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Studying Effective Factors on Overweight and Obesity in High School Students in Erbil

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Abstract

Introduction: Overweight and obesity are explained as excessive fat depositions in human body. They have become one of the serious public health problems of the twenty-first century in low income countries**.** The prevalence of overweight and obesity in children is increasing worldwide, and currently 1 child in 10 is overweight or obese. The aim of this study was to assess overweight and obesity and associated factors in high school students in Erbil.

Method: It was a cross-sectional study in which 1,000 students in the age range 16-18 years of Erbil, Iraq in 2016-2017 were randomly selected. Data were gathered by a questionnaire. Data were analyzed using SPSS version 22 by appropriate statistical tests.

Results: our results showed that some effective factors such as Computer games, watching TV, and irregular sleep (P-value<0.05) were the known factors/ affecting obesity/overweight in this study.

Conclusion: This study revealed that there are many factors involved in emerging over weight, such as overeating, eating snacks just before bedtime, and eating between meals especially between dinner and bed time, having lunch/dinner outside at restaurants and eating rice frequently, taking a nap during the day and watching TV/play video games/computer games.

Key words: *overweight, obesity, high school, students*

Introduction

Overweight and obesity can be explained as excessive and abnormal fat depositions in human body. They are major risk factors for several diet-based non-communicable diseases like dyslipidemia, cardiovascular diseases (CVD), and type II diabetes mellitus [1–4]. About 2.8 million deaths and 35.8 million (2.3%) of global Disability Adjusted Life Years (DALYs) are caused by overweight or obesity [5].

The prevalence of overweight and obesity in children is increasing worldwide, almost 1 child in 10 is overweight or obese [4]. Results of a study in United State suggest that obese adolescents are likely to stay obese into adulthood, and among individuals who were obese as adolescents, incident of severe obesity was 37.1% in men and 51.3% in women [6].

In lower- to middle-income countries, obesity co-exists with under nutrition where most overweight and obese children being concentrated in urban areas and presents serious social and psychological impacts [7]. The prevalence of overweight in Iraq is experiencing a shift from underweight to overweight along with rapid socioeconomic and nutritional transition particularly in their area population. While, Africa is experiencing a shift from underweight to overweight along with rapid socioeconomic and nutritional transition particularly in their urban population. This transformation comes with increased access to energy-dense foods and less

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strenuous jobs resulting into many people having a positive energy balance and hence becoming overweight or obese [8,9].

It should be noted that 44% of the diabetes burden, 23% of the ischemic heart disease burden and between 7% and 41% of certain cancer burdens are attributable to overweight and obesity[10,11].

According to increase prevalence of overweight in high school children, the aim of this study was to assess the overweight in high school students and its relationship with lifestyle for the first time in Erbil, Iraq.

Method

It was a cross-sectional study which was conducted from the 20th of September 2016 to the 10th of March 2017. Target population were the students of grade 10, 11 and 12 of public schools (between 16-18 years of age) in Erbil city of Kurdistan region of Iraq.

The sample was collected by multistage cluster sampling technique. Schools were divided into 6 groups according to the municipalities of Erbil city, to cover all quarters of the city. Schools were randomly selected according to the number of students in each region. The total number of selected schools was 32 distributed in the 6 municipalities. Of the 36,777 students in these schools, 1,000 students were randomly selected. From each school a single class was selected randomly; For Data collection from each class was attended by the counseling specialist of the school.

Questionnaire Design:

A questionnaire which was designed by the Centers for Disease Control and Prevention (CDC) was modified and used as data collection[9]. The questionnaire had three parts including demographic information, habits and life style of the students and socio-economic status (SES) that was calculated taking into consideration age, education and occupation of the father, car ownership and house ownership, according to the formula designed by Omer and AL-Hadithi [10] and They were asked to choose between low SES, middle SES, and high SES which is one of the best types of descriptions. For better understanding; the questionnaires were adapted to each school's language of instruction (local Kurdish and also to Arabic language).

After collecting the questionnaires, Data were examined using statistical package for social sciences (SPSS) version 22 (SPSS Inc. Chicago, IL) for windows. Data were analyzed through the use of simple descriptive statistical data analysis approach and inferential data analysis approach. Chi-square test of association was used to assess the association between the prevalence and several risk factors and Fisher's exact test was used instead of the Chi square test when the expected count of more than 20% of the cells of the table was less than 5. P value of ≤ 0.05 was considered as statistically significant.

Ethical Consideration

This study followed the tenets of the Declaration of Helsinki and written informed consent was obtained from all patients. All students were assured that their participation in the study was voluntary; they were informed about the purpose of the study; their anonymity and confidentiality were assured. Also an official permission from Erbil General Directorate of Education and from schools' administrations to collect data was obtained. The study was approved by the Ethics Committee of the college of medicine of the Hawler medical university.

Result

This cross sectional study was done on 1000 high school children. Among them were 572 women and 428 men with an average age of 16.94±0.79. The tables of 1 to 5 show the prevalence of overweight and obesity by different factors.

Table 1. Prevalence of overweight and obesity by history of diseases in the family.

		Prevalence of overweight & obesity		
	N	No.	(%)	p
Overweight father				
No	825	243	(29.5)	0.414
Yes	175	57	(32.6)	

Cont... **Table 1. Prevalence of overweight and obesity by history of diseases in the family.**

Diabetes father				
No	885	269	(30.4)	0.449
Yes	115	31	(27.0)	
Heart Problems father				
No	988	297	(30.1)	> 0.999*
Yes	12	3	(25.0)	
Overweight mother				
No	806	234	(29.0)	0.173
Yes	194	66	(34.0)	
Diabetes mother				
No	888	257	(28.9)	0.040
Yes	112	43	(38.4)	
Heart Problems mother				
No	993	298	(30.0)	> 0.999*
Yes	7	2	(28.6)	
Overweight brother				
No	962	283	(29.4)	0.043
Yes	38	17	(44.7)	
Diabetes brother				
No	997	299	(30.0)	> 0.999*
Yes	3	1	(33.3)	
Heart Problems brother				
No	998	299	(30.0)	0.510*
Yes	2	1	(50.0)	
Overweight sister				
No	974	290	(29.8)	0.340
Yes	26	10	(38.5)	
Total	1000	300	(30.0)	

Table 2. Prevalence of overweight and obesity by knowledge and opinion about obesity.

		Prevalence of overweight & obesity		
	N	**No.**	**(%)**	**p**
Do you think that your parents are overweight or obese?				
No	744	222	(29.8)	0.850
Yes	256	78	(30.5)	
Do your parents have Diabetes?				
No	694	207	(29.8)	0.599
One of them	159	49	(30.8)	
Both of them	33	13	(39.4)	
I don't know	114	31	(27.2)	
Do you think that you are overweight or obese?				
No	748	153	(20.5)	< 0.001
Yes	252	147	(58.3)	
Do you think that obesity in adolescents is a health risk?				
No	469	141	(30.1)	0.967
Yes	531	159	(29.9)	
Have you heard about the bad effect of overweight and obesity?				
No	258	89	(34.5)	0.067
Yes	742	211	(28.4)	
Total	1000	300	(30.0)	

Discussion

Our study showed that the overweight and obesity was significantly more in the age 16 and female students who were almost in class 11. A study by Taresa Kisi Beyen showed that More than half of the respondents 423 (53.5%) were females [12]. The sex specific prevalence of overweight was similar with findings from Nigeria of which 0-8.1% males and 1.3-8.1% females were overweight [13], Ghana and Uganda (10.4% girls, 3.2% boys were overweight while 0.9% females and 0.5% males were obese) [14] and Raichur district, India of which 6.17% of students were overweight in the year 2007 [15]. Our finding was in line with study done in South Africa [16], Jordan [17]. The possible reason for this could be; girls spent most of their time at home and their movement from place to place are much restricted due to cultural influence than boys which result in more sedentary life.

The results showed that the students had history of such disease in their family: Diabetes mother and Overweight brother. Another interesting result was that most of them did not think that they were overweight or obese.

Family history is a consistent and independent risk factor for many common chronic diseases, and professional guidelines usually include the use of family history to assess health risk, initiate interventions, and motivate behavioral changes [18]. Family history is a consistent and independent risk factor for many common chronic diseases, and professional guidelines usually include the use of family history to assess health risk, initiate interventions, and motivate behavioral changes .family history of obesity, rather than family history of hypertension, may be more closely associated with obesity in children, the differences in disease sensitivity

between children and adults may lead to different manifestations of the disease [19].

Early onset of severe obesity increases the risk of long-term obesity and metabolic complications [20-23]. Overweight and obesity from childhood to adulthood have been related to an increased risk of T2DM, AH, dyslipidemia, and carotid-artery atherosclerosis [24]. Therefore, an early, multidisciplinary approach (pediatric, endocrinological, nutritional) in overweight and obese children is necessary to reduce the development of metabolic complications. IR, previously considered a problem in adulthood, becomes a serious issue also in children.

We concluded that there are many factors involved in emerging over weight, such as family history of diabetes and obesity and unawareness of being obese.

Conflict of Interest: Not

Ethical Clearance: The study was approved by the Ethics Committee of the college of medicine of the Hawler medical university

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