



Evaluation of Obese Adolescents Using the Rosenberg Self-esteem Scale

Hüseyin Dağ^{1,2}, Emine Türkkan²

¹Istanbul University Institute of Child Health, Department of Pediatric Basic Sciences, Division of Adolescence Health, İstanbul, Turkey

²University of Health Sciences Turkey, Prof. Dr. Cemil Taşcıoğlu City Hospital, Clinic of Pediatrics, İstanbul, Turkey

Abstract

Objective: Obesity, is a global public health problem characterized by excessive body fat deposition in the body, it causes physical as well as mental problems but also such as anxiety, depression, and low self esteem. The aim of this study was to investigate the psychological problems associated to adolescent obesity.

Methods: Thirty-three obese volunteer patients of the pediatric outpatient clinic, and thirty non-obese routine volunteers were included in the study. Adolescents with a body mass index (BMI) of 95% and above with respect their gender and age were considered obese. In adolescents of the control group, BMI varied between the 5th and <85th percentile for their age and gender. All participants were evaluated using the Rosenberg self-esteem scale during direct interviews, with outcomes being of self-esteem, anxiety, depression, and isolation.

Results: The study included 63 adolescents, 33 (52.4%) females and 30 (47.6%) males, aged between 10 and 16 years. Self-esteem and anxiety were varied significantly between the groups ($p < 0.05$). However, there was no statistically significant difference between the groups regarding depression and social isolation ($p > 0.05$).

Conclusion: Although adolescent obesity prevention strategies are important, appropriate counseling should also be provided concerning mental health issues like anxiety and low self-esteem.

Keywords: Adolescent, obesity, psychopathology

INTRODUCTION

Obesity is a metabolic disorder associated to physical and mental problems resulting from excessive body fat deposition. Obesity is a complex disorder resulting 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 influence morbidity and mortality. The World Health Organization defined childhood obesity 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 overweight and obesity (3).

One of the comorbid diseases accompanying obesity is psychosocial problems, anxiety, and depression. Some studies have delineated that childhood depression, anxiety, and obesity show a parallel course (4,5). The study aim was to evaluate obese adolescents using the Rosenberg self-esteem scale and to provide these patients with the necessary support through a multidisciplinary approach.

METHODS

This study was conducted after ethical approval from the Clinical Research Ethics Committee of Okmeydani Training and Research Hospital's decision dated 08/01/2019 and numbered 1092 was



Address for Correspondence: Emine Türkkan, University of Health Sciences Turkey, Prof. Dr. Cemil Taşcıoğlu City Hospital, Clinic of Pediatrics, İstanbul, Turkey

Phone: +90 505 681 77 90 **E-mail:** turkkanemine92@gmail.com **ORCID ID:** orcid.org/0000-0002-5126-7843

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issued. Inform consent was obtained from both participating adolescents and their families. Thirty-three obese volunteers of the pediatric outpatient clinic (study group); and thirty non-obese healthy routine volunteers with normal percentiles and without any chronic diseases (control group) 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 squared meters (kg/m^2). Adolescents with a BMI of 95% and above with respect to their gender and age were defined as obese (6). In the control group, BMI was between the 5th and <85th percentile according to their gender and age.

Four outcomes of the Rosenberg Self-Esteem scale, translated into Turkish by Çuhadaroglu and consisted of 12 outcomes, were administered to all participants (7,8). These sub-headings, including self-esteem, depressive affect, psychosomatic symptoms, and psychosocial isolation, were applied through direct interviews using a questionnaire. Participants with any underlying chronic diseases and under treatment, presenting any genetic disorder, who refused to participate in the study, and who could not read and write Turkish were excluded from the study.

Statistical Analysis

IBM SPSS Statistics 22 (IBM SPSS, Turkey) software was used for statistical analysis. During data analysis, the conformity of the parameters to the normal distribution was evaluated using the Shapiro-Wilks test; and the parameters did not follow normal distribution. Thus, the Mann-Whitney U test was used for the comparison of quantitative data and parameters between two groups as well as descriptive analysis (mean, standard deviation, frequency). Chi-square test, Fisher Freeman Halton test, and continuity (yates) correction were used for qualitative data analysis. The Significance level was set at the $p < 0.05$ level.

RESULTS

The study included 63 children, 33 (52.4%) girls and 30 (47.6%) boys, aged between 10 and 16 years. The mean and median ages were 13.79 ± 1.17 years, and 14 years respectively. 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 score comparison of both groups is illustrated in Table 1. Self-esteem and anxiety scores were significantly different

between groups ($p < 0.05$). There was no statistical disparity in terms of social isolation and depression. Even though there was no significant difference with respect to depression, the depression level was higher in the obese group.

Both groups were compared for these scores with reference to gender in Table 2. There was no significant difference between the scores in both the obese and control groups as regards to gender.

As illustrated 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

Despite the fact that 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 revealed in some studies that obese children display more depression and anxiety related symptoms than their normal-weight peers (9,10). In a study by Lindberg et al. (11), the rate of depression was reported to be statistically significantly higher in obese children and adolescents. Consistent with these findings, Gibson et al. (12) conveyed 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) revealed 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 in return increases the probability of developing obesity. As a result, it would be beneficial to monitor overweight and obese patients for depression risk and as well evaluate patients with depression for obesity (15). In this study mentioned, despite the fact that 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,

Table 1. Group evaluation in terms of self-esteem, depression, anxiety, and isolation scores

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

* $p < 0.05$, Mann-Whitney U test, SD: Standard deviation

Table 2. Group comparison with respect to self-esteem, depression, anxiety, and isolation scores regarding genders

Groups	Gender	Self-esteem score	Depression score	Anxiety score	Isolation score
		Mean ± SD (median)	Mean ± SD (median)	Mean ± SD (median)	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, SD: Standard deviation

Table 3. Group evaluation in regards to self-esteem, depression, anxiety, and isolation levels according to the scores

		Obese	Control	p
		n (%)	n (%)	
Self-esteem	High	15 (45.5%)	24 (80%)	*0.012*
	Medium	16 (48.5%)	5 (16.7%)	
	Low	2 (6.1%)	1 (3.3%)	
Depression	No depression	2 (6.1%)	6 (20%)	*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%)	*0.001*
	Moderate	10 (30.3%)	12 (40%)	
	Severe	22 (66.7%)	8 (26.7%)	
Isolation	Mild	16 (48.5%)	21 (70%)	*0.140
	Severe	17 (51.5%)	9 (30%)	

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

other accompanying psychological disorders would be detected with longer follow-up periods and new interviews repeated.

In this study, the anxiety level was found to be significantly higher in obese adolescents. Consistent with the literature, it was revealed that obese children often 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, some studies suggest that the relationship between anxiety and obesity is unclear (20).

A meta-analysis of obese adolescents delineated 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 anxiety levels,

depression, and low self-esteem were diagnosed in obese adolescents. Notwithstanding that we found higher anxiety levels 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 concerned about their physical 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). Therefore, those who are overweight or obese have more self-esteem problems. Another important finding in our study was that the self-esteem of the obese group was significantly lower than in the control group. Similarly, in the study by Álvarez-García et al. (26) in a large adolescent group and the study by Çolpan et al. (27) on adolescents, it was reported that obese and overweight individuals had lower self-esteem and more conflict with their peers.

In our study, there was no difference between the two groups in terms of social isolation. However, we believe that obese adolescents will be more socially isolated in the following periods due to the higher anxiety and lower self-esteem levels. In some studies, it has been observed that low self-esteem is associated with social isolation (28,29).

Study Limitations

The sample size of this study is relatively small. Moreover, since our study is a cross-sectional study, it does not reveal 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.

CONCLUSION

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

Ethics

Ethics Committee Approval: This study was conducted after ethical approval from the Clinical Research Ethics Committee of Okmeydani Training and Research Hospital's decision dated 08/01/2019 and numbered 1092 was issued.

Informed Consent: Inform consent was obtained from both participating adolescents and their families.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Concept: H.D., Design: H.D., E.T., Data Collection or Processing: H.D., E.T., Analysis or Interpretation: E.T., Literature Search: H.D., Writing: H.D., E.T.

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