

Weight Control of Adolescents or Practices Related to their Weight Loss: The Turkey Example

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ABSTRACT Incorrect weight control or weight loss practices in the adolescence period in which growth and development is at its highest speed can affect health in a negative way. In this research, it is aimed to determine the practices of adolescents related to maintaining body weight or losing weight. The research has been conducted in public primary and secondary schools located in 5 different regions of Turkey. A total of 826 adolescents of which 358 are boy and 468 are female students between the ages of 13 and 18, have been included in the research. Data has been gathered and statistically evaluated by applying a survey form to adolescents where demographic information and diet practices take place. It has been determined that 38.5% of adolescents had previously attempted practices related to weight maintenance or weight loss, and the most practiced three methods are respectively limitation on food consumption (71.1%), selecting low fat food (67.0%), and skipping meals (38.7%). No statistically significant difference was found between the behaviors of weight maintenance/loss according to genders, and boys were reported to use illegal weight-loss medication at higher rates. It has been determined that a majority of the adolescents haven't received any professional support and that they choose to practice a diet obtained from someone else or through the media. In conclusion, adolescents should be informed about healthy dieting practices by experts in terms of creating healthy generations.

INTRODUCTION

The adolescent period is a transition period that covers the transition from childhood to maturity in which growth and development is the fastest, sexual development and psychological maturation take place. World Health Organization (WHO) defines 10-19 ages as the adolescent period (Pekcan 2004). Turkey is a country where young population is quite dense. According to the data obtained from the 2010 population census by the Turkish Statistical Institute, the rate of adolescents in Turkey between the ages of 10-19 makes up 17.4% of the total population (TURKSTAT 2011).

In the adolescent period, the attention of adolescents is excessively focused on the fast growth and development of their own body. Adolescents who want a body that will be admired by both themselves and the people around them, also desire not to be different than their peers. Boys want to be tall, handsome and athletic while

females want to be pretty, attractive, tall and well-proportioned (Cagdas 2005). Despite having the values of the Normal Body-Mass Index, the number of adolescents desiring to lose weight because of various misperceptions and socio-cultural reasons is quite striking (Noss and Rady 2002). The gravity of the psychological and physical changes occurring in this period also reveals important problems affecting the sufficient and balanced diet of the adolescent. The primary problems related to the diet seen in the adolescent period are: weakness and obesity springing as a result of incorrect dieting practices (skipping meals, incorrect food choice, fast food consumption, practicing unhealthy diets) and insufficient physical activity, nutrition anemia's, tooth decays, bone defects, simple goiter and vitamin insufficiencies (Miller and Maropis 1998). An increase in the body weight not only invites a large number of health problems but also makes way to psychological disorders such as body image discontent. It is known that body image discontent arises from the difference between the ideal weight perception and the actual weight (Demir 2006). However, apart from the actual weight, perceived body appearance is also an important factor in the springing of a discontent. Individuals with normal figures and BMI are also seen to be unhappy and practicing strategies in order to change body

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size. This demonstrates that body image discontent is not only related with body weight. According to researchers, there are two important reasons for the springing of body image discontent. The first is the BMI being high, whereas the second is the pressure felt to be slim although the BMI is not high. If the figure of the individual is very different from the ideal figure desired, dissatisfaction of the figure spawns. As a result of body image discontent, the adolescent's tendency to practice unhealthy diet increases. While adolescents mostly make use of the media, friends and family in reaching unhealthy diets, the number of those consulting an expert is quite low (Spear 2002; Hasbay 2005).

Harmful weight control behaviors such as eating behavior disorders and unhealthy eating habits (very low calorie diets, vomiting as a result of overeating) and over laxative usage are problems that threaten the health and are encountered among adolescents, especially females, quite frequently (Koksal and Pekcan 2004).

Fast weight loss as a result of unconscious diet practices applied in order to get rid of surplus weight can affect the whole body, and can especially cause hormonal and metabolic disorders. Electrolyte disorders, hypoglycemic attacks, maturity delay, oligomenorrhea, amenorrhea, cortisone highness, lack of insulin like growth factor-I (IGF-I) and thyroid function disorders are the primary problems observed (Unal 2000).

Research conducted in the long term show that in addition to the negative effects on health, unhealthy diet practices are unable to secure weight loss or weight maintenance. In a longitudinal study, it has been determined that adolescents practicing an unhealthy diet method such as skipping meals and using weight reducing pills carry three times more risk of gaining weight after five years (Neumark et al. 2007).

This research is aimed to determine the practices devoted to weight maintenance or weight loss of 13-18 year old adolescents.

MATERIAL AND METHOD

Subject

This study, in which the diet practices of Turkish adolescents aged between 13 and 18, has been conducted in public primary and secondary schools in 5 different (TR1 Istanbul, TR4

East Marmara, TR5 West Anatolia, TR7 Central Anatolia and TR9 East Blacksea) NUTS (*nomenclature d'unités territoriales statistiques*) regions determined according to the demographic, social, cultural and economic differences between the various districts of the country (TUIK 2012; DPT 2012). With this objective, 1000 survey forms -200 to each NUTS region- have been sent to schools randomly chosen according to the random sampling method. The forms have been distributed to 8th, 9th, 10th and 11th grade students who are willing to participate during their counseling class and the students filled in the survey forms under the supervision of the Family Economics and Dietetics teachers, after required explanations being made and possible questions of the students being answered. After the separation of the incomplete or misused survey forms, a total of 826 survey forms (Boys 358, Girls 468) that could be used in the study have been evaluated under the scope of the research. The primary reason for conducting the study in different NUTS regions is to prevent an anticipated affect of the demographic, social, cultural and economical differences determined between regions on the research design.

Data Collection

Research data has been collected by the Family Economics and Dietetics teachers working in public primary and secondary schools by means of a face to face meeting technique. The survey form used as a data collection tool included questions related to the demographic and diet practices of adolescents. "dieting practices questions" used in this study was prepared utilizing survey form used in the study of Calderon et al. (2004). The consent of authors was taken to use this form in the present study. The pilot study of the survey form has been conducted on 23 students in a public secondary school in Ankara [TR511] which is a TR 5 West Anatolia province according to the NUTS classification. Questions in the survey form that are not understood or are misunderstood at the end of the pilot study have been altered to finalize the form.

Body Mass Index Measurement and Classification

For the determination of overweight and obesity, a body mass index [BMI] was used. BMI

was calculated from measurements of height and weight. Adolescents with BMI values that corresponded to a BMI 18.5 kg/m² were classified as underweight, adolescents with BMI values that corresponded to a BMI of 18.5 to 25 kg/m² were classified as normal weight, and adolescents with BMI values that corresponded to an adult BMI 25 to 30.0 kg/m² were classified as overweight and obese. In our statistical analysis, the obese group included the overweight group to facilitate evaluation of the data. Body height and weight measurements for 13-18 years age were conducted and classified according to the World Health Organization standards and made in triplicate by nutritionists.

Ethical Consent

Permission for the study was obtained before the collection of data, by contacting the high school's directorship and receiving approval. Participants were assured of the confidentiality of their responses and provided informed consent. All students gave their informed consent before their inclusion in the study.

Statistical Analysis

The data collected have been analyzed in the SPSS 13.0.1 for Windows 11.5 [Statistical package for social sciences SPSS INC, Chicago, IL., USA] packaged software. A Chi square test has been used in order to determine the simple frequency measurements demonstrating the adolescents' age, gender, height, weight, BMI values, their state of being on a diet, and arithmetic averages, differences of diet practices and methods according to gender. The level of significance for all statistical tests has been accepted as 0.01 and 0.05.

FINDINGS

Females made up 56.7% and boys made up 43.3% of the 13-18 age group adolescents accepted in the research concept. It has been determined that the socio-economical level of most of the participants were of middle level.

The population's age, weight, height, BMI and state of being on a diet are shown in Table 1. The average ages were 15.4 ± 1.47 years for boys and 15.6 ± 1.55 years for girls. The average BMI

values for boys and girls were 20.9 ± 2.85 kg/m² and 19.4 ± 2.33 kg/m², respectively.

Table 1: Characteristics of the study population

	Boys (n=358)	Girls (n=468)
	(Mean±SD)	
Age (years)	15.4±1.47	15.6±1.55
Weight (kg)	58.8±11.07	50.1±7.30
Height (cm)	167.5±10.44	160.6±7.72
BMI (kg/m ²)	20.9±2.85	19.4±2.33
Frequency (%)		
<i>BMI (kg/m²)^a</i>		
Underweight	79 (22.1)	239 (51.1)
Normal	256 (71.5)	204 (43.6)
Overweight	23 (6.4)	25 (5.3)
<i>On a Diet</i>		
Underweight	4 (26.7)	16 (45.8)
Normal	11 (73.3)	11 (31.4)
Overweight	-	8 (22.8)
Development Level According to Regions ^b		Frequency (%)
<i>1st Grade Developed Province</i>		258 (31.2)
TR100 Istanbul		120 (46.5)
TR511 Ankara		138 (54.5)
<i>2nd Grade Developed Province</i>		303 (36.7)
TR424 Bolu		176 (58.0)
TR721 Kayseri		127 (02.0)
<i>3rd Grade Developed Province</i>		265 (32.1)
TR901 Trabzon		125 (47.1)
TR521 Konya		140 (52.9)

^a(WHO 1989), ^b(TUIK 2012, DPT 2012)

Table 2 illustrates the behaviors demonstrated by adolescents in order to lose weight or maintain their weight. 38.5% of the adolescents have stated that they had previously attempted to lose weight. The rate of girls trying to lose weight (68.9%) was significantly different from the rate of boys (31.1%) (p<0.001). No difference was found between the behaviors towards weight loss and weight maintenance according to gender. However, boys (17.2%) were found to use illegal weight-loss medication at higher rates than girls (6.4%) (p<0.01). Moreover, eating only a little amount of food (71.1%), consuming low fat food (67.0%) and skipping meals (38.7%) are seen to be among the most selected three methods by adolescents in order to lose weight.

DISCUSSION

In this study the researchers found that the average BMI values for boys and girls were 20.9 ± 2.85 kg/m² and 19.4 ± 2.33 kg/m², respec-

Table 2: Dieting practice questions: Dieting history and behaviors on adolescents

	Frequency "Yes"	%	p/ χ^2
1. Have you ever try to loose weight? (n=826)			
Girls	219	68.9	<0.0001
Boys	99	31.1	
Total	318	38.5	
2. Do you consciously eat less than you want to control your weight?			
Girls	156	71.2	0.924
Boys	70	70.7	
Total	226	71.1	
3. Do you try to eat/purchase foods that are low in fat?			
Girls	146	66.7	0.859
Boys	67	67.7	
Total	213	67.0	
4. Do you often diet in an effort to control your weight?			
Girls	48	21.9	0.218
Boys	28	28.3	
Total	76	23.9	
5. Do you commonly skip meals to lose weight?			
Girls	84	38.4	0.860
Boys	39	39.4	
Total	123	38.7	
6. Do you count calories as a conscious means of controlling your weight?			
Girls	36	16.4	0.216
Boys	22	22.2	
Total	58	18.2	
7. Do you count grams of fat as conscious means of controlling your weight?			
Girls	42	19.2	0.833
Boys	18	18.2	
Total	60	18.9	
8. Do you deliberately take professional helpings as means of controlling your weight?			
Girls	48	21.9	0.396
Boys	26	26.3	
Total	74	23.3	
9. Do you ever vomit after you eat?			
Girls	23	10.5	0.698
Boys	9	4.1	
Total	32	10.1	
10. Have you ever used over-the-counter diet aids to lose weight?			
Girls	25	11.4	0.856
Boys	12	12.1	
Total	37	11.6	
11. Have you ever tried herbal teas or herbs to lose weight?			
Girls	58	26.5	0.883
Boys	27	27.3	
Total	85	26.7	
12. Have you ever followed a fad diet?			
Girls	20	9.1	0.067
Boys	16	16.2	
Total	36	11.3	
13. Do you ever use cigarettes smoking to control your weight?			
Girls	20	9.1	0.541
Boys	7	7.1	
Total	27	8.5	
14. Do you ever use illegal drugs such as amphetamines to control your weight?			
Girls	14	6.4	p<0.01

Table 2: Contd.....

	Frequency "Yes"	%	p/ χ^2
Boys	17	17.2	
Total	31	9.8	

^aQuestions 2-14 were asked only of those who answered "yes" to question 1; only "yes" responses are reported.

tively. According to Neyzi et al. (2008), BMI references for Turkish children, 71.5% of boys, 43.6% of girl students were classified as being in normal weight categories. Several of the students were overweight. Also, 22.1 % of boys and 51.1% of girls were found to be underweight. 7.5% of the female adolescents and 4.2% of the boy adolescents have stated that they were on a diet at the time of the research. It has been observed that 11 (31.4%) of the 35 female adolescents and again 11 of the 15 boy adolescents who stated that they were on a diet had a normal BMI.

In the researches (Ayranci et al. 2010; Erenoglu et al. 2006; Rakicioglu and Yildiz 2011; Polat et al. 2005) where the body weight of adolescents in Turkey between the ages of 11-24 according to their height is evaluated, it is seen that the rate of adolescents who are above the normal BMI limits - in other words overweight or fat - differ between 4.4% and 16.8%. In our study, this rate has been determined to be 9.8% in boys and 7.2% in females which are similar levels compared with prior studies. 7.5% of females and 4.2% of boys have stated that they were on a diet at the time of the research. It is interesting to see that 11 out of the 35 females and 11 out of the 15 boys who had stated that they were on a diet, actually had normal BMI levels. A study where the attitudes of Turkish adolescents towards dieting stated that a skinnier body was perceived to be as an ideal body type and that this perception steered adolescents into dieting (Canpolat et al. 2005). It has been found in another study (Orsel et al. 2004) that 43% of females and 18.3% of boys had the desire to be skinnier. Adolescents with normal BMI levels being in an effort to lose weight by dieting due to the "ideal is skinny" perception can also be the case in our study. It is known that family, peers and media play an important role in the perception that skinniness is the ideal body type. It has been stated that females practice unhealthy dieting more in order to reduce or protect their body weight. In a study (Ozmen et al. 2007) conducted on high

school students in Turkey, it has been determined that 6.5% of the students practiced a diet and likewise females dieted significantly more. Unhealthy dieting in the adolescence period where growth and development is at peak causes insufficient nutrition and malnutrition. A research examining the behaviors of adolescents related to weight control determined that when compared to girls demonstrating healthy weight loss behaviors, girls practicing unhealthy dieting consumed significantly less fruit, vegetable and corn group food and that amount of calcium, iron, vitamin A, C and B₆, folate and zinc (Neumark et al. 2004). In this research, 38.5% of the adolescents stated that they had practiced weight maintenance and practices related to weight loss. It has been seen that these practices are more than twice in girls than boys. According to a research conducted with primary and secondary students, 83% of the girls in North Caroline, USA stated that they practiced dieting previously whereas another study (Crow et al. 2006) demonstrated that 55.2% of the girls and 25.9% of the boys in Minnesota, and yet another research (Calderon et al. 2004) conducted in Los Angeles determined that 54.7% of the students practiced dieting previously.

It has been determined in the studies conducted that limitations in the consumption of nutrient are the most frequently practiced method among those used by students to alter their figure (Calderon et al. 2004; Lawrie et al. 2007). This study has also similarly demonstrated that "eating less" is the most frequent practiced method and that 71.1% of adolescents choose this method. Adolescents' choice to limit their food consumption on their own in this period when their growth and development is at peak can cause for energy and nutrition needs not to be met and this situation can negatively effect their growth and development.

The rate of those who chose to consume low fat food in order to maintain their weight has been found to be as 67%. A study (Calderon et al. 2004) conducted on high school students in Los Angeles determined that similar amount of students (64.8%) consume or purchase low fat food. This study has illustrated that the second most chosen method to maintain or lose weight is consuming low fat food. This is a positive behavior as long as students compensate their energy loss through consuming fruit and vegetables.

This study has also illustrated that skipping meals is the third most chosen method (38.7%) to maintain or lose weight after consuming low fat food. Similar results have been encountered in the literature as well (Calderon et al. 2004; Malinauskas 2006). Moreover, it has been determined that skipping breakfast is a more widely chosen method of weight maintenance in girls when compared with boys (Neumark et al. 2007; Lattimore and Halford 2003; Nowak 1998). A study conducted by Dwyer et al. (2001) showed that overweight individuals have only two meals a day whilst normal weight individuals eat three or more meals a day and demonstrated that skipping meals is not an efficient method for weight maintenance.

It has been determined that 63.2% of girls and 36.8% of boys practice dieting with frequent intervals. A study conducted by Orsel et al. (2004) with 531 high school students between the ages of 15 and 17 determined that 29.8% of girls and 8.3% of boys take their place in the group of those who practice frequent dieting.

18.2% of the adolescents taking place in the research have stated that they calculate the calories of the food they consume and that 18.9% calculate the fat content of the food they consume. In another study (Calderon et al. 2004), it has been found that the rate of those who calculate the calories of the food they consume is 31.4% while the rate of those who calculate the fat content of the food they consume is 41.9%.

Adolescents generally prefer diets that are practiced by others or provided from the media. The insufficiency and damages of these dieting practices that are not advised and followed by a dietician is indisputable. In our study, the rate of adolescents who seek professional help in order to lose or maintain weight is found to be only 23.3%. This makes it difficult to meet the nutrition needs of the adolescents. Apart from the energy and protein requirement that increases in this period, it is of great importance to meet the mineral and vitamin requirement. Malnutrition is an inevitable result if these are not sufficiently met. Practices where energy consumption is increased instead of limiting energy intake should be preferred. This will enable weight gaining to stop and losing weight will become easier.

10.1% of the adolescents in our research have stated that they deliberately spew out the things they have eaten in order to maintain weight. In

another research this rate has been found to be 1.7% (Ozmen et al. 2007). This unhealthy eating behavior can be an indication of malfunction.

11.6% of the adolescents have stated that they use diet additives that help weight loss, 11.3% practice diets that help fast weight loss, 9.8% use various pills banned by the Ministry of Health and 8.5% smoke. In a research that studied the dieting practices of university students in Lebanon and their weight satisfaction, it has been determined that there are unhealthy dieting practices such as smoking (26%), diet pills (4%) and laxative (8%) usage (Yahia et al. 2011). Another study has found the rate of smokers as 9% (Malinauskas 2006). Although our study has found that unhealthy dieting practices such as weight-loss medication and deliberately vomiting are more common among girls than boys, another study has demonstrated that the number of boys demonstrating these practices in the last year is higher in boys than girls (Gulsen and Altinok 2010). In addition, the rate of boys using illegal weight-loss medication in order for weight maintenance or weight loss were found to be higher than the rate of girls ($p < 0.01$).

CONCLUSION

In this research in which weight maintenance or practices to lose weight are examined, it has been seen that more than half of the girls are skinny and that only 5.3% are in the overweight group. Moreover, it has been seen that 45.8% of the girls practicing a diet are already skinny. It has been determined that most of the adolescents practice unconscious dieting without seeking professional help and the first three of these practices are limiting nutrition consumption, consuming low fat food and skipping meals. Especially limiting nutrition consumption and skipping meals can cause serious problems in young girls who are in puberty when iron loss is observed due to the menstrual cycle in which growth and development is continuing, bone development and density is increasing. These practices can cause defects in the body energy balance, increase in the osteoporosis risk, anemia, decrease in interest and learning during lessons, disorders in the bone mineralization and various psychological problems. In addition, weight-loss medication should certainly not be

used due to their unknown future effects on adolescents and their cause to energy and nutritional deficiency. Choosing to consume low fat food on the hand can be said to be a positive behavior if the energy gap is compensated through the increase in consumption of fruit and vegetables.

The limitation of this study is that, education intervention was conducted with limited number of subjects who were attending public primary and secondary schools located in 5 different regions of Turkey. Thus the result of the study can not be generalized to students at large. However, this research is important since it includes a more populated sample group compared to the similar studies conducted in Turkey, the sample groups of the study were chosen from 5 different statistical regions of Turkey in order to have familiar socio-demographical characteristics, and it presents new information about weight maintenance and weight loss practices of Turkish adolescents.

RECOMMENDATIONS

In summary, changing social, economic, cultural and traditional structure of a society may also affect bodily perceptions of individuals. In Western societies, the concept of beauty is based on body weight and shape and having a "thin" body is considered beautiful. Adolescents who are at the peak of their growth and developmental period are advised to practice their weight maintenance and weight loss activities under the supervision of a dietician and they are advised to support the practice with physical activity in order to live a healthy life. It is recommended that a training program for correcting the diet habits of adolescents and reinforcing their knowledge about nutrition and health areas should be developed and implemented, and similar studies should be repeated at certain intervals. Non-governmental organizations working in the field of adolescents and nutrition should be introduced to adolescents. The objectives of their activities should be explained in detail. In this way adolescents' awareness in issues of healthy nutrition and losing weight can be increased.

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