

## Prevalence of Eating Disorders among Female Students of University (Tehran - Iran)

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**Abstract:** The present paper has been carried out to investigate the prevalence of eating disorders among the female students of Islamic Azad University, central Tehran branch. The subjects of this descriptive research were 400 people who were selected using Stratified Random sampling and were assessed using demographic questionnaires, EAT-26 eating observation test and diagnostic questionnaire of eating disorder. According to EAT-26 results, 21.5 percent of the students scored above the cutting point 20 and were diagnosed to have eating disorders. According to diagnostic questionnaire of eating disorder, 1.8% suffered from anorexia nervosa and 7.8% suffered from bulimia nervosa. The frequency of eating disorders is more or less similar to the stats of the other communities. It seems that now a high level of vulnerability against eating disorder exists in the women. These results refer to the necessity of planning for prevention and related activities to elude the consequences of this disorder and as a result, improve the level of the mental health of the individuals.

[Azam Roshandel, Mahboobeh Safavi, Iran Ghasemi. **Prevalence of Eating Disorders among Female Students of University (Tehran - Iran)**. *Life Sci J* 2012;9(4):2822-2828] (ISSN:1097-8135). <http://www.lifesciencesite.com>. 414

**Keywords:** Eating disorder; Anorexia Nervosa; Bulimia Nervosa.

### Introduction

Eating disorder is one of the worried factors to public healthy that it has increased since 1970 (Hoek & Hoeken , 2003). The prevalence of eating disorders and problems related to eating disorders such as low self-esteem, body dysphoria, low body image satisfaction, and disordered eating has increased dramatically over the past thirty years and continues to increase (wood, 2004). According to the American Psychiatric Association (APA), eating disorders (ED) are characterized by severe disturbances in eating behavior of the individual intended to control body weight and accompanied by distorted body image.

Further, ED is diagnosed by the criteria of Diagnostic and Statistical Manual of Mental Disorders-fourth edition - text revision (DSM -IV-TR) and includes two specific types:

Anorexia nervosa (AN) and bulimia nervosa (BN).Eating disorder not otherwise specified (EDNOS) and binge eating disorder (BED) categories are provided to code for disorders that do not meet full criteria for a specific ED (American Psychiatric Association., 2000).

AN is an eating disorder marked by an inability to maintain a normal healthy body weight, often dropping below 85% of ideal body weight (American Psychiatric Association., 2000; Chakraborty *et al.*, 2010; Pritts & Susman, 2003).

Due to the fear of gaining weight and becoming fat, even when emaciated, AN patients are often characterized by performing self-starvation and excessive weight-loss behaviors (National Eating Disorder Association, 2010).

BN is characterized by repeated episodes of binge eating followed by inappropriate compensatory behaviors such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise (Kugu *et al.*, 2006).

The estimated prevalence of eating disorders (ED) is 1% with an incidence of eight cases per 100,000 population per year for AN and 12 cases per100, 000 population per year for BN (Fabbian *et al.*, 2011). Respective lifetime prevalence rates for full and partial anorexia nervosa in women range from 0.9% to 4.3% and from 1.5% to 7% for full and partial bulimia nervosa (Ahren-Moonga *et al.*, 2009).

In survey carried out in a adolescent Italian females, 0.2% AN, 2.3% BN prevalence rates were found (Vego Alonso *et al.*, 2005). Eating disorders often begin during high school or college, when patients are in their teens and 20s, although earlier and later onset also occur (Joac &Carla, 2009). Especially, college students typically express concerns about body image, body shape, body size, and weight control. The incidence of eating-related problems among college women is well documented (Uzun *et al.*, 2006). In some studies previously

conducted, the prevalence of ED among university students has been reported to vary between 3.5% and 28.5% (Celikel *et al.*, 2008). In line with previous studies, sociocultural influences were also found to be significantly related to body change strategies and eating disorder (Maccabe & Ricciardelli, 2003). Societal ideals and values concerning weight and body shape vary among different cultures. Eating disorders appear to be more prevalent in industrialized societies where there is an abundance of food and where beauty and attractiveness are linked to a thin ideal (Joac & Carla, 2009).

#### **Study Aim or Purpose**

The present paper has been carried out to investigate the prevalence of eating disorders (anorexia nervosa, bulimia nervosa) among the female students of Islamic Azad University, central Tehran branch. Therefore, findings of the present study will provide a baseline data regarding ED for other researchers.

#### **Methods**

##### **Design**

The research is a descriptive study with the objective of investigating the prevalence of eating disorders among the female students of the Islamic Azad University, central Tehran branch.

##### **Data collection & sample**

This study was conducted in Tehran, the capital of Iran. The population of the research includes all the female students of Islamic Azad University, central Tehran branch studying in different fields (3000 person). The sample of the research includes 400 students selected using Stratified Random sampling method in proportion to the frequency of the population of the research.

The research is a descriptive study with the objective of investigating the prevalence of eating disorders among the female students of the Islamic Azad University, central Tehran branch. Therefore, the researcher received a recommendation letter from the university chancellor and partook in the environment of the research, selecting the researched units which had the required specifications and then provided the subjects with the demographic questionnaires, Eating attitudes test and diagnostic questionnaire of eating disorder, extracted the necessary information and ultimately reviewed the results using methods and statistical analysis. Before the initial evaluation, the importance of eating attitude and the nature of the study were explained to all subjects, and they were asked to fill out a self-report questionnaire as honestly and accurately as possible, with the assurance of confidentiality. Then, informed consent was obtained from all participants and confidentiality was ensured.

#### **Measures**

#### **Demographic characteristics**

Demographic characteristics include age, marital status, body mass index (height and weight,) field of study, current lodging during education period, educational and the occupational status of the parents. The Body Mass Index [BMI=weight (kg)/height (m)<sup>2</sup>] was obtained from self-reported data on weight and height using self-reported heights and weights. The CDC weight categories:

Underweight <18.5, normal 18.5-24.9, overweight 25.0-29.9, and obese > 30.0 were used in assessment of Participants' weight status (Center for Disease Control and Prevention, 2009).

#### **The Eating Attitude Test**

The Eating Attitude Test (EAT-26) assesses a broad range of symptoms of anorexia nervosa and bulimia nervosa. The scores are ranked on a six-point scale from always to never, with 3 points allotted to 'always', 2 points to 'very often', 1 point to 'often', and 0 points to the others. Questions on the EAT range in possible scores from 0 to 78, with the clinical cut-off point being 20 (higher score reflect more disordered eating attitude).

Respondents rate the frequency of each item on a 6-point scale from always to never, with 3 point allotted to always, 2 point to very often, 1 point too often and 0 point to others. The EAT is a screening tool developed to detect eating disturbances in non-clinical settings, where a score of 20 or above indicates negative eating attitudes and possible eating disorder (Garner *et al.*, 1982; Mintz & Halloran, 2000).

This global scale exhibited satisfactory internal consistency for the current sample ( $\alpha=0.85$ ).

In Iran, based on the results test-retest, the correlation of the scores of EAT-26 in the studied group is 0.91 which shows a desirable reliability (Nobakht & Dezhkam, 2000).

#### **The Eating Disorder Diagnostic Inventory (EDDI)**

It's a questionnaire which is used by the researcher based on the DSM-IV-TR (*Diagnostic Statistical Manual of Mental Disorders* fourth edition-text revision) and ICD-10 (The International Classification of Diseases 10) to diagnose anorexia nervosa and bulimia nervosa and has been used in the present study after conducting reliability and validity and thus the people suffering from eating disorders could be identified. The aforementioned questionnaire has been used by Nobakht and Dezhkam in 2000 in the research on eating disorders among the youths and showed a favorable reliability (Nobakht & Dezhkam, 2000). In this research,

the test-retest reassessment method was used to measure the reliability of the questionnaire and the results show the value of 0.97 for correlation.

### Data Analysis

To carry out statistical analysis, the SPSS statistical application (version 16) was used with descriptive statistics, preparing tables, the distribution of relative frequency, average, standard deviation and the inferential statistics of chi-square ( $X^2$ ) and Fisher exact tests were used to assess the relationship between the variables. For all analyses  $\alpha \leq 0.05$  was used as statistically significant difference between groups.

### Ethical considerations

The ethics committee of Islamic Azad University, Tehran Medical Branch gave permission for the study. Other ethical issues in this study involved the assurance of confidentiality and anonymity for the participants. The participants were given verbal and written information about the study.

They had the right to withdraw from the study at any time during or after the interviews and All participants were informed of the purpose and design of the study and the voluntary nature of their participation and their anonymity would be preserved during and after the study.

### Results

The results related to the personal information section and the demographics of studied units show that the majority of the people on whom the research was conducted (76.5%) were in the age range of 20 to 25 with the mean 22.07 (SD= 2.85). Most student's BMI (N=309; 77.3%) were within the normal range category, 54(13.5%) were underweight, 32 (8%) were overweight, and 5(1.3%) were obese.

The majority of the students surveyed (23.5%) were studying psychology and the majority of them (96.3%) were living with their families.

**Table 1. Socio-demographic characteristics of students by status of disordered eating.**

Sociodemographic	Disordered Eating			Statistical analysis $X^2$ p-value
	yes n (%)	no n (%)	total n (%)	
Age				
<25	75 (21.4)	275(78.6)	350(100)	0.03;0.8
>25	10(22.7)	34(77.3)	44(100)	
Marital status				
single	70(21.5)	256(78.5)	326(100)	0.01;0.9
married	15(22.1)	53(77.9)	68(100)	
BMI				
Underweight	3(5.8)	49(94.2)	52(100)	$F^*=10.8$ ;0.009
normal	72(23.6)	233(76.4)	305(100)	
Overweight	9(28.1)	23(71.9)	32(100)	
obese	1(20)	4(80)	5(100)	
Lodging during education period				
With family	83(21.9)	296(78.1)	379(100)	$F^*=0.62$ ;0.7
Without family	2(13.3)	13(76.7)	15(100)	
Father's occupation				
Worker	34(17.5)	160(82.5)	194(100)	3.70;0.05
Non-worker	51(25.5)	149(45.5)	200(100)	
Mother's occupation				
Housewife	63(20.1)	250(89.9)	313(100)	1.88;0.1
Worker	22(27.2)	59(72.8)	81(100)	
Father's education				
Illiterate and elementary school	6(17.1)	29(82.9)	35(100)	6.8;0.07
Secondary school and high school diploma	7(11.5)	54(88.5)	61(100)	
Junior college diploma or higher	51(22.5)	176(77.5)	227(100)	
	21(29.6)	50(70.4)	71(100)	
Mother's education				
Illiterate and elementary school	5(16.7)	25(83.3)	30(100)	4.15;0.2
Secondary school and high school diploma	8(17.8)	37(82.2)	45(100)	
Junior college diploma or higher	33(18.9)	142(81.1)	145(100)	
	39(27.1)	105(72.9)	177(100)	

\*Fisher exact test

Moreover, the fathers of 45.3% of the students were self-employed and the mothers of 80% were housewives. The education of the 44.8% of fathers and 85.3% of mothers of the students was diploma.

It's noteworthy that 82.8% of the students were single and 17.3% were married. Based on the rated scores of the EAT-26 eating attitude questionnaire findings show that 78.4% of the students surveyed scored less

than the cutting point of 20 and 21.5% scored more than the cutting point of 20. Therefore, 21.5% of the students have disordered eating attitudes and the probability of being afflicted by eating disorders. Based on the (EDDI), the statistics showed that 1.8 percent of the samples suffered from anorexia nervosa and 7.8 percent suffered from bulimia nervosa. The relationship between the demographic characteristics (age, marital status, body mass index, lodging during the education period, parent's occupational status, parent's education and interestedness in field of study) and eating disorder is shown in the Table 1. As the findings presented in the table bottom show, the variable of eating disorder is only significantly related to the variable of BMI ( $p=0.009$ ) and father's occupation ( $p=0.05$ ).

### Discussion

In our country, in the field of eating disorder, few studies have been carried out. This is the first study which investigates the eating disorder among the Iranian students. In the present study, the average body mass index is  $21.24$  ( $SD=2.77$ ) which is almost compatible with the average body mass index in the findings of the researches done by (Kiziltan *et al.*, 2005) ( $23.7 \pm 3.9$ ) and (Young *et al.*, 2010) in Korea ( $19.26 \pm 2.90$ ).

As it was mentioned, in the present study, the majority of students surveyed based on the EAT-26 questionnaire (78.4%) scored below the cutting point of 20 and 21.5% scored a cutting point of more than 20 which means that 21.5% of the people had disordered eating attitudes and were inclined to be affected by eating disorders. In measuring the prevalence of eating disorders amongst high school students (male and female) in Sari- North of Iran- In the academic year of 2002-2003 in 10.5% of the students, abnormal attitude towards eating was observed (Zarghami & Chyme, 2003).

In their study on the students of the Islamic Azad University, Tonekabon branch (IRAN), Fadavi Roodsari and Ast(2011) reported that based on EAT-26 questionnaire, 20.3% of the students had disordered eating attitude and there's the possibility that they may be afflicted by eating disorder; however, the stats of the attitude of disordered eating in various countries is reported as follows.

UAE (24%) (Justin *et al.*, 2010); (23.4%) (Eapen *et al.*, 2006); Chinese (3.2%) (Liao *et al.*, 2010); South Korea (7%) (Yang *et al.*, 2010); Greek (16.7%) (Bilali *et al.*, 2010); Germany (26/1%) (Rosendahl & Bormann, 2009); American (12.64%) (Sira & Pawlak, 2010); Turkey (6.8%) (Tozun *et al.*, 2010); Brazil (17.4%) (Nunes *et al.*, 2005).

On the other hand, our finding was concordant with the results of western society's studies that have shown the prevalence of disordered

eating attitudes to be 7% to 20% among female college students (Uzan *et al.*, 2006). Based on the results of our study, the statistics of disordered eating attitudes is similar to European and Western countries and even larger than them. The results of the diagnostic questionnaire of eating disorder in our study showed that 1.8% of the students suffer from anorexia nervosa and 7.8% suffer from bulimia nervosa.

The prevalence of diagnosed eating disorders in various samples of college women has been reported to be 1.3% to 5% although the speculation is that the prevalence is much higher (Fabbian *et al.*, 2011). Kiziltan *et al.* (2005) also believe that the prevalence of bulimia nervosa has been estimated to be as high as 20% in college populations and symptoms of binge eating have been detected in up to 90% of college women. In a study carried out in six European countries of France, Belgium, Italy, the Netherlands, Germany and Spain, (2010) the prevalence of anorexia nervosa and bulimia nervosa has been reported to stand at (7.4% and 2.3%), (6.3% and 2%), (5% and 2.2%), (3.3% and 0.9%), (2.1% and 0.8) and (4% and 1.5%) respectively<sup>30</sup>. In Hong Kong, Zhuoli and Wenfang have reported the prevalence of anorexia nervosa and bulimia nervosa to be 0.07% and 0.7% respectively (Zhuoli & Wenfang, 2010).

From the other hand, Liao in a 2010 study in China diagnosed 0.9% of the people suffering from eating disorder (Liao *et al.*, 2010). In France, 4.15% of the female subjects had high EAT-26 scores. In Italy, 3.35% of the adults (male and female) had eating disorder (Preti *et al.*, 2009). In a research done on the youths in Jordan, 0.6% of the samples suffered from bulimia nervosa (Yousef Mousa *et al.*, 2010).

In an Australian study 9% percent of male student's report that they suffer from disordered eating and 2% meet the criteria to be diagnosed with clinical Bulimia Nervosa.

Also between 11 and 20% of female American university students score high enough to indicate an eating disorder on the Eating Attitudes Test (Yager & O'dea, 2008).

The stats of the prevalence of eating disorder vary in different countries. Various factors can be the cause of such differences. These factors are more related to the etiology of these diseases. Among the most important factors are cultural factors such as the numerousness of cultures, the influence and penetration of the Western culture (especially through the media outlets), individual factors, social class and status, the status of the society's growth and development, pervasive models in the society such as fashion and traditions, contact with the foreign cultures and the age group of the samples studied. The most recent reports, however, suggest that the



incidence of eating disorders is becoming increasingly common among women from non-western population (uzan *et al.*, 2006). Given the statistics and issues just raised, the high rate of eating disorders in Iran may be a consequence of the influence of western culture which demands more extensive research in this field. The Influence of western culture from media on the other hand, may add stress to the general difficulties of adolescence and perhaps contribute to the development of eating disorders. Such a conflict between western values and Islamic traditions has also been suggested as a factor contributing to the high prevalence of BN in Asian girls (Nobakht & Dezhkam, 2000). Since based on the findings of the present research, the rate of eating disorders in the Iranian students is compatible with many studies carried out in the Western communities and is even higher than many countries, it seems that now a high level of vulnerability against eating disorders exists among the women, especially the students. By investigating the relationship between the aforesaid variables and eating disorders, a statistically significant relationship was found between the body mass index and fisher test ( $F=10.8$ ,  $p=0.009$ ). As it was depicted in the Table 2, the majority of people with overweight (28.1%) suffered from eating disorder in the division of body mass index. In the young girls, being overweight has been found to consistently predict body dissatisfaction and disordered eating behavior (Golden, 2003). Zarghami and Chimeh (2003) in their study found a statistically significant relationship between BMI and eating disorder ( $p=0.001$ ). The results of their studies showed that abnormal attitude toward eating can be found more in the obese and extremely obese people as compared to normal people.

Furthermore, Muris *et al.* (2005) reported that there's a statistically significant relationship between BMI, eating disorders and extensive efforts made to reduce weight ( $p<0.001$ ).

As it was mentioned earlier, in the present research, a statistically significant relationship was seen between the occupational status of the father with eating disorder and the results of chi square test ( $X^2=3.7$ ,  $df=1$ ,  $P=0.05$ ) which is in accordance with the findings of Nobakht study (2000). No statistically significant relationship existed between the variables studied (age, marital status, the lodging situation during the education period, mother's occupational status, parent's education and interestedness in the field of study) and the variable of eating disorder. In their study, Wildes (2005) also failed to find a statistically significant relationship between the control group and the group suffering from bulimia nervosa in terms of age ( $p=0.2$ ). Moreover, in their study, (Tozun *et al.*, 2010) found no statistically

significant relationship between the variables of age, lodging situation and mother's occupational status with the variable of eating disorder.

In the present research, no significant relationship was observed between eating disorders and the variables indicating economic-social conditions (mother's occupation, parent's education and the lodging situation). As the other studies have shown, this is influenced by the cultural effects which include all economic-social levels, particularly the impact of the mass media (movies, TV, satellite channels, internet etc.) which has engaged almost all levels. Sociocultural change includes westernization or modernization and urbanization (Blowers *et al.*, 2003).

The media serve as a strong source of information about cultural norms and ideals, adolescent boys and girls often look to the media for information about their role and value in society in an attempt to become what would be considered most socially desirable (Muris *et al.*, 2005). Internalization of the thin ideal has consistently been found to predict levels of body dissatisfaction and eating disturbance (Golden, 2003).

The sociocultural factor-families, peer and the media have recently appeared as the three primary risk factors influencing body image and disordered eating behaviours (Wildes *et al.*, 2005).

In line with previous studies, sociocultural influences were also found to be significantly related to body change strategies and eating problems (Makino *et al.*, 2004; Maccabe & Ricciardelli, 2003). Social pressure to be thin is higher for females than males; thus, college females are more likely to perceive them to be overweight and will more often attempt to lose weight (Sira & Pawlak, 2010).

Accordingly, given the process of globalization and the development of Information Technology, the geographical boundaries are setting about to fade out and the non-Western nations and especially the youths in these societies are more exposed to the Western culture. Unquestionably, the models of media such as beauty and sex and health technologies have an impact on dissatisfaction with the body and unhealthy nutrition and weight control and ill-mannered behaviors in vulnerable men and women (Warren *et al.*, 2010). The issue which has been taken note of in various studies is the impact of cultures' development (especially the Western culture) and the phenomenon of globalization on the increasing of problems related to the attitude and behaviors and eating disorders in such a way that eating disorders have been considered phenomena influenced by the cultures. Striegel-Moore and Smolark (2001) believe that eating disorders are more of culture reactive phenomena rather than culture-

bound phenomena and therefore a special attention should be paid to the growth of problems related to eating and body image in the developing societies.

It seems that with the growth of intercultural relations and penetration of Western patterns in Iran, the prevalence of the phenomenon of unnatural eating has also increased progressively. This unnatural attitude will turn into a disorder and bring about serious consequences for the person if it's not treated and cured appropriately; therefore, paying attention to the issue of preventing the occurrence of such disorders and putting aside its underlying factors is immensely important.

### Conclusion

Therefore, necessary measures should be taken and educating the people in the form of programs of raising the public awareness, using mass media and educational instruments such as movies, pamphlets and posters to increase the knowledge of this important group of people to preclude the pandemic of eating disorders and problems related to disordered eating attitudes should be taken into consideration by the experts and nutrition managers.

### Acknowledgements

The authors thank all the participants in this study for their time, the, Islamic Azad University central Tehran branch, Islamic Azad University Tehran Medical Branch.

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9/20/2012