Evaluation of Obese Adolescents with the Rosenberg Self-Esteem Scale

Short title: Self-esteem in obese adolescents

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Abstract
INTRODUCTION: Obesity, which is a global public health problem characterized by excessive fat deposition in the body, not only causes physical problems, but also can lead to psychopathological problems such as anxiety, depression, and lack of self-confidence. Our aim in this study is to investigate the psychopathological problems that may accompany obesity in adolescents.
METHODS: Thirty-three volunteer patients who applied to the pediatric outpatient clinic due to obesity (study group); and 30 volunteers with normal percentiles who did not have any chronic diseases (control group) applied for normal routine examinations were included in the study. Adolescents with a body mass index of 95% and above according to their gender and age were defined as obese. In adolescents of the control group, BMI was between the 5th and <85th percentile for their age and gender. All participants were surveyed with the Rosenberg self-esteem scale by face-to-face interviews, with the subtitles of self-esteem, anxiety, depression, and isolation.
RESULTS: The study consisted of 63 adolescent patients, 33 (52.4%) female and 30 (47.6%) male, aged between 10 and 16 years. Self-esteem and anxiety were significantly different between the groups (p<0.05). However, there was no statistical difference between the groups in terms of depression levels and isolation (p>0.05).
DISCUSSION AND CONCLUSION: Although strategies to prevent and combat obesity are important in adolescents, appropriate counseling should also be provided in terms of psychopathologies such as anxiety and low self-esteem.
Keywords: Adolescent, obesity, psychopathology

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Conclusion: Although strategies to prevent and combat obesity are important in adolescents, appropriate counseling should also be provided in terms of psychopathologies such as anxiety and low self-esteem.

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INTRODUCTION

Obesity is an energy metabolism disorder that can lead to physical and mental problems caused by excessive fat statement in the body. Obesity is a complex disease and results from an imbalance between calorie intake and consumption (1, 2). Obesity, which can begin in childhood, is an important public health problem with social and economic scopes that significantly affects morbidity and mortality. The World Health Organization defined obesity in children as one of the most important problems of the 21st century. It has been reported that 340 million children and adolescents aged between 5 and 19 years are affected by excessive weight and obesity (3).

One of the comorbid diseases accompanying obesity is psychosocial problems, anxiety, and depression. In some studies, it has been observed that childhood depression, anxiety, and obesity show a parallel course (4, 5). The study aims to evaluate adolescent patients with obesity using the Rosenberg self-esteem scale and to provide these patients with the necessary support with a multidisciplinary approach.

MATERIALS and METHOD

This study was initiated after the clinical research ethics committee of Okmeydani Trainin and Research Hospital's decision dated 08/01/2019 and numbered 1092. Consent for the study was obtained from both adolescents and their families. Thirty-three volunteer patients who applied to the pediatric outpatient clinic due to obesity (study group); and 30 volunteers with normal percentiles who did not have any chronic diseases (control group) applied for normal routine examinations according to the monitoring program of the Ministry of Health were included in the study. Obesity was determined according to body mass index (BMI) as a criterion. BMI was calculated as equal to the body weight (in kilograms) divided by the height (in meters) squared (kg/m^2). Adolescents with a body mass index of 95% and above according to their gender and age were defined as obese (6). In the control group patients, BMI was between the 5th and <85th percentile according to their gender and age.

Four subtitles of the Rosenberg Self-Esteem Scale, which was adapted into Turkish by Cuhadaroglu and consisted of 12 subtitles, were administered to all participants (7,8). These sub-headings, including self-esteem, depressive affect, psychosomatic symptoms, and psychic isolation, were applied through face-to-face interviews with a questionnaire. Those who had any underlying chronic diseases and were under any type of medications, who had any genetic

syndrome, who refused to participate in the study, and who could not read and write in Turkish were excluded from the study.

Statistical Analyses

For evaluating the results obtained in the study, IBM SPSS Statistics 22 (IBM SPSS, Turkey) program was used for statistical analysis. While analyzing the data, the conformity of the parameters to the normal distribution was evaluated with the Shapiro Wilks test; and it was determined that the parameters did not show normal distribution. For this reason, the Mann Whitney U test was used for the comparison of quantitative data and parameters between two groups as well as descriptive statistical methods (mean, standard deviation, frequency). Chi-square test, Fisher Freeman Halton Test, and Continuity (Yates) Correction were used to compare qualitative data. Significance was set at the p<0.05 level.

RESULTS

The study was conducted on 63 children, 33 (52.4%) girls and 30 (47.6%) boys, aged between 10 and 16 years. The mean age of the children was 13.79±1.17 years, and the median age was 14 years. Children were evaluated under two groups as "Obese" (n=33) and "Control" (n=30). There was no statistically significant difference between the groups in terms of mean age and gender distribution (p>0.05).

The comparison of the scores of both groups is summarized in Table 1. Self-esteem and anxiety scores were significantly different between the groups (p<0.05). There was no difference in terms of isolation levels and depression. Although there was no significant difference in terms of depression, the level of depression was higher in the obese group. Both groups were compared for these scores in terms of genders in Table 2. There was no significant difference between the scores in both the obese and control groups between the genders.

As can be seen in Table 3, there was a significant difference in terms of self-esteem and anxiety levels when the groups were classified according to the scores.

DISCUSSION

Although there was no significant difference regarding the depression scores between the obese and control groups in our study, depression levels were found to be higher in the obese group. It has been shown in some studies that obese children show more depression and anxiety symptoms than their normal-weight peers (9, 10). In a study by Lindberg et al., the rate of depression was reported to be statistically significantly higher in obese children and adolescents (11). Consistent with these findings, Gibson et al. (12) showed that there was an association between increased (age- and gender-specific) BMI and higher depression levels in primary school-aged children. Mustillo et al. (13) found a relationship between obesity and depression in boys aged between 9 and 16 years. Anderson et al.(14) found a significant relationship between obesity and major depression in adolescent girls. In another meta-analysis, it was reported that obesity increases the risk of depression and that depression increases the probability of developing obesity. For this reason, it would be beneficial to monitor overweight and obese patients for depression risk and to evaluate patients with depression for obesity (15). In this study mentioned, although there was no significant difference in terms of depression level, the depression score was found to be higher in the obese group. Due to the cross-sectional nature of our study, other accompanying psychopathologies would be detected with longer follow-up and new interviews to be repeated.

In this study, the level of anxiety was found to be significantly higher in obese adolescents. Consistent with the literature, it was found that obese children more frequently experience internal mental distress such as anxiety (16-19). If these patients do not receive support, they will probably continue to experience various forms of internal mental illnesses in the next

stage. Contrary to our study, there are also studies stating that the relationship between anxiety and obesity is not clear (20).

A meta-analysis of obese adolescents showed that the overall prevalence of depression and anxiety symptoms among overweight/ obese children and adolescents was 21.73% and 39.80%, respectively, and 17.96% and 13.99%, respectively, among non-overweight/non-obese children and adolescents (21). In a study by Topçu et al. (22) higher levels of anxiety, depression, and lack of self-confidence were determined in obese adolescents. Although we found higher levels of anxiety in our study in the obese group, similar to the literature, we did not find a significant difference between the groups in terms of depression rates. The fact that the scales we used were different and the numbers in the patient groups were not similar may have created the difference in terms of results.

Adolescents are very interested in their appearance with the effect of hormones during the transition to adulthood. Since emotional relationships can also be experienced during this period, the desire to be liked/approved becomes prominent (23-25). For this reason, those who are overweight or obese have more self-confidence problems. Another important finding in our study was that the self-esteem of the obese group was significantly lower than that of the control group. Similarly, in the study of Garcia et al. (26) in a large adolescent group and the study of Colpan (27) et al. on adolescents, it was reported that obese and overweight individuals had lower self-esteem and had more trouble with their peers.

In our study, we did not find any difference between the two groups in terms of social isolation. However, we believe that obese adolescents will be more isolated in the following periods due to the higher anxiety and lower self-esteem levels. In some studies, it has been observed that lack of self-esteem is associated with social isolation (28, 29).

Our study has some limitations. The sample size of this study is relatively small. Moreover, since our study is a cross-sectional study, it does not show how the psychological effects of obesity will change over time. Whether patients with high anxiety rates will experience more depression over time or whether these patients will experience more social isolation can only be understood with follow-up. The design of future studies on this subject should be arranged with longer follow-up periods.

In conclusion, obesity and its effects continue to manifest themselves as a public health problem. In practice, healthcare professionals must recognize that obese adolescents compromise a specific group. While struggling with obesity in adolescents, they should also be provided with the necessary psychological support.

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Table 1: Evaluation of the groups in terms of self-esteem, depression, anxiety, and isolation scores

	Obese (n:33) Mean±SD (median)	Control (n:30) Mean±SD (median)	p
Self-Esteem Score	1.83±1.39 (1.83)	0.86±0.94 (0.5)	0.000*
Depression Score	2.36±1.71 (2)	1.5±1.33 (1)	0.024*
Anxiety Score	5.18±2.01 (5)	3.57±2.37 (3)	0.002*
Isolation Score	1.21±0.82 (1)	0.77±0.86 (0.5)	0.040*

*Mann Whitney U Test   * p<0.05*

Table 2: Comparison of the groups in terms of self-esteem, depression, anxiety, and isolation scores regarding genders

Groups	Gender	Self-Esteem Score Mean±SD (median)	Depression Score Mean±SD (median)	Anxiety Score Mean±SD (median)	Isolation Score Mean±SD (median)
Obese	Female	2.05±1.18 (2)	2.59±1.62 (2)	4.88±2.12 (5)	1.29±0.92 (2)
	Male	1.6±1.59 (0.7)	2.13±1.82 (1.5)	5.5±1.9 (5.5)	1.13±0.72 (1)
	p	**0.102**	**0.246**	**0.352**	**0.427**
Control	Female	1.04±1.2 (0.6)	1.5±1.55 (1)	4.06±2.29 (4)	0.88±0.89 (1)
	Male	0.67±0.47 (0.5)	1.5±1.09 (1)	3±2.42 (2.5)	0.64±0.84 (0)
	p	**0.350**	**0.663**	**0.101**	**0.455**

Mann Whitney U Test

Table 3: Evaluation of the groups in terms of self-esteem, depression, anxiety, and isolation levels according to the scores

		Obese n (%)	Control n (%)	p
Self-Esteem	High	15 (%45.5)	24 (%80)	[1]0.012*
	Medium	16 (%48.5)	5 (%16.7)	
	Low	2 (%6.1)	1 (%3.3)	
Depression	No depression	2 (%6.1)	6 (%20)	[1]0.087
	Mild	15 (%45.5)	18 (%60)	
	Moderate	10 (%30.3)	4 (%13.3)	
	Severe	6 (%18.2)	2 (%6.7)	
Anxiety	Mild	1 (%3)	10 (%33.3)	[2]0.001*
	Moderate	10 (%30.3)	12 (%40)	
	Severe	22 (%66.7)	8 (%26.7)	
Isolation	Mild	16 (%48.5)	21 (%70)	[3]0.140
	Severe	17 (%51.5)	9 (%30)	

[1]*Fisher Freeman Halton Test* [2]*Chi-square test*   [3]*Continuity (yates)correction* * *p<0.05*