Obesity in Primary Schools Children in Baquba City

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Abstract

Background: Obesity is an abnormal or increased fat accumulation in the body. Body mass index (BMI) defined as a person weight in kilograms divided by the square of his height in meters (kg/m^2). It is a very simple index that more commonly used to identify overweight and obesity in adults. For childhood, the amount of body fat differs from that an adult because it differs according to the age and to the sex, so the BMI age- and sex- specific percentiles are used. Obesity in children is a real health problem worldwide especially in developed countries, as well as, it increases in developing countries. Childhood obesity predispose to type 2 diabetics, hypertension, liver and renal disease, cardiovascular diseases and adult obesity.

Objective: To detect the prevalence and possible risk factors for childhood obesity in primary schools in Baqubah city from age 6 to 12 years.

Patients and Methods: The study was cross-sectional study conducted on a random sample of 6 primary schools from different localities in Baqubah city, followed by a systematic random sample of 308 children aged from 6 to12 years of both sexes. A questionnaire sent to the parents to get information on socio-demographic characteristics, dietary habits, physical activity, family history of obesity and parents education and job. Children's height (cm), weight (Kg), and BMI-for-age were measured. Child's weight status was categorized based on WHO 2007 Growth Reference. This study was included 308 child, the mean age was 9.32±1.9year, 51.9% of the children were males, and 49.1% were female the mean BMI was 18.36±4. Only 2.5% of the studied sample were underweight, while 73.4%, 14.3% and 9.4% were of normal, overweight or obese respectively.

Results: About 48% of children in this study eat sweets, 48.5% do regular sports, 48.7% watch TV or mobile for more than 2 hours daily. It was found that 34.7% of children got positive family history of obesity, regarding educational level of parents 39% of mothers and 42.9% of fathers got primary level of education and 33.1% of mothers, 31.2% of fathers got higher than secondary level.

Conclusion: The prevalence of overweight and obesity was 23.7% in primary schoolchildren in Baqubah city. The study supports the multi factorial etiology of obesity It showed that sedentary life style, positive family history and eating un healthy foods are risk factors.

Keywords: Obesity, School children, Baquba.

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Introduction

Obesity is one of the most serious public health problems all over the world in the 21st century that is characterized by abnormal or increase fat accumulation in the body[1]. Obesity has many healthy problems long-term consequences for health. like emotional and psychological problems, childhood obesity can cause life-threatening conditions like diabetes, elevated blood pressure, heart disease, cancer, liver early puberty or menarche, sleep problems, skin disease , and asthma [2].

The prevalence of childhood obesity has been increasing at worrying rates across the world . In addition, this elevation rate has also been noted in developing countries childhood obesity has been increasing dramatically. In the last two decades, across the world this rate has also been noticed in developing countries, body mass index (BMI) defined as a person weight in kilograms B divided by the square of his height in meters (kg/m^2) is a very simple index that more commonly used to identify overweight and obesity in adults [3]. For childhood, the amount of body fat differ s from that an adult because it differ according to the age and differs between girls and boys, so the BMI age- and sex- specific percentiles are used and known as BMI-for- age [4,5].

Obesity varies around the world being higher in USA, European countries up to 25% of both sex. In Arab gulf countries, about 30% for male and 40% for female According to WHO, currently 10% of children worldwide are either overweight or obese More than forty million schoolchildren were overweight or obese in the EMR in 2010. EMR countries are [6] the second in the world after the Americans exceed European countries in prevalence of overweight and obesity. Overweight/obesity was high among primary school children. Especially those with low physical activity, family history of obesity highly educated., Parent with,, Professional job .more finally children [7].

The WHO declined that around 700 000 million adult aged 18 years and above were obese and 2.3 billion were overweight [8].The four years' rate for people to developed obesity around 5% to -7% among non-obese women and around 7% to -9% among non-obese man. Generally, the risk for developing overweight is 1 in 2 people , and 1 in 4 people to develop obesity, while the danger for developing more severe obesity is 1 in each 10 individuals. Childhood obesity has been increasing at worrying rates across the world. In addition to developed countries, this rate has also been notice in developing countries, including those in Eastern Mediterranean Region (EMR) [9]. Different Iraqi research were directed to measure the overweight/obesity prevalence among pupils in primary school children showed that d a rapid elevated in overweight and obesity in our contrary [10]. The study

aim to detect the prevalence of obesity among schools children in Baqubah city from age 6-12 years.

Patients and Methods

This is a cross sectional study was conducted in six primary schools chosen randomly from Baqubah city. The study extended from 10 of October 2018 to the 12 of January 2019 where schools children aged 6-12 years where included in this study randomly.

The questioner was given to the parents concluded unmeasured using standard weight and height scale [WHO growth 2007 reference]. The proposal of this study was fully discussed and approved by the ethical and scientific committee in Diyala College of medicine. The agreement of authority of the included schools where taken before starting collected data .the verbal consideration of the parent of the included children was taken after fully explanation to the aim of the study with keeping of the collected data anonymous and will be used only for research purposes. The study was started on 10 October 2018 till 12 of January 2019.

The study was conducted in 6 primary schools that selected randomly A questionnaire was taken including name, gender, weight ,height ,parent education ,sport in time .eating habits family history and the children from age 6-12 years were chosen by systemic random sampling.

Statistical analysis

The collected data where introduced in to excel sheet and loaded into [IBM-SPSS V4] software program. Descriptive study Where presented by using frequency distributions table and graphs while inferences statistics where display by using chi square teste to find out significance between related categories variable p-value less equal or less than 0.05.

Results

This study included 308 children; the mean age was 9.32±1.9 year. 51.9% of the children were males, and 49.1% Regarding age group it was found that 11.5 of older than 10 years children were obese corresponding to 7.3% of those who are less than 10 years old, significant association was noticed between weight status and age group,p value =0. 062 as show in Table(1),(2)and(3).

Table (1): Distribution of children obesity according to the age

		Number	%
Age	Mean ±SD	9.32±1.9year	
	Less than 10yr	151	49%
	10yr and more	157	51%

Table (2): Distribution of children obesity according to gender

Gender	Number	%
Male	160	51.9%
female	148	48.1%

Table (3): The association between gender and weight status

		*Normal		Over		Obese	
		N	%	N	%	N	%
Gender	Male	121	75.6	25	15.6	14	8.8
	Female	114	77.0	19	12.8	15	10.1

In females, the mean BMI was 18.36±4. Only 2.5% of the studied samples were underweight, while 73.4%, 14.3% and 9.4% were of normal, overweight or obese respectively. Table (2) showed that 8.8% of male children and 10.1% of females were obese, there was no significant association between gender of child and probability of Being obese in this study .p value =0.743 as show in Table (4).

Table (4): Distribution of children according to BMI

		Number	%
BMI	Mean ±SD		
Weight status	Under weight	9	2.9%
	Normal weight	226	73.4%
	Overweight	44	14.3%
	Obese	29	9.4%

About 48% of children in this study eat sweets, 48.5% do regular sports,48.7% watch TV or mobile for more than 2 hours daily Prevalence of obesity among children eat sweet was 16.9% which is significantly higher than obesity among non-sweet eater (p value=0.001). As show in Table (5),(6).

Table (5): Distribution of according to eating habits (sweets) children

		number	%
Sweet	Yes	148	48.1%
	No	160	51.9%

Table (6): Association between eating habits (sweets) and weight status

variable		normal		over		obese	
		n	%	N	%	n	%
Sweet	Yes	85	57.4	38	25.7	25	16.9
	No	150	93.8	6	3.8	4	2.5

It was found that 34.7% of children got positive family history of obesity, The percentage of obese children among children who had positive family history of obesity was 25.2 which significantly higher than negative family history children (1%) ,(p v =0.001) as show in Table (7),(8).

Table (7): Distribution of children according to family history of obesity

		Number	%
Family history	Yes	107	34.7%
	No	201	65.3%

Table (8): Association between family history and weight state

variable		normal		over		obese	
		n	%	n	%	n	%
Family history	Yes	44	41.1	36	33.6	27	25.2
	No	191	95.0	8	4.0	2	1.0

Regarding educational level of parents 39% of mothers and 42.9% of fathers got primary level of education and 33.1% of mothers, 31.2% of fathers got higher than secondary level. Neither father nor mother educational level were found to be significantly associated with getting obesity among studied children,(p value= 0.356)and(0.539) as show in Table(9,10).

Table (9): Distribution of children according to parents' education

		number	%
Mother education	Primary and less	121	39.3%
	Secondary	85	27.6%
	University	102	33.1%
Father education	Primary and less	132	42.9%
	Secondary	80	26.0%
	University	96	31.2%

Table (10): Association between parent education and weight status

variable		normal		over		obese	
		n	%	n	%	n	%
Father education	Primary and less	99	75.0	20	15.2	13	9.8
	Secondary	65	81.3	11	13.8	4	5.0
	University	71	74.0	13	13.5	12	12.5
Mother education	Primary and less	89	73.6	19	15.7	13	10.7
	Secondary	67	78.8	14	16.5	4	4.7
	University	79	77.5	11	10.8	12	11.8

About 19.6% of children who spend more than 2 hours watching TV and/or mobile got obesity and this rate was significantly higher than the rate of obesity among those who watch for less than hours, p value=0.001 as show in Table (11,12).

Table (11): Distribution according to T.V and mobile watching

		number	%
TV & mob	≤2 hours	138	44.8%
	>2 hours	170	55.2%

Table (12): Association between T.V and mobile watching and weight status

Variable		normal		over		obese	
		n	%	n	%	n	%
TV & mobile watching	>2hours	80	58.0	31	22.5	27	19.6
	<2hours	155	91.2	13	7.6	2	1.2

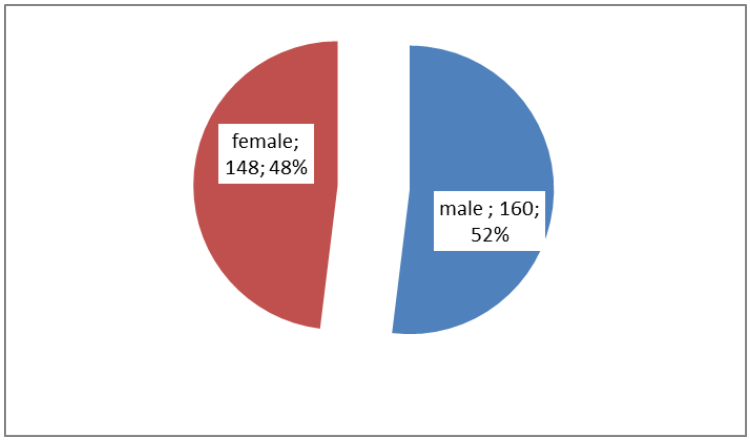
Player children got significantly low rate of obesity (5.3%) than those who are not sport player (13.35), p = 0.012 as show in Table (13,14).

Table (13): Association between sport and weight status

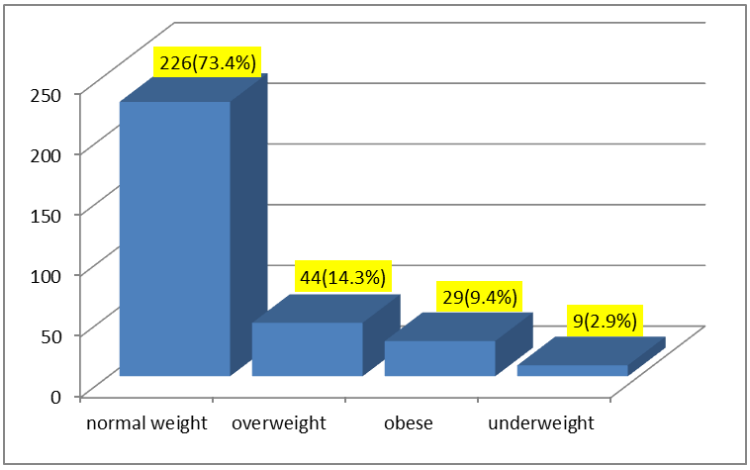
		normal		over		obese	
		n	%	n	%	n	%
Sport playing	Yes	125	83.3	17	11.3	8	5.3
	No	110	69.6	27	17.1	21	13.3

Table (14): Distribution of children according to sport and physical activity

		number	%
sport	Yes	150	48.7%
	No	158	51.3%



Figure(1): Distribution of studied cases according to gender



Figure(2): Distribution of studied children according to weight status

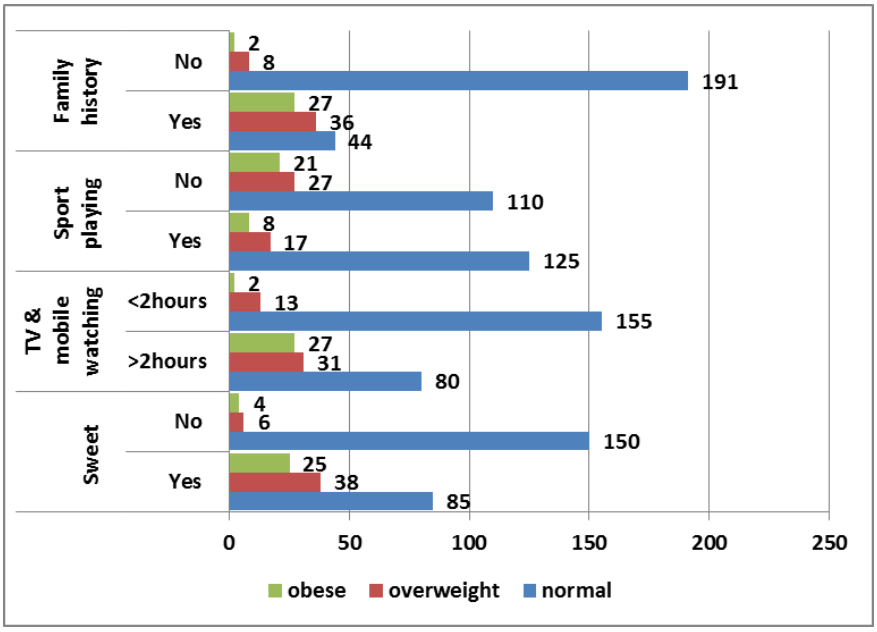


Figure (3): Distribution of significantly associated independent variables and weight status

Discussion

Childhood obesity is a serious public health problem all over the world. In the present study, the overall prevalence of obesity among schools children aged from 6-12 year in public primary schools was 9.4% while the overweight was 14.3% so the overall prevalence of obesity and overweight among schools children in Baqubah city was (23.7%).

Three recent studies were conducted in Iraq. Two studies agree with our study; the first one was done in Kirkuk by Dr. Jenna Akbar Shakoor in 2015 where the overall prevalence of obesity among students aged

from 6-12 year was 6.2%, while the overweight was 18%, so the overall prevalence of obesity and overweight among public primary school students in Kirkuk city was 24.2% [11]. The second study was in Basra city done by Abd-el-Jaleel Salman, M. and N. Ajeel, A. H, 2013 where the overall prevalence of obesity and overweight was 24.1(10.5% for overweight and 13.6 for overweight)[12].Another study were conducted in Baghdad city (2013) done by .AL-Daboony SJ showed higher overall prevalence of obesity (32.9%) [13].This difference can be attributed to the economic and social differences.

The overall prevalence of obesity in this study was lower than what was reported in several neighboring countries such as the two Kuwaiti studies by Al-Bayumy et al (2009) which found that the overall prevalence of obesity and overweight as 45.3% (30.7% overweight and 14.6% obese[14] and Al-Isa et al (2010) study which showed the overall prevalence as 37% (16.8% for obese and 20.2% for overweight) [15]. Another study from Iran done by Jazayeri SN (2005) showed a prevalence of 29% (7.9% for obese and 21.1% for overweight) [16]. These differences can be explained as environmental and cultural differences, genetic factors, life style, as well as the sample size.

In the present study the prevalence of obesity and overweight was the same among boys and girls. This result was in agreement with the two Iraqi studies [17,18] and the study from Unitaed States [19].

Some studies had shown that boys have a higher rate of obesity than girls do, as that done in Palastine by Isbaih MA (2009) [20]. Others showed that the female gender was a risk factor for obesity with a higher prevalence of obesity among females compared to males as the study done in Iraq by Lafta RK (2005) [21].

The study confirmed that the prevalence of overweight and obesity increased with age. Regarding age group it was found that 11.5% of older than 10 years children were obese corresponding to 7.3% of those who are less than 10 years old without significant association. These results were agree with those reported in Iraqi study by Lafta RK and Kadhim MJ. (2005) [21] and in other studies in USA by Magarey AM, Daniels (2003). [22].

It has been suggested that family history of obesity was a risk factor behind obesity. This study demonstrated that significant association between nutritional status of parents and prevalence of obesity and overweight in a studied sample. The percentage of obese children among children who had positive family history of obesity was 25.2 which significantly higher than those with negative family history (1%) , (p=0.001) which agree with study done in Kuwait [15].

In the present study, it had been found that sporting for more than 2 hour per day had significant effect on BMI Sport player. Children got significantly low rate of obesity (5.3%) than those who are not sport player (13.35), (p = 0.012), which agrees to study

done in united states by Gray A and Smith C (2003) [23], in addition to another study done in France by Klien-piatate et al. [24].

This study revealed a strong association between T.V. watching or mobile using and obesity. About 19.6% of children who spend more than 2 hours in watching T.V. and/or mobile got obesity, and this is significantly higher than that of children who watch T.V./Mobile for less than 2 hours, (p=0.001). This finding is similar to other studies done in Australia and Canada. [25,26].

The study concluded that obesity in 6-12 month children is an important health problem in Baquba city and mobile using, watching TV. sweets and fast food intake are risk factors for obesity and overweight, while sport and physical activity reduce that risk.

Recommendation

The study recommends education people by providing practical and understandable information on healthy diets that people can easily adopt in their everyday lives and encourage physical activity lifestyles of children. Governments should ensure that adequate facilities, such as recreational spaces, walking and cycling paths, are in place for children to use as well as creation of an appropriate and timely screening, diagnosis and management of conditions that can increase the risk of developing obesity in children.

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