Prevalence and Associated Risk Factors of Obesity from Six to 16 Year Old Children

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Abstract
Background: Obesity and Overweight are defined as excessive fat accumulation that poses a risk to well-being. In children, a BMI of the85 percentile to less than the 95th percentile is considered overweight, and the 95th percentile or greater is considered obese.
Aim: This study aimed to measure the prevalence of childhood obesity in a population of six to16 years of age and its associated risk factors.
Participants and methods: In this comprehensive study, 50 samples of 6-16- years of children were selected in public schools in the city of Nasiriya. The current search began from (4 April 2024) to (18 July 2024). A questionnaire was used to collect data.
Results: The vast majority of the sample consists of children, especially those between the ages of 12 and 16. With regard to gender, the majority of children in the sample were female. At the place of residence, the population sample contains the highest proportion of the urban population. When calculating the number of siblings in the family, the largest proportion falls into the category of two to four siblings. Once assessing the correlation between the BMI level and the socio-demographic attributes of the children as well as other variables that may affect obesity, it was found that there was a significant relation between the BMI level according to the Father's educational level (P< 0.005), the Mother's educational level (P 0.004), the Number of siblings in the family (p< 0.003).
Conclusion: The risk factors for obesity are outlined number of main meals per day indicated a substantial association with obesity. physical exercise revealed an important relationship between physical activity and obesity. connection between the amount of time spent sleeping and obesity.
Recommendations: Parents must play their part as well, by providing healthy foods in the home and encouraging physical activity by limiting their children's recreational television, video game, and computer time to less than two hours a day.

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Keywords: Obesity, Overweight, Obesity in Children

Introduction

Obesity is pathological accumulation of adipose tissue in the organism. The most frequently reported risk factors are environment, heredity, physical inactivity and malnutrition. childhood obesity appears to continue into adulthood in 70% of cases. The rapid increase in obesity and being overweight in developing countries is being exacerbated by reduced physical activity and diets rich in refined grains, vegetable oils, caloric sweeteners, and processed foods [1].
Body mass index (BMI) is commonly used to determine if adults are overweight or obese. is defined as body weight in kilograms divided by the square of height in meters (kg/m2) [2].

It is an established problem in high income countries and is now becoming a major public health problem, especially in middle-low income countries. Show that the parental limit setting in the form of excluding televisions from children's bedrooms and regulating time spent watching television to no more than 2 h per day represents an important target for intervention [3].

The third strategy should focus on ways to increase physical activity as part of the daily routine of children and adolescents [4].

The causes of obesity in children are multifactorial, including genetics, physiology, metabolism, psychology, socioeconomic status, lifestyle, and culture. In the family, the mother plays an important role in her children's nutritional status. Maternal obesity and higher levels of education tend to increase the risk of childhood obesity [5].

Furthermore, eating out or watching TV while eating is associated with a higher intake of fat. Parental feeding style is also significant. The author's found that authoritative feeding (determining which foods are offered, allowing the child to choose, and providing rationale for healthy options) is associated with positive cognitions about healthy foods and healthier intake. Interestingly authoritarian restriction of "junk-food" is associated with increased desire for unhealthy food and higher weight [6].

Nurses can promote healthy lifestyle patterns that reduce the risks of being overweight such as breastfeeding, regular meals, physical activity, and nutrition and weight counseling are all areas where nurses may help to reduce the risk of obesity**.** School nurses are encouraged to follow a childhood obesity education program In Pennsylvania, school nurses, in collaboration with a multidisciplinary team, are involved in screening programes and support for children who are underweight or at risk of being overweight or obese A school intervention programme in Massachusetts promotes eating five portions of fruit and vegetables, a maximum of 2 hours' television time and at least 1hour of physical activity each day In the UK, in a prospective, evidence-based programme in seven regions, primary care nurses delivered interventions to 1906 patients with BMI >40kg/m² or >28kg/m² with obesity-related comorbidities [7].

Methodology

The research is a descriptive (cross sectional research design). performed the Prevalence and Associated Risk Factors of Obesity from six to 16 year old children at public schools in AL-Nasiriya city. A non-probability sample (purposeful sample) consisting of (50) students from the public schools of the city of Nasiriya. The present research started from (5 of January 2024) to (1st April 2024) in order to assess Prevalence and Risk Factors of Obesity from six to 16-yearold children.

The designed and built instrument was used by the researcher to collect data and measure the Prevalence and Associated Risk Factors of Obesity from six to 16 year old children at public schools in AL-Nasiriya city. The follow-up final study tool consists of one part: the first part relates to the demographic variables of students (Appendix B1). The questionnaire was first polled in English (Appendix B2) and then translated into Arabic to help the participants understand the questions. The questionnaire is constructed and consists of one part that:

Demographic characteristics

The demographic characteristics sheet consists of (14) items that include: age, Location, gender, level of educational of father and mother, Number of siblings in the family, Parents suffering from obesity, Child BMI level with obesity, Child number of main meals per day, Number of hours watching electronic gadget, Number of hours participating in physical activity, type of playing, Sleeping (number of the hours), Way of going to school. The data that was collected through self-management was the questionnaire using the Arabic version of the questionnaire for all individuals included in the study sample. The data collection process was conducted from (18 January 2024) to (20 March 2024) with permission from Schools. On average, each interview took about (8-15) minutes to complete the questionnaire.

Statistical Data Analysis

After the collection of data, they have been coded and analyzed by the application of statistical procedures and by using Statistical package of Social Science (IBM SPSS) program (version 23) for windows to analyze and assess the results of the study, which include:

Descriptive data analysis

1. Tables (Frequencies and Percentages) with comparison significant
   %=Frequencies/sample size*50
2. Statistics tables include: Mean of score (M.S) with a standard deviation (S.D), the Relative sufficiency (R.S.%), their assessment point behind and parts (1.5) because of the tens of (1.2), respectively.

Results and Finding

About 50 students were involved at this study regarding social demographic statistics, Table 4-1 reveals that the vast majority of the whole sample consisted of children, particularly those aged 12 to 16 years. With respect to gender, the majority of children in the sample were female. Whereas the educational level of the father indicated that high school was the most prevalent level in the sample, among all other levels. As for the mother's degree of education, the majority possessed less than a high school certificate. Considering the place of residence, the sample population had the highest proportion of urban residents. When counting the number of siblings in the family, the greatest proportion fell into the category of two to four siblings.

Table 1: Socio Demographic Characteristics of Child and Their Parent (N=50)

Socio Demographic	Scale	Frequency	Percent
child age group	6-12	23	46.0
	12-16	27	54.0
	Mean ± Std. Deviation =13.40 ± 3.046		
Gender	Female	28	56.0
	Male	22	44.0
Father Educational Level	Below High School	21	42.0
	High School	22	44.0
	Bachelor	6	12.0
	Postgraduate	1	2.0
Mother Educational Level	Below High School	28	56.0
	High School	13	26.0
	Bachelor	9	18.0
	Postgraduate	0	0.0
Location	Urban	31	62.0
	Rural	19	38.0
Number of Siblings in the Family	One	3	6.0
	Two-four	26	52.0
	Over five	21	42.0

Table 2: Associated Risk Factors of Obesity Characteristics of Child (N=50)

Risk Factors of Obesity	Scale	Frequency	Percent	Mean of Score
Child BMI level with obesity	Overweight	29	58.0	1.4
	Obese	21	42.0	
Child number of main meals per day	One	00	00	3.3
	Two meals	2	4.0	
	Three meals	28	56.0	
	Four or more meals	20	40.0	
Number of hours watching electronic gadget	Less than 30 minutes a day	5	10.0	2.6
	30- minutes to one hour a day	8	16.0	
	One to two hours a day	10	20.0	
	More than two hours a day	27	54.0	
Number of hours participating in physical activity *	Less than 30 minutes a day	20	40.0	3.2
	30- minutes to one hour a day	24	48.0	
	One to two hours a day	5	10.0	
	More than two hours a day	1	2.0	
Type of playing *	Playing Video games more than 8 hours \week	35	70.0	1.7
	play outside of the house	15	30.0	
Sleeping (number of the hour) *	>8 hours	33	66.0	1.6
	< 8 hours	17	34.0	
Way of going to school *	By foot	31	62.0	1.6
	By bus	19	38.0	

Table 4-2. First, the child's BMI for obesity demonstrated a moderate correlation between BMI and obesity. Despite the number of main meals per day indicated a significant association with obesity. Moreover, the number of hours spent using electronic devices revealed a substantial correlation with obesity. The number of hours spent engaging in physical exercise revealed a negative response between physical activity and obesity. There is a negative response between the type of play, whether outside the home or playing video games, Also the amount of time spent sleeping and the technique of school attendance revealed a negative response between it and obesity.

Table 3: Relationship Between BMI of Child and Risk Factors Related to Obesity

Factor		Child BMI with Obesity		X^2	P Value
		Overweight	Obese		
child age group	6-12	23	0	30.84	.006
	12-16	6	21		
gender	male	1	21	46.08	.008
	female	28	0		
Father educational level	Below high school	21	0	29.10	.005
	High school	8	14		
	Bachelor	0	6		
	Postgraduate	0	1		
Mother educational level	Below high school	28	0	46.12	.004
	High school	1	12		
	Bachelor	0	9		
Number of siblings in the family	One	3	0	50	.003
	Tow-four	26	0		
	Over five	0	21		
Parents suffering from obesity	Yes	22	0	28.44	.004
	No	7	21		
Child number of main meals per day	Two meals	2	0	46.02	.000
	Three meals	27	1		
	Four or more meals	0	20		
Number of hours watching electronic gadget	Less than 30 minutes a day	5	0	30.84	.006
	30- minutes to one hour a day	8	0		
	One to two hours a day	10	0		
	More than two hours a day	6	21		
Number of hours participating in physical activity	Less than 30 minutes a day	20	0	39.22	.003
	30- minutes to one hour a day	3	21		
	One to two hours a day	5	0		
	More than two hours a day	1	0		
type of playing	Playing Video games more than 8 hours \week	29	6	29.59	.005
	play outside of the house	0	15		
Way of going to school	By foot	29	2	42.32	.007
	By bus	0	19		
Sleeping (number in hours)	>8 hours	29	4	35.57	.005
	< 8 hours	0	17		

X2 = Pearson Chi-Square. P-Value = Asymptotic Significance

Table (3), it was found that there was a significant relation between the BMI level according to the Father's educational level (P 0.005), the Mother's educational level (P 0.004), the Number of siblings in the family (p0.003), Parents suffering from obesity (P 0.004), the Number of hours participating in physical activity (p0.003), type of playing (p<0.005), Sleeping (number in hours) (p<0.005). Also, the number of main meals consumed by children each day was significantly and positively related to their body mass index (P 0.000). Age, gender, the number of hours spent in front of electronic means, and the mode of travel to school were among the other factors tested, but none of them showed a statistically significant correlation with the children's body mass index.

Discussion

Current study to be Prevalence and Associated Risk Factors of Obesity from six to 16 year old children in table (1) : the results showed that the vast majority of the whole sample consisted of children, particularly those aged 12 to 16 years the present study degree with the results of the descriptive analyses of demographic characteristics of the school children. The average age of the participants was 10 ± 16 years [1]. With respect to gender, the majority of children in the sample were female the present study degree with developing countries suggested increasing prevalence of obesity in children from 8, 1 %to 12, 9% for boys and from 8, 4% to 13, 4% for girls [7].

While the educational level of the father indicated that high school was the most prevalent level in the sample, among all other levels the present study degree with the results reveal that their direct relationship between obesity prevalence and the education of father. Among children, 61% of children with father having at high school degree are obese [9]. As for the mother's degree of education, the majority possessed less than a high school certificate the present study degree with mother have education level less than high school, the children at greater odds to be overweight/obesity [5]. Considering the place of residence, the sample population had the highest proportion of urban residents the present study degree with the results obesity prevalence was higher for urban residents [10].

When counting the number of siblings in the family, the greatest proportion fell into the category of two to four siblings the present study degree with result reveal that of the nearly 6, 5 million families in the UK with dependent children, 2, 5 million those families have two or more children are obese [1].

In Table (2). Indicated that the child's BMI for obesity demonstrated a moderate correlation between BMI and obesity the study agree with results Indicated that there are associated with BMI &obese.[12] Despite the number of main meals per day indicated a substantial association with obesity the present study degree with results reveal that the relationship between the number of meals and obesity [13].

Moreover, the amount of hours spent using electronic devices revealed a non-significant correlation with obesity the present

study degree with results showed that Each additional hour of television per day increased the prevalence of obesity [14].The amount of hours spent engaging in physical exercise revealed an important relationship between physical activity and obesity the present study degree results the rapid increase in obesity and being overweight in developing countries is being exacerbated by reduced physical activity [15]. There is a significant response between the type of play, whether outside the home or playing video games, and obesity the present study degree with results reveal that children who had a higher weight status reported more frequent video game play [16].

There is also a significant connection between the amount of time spent sleeping and obesity the present study degree with results show that too little sleep can rob your child of the energy to exercise during the day and encourage cravings for sugary foods for quick energy, Dr. Sands points out.[17] Once assessing the correlation between the BMI level and the socio-demographic attributes of the children as well as other variables that may affect obesity Table (*3*), it was found that there was a significant relation between the BMI level according to the Father's educational level (P 0.005), the Mother's educational level (P 0.004), the Number of siblings in the family (p 0.003), Parents suffering from obesity (P 0.004), the Number of hours participating in physical activity (p 0.003), type of playing (p<0.005), Sleeping (number in hours) (p<0.005). Also, the number of main meals consumed by children each day was significantly and positively related to their body mass index (P 0.000). Age, gender, the number of hours spent in front of electronic means, and the mode of travel to school were among the other factors tested, but none of them showed a statistically significant correlation with the children's body mass index. The study agrees with show that the study of there are correlation was significantly with BMI related to obesity in major children [18].

Conclusions

The results of the study show that most of the children, particularly those aged 12 to 16 years**.** The majority of children in the sample were female. The educational level of parents was High school the samples population had the highest proportion of urban residents. The risk factors for obesity are outlined number of main meals per day indicated a substantial association with obesity. physical exercise revealed an important relationship between physical activity and obesity. connection between the amount of time spent sleeping and obesity **.**there was a significant relation between the BMI level according to the Father's educational level the Mother's educational level the Number of siblings in the family Age, gender, the number of hours spent in front of electronic means**.**

Recommendations

Parents must play their part as well, by providing healthy foods in the home and encouraging physical activity by limiting their children's recreational television, video game, and computer time to less than two hours a day. Encourage healthy sleep has been linked to healthy weight**.** Nutrition and physical activity lessons can be woven into the curriculum-in core classroom subjects, physical education, and after-school programs-to teach skills that help students choose and maintain healthy lifestyles**.** Incorporate nutrition education into school meal programs.

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