

Food choice criteria in adolescents according to body image

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Abstract

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Adolescent obesity has increased worldwide, while the percentage of adolescents who are dissatisfied with their body image has also increased. Disturbed body image is an important criterion for eating disturbances. The objective of this study was to examine the effect of body image on the food choice criteria of adolescents. The participants consisted of 1003 students (495 boys and 508 girls) from High and Junior High schools in Thessaloniki, with mean age of 14.6 ± 1.5 years. The sample for our study was chosen with stratified sampling plan. Data was collected with the use of a questionnaire regarding the food choice criteria, based on the studies of Lappalainen *et al.* (1998), Steptoe *et al.* (1995), Contento *et al.* (1995) and Worsley and Leitch (1981). Body image was assessed using Contento *et al.* (1995) questionnaire. The difference between desired and real body weight was used to estimate the desire of body weight change. The SPSS computer program was used for the statistical analysis. Chi square (X^2) test was used to assess the differences between sub-groups. Statistical significance was set at $p < 0.05$. Results showed that 35.9% of the adolescents (45% females and 26.6% males) wanted to lose weight, while 14% (6.3% females and 22% males) wished to gain weight. The remaining 50.1% (48.7% females and 51.4% males) wanted to maintain their body weight. Food appearance constituted a more important criterion for the adolescents who wished to gain weight compared to those who wished to maintain their weight and the adolescents who wanted to lose weight. Dietary value

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was more important for the individuals who wanted to lose weight, than those who wished to maintain their weight and those who wished to gain weight. Overall, the majority of the girls was dissatisfied with their body image and wanted to lose weight. More boys wished to gain weight compared to girls. Adolescents who wished to lose weight seemed more concerned about food dietary value than appearance compared to the others. Nutrition counseling is essential in order to prevent health disturbances.

Key words : food choice criteria, body image, adolescents

Body image disturbance can constitute image disturbance of concrete point of body as nose, hair, mouth, genital organs and waist and hip circumference (Heinberg *et al.*, 1996). Perception of external appearance requires intellectual and sentimental function (Rees, 1992) and can be composed from three characteristics: a) perception of body size, b) subjective satisfaction and concern for body size and c) behavior, so that negative body image can be avoided. Consequently, eating disturbance can be related with one or more from the above characteristics (Heinberg *et al.*, 1996). More specifically, adolescents experience rapid physiological changes in their body, because of growth. These changes are also accompanied by the appearance of secondary characteristics of sex, which impends body image perception (Rees, 1992). Disturbed body image can be owed in the fact that individuals do not conceive changes in their body in the rhythm that these changes take place (Thompson *et al.*, 1991). Girls of adolescent age reported higher dissatisfaction with their body image compared to boys (Fox *et al.*, 1994). Also, female adolescents, in particular, are frequently obsessed trying to imitate certain models and can be led to eating disturbances (Rees, 1992). The objective of this study was to examine the effect of body image on the food choice criteria of adolescents.

Subjects and Methods

The participants were 1003 students (495 boys and 508 girls) from High and Junior High schools in Thessaloniki, with mean age of 14.6 ± 1.5 years. The sample for our study was chosen with stratified sampling method. Thessaloniki was divided in three sections, eastern, western and

central. Two schools (one High and one Junior High) of each section were selected. The study was carried out after the approval of the Greek Ministry of Health.

The data was collected with the use of a questionnaire regarding the food choice criteria, based on the studies of Lappalainen *et al.* (1998), Steptoe *et al.* (1995), Contento *et al.* (1995) and Worsley and Leitch (1981). Body image was assessed using Contento *et al.* (1995) questionnaire. The difference between desired and real body weight was used to estimate the desire of body weight change.

Subjects were submitted to anthropometric measurements. Skin-fold thicknesses at two sites (triceps and sub-scapular) were measured using a Harpenden skin-fold caliper (British Indicator, Ltd, London). Skin-folds were measured in duplicate and the average measurement was used. In case there was a discrepancy of above 10% between duplicate measurements, the measurement was repeated. Percentage body fat was estimated from skin-fold measurements, using the formula of Slaughter *et al.* (1988). The sample was categorized to low fat level, normal fat level and above fat level, according to Lohman standards (1992).

The SPSS (SPSS Inc. Rel. 10.0) computer program was used for the statistical analysis. Chi square (X^2) test was used in order to assess the differences between subgroups. Statistical significance was set at $p < 0.05$.

Results

A higher percentage of adolescents (35.9%) wanted to loose weight, while 14% of them wished to gain weight. The remaining 50.1% wanted to maintain their body weight. An average of 9.7% of

the adolescents had below average body fat (14.1% boys and 5.4% girls). Overweight adolescents were 13.8%, according to BMI, and 20.5% according to body fat level.

Body weight change desire, according to obesity status, for both sexes, and for boys and girls, separately, is presented in Tables 1, 2 and 3, respectively.

Table 1. Adolescents' body weight change desire, according to obesity status.

Obesity status	Adolescents who wished to gain weight (%)	Adolescents who wished to maintain weight (%)	Adolescents who wished to lose weight (%)
Low fat level	43.7** ^a	50.0** ^a	6.3** ^a
Normal fat level	13.8** ^b	56.6** ^b	29.6** ^b
Above normal fat level	2.0** ^c	29.2** ^c	68.8** ^c

** a, b, c Significant difference between groups, $p < 0.001$

Table 2. Boys' body weight change desire, according to obesity status.

Obesity status	Adolescents who wished to gain weight (%)	Adolescents who wished to maintain weight (%)	Adolescents who wished to lose weight (%)
Low fat level	49.3** ^a	46.4** ^a	4.3** ^a
Normal fat level	24.1** ^b	59.7** ^b	16.2** ^b
Above normal fat level	3.2** ^c	35.7** ^c	61.1** ^c

** a, b, c Significant difference between groups, $p < 0.001$

Table 3. Girls' body weight change desire, according to obesity status

Obesity status	Adolescents who wished to gain weight (%)	Adolescents who wished to maintain weight (%)	Adolescents who wished to lose weight (%)
Low fat level	29.6** ^a	59.4** ^a	11.1** ^a
Normal fat level	6.1** ^b	54.3** ^b	39.5** ^b
Above normal fat level	0.0** ^c	18.4** ^c	81.6** ^c

** a, b, c Significant difference between groups, $p < 0.001$

Table 4. Dietary criteria according to body weight change desire

Dietary criteria	Adolescents who wished to gain weight (%)	Adolescents who wished to maintain weight (%)	Adolescents who wished to lose weight (%)
Food Appearance (%yes)	70.7* ^a	66.9* ^a	60.4* ^a
Dietary value (%yes)	31.4* ^b	39.9* ^b	46.5* ^b

* a, b Significant difference between groups, $p < 0.05$.

The dietary criteria according to body weight change desire for all the students are presented in table 4.

Discussion and Conclusion

Adolescents in Thessaloniki wanted to lose weight in higher percentage (35.9%) than gain weight (14%). Females (45%) were more likely to desire lower body weight than males (26.6%). A higher percentage of males (22%) compared with females (6.3%) wanted to increase their body weight. Half of the sample (50.1%) wanted to maintain their body weight. It is worth mentioning that only 13.8% of adolescents had body mass index above 25. More overweight girls wanted to loose weight than boys. More normal-weight girls than normal weight boys desired a thinner body. Fewer low-weight girls wanted to gain weight than boys.

According to Middleman *et al.* (1998), a higher percentage of girls (42%) compared to boys (22.3%) believed that they were overweight. Rosen and Gross (1987) reported that male adolescents had triple-fold probability to wish higher body weight compared to girls (28.4% vs 9.1%). According to other scientists, female adolescents have more often than their male siblings unrealistic opinion for their body image, believing that they are overweight (Pritchard *et al.*, 1998; Dwyer, 1993). This is due to the fact that more girls than boys wish to be thinner, i.e. to have smaller body size (Contento *et al.*, 1995).

Body image problem decreased during puberty (Davies and Furnham, 1986). Mean value estimates of exterior appearance is decreased both in black and white girls from 9 to 14 years of age, while at the same time an increase in mean value of social acceptance is observed (Brown *et al.*, 1998). Only 7% of men and the 18% of women reported minimal interest for their exterior appearance (Heinberg *et al.*, 1996). Body image evaluation is related to self-esteem and dietary habits of female adolescents (Casper and Offer, 1990; Grant and Fodor, 1986).

Dietary disturbances have taken epidemiological dimensions nowadays, in female adolescents and adult women in particular. Female adolescents are prone to the development of dietary disturbances (bulimia nervosa and anorexia nervosa) (Meredith, 1996; Heinberg *et al.*, 1996). About 90% of these disturbances concern females (Meredith, 1996).

Results of the present study indicated that there was an apparent effect of psychological factors on dietary criteria. Thus, food appearance constituted more important criterion for selecting foods ($p = 0.047$) in the adolescents who wished to increase their body weight (70.7%), compared to those who wished to maintain their body weight (66.9%) or to loose it (60.4%). Also, adolescents who wanted to maintain their body weight had a higher possibility (39.9%) to select foods based on their dietary value compared to those who wished to gain weight (31.4%). This possibility increased even more ($p = 0.007$) in the individuals that wanted to decrease their body weight (46.5%).

Therefore, it appears that the majority of girls in the present study indicated that they were dissatisfied with their body image and they wanted to lose weight. About 45% of girls wanted to lose weight, whereas only 10.4% of these girls were overweight (BMI >25). More boys wanted a higher body weight than girls. Adolescents who wished to lose weight used more food dietary value and less food appearance as dietary criteria compared to their siblings. Thus, nutrition counseling is vital for adolescents in order to maintain their health status for the time being and to avoid health disturbances in the future.

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