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Impact of Obesity Upon Students' Schools Achievement at Secondary Schools in Al-Nasiriyah City

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ABSTRACT

Background: Obesity has been rising sharply worldwide in recent years. This epidemic problem not only occurs among adults, but also becomes more serious in children and adolescents. **Objective(s):** To assess the impact of obesity upon students' school achievement at Secondary Schools. And to find out the relationship between impact of obesity upon students' School achievement with their selected demographic variables. **Methodology:** A descriptive (Cross sectional) study was conducted on students at Secondary Schools in AL-Nasiriyah City between the periods of 11 October 2022 to 20 April 2023. In a cluster random sample from 12 secondary school the number of student's `adolescent in these 12 schools was 4140 students aged 12–18 years. By use of convenience sampling found 310 students with obese. The data were analyzed through the application of descriptive statistic frequency, percentage, and the application of inferential statistical procedures, which include chi square. **Results:** The results of the study indicated the Impact of obesity upon students' Schools Achievement at Secondary Schools in AL-Nasiriyah City was 34.8% of the students were not successful, and we found that the proportion of obesity in girls 51.6 slightly more in boys 48.4, and the most prevalent category where the proportion of obesity is at the age of 18 years 22.2% and we found that the rate of obesity in grades high in the four-class average 27%. **Conclusion:** shows that there is a high significant relationship between obese students results in the first course and their sociodemographic characteristics which include (gender, age and class), while there is no significant relationship between obese students results in the first course and their sociodemographic characteristics (student living with parent, does the student have a chronic illness, place of living and monthly financial income) at p-value ≤ 0.05. **Recommendations:** Increase community awareness about the risks of epidemic of obesity among school children age, and regular physical activities to ensure normal weight should be encouraged among adolescents.

1. INTRODUCTION

The conditions of overweight and obesity are characterized by an abnormal or excessive deposition of fat, which poses a health hazard. An imprecise indicator of obesity within a population is the body mass index (BMI), which is calculated by dividing an individual's weight (in kilograms) by the square of their height (in meters). A body mass index (BMI) of 30 or higher is commonly associated with obesity. Individuals who have a body mass index (BMI) of 25 or higher are classified as overweight [1]. By definition, obesity is the accumulation of aberrant or excessive fat, which has the potential to negatively impact one's health. It

results from an energy imbalance between the number of calories consumed and expended [2]. Significant risk factors for a variety of chronic diseases, including diabetes, cardiovascular disease, and cancer, are overweight and obesity. Obesity and overweight, which were once regarded as a problem exclusive to high-income nations, are now escalating dramatically in low-income and middle-income nations, especially in urban areas. [3]. Obesity has been characterized as a "multifactor syndrome comprising physiological, biochemical, metabolic, anatomical, psychological, and social alterations"; alternatively, it has been characterized as a complex, multifactorial chronic disease. [4] Conversely, there is a suggestion that excessive fat should be regarded as a "collective adaptation to the pathological environmental pressure to eat too much and exercise too little" [5] rather than a disease. Diabetes, hypertension, and high serum cholesterol increased progressively with body mass index across the majority of racial, ethnic, and socioeconomic categories. The incidence of hypertension was found to be more prevalent among obese black subjects, while individuals with lesser levels of education had a higher prevalence of diabetes, hypertension, and heart disease in comparison to those with higher levels of education. Increasing body weight was associated with a higher risk of developing diabetes, hypertension, heart disease, and high serum cholesterol, even when age, gender, ethnicity, income, education, and smoking were controlled for [6]. In the United States (US) and globally, the incidence of childhood obesity has risen significantly over the past several decades. Childhood obesity is a substantial public health concern in the United States due to the heightened risk of health complications and social exclusion it engenders. The previously uncommon occurrence of obesity and its associated medical conditions among children has increased at an alarming rate, prompting an abundance of research and policymaking attention towards the subject [7]. Obesity has experienced a significant global increase in recent years. According to estimates by [8], this epidemic problem not only affects adults, but also worsens in children and adolescents. In developed nations, the prevalence of overweight and obesity among children and adolescents has increased significantly; for instance, in 2013, 24% of boys and 23% of girls were overweight or obese, compared to 17% of boys and 16% of girls in 1980. The CDC has documented a substantial fourfold increase in childhood and adolescent obesity (ages 6–19) in the United States during the last two decades [9,10]. As of 2015, the global adult population aged 18 years and above comprised over 1.9 billion overweight individuals, whereas 462 million were underweight. Over 600 million individuals were classified as obese. During the same year, the prevalence of overweight or obesity among children below the age of five was recorded as 42 million, whereas stunting impacted 156 million. A significant proportion of children, specifically 50 million, were afflicted with atrophy (weight loss relative to height) [11,12] Overweight and obesity were prevalent in Iraq at rates of 6% and 1.3%, respectively. Based on data from the World Health Organization, the prevalence of overweight and obesity among adolescents in Iraq was 15% in 2006, whereas the prevalence of underweight was 7.1% [13] According to data obtained locally from the Ministry of Health in our nation, the prevalence of overweight and obesity among children in Iraq was 13.9% in 2010 (11.5% among males and 9.5% among females), with the underweight prevalence standing at 6.4% [14,15]. Overweight and obesity were prevalent in Iraq at rates of 6% and 1.3%, respectively. Based on data from the World Health Organization, the prevalence of overweight and obesity among adolescents in Iraq was 15% in 2006, whereas the prevalence of underweight was 7.1% [11,13] The study revealed that the overweight prevalence in Iraq was 16.8%, while the obesity prevalence was 18.15 percent. Specifically, 7.3 percent of Baghdad, Iraq, schoolchildren aged 6 to 12 were obese in central Iraq [16] In the city of Basra, the prevalence of overweight and obesity among schoolchildren was 24.1%, with 13.6% classified as overweight and 10.5% as obese. Males and females exhibited a prevalence that was virtually equivalent [17] The obesity rates in neighboring Middle Eastern countries include the following: Jordan (26.3%), Turkey (49%), Lebanon (36%), Palestine (32%), Bahrain (28%), Kuwait (29%), Oman (20%), Qatar (40%), Saudi Arabia (36%), the United Arab Emirates (24%) and Iran (15%). [18] Academic achievement signifies the results of one's efforts to demonstrate the degree to which particular objectives that were the central focus of educational endeavors have been met, particularly at the collegiate, postsecondary, and accrediting levels [19] Academic achievement is frequently evaluated via examinations or ongoing assessments; however, there is a lack of consensus regarding the most effective approach to this evaluation process and the relative importance of declarative knowledge, such as facts, versus procedural knowledge, such as skills [20] Activities and physical fitness may influence academic performance. Research has indicated that engaging in physical activity may stimulate neural activity within the brain. Particularly, executive functions of the brain, including working memory and attention span, are enhanced by exercise [16] It is intriguing to examine the correlation between adolescent obesity and academic achievement; one study discovered an inverse relationship between the two [21] In the third grade, overweight children had substantially lower mathematics and reading test scores than children of normal weight, according to a recent study. However, when socioeconomic status and maternal education were accounted for, the differences became insignificant. The correlation between adolescent obesity and academic performance of students continues to be a subject of debate, notwithstanding the rising incidence of obesity among children attending school [22]

2. METHOD

Cross sectional study was conducted on students at Secondary Schools in AL-Nasiriyah City between the periods of (11 October 2022) to (20 April 2023).

The study was carried-out in 12 schools; this number selected throughout the use of probability sampling a simple random sampling of 102 schools in AL-Nasiriyah City.

The participants of the study selected from (12) schools out of (102) schools in AL-Nasiriya city.

The schools selected. The (12) schools divided to six boys' schools and six girls' schools. The total number of secondary schools in Al -Nasiriyah city was 102 and the total number of students was 49232 in these school. From this school only 12 schools
were selected . The total number of students in these 12 schools was 4140 students.

In these school the researcher excluded students in third and sixth grade, due to they don't have semester course. Obesity of 310 students of the total sample. Total of (310) students were taken throughout the use of convenience sampling.

All of the Adolescents' students male and female who were taken the obese from all selected schools and their age was between 12 to 18 years. Based on a review of the literature, previous research examining the relationship between adiposity and academic performance utilized anthropometric measurements and academic performance. Anthropometric measurements utilizing the BMI calculator (WHO Anthro Plus programmed) are compared to the growth chart [23] that is supported by both the WHO and CDC.

Therefore, for the objective of the research, a questionnaire was developed as an instrument.

An alternative structure was developed to accommodate socioeconomic and demographic information of secondary school students, with the purpose of gathering data on the influence of obesity on academic performance.

The ultimate research instrument comprises four primary components: demographic information, socioeconomic status, anthropometric assessment, and academic performance.

***Table 1**: BMI classification according to standard categories and corresponding percentiles.*

Category	BMI (kg/m²)	percentile
Under weight	Below 18.5	<5th percentile
Healthy weight	18.5 - 24.9	5th -84th percentile
Overweight	25.0 - 29.9	85th -94th percentile
Obese	30.0 and above	≥95th percentile

2. RESULTS

***Table 2:** Distribution of the Study Sample by their Sociodemographic Characteristics*

Variables		No.	%
Gender	Male	150	48.4
	Female	160	51.6
	Total	310	100
Ages (years)	12	18	5.8
	13	42	13.5
	14	51	16.5
	15	35	11.3
	16	44	14.2
	17	51	16.5
	18	69	22.2
	Total	310	100
Class	1st	76	24.5
	2nd	79	25.5
	4th	84	27
	5th	71	23
	Total	310	100
Student living with	Both parents	276	89
	Father only	8	2.6
	Mother only	21	6.8
	Otherwise	5	1.6
	Total	310	100
Does the student have a chronic illness	Yes	33	10.6
	No	277	89.4
	Total	310	100
Place of living	Urban	244	78.7
	countryside	20	6.5
	Outskirts of the city	46	14.8
	Total	310	100
Monthly financial income	Less than 300,000 I D	99	32
	300000 - 600000 I D	72	23.2
	600000 - 900000 I D	73	23.5
	More than 900000 I D	66	21.3
	Total	310	100

No.= number, %= percentage

***Table 3:** Distribution of the Study Sample by their Overall Measurement of BMI Percentile Results*

BMI percentile	No.	%
Underweight (<5th Percentile)	228	5.5
Normal (5th -84th Percentile)	3602	87
Overweight (85th -94th Percentile)	82	2
Obesity (=>95th Percentile)	228	5.5
Total	4140	100

No.= number, %= percentage

Table 4: *Distribution of Obese Students According Gender and Classes*

Variables	Gender		Total
	Male	Female	
1st	39	37	76
2nd	36	43	79
4th	38	46	84
5th	37	34	71
Total	150	160	310

Table 5: *Distribution the School Achievement of Obese Students*

School achievement		No.	%
Students results in the first course	Pass	202	65.2
	Failed	108	34.8
	Total	310	100
Students average in the first course	Failed	108	34.8
	poor	66	21.3
	Moderate	58	18.6
	Good	43	13.7
	Very Good	26	8.8
	Excellent	9	2.8
	Total	310	100
	Mean	Minimum	Maximum
	62.8		28

No.= number, %= percentage

Table 6: Association of Obese Students Results in the First Course and their Sociodemographic Characteristics

Variables		Obese Students Results in the First Course		Total	Sig.
		Pass	Failed		
		No.	No.		
Gender	Male	85	65	150	χ^2=10.77 d.f=1 sig=0.001
	Female	117	43	160	
	Total	202	108	310	
Age	12	8	10	18	χ^2=11.17 d.f=6 sig=0.004
	13	34	8	42	
	14	35	17	51	
	15	24	11	35	
	16	25	19	44	
	17	35	16	51	
	18	41	27	69	
	Total	202	108	310	
Class	1st	42	34	76	$\chi^2 = 18.85$ $d.f = 3$ $sig = 0.000$
	2nd	59	20	79	
	4th	45	39	84	
	5th	56	15	71	
	Total	202	108	310	
Student living with	Both parents	184	92	276	$\chi^2 = 5.171$ $d.f = 3$ $sig = 0.160$
	Father only	6	2	8	
	Mother only	10	11	21	
	Otherwise	2	3	5	
	Total	202	108	310	
Does the student have a chronic illness	Yes	20	13	33	$\chi^2 = 0.223$ $d.f = 1$ $sig = 0.337$
	No	182	95	277	
	Total	197	108	310	
Place of living	Urban	155	89	244	$\chi^2 = 2.811$ $d.f = 2$ $sig = 0.245$
	countryside	15	5	20	
	Outskirts of the city	31	15	46	
	Total	202	108	310	
Monthly financial income	Less than 300000 I D	69	30	99	$\chi^2 = 2.575$ $d.f = 3$ $sig = 0.462$
	300000 - 600000 I D	44	28	72	
	600000 - 900000 I D	49	24	73	
	More than 900000 I D	40	26	66	
	Total	202	108	310	

NO. = NUMBER, $\boldsymbol{d.f = Degree\ of\ Freedom}$ *,% = PERCENTAGE,* X^2 *= CHI- SQUARE, SIG. = SIGNIFICANT,* $\boldsymbol{p - value \leq 0.05}$

Table 7: *Association of Obese Students Average in the First Course and their Sociodemographic Characteristics*

Variables		Students average in the first final semester						Total	Sig.
		Failed	Poor	Moderate	Good	Very good	Excellent		
		No.	No.	No.	No.	No.	No.		
Gender	Male	65	31	21	21	8	4	150	χ^2=12.609 d.f=5 sig=0.000
	Female	43	35	37	22	18	5	160	
	Total	108	66	58	43	26	9	310	
Age (years)	12	10	4	1	2	1	0	18	χ^2=47.059 d.f=30 sig=0.034
	13	8	7	10	12	3	2	42	
	14	17	13	11	5	5	0	51	
	15	11	6	9	6	2	1	35	
	16	19	10	6	4	4	1	44	
	17	16	11	11	6	5	2	51	
	18	27	15	10	8	6	3	69	
	Total	108	66	58	43	26	9	310	
Class	1st	34	12	12	11	5	2	76	χ^2=28.6 d.f=15 sig=0.018
	2nd	20	22	20	10	6	1	79	
	4th	39	8	14	12	9	2	84	
	5th	15	24	12	10	6	4	71	
	Total	108	66	58	43	26	9	310	
Student living with	Both parents	92	60	53	42	23	6	276	χ^2=30.79 d.f=15 sig=0.702
	Father only	2	1	2	0	1	2	8	
	Mother only	11	4	2	1	2	1	21	
	Otherwise	3	1	1	0	0	0	5	
	Total	108	66	58	43	26	9	310	

No. = number, % = percentage, χ^2 = Chi- square, d.f= Degree of Freedom, sig. = significant, $p - value \leq 0.05$

Table 8: *Relationship between demographic factors and students' course performance.*

Variables		Students' rates in the first course						Total	Sig.
		Failed	Poor	Moderate	Good	Very good	Excellent		
		No.	No.	No.	No.	No.	No.		
Does the student have a chronic illness	Yes	13	6	5	3	4	2	33	χ^2=4.032 d.f=5 sig=0.545
	No	95	60	53	40	22	7	277	
	Total	108	66	58	43	26	9	310	
Place of living	Urban	88	50	46	33	21	6	244	χ^2=8.71 d.f=5 sig=0.559
	Country side	5	5	3	2	3	2	20	
	Outskirts of the city	15	11	9	8	2	1	46	
	Total	108	66	58	43	26	9	310	
Monthly financial income	Less than 300,000 I D	30	24	22	14	6	3	99	χ^2=11.002 d.f=15 sig=0.75
	300000 - 600000 I D	28	14	15	10	3	2	72	
	600000 - 900000 I D	24	15	10	11	10	3	73	
	More than 900000 I D	26	13	11	8	7	1	66	
	Total	108	66	58	43	26	9	310	

No. = number, % = percentage, χ^2 = Chi- square, d.f= Degree of Freedom ,sig. = significant, $p - \ value \ \leq \ 0.05$

3. DISCUSSION

Part I: Distribution of the Study Sample by their Sociodemographic Characteristics.

Gender distribution among obese pupils was found to be 51.6% for females and 48.4% for males (Row 1 of Table 1). The findings presented in this study align with those of [25], whose research examines the influence of obesity and physical activity on the academic performance of elementary school pupils. In spite of the gender distribution, their research revealed that the majority of respondents (50.5 percent male and 50.5 percent female) were of the participating age. (Row 2 of Table 1) According to the demographic results of the study, 22.2% of the student sample was 18 years old. A comparable outcome was observed in the study [24] that investigated the impact of weight status on academic achievement. Age-related reductions in the likelihood of obesity are observed in the study participants, who were minors from Australia, all other factors being equal. As a child matures and gains education, this signifies an increased consciousness regarding one's appearance or the adverse consequences of obesity. Nonetheless, as age increases, so do the probability of being overweight and the significance of BMI.As indicated in Row 3 of Table 1, 27% of the students in the sample were in the fourth grade, according to the study results. This finding contradicts the conclusions drawn in [25] whose research was concerning the impact of childhood obesity on academic performance and the influence of food store accessibility on the quality of diets. Class four and six examination scores are unaffected by adiposity, according to his findings.89% of students reside with both parents, according to the present study. Childhood Obesity and Academic Achievement among Male Students in Public Primary Schools in Kuwait is the title of a study [26] that demonstrates a bearing on this result. The majority of students (90.2%) living with both parents, according to the results of their study.10.6% of the participants have chronic ailment, while 89.4% do not, according to the study's findings. (Childhood Obesity and Academic Achievement among Male Students in Public Primary Schools in Kuwait) This result is consistent with that of [27]. The majority of the students (10.7%) had a chronic illness, according to the results of their investigation. 78.7% of obese pupils resided in urban areas, according to the findings of the present study. Childhood Overweight and Academic Performance: A National Study of Kindergarteners and First Graders [28] found this result to be inconsistent with the findings of that study. Suburban students had a lower prevalence of being overweight, compared to their rural or small-town counterparts, according to the findings of their study. A monthly financial income of less than 300,000 I.D. was reported by 32% of the participants in the present study. The present findings are in contrast with the research conducted by [29], which examined the influence of obesity and physical activity on the academic performance of elementary school pupils. Among the entire sample, 19.2% were obese, according to his findings, and lived in destitution**.**

Part II: Distribution of the Study Sample by their Overall Measurement of BMI Percentile Results

The BMI percentile results of the study (4140) students indicate the following: 5.5% were underweight, 87% were of normal weight, and 7.5% were both obesity and overweight (refer to table 2). In contrast to this finding, the research conducted by [30] examined the prevalence of overweight and obesity among students in the Kumasi Metropolis. According to the results of their research, 7.40 percent of the total sample was underweight, 79.60 percent was of normal weight, and 13 percent was overweight or obese, as determined by BMI. This finding is in opposition to the results reported by [31] who investigated the prevalence of overweight and obesity among high school students of Thiruvananthapuram City Corporation in Kerala, India. According to his research, the prevalence of obesity and overweight is 18.3%. At 12%, overweight is the sole prevalent health condition, while obesity is present at 6.3%.

Part III: Distribution of Obese Students According Gender and Classes

The results of the investigation (Table 3) The findings indicate that the proportion of male students is greater in the first and fifth grades compared to the other grades, while the proportion of female students is greater in the second and fourth grades. This finding is consistent with the

research conducted by [32] which examined the prevalence of overweight and obesity among high school pupils in the Thiruvananthapuram City Corporation, Kerala, India. The results of his study revealed that the occurrence of overweight and obesity is more prevalent in individuals aged 15 and older, as the proportion increases with age. Females exhibit a higher prevalence rate (20%) in comparison to males (16.4%). Furthermore, this finding aligns with the research conducted by [33] which investigates whether a correlation exists between academic achievement and physical fitness. Children attending public schools in the northeastern United States achieved favorable outcomes. The findings of their research demonstrate a statistically significant inverse correlation between body mass index (BMI) and both gender and social class.

Part IV: Distribution the School Achievement of Obese Students

The relationship between students' obesity and their academic achievement levels was established by the findings of this study (Row 1 of Table 4, Students' scores in the first course). According to the findings of the research, 34.8% of obese pupils failed their first semester. A comparable study [28] (The Impact of Physical Activity and Obesity on Academic Achievement among Elementary Students) corroborated these findings. According to his findings, there is a negative correlation between a high BMI and academic achievement. And this outcome Their findings, which are consistent with a previous study [34] (Childhood overweight and elementary school outcomes), demonstrate a statistically significant inverse correlation between body mass index (BMI) and academic performance. The findings of this research (Row 2 of Table 4, Students average in the first course) indicate a correlation between obesity and academic achievement; 21.3% of the students enrolled in the study had a subpar average in the first semester. Furthermore, these results align with the research conducted by [34] (Obesity and Academic Performance in Adolescents, 2012). The frequency distributions of obese adolescent males and normal-weight boys did not differ significantly across all grades of academic performance, according to their research. The proportion of normal-weight females (50%) who exhibited 'Very good' academic performance was considerably higher than that of their obese peers**.**

Part V: Association of Obese Students Results in the Final First Semester and their Sociodemographic Characteristics

The association between the sociodemographic characteristics of obese students and their cumulative average in the final semester of the first year was ascertained in this study (Table 5). There is a highly significant correlation between the overall grade point average of rotund students in their final first semester and their sociodemographic characteristics, including gender, age, and class, according to the study's findings. This result is consistent with the findings of [34] whose study examined the relationship between obesity and academic performance in adolescents. Their research revealed a statistically significant inverse correlation between body mass index (BMI) and the academic achievement of both male and female adolescents. This unequivocally demonstrated that academic performance declined as the BMI of adolescent boys and girls increased. This finding is consistent with the research conducted by [35], which investigated the determinants of body mass index and intelligence quotient among elementary school children in the mountainous region of Nepal. The results of their research suggested that the data collectively demonstrated a significant correlation between age and both body mass index (BMI) and intelligence quotient score. This research aligns with the findings of [27], whose study examines the impact of childhood obesity on academic achievement and the influence of food store accessibility on dietary quality. His research revealed that obesity had an impact on the academic performance of students in grades seven and nine. This result contradicts the findings of [28] their study (Childhood Obesity and Academic Achievement among Male Students in Public Primary Schools in Kuwait), which, after adjusting for sociodemographic factors, concluded that there was no significant association between obesity and academic performance. The findings of this research (Table 5) indicate that there is no statistically significant correlation between the first-semester performance of obese students and their sociodemographic characteristics (including living with a parent, having a chronic illness, place of residence, and monthly financial income). This conclusion is consistent with the results of a previous study [28] Childhood Obesity and Academic Achievement among Male Students in Public Primary Schools in Kuwait is the title of their research. The results of their research suggested that additional variables such as housing type, the presence of chronic diseases, and whether the child was living with both parents were not substantial confounding factors. Furthermore, after controlling for parental education, there was no correlation between BMI categories and students' academic achievement. This result contradicts the findings of [21] whose research examined the relationship between physical activity, obesity, and academic achievement in elementary students. According to his findings, poverty level had the strongest correlation with obesity and BMI, indicating that as family income increased, so did the BMI index of the participants. Conversely, the literacy scores of the participants exhibited a decline as their BMI rose. This result contradicts [26]'s finding regarding whether or not weight status influences academic performance. Children's evidence from Australia) The results of their research proved that household income has a statistically significant positive effect on the BMI of children at the 10% level. Higher household income raises a child's body mass index (BMI), but does not necessarily contribute to obesity, as indicated by the negative coefficient of household income on obesity in children.

Part VI: Association of Obese Students Average in the First Semester and their Sociodemographic Characteristics

The findings of this research (Table 6) indicate that a notable correlation exists between the average grade point

average of obese students in their introductory course and their sociodemographic attributes, namely gender, age, and class standing. This result is consistent with the findings of [24] whose research investigates the impact of weight status on academic performance. Based on evidence gathered from Australian children, the results of their study demonstrated that age is a significant predictor of body weight. The likelihood of developing obesity is demonstrated to decline with age and provides additional variables. This demonstrates how a child's cognizance of appearance or the detrimental consequences of obesity changes as they mature and acquire more knowledge. This result contradicts the findings of [31] whose research examined the relationship between childhood obesity and academic achievement and the impact of food store accessibility on the quality of diets. According to the results of his research, there was insufficient statistical support to establish a correlation between obesity rates and the academic performance of students in literacy and mathematics in the classroom. The findings of this research, as presented in Table 6, indicate that there is no statistically significant correlation ($p \leq 0.05$) between the sociodemographic characteristics of obese first-semester students and their living situation (including whether the student is a parent, has a chronic illness, place of residence, and monthly financial income) and average weighted grade (Table 6). This discovery bears resemblance to the research conducted by [24] concerning the correlation between childhood obesity and academic achievement in public primary schools for male students in Kuwait. The results of their research suggested that additional variables, such as housing type, the presence of chronic diseases, family income, and whether the child lived with both parents, did not have a substantial impact as confounding factors. Students' performance remained unaffected by BMI categories, even after controlling for parental education and other explanatory variables.

CONCLUSIONS

Researcher found that the percentage of obesity in girls is slightly higher than in boys. And the most common category in adolescents where the percentage of obesity is at the age of 18 years, the rate of obesity in grades is high in the fourth grade, students with obesity was 89% among students living with both parents, students who have obesity and do not have chronic diseases is 89.4% , students who have obesity and income of their families monthly less 300000 Iraqi dinars is 32% , the prevalence of obesity and overweight was 7.5% ,the percentage of students who failed to succeed in the first course is 34.8%. In other words , the proportion of students whose rates ranged between 50-59 is 21.3%, and found that there is a high significant relationship between obese students results in the first course and their sociodemographic characteristics which includes (gender, age and class), while there is no significant relationship between obese students results in the first course and their sociodemographic characteristics (student living with parent, does the student have a chronic illness, place of living and monthly financial income) at $p - value \leq 0.05$.

RECOMMENDATIONS

Concerning nutritious eating habits, parents and educators ought to function as models for children and adolescents. Soft beverages and unhealthy foods such as sweets should be discouraged among students. It is imperative that parents provide nutritious meals for their adolescents. To ensure that adolescents maintain a healthy weight, they should be encouraged to engage in regular physical activity. Activating sports quotas in children's schools. Encourage relevant ministries and civil society organizations to conduct extensive study with large samples and compare them with natural samples.

AUTHORS' DECLARATION

We confirm that all the Figures and Tables in the manuscript belong to the current study.

CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest regarding the publication of this study.

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