

# Epidemiology of Overweight and Obesity among Elementary School Students at Nutrition Counseling Units and Centers in Al Diwaniyah City

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## ABSTRACT

**Background:** Childhood overweight and obesity were seen primarily as a problem for the children of low-income families and those living in deprived urban areas. However, with increasing rates of childhood obesity in higher-income families and wealthy areas, it now affects all socioeconomic groups to some degree.

**Objective(s):** The aim of this study is to explore the epidemiology of overweight and obesity among elementary school students at nutrition counseling units and centers in Al Diwaniyah City.

**Methodology:** A population-based cross-sectional study was conducted among primary school children from (Al Diwaniyah center, Sumer district, Al Bu jubbah village, Arabism, Sunni side and Algeria) area was carried throughout the present study, which uses the screen approach, which had been conducted in elementary age students at nutrition counseling units in Al Diwaniyah city to find out the relationship between BMI and, socioeconomic and lifestyle factors. This study is started from 10 October 2022 to - June 2023).

**Results:** The findings revealed that the majority of students in the study sample 245 (96.8%) had multiple meals taken with them to school. In relation to the (number of meals and times your child takes junk food during a week (such pizza, burger, shawerma, fried potato) both were similar the more than half of the school students take 3 times, as their percentage reached 141(55.7%).

**Conclusion:** The prevalence of overweight and obesity according to the assessment of body mass index most of the participants in the study sample were obesity 162 (64.0%) while the participants with overweight were 91 (36.0%). The prevalence of overweight and obesity more than half of the study sample of students was male 149 reached their percentage (58.9%) while female student was (41.1%).

**Recommendations:** Conduct further studies on same age groups in different areas in governorate. Raise awareness of childhood obesity among parents through publications and symposiums organized by school health nurses.

**Keywords:** *Epidemiology, Overweight, Obesity, Elementary school Students, Nutrition Counseling units.*

## INTRODUCTION

Childhood overweight and obesity are one of the most important public health issues of the twenty-first century. In the UK, the proportion of overweight or obese children and young people is thought to be around one-third, and it is rising. In England, roughly 25 percent of primary school-age children are overweight or obese. This rises to roughly one-third by the age of eleven (1).

Historically, childhood overweight and obesity were seen primarily as a problem for the children of low-income families and those living in deprived urban areas. However, with increasing rates of childhood obesity in higher-income families and wealthy areas, it now affects all socioeconomic groups to some degree. Severely obese children have significantly higher morbidity and mortality rates than

those who are not obese or overweight. There are also large variations in obesity levels between different ethnic and racial groups as well as between urban and rural areas in the UK (2).

Over the past few decades, there has been an increase in childhood overweight and obesity. In 2016, there were an estimated 124 million obese children and adolescents worldwide, 213 million overweight, and 190 million thin or underweight children and adolescents, mostly in low-income countries (3).

Collecting anthropometric information from children using a nationally representative sample is crucial to having a thorough understanding of these trends at the national level. The WHO Regional Office for Europe launched the WHO European Childhood Obesity Surveillance Initiative in 2007 in response to the recommendations of the World Health Organization

(WHO) European Ministerial Conference on Countering Obesity in Istanbul (November 2006). For the effective design, implementation, and evaluation of the policies and strategies for combating obesity, surveillance data are crucial because prevention is recognized as the most practical option for halting the epidemic (4).

Patients with an elevated BMI have an increased risk of developing cardiovascular diseases, diabetes, musculoskeletal problems, and some cancers. This relationship between BMI and health-related quality of life appears to be bidirectional, with the physical dimensions being more strongly correlated than the psychological ones. Given that a worse has been associated with both underweight and obesity, with differences between the gender, a study of an Asian population discovered that this relationship was not linear. Obese individuals have been found to be more prone to pain than overweight individuals. Obesity and depression have been linked in a bidirectional manner, with the risk being higher in women, but not overweight and depression (5).

## METHODOLOGY

**The Design of the Study:** A population-based cross-sectional study was conducted among primary school children from (Al Diwaniyah center, Sumer district, Al Bu jubba village, Arabism, Sunni side and Algeria) area was carried throughout the present study, which uses the screen approach, which had been conducted in elementary age students at nutrition counseling units in

Al Diwaniyah city to find out the relationship between BMI and, socioeconomic and lifestyle factors. This study is started from 10 October 2022 to - June 2023).

**Study Samples:** Purposive sample “non-probability” A Sample of (130) Male and female student who studied in (120) primary school children, sample of students had been selected from government elementary school student distribution in Al Diwaniyah (Al-Sayyab mixed school, Noor AL-Abrar school, Al yusr private school, A-Akramin school, Martyr Adel school, Al-Hudaybiyyah school, and Kindergarten and nursery Al Farah private).

**Methods of Data Collection:** Data are collected through the utilization of the study instrument and structured interview with the student and his or her parent, who are visiting nutrition counseling units and centers in Al-Diwaniyah city, with the Arabic version of the constructed questionnaire as means of data collection in the period (December 20<sup>th</sup>2022 to February 20<sup>th</sup>, 2023).

**Statistical Data Analysis Approach:** In order to determine whether the objectives of the study are met or not, the following statistical approaches were used in analyzing the data of the study.

**Data analysis:** BMI was calculated according to cut off points, and categorized as normal, overweight, and obese. The data was analyzed using the statistical package for the social sciences (SPSS) version 24.

## RESULTS OF THE STUDY

**Table (1): Distribution of the socio-demographic characteristics of the elementary school students in study sample**

Variables	Categories (n=253)	Frequency	Percent
Name of school	Al-Akramin School	50	19.8
	Al Hudaiba School	43	17.0
	Al-Sayyab School	38	15.0
	Al-Seer Private School	30	11.9
	Al- Shaheed Adel School	56	22.1
	Khadija School	15	5.9
	Noor Al-Abrar School	21	8.3
Grade	First grade	40	15.8
	Second grade	33	13.0
	Third grade	40	15.8
	Fourth grade	47	18.6
	Fifth grade	44	17.4
	Sixth grade	49	19.4
Age of student	6 years	14	5.5

	7 years	26	10.3
	8 years	32	12.6
	9 years	37	14.6
	10 years	45	17.8
	11 years	97	38.3
	12 years	2	0.8
<b>Gender</b>	Male	149	58.9
	Female	104	41.1
<b>Weight</b>	25-29 Kg	10	4.0
	30-34 Kg	17	6.7
	35-39 Kg	46	18.2
	40-44 Kg	42	16.6
	45-49 Kg	39	15.4
	50-54 Kg	27	10.7
	55-59 Kg	27	10.7
	60-64 Kg	24	9.5
	65-69 Kg	15	5.9
	70-75 Kg	6	2.4
<b>Height</b>	90 - 99 cm	2	.8
	100-109 cm	8	3.2
	110-119 cm	24	9.5
	120-129 cm	56	22.1
	130-139 cm	52	20.6
	140-149 cm	57	22.5
	150-159 cm	47	18.6
	160-169 cm	7	2.8
<b>Assessment of BMI</b>	Over weight	91	36.0
	Obesity	162	64.0

Table -1- revealed that is most of participants in the study sample were from Al- Shaheed Adel School 56(22.1%). Concerning the grade is revealed that more of participants in the study sample were in fourth grade 47(18.6%) and showed the more than one-third 97 (38.3%) of students in the study sample were within the age group (11 years).

The results of this table show that more than half of the study sample of students was male 149

reached their percentage (58.9%). Concerning the weight, most of participants in the study sample were within the category (35-39 kg), the ratios reached 46(18.2%). Concerning height in the study sample the more of the student 57(22.5%) were in the class (140-149 cm), the subject of assessment of body mass index the most of participants were obesity 162 (64.0%).

**Table (2): Distribution of the aspect of physical activity and sports**

Physical Activity & sports	Categories (n=253)	Frequency	Percent
<b>How far your house from school of this child?</b>	< 1km	183	72.3
	(1-2) km	48	19.0
	(2-3) km	15	5.9
	≥ 4 km	7	2.8
<b>How your child goes to school</b>	<b>On foot</b>	83	32.8

	special car	83	32.8
	Service	87	34.4
How many hours your child spend daily watching TV?	1 hour	75	29.6
	2 hours	140	55.3
	3 hours	30	11.9
	4 hours	6	2.4
	5 hours	2	0.8
How many hours your child spend daily in computer & playing video games?	1 hour	8	3.2
	2 hours	85	33.6
	3 hours	73	28.9
	4 hours	87	34.4
How many hours your child spend daily in telephone (mobile) playing?	2 hours	106	41.9
	3 hours	93	36.8
	4 hours	40	15.8
	5 hours	14	5.5
How many hours your child study daily?	1 hour	6	2.4
	2 hours	106	41.9
	3 hours	93	36.8
	4 hours	40	15.8
	5 hours	8	3.2
How many hours approximately your child spend playing and riding bicycle out home?	1 hour	120	47.4
	2 hours	122	48.2
	3 hours	7	2.8
	4 hours	4	1.6

The above table shows distribution of the aspect of physical activity and sports, the subjects the far your house from school of this child, the results show that more than two-third of them were < 1km about home 183(72.3%). In addition, child goes to school shows that two-third of them were on foot 83(32.8%), and by special car 83(32.8%). and the hours your child spend daily watching TV, more than half 140(55.3%) were spend 2 hours. Also in the hours your child spend daily in computer & playing video

games shows approximately one third of the sample were 87 (34.4%) were spend 4 hours. Concerning the (hours your child spend daily in telephone (mobile) playing, and hours your child study daily) both represented that 106(41.9%) of participants of students were spend 2 hours. Finally, the hours approximately your child spend playing and riding bicycle out home for participants in the study sample the majority of them were spend (1 hour & 2hours), as their ratio 120(47.0%), and 122(48.2%).

**Table (3): Distribution of the dietary habit for primary school students**

Dietary Habit	Categories (n=253)	Frequency	Percent
What kind of food your child takes with hem to school?	without meals	8	3.2
	Multiple meals	245	96.8
The number of meals	2 times	12	4.7
	3 times	141	55.7
	4 times	81	32.0
	5 times	19	7.5
How many times your child takes junk food during a week(such pizza, burger, shawerma, fried potato	1 time	3	1.2
	2 times	9	3.6
	3 times	141	55.7
	4 times	81	32.0

	<b>5 times</b>	19	7.5
<b>How many bottles of Coca-Cola your child drink during the week?</b>	<b>None</b>	3	1.2
	<b>1 time</b>	75	29.6
	<b>2 times</b>	16	6.3
	<b>3 times</b>	132	52.2
	<b>4 times</b>	14	5.5
	<b>5 times</b>	13	5.1
	<b>1 times</b>	9	3.6
<b>How many times your child eat Chips?</b>	<b>2 times</b>	69	27.3
	<b>3 times</b>	28	11.1
	<b>4 times</b>	120	47.4
	<b>5 times</b>	22	8.7
	<b>6 times</b>	2	.8
	<b>7 times</b>	3	1.2
<b>How many times your child eat chocolate?</b>	<b>2 times</b>	71	28.1
	<b>3 times</b>	110	43.5
	<b>4 times</b>	72	28.5

The table (3) revealed that the majority of students in the study sample 245(96.8%) were have multiple meals take with them to school. In relation to the (number of meals and times your child takes junk food during a week (such pizza, burger, shawerma, fried potato) both were similar the more than half of the school students take 3 times, as their percentage reached 141(55.7%). Concerning the times bottles of Coca-Cola your child drink during the week show more than half of participants were taken 3 times 132(52.2%). Regarding the times your child eat Chips shows that most of the sample were 4 times 120(47.4%). Also in regarding the subjects the times your child eat chocolate, the results show that more of participants were 3times 110(43.5%).

## DISCUSSION

The prevalence of overweight and obesity among 6-12 years in the study sample. This result agrees with Badawi and other (6) that the proportion of subjects aged years was a study that reported that the prevalence of overweight and obesity among 6-12 years. In present study the prevalence of overweight and obesity more than half of the study sample of students was male 149 reached their percentage (58.9%). This result agrees with (7,15,16) that the proportion of gender was a study reported that most of their study sample was male.

Concerning the prevalence of overweight and obesity among age group was more than one-third 97 (38.3%) of students in the study sample within the age

group (11 years). This result agrees with (8,12,13,14), study reported that most of their study sample was 4934(75.1) within the age group (11 years). Regarding the prevalence of overweight and obesity among grade was more participants in the study sample were in Sixth grade 49 (19.1%). These findings have been supported by (7) who has mentioned that most of the participants were sixth grade (206) out of (852).

The findings of the present study have revealed that the weight most of participants in the study sample were within the category (35-39 kg), the ratios reached 46(18.2%), while the height in the study sample the more of the student 57(22.5%) were into the class(140-149 cm), and the subject of assessment of body mass index the most of participants were obesity 162 (64.0%), while the participants with overweight were 91 (36.0%). It is also disagreement with a study conducted by (7,9,10,11) who has mentioned that the majority 151(54.7%) of overweight while the obesity was 115 (43.3%).

## CONCLUSION

The prevalence of overweight and obesity among 6-12 years in the study sample in Al Diwaniyah City. The prevalence of overweight and obesity according to the assessment of body mass index most of the participants in the study sample were obesity 162 (64.0%) while the participants with overweight were 91 (36.0%). The prevalence of overweight and obesity more than half of the study sample of students

was male 149 reached their percentage (58.9%) while female student was (41.1%).

## RECOMMENDATIONS

Conduct further studies on same age groups in different areas in governorate. Raise awareness of childhood obesity among parents through publications and symposiums organized by school health nurses.

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