



## Research report

## An evaluation of eating disorders among a group of Turkish university students

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## ABSTRACT

The prevalence of eating disorders has been increasing in the last 20 years, not only in developed countries, but also in less developed countries such as Turkey. This study was conducted among 610 university students, 338 males and 272 females who are between 17 and 23 years old, in Ankara, the capital of Turkey, to determine eating disorders among the young. The data regarding the eating disorders and self-evaluation were assessed according to the EAT-40 test and the Body Cathexis Scale. The scores received from the eating attitudes test were low among the underweight ( $18.9 \pm 9.7$ ) and higher among the overweight ( $21.6 \pm 15.9$ ). Eating disorders risks are more prevalent among females compared to males ( $P < 0.001$ ). 17.2% of the underweight and 21.2% of the overweight are at higher risk of eating disorders. There was a positive correlation between the eating attitudes test scores and young people's body weight, BMI, mid-upper arm and waist circumferences, while a negative correlation was determined between the body cathexis scores and these variables. The authors believe that educating young people about healthy nutrition and monitoring them through longitudinal research studies will be helpful to prevent eating disorders, which are significant in terms of public health.

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## Introduction

Eating disorders are major public health problems among adolescents because of their high prevalence and their potentially serious physical and psychosocial consequences (Ackard, Neumark-Sztainer, Story, & Perry, 2003; Golden et al., 2003; Stice, Hayward, Cameron, Kilen, & Taylor, 2000). According to several authors, the prevalence of these eating disorders (between 1% and 41%) has remarkably increased in the last few years (Favaro, Ferrara, & Santonastaso, 2003; Hoek, 2006; Sepulveda, Carrobbles, & Gandarillas, 2008). Today, eating disorders are considered as psychiatric diseases which are prevalent and mostly affect young girls and women (Berry & Howe, 2000; Golden, 2003). Biological, psychological and cultural factors and eating habits are very important in the etiology of eating disorders, which are usually seen in middle socioeconomic levels and in industrialized and developed societies where attractiveness is associated with thinness (Houtkooper, 2000; Kazis & Iglesias, 2003; Levine, 2002; Neumark-Sztainer, Wall, Story, & Fulkerson, 2004).

More than 90% of the eating disorder cases occur among individuals who are at the age of 25 or below. Moreover, the rate of occurrence is 5–20 times more in women compared with men (Deering, 2001). In fact it is unclear this is the case and data from the US and UK indicates that bulimia nervosa is likely not to be increasing (Currin, Schmidxt, Treasure, & Jick, 2005; Keel, Heatherton, Dorer, Joiner, & Zalta, 2006; Van Son, van Hoeke, Bartelds, van Furth, & Hoek, 2006). Taylor et al. (1998) reported that young girls wanted to look like the women they saw on television and in popular magazines, and that they felt anxious and under strain about getting overweight. In a study conducted among 783 university students in Turkey, abnormal eating habits were determined among 13.1% of the females and 9.2% of the males (Baş, Asci, Karabudak, & Kiziltan, 2004). In another study, the rate of unbalanced eating habits was found to be 17.0% (Baş, Karabudak, Karağaoğlu, & Ciğerim, 2006). However, studies related to eating problems and disorders are limited in Turkey. In developing countries in particular, modernization and industrialization have been implicated in changing individual subjectivity, self-determination, and instrumental agency, all of which are significant in the development of eating disorders (Littlewood, 1995).

In addition to the differences in eating behaviours, particularly deterioration in the body perception and diet habits differ according to gender. It is important that studies on undiagnosed or hidden eating disorders that progress slowly be carried out

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especially among the young, to be able to take preventive measures and to learn about the diseases.

The present study was conducted to answer these questions.

1. Would the prevalence of disturbed eating attitudes and body image for females differ from that of males?
2. Is there any correlation among anthropometric measurements and disturbed eating behaviours and body image?

## Methods

### Participants

The research was conducted among 610 university students, 272 females (mean age,  $19.4 \pm 1.4$  years) and 338 males (mean age,  $20.4 \pm 1.7$  years), between 17 and 23 years old and attending Gazi University in Ankara, Turkey.

The mean BMI values for the males and the females were found to be  $22.9 \pm 3.4$  and  $21.6 \pm 3.3$  kg/m<sup>2</sup>, respectively.

### Instruments

#### Eating attitudes test

The eating attitudes test (EAT), which is a widely used self-report measure of eating disorders, has been used in the present study. The test was originally developed by Garner and Garfinkel (1979) to examine the symptoms of anorexia nervosa. The EAT-40 index contains 40 items, each with six possible ordinal answers that determine the final test score. The Turkish version of EAT-40 (Savaşır & Erol, 1989) measures the disturbance in eating attitudes and behaviours. The reliability of the EAT-40 was examined in a pilot study in which sixty-two university students participated, and the internal consistency (Cronbach's alpha) was found to be 0.71; and the internal consistency in our study was found to be 0.72. In EAT-40 scale, the scores are classified as follows: 30 and above are high risk (abnormal eating behaviour), between 21 and 30 are moderate risk, and below 21 are low risk (Garner & Garfinkel, 1979).

#### Body Cathexis Scale

Body Cathexis Scale, developed by Secord and Jourard (1953), is an instrument to measure individuals' degree of satisfaction from their body functions. The scale includes 40 items, which are Likert-type with five answers ranging from "I don't like it at all" to "I like it very much". With this scale, the minimum score that one can receive is 40 and the maximum score is 200. Higher scores point to an increased level of satisfaction. In Turkey, the validity and reliability studies of this scale were conducted by Hovardoğlu (1993), and the internal consistency was found to be 0.88. It was calculated as 0.89 (Cronbach's alpha = 0.89) in our study.

#### Anthropometric measurements

All measurements were taken by trained dietitians. Height was measured to nearest 0.1 cm, and without shoes. BMI was calculated as weight (kg)/height (m)<sup>2</sup>. Young people were classified according to their BMI into three groups as underweight (BMI < 18.5 kg/m<sup>2</sup>), normal weight ( $18.5 \leq \text{BMI} \leq 24.9$  kg/m<sup>2</sup>), and overweight (BMI  $\geq 25.0$  kg/m<sup>2</sup>) (WHO, 1987). The waist circumference was measured at the middle point between the lowest rib and the costal space, and the hip circumference was measured at the highest point determined at the side of the individual. Mid arm circumference was measured midway between the lateral projection of the acromion process of the scapula and the inferior margin of the olecranon process of the

ulna. This middle score was marked with the elbow flexed at 90 degrees, and the measurement was made with the arm hanging loosely at the side of the body. The waist, hip and mid arm circumferences were measured with a flexible steel tape and recorded to the nearest 0.1 cm (Gibson, 2005; Lohman, Roche, & Martorell, 1988).

## Statistical analyses

The data were analyzed and administered using the Statistical Packages for Social Sciences (SPSS) for Windows, version 11.0. The descriptive statistics of continuous variables was expressed as the mean  $\pm$  standard deviation (S.D.). While *t*-test was used to compare the scores according to genders, chi-square test was applied in the assessment of risks for eating disorders according to gender and body weight. One way analysis of variance was conducted to compare the scores of the underweight, the normal and the overweight correlations of anthropometric measurements between EAT-40 and body cathexis scores were assessed using the Pearson coefficient correlation. In all analyses, 5% significance level was used.

## Results

The mean EAT-40 score was  $20.3 \pm 14.3$ , and the body cathexis score was  $84.9 \pm 19.9$ . Females received higher scores of EAT-40 and body cathexis than males did ( $P < 0.001$ ). Eating disorders risks are more prevalent among females compared to males ( $\chi^2 = 13.013$ ,  $P < 0.001$ ) (Table 1).

The EAT-40 and body cathexis scores of the young people who are underweight, normal weight and overweight according to BMI are provided in Table 2. The EAT-40 scores were low among the underweight ( $18.9 \pm 9.7$ ), and higher among the overweight ( $21.6 \pm 15.9$ ). The body cathexis score was  $86.5 \pm 19.2$  in underweight and  $85.9 \pm 20.3$  in overweight young. Nevertheless, this difference was not statistically significant in underweight, normal and obese young people. Of all the respondents, 17.2% of the underweight, 21.2% of the overweight and 24.0% of the normal weight face a high risk of having an eating disorder.

Positive significant correlations were determined between the EAT-40 scores of the young people and their body weight ( $r = 0.19$ ,  $P < 0.05$ ), BMI ( $r = 0.34$ ,  $P < 0.05$ ), mid-upper arm circumference ( $r = 0.27$ ,  $P < 0.05$ ), waist circumference ( $r = 0.25$ ,  $P < 0.05$ ) and hip circumference ( $r = 0.18$ ,  $P < 0.05$ ); whereas, negative significant correlations were found between the Body Cathexis Scale and the body weight ( $r = -0.33$ ,  $P < 0.05$ ), BMI ( $r = -0.21$ ,  $P < 0.05$ ), mid-upper arm circumference ( $r = -0.42$ ,  $P < 0.05$ ) and waist circumference ( $r = -0.37$ ,  $P < 0.05$ ).

**Table 1**

The EAT-40, body cathexis scores and risk estimates according to gender (n:610)

	Male (n:338)	Female (n:272)	Total (n:610)	
Scores <sup>a</sup>	$\bar{x} \pm \text{S.D.}$	$\bar{x} \pm \text{S.D.}$	$\bar{x} \pm \text{S.D.}$	
EAT-40	$20.1 \pm 13.8$	$20.6 \pm 15.1$	$20.3 \pm 14.3$	ns
Min-max	0.0–98.0	0.0–95.0	0.0–98.0	
Body cathexis	$80.5 \pm 18.6$	$90.4 \pm 20.1$	$84.9 \pm 19.9$	$P < 0.001$
Min-max	40.0–159.0	21.0–139.0	21.0–159.0	
Risk estimates <sup>b</sup>				
Low risk	173 (51.2)	158 (58.1)	331 (54.3)	$\chi^2 = 13.013$
Moderate risk	96 (28.4)	44 (16.2)	140 (22.9)	$P < 0.001$
High risk	69 (20.4)	70 (25.7)	138 (22.8)	

<sup>a</sup> Data are mean  $\pm$  S.D. with minimum and maximum values given in parentheses.  
<sup>b</sup> Low risk, EAT-40 < 21; moderate risk, EAT-40 between 21 and 30; high risk, EAT-40 > 30; ns: not significantly.

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