

## Eating Disorder Risk among Medical Students at Tanta University, Egypt

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### Abstract

**Background:** Eating disorders (EDs) are complex psychiatric syndromes that occur with increasing frequency among adolescents of all racial, ethnic, and socioeconomic groups. They are considered as the third most common chronic illness in adolescent females, with an incidence of up to 5%. Severe clinical complications can take place especially compromised nutritional status due to the delay in diagnosis or treatment. **Objective:** This study aimed to find out the prevalence of risk for eating disorders and its associated factors among medical students, Tanta University, Egypt. **Method:** A cross-sectional study was carried out through the first semester of the year 2018-2019 and included 615 students. Data were collected using a pre-designed questionnaire which included personal and sociodemographic data, family and medical histories and a self-administered questionnaire of the Eating Attitudes Test-26 (EAT-26). **Results:** About one third (33.0%) of the studied students were at risk for eating disorder. EDs Risk was more common among students in the clinical stage compared to the pre-clinical stage. Also, unmarried, those with higher BMI and those practicing regular physical activity were at more risk ( $p < 0.05$ ). **Conclusions:** A considerable proportion of medical students are at greater risk of eating disorders. Special programs are needed for managing this potential problem for the sake of future physicians and their patients.

**Keywords:** *Eating disorders, medical students, Tanta, Egypt*

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### Introduction:

Eating disorders (EDs) are complex psychiatric syndromes that occur with increasing frequency among adolescents of all racial, ethnic and socioeconomic groups. More than 75% of cases begin during adolescence.<sup>1</sup> The EDs prevalence rates dramatically increased during the second half of the 20th century and remained somewhat stable over the last 20 years.<sup>2</sup>

This increase in the incidence of EDs may be as a result of redefinition of beauty standards as portrayed by the media and in social interactions, toward an increasingly thin body especially among females.<sup>3</sup> They are conditions in which cognitive distortions related to food and body weight associated with disturbed eating patterns.<sup>4,5</sup> They are considered as the third most

common chronic illness in adolescent females, with an incidence of up to 5%.<sup>5,6</sup> There are three major subgroups of EDs; Anorexia Nervosa (AN), Bulimia Nervosa (BN) and Eating Disorder Not Otherwise Specified (EDNOS).<sup>7</sup> Anorexia nervosa is the restrictive form in which food intake is severely limited while the bulimic form (bulimia nervosa) is characterized by episodes of binge eating followed by episodes of vomiting, catharsis, exercise, or fasting to minimize the effects of overeating while in the third group, eating disorder not otherwise specified (EDNOS) which constitutes the majority of cases among adolescents, all the criteria for the other two groups are not met.<sup>8</sup>

Regarding the complications of EDs, no organ system is spared.<sup>9</sup> Severe clinical complications can occur especially compromised nutritional status due to the delay in diagnosis or treatment, which can lead to electrolyte, endocrine, hematologic, cardiac and renal complications.<sup>10,11</sup> Most of these complications in adolescents improve with nutritional rehabilitation and recovery from the eating disorder, but some are potentially irreversible such as growth retardation<sup>12,13</sup>, loss of dental enamel with chronic vomiting, structural brain changes, pubertal delay or arrest, osteoporosis and increased fracture risk.<sup>8,14</sup> Also, EDs affecting adolescents can interfere with their pubertal development and lead to many psychological problems such as low self-esteem and other issues related to self-concept, autonomy, and capacity for intimacy.<sup>8,15</sup>

As EDs lead to personal and social injury, they became in the focus of attention of health professionals to understand the phenomenon, allocate adequate resources, stimulates the conduction of epidemiological studies.<sup>16</sup>

This study aimed to find out the prevalence of eating disorders risk and its associated factors among medical students in faculty of medicine, Tanta University, Egypt.

**Method**

*Study design:* A cross-sectional, descriptive study. *Study setting:* Tanta Faculty of Medicine, Middle Delta, Egypt through the first semester of the academic year 2018-2019.

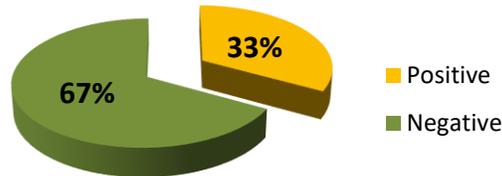
Data were collected from medical students (from both basic and clinical stages) over a period of two weeks. Students with any psychotic disorders and those refused participation were excluded. Sample size was calculated considering a level of confidence of 95%, expected prevalence of 25% and precision of 0.05 and was found to be 304. The study sample was taken from

**Table (1): Socio-demographic, health, and anthropometric characteristics of study participants**

Characteristics	Study participants (n=615)	
	No.	%
<b>Age (in years):</b>		
• < 20	134	21.8
• 20 and more	481	78.2
<b>Gender:</b>		
• Male	202	32.8
• Female	413	67.2
<b>Academic Stage:</b>		
• Pre-clinical	279	45.4
• Clinical	336	54.6
<b>Father's education:</b>		
• Secondary or lower	134	21.8
• University and higher	481	78.2
<b>Residence:</b>		
• Urban	349	56.7
• Rural	266	43.3
<b>Marital status:</b>		
• Married or engaged	51	8.3
• Not married	564	91.7
<b>Family income:</b>		
• Just or not enough	297	48.3
• Enough and saving	318	51.7
<b>Family history of chronic disease:</b>		
• Yes	225	36.6
• No	390	63.4
<b>Regular physical exercise:</b>		
• Yes	198	32.2
• No	417	67.8
<b>Body weight (BMI):</b>		
• Under and normal weight	388	63.1
• Overweight and obese	227	36.9

all academic grades by proportional allocation random sampling technique. For better accuracy and validity and to cover any losses due to incomplete questionnaires, 615 students were included in the study (279 and 336 in basic and clinical stages, respectively).

*Study tool:* Data of the study were collected using a pre-designed questionnaire sheet which included: (a) Personal and sociodemographic data. (b) Relevant family and medical histories. (c) The self-administered questionnaire consisted of



**Figure (1): Eating disorder risk among study participants**

questions related to the Eating Attitudes Test-26.<sup>17</sup> A pilot test was not performed since EAT scale has been widely used as a standardized self-report measure of symptoms and concerns of eating disorders. EAT-26 total score greater than or equal to 21 or if the response was "yes" to any of the five YES/NO items of the EAT-26 scale, denoted the existence of abnormal eating attitudes and increased risk for developing eating disorders. (d) Body weight (kg) and height (cm) were measured using a standard scale and body mass index was calculated with the formula (BMI = body weight [kg] / height [m]<sup>2</sup>).

#### Statistical analysis

Collected data were tabulated and then analyzed using SPSS program version 20. Appropriate tests of significance were used whenever needed. The significance value was considered when  $p < 0.05$ .

#### Ethical consideration

Approval of Ethics committee of Tanta Faculty of Medicine was obtained with approval code (32710/11/18). Objectives and benefits of the study were explained in verbal and written forms were included in all questionnaires. Confidentiality of collected data was assured to all participants. Informed written consents were obtained from those agreed to participate prior proceeding in the study.

## Results

Out of 615 study participants, students aged 20 years and more represented 78.2% and females constituted more than the two thirds (67.2%). More than half of participants (54.6%) were in the clinical academic stage. The majority of students (78.2%) stated that their fathers had high educational levels. More than half of students (56.7%) were residing in urban areas. The great majority of the study participants were neither married nor engaged (91.7%). About half of students (51.7%) were with more than enough family income. About the third of the study group reported to be with a positive family history of chronic diseases and having regular physical exercise (36.6 and 32.2%, respectively). Over one third of students were overweight and obese (36.9%) (Table 1).

Eating disorder risk was found among 203 (33%) of study participants (Figure 1). No association between eating disorder risk and age, gender, father's education, residence place, family income and family history of chronic diseases ( $p < 0.05$ ). On the other side, it was found that students in the pre-clinical study level and those who are neither married nor engaged were at increased risk to develop eating disorder. ( $p < 0.05$ ) (Table 2).

Among study participants, there was an increased risk of eating disorders among students with regular physical activity and overweight/obese, compared to their colleagues with no regular activity and normal/under weights, respectively ( $p < 0.05$ ) (Table 3).

## Discussion

The present study showed that about one third of the studied students (33.0%) were at risk for eating disorder. This is much higher than Memon et al., findings who found that only 22.8% of screened medical students in Karachi were at high risk of eating disorders<sup>18</sup> and higher than the

**Table (2): Eating disorder risk in relation to socio-demographic characteristics among study participants**

Socio-demographic characteristics	Eating disorder risk among study participants (n=615)				P value	Odds ratio (95% CI)
	Positive (n = 203)		Negative (n =412)			
	No.	%	No.	%		
<b>Age:</b>						
<20	49	36.6	85	63.4	0.322	1.22
20 and more	154	32.0	327	68.0		0.82-1.82
<b>Gender:</b>						
Male	58	28.7	144	71.3	0.113	0.74
Female	145	35.1	268	64.9		0.52-1.07
<b>Academic stage:</b>						
Pre-clinical	105	37.6	174	62.4	0.026*	1.47
Clinical	98	29.2	238	70.8		1.05-2.05
<b>Father's education:</b>						
Secondary or lower	47	35.1	87	64.9	0.566	1.13
University and higher	156	32.4	325	67.6		0.75-1.68
<b>Residence:</b>						
Urban	121	34.7	228	65.3	0.315	1.19
Rural	82	30.8	184	69.2		0.85-1.67
<b>Marital status:</b>						
Not married	198	35.1	366	64.9	0.000*	4.98
Married or engaged	5	9.8	46	90.2		1.95-12.73
<b>Family income:</b>						
Just enough or not enough	96	32.3	201	67.7	0.729	0.94
Enough and saving	107	33.6	211	66.4		0.67-1.32
<b>Family History of Chronic disease:</b>						
Yes	74	32.9	151	67.1	0.962	0.99
No	129	33.1	261	66.9		0.70-1.41

**Table (3): Eating disorder risk in relation to anthropometric measurements and physical activity among study participants.**

Anthropometric measurement and Physical activity	Eating disorder risk among study participants (n=615)				P value	Odds ratio (95% CI)
	Positive(n = 203 )		Negative(n = 412 )			
	No.	%	No.	%		
<b>Regular physical activity</b>						
Yes	87	43.9	111	56.1	0.000*	2.03
No	116	27.8	301	72.2		1.43-2.89
<b>Body weight (BMI):</b>						
Overweight and obese	93	41.0	134	59.0	0.001*	1.75
Under and normal weight	110	28.4	278	71.6		1.24 - 2.48

28.6% found by Saleh et al., in their study.<sup>19</sup> The current study results were higher than those reported in USA, Nigeria,

Iran, Greece, Brazil, Lebanon, Thailand and Bangladesh.<sup>20-25, 3, 26-28</sup>

On the other side, much lower percent of students found to be at risk of eating

disorders reported by Reyes-Rodriguez et al. (9.59% of Latino college students were at risk)<sup>29</sup> and as in a Romanian study (7% of students were at risk).<sup>30</sup> Furthermore, a much lower rate of eating disorders was reported by Yu et al., in their study on Chinese college students (4.5%)<sup>30</sup> and by Liao et al. in China which found 2.26% in 2006 and 2.47% in 2008 of all students were at risk.<sup>32</sup>

These wide differences of EAT scores reflect the true differences in prevalence of eating disorders among college students in different geographic regions all over the world and this may be attributed to the differences in the eating behaviors and attitudes among different countries.

Moreover, the much higher prevalence in our study strengthens the fact that eating disorders are of public health problem in our country in relation to other countries worldwide.

The current study showed that students aged below 20 years are at more risk of being affected by eating disorders more than their colleagues of older ages. This is in agreement with Memon et al. results who found that the most susceptible to be at risk of eating disorders was the medical students of younger age group as 65.7% of them were in the age group 18-21, while only 34.3% aged 22-25 years.<sup>18</sup> Recently, Saleh et al., found that the risk of eating disorders was higher among female students at younger age groups.<sup>19</sup>

Regarding the students' gender, the current study found that females are more at risk for being affected by eating disorders. This may be due to the more preoccupation of females with dieting and its related issues. This is in accordance with Memon et al., findings who reported that 87.9% of females were at increased risk of eating disorders.<sup>18</sup> Also, Calderon found that only 1% of the male students were at risk of eating disorders.<sup>33</sup> This was explained by the fact that females are more concerned

with their body weight and body image so they are more prone to be at risk of developing eating disorders. In contrary with these results, Vijayalakshmi et al., in their study on college students in Bangalore, South India found that more males than females were at risk for disordered eating behaviors (16.5% vs. 8.7%).<sup>34</sup>

The current study revealed more risk for eating disorder among students of the pre-clinical academic stage compared to those of clinical stage. This could be explained that as students get more nutritional and clinical knowledge, they became more aware about healthy eating patterns. On the other side, Alberton et al. in Brazil in 2013 found that there is no significant difference between those in 1<sup>st</sup> -5<sup>th</sup> semesters and 6<sup>th</sup> - 10<sup>th</sup> semesters regarding the risk of eating disorders among medical students.<sup>16</sup>

More risk of eating disorder was encountered among overweight/obese students compared to normal/underweight colleges. This can be explained by the more concern about food, eating and dieting among this group more than those with normal or underweights. This is in accordance with Memon et al., (2012) who found that overweight students were at more risk for eating disorders than underweight ones.<sup>18</sup> Recently, Yuand Tan found that the percent of high risk college students in underweight/normal weight category was lower than in overweight/obese ones (8.8% vs. 12.9%).<sup>35</sup>

On the opposite side, Mocanu reported that all the medical students found with high risk of eating disorders in his study in Romania were underweight or normal weight.<sup>29</sup> However, other studies like those done by Desai et al. (2008) and Sira et al. (2010) on American college students didn't find any association between their risk of developing eating disorders and their body mass indices.<sup>36,37</sup>

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**Competing interests:**

The authors declare that they have no competing interests.

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