

## Evaluation of Eating Attitudes of Turkish Adolescents Based on Certain Variables

Hülya Yardimci<sup>1</sup>, Gülperi Hakli<sup>2</sup>, Ayşe Özfer Özçelik<sup>3</sup> and Funda Pinar Çakiroglu<sup>4</sup>

<sup>1,3,4</sup>Ankara University, Faculty of Health Science, Department of Nutrition and Dietetics, Ankara, Turkey

<sup>2</sup>Selçuk University Faculty of Health Science, Department of Nutrition and Dietetics, Konya, Turkey

Telephone: <sup>2</sup><0312 319 50 18/1165>

E-mail: <sup>1</sup><hulya\_yardimci@yahoo.com>, <sup>2</sup><gulhakli@hotmail.com>, <sup>3</sup><ozferozcelik@gmail.com>, <sup>4</sup><scakir64@hotmail.com>

**KEYWORDS** Eating Attitude. EAT-26. Turkish Adolescent. BMI. Gender

**ABSTRACT** This study was conducted on 321 adolescents to investigate the relation between the eating attitude of Turkish adolescents and some variables by using the Eating Attitudes Test (EAT-26). The cut-off point for the test was 20. Twenty points and more referred to the risk of an eating disorder. According to findings, the mean EAT-26 score of the adolescents was 20.4±0.1. By gender, 45.7 percent of the boys and 48.9 percent of the girls, by age, 52.7 percent of the students at the age of 12-14 and forty-one percent of the students at the age of 15-18 ( $p<0.05$ ), by BMI, fifty percent of the thinner, forty-four percent of the underweight, 41.3 percent of those with a normal weight, 60.2 percent of overweight and obese had 20 and over in the test. 57.6 percent of the students stated that their parents were obese had 20 and over in the test and so had a risk for eating disorder ( $p<0.05$ ). The researchers believe that adolescents should be given more knowledge about healthy nutrition and monitoring them by longitudinal research studies will be helpful in preventing eating disorders.

### INTRODUCTION

The adolescent period is the period when life-long nutritional and other habits are adopted. The frequency of the meals, the quantity of energy per meal and the quantity of nutritional elements and their reciprocal proportion play a crucial role in the process of acquiring physiological balance of body and in the protection of organs (Ministry of Health Republic of Turkey 2006). Being informed about the eating habits of adolescents, determining the factors affecting their eating habits and their nutrition could play a role in preventing chronic diseases in adulthood caused by it (Tanriverdi et al. 2011). Among major nutritional problems of adolescents, the following can be mentioned, that is, irregular meals, inadequate intake of essential food groups, excessive consumption of fast food, poor living

conditions, unhealthy diets, obesity, differences between BMI and body image, insufficiency in nutritional education, and other problems concerning a healthy life (Kakeshita and Almeida 2006; Yahia et al. 2008; Nisar et al. 2009). In a study, it was determined that wrong eating habits and disordered eating behaviors that arose in adolescence continued or tended to increase in early adulthood (Neumark-Sztainer et al. 2011).

One of the issues discussed by people from every walk of life, in particular the young generation, is the physical appearance. Globalization and mass media's influence, the traditional heavier beauty idealism in some cultures has transformed to fit a more Western thinner and muscular ideal (Becker 2004; Grogan 2008). Thinness is perceived to increase social acceptance, and promote acknowledgement of negative eating attitudes to attain body ideals (Thompson and Stice 2001; Coskun and Çepikkurt 2010).

Body image has been known as a risk factor for the development of eating disorders (Johnson and Wardle 2005; Ackard et al. 2008; Wang et al. 2009; Coskun and Çepikkurt 2010). Researchers are interested in body image because negative body image is associated with

<sup>2</sup>Address for correspondence:

Gülperi Hakli  
Selçuk University Faculty of Health Science  
Department of Nutrition and Dietetics  
Selçuk Üniversitesi Sağlık Bilimleri Fakültesi  
Merkez Kampüsü, Ankara/Turkey  
Telephone: 0312 319 50 18/1165  
E-mail: gulhakli@hotmail.com

eating disorders, low self-esteem, depression, anxiety, obesity, and obsessive compulsive tendencies (Verplanken and Velsvik 2008; Paxton and Franko 2010). Men try to increase their muscle tissues through unhealthy methods with the hope of having an ideal physical structure, while women turn to obsessive diets and eating habits. In related studies, it was found that studies of adolescents have found that although boys report less body dissatisfaction than girls do, significant numbers of boys (5–20%) report restrained eating, vomiting, laxative abuse, or smoking cigarettes for weight control (Field et al. 1999; O’Dea and Abraham 2002).

Some studies showed that a negative body image and eating disorders is higher in girls compared to boys (McCabe and Ricciardelli 2006; Jones et al. 2007; Abbott and Barber 2010). In some other studies, it was found that a negative body image and eating disorders’ prevalence in boys is increasing (Ross and Ivis 1999; Field et al. 2001; Ricciardelli and McCabe 2011). For example, in their study, Field et al. (2001) found that four percent of boys were “highly concerned” about their weight and that one percent of boys reported “always being on a diet” to lose or maintain weight. During the one-year study, two percent of boys became highly concerned with weight and one percent began constant dieting.

Obesity is an important factor on disordered eating behaviors. Disordered eating is sometimes referred to as extreme weight control practices. Over worrying about body weight, the tendency for starving oneself and following unhealthy dieting programs create the risk of eating disorders. Researchers have found significant relationships between eating disorders and weight status (Gonsalves et al. 2014; Flament et al. 2015). With the provision of keeping BMIs within suitable ranges for adolescents, a decrease could be obtained in eating disorders, at the frequency of having an obsessive diet and at the rate of negative body image in the long term (Neumark-Sztainer et al. 2006; Monir et al. 2010).

The aim of the current study was to investigate the relation between the eating attitude of Turkish adolescents and some variables.

## MATERIAL AND METHODS

This study, designed as a cross-sectional research, was conducted on the students (n=321)

in secondary and high schools located in the provinces of Hatay and Kayseri between March 2014 and May 2014. Permissions from education authorities and the administrative bodies of the schools were obtained. Through the school administration, parents were informed about the study. Parents signed an informed consent and filled in questionnaires, which adhered to The Declaration of Helsinki’s protocols (World Medical Association). The subjects participated on a voluntary basis after being fully informed about the objectives and methods of the study. School teachers accompanied the research team during data collection.

## Participants

A total of 321 students participated in the study. Of these, 58.6 percent were boys (B) (n=188), 41.4 percent were girls (G) (n=133) and their mean age was  $14.6 \pm 1.2$  years (B:  $14.6 \pm 1.2$  years, G:  $14.4 \pm 1.1$  years). The students’ overall mean BMI was  $20.9 \pm 3.4$  kg/m<sup>2</sup>, that of boys was  $20.9 \pm 3.6$  kg/m<sup>2</sup>, and that of girls was  $21.0 \pm 3.0$  kg/m<sup>2</sup>.

## Measures and Instruments

Data was collected using a questionnaire form and the face-to-face interview technique. The questionnaire comprised two parts-one about general information about the students and the second was the Eating Attitude Test (EAT-26).

## Body Mass Index (BMI)

BMIs of the students included in the research were evaluated according to the percentile ranges of boys and girls at the age of 5-19 years determined by the World Health Organization (WHO) (WHO 2007). In this sense, those having <5 percentile were classified as ‘thinner’, the ones with  $\geq 5$ -15 percentile as ‘underweight’, with  $\geq 15$ -<85 percentile as ‘normal’, the ones having  $\geq 85$  percentile were classified as ‘overweight or obese’.

## Eating Attitudes Test (EAT-26)

Developed by Garner and Garfinkel (1979) in order to determine eating disorders of students, Turkish validity and reliability studies were undertaken in 1989 by Savasir and Erol and EAT-40 (Eating Attitude Test-40) that was adapted by EAT-

26 test was applied. The scale is scored on 3, 2 and 1 points starting from the end responses (“always”, “very often”, “often”) for first 25 questions, and an opposite scoring was applied for the item 26. In this case, the minimum score is “0” and maximum score is “78”. The cutoff point for the diagnosis of anorexia was accepted as 20. People who score 20 or more are assessed as individuals at a high risk of eating disorders. The score increase is directly related to the strength of the pathology (Ilhan et al. 2006).

In this study, the Cronbach Alpha Reliability Coefficient for the total scale (EAT-26) is 0.78. Depending on the factor analysis carried out with 26 items of the scale with a load value over 0.30, seven factors were obtained. The items in each factor group were examined and subdimensions were named. Factor 1 was determined as being busy, Factor 2 as dealing with self image, Factor 3 as eating concern, Factor 4 as eating pressure coming from outsiders, Factor 5 as vomiting, Factor 6 as staying hungry and Factor 7 as oral control. Factor 1 explains twenty-one percent of the total variance of eating attitude behavior alone. The variances of Factor 1, Factor 2, Factor 3, Factor 4, Factor 5, Factor 6 and Factor 7 were 10.9 percent, 8.1 percent, 5.7 percent, 4.4 percent, 3.9 percent and 3.9 percent, respectively.

### Statistical Analysis

The data of the research was analyzed on the computer using SPSS (Statistical Package for the Social Sciences 16.0). As the explanatory variable, age, gender, BMI percentile classification, parents’ status of being obese and consuming main meal properly were used. Statistical analyses included factor analysis, chi-square ( $X^2$ ) and Fisher-exact test.

## RESULTS

### General Characteristics

The height and weight means of boy and girl students were B:  $1.7\pm 0.1$  m,  $58\pm 1.2$  kg, and G:  $1.6\pm 0.1$  m,  $54.4\pm 1.0$  kg, respectively. Students’ overall mean BMI was  $20.9\pm 3.34$  kg/m<sup>2</sup>, that of boys was  $20.9\pm 3.6$  kg/m<sup>2</sup>, and that of girls was  $21.0\pm 3.0$  kg/m<sup>2</sup>. In terms of percentile values depending on body weight, 11.5 percent was <15 percentile, 61.1 percent was  $\geq 15$ - <85 percentile, 27.4 percent was  $\geq 85$  percentile. It was found

that five percent of the students expressed that they smoked and 1.6 percent pointed out that they had alcohol ( $p < 0.05$ ). Of the students, 55.8 percent indicated that they did play sports or performed physical activity regularly. The number of households for the students were 3-11 and median=5. The rate of obese people in the family was 55.5 percent.

### EAT-26 Test Results

As a result of the study, the mean EAT-26 scores of students was  $20.4\pm 0.1$  and it was  $20.1\pm 0.1$  for boys and  $20.7\pm 8.7$  for girls. As for the overall EAT-26 total of the students, the rate of those having 0-19 score was fifty-three percent and the rate of the ones having 20 and over was forty-seven percent.

As given in Table 1, the statements of students with regards to eating attitudes were evaluated as percentage (%). In this sense, it was found that the highest rates were the answer “always” for the statements of 5 (29.8%), 23 (24.5%), 7 (19.1%) and 22 (19.1%) by boys and the statements of 5 (41.4%), 16 (32.3%), 7 (27.8%), 21 (24.1%), 2 (21.8%) and 6 (21.1%) by girls. For the statement 26, the highest rate was for those answering “often” was B: 30.9 percent and G: 30.8 percent.

Upon the analysis of the scores based on various variables, those with an EAT-26 score 20 and over comprised 45.7 percent of the boys and 48.9 percent of the girls for gender, 52.7 percent of the ones at the age of 12-14 and forty-one percent of those at the age of 15-18. In terms of BMI, it comprised 41.3 percent of those in the  $\geq 15$ - <85 percentile,  $\geq 58.7$  percent of those with a  $\geq 85$ ->95. percentile and 61.9 percent of the those having  $\geq 95$ . percentile. On the other hand, 57.6 percent of the students stating that they have fat parents and 42.4 percent of those saying that their parents are not fat got 20 and over out of EAT-26 test. As for students’ main meal consumption regularly, twenty-nine percent of those consuming every time, 30.2 percent of the ones consuming sometimes and forty percent of those who never consumes got 20 and over out of EAT-26 test (Table 2).

## DISCUSSION

In recent years, there has been an increased awareness of the prevalence of body image prob-

**Table 1: Eat – 26 Test factor analysis results and the distribution of the students' answers to the items (%)**

Factor Cronbach alpha	No.	Statements	Boys (%)			Girls (%)		
			Always	Very often	Often	Always	Very often	Often
$F1\alpha = 0.78$	10	I feel extremely guilty after eating.	3.7	2.7	3.3	7.5	5.3	6.0
	2	I avoid eating when I am hungry.	16.0	5.3	4.3	21.8	5.3	3.8
	11	I am occupied with a desire to be thinner.	8.5	10.1	11.7	18.8	9.8	22.6
	22	I feel uncomfortable after eating sweets.	19.1	8.0	6.4	16.5	7.5	7.6
	14	I am preoccupied with the thought of having fat on my body.	13.8	9.6	13.3	11.3	12.0	15.8
	7	I particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes)	19.1	10.6	5.9	27.8	7.5	4.5
$F2\alpha = 0.69$	16	I avoid foods with sugar in them.	16.5	4.8	10.1	32.3	1.5	4.5
	21	I give too much time and thought to food.	16.5	8.0	10.6	24.1	6.8	12.0
	1	I am terrified about being overweight.	21.3	6.9	38.3	22.6	15.0	45.1
	8	I feel that others would prefer if I ate more.	14.4	10.1	17.6	15.0	6.0	9.8
	13	Other people think that I am too thin.	16.5	11.7	14.9	16.5	12.0	10.5
	20	I feel that others pressure me to eat.	14.4	12.8	11.7	21.1	9.0	8.3
$F3\alpha = 0.62$	15	I take longer than others to eat my meals.	17.6	10.6	10.6	17.3	9.8	17.3
	6	I aware of the calorie content of foods that I eat.	22.9	12.8	23.4	21.1	9.8	18.0
	18	I feel that food controls my life.	17.6	11.2	19.7	15.0	8.3	18.0
	19	I display self-control around food.	14.9	16.5	44.1	20.4	26.3	35.3
	23	I engage in dieting behavior.	24.5	11.7	19.7	17.3	18.0	20.3
	24	I like my stomach to be empty.	12.2	3.7	9.0	17.3	5.3	6.8
$F4\alpha = 0.68$	25	I have the impulse to vomit after meals.	6.4	3.7	5.3	9.0	1.5	1.5
	17	I eat diet foods.	13.8	4.8	6.4	18.0	6.0	6.0
	9	I vomit after I have eaten.	4.3	2.7	3.7	3.8	1.5	2.3
	4	I have gone on eating binges where I feel that I may not be able to stop.	16.0	5.9	8.0	13.5	3.0	7.5
	3	I find myself preoccupied with food.	16.5	6.4	8.0	15.8	3.8	9.0
	26	I enjoy trying new rich foods.	-	27.1	30.9	-	18.8	30.8
$F7\alpha = 0.31$	12	I think about burning up calories when I exercise.	18.6	14.4	24.5	23.3	23.3	30.1
	5	I cut my food into small pieces.	29.8	12.8	12.8	41.4	18.8	12.0

lems among adolescents in many countries (Swanson et al. 2011; Darcy et al. 2012; Kessler et al. 2012; Allen et al. 2013; Raevuori et al. 2014). The Turkish community was also affected by this change (Bekar 2006; Sari 2006; Özdemir 2008; Tanriverdi et al. 2011).

The current study investigates the relation between the eating behaviors of adolescents and some parameters. Students' overall mean BMI was  $20.9 \pm 3.4$  kg/m<sup>2</sup>, that of boys was  $20.9 \pm 3.6$  kg/m<sup>2</sup>, and that of girls was  $21.0 \pm 3.0$  kg/m<sup>2</sup>. In terms of the body weights and percentile values, 11.5 percent were in the range of <15. percentile, 61.1 percent were in  $\geq 15$ . - <85. percentile and twenty-seven percent were in  $\geq 85$ . percentile.

Eating disorders as well as dieting are becoming increasingly common, predominantly among females (Bearman et al. 2006; Eapen et al. 2006; Latzer et al. 2007; DeLeel et al. 2009; Sab-

bah et al. 2009). The results of the study have a parallelism with other studies. Depending on the answers of boys and girls given to the statements with regard to eating behaviors (EAT-26) in the study, it was found the highest rates were the answer "always" for the statements of 5 (29.8%), 23 (24.5%), 7 (19.1%) and 22 (19.1%) by boys and the statements of 5 (41.4%), 16 (32.3%), 7 (27.8%), 21 (24.1%), 2 (21.8%) and 6 (21.1%) by girls. For the statement, "I enjoy trying new rich foods" (item 26), the highest rate was for those answering "often" (B: 30.9%, G: 30.8%). Also, the rate of girls answering the items 2, 5, 7, 11, 12, 16, 17, 19, 20 and 21 as "always" was higher than that of boys. It shows that the risk of having eating disorder behavior for girls is higher than that of the boys (Table 1). It may be explained by the fact that girls wish to be admired more than boys do, they tend to have high concerns and

**Table 2: Eat-26 scores based on certain variables (n=321)**

Variables	EAT-26 score				Statistics
	0-19		≤20		
	n	%	n	%	
<i>Gender*</i>					
Boys	102	54.3	86	45.7	$\chi^2=0.306$ df=1 p=0.580
Girls	68	51.1	65	48.9	
<i>Age*</i>					
12-14 years	78	47.3	87	52.7	$\chi^2=4.407$ df=1 p=0.036
15-18 years	92	59.0	64	41.0	
<i>BMI*(kg/m2)</i>					
<5	6	50.0	6	50.0	$\chi^2=8.846$ df=3 p=0.031
>5.-<15.	14	56.0	11	44.0	
>15.-<85.	115	58.7	81	41.3	
>85.	35	39.8	53	60.2	
<i>The Status of Parents' Being Obese**</i>					
Yes	91	53.5	87	57.6	$\chi^2=0.541$ df=1 p=0.462
No	79	46.5	64	42.4	
<i>The Status of Consuming Main Meal*</i>					
Always	176	71.0	72	29.0	$\chi^2=0.567$ df=2 p=0.753
Sometimes	44	69.8	19	30.2	
Never	6	60.0	4	40.0	

\*Row percentage, \*\*Column percentage

care more about their bodies. In some other studies, it was pointed out that the frequency and prevalence of eating disorders is higher in adolescent periods and among girls (Granillo et al. 2005; Moreno et al. 2006; Vialettes et al. 2006; Kaye 2008). Sepulveda et al. (2008) found that even if eating disorders were substantially more prevalent among girls, a high prevalence was also found among boys. It is showed that eating disorders have actually increased among boys.

EAT-26 test is used as the first step in the scanning period of eating disorder. At the end of the test, those having 20 and over should be guided to an expert (McCabe and Ricciardelli 2006). The overall score of the students with regard to EAT-26 scores, the rate of those having 0-19 was fifty-three percent and the ones having 20 and over was forty-seven percent (Table 2). EAT-26 mean score of the students was  $20.4 \pm 0.1$  (B:  $20.1 \pm 0.1$ ; G:  $20.7 \pm 8.7$ ).

Even though there is not enough information about the prevalence and frequency of eating disorders in Turkey, it was found that it was generally seen that boys and girls at the age of 12-18 (Kocabasoglu 2001). In the current study, it was found that 52.7 percent of the students at the age of 12-14 and forty-one percent of the students at the age of 15-18 had a risk for eating

disorder ( $p < 0.05$ , Table 2). In their study, Gargari et al. (2011) found a risk for eating behavior disorder for adolescents at the age of 15-18 at the rate of 49.1 percent.

Some studies showed that concerns over weight methods increased in adolescents with a BMI value under and over normality and the prevalence of eating disorders increased (Neumark-Sztainer and Hannan 2000; Field 2001; Iannaccone et al. 2016). Many previous studies have reported that obese and underweight individuals had a higher risk of suffering from eating disorders (Nowak et al. 2001; Örsel et al. 2004; Siyez and Uzbas 2006; Gonsalves et al. 2014). As for the EAT-26 scores of students in terms of BMI, fifty percent of the "thinner", forty-four percent of the "underweight", 41.3 percent of those with a "normal weight", 60.2 percent of "overweight" and "obese" had 20 and over (Table 2).

It is known that eating behaviors are familial. Heredity and genetics has shown that they play a role at the rate of twenty-five to forty percent for the factors. Parent obesity increases childhood obesity and adulthood obesity risk (Aksoydan 2012). In the current study, the rate of parent obesity is 55.5 percent. As given in Table 2, 57.6 percent of the students stating that their parents were obese and 42.4 percent of those

saying that their parents were not obese are in the risk of eating disorder (Table 2). Similarly, Özdemir (2008) and Günebak (2005) found a parallelism in a study carried out with adolescents between the BMI values of adolescents and BMI values of parents ( $p < 0.05$ ).

It is reported that adolescents with eating disorder behavior skipped meals to maintain weight control (Kavazidou et al. 2012). However, regularly consumed meals help adolescents make positive choices in their nutrition and support them in the adaptation to healthy nutrition. It is of importance that the adolescents in growing and development periods consume main meals regularly, be healthy adults and in terms of preventing possible chronic diseases (Bell and Morgan 2000). Upon the investigation of students' status of consuming main meal regularly, it was found that twenty-nine percent of those consuming every day, 30.2 percent of the ones consuming sometimes, forty percent of those never consuming had 20 and over EAT-26 (Table 2). This result shows that skipping meals in adolescents included in the research is an indicator of disordered eating.

### CONCLUSION

In this population-based study, it was found that the results were compatible with the literature. Girls had higher risk of eating disorders compared to boys. Obese and underweight adolescents were found to have higher risk of suffering from eating disorders. In addition, students aged between 12 to 14 years possessed higher risk of eating disorders. This may stem from the fact that this age range is the time period when the symptoms of adolescence are most visible. Moreover, it was found that risk of developing eating disorder rises with increasing rate of meal skipping.

### RECOMMENDATIONS

1. Adolescence is a period of time when teenagers are likely to develop poor eating habits, which may result in eating disorders. Those wrong behaviors may turn into obesity and diet related diseases in the long term. This makes it possible to define adolescence as a nutritionally vulnerable time period. Therefore, adolescence should be given more importance for a healthy life.
2. It is required that each country should have some methods to detect eating disorders depending on social, economic and cultural change, and some educational program should be arranged in order to create awareness at schools about eating disorders particularly during adolescence.
3. These educational programs, which should target negative BMI values, are to include the issues related to age, gender and self-esteem.
4. During school period, families should pay particular attention to make their children build healthy eating habits. This will play an important role in adopting such eating habits during adolescence and in the later years, which will contribute to improving public health in long term.

### REFERENCES

- Abbott BD, Barber BL 2010. Embodied image: Gender differences in functional and aesthetic body image among Australian adolescents. *Body Image*, 7: 22–31.
- Ackard DM, Vik N, Neumark-Sztainer D, Schmitz KH, Hannan P et al. 2008. Disordered eating and body dissatisfaction in adolescents with type 1 diabetes and a population-based comparison sample: Comparative prevalence and clinical implications. *Pediatric Diabetes*, 9(4): 312–319.
- Aksoydan E 2012. The importance of family and environmental factors in the development of obesity. In: Perihan Arslan, Ayhan Dag, Evrim Güngör Türkmen (Eds.): *All Aspects of Obesity: Prevention and Treatment Methods*. Istanbul: Cem Ofset, pp. 71–79.
- Allen KL, Byrne SM, Oddy WH, Crosby RD 2013. DSM-IV-TR and DSM-5 eating disorders in adolescents: Prevalence, stability, and psychosocial correlates in a population-based sample of male and female adolescents. *J Abnorm Psychol*, 122(3): 720–732.
- Bearman SK, Presnell, Martinez E, Stice E 2006. The skinny on body dissatisfaction: A longitudinal study of adolescent girls and boys. *Journal of Youth and Adolescence*, 35: 229–241.
- Becker AE 2004. Television, disordered eating, and young women in Fiji: Negotiating body image and identity during rapid social change. *Culture, Medicine and Psychiatry*, 28: 533–559.
- Bekar G 2006. *Anthropometric Measurements of Nutritional Status, Dietary Habits and the Identification of Dietary Patterns of the Adolescents Who Are Studying in Boarding and Day Schools*. PhD Thesis, Unpublished. Ankara: University of Gazi.
- Bell SK, Morgan SB 2000. Children's attitudes and behavioral intentions toward a peer presented as obese: Does medical explanation for the obesity make a difference? *J Pediatr Psychol*, 25: 137–145.
- Coskun F, Çepikkurt F 2010. Social physique anxiety and body image satisfaction levels of collegian danc-

- ers. *Pamukkale Journal of Sport Sciences*, 1(2): 17-24.
- Darcy AM, Doyle AC, Lock J, Peebles R, Doyle P et al. 2012. The eating disorders examination in adolescent males with anorexia nervosa: How does it compare to adolescent females? *Int J Eat Disord*, 45(1): 110-114.
- DeLeel ML, Hughes TL, Miller J, Hipwell A Theodore LA 2009. Prevalence of eating disturbance and body image dissatisfaction in young girls: An examination of the variance across racial and socioeconomic groups. *Psychol Sch*, 46: 767-775.
- Eapen V, Mabrouk AA, Bin-Othman S 2006. Disordered eating attitudes and symptomatology among adolescent girls in the United Arab Emirates. *Eating Behaviors*, 7: 53-60.
- Field F, Camargo C, Taylor CB, Berkey CS, Frazier AL et al. 1999. Overweight, weight concerns, and bulimic behaviour among boys and girls. *J Am Acad Child Adolesc Psychiatry*, 38: 754-760.
- Field AE, Camargo C, Taylor CB, Berkey CS, Roberts SB et al. 2001. Peer, parent, and media influences on the development of weight concerns and frequent dieting among preadolescent and adolescent girls and boys. *Pediatrics*, 107(1): 54-60.
- Flament MF, Henderson K, Buchholz A, Obeid N, Nguyen HNT et al. 2015. Weight status and DSM-5 diagnoses of eating disorders in adolescents From the community. *Journal of the American Academy of Child and Adolescent Psychiatry*, 54(5): 403-411.
- Gargari BP, Kooshavar D, Sajadi NS, Karami S, Behzad MH et al. 2011. Disordered eating attitudes and their correlates among Iranian high school girls. *Health Promotion Perspectives*, 1(1): 41-49.
- Garner DM, Garfinkel PE 1979. The eating attitudes test: An index of the symptoms of anorexia nervosa. *Psychological Medicine*, 9: 273-279.
- Gonsalves D, Hawk H, Goodenow C 2014. Unhealthy weight control behaviors and related risk factors in Massachusetts middle and high school students. *Maternal and Child Health Journal*, 18(8): 1803-1813.
- Granillo T, Rodriguez G, Carvajal S 2005. Prevalence of eating disorders in Latina adolescents: Associations with substance use and other correlates. *Journal of Adolescent Health*, 36(3): 214-220.
- Grogan S 2008. *Body Image, Understanding Body Dissatisfaction in Men, Women and Children*. New York, NY: Routledge.
- Günebak T 2005. *Some of the Anthropometric Measurements Used on 14-15 Year Old Girls and the Factors Effecting These Measurements*. PhD Thesis, Unpublished. Ankara: University of Hacettepe.
- Iannaccone M, D'Olimpio F, Cella S, Cotrufo P 2016. Self-esteem, body shame and eating disorder risk in obese and normal weight adolescents: A mediation model. *Eating Behaviors*, 21: 80-83.
- Ilhan MN, Özkan S, Aksakal FN, Aslan S, Durukan E et al. 2006. The frequency of possible eating disorders in a medical school students. *Journal of Psychiatry in Turkey*, 8(3): 151-155.
- Johnson F, Wardle J 2005. Dietary restraint, body dissatisfaction, and psychological distress: A prospective analysis. *J Abnorm Psychol*, 114: 119-125.
- Jones LR, Fries E, Danish SJ 2007. Gender and ethnic differences in body image and opposite sex figure preferences of rural adolescents. *Body Image*, 4(1): 103-108.
- Kakeshita IS, Almeida SS 2006. Relationship between body mass index and self-perception among University Students. *Rev Saude Publica*, 40(3): 497-504.
- Kavazidou E, Proios M, Liolios I, Nimatoudis I, Tsatsoulis A et al. 2012. Relationship between eating and social behaviours in a normal population. *Graduate Journal of Sport, Exercise and Physical Education Research*, 1: 31-46
- Kaye W 2008. Neurobiology of anorexia and bulimia nervosa. *Physiology and Behavior*, 94 (1):121-135.
- Kessler RC, Avenevoli S, Costello EJ, Georgiades K, Green JG et al. 2012. Prevalence, persistence, and sociodemographic correlates of DSM-IV disorders in the National Comorbidity Survey Replication Adolescent Supplement. *Arch Gen Psychiatry*, 69(4): 372-380.
- Kocabasoglu N 2001. Eating disorders. *New/Yeni Semposium Journal*, 39(2): 95-99.
- Latzer Y, Tzischinsky O, Asaiza F 2007. Disordered eating related behaviors among Arab schoolgirls in Israel: An epidemiological study. *International Journal of Eating Disorders*, 40: 263-270.
- McCabe MP, Ricciardelli LA 2006. A prospective study of extreme weight change behaviors among adolescent boys and girls. *Journal of Youth and Adolescence*, 35: 425-434.
- Ministry of Health Republic of Turkey 2006. *Dietary Guidelines for Turkey*. Ankara: Ministry of Health Republic of Turkey Publishing.
- Monir ZM., Khalifa AG, Hassaballa F, Tawfeek S, Abdelmonem M et al. 2010. Eating behavior and problems in Egyptian adolescents. Relation to dietary intake. *Journal of American Science*, 6(12): 1145-1159.
- Moreno MA, Ed MS, Smith MS 2006. Anorexia in a 14-year-old girl: Why won't she eat? *Journal of Adolescent Health*, 39(6): 936-938.
- Neumark-Sztainer D, Hannan PJ 2000. Weight-related behaviors among adolescent girls and boys. *Arch Pediatr Adolesc Med*, 154: 569-577.
- Neumark-Sztainer D, Levine MP, Paxton SJ 2006. Prevention of body dissatisfaction and disordered eating: What next? Eating disorders. *The Journal of Treatment and Prevention*, 16: 265-285.
- Neumark-Sztainer D, Wall M, Larson NI, Eisenberg ME, Loth K 2011. Dieting and disordered eating behaviors from adolescence to young adulthood: Findings from a 10-year longitudinal study. *J Am Diet Assoc*, 111(7): 1004-1011.
- Nisar N, Qadri MH, Fatima K, Perveen S 2009. Dietary habits and life style among the students of a private Medical University Karachi. *J Pak Med Assoc*, 59(2): 98-101.
- Nowak M, Crawford D, Büttner P 2001. A cross-sectional study of weight and shape-related beliefs, behaviors and concerns of North Queensland adolescents. *Aust J Nutr and Diet*, 58(3): 174-180.
- O'Dea JA, Abraham S 2002. Eating and exercise disorders in young college men. *Journal of American College Health*, 50: 273-278.
- Örsel S, Canpolat BI, Akdemir A, Özbay MH 2004. Comparison of body-image self-perception and BMI of dieting adolescents with those of non-dieters. *Türk Psikiyatri Derg*, 15(1): 5-15.

- Özdemir N 2008. *Examination of Nutritional Habits of Girl Students Who Currently Continue Their Education in High School and Their Condition of Satisfaction with Their Existent Weights*. PhD Thesis, Unpublished. Ankara: University of Gazi.
- Paxton SJ, Franko DL 2010. Body image and eating disorders. In: Michael A Cucciare, Kenneth R Weingardt (Eds.): *Using Technology to Support Evidence-based Behavioral Health Practices, A Clinician's Guide*. New York, NY: Taylor and Francis, pp. 151-168.
- Raevuori A, Keski-Rahkonen A, Hoek HW 2014. A review of eating disorders in males. *Curr Opin Psychiatry*, 27(6): 426-430.
- Ricciardelli LA, Mc Cabe MP 2011. Body image development in adolescent boys. In: Thomas F Cash, Thomas Pruzinsky (Eds.): *Body Image, A Handbook of Theory, Research and Clinical Practice*. New York, NY: The Guilford Press, pp. 85-92.
- Ross HE, Ivis F 1999. Binge eating and substance use among male and female adolescent. *Int J Eating Disorders*, 26: 245-260.
- Sabbah HA, Vereecken CA, Elgar FJ, Nansel T, Aasvee K et al. 2009. Body weight dissatisfaction and communication with parents among adolescents in 24 countries: International cross-sectional survey. *BMC Public Health*, 9: 1-10.
- Sari C 2006. *The Risky Health Behaviors of High School Students*. PhD Thesis, Unpublished. Istanbul: University of Marmara.
- Savasir I, Erol N 1989. Eating attitude test: An index of anorexia nervosa symptoms. *Turkish Journal of Psychology*, 7: 19-25.
- Sepulveda AR, Carrobbles JA, Gandarillas AM 2008. Gender, school and academic year differences among Spanish university students at high-risk for developing an eating disorder: An epidemiologic study. *BMC Public Health*, 8: 102.
- Siyez DM, Uzbas A 2006. The relationship between eating attitudes and family structure among university students. *New/Yeni Symposium Journal*, 44(1): 37-43.
- Swanson SA, Crow SJ, Le Grange D, Swendsen J, Merikangas KR 2011. Prevalence and correlates of eating disorders in adolescents: Results from the national comorbidity survey replication adolescent supplement. *Arch Gen Psychiatry*, 68(7): 714-723.
- Tanriverdi D, Savas E, Gönüllüoğlu N, Kurdal E, Balik G 2011. Determination of high school students' eating attitudes, eating behavior and self-esteem. *Gaziantep Medical Journal*, 17(1): 33-39.
- Thompson J, Stice E 2001. Thin-ideal internalization: Mounting evidence for a new risk factor for body-image disturbance and eating pathology. *Current Directions in Psychological Science*, 10: 181-183.
- Verplanken B, Velsvik R 2008. Habitual negative body image thinking as psychological risk factor in adolescents. *Body Image*, 5: 133-140.
- Vialettes B, Masat SC, Valéro R, Béliard S 2006. The refusal of treatment in anorexia nervosa, an ethical conflict with three characters: "The girl, the family and the medical profession" Discussion in a French legislative context. *Diabetes and Metabolism*, 32(4): 306-311.
- Wang Y, Liang H, Chen X 2009. Measured body mass index, body weight perception, dissatisfaction and control practices in urban, low-income African American adolescents. *BMC Public Health*, 9: 1-12.
- WHO 2007. WHO Child Growth Standards Geneva. From <www.who.int/childgrowth/en> (Retrieved on 8 October 2013).
- Yahia N, Achkar A, Abdallah A, Rizk S 2008. Eating habits and obesity among Lebanese university students. *Nutr*, 7: 32.

---

**Paper received for publication on June 2015**  
**Paper accepted for publication on June 2016**