Girls' Self-Esteem and its Association with Self-Stigma toward Obesity

Abstract

Background: Obesity among girls can lead to physical, psychological, or social problems. Enhancing self-esteem and reducing self-stigma toward obesity can play a crucial role in girls' health. This study aims to assess girls' self-esteem and its association with self-stigma toward obesity. **Materials and Methods:** A descriptive cross-sectional design was used to meet the study's objective. A convenience sampling method was used to gather the sample from 24 middle and high schools in five cities across Iraq from (January 2023 to March 2023). A total of 1326 girls participated in the study. Weight Self-Stigma Questionnaire and Rosenberg Self-Esteem Scale were used to assess self-stigma and self-esteem regarding obesity. Pearson's rho (r) and one-way ANOVA were used to analyze the data by SPSS version 26. **Results:** In total, 1200 girls scored on weight self-stigma and self-esteem, and the means (SD) were 29.28 (±7.06) and 30.47 (4.43), respectively. The results revealed that there was a significant negative correlation between weight self-stigma and self-esteem ($r = -.404$, $p < 0.001$). **Conclusions:** Iraqi girls with higher obesity-related stigma have lower self-esteem. Hence, as obesity can affect girls' body image, increasing girls' self-esteem can reduce their weight self-stigma.

Keywords: *Obesity, self-concept, social stigma, women*

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Introduction

Health is accompanied by normal weight.[1] Individuals with a normal body weight can have high self-esteem because of their body shape and posture.[2] Globally, the increased prevalence of obesity is considered one of the most significant health problems.[3] In Iraq, about two out of three persons are overweight or obese.[4]

Bhadouria and Bhadoria[3] stated that obesity has a greater influence on psychological well-being, mental health, and overall quality of life. Stigmatization can cause physiological and psychological stress, diminish the self-control necessary to maintain healthy behaviors and increase the desire to prevent discriminating situations.[5] Puhl *et al*.[6] revealed that weight-related stigma is a person's social devaluation due to obesity. Females were twice as likely as males to report obesity-related discrimination.[7] Obesity-related stigma was strongly associated with conditions such as low self-esteem.[8]

Although self-esteem is defined as a person's affective and cognitive images of what way they naturally feel regarding themselves; for adolescents, self-esteem is a strong motivational factor.[6] The overall association between a person's body weight and self-esteem was found to be negative, and this effect was more common in females.[5] A low level of self-esteem can contribute to other problems such as depression, substance abuse, or even suicidal thoughts.[7]

Studies declared that low self-esteem is related to self-stigma.[2,9,10] However, few studies have assessed the association between obesity-related stigma and self-esteem in adolescents. Considering adolescence is a special period of life that requires appropriate care, and adolescent girls need this care to increase their awareness and self-esteem toward obesity,[3] Nurses (specifically community health nurses) play a crucial role in providing psychological care to obese girls. The researchers hypothesized that girls with higher obesity-related stigma have lower self-esteem. This study aims to assess girls' self-esteem and its association with self-stigma toward obesity.

Materials and Methods

In 2023, a cross-sectional design was used in this study to meet the study's objective. Adolescent girls in middle and high schools

in Iraq were the population in this study. Data collection was conducted using a convenient sampling method.

The inclusion criteria for this study were Iraqi girls between 13–20 years old who were attending middle or high schools, regardless of their religion or ethnicity, and were free from psychological problems. Girls with diagnosed psychological disorders were excluded from the study. Additionally, girls with disabilities were excluded because of the potential impact of body image on self-esteem, which could introduce bias into the study. A total of 1326 girls were included in this study after they agreed to participate. 126 participants were excluded either because they withdrew from the study or missed some information in the survey. The minimum sample size was 666 as calculated based on the G-power 3.1.9.4 Program with the population (around two million girls), a confidence level of 99%, and a margin of error of 5%. In total, 1200 participants were included in the data analysis, and the response rate was 90.49%.

The sample for the study was collected from 24 middle and high schools in five different cities across Iraq: Baghdad, Hilla, Dywanyia, Salah Al-Din, and Dyiala. These cities were selected due to their distribution in the north, central, and south of Iraq with high populations. The schools were selected conveniently based on their locations in the Directorate General of Education in each city. The data collection started from January 22, 2023, to March 16, 2023, with a two-week pause during the spring break from February 1, 2023, to February 17, 2023. The researchers collected the data using the self-reported questionnaire method during classes after obtaining permission from principals and teachers. It took 25–35 min to collect the data in each class.

The questionnaire consists of three parts: Weight Self-Stigma Questionnaire (WSSQ), the Rosenberg Self-Esteem Scale, and demographics. The WSSQ is a self-reported scale that measures obesity-related stigma. It was originally developed in English[11] and has been translated into Arabic.[8] This scale consists of 12 items that are rated by a five-point Likert scale (1; completely disagree to 5; completely agree). Scores are calculated for the whole scale and two subscales. A higher score reflects higher weight-related self-devaluation and fear of enacted stigma. The psychometric properties of the Arabic version of the WSSQ were assessed by BinDhim *et al.*,[8] and the results showed good internal consistency and reliability (α = 0.898). The Rosenberg Self-Esteem Scale was developed by Rosenberg.[12] This scale consists of 10 items designed to evaluate both positive and negative feelings about self-esteem. Respondents answer the items using a 4-point Likert scale with scores ranging from 10 to 40. Higher scores indicate a higher level of self-esteem. The psychometric properties of the Arabic version of the Rosenberg self-esteem scale were assessed by Zaidi

et al.,[13] and the results showed good internal consistency and reliability [α = 0.92]. The authors have obtained permission from the copyright owner to use the tools. Demographics include age, level of education, marital status, weight, height, and economic status. The data was analyzed using the Statistical Package for the Social Sciences (SPSS) Windows version 26 by International Business Machines Corporation. Demographics were analyzed using descriptive statistics. Pearson's rho was used to assess the relationships between participants' age, weight, height, BMI, and the sample's scores of weight self-stigma and self-esteem. One-way ANOVA was used to determine the differences in weight self-stigma and self-esteem scores regarding participants' levels of education and family income. The level of significance was set at $p < 0.05$.

Ethical considerations

To ensure ethical considerations, the protocol of this study was submitted to the Institutional Review Board (IRB) in the College of Nursing at the University of Baghdad. The IRB was obtained from this university to collect the data (No. 134 in 08/01/2023). Then, the IRB approval was sent to the Departments of Education in five cities in Iraq. The approvals were obtained from the five Departments of Education in Baghdad, Hilla, Dywanyia, Salah Al-Din, and Dyiala to collect the data. On the other hand, girls' privacy was protected by ensuring confidentiality and anonymity. And they were informed of their right to withdraw at any time. Also, the girls were informed about their participation in this study, and oral consent was obtained from them.

Results

Of the 1326 collected samples, 1200 were included in the data analysis. Table 1 shows the study sample's characteristics. The mean age of the girls was 15.84 years with a Standard Deviation (SD) of 1.80. The girls attended middle and high schools, ranging from grades 7 to 12. Regarding BMI, over half of the participants (64.40%) had a normal BMI while 2.20% of them were obese. 75.8% of the study sample stated they have enough family income. Regarding the obesity-related stigma, the total mean (SD) of WSSQ was 29.28 (7.06). The mean (SD) for the self-devaluation subscale (factor 2) and fear of enacted stigma subscale (factor 1) were 16.32 (3.85) and 12.95 (4.61), respectively. As for the Rosenberg Self-Esteem Scale, the score was 30.47 with an SD of 4.43.

The results in Table 2 show a significant correlation between age and weight (r = 0.30, $p < 0.001$), height (r = 0.19, $p < 0.001$), BMI (r = 0.207, $p < 0.001$), and self-esteem (r = 0.09, $p = 0.001$). Also, weight self-stigma is significantly related to weight (r = 0.07, $p = .007$) and BMI (r = 0.10, $p < 0.001$). Furthermore, there is a significant negative correlation between weight self-stigma and self-esteem (r = -0.40, $p < .001$) indicating that higher

weight self-stigma is associated with lower self-esteem. These results support the researchers' hypothesis that girls with higher obesity-related stigma have lower self-esteem.

Table 3 reveals that the weight self-stigma scores were different between the study sample's educational levels ($F_{1,67} = 1.44$, $p = .034$) and their family income ($F_{1,67} = 1.5$, $p = .021$). Also, Table 4 reveals that the self-esteem scores were different between the study sample's educational levels ($F_{1,67} = 2.35$, $p < 0.001$) and their family income ($F_{1,67} = 2.09$, $p = 0.001$).

Discussion

In this study, weight-related stigma and self-esteem among girls in middle and high school were assessed. The results showed that the most of girls in middle and high school were underweight or normal weight, while around 15% were overweight or obese. Jaacks *et al*.[9] stated that the prevalence of underweight and overweight among girls can vary in different countries or areas (rural and urban). For example, Hales *et al*.[10] stated that the prevalence of obesity among adolescent girls was 20.9% in the United States. Indeed, the prevalence of obesity differs among girls in different countries around the world.

The total mean score of obesity-related stigma was mild (29.28) in the current study. This result is similar to the findings of Saffari *et al*.[14] regarding weight-related self-stigma among female students in China. The result of Farhangi *et al*.[15] was also similar to ours about the obesity stigma among Iranian women. However, Khodari *et al*.[16] reported a higher score for the WSSQ among Saudi girls. The varying levels of stigma among girls in different countries may be attributed to cultural differences and how obese women are perceived and treated in their societies.

On the Rosenberg scale, the girls scored 30.47 which means high self-esteem. The result is close to Aldhahi *et al*.[17] as they found that the mean scores of self-esteem among Saudi women with normal weight and overweight were 33 and 30.6, respectively. In addition, KavehFarsani

Table 1: Study sample's characteristics

Characteristics	Mean (SD*)	Number [%]
Age	15.84 (1.80)	
Educational level		
7th grade		140 (11.70%)
8th grade		147 (12.30%)
9th grade		288 (24%)
10th grade		197 (16.40%)
11th grade		245 (20.40%)
12th grade		183 (15.30%)
Weight	52.96 (9.64)	
Height	1.56 (.079)	
BMI**	21.66 (3.78)	
Family income		
Enough		909 (75.80%)
Barely enough		249 (20.80%)
Not enough		42 (3.50%)
***WSSQ		
Total	29.28 (7.06)	
Self-devaluation subscale [Factor 2]	16.32 (3.85)	
Fear of enacted stigma subscale [Factor 1]	12.95 (4.61)	
****RSS	30.47 (4.43)	

*SD=Standard Deviation, **BMI=Body Mass Index, ***WSSQ=Weight Self-Stigma Questionnaire, ****RSS=Rosenberg Self-Esteem Scale

Table 2: Correlations between sample's characteristics, weight self-stigma, and self-esteem

Characteristics	Statistical test	Age	Weight	Height	BMI*	Weight Self-Stigma	Self-esteem
Age	Pearson Correlation	1	0.30	0.19	0.207	-0.038-	0.096
	p. [2-tailed]		<0.001	<0.001	<0.001	0.185	0.001
	n	1200	1200	1200	1200	1200	1200
Weight	Pearson Correlation	0.307	1	0.39	0.8	0.07	-0.03-
	p. [2-tailed]	<0.001		<0.001	<01000	0.007	0.295
	n	1200	1200	1200	1200	1200	1200
Height	Pearson Correlation	0.19	0.39	1	-0.22	-0.03-	0.04
	p. [2-tailed]	<0.001	<0.001		<0.001	0.180	0.145
	n	1200	1200	1200	1200	1200	1200
*BMI	Pearson Correlation	0.2	0.80	-0.22	1	0.10	-0.06-
	p. [2-tailed]	<0.001	<0.001	<0.001		<0.001	0.030
	n	1200	1200	1200	1200	1200	1200
Total **WSSQ	Pearson Correlation	-0.03-	0.07	-0.03-	0.10	1	-0.40-
	p. [2-tailed]	0.185	0.007	0.180	0.000		0.000
	n	1200	1200	1200	1200	1200	1200
Total ***RSS	Pearson Correlation	0.09	-0.03-	0.04	-0.06-	-0.40-	1
	p. [2-tailed]	0.001	0.295	0.145	0.030	0.000	
	n	1200	1200	1200	1200	1200	1200

*BMI=Body Mass Index, **WSSQ=Weight Self-Stigma Questionnaire, ***RSS=Rosenberg Self-Esteem Scale

Table 3: Differences among study sample's educational levels and family income with regard to their weight self-stigma

Characteristics	Statistical test	Sum of Squares	Mean Square	F	df	p
Educational Level	Between Groups	148.82	3.54	1.44	42	0.034
	Within Groups	2836.77	2.45		1157	
	Total	2985.59			1199	
Family Income	Between Groups	16.85	0.401	1.50	42	0.021
	Within Groups	307.73	0.26		1157	
	Total	324.59			1199	

Table 4: Differences among study sample's educational levels and family income with regard to their self-esteem

Characteristics	Statistical test	Sum of Squares	Mean Square	F	df	p
Educational Level	Between Groups	164.75	5.68	2.35	29	0.000
	Within Groups	2820.84	2.41		1170	
	Total	2985.59			1199	
Family Income	Between Groups	16.01	0.55	2.09	29	0.001
	Within Groups	308.58	0.264		1170	
	Total	324.59			1199	

et al.[2] found that Iranian girls reported a score of 30.24 on the Rosenberg Self-Esteem scale. These results show the similarity in self-esteem levels regarding obesity among girls in Iraq and other countries.

This study revealed a significant negative correlation between weight self-stigma and self-esteem. The result is not surprising as many studies proved that weight self-stigma is negatively correlated with self-esteem.[2,9,10] Indeed, these findings declared that self-esteem decreases when a girl has a stigma toward her weight, which is a result of body image stigma.

Age was significantly correlated with girls' self-esteem in this study. Indeed, self-esteem increases as adolescents get older.[18] On the other hand, BMI was negatively correlated with girls' self-esteem in the current study. Other studies have also found negative correlations between BMI and self-esteem among Spanish[19] and Malaysian[20] girls. Indeed, higher BMI means more obesity, which can change girls' body image and lead to lower self-esteem. Furthermore, weight self-stigma was significantly related to BMI in this study. This result is supported by many studies[20] that have shown a relationship between BMI and weight self-stigma, indicating that girls with higher BMI have a higher stigma regarding their weight.

Although this study is the first study to be conducted in Iraq with a large sample size, it is not without limitations which the study subjects were not selected randomly.

Conclusion

Obesity among adolescent girls is not just a physical issue but affects their psychological status. Iraqi girls exhibit varying levels of self-esteem and stigma related to their weight. The findings in this study support that self-esteem is negatively correlated with weight and BMI. In addition, weight-related stigma increases with girls' weight and BMI. Furthermore, girls with higher levels of weight self-stigma tend to have lower self-esteem. Although the focus was on obesity and overweight, approximately one-fifth of the study sample was underweight. Addressing the issue of being underweight is crucial and should be studied in future studies.

Conflicts of interest

Nothing to declare.

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