Prevalence of Overweight and Obesity among Primary School Children in Baghdad/Al-Karkh City

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Abstract

BACKGROUND: Child hood obesity is one of the most serious public health challenges of the 21st century. The problem is global and is steadily affecting many low and middle income countries, particularly in urban setting[1], childhood obesity is a major public health crisis nationally and internationally. The prevalence of childhood obesity has increased over few years.[2]

OBJECTIVE: To estimate the prevalence of overweight and obesity in primary school children in Baghdad/al-karkh city (Iraq) .

METHODS: a cross –sectional study was conducted among school children in the period between February and June 2013 , a total 2401 children (1256 boys, 1145 girls) were selected randomly, weight and height was measured and BMI for age was calculated and according to BMI-for-age chart for boys and girls[3] BMI percentile determined, interview was done for every child about socioeconomic status. Nutrition status determined via breakfast taking only.

RESULTS: The prevalence rates among primary school children were : obese 16.2% , overweight 16.7% , normal 62.6% and underweight 4.5%.

No significant association between age, sex, socioeconomic status and obesity including overweight , only significant association was found between obesity and breakfast.

CONCLUSION: The prevalence of overweight and obesity about 32.9% in primary school children, we need further study to examine the underlying social and cultural factors associated with life style and nutritional habits.

Introduction :

Childhood obesity is due to the imbalance between calorie intake and calorie utilized [2].

Body mass index(BMI) is a number calculated from child's weight and height . BMI is a reliable indicator of body fatness for most children and teens[3].

Obesity and overweight are defined as abnormal or excessive fat accumulation that may impair health[4].

Overweight and obesity are linked to more deaths worldwide than under weight. For example 65% of the world 's population live in countries where overweight and obesity kill more people than under weight (this includes all high –income and the most middle –income countries)[4].

Raised BMI is a major risk factor for non communicable disease such as:

Cardiovascular disease, diabetes, musculoskeletal disorders , childhood obesity is associated with higher chance of obesity, premature death and disability in adulthood. But in addition to increase future risks, obese children experience breathing difficulties , increased risk of hypertension, early markers of cardiovascular disease, insulin resistant[4], overweight and obesity in childhood have significant impact on both physical and psychological health[5].

Twenty five percent of children in USA are overweight and 11% are obese[5].

Overweight and obesity have reached epidemic proportions in many Asian countries, the highest rate of obesity in Asia is in Thailand, Philippines, China which once had the leanest of population[6].

In India the prevalence of overweight and obesity in upper socioeconomic status children was 16.75% and 5.59% in boys and 19% and 5% in girls respectively[7].

In Jordan the prevalence , 19.4% were overweight (18.8% of boys and 19.9% of girls) and 5.6% were obese (5.6% of boys and 5.5% of girls[8].

The prevalence of obesity and overweight other than Asian countries for examples, the prevalence of overweight including obesity in Polish children 7-9 years old 15.4%(15.8% of girls &15% of boys), in French 18.1% of overweight and 3.8% of obese children.(9)

The worldwide prevalence of childhood overweight and obesity increased from 4.2% (95% CI: 3.2%, 5.2%) in 1990 to 6.7% (95% CI: 5.6%, 7.7%) in 2010. This trend is expected to reach 9.1% (95% CI: 7.3%, 10.9%), or 60 million, in 2020. The estimated prevalence of childhood overweight and obesity in Africa in 2010 was 8.5% (95% CI: 7.4%, 9.5%) and is expected to reach 12.7% (95% CI: 10.6%, 14.8%) in 2020. The prevalence is lower in Asia than in Africa (4.9% in 2010), but the number of affected children (18 million) is higher in Asia[10].

Obesity is one of the 10 most preventable health risk , the management of obesity is through exercise , nutrition , supplementation and medical intervention[11].

METHODS

A cross- sectional study design for 1st to 6th grades children studying in different primary public school of Baghdad /AL-Karkh , in the period between February and June 2013 , a total 2401 children (1256 boys, 1145 girls) were selected randomly.

Height and weight of everyone were measured , body mass index (BMI)= weight in(Kg) / square height (meter) was calculated for each one and compared with sex and age specific from CDC-GROWTH CHART to determine BMI percentile and according to BMI percentile the child determined to be : underweight if less than 5th percentile , healthy weight 5th percentile to less than 85th percentile , overweight 85th percentile to less than 95th percentile , obese equal to or greater than the95th percentile.

The second part of study was demographic information:

Assessed demographic information include: name, age, gender, information about socioeconomic status , nutrition status (asking about breakfast taking only).

DATA ANALYSIS

The data was entered and analyzed using Statistical Package for the Social Science (SPSS) Version16 statistical analysis program , Chi-square test was used to determine the significance of association between the variables.

RESULTS : A total of 2401 child from 1st to 6th grade of primary public school were analyzed, the distribution of the age in the study is showed in the table(1).

Age in years	Frequency	Percent	Valid Percent	Cumulative Percent
7	425	17.7	17.7	17.7
8	514	21.4	21.4	39.1
9	356	14.8	14.8	53.9
10	362	15.1	15.1	69.0
11	364	15.2	15.2	84.2
12	282	11.7	11.7	95.9
13	66	2.7	2.7	98.7
14	20	.8	.8	99.5
15	10	.4	.4	99.9
16	2	.1	.1	100.0
Total	2401	100.0	100.0	

Table (1) frequency of age in years

Distribution of the gender is showed in the table(2): boys (1256) and girls(1145).

gender	Frequency	Percent	Valid Percent	Cumulative Percent
boys	1256	52.3	52.3	52.3
girls	1145	47.7	47.7	100.0
Total	2401	100.0	100.0	

Table (2) frequency of gender

The distribution socio-economic status is showed in the table(3)

Socioeconomic status

Socio-economic status	Frequency	Percent	Valid Percent	Cumulative Percent
high class status	304	12.7	12.7	12.7
-mid class	1782	74.2	74.2	86.9
-low class	315	13.1	13.1	100
Total	2401	100.0	100.0	

Table(3) distribution of the socioeconomic status
The distribution of nutrition information about breakfast , taken or not is showed in the table(4).

Nutritional status	Frequency	Percent	Valid Percent	Cumulative Percent
has breakfast	1132	47.1	47.1	47.1
NOT	1269	52.9	52.9	100.0
Total	2401	100.0	100.0	

Table(4) frequency of the information about breakfast

According to BMI percentile numbers and percents of less than5%, between5%to less than 85%, 85%to less than 95% and equal or more than 95% in the table(5) and figure (1).

percentile	Frequency	Percent	Valid Percent	Cumulative Percent
≥95%	388	16.2	16.2	16.2
85-94%	401	16.7	16.7	32.9
5-84%	1504	62.6	62.6	95.5
<5	108	4.5	4.5	100.0
Total	2401	100.0	100.0	

Table(5) the frequency of BMI percentile
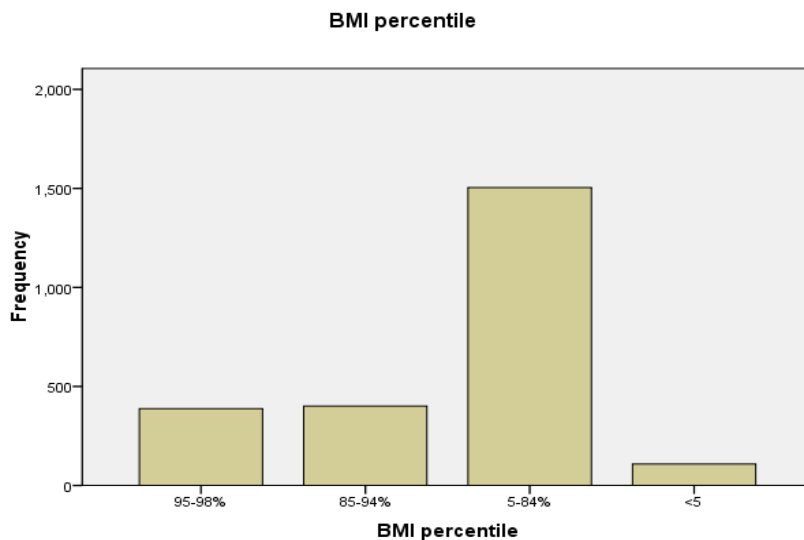
Figure(1)

Table (6) is showing the frequency and percentage of the grading of obesity including (obese, overweight, normal weight and underweight)

grading of obesity

	Frequency	Percent	Valid Percent	Cumulative Percent
obese	388	16.2	16.2	16.2
over weight	402	16.7	16.7	32.9
normal	1502	62.6	62.6	95.5
under weight	109	4.5	4.5	100.0
Total	2401	100.0	100.0	

Table(6) frequency of the grading of obesity

In the table(7) , no relation between BMI categories and age was found in this study.

Table(7) Crosstab between age & grading of obesity
grading of obesity

age		obese	over weight	normal	under weight	Total
	7	65	71	272	17	425
	8	70	71	357	16	514
	9	58	64	221	13	356
	10	64	70	203	25	362
	11	75	62	210	17	364
	12	51	55	162	14	282
	13	4	6	53	3	66
	14	0	2	15	3	20
	15	1	1	7	1	10
	16	0	0	2	0	2
	Total	388	402	1502	109	2401

p-value(.oo7)

The prevalence of obesity and overweight in boys (16.4%,15.6%) , boys were more obese , in girls (15.8%, 17.9%) girls were more overweight, these are showed in the table(8) and no relation between BMI categories and gender was found.

Table(8)Crosstab between grading of obesity and gender
grading of obesity

gender		obese	over weight	normal	under weight	Total
	boys	206	196	799	55	1256
	girls	182	206	703	54	1145
	Total	388	402	1502	109	2401

p-value o.431

Table (9) show frequency of BMI categories against socioeconomic status, no significant association was found .

Table (9)Crosstab between socioeconomic status grading of obesity

grading of obesity

Socioeconomic status		obese	over weight	normal	under weight	Total
	high class	54	58	180	12	304
	-mid class	301	297	1107	77	1782
	-low class	33	47	215	20	315
	Total	388	402	1502	109	2401

P-value 0.224

Table (10) show the frequency of BMI categories and the habit of taking breakfast or not, there's significant association between them, among obese and overweight were not eating breakfast.

Table (10)Crosstab between eating breakfast or not

grading of obesity

Nutritional status		obese	over weight	normal	under weight	Total
	has breakfast	143	163	776	50	1132
	NOT	245	239	726	59	1268
	Total	388	402	1502	109	2401

p-value o.ooo

CONCLUSIONS

The prevalence of overweight and obesity were about 32.9% in school children, we need further study to examine the underlying social and cultural factors associated with life style and nutritional habits.

The obesity can be prevented , prevention could be the key to controlling the obesity

Preventive program are conducted to control obesity in children and to modify the social and behavioral factors in developing obesity.

Deviation from normal body is linked to changes in health in children and adolescents , promoting a normal body weight has the potential to effect not just the risks for later life disease but appears central to improving the health and wellbeing of the young[12].

Intervention at the individual and policy making levels need to be instigated at the earliest, to tackle   this problem in country(13).

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