Prevalence and Associated Risk Factors of Obesity from six to 16-year-old Children

Suror H Aneed
Lecturer, Pediatric Nursing Department, University of Thi- Qar, Iraq

* Corresponding Author: **Suror H Aneed**

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Abstract
Background: Excessive fat accumulation that endangers one's health is what is meant by obesity and overweight. If a child's BMI falls within the 85th percentile or below the 95th percentile, they are considered overweight; if it falls within the 95th percentile or above, they are considered obese.
Aim: sought to determine the prevalence of childhood obesity and risk factors related to it in a population aged six to sixteen.
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).
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. Out of all the siblings in the family, the majority belong to the group of two to four family members. The BMI level was significantly correlated with the number of siblings in the family ($p < 0.003$), the mother's educational level (P 0.004), and the father's educational level (P 0.005). Additionally, the correlation between the BMI level and the children's sociodemographic characteristics and other factors that may influence obesity was also evaluated.
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: In addition, parents have a responsibility to provide wholesome foods in the home and to promote physical activity by limiting their kids' recreational computer, video game, and television time to less than two hours per day.

Keywords: Obesity, Overweight, Obesity in Children

Introduction

Obesity is pathological accumulation of adipose tissue in the organism. Malnutrition, physical inactivity, genetics, and environment are the risk factors that are most commonly mentioned. In 70% of cases, childhood obesity seems to persist into adulthood. The dramatic increase in obesity and overweight in developing countries is a result of a combination of decreased physical activity and diets heavy in processed foods, refined grains, vegetable oils, and caloric sweeteners. Adults' body mass index (BMI) is frequently used to assess their level of obesity or overweight. is calculated by dividing the square of height in meters by the body weight in kilograms (kg/m2) [1, 2].

It has long been a problem in high-income nations and is currently growing in importance as a public health issue, particularly in middle- and low-income nations. Demonstrate that limiting children's access to televisions in their bedrooms and limiting their daily viewing time to no more than two hours is a crucial objective for intervention [3]. The third tactic should concentrate on methods to incorporate more physical activity into kids' and teens' daily routines [4].

Numerous factors, including genetics, physiology, metabolism, psychology, socioeconomic status, lifestyle, and culture, contribute to childhood obesity. The mother has a significant impact on her children's nutritional status within the family. The risk of childhood obesity is generally increased by maternal obesity and higher educational attainment [5].

Additionally, eating out or watching TV while eating is linked to consuming more fat. Parental feeding practices are also significant. The author found that authoritative feeding—which entails selecting which foods are offered, letting the child make their own decisions, and outlining the advantages of selecting healthy options—is associated with positive attitudes regarding healthy foods and healthier intake. Fascinatingly, authoritarian restrictions on "junk food" are associated with a higher weight and a greater desire for unhealthy food [6].

In order to lower the risk of obesity, nurses can encourage healthy lifestyle choices like breastfeeding, eating regular meals, exercising, improving nutrition, and receiving weight counseling. School nurses are urged to participate in an education program about childhood obesity. In Pennsylvania, In addition to conducting screening programs, school nurses collaborate with a multidisciplinary team to support children who are underweight or at risk of becoming overweight or obese. Five servings of fruits and vegetables, two hours of television, and at least an hour of physical activity each day are all recommended by a school intervention program in Massachusetts. Primary care nurses in the UK provided interventions to 1906 patients with obesity-related comorbidities and a BMI of >40 kg/m² or >28 kg/m² in seven regions as part of a prospective, evidence-based program [7].

Methodology

The study uses a cross-sectional, descriptive research design. conducted a study on the prevalence and risk factors for obesity in children aged six to sixteen who attended 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 first section of the follow-up final study tool pertains to the students' demographic variables (Appendix B1). To aid participants in understanding the questions, the questionnaire was first polled in English (Appendix B2) and then translated into Arabic. The questionnaire is made up of a single section that: Demographic characteristics: There are fourteen items on the demographic characteristics sheet, which include: age, location, gender, and the mother's and father's educational attainment, number of the family's siblings, Parents who are obese, BMI of a child who is obese, number of main meals a child eats each day, The amount of time spent on electronic devices, the amount of time spent exercising, the kind of play, sleeping (the duration of the sleep), method of attending classes. All of the people in the study sample completed the Arabic version of the questionnaire, which was used to gather data through self-management. With consent from schools, the data collection process took place between January 18, 2024, and March 20, 2024. The questionnaire took an average of 8 to 15 minutes to complete for each interview.

Statistical Data Analysis

After the data was collected, it was coded and analyzed using statistical techniques. The results of the study were analyzed and assessed using the (IBM SPSS) software (version 23) for Windows.

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 = 1.5400 ± .50346		
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	00	00
Location	urban	31	31
	rural	19	19
Number of siblings in the family	One	3	6.0
	Tow-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
	2 meals	2	4.0	
	3 meals	28	56.0	
	4 or more meals	20	40.0	
"Number of hours watching electronic gadget"	Less than 30 min	5	10.0	2.6
	30- minutes	8	16.0	
	One - two	10	20.0	
	More than two hours	27	54.0	
"Number of hours participating in physical activity" *	Less than 30 mins	20	40.0	3.2
	30- minutes	24	48.0	
	One -two	5	10.0	
	More than two hours	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 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	mal	1	21	46.08	.008
	fem	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”	2- meals	2	0	46.02	.000
	3- meals	27	1		
	4 or more meals	0	20		
“Number of hours watching electronic gadget”	Less than 30 min	5	0	30.84	.006
	30- minutes	8	0		
	One to two hours	10	0		
	More than two hours	6	21		
“Number of hours participating in physical activity”	Less than 30 min	20	0	39.22	.003
	30- minutes	3	21		
	One - two hour	5	0		
	More than 2 hours	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 hour	29	4	35.57	.005
	< 8 hour	0	17		

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

Significance

Table (3) revealed a significant correlation between the BMI level and the following factors: the number of siblings in the family (p0.003), the parents' obesity (P0.004), the type of play (p<0.005), the number of hours spent playing sports (p0.003), the mother's and father's educational levels (P 0.005), and the number of hours spent sleeping (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 of the descriptive analyses of the schoolchildren's demographic characteristics showed that children comprised the vast majority of the sample. especially those between the ages of 12 and 16. Participants were 10 ± 16 years old on average.[1] With respect to gender, the current study found that the prevalence of childhood obesity increased from 8.1% to 12.9% for boys and from 8.4% to 13.4% for girls, with the majority of the sample being female [8].

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].

The results of the current study show that 2.5 million of the 6.5 million families in the UK with dependent children have two or more obese children. The two to four sibling categories included the greatest proportion of sibling [1]. In Table (2). Indicated that the child's BMI for obesity demonstrated a moderate correlation between BMI and obesity the study agrees with results Indicated that there are associated with BMI & obesity [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 number 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 number of hours spent exercising demonstrated a significant correlation between physical activity and obesity. According to the current study's findings, a decrease in physical activity is making the sharp rise in obesity and overweight in developing nations worse [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]. Additionally, there is a strong correlation between sleep duration and obesity. According to the current study's findings, a lack of sleep can deprive your child of the energy they need to exercise during the day and trigger cravings for sugary foods in order to feel energized quickly, Dr. Sands notes [17]. After assessing the relationship between the BMI level and the children's sociodemographic characteristics and other factors that may influence obesity, it was discovered that the BMI level was significantly correlated with the parents' obesity (P 0.004), the number of siblings in the family (p 0.003), the father's educational level (P 0.005), and the mother's educational level (P 0.004) Table (3). the amount of time spent playing ($p<0.005$), sleeping (number of hours) ($p<0.005$), and engaging in physical activity (p0.003).

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**.**

Recommendations

In addition to providing wholesome food in the home, parents can also promote physical activity by limiting their kids' recreational computer, video game, and television time to less than two hours per day. Healthy weight has been associated with promoting healthy sleep. Physical education, after-school programs, and core classroom subjects can all incorporate nutrition and physical activity lessons to help students develop the skills they need to make healthy lifestyle choices and maintain them. - Include instruction on nutrition in school lunch programs.

References

1. Kumar S, Mahabalaraju D, Anuroopa M. Prevalence of obesity and its influencing factor among affluent school children of Davangere city. Indian J Commun Med. 2012;32:15.
2. World Health Organization. Population-based Prevention Strategies for Childhood Obesity. Report of the WHO Forum and Technical Meeting. 2012.
3. Wang Y, Lobstein T. Worldwide trends in childhood overweight and obesity. Int J Pediatr. 2015;1:11-25.
4. Wiecha J, Gortmaker SL, Sobol A, Peterson K. Why youth watch so much television. Presented at Meet. Ambulatory Pediatr Assoc. Boston, MA; 2011. Vol 8, No 21, pp 129-234.
5. Nazarov Z, Rendall MS. Differences by mother's education in the effect of childcare on child obesity. RAND Working Paper Series No. WR-890. 2011. Available from: http://ssrn.com/abstract=1979708 or http://dx.doi.org/10.2139/ssrn.1979708
6. Birch LL, Fisher JO. Development of eating behaviours among children and adolescents. Pediatrics. 2012;101:539-49.
7. Czernichow S, Kengne AP, Stamatakis E, *et al*. Body mass index, waist circumference and waist-hip ratio: which is the better discriminator of cardiovascular disease mortality risk?: evidence from an individual-participant meta-analysis of 82 864 participants from nine cohort studies. Obes Rev. 2011;12(9):680-7.
8. World Health Organization. Population-based Prevention Strategies for Childhood Obesity. Report of the WHO Forum and Technical Meeting. 2017.
9. Schwimmer JB, Burwinkle TM, Varni JW. Health-related quality of life of severely obese children and adolescents. JAMA. 2013;289:1813-9.
10. Banerji MA, Faridi N, Atluri R, Chaiken RL, Lebovitz HE. Body composition, visceral fat, leptin, and insulin resistance in Asian Indian men. J Clin Endocrinol Metab. 2018;84:137-44.
11. Moens E, Braet C, Bosmans G, Rosseel Y. Unfavourable family characteristics and their associations with childhood obesity: A cross-sectional study. Eur Eat Disord Rev. 2012;17:315-23.
12. Dabelea D. The Predisposition to Obesity and Diabetes in Offspring of Diabetic Mothers. Diabetes Care. 2009;30 Suppl 2:S169-74.
13. Nicklas TA, Baranowski T, Cullen KW, Berenson G. Eating patterns, dietary quality and obesity. J Am Coll Nutr. 2014;20(6):599-608.
14. Kapil U, Bhadoria AS. Television viewing and overweight and obesity amongst children. Biomed J. 2014;37:337-8. Available from: [Last accessed on 2014 Jul 11].
15. Counterweight Project Team. Evaluation of Counterweight programme for obesity management in primary care: a starting point for continuous improvement. Br J Gen Pract. 2018;58:548-54.
16. Poirier P, Eckel RH. Obesity and cardiovascular disease. Curr Atheroscler Rep. 2017;4:448-53.
17. Chapman G, Maclean H. "Junk food" and "healthy food": Meanings of food in adolescent women's culture. J Nutr Educ Behav. 2013;25:108-13.
18. Kambondo G, Sartorius B. Risk Factors for Obesity and Overfat among Primary School Children in Mashonaland West Province, Zimbabwe. J Pediatr Health Sci. 2018;23(6):123-345.