



## Association between Bullying and Obesity among Intermediate School Students in Mosul City

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### Abstract:

#### Background:

One of the most serious medical conditions in the world for children whom attended school is childhood obesity. The accumulation of excessive body fat as consequence of an imbalance between energy intake and expenditure is known as obesity, and it is an epidemic on a worldwide basis. Over 650 million A (WHO, 2021).

#### Objectives:

The aim of the study was to investigate the association between bullying and obesity among intermediate school students in Mosul city.

#### Methods and materials:

A quantitative (non-experimental), descriptive, cross-sectional study design was used to achieve the objective of the study, the total sample included 151 adolescents that selected from eight intermediate schools aged between 12-15 years with Body Mass Index above than normal according to the WHO growth charts for BMI for age from the period of 10<sup>th</sup> November 2023 to 10<sup>th</sup> January 2024. Data collected using questionnaire Part I: consist of demographical data, Part II: consist of questionnaire of bullying scale of Olweus (2003) with some modification on the questions.

#### Results:

The study showed that the majority of the study sample were males 55%, 29% of the study participants were being victims of bullying and the heights percentage of them being victims of verbal bullying 37.1% and the lower percentage being victims of physical bullying 17.2%, and the study revealed that the adolescents with higher body mass index (BMI) were more likely to report higher frequency of bullying victimization.

#### Conclusions:

This study revealed that was strong association between bullying types and increase Body Mass Index, also significant association between increase bullying victimization and obesity, victimization of verbal bullying was the most prevalent form. Teachers should be given guidelines to enhance students' perceptions of obese peers, provide support to bullied students.

**Key Words:** Bullying, Obesity, Intermediate School Students, Adolescents.

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### **Introduction:**

One of the most serious medical conditions in the world for children whom attended school is childhood obesity. The accumulation of excessive body fat as consequence of an imbalance between energy intake and expenditure is known as obesity, and it is an epidemic on a worldwide basis. Over 650 million those broadly have been identified to be obese by the World Health Organization (WHO, 2021).

Obese adolescents are twice as likely as their normal-weight peers to be bullied, and the majority of bullying occurs mainly at school (Palad et al., 2019).

### **Material and method:**

Before starting to collect data, letters of approval were obtained from the Deanship of the College of Nursing, University of Mosul, to obtain a facilitated approval letter. After that, approval letters were obtained from the College Committee for Medical Research Ethics, in addition to obtaining approval from the Directorate of Education of the Nineveh Government.

### **Study Design:**

A quantitative (non-experimental), descriptive, cross-sectional study design was used to achieve the aim of the present study from 10<sup>th</sup> November 2023 to 10<sup>th</sup> January 2024.

### **The Study Setting:**

The study was conducted in eight intermediate schools in the city of Mosul. Mosul, an important city in Iraq, served as the study site. Mosul, the capital of Nineveh Governorate.

### **Sample and sampling:**

Simple random sampling technique was applied in several middle schools affiliated with the Nineveh school's department, within the right and left intermediate schools in the city of Mosul, to achieve the objectives of the study. The total sample included 151 samples selected from eight intermediate schools ranging aged between 12-15 years.

### **Tool of the study:**

#### **Part I:**

This part of the questionnaire contains the socio-demographic data, which includes the student age, gender, class, height, weight, address, mother's educational level, and father's educational level.

Height was measured using the method approved by UNICEF. The researchers asked the students to place his feet in the middle of the scale, side by side. After that, ask the student to look straight ahead Then, the researcher's record the length that was read. The weight was measured according to the UNICEF method for measuring weight.

Body mass index (BMI) and height for age and sex were calculated to determine weight/height status of children using a WHO-recognized table or graph, The World Health Organization growth standards were used to convert weight and height measures into z-scores, namely BMI-for-age, weight-for-age, and height-for-age. The 2007 WHO growth standards were applied to children aged 5–19 years.

#### **Part II:**

This part of the questionnaire consists of bullying scale of Olweus (2003) with some modification on the questions related to types of bullying faced students, The students were asked to answer

questions based on falling in bullying victimization in the past three months.

**Statistical Analysis:**

"Using the Statistical Package for Social Science" (SPSS) Version (27) for Windows 10, Both data

entry and analysis were completed. Descriptive statistics were applied in the analysis as frequency, percentage, mean, and SD, Spearman's rank correlation coefficient.

**Result:**

**Demographic characteristics**

**Table (1) Socio demographic characteristics of the study participants.**

		F	%
Age	12 years	27	18
	13 years	45	30
	14 years	40	26
	15 years	39	26
	Mean age 13.86 S.D ( ±1.055)		
Gender		F	%
	Male	83	55
place of residence	Female	68	45
	The right side	72	48
Class	The left side	79	52
	First grade	63	42
	Second grade	43	28
Mother education level	Third grade	45	30
	Does not read or write	10	7
	Primary	26	17
	Intermediate	32	21
	Secondary	27	18
	Bachelor's	36	24
Father education level	Postgraduate	20	13
	Does not read or write	5	3
	Primary	33	22
	Intermediate	6	4
	Secondary	42	28
	Bachelor's	39	26
	Postgraduate	26	17

Note: F: Frequency; %: Percent, SD= standard deviation.

Table (1) shows that the highest percentage of participants aged (13) years was (30%) and the lowest percentage for those aged (12) years was (18%). The table also shows that more than half males (55%), while for females (45%). Mean for age (13.86) and S.D (1.050).

**The incidence of Bullying victims of the study samples according to type of bullying and total of their incidence.**

**Table (2): Frequency and percentage of the study sample according to their being victims of bullying**

The sample	Type of bullying	Sample size	Bullying victims	
			F	%
	Verbal bullying	151	56	37.1
	Bullying over property		52	34.4
	Social bullying		45	29.8
	Physical bullying		26	17.2
<b>Total</b>			45	29.8

Table (2) show that among 151 participants the incidence of bullying in the sample study was (29%), and the table also show the heights

percentage of participants falling victims of verbal bullying (37.1%).

**Table (3) The relative importance of the predictors of being a victim of bullying scale by Olweus 2003.**

No	Dimensions	Arithmetic mean	Standard deviation	Relative importance%	Ranking
1	Verbal bullying	2.66	1.39	53.14	The first
2	Social bullying	2.60	1.46	52.07	The second
3	Bullying over property	2.51	1.41	50.28	The third
3	Physical bullying	2.22	1.40	44.39	The fourth

Table (3) show that the most important reason for become victims of bullying according to Olweus 2003 in relative terms was victim of verbal bullying

with mean (2.66) and S.D (1.39), As for victim of physical bullying, it turned out to be the least important reason with mean (2.22) and S.D (50.28%).

**Table (4) The association between BMI and types of bullying**

Spearman's rank correlation coefficient		Types of bullying			
		Verbal bullying	Social bullying	Physical bullying	Bullying over property
BMI	Corr.	0.46	0.379	0.142	0.407
	P-value	0.008	0.026	0.336	0.039

Table (4): Show that that students with higher body mass index (BMI) were more likely to report higher frequency of bullying victimization, particularly in verbal, social, and property-related bullying P-value (0.008) (0.026) (0.039) respectively, but no significant difference was found in physical bullying (P-value 0.336).

**Discussion:**

**Demographic characteristics of the study participants.**

The study surveyed 151 students, revealing a mean age was 13.86, and SD 1.050, Males represented more than half of the study's sample. The present study is similar with the study done by (El-sayed, 2019) reported that female students were 47% and 53% were males in their study sample.

Regarding to the grade level, the present study revealed that the highest percentage of the study sample were first intermediate grade (42%), while the percentage of the second grade was (28%). The present study is similar with the study done by (Chiwere, 2018) displays The greatest number was from Grade 10, within 32%, followed by Grade 8 at about 26%, Grade 9 at 24%, and Grade 11 at about 17%.

**The incidence of Bullying victims among of the study sample.**

Bullying is aggressive conduct that mostly affects children and adolescents.

In the current study the incidence of being bullying victims among participants was (29%). According to the researchers opinion excess weight is often considered a sign of laziness or weakness and may result in obese children being ridiculed or bullied. The present study is similar with the study done in Serbia by Santric et al., (2022) reported that they were exposed to bullying and the incidence of victimization was 8.6%,

**The relative importance of the predictors of being a victim of bullying scale by Olweus 2003:**

Bullying is outcomes of weight gain and obesity according to the present study; verbal bullying is the most prevalent form of being victims of bullying at school accounts for 53.14% of bullying cases. according to the researcher's opinion, Verbal bullying is more common due to its invisible nature, difficulty in detection by adults, long-term psychological effects. The present study is similar with the study done by (Tanas et al., 2022) which found significant main effects on victimization in children with obesity, obese children were more

frequently teased due to physical appearance, name calling, physical abuse, threats, and exclusion from sports and group activities.

### **The association between BMI and types of bullying:**

Obesity is one of the most common reasons that children and adolescents are teased or bullied at school (Cheng, et al., 2022).

The relationship between BMI and being bullied was also investigated. The study found that students with higher body mass index (BMI) were more likely to report higher frequency of bullying victimization, particularly in verbal, social, and property-related bullying P-value (0.008) (0.026) (0.039) respectively. The present study is agreement with the study done by (Han et al., 2017) Obesity is linked to two different kinds of victimization in urban China, according to research that examined the links between different victimization kinds and BMI groups such as harmful bullying and physical appearance-based mockery.

### **Conclusion:**

The results of the current study concluded that increased bullying victimization was associated with increase body mass index, the results of the study revealed a significant association between being bullying victimization and obese participants. And verbal victimization was the most prevalent type of victimization among students.

### **The Recommendations:**

Classroom instruction should promote positive attitudes towards obese classmates to reduce stigma and discrimination, and teach healthy bullying coping strategies for adolescents.

### **References:**

1. Astor, R. A., & Benbenishty, R. (2018). *Bullying, school violence, and climate in evolving contexts: Culture, organization, and time*. Oxford University Press, USA.
2. Cheng, S., Kaminga, A. C., Liu, Q., Wu, F., Wang, Z., Wang, X., & Liu, X. (2022). Association between weight status and bullying experiences among children and adolescents in schools: An updated meta-analysis. *Child Abuse & Neglect*, *134*, 105833.
3. Chiware, J. T. (2018). An investigation of the relationship between bullying and physical activity at one high school in the Western Cape.
4. El-sayed, R. N., Kotb, S. A., & Ibrahim, E. (2019). Factors Influence Bullying Among Secondary School Students in Sohag City. *Assiut Scientific Nursing Journal*, *7*(18), 122-133.
5. Gaffney, H., Ttofi, M. M., & Farrington, D. P. (2021). What works in anti-bullying programs? Analysis of effective intervention components. *Journal of school psychology*, *85*, 37-56.
6. Han, Z., Zhang, G., & Zhang, H. (2017). School bullying in urban China: Prevalence and correlation with school climate. *International journal of environmental research and public health*, *14*(10), 1116.
7. Palad, C. J., Yarlagadda, S., & Stanford, F. C. (2019). Weight stigma and its impact on paediatric care. *Current Opinion in Endocrinology, Diabetes and Obesity*, *26*(1), 19-24.
8. Pearl, R. L., & Puhl, R. M. (2018). Weight bias internalization and health: a systematic review. *Obesity reviews*, *19*(8), 1141-1163.
9. Saniel, J. D. R., Opeña, C. C., Balondo, J. B., Bunda, A. M. B., & Tambis, L. B. (2021). Perception and Prevalence of Bullying Among Junior High School Students of Biliran Province State University. *NURSING JOURNAL*, *7*(1).
10. Santric-Milicevic, M., Stevanovic, A., Popovac, N., Milanovic, F., Dedovic, S., Zdravkovic, M., ... & Nikolic, D. (2022). Participation in bullying and associated health characteristics, risk factors and leisure activities: a profile of school-age children in serbia. *International journal of environmental research and public health*, *19*(15), 9159.

11. Tanas, R., Gil, B., Marsella, M., Nowicka, P., Pezzoli, V., Phelan, S. M., ... & Bernasconi, S. (2022). Addressing weight stigma and weight-based discrimination in children: preparing pediatricians to meet the challenge. *The Journal of pediatrics*, 248, 135-136.
12. World Health Organization. (2021). Obesity. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/obesity>.