

How to Cite:

Jumaily, Z. S.-A. A. F. A., & Ibrahim, R. H. (2022). Correlation between self-esteem and obesity among high secondary schools in Mosul City. *International Journal of Health Sciences*, 6(S8), 1561–1568. <https://doi.org/10.53730/ijhs.v6nS8.10790>

Correlation between self-esteem and obesity among high secondary schools in Mosul City

Zeyad Shhab-Aldeen Ahmed Fathy AL. Jumaily

College of Nursing, University of Mosul, Mosul City, Iraq

Radhwan Hussein Ibrahim

College of Nursing, University of Mosul, Mosul City, Iraq

Abstract---Obesity and low self-esteem are prevalent disorders among adolescents. Tackling this relationship may introduce effective intervention that promotes healthy adolescence. The Objectives of the study is to measure the prevalence of overweight and obesity and identify its relation with self-esteem among school adolescents. A cross sectional study was carried out on 533 adolescents selected by multistage cluster sample. The students completed a structured questionnaire on dietary habits, physical activity and self-esteem. Self-esteem was assessed using Rosenberg Scale. Their anthropometric measurements (weight and height) were recorded. 21.2% of students are overweight and 15.8% are obese. Lack of physical activity is the only significant life style factor associated with overweight and obesity. There is a negative statistically significant correlation between self-esteem score and BMI among the adolescent students($r = - P =$) and significant association between overweight and obesity and low self-esteem ($p =$). More than one fourth of adolescents are suffering from overweight and obesity. Obese adolescents tend to have lower self-esteem. Incorporating healthy behaviors and healthy life style in the curricula of adolescents to promote their mental health is mandatory. Further studies to investigate other risk factors of low self-esteem are needed

Keywords---obesity, self-esteem, school, Mosul.

Introduction

Children's obesity has become a significant public health issue in many industrialized countries(Y. Wang & Lobstein, 2006). Obesity is one of the most prevalent problems among children and is increasing significantly worldwide. It is, therefore, considered as a very severe public health problem(Mello, Luft, & Meyer, 2004). It is essential to understand that obesity is a disease that affects

people all over the world. Obesity is affected by a variety of factors, including the genetic make-up, the environment, and the social milieu. (Vink, Van Hooijdonk, Willemsen, Feskens, & Boomsma, 2020) In their twenties, about half of all fat children are still overweight. (Harrington et al., 2010). It is generally accepted that increasing calorie and fat intake causes obesity and overweight. (Torres-Carot, Suárez-González, & Lobato-Foulques, 2022) In children and adolescents worldwide, the prevalence of obesity and age-standardized mean body mass index (BMI) increased from 1975 to 2016, primarily in Asia. (Manu, Lăcătușu, Rogoza, & Cernea, 2022) Obesity has risen worldwide due to increased sugar consumption from soft drinks and larger portion sizes accompanied with a decrease in physical activity. (Crino, Sacks, Vandevijvere, Swinburn, & Neal, 2015). Since children's attention are more focused on academic pursuits rather than on activities that promote physical and emotional well-being, this problem has worsened over time. An increased risk of psychosocial issues, such as poor social cohesion and reduced quality of life in adolescents, is connected with childhood obesity. (Dixon, 2008). When David Hume wrote in the 18th century about the significance of appreciating and thinking well of oneself, he introduced the idea of self-esteem as a means of motivating people to reach their most significant potential. (Abamara, Oguebe, Opiah, & Nwangwu, 2022) Measure the self-esteem level among overweight/obsessed pupils in high school pupils. Determine the relationship between the self-esteem level of the pupils, and they are (age/grade, gender, BMI) This study was carried out within the ethics of scientific research and its ethical approval for this study was obtained from the Institutional Review Board of the University of Mosul, Medical Colleges. The participants of the study were fully informed about the nature and objectives of the study. Oral informed consent was taken from all participants. All data were saved confidentially and used only for the research purposes. The participants were not exposed to any harm or risk and they had the possibility of withdrawal at any time. Official permission from the head of the Directorate of Education/Nineveh and head teachers of the schools under study was sought and obtained. Verbal informed consent from both adolescents and their parents was ensured as well.

Materials and Methods

A cross-sectional study was used as a research design in this study. It was carried out on secondary school students in the City of Mosul, Iraq during the academic year 2020-2021. The present study was conducted in Nineveh Governorate. It is a governorate in northern Iraq, with Mosul as its capital. Mosul is Iraq's second-largest city, located 465 kilometers north of Baghdad. Four public schools were included in the study, namely Abdulrahman Al-Ghafiqi Secondary School For Boys, Al-Kadesia High Secondary School for Girls, Al-Mutamyizeen Secondary School for boys, and Hums Secondary School for Girls. The four schools are located on the left side of the Tigris River in Mosul city. They provide free services for students and consist of more than (2500) students. Whereas Al-Kefah Secondary School for Girls, Al-Markazea Secondary School for Boys, Mosul Al. Gadedda Secondary School for Girls are located on the right side of the Tigris River in Mosul city. They also provide free services for students and they consist of more than (2000). The study was implemented in these schools. All of these schools provide free learning services for students in Nineveh Governorate. A multistage cluster sample was used to obtain a representative sample of the

participants of this study. First stage: Mosul district was chosen randomly from seven districts in Mosul city. Second stage: One preparatory school was chosen randomly from 143 preparatory schools in Mosul and two secondary schools were chosen randomly from 64 secondary schools in Mosul. Third stage: In each chosen school, one class was selected randomly from the first grade and one class from the second and third grades. According to numbers of adolescents in Mosul districts 117503, 46% of them are females (54051), and 54% of them are males (63451). The power was 80%, the confidence level was 95%, prevalence of overweight in adolescents in Mosul 2020 was (15.0%) according to previous studies. 16 Sample size was (533) 257 females and 276 males.

Body mass index was calculated from the weight (kg)/ height (m²). BMI = [Weight (kg) / Height (m)²]. In this study growth charts for adolescents were used. Self-esteem was measured by the Rosenberg self-esteem scale 23: which includes the following items:

1. On the whole, I am satisfied with myself.
 2. At times I think I am no good at all.
 3. I feel that I have many good qualities.
 4. I can do things as well as most other people.
 5. I feel I do not have much to be proud of.
 6. I feel that I'm a person of worth, at least on an equal plane with others.
 7. I wish I could have more respect for myself.
 8. All in all, I am inclined to feel that I am a failure.
 9. I certainly feel useless at times.
- With Likert scale: Strongly agree (SA) =3, Agree (A) =2, Disagree (D) =1, Strongly disagree SD=0 Scoring items 2, 5, 8, 9 are reversed score. Sum the scores for the 9 items. The higher the score, the higher the self-esteem. The scale ranges from 0-to 27. Scores between 12 and 25 are within the normal range; scores below 12 suggest low self-esteem

The data was analyzed using SPSS version 23. The bivariable logistic regression model was used to examine the association between the explanatory variables and the outcome variable. This was followed by a multivariate logistic regression analysis using those variables with P-value ≤0.2 in the bivariable analysis. To check the goodness of fit of the statistical model, the Hosmer-Lemen show test was utilized. Multicollinearity was assessed by the variance inflation factor. All assumptions of binary logistic regression were checked. An odds ratio with 95% CI was used to measure the strength between the dependent and the independent variables. P-Value < 0.05 was used to determine the level of statistical significance.

Results of the Study

Table (1): The distribution of students according to socio-demographic characters

Age	Frequency	Percent
16-17 year	238	47.6
18-19 year	187	37.4
20-21 year	75	15

Total	500	100%
Gender	F	%
Male	214	42.8
Female	28	57.2
Grade	F	%
Fourth	224	44.8
Fifth	62	21.4
Sixth	214	42.8
HIGH	Minimum	Maximum
	1.44	1.94
	Mean	Std. Deviation
	1.6433	.10252
WEIGHT	Minimum	Maximum
	39	155
	Mean	Std. Deviation
	61.24	13.859
CATEGORIES OF WAIST CIRCUMFERENCE	Minimum	Maximum
	.22	122
	Mean	Std. Deviation
	7.1900	25.365

Table (2): The distribution of students according to Body mass index

TYPES OF BMI	Frequency	Percent
Underweight	27	5.4
Normal weight	288	57.6
Over weight	106	21.2
Obeys type 1	50	10.0
Obeys type 2	27	5.4
Obeys type 3	2	.4
Total	500	100%

Table (3): The distribution of students according to ROSENBERG SELF-ESTEEM result

RESULT OF THE ROSENBERG SCALE	F	%
HIGH SELF-ESTEEM(1)	197	39.4
LOW SELF-ESTEEM(2)	303	60.6
	Mean	Std. Deviation
	1.61	.489

Table(4): Distribution of the Correlation between student's weight and self-esteem

Self	Normal		Obese		Total	
	No	%	No	%	No	%
High	167	31.9	30	7.5	261	39.4
Low	148	35.6	145	25	239	60.6
Total	315	%67.5	175	%32.5	500	%100

Results and Discussions

The purpose of this study was to determine if there was a statistically significant difference between students who are classified as obese as compared to students who are classified as not obese with respect to levels of self-esteem among children in grades five through seven in several public schools in City of Mosul. Extensive research has studied the link between self-esteem and childhood obesity (Xi et al., 2012). A decrease in self-esteem with anxiousness and behavior problems have been found in obese children (French, Story, & Perry, 1995). A Research suggests that a higher BMI can cause low self-esteem (Pila, Sabiston, Brunet, Castonguay, & O'Loughlin, 2015). Children who are obese may get teased, bullied, and develop body image issues which can decrease self-esteem. Children who have low self-esteem can also have increased chances of conduct problems, emotional instability, and higher likelihoods to engage in risky behaviors such as drug use, alcohol abuse, cigarette use, sexual behavior, and suicidal behavior (Geckil & Dündar, 2011). As noted in previous studies, girls tend to have lower self-esteem than boys (Burrows & Cooper, 2002). Asci et al. (2007) found that body image was a significant factor when examining self-esteem (Tatar et al., 2015). Girls who had low self-esteem suffered from body dissatisfaction (Burrows & Cooper, 2002). In the current study, there were obese females which was the majority of the participants. This could be a reason why self-esteem was statistically significant by itself. Increasing self-esteem can lead to balance in other aspects of a child's life (F. Wang, Wild, Kipp, Kuhle, & Veugelers, 2009). As self-esteem increases, the child feels good about him/herself and is able to focus on maintaining this healthy balance. Personal, social, and academic growth may be positively influenced by developing a high self-esteem (Myroie, 2013). Peer and familial relationships may become more positive and interactions with others may also be fulfilling as research suggests that parental obesity and self-esteem influence a child's weight and self-esteem. Though much focus has been based on physical activity and appearance, self-esteem cannot be overlooked as an important part of a child's health. In this study we aimed to find out the relationships between the obesity, eating attitude and the self-esteem in the adolescent group. This subject was found out to have acquired a considerable amount of interest in the literature since all these concepts have significance on the life of people. In a different study, obesity was defined as the disease that does not affect only the person but also affects the people around the person as well as affecting the society especially by causing physiological, organic, systemic, hormonal, metabolic, aesthetic, psychological and the social problems. Overall, the obesity was found to increase the risk of emergence of the psychiatric disorders (Değirmenci, Kalkan-Oğuzhanoglu, Sözeri-Varma, Özdel, & Fenkci, 2015). In some studies, the low self-esteem was shown to be the effective variable on the eating attitude. One study showed that the self-esteem of the obese people was closely related with the BMI and with the increasing of the BMI there was an apparent decline in self-esteem (Değirmenci et al., 2015). In addition, low self-esteem was found to be a risk factor for the BN. Also in a different study, increase in self-esteem has been documented in women who have recovered from BN. It has been demonstrated that perfectionist women, who feel themselves as obese, would have bulimic symptoms only if they had low self-esteem (TEKYAPRAK & ATAĞ, 2013). For instance, Williams et al. (1993) indicate that according to the healthy controls, the self-esteem is lower in groups

who have the eating disorders. Moreover, Button and his friends (1996) stated that low self-esteem established a big risk for the eating disorders (Deveci, et al., 2005). Negative affect model accepts that depressive individuals have binge eating in order to achieve relaxation and to get rid of negative feelings. On the other hand, compensatory behaviors like vomiting are also used for decreasing the anxiety induced by weight gain (Baylan et al., 2009). Multiple regression analyses revealed that (a) level of obesity predicted teasing, (b) teasing led to overall appearance dissatisfaction, (c) body dissatisfaction predicted restrictive eating practices, and (d) bulimic symptoms predicted global psychological function (Phares, Steinberg, & Thompson, 2004). It has been stated that the major psychopathology in BN was the extreme importance that the patients attribute to their appearance and weight (Baylan et al., 2009). Another study has also found a statistical significance and positive relationship between the BMI and the gender. ($p < 0,05$, $r: 0,290$) This may be the result of the fact that the BMI of the boys were higher than the girls (Haid & Tekgöl, 2017). In another study with a similar population to this one that was carried out in 2005, in the primary schools from the centre of the Muğla, the %7.6 of the girls and the %9.1 of the boys were overweight and obese (Zeki & SÜZEK, 2008). The findings of this study support our findings. According to the results of a study in line with ours, %41 of the girls were thin, %55 of the girls have the standard weight, %2,8 of the girls were overweight and the % 0,9 of the girls were obese (Baydemir, Yurdakul, & Özer, 2018).

Conclusion

In conclusion, this study has found a bi-directional association between obesity and self-esteem among Iraqi students in addition to cross-sectional correlations. Obesity and increased weight-related measurements lead to a significant drop in self-esteem over time. In addition, higher self-esteem leads to a lower body mass index over time.

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