International Journal of Enhanced Research in Medicines & Dental Care (IJERMDC),
ISSN: 2349-1590, Vol. 6 Issue 7, July-2019, Impact Factor: 3.015

Prevalence of Obesity among Primary Schools Children in Mosul City (A Cross Sectional Study)

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ABSTRACT

Background: Childhood obesity is a strong predictor of adult obesity, which has well known health and economic consequences, both for the individual and society as a whole(1). Although longitudinal studies suggest that improving BMI in adulthood can reduce the risk of morbidity and mortality, childhood obesity will leave a permanent imprint on adult health(2).

Aim of the study: Determine the prevalence and factors associated with overweight and obesity among primary school children in Mosul city.

Material and Methods: A cross-sectional descriptive study conducted in 4 primary school children in Mosul city during the period from 1st of November 2013 to 1st of may 2014. A total of 946 school aged children 6-13 year were chosen, BMI of the participants was measured to estimate the prevalence of overweight and obesity. Questionnaire aiming to determine the sociodemographic characteristics, behavioral activity, dietary practice.

Result: The prevalence of overweight and obesity (body mass index >= 85th percentile) was 31.88% {19. 77% overweight and 13.11% obese}. Overweight was more among female while obesity was more prevalent among male.

Conclusion: The prevalence of obesity and overweight in Mosul city, Iraq among primary school children was still lower than many neighboring countries. Physical inactivity, computer use, skipping breakfast and eating fast food were important factors for obesity.

INTRODUCTION

Childhood obesity is one of the major health concern of the 21st century. In 2016, 124 million children and adolescent aged (5-19) year were estimated to suffer from obesity worldwide and 213 million were overweight(3). childhood obesity is associated with immediate adverse consequence,such as psychological problem , lower educational attainment and higher risk for many comorbidites late in life such as DM2 ,HT, Dyslipidemia, Non-alcoholic fatty liver , and coronary heart disease(4),also more likely suffer from depression(5).

Healthcare professional define obesity (increased adiposity) using the body mass index (BMI{weight in kilogram/(height in meter)^2}(6). BMI threshold 18-24.9 kg/m^{2}Normal, 25-29.9 kg/m^2 overweight and >= 30 obese.Obesity in children define as BMI >= 95th percentile for age and sex and >= 85thpercentile(7).

PATIENTS AND METHODS

Study setting: The study was conducted in Mosul city, that is located in northwestern Iraq
Study design: An observational descriptive cross sectional study design was selected to achieve the objective.
Study populations: A sample of children aged (6-13y) students who attend the public and private primary school in Mosul city.

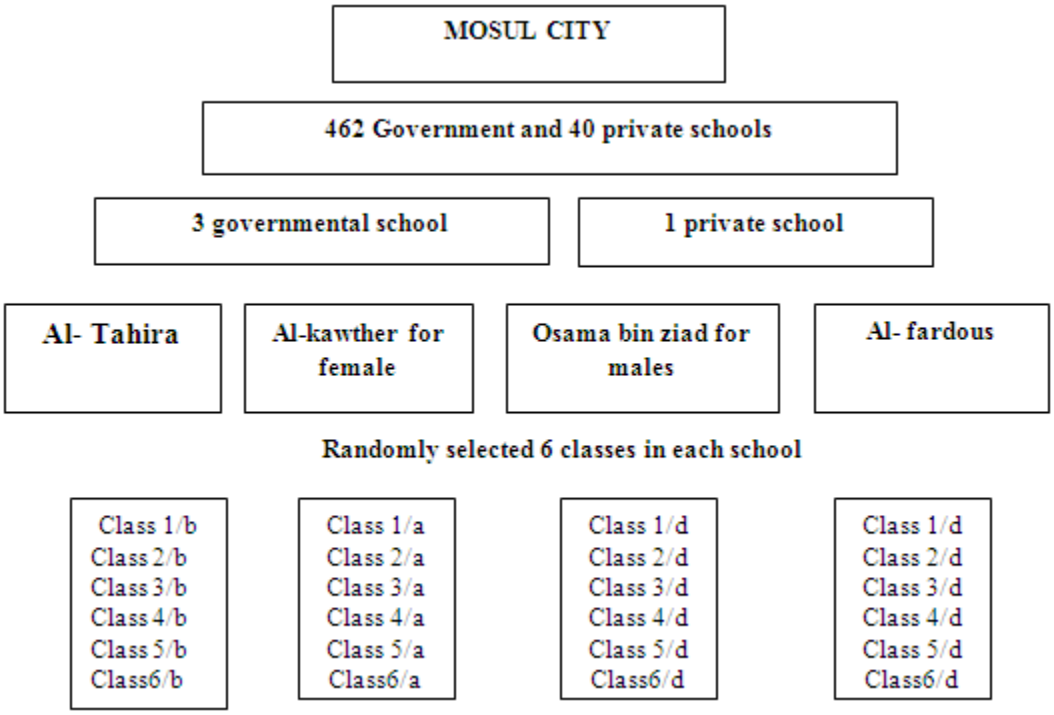
Study size: The sample size taken through simple random technique from 4 schools in Mosul city and according the equation

N= Z*(1-P)/P*E

N=sample size , Z= 1.96^2 is the statically parameter corresponding to the confidence level of 95%[64], P=is the expected prevalence (10%) , E = relative precision = 0.2 [(8)] .

N= $1{,}96^2$ *(1-10%) / 0.1 *$(0.2)^2$ = 864.

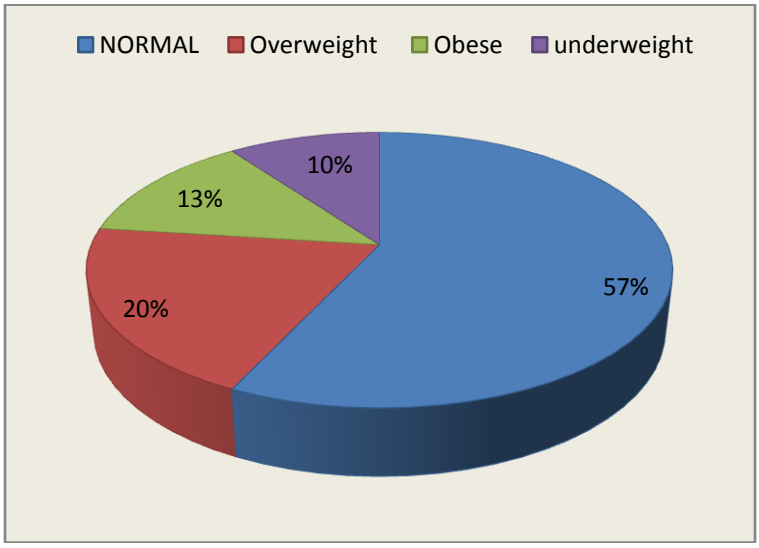
Sample technique:



RESULTS

3.1 Background characteristics of the study populations

The 946 school children interviewed were 542(57.19%) normal , 187 (19.77%) overweight , 124(13.11%) obese And 93 (10%) underweight.



3.2 Distribution of population according to Age

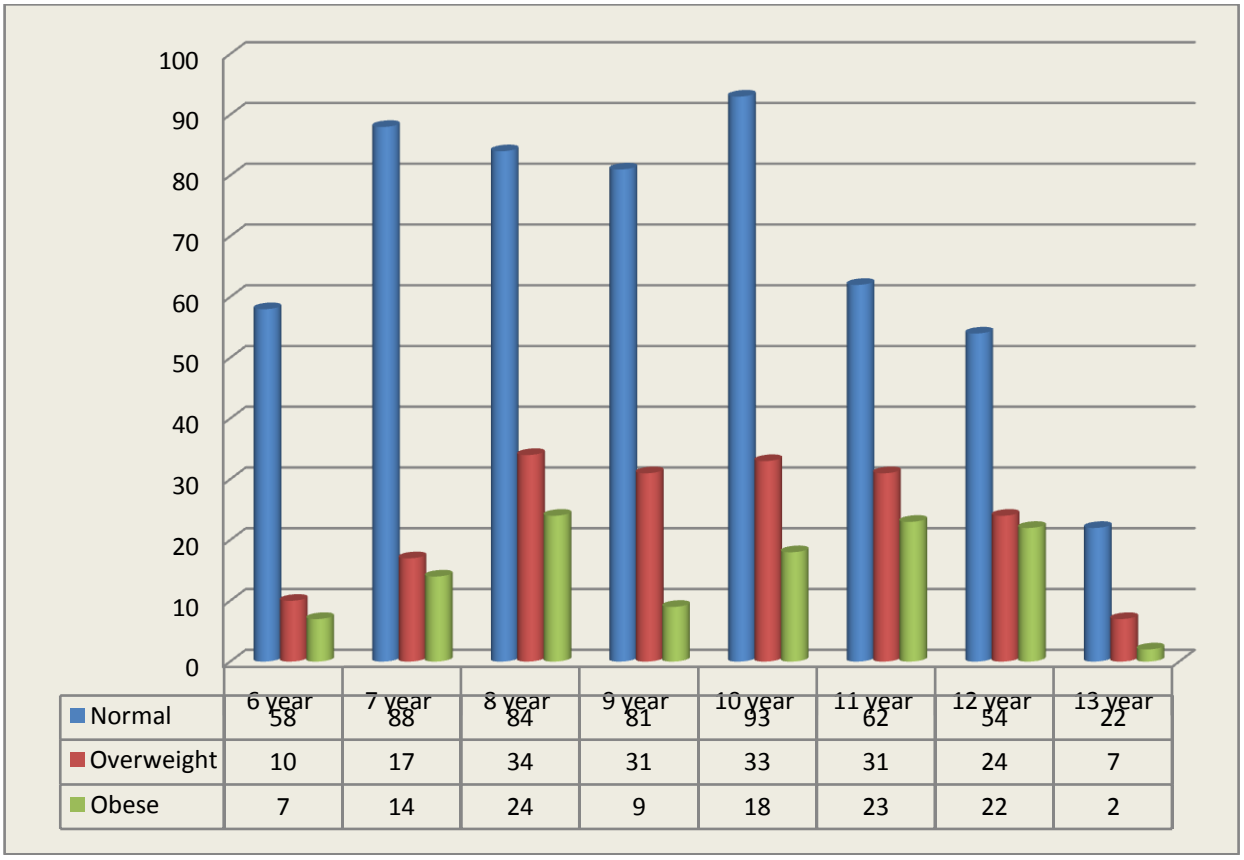


Table 1: Distribution according to gender among study population

Gender	Normal	Overweight	Obese	P value
	%	%	%	
Male	30.97	9.73	7.51	0.517
Female	26.32	10.04	5.6	
Total	57.19	19.77	13.11	

Table 2: Distribution according to type of schools

Type of schools	Normal	Overweight	Obese	P value
	%	%	%	
Government	43.97	13.74	8.67	0.044
Private	13.32	6.03	4.44	
Total	57.19	19.77	13.11	

Table 3: distribution according to mode of transport to and from school

Mode of transport to and from school	Normal	Overweight	Obese	P value
	%	%	%	
Walking	16.8	4.86	3.81	0.375
Car or bus of school	40.49	14.91	9.3	
Total	57.29	19.77	13.11	

Table 4: distribution according to participation in sports

Participation in sport	Normal	Overweight	Obese	P value
	%	%	%	
No	22.199	9.302	7.188	0.001
< 30 min/day	33.827	10.465	5.920	
>= 30 min/day	1.268	0/000	0.000	
Total	57.294	19.767	13.08	

Table 5: Distribution according to TV watching

TV Watching	Normal	Overweight	Obese	P value
	%	%	%	
< 3 hrs/day	34.99	9.73	3.17	0.001
>3hrs / day	22.30	10.04	9.94	
Total	57.29	19.77	13.11	

Table 6: distribution according video games use

Video games use	Normal	Overweight	Obese	P value
	%	%	%	
< 3 hrs/day	4.02	2.11	2.11	0.002
>3hrs / day	53.28	17.66	10.99	
Total	57.29	19.77	13.11	

Table 7: distribution according eating breakfast before going to school

Eating breakfast before going to school	Normal	Overweight	Obese	P value
	%	%	%	
No	25.581	9.302	8.140	0.001
Yes,sometimes	13.636	5.074	2.854	
Yes, often	4.968	2.220	1.480	
Yes,always	13.108	3.171	0.634	
Total	57.294	19.767	13.108	

Table 8: distribution according to eating fast food per week

Fast food per week	Normal	Overweight	Obese	P value
	%	%	%	
>=3day/wk	0.106	12.156	6.66	0.001
2 day/wk	9.408	4.228	2.96	
1 day/wk	15.116	2.960	2.643	
No	32.664	0.423	0.846	
Total	57.294	19.767	13.108	

DISCUSSION

Childhood obesity is a serious public health problem with a rapidly increasing problem in worldwide. In Basra previous study suggested that the prevalence childhood obesity and overweight has markedly increased [9], this was confirmed by the result of our study which found that the overall prevalence of overweight and obesity among primary school children was 32.88% (19.77% overweight and 13.11 obese) .

Although the prevalence of overweight and obesity among primary school children in Mosul city was relatively high, but still lower than neighboring countries like Kuwait (45.3%{30.7% overweight and 14.6% obese})[10], kingdom of Saudi Arabia(45% { 18% overweight and 27% obese)[11].

Current study notable that the prevalence of overweight was higher in females students than male, while the prevalence of obesity was higher among male than female students, this might be due to the difference physiologically composition of the female body or because female are more likely to control their weight to prevent obesity. overweight and obesity were more prevalent among males in Jordan, Kuwait , UAE, than among females . Finding similar to this are also seen in Western countries study[12].

World Health Organization warned the escalating epidemic of obesity could put the population in many countries at risk of developing non-communicable diseases [13]. T he high prevalence of overweight and obesity in Iraq was explained by consumption of high caloric food, and social habits, this explained by that fact of economic improvement and redistribution of wealth after the last political events.[14]

CONCLUSION

We have identify factors related to obesity, that may be considered for future intervention.The education sector plays a critical role in providing nutrition and health education increasing the opportunities for physical activity and promoting health social environment .Obesity more prevalent in male than female, this may be related to the difference in timing of puberty, muscular tissue, and dietary habits between male and female.

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