforce further compulsive eating, and not regularly engage in the compensatory behaviors to avoid weight gain as seen in bulimia nervosa. From a clinical point of view EDs are an important cause of morbidity and mortality in adolescent girls and young adults women⁽¹⁰⁾.

Eating disorders are more common in societies with excessive concern about appearance and weight. EDs are more noticed in females and rarely in males⁽¹¹⁾. In last decads, the Egyptian society prefers large female body size and regards plumpness as a sign of feminine beauty. These concepts are thought to provide

protection against EDs. However, nowadays, increasing globalization, influence of mass media together with rapid social changes, and adoption western lifestyle play an important role on changing the attitude and behaviors of the younger generation in our society with more swinging toward the western values⁽¹²⁾. This mismatch of cultures caused by the intrusion of western ideas caused body image disturbance among women and plays the main role in developing EDs. In our society, the transition from high school and living with parents to relatively independent lifestyle at university together with a competitive and vulnerable environment along with adoption of new social relations can lead to unhealthy behaviors among university students⁽¹³⁾. Thus understanding population that does not receive clinical care, such as those at risk of eating disorders is particularly important for early detection and treatment.

Body attitude concern is defined as the degree of satisfaction about oneself as regard size, shape, and general appearance⁽¹⁴⁾. Body image un-satisfaction is mostly encountered in the period of adolescence. Worries about oneself silhouette are associated with eating disorders and loss of self- confidence⁽¹⁵⁾. A study conducted on undergraduate students at Assuit

university in Egypt found 40% of the female students and 25.6% of male students having mild to marked body image concern⁽¹⁶⁾. It is widely accepted that girls are at great risk of body dissatisfaction and eating disorders, and that both a low and a high body mass index (BMI) have been shown to influence weight control behaviors. Body dissatisfaction has been shown to be strongly related to social norms, culture and ethnicity⁽¹⁷⁾.

Obese women who perceived themselves as obese attempted to lose weight. This indicates that more realistic body size perceptions are associated with less weight gain. Individuals who feel dissatisfaction with their body image are more likely to engage in behaviors to fight discomfort. Attitude against fat and obesity inclinations were reported among university students in Arab countries. Heightens the attention toward social norms associated with appearance, which may increase the risk of students utilizing unhealthy body change modalities⁽¹⁸⁾.

According to Sciverse Scopus search, there are many published articles on eating disorders among women in Arab countries. However, only few were carried out in female university students^(12, 19-21). Studies from the USA and European countries indicated that female university students

had a high prevalence of EDs^(22,23). University students have several factors that increase their risk of eating disorders such as peer pressure, academic stress, living in dormitories clear relationships, social interaction, and high life expectation^(24,25).

Mindfulness has been of increasing interest in the field of eating disorder treatment because of its salutary effects across a range of behavioral health issues. Mindful was adapted to better understanding and modify dietary behaviors. It can be defined as "an enhanced attention to and awareness of current experience or present reality". Mindful eating can be used to describe as a nonjudgmental awareness of physical and emotional sensation while eating or in a food-related environment. Mindfulness is most divided in to two separate elements: self-regulation of attention in the present moment (the attention elements), and paying attention nonjudgmental (the acceptance elements)⁽²⁶⁾.

It has been suggested that increased awareness of the process involved in food choice and decreased behavioral automaticity in regard to food choice is based on awareness of physical and emotional sensation associated with eating, and may help individuals to recognize and respond to internal cues of hunger and

satiety^(27,28). Because mindful engenders awareness of why one eats, it may be a helpful weight loss or maintenance. Mindful awareness toward eating may minimize automatic reaction and impulses reaction, thereby fostering self-regulation, and decrease eating disorders^(29,30).

Individuals higher in acting with awareness may stop and think regarding their actions before continuing to engage in maladaptive eating disorder behaviors⁽³¹⁾. Additionally, higher acting with awareness may enable individuals to recognize potential triggers to eating disorder behaviors. This supported by study show that acting with awareness is negatively associated with symptoms of anorexia and bulimia nervosa⁽³²⁾. Reviews of mindfulness based interventions specifically focused on eating behaviors showed improvement in binge eating, restricted eating, emotional and external eating. It was proposed that those patients with eating disorders had deficit in awareness or recognized of internal body signal especially hunger, and often confused signal with emotion such as unable to distinguish hunger from anxiety⁽³³⁾.

Community mental health nurses have an important role in prevention and early detection of at risk adolescents. Those nurses should organize and implement

specific strategies and programs to promote positive body image and mindful eating for female students and their parents either at school or university settings⁽³⁴⁾.

Significance of the study

Body image dissatisfaction is often associated with many eating disorders ranging from minor to severe conditions. University female students have several risk factors that increase their risk of eating disorders. Studies have shown that early detection and treatment of EDs can lead to full recovery. Mindful eating behavior is conceptualized as being aware of the present moment when one is eating, paying close attention to the effect of the food on the senses, and noting the physical and emotional sensation in response to eating. A literature review indicated that there is a dearth of literature available on eating disorders among women in Arab countries. However, only few studies were carried out regarding the prevalence of EDs among Egyptian's university students. Therefore, **the aim of this study** was to assess the relation between eating disorders among female university students and its relation to their body attitude and mindful eating behaviors.

Research questions:

- 1- What are the types of eating disorders among university female students?
- 2- What is female students body attitude

- 3- What are the levels of mindfulness of eating behaviors among female students?
- 4- What are the relations between levels of mindfulness of eating behaviors and body attitude with eating disorders among female university students?

Subjects and method

Study design

Correctional descriptive study design was utilized to conduct the present study.

Settings:

The current study was conducted at two faculties out of nine non-medical faculties affiliated to Tanta University which were selected randomly using simple random technique to represent faculties of Tanta University (Faculty of education and Faculty of arts).

Subjects:

A convenience sample of 627 female students at the previous mentioned settings during the academic year 2018/2019 who were willing to participate were included in the study according to the following inclusion criteria: Egyptian adolescent female students aged 18-22 years who were free from chronic diseases such as cardiac, diabetic, arthritis, endocrine disorders, neurological disorders, or psychiatric disorders except eating disorder.

The sample size was calculated using Epi-Info software statistical package, created

by World Health Organization and Center for Disease Control and Prevention, Atlanta, Georgia, USA version 2002⁽³⁵⁾. The sample size was found at $N > 584$. This number was increased to 627 students to increase the validity of the study results.

Tools of data collection

A structured questionnaire schedule that was developed by the researchers based on a thorough review of literatures⁽³⁶⁻³⁸⁾. It consisted of the following parts:

Part I: Socio-demographic data of the studied subjects:

It included pertinent data about the faculty students such as age, residence, family monthly income, parents' education and occupation.

Part II: Assessment of eating disorders among female students using Eating Disorders Diagnostic Scale (EDDS):

Eating disorders scale (EDDS) assessed diagnostic criteria for anorexia nervosa, bulimia nervosa, and binge-eating disorders. This scale developed by *Stice E et al, (2000)*⁽³⁶⁾. It is self-reported questionnaire, consisted of 22 items. This scale combination of the following : *four items* had four likert scale from zero (not at all) to 4 (extremely), *nine items* had dichotomous score, *seven items* had behavioral frequency score, and *two open end questions* about weight and height. The items numbers 2, 3,4,19, 20, and 21

covered criterion of anorexia nervosa. Items numbers 3,4 ,5,6,8,15,16, and 17 covered criterion of bulimia nervosa while the items numbers 5,6,7,9,10,11, 12,13,14,15,16,17, and 18 cover criterion of Binge eating disorders.

The diagnosis scale items were as follows:

A diagnosis of DSM-IV anorexia nervosa is made if an individual reports: (a) Height and weight data on items 19 and 20 that result in a body mass index = Kg/M^2 of less than 17.5, (b) a fear of weight gain or becoming fat as indexed by a score of 4 or greater on item 2, (c) undue influence of body weight or shape on self- evaluation as indexed by a score of 4 or greater on either item 3 or 4, (d) Amenorrhea in post menarcheal females as indexed by a 3 on item 21. If an individual meets the first and fourth criteria above, it is not necessary for the individual to endorse the second and third criteria.

A diagnosis of DSM-IV bulimia nervosa is made if an individual reports (a) regular eating binges marked by a perceived loss of control and the consumption of a large amount of food as indexed by a response of yes to item 5, and 6. The a response of greater than 2 on item 8; (b) regular use of compensatory behaviors as indexed by a response of 8 or greater on the sum of items 15, 16, 17, and 18; and (c) undue influence of body weight or shape on self-

evaluation as indexed by a score of 4 or greater on either item 3 or 4.).

A diagnosis of DSM-IV binge-eating disorder is made if an individual reports (a) regular eating binges marked by a perceived loss of control and the consumption of a large amount of food as indexed by a response of yes to item 5, a yes to item 6, and a response of greater than 2 on item 7; (b) an endorsement of at least three of the features that may be associated with binge eating as indexed by a yes response to at least three of the features described in items 9, 10, 11, 12, and 13; (c) marked distress regarding binge eating as indexed by a yes response to item 14; and (d) the absence of any compensatory behaviors as reflected by a 0 response to items 15, 16, 17, and 18).

Computerized scoring statements of this scale were ordered and calculated to determine type of eating disorders, and calculated number for each type of eating disorders. In addition to, determined risk of eating disorders that almost criteria.

Note: Height was measured by using centimeters a measuring scale, and the weight was measured by using a platform weighing scale. Subsequently, the body mass index (BMI) was calculated by researchers as follows: $\text{BMI} = \text{weight in kg} \div (\text{height in cm})^2$. The students' weight was evaluated according to their BMI

Weight description	BMI
Underweight if the BMI	Less than 17.50
Average (normal) weight if the BMI	17.50 to 24.99
Over weight if the BMI	25.00 to 29.99
Obese if the BMI	30 or more

Part III: Assessment of body attitude among female students by using Body Attitude Test (BAT):

Body attitude test (BAT) was developed by *Probst M et al, 1995* ⁽³⁷⁾. It is a 20-items self-reported questionnaire used to assess concerns about body shape among females. The test consisted of four subscales: Negative appreciation of body size (Seven items), lack of familiarity with one's body (Seven items), and General dissatisfaction (Three items), and Rest factor (Two items). The students' responses were rated on five point likert scale from 0 (never) to 4 (always). Negative items (items 4 and 9) were reversely scored. The total score of the studied students ranged between zero and 80. The total student's score was summated up and converted into percent. The high score indicates a negative attitude toward the body. The students' body attitude was categorized as follow:

- Positive attitude if the score less than 50% of total score
- Negative attitude if the score \geq 50%

Part IV: Assessing mindfulness of eating behavior among female students using Mindful Eating Scale.

This scale that was developed by *Framson. C et.al, 2009* ⁽³⁸⁾. It composed of 28 items used to describe a non-judgmental awareness of physical and emotional sensations associated with eating. The questionnaire had five subscales; *Disinhibition* (eight items) which examines an individual's ability to avoid eating when full, *Awareness* (seven items) examines an individuals' ability to be observe the texture, taste, and smell of food, *External Cues* (six items) evaluates an individuals' tendency to engage in eating in response to external cues, *Emotional Response* (four items) examines an individuals' likelihood of eating in response to negative emotions , and *Distraction* (three items) that examines an individuals' ability to focus on just eating while avoiding any distractions.

The responses were rated on four point likert scale from 1 (never/rarely) to 4 (always / usually). Negative items were

reversely scored, these items included (items No. 3,4,6,8, 16, 17, 19, 22,23,24,25, 26, 27, 28). The total score ranged between (28 to112). The higher scores indicate a higher level of mindfulness about eating behaviors. The levels of mindful to eating behaviors and its' were determined as the follows:

- **Lower level of mindful:** less than 50 % of total score.
- **Moderate of mindful:** 50 % to 70 % of total core
- **Higher level of mindful:** more than 70% of total score,

Method

1- Obtaining approvals.

Official letters to conduct the study were obtained by the researchers from faculty of nursing Tanta University, directed to the Dean of the identified faculties of Tanta University to obtain their approval and cooperation for carrying out the study.

2- Ethical considerations.

Informed consent was obtained from the ethical committee of faculty of nursing then; informed consent was obtained from the studied students to participate in the study after informing them about the purpose of the study, the confidentiality and privacy of any information given to the researchers. The nature of the study

didn't cause harm or pain for the entire sample.

3- Developing the tools.

The structured questionnaire schedule was developed based on literature review and was translated into Arabic language by the researchers. The developed and translated tool was distributed to a jury of five academic professors in community health nursing and psychiatric nursing department to test its content and face validity. Accordingly, corrections and modifications were done. A pilot study was carried out on (about 10 % of the target sample) (n= 60 students) to test the tool for relevance, clarity and reliability. Those students were later excluded from the study sample.

Cronbach's Alpha revealed reliability of the translated Arabic tool as follow: for body attitude it was 0 .831, for the mindful eating scale was 0.705 while for eating disorder scale, it was 0.754 and for the total questionnaire, it was 0. 753 which indicate high reliability level

4- The actual study:

- The collection of the data continued during a period of three months starting from February until the end of Aril 2019.
- The studied students were met in teaching room of the selected faculties.

- The questionnaire schedule was administered to each student individually to fulfill it by herself with the attendance of the researchers for guidance and clarification when needed.
- Height was measured to the nearest centimeter using a measuring scale without footwear.
- The weight was measured using a platform weighing scale with students wearing light clothing.

5- Statistical analysis

The collected data were organized, tabulated and statistically analyzed using Statistical Package of Social Studies (SPSS) version 20. For numerical data, the range, mean and standard deviation were calculated. The association between two variables was calculated by Pearson's correlation coefficient (r). For categorical variables, the number and percentage were calculated. Differences between categories of each variable were statistically analyzed using chi square test (X^2). Whenever chi square was not suitable, Monte Carlo tests were used as tests of significance. The level of significance was adopted at $p < 0.05$.

Results:

Table (1) shows the distribution of the studied students according to their socio-demographic characteristics. It was clear that, less than two thirds of the studied

students were less than 20 years old (60.6 %) with mean ages of 19.725 ± 1.318 years. About two thirds of them (64.8 % and 69.1 %) were from rural residence and had just enough family income respectively. In addition, the table shows that, the highest frequencies of the their fathers had graduated from universities and working as employees (41.9% and 32.5%) respectively while the highest frequencies of their mothers had secondary school education and were housewives (38.9 % and 70.3%) respectively.

Figure (1) shows eating disorders among the studied female university students. It was clear that, less than half of the studied students had no eating disorders (43.1), less than one third of them (30.9 %) were at risk for eating disorders and more than one quarter of them (26 %) had eating disorder regardless its type.

Table (2) shows the distribution of the studied female students according to different types of eating disorders. The tables shows that, less than one quarter of the studied subjects (24.4 % and 19.5 %) were at risk for binge eating disorder or bulimia nervosa disorder respectively. Meanwhile, More than 12% of them had eating disorders in the form of binge eating or bulimia nervosa (12.6 % and 12.4 %) respectively. As for Anorexia nervosa, the majority of the studied students (86.1 %)

had no anorexia, 9.6 % of them were at risk of developing anorexia and only 4.3 % of them had anorexia.

Figure (2) presents the distribution of female university students according to their body weight. This figure revealed that, more than half of the studied female students had normal weight (56.9 %) compared with more than one quarter of them were overweight (26.3%), while 11.5 % of them were obese. The mean of their BMI was 24.28 ± 4.504 .

Figure (3): Illustrates the distribution of the studied female students according to their total score of body attitude. More than two thirds of the studied students (68.9%) had positive attitude toward their bodies while less than one third of them had negative body attitude (31.1%).

Table (3) presents the relation between studied students' body attitude and their body weight. Statistical significant difference was observed between students' body weight and their level of body attitude ($p = <0.001$). Nearly about two thirds of the studied students with positive body attitude were of normal body weight (66.4%).

Figure (4) illustrates the distribution of the studied students according to their total level of mindful of eating behavior. It was observed that 61.4% of the studied students reported moderate mindful eating

behavior while nearly about one third of them reported high mindful eating behavior (32.1%). Only 6.5 % of the studied students reported low mindful eating behavior .

Table (5) illustrates the correlation between studied students' body attitude, mindful eating behavior and their eating disorders. Strong significant negative correlations were observed between the studied students' total score of mindful eating behavior and Bulimia nervosa, binge eating and total score of eating disorders ($p = 0.003, 0.001$ and <0.005). Furthermore, Strong significant negative correlations were observed between the studied students' total score of body attitude and anorexia nervosa, bulimia nervosa, binge eating and total score of eating disorders ($p = 0.001, <0.001, <0.001$ and 0.001) respectively.

Table (1): Distribution of the studied students according to their socio-demographic characteristics (No=627).

Socio-demographic characteristics	(n = 627)	%
Age:		
< 20 years	380	60.6
≥ 20 years	247	39.4
Mean ± SD	19.725 ± 1.318	
place of residence:	406	64.8
Rural	221	35.2
Urban		
Family income:		
Enough and saving	136	21.6
Just enough	433	69.1
not Enough	58	9.3
Fathers' education:		
Illiterates/Read and write	54	8.6
Basic education	114	18.2
High school(secondary)	263	41.9
University education	196	31.3
Fathers' occupation:		
Governmental employee	204	32.5
Free business	171	27.3
Professional work	136	21.7
Retired	59	9.4
Worker	50	8
unemployed	7	1.1
Mothers' education:		
Illiterates/Read and write	108	17.2
Basic education	90	14.4
High school(secondary)	244	38.9
University education	185	29.5
Mothers' occupation:		
House wife	441	70.3
An employee	85	13.6
Free business	3	0.5
Professional work	89	14.2
Retired	4	0.6
Worker	5	0.8

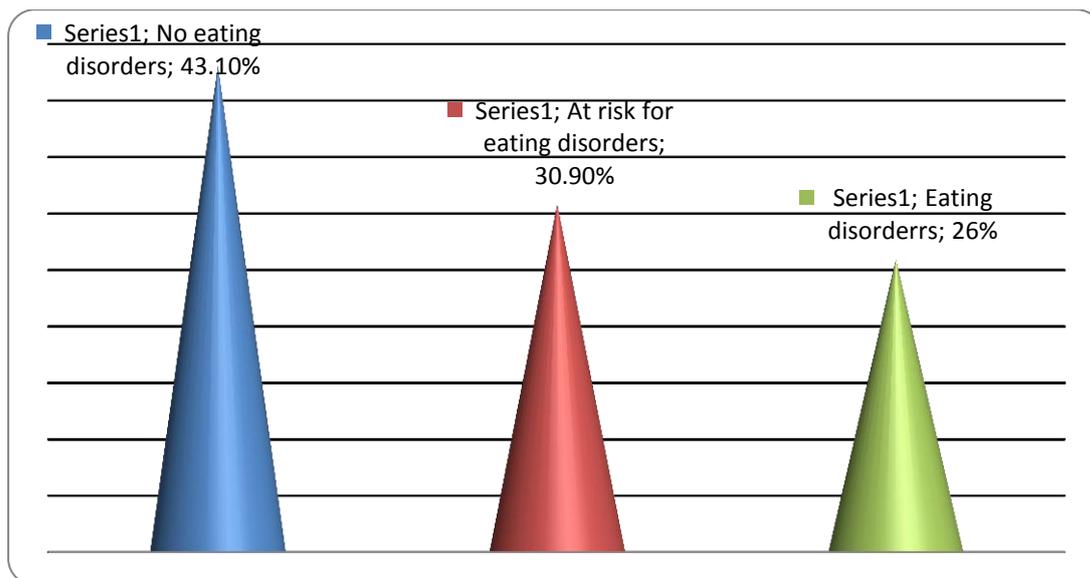


Figure (1): Description of eating disorders among female university students

Table (2): Distribution of the studied female students according to different types of eating disorders (No=627).

Eating Disorder	No	%
Binge eating:		
No Binge eating	395	63.0
risk for Binge	153	24.4
Binge	79	12.6
Bulimia:		
No Bulimia	427	68.1
risk for Bulimia	122	19.5
Bulimia	78	12.4
Anorexia:		
No Anorexia	540	86.1
risk for anorexia	60	9.6
Anorexia	27	4.3

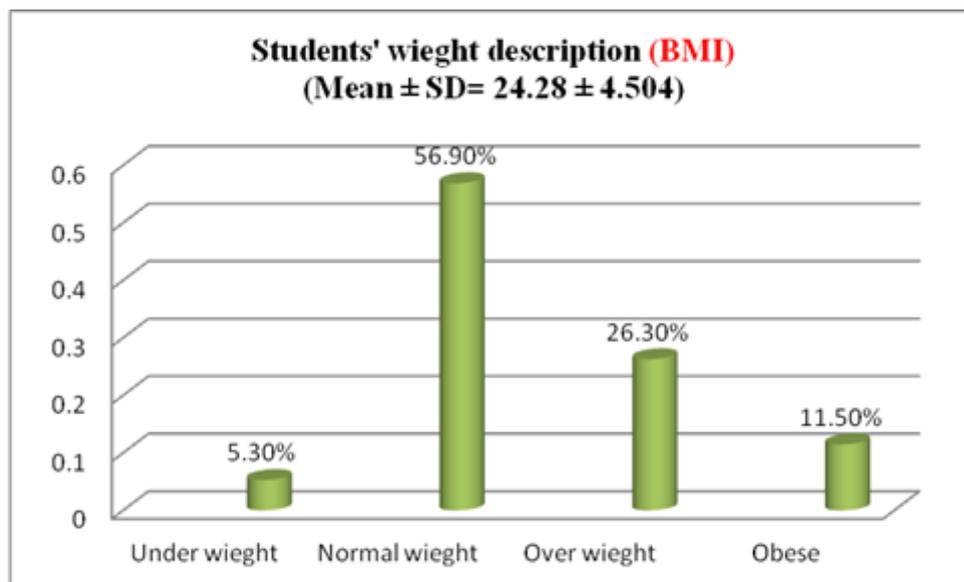


Figure (2): Distribution of female university students according to their body weight

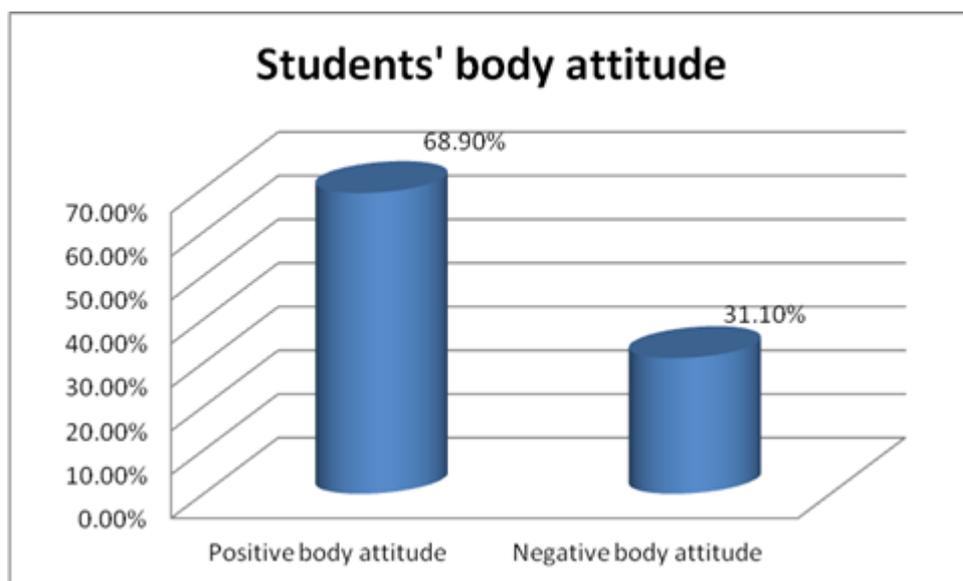


Figure (3): Distribution of the studied female students according to their total score of body attitude.

Table (3): Relation between studied students' body attitude and their body weight description (No=627).

Level of body attitude	Students' body weight description								
	Under weight n = 33		Normal weight n = 357		Over weight n =165		Obese n = 72		Total (No = 627)
	No	%	No	%	No	%	No	%	
Positive body attitude	24	5.6	287	66.4	97	22.4	24	5.6	432
Negative body attitude	9	4.6	70	35.9	68	34.9	48	24.6	195
X² P	72.607 <0.001*								

*Statistically significant at <0.05

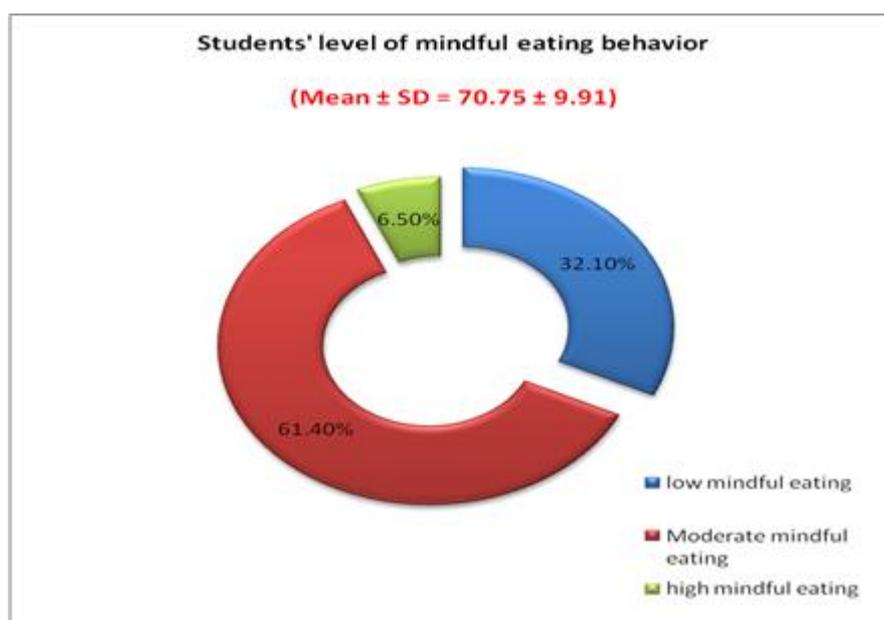


Figure (4): Distribution of the studied students according to their total level of mindful of eating behavior.

Table (4): Relation between students' body weight description, and level of mindful of eating behavior.

level of mindful eating	Students' body weight description								
	Under weight n = 33		Normal weight n = 357		Over weight n= 165		Obese n = 72		Total (n = 627)
	No	%	No	%	No	%	No	%	
Low mindful eating	12	6	96	47.8	66	32.8	27	13.4	201
Moderate mindful eating	19	4.9	245	63.6	86	22.3	35	9.2	385
High mindful eating	2	4.9	16	39	13	31.7	10	24.4	41
X²	23.146								
P	0.001*								

*Statistically significant at <0.05

Table (5): Correlation between studied students' body attitude, mindful eating, and behavior with their eating disorders.

Eating disorders	Total score of mindful eating		Total body attitude score	
	r	P	r	P
Anorexia nervosa	-.039	.326	-.129**	.001
Bulimia nervosa	-.118**	.003	.356**	<0.001
Binge eating	-.131**	.001	.231**	<0.001
Total score of eating disorders	-.112**	<0.005	-.129**	.001

** Statistically significant at <0.05

Discussion

Recently, in Egypt, the view of physical appearance particular the drive for slenderness has become increasingly important. The view of thinness is moving from a sign of malnutrition, poverty, and infectious disease to a sign of health, wealth, and prosperity, this lead to emergence of eating disorders (EDs) clearly among youth female. The current study is carried out on female students of Tanta University. Nearly about one third of the studied subjects were risky of eating disorders, and more than one quarter of them were diagnosed with one type or more of these disorders. This result may be attributed to the influence of the imported culture from West countries via social media. Such culture emphasize that the thin body is the attractive one. In turn, the adolescent students imitate this culture without proper reasoning.

This result is in consistent with other Egyptian studies. *Fawzi M.et al,(2010)* reported that, 30% of their sample from secondary school in Sharkia Governorate had eating disorders ⁽³⁹⁾. However the study by *Eladaw N. et al, (2018)* on the prevalence of eating disorders that applied in the weight management centers in Tanta city, it found that two thirds of young female clients of attended those centers were complaining from symptoms with

EDs ⁽¹²⁾. This result suggested that EDs are common among young Egyptian females. They view the thin body is attractive, healthy and self- disciplined, and standard of feminine beauty, however, the overweight is unattractive, lazy probably incompetent.

By comparing the present study with a similar studies carried out in Arab countries among young females, It was found that, the study of *Eapen V. et al, (2006)* in the United Arab Emirates reported that 23.4% of adolescent girls in their sample had eating disorders ⁽⁴⁰⁾. Another study that conducted by *Al-Adawi S. et al, (2002)* in Oman found that 29.4% of their adolescents sample had EDs⁽⁴¹⁾.

In the same line similar studies that conducted at Far East region such as the study by *Yu J. et al, (2015)* in China, assessed the current status of disordered eating attitudes among university students and found that, the proportion of disordered eating attitudes among female was 4.0% ⁽⁴²⁾. *Pattanathaburt P. (2013)* examined the prevalence rates of eating disorders among Thailand female undergraduate students and found that, slightly more than half of the students had normal Body Mass Index (BMI), and a few of them had problematic eating behaviors ⁽⁴³⁾.

Moreover, the study of *Ko N. et al, (2015)* in Vietnam who examined disordered eating behaviors among university students reported that, 45.3% of the participants were underweight, and concluded that a tendency in young females in urban Vietnam to be underweight and to develop disordered eating symptoms and drive for thinness and body dissatisfaction⁽⁴⁴⁾. In addition, the study conducted by *Naeimi A. et al, (2016)* in Iran to assess the risk of eating disorder among University students of medical sciences, they found that 9.5% of their study sample had a risk of eating disorders⁽¹³⁾.

When turn our view to west countries, It was found that *Martínez-González L, et al, (2014)* in Spanish assessed the prevalence of eating disorders in college students and its associated factors in young Spanish university uniHcos project, and their results illustrated that 19.5% from their sample were females who have the criteria of developing an eating disorder. Those females at risk of ED more frequently had depression, menstrual pains and perceived poor health⁽⁴⁵⁾.

Moreover, *Tavolacci M. et al, (2015)* in France, carried out a study to determine the prevalence of eating disorders among 3,457 university students, and concluded that eating disorders are highly prevalent

among university students in France and associated with other behavior risks, stress, and depression⁽³⁾.

Based on all of these studies and from our point of view, it can be concluded to that, the increasing trend of global internet and social networks use, which facilitated accessibility of information regarding western standards of beauty in non-western countries lead to relative vulnerability of young female to internalization of western cultures. This is considered the important factor for eating disorders among young female in our society.

It is important to mention that the present study focused on the type of eating disorders among female university students. It was found that more than one third of the studied subjects were between risky for and had binge eating disorder, and around one third of them was between risky for and had bulimia nervosa. This means that the Bing eating disorders is clearly obvious among our study subjects, followed by bulimia nervosa, while anorexia nervosa comes in the last. This may be explained by the following: **First;** most of studied sample haven't skinny bodies, where the more than half of them have normal body weight, and more than one third were either overweight or obese. **Second;** despite the influence of Egyptian

female with western culture; such as desire to be thin. This was not translated into healthy weight management behaviors, such as a balanced diet, and exercising regularly. This may be attributed to lack of nutritional awareness, and poor health habits. It is still the eating pattern of diet with high calories or carbohydrate that is prevalent among families diet in middle or lower socio-economic class. **Third;** Fast food snack is common at university during a full day, peer pressure for consumption of certain food of meals. In addition, no control over food consumption due to living at university dormitory, and finally academic stress like exams and achievements. This current status leads to dissatisfaction of young females about their physical appearance and appear their psychological problems.

The present study showed that, around one third of study subjects have negative body attitude and this attitude have positive correlation with the three type of EDs "binging, bulimia, , anorexia". This means that, the negative body attitude is one of the predisposing factors to increase eating disorders among female university students. It explained why Bing EDs and bulimia EDs present among studied sample of normal weight, overweight or obese. Body attitude is a subjectively personals' satisfaction about their own

body. The young female are in a critical stage of self- identification that is greatly influenced by accepting own physique and body appearance. They prone to imitate the ideal body shape, and may be have a distortion of their self- esteem (**Arnett J. 2000**)⁽⁴⁶⁾.

The finding of the present study is supported by **Eladawi N. et al, (2018)** who found that, more than half of obese young female in their study were at risk of eating disorders⁽¹²⁾. Also, the study by **Abdulrahman O. et al, (2016)** found that, the prevalence of disordered eating attitude was 33.6% among female students, and obese students had double risk of disordered eating attitude compared to non-obese students⁽⁴⁷⁾.

Furthermore, **Tanebaum H. et a,l (2016)** studied over weight perception and its' association with weight control among 902 Chinese female college students. They found that, 46% of female subjects had an inaccurate perception of their current weight status; they suggested that self-perception of weight status may have a greater impact on weight control behavior⁽⁴⁸⁾. Similar observations have been reported among youth in study by **Niu J. et al, (2014)**⁽⁴⁹⁾.

In relation to mindful eating, the present study revealed that, more than half of female subjects had moderate level of

mindfulness about their eating behaviors, and around one third had lower level. Moreover, there are a significant negative correlation between mindfulness and Bing eating, and Bulimia nervosa. This suggested a link between awareness deficits among those female students and their eating specific symptoms. Thus, it answered our research question.

Our finding go in the same line with the result of *Lattimore P. et al, (2017)* who evaluated the relationships between interceptive awareness, mindfulness and eating disorders symptoms in female at risk of an eating disorders, and reported that, lower mindfulness was associated with drive for thinness, and emotion dysregulation. Additionally, the high impulsivity that presents in patients with bulimia nervosa also related to lower level of mindfulness⁽³³⁾.

Recently *Sala M. et al, (2019)* examined whether facets of mindfulness differ among person with eating disorders by longitudinal study, and found that clients were a lower acting with awareness, those prospectively predicted higher drive for thinness and bulimic symptoms⁽¹⁸⁾. This result is supported by *Compare A. et al, (2012)* who stated that lower mindful awareness most strongly implicated in eating disorder pathology⁽⁵⁰⁾.

Avoidance of unpleasant emotions and reduced coping skills may play a role in eating disorders, those who at risk for EDs tend to use avoidant or impulsive style of coping, and often overeat in response to stress, and consuming excess calories in an automatic ways. In addition to many obese individuals have lost the ability to recognize or respond to internal cues of hunger, taste, and fullness⁽⁵¹⁾. By promoting mindfulness toward emotional state and eating behaviors, that may increase the ability among those persons to recognize and respond to internal state, and improve wellbeing. So, continuous effort should be done to assess mindful eating behaviors and body image among adolescent to protect them from developing serious eating disorders.

Conclusion:

According to the findings of the present study, it can be concluded that the risk of eating disorders is relatively high among the studied university female students particularly regarding binge eating and bulimia nervosa. Generally, about one third of the studied females were at risk for eating disorders and more than one quarter of them categorized as having eating disorders. Negative body attitude and lower mindful eating behavior had a predictive role as there was a positive correlation between eating disorders and

negative body attitude, and negative correlation between eating disorders and mindfulness of eating behaviors among study subjects.

Recommendations:

Based on the results of the present study the following recommendations are suggested:

- 1- Educational programs should be developed to rectify unhealthy eating habits, promote exertion and correct body image distortion in adolescence.
- 2- Emphasize the importance of focusing on those at risk students which are incorporated in the DSM-V.
- 3- Community mental health nurse should implement programs to improve mindfulness of eating behaviors and pattern among adolescence and young women.
- 4- Future research should also include binge eating disorder which is supposed to be the most prevalent eating disorders in both adolescents and adults.

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