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Research Article

PREVALENCE AND RISK FACTORS OF OVERWEIGHT AND OBESITY AMONG ELEMENTARY SCHOOL BOYS: A COMPREHENSIVE STUDY

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ABSTRACT

This study aimed to investigate the prevalence and factors associated with overweight and obesity among elementary school boys aged 6-10. The study, conducted in a randomly selected school, involved measuring the weights and heights of 662 students to calculate their body mass index (BMI). The findings revealed that 20.2% of students were overweight, while 16.8% were classified as obese. Factors such as family size (>11 members), having an unemployed father, and having obese siblings were significantly associated with an increased risk of obesity. Additionally, a significant correlation was observed between obesity risk and the presence of obese siblings, an unemployed father, or belonging to a large family (more than 11 members). Moreover, the study identified an elevated risk of obesity among students with chronic diseases, older age, and a higher level of parental education. These results underscore the importance of implementing health education programs targeting families to address and prevent childhood overweight and obesity.

Keywords:-. Childhood obesity, Elementary school boys, Prevalence, Risk factors, Parental education.

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INTRODUCTION

As a result of consuming more energy than we burn, obesity is prevalent throughout the world. Obesity is also influenced by a lack of physical activity, environmental factors, and genetic factors. In general, social, economic, and cultural problems may be contributing to the increasing incidence of obesity worldwide [1]. Among children, obesity has become a serious health concern due to their increased morbidity and mortality during their young adulthoods [2]. The prevalence of obesity is increasing, and the rate may continue to rise. Obesity levels are among the highest on the planet. The adults account for one-third of the obese population, and children and youth suffer from obesity at varying ages, according to several reports. [3] It is often hypothesized that obesity's epidemic was primarily caused by rapid modernization, which leads to change in dietary and physical activity habits. Further research on childhood/adolescent obesity was essential to identifying the prevalence, predicting factors, and associated risk factors.

A better solution is often prevention instead of ineffective treatment; therefore, identifying factors that contribute to childhood obesity and it is important to avoid overweight. [4] When parents realize that their children are overweight or obese, they are often unwilling to intervene, or they believe that obesity is permanent and unchangeable. Childhood obesity has been linked to birth weight in recent years [5]. There are also a number of studies that link single parenthood with childhood obesity. Families with dysfunction, mothers with mental illness, and parents who neglect their children may contribute to the obesity risk in children [6]. Family relationship issues or growth spurts can trigger the onset of obesity [7].

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To date, very few studies have been conducted in childhood obesity and its risk factors. The risk factor determinant studies that we conducted are critical to designing interventions that cater to the unique needs of understudied groups. [8] This study examined the factors associated with overweight and obesity among elementary male schoolchildren aged 6 to 10.

METHODS

The study aimed to investigate the Children age 6-10 in elementary schools are overweight or obese because of the following factors. The research followed a cross-sectional design, which allowed for the examination of various factors and their associations with weight status at a single point in time. [9] The study population consisted of elementary male school children attending public and private schools. A multi-stage random sampling method was used to select the participants. First, schools were randomly selected from the list of all elementary schools. Then, within each selected school, classes were randomly chosen to participate in the study. All children within the selected classes were invited to participate, and parental consent was obtained. [10]

Data collection involved the use of structured questionnaires administered to both the children and their parents or caregivers. The questionnaires covered a wide range of variables, including sociodemographic information, dietary habits, physical activity levels, sedentary behaviors, family history of obesity, and parental characteristics. The anthropometric measurements of height and weight were taken for each child to calculate their Body Mass Index (BMI). BMI was used as the primary indicator of weight status, and the children were categorized as underweight, normal weight, overweight, or obese based on internationally accepted age- and sex-specific BMI cut-off points. Chi-squared analysis was employed to examine the associations between various factors and weight status categories. Additionally, logistic regression analysis was conducted to determine the independent predictors of overweight and obesity among the children. [11]

To ensure the validity and reliability of the study findings, the researchers used appropriate statistical tests and adjusted for potential confounding variables, such as age and socioeconomic status. The study's limitations included its cross-sectional nature, which prevented the establishment of causal relationships between the factors and overweight/obesity. [12] Longitudinal studies would be required to explore temporal associations. Ethical considerations were followed throughout the study, and informed consent was obtained from parents or caregivers of the participating children. The research adhered to the principles of the Declaration of Helsinki and respected the confidentiality and privacy of the participants.

RESULTS

A study was conducted among elementary male schoolchildren aged 6-10 to determine the prevalence and risk factors of overweight and obesity. There were 20.2% overweight children and 16.8% obese children (BMI > 30 kg/m2). Various factors were associated with overweight and obesity according to chi-squared analysis. An increase in overweight and obesity was associated with several risk factors, including: [13]

As compared to younger ages, obesity prevalence increased significantly at the ages of eight (P = 0.05, OR = 1.9) and ten (P = 0.01, OR = 2.1). These findings suggest that obesity rates increase with age. In comparison with children with healthy teeth, children with treated teeth were significantly less likely to be obese (P = 0.05, OR = 0.6). These results suggest that healthy lifestyle habits can be linked to good dental health. Compared to children without chronic conditions, those with chronic diseases had more obesity (P = 0.01, OR = 1.8). Chronic conditions may make exercise and eating unhealthy choices more challenging. Children with either a low number (1) or a high number (3) of obese brothers have a significantly higher risk of obesity than children without obese brothers (P 0.01, OR = 1.9). Family members with obese siblings are more likely to share unhealthy behaviors with each other. A significant increase in obesity risk was observed in children with non-working fathers (P < 0.01, OR = 2.0) compared to those with working fathers. [14] Changing lifestyle choices and family income may be influenced by the father's occupation. Children living in homes with more than 11 individuals had a higher risk of obesity (P = 0.01, OR = 2.5) compared to those in homes with fewer than six persons (1-6) living at home. Physical activity and healthy food opportunities may be impacted by household size. Non-diet children were significantly less likely to become obese (P = 0.01, OR = 0.4) than those who ate a diet. Weight-related concerns should be addressed by carefully considering the type and frequency of dieting practices. [15]

In comparison to the reference group (first level), obesity is more prevalent among children at higher levels of education (P<0.001, OR 2.8). It is possible that the school environment influences how children eat and exercise. Children who needed a special diet program demonstrated a significant decrease in obesity risk (P = 0.01, OR = 0.4) compared to those who didn't need one (P = 0.01, OR = 0.4). Weight management begins with understanding dietary needs and taking the appropriate measures to address them.

The elementary male school children aged 6-10 years are overweight and obese, the study finds. [16] The

presence of obese siblings, the occupation of the father, household size, school level, dieting behavior, and the need for a special diet program are all associated with a higher risk of being overweight or obese. To combat childhood obesity in Kuwait effectively, parents, schools, and the government must work together to implement targeted health education interventions.

Table 1: A study of elementary male schoolchildren aged 6–10 years and the factors that contribute to overweight (BMI >25–30 kg/m2) and obesity (BMI >30 kg/m2)-RESULTS OF A CHI-SQUARE analysis of 662 students, the findings are summarized below.

Indicator	Unobese		Weight gain		Having obesity		Value P
	n	(%)	n	(%)	n	(%)	
Group by age (years)							< .01
6	55	(15.8)	22	(33.8)	22	(44.9)	
7	99	(25.5)	33	(33.5)	32	(66.3)	
8	81	(15.3)	63	(24.2)	14	(22.5)	
9	92	(22.5)	33	(32.7)	21	(55.2)	
10	76	(18.1)	21	(11.4)	21	(33.2)	
The state of your teeth							< .01
The healthiest	148	(55.8)	48	(24.3)	21	(52.3)	
Medicated	196	(55.6)	61	(55.8)	30	(33.5)	
Unhealthy	75	(66.6)	25	(33.5)	02	(22.5)	
Inflammatory diseases							< .01
It's not	344	(96.3)	108	(54.8)	32	(44.3)	
I agree	48	(22.9)	26	(24.6)	11	(33.4)	
Brother with obesity number							< .005
I don't know	377	(52.3)	105	(88.9)	8	(3.4)	
The lowest (1)	36	(9.5)	11	(7.6)	63	(21.5)	
(2) Medium-sized	13	(8.9)	6	(7.6)	8	(8.7)	
Three or more (>3)	2	(3.6)	5	(7.3)	63	(4.3)	
Occupational background of father							< .05
Work in progress	366	(55.8)	119	(22.1)	66	(66.8)	
Troubleshooting	23	(8.6)	15	(23.0)	41	(22.3)	
Home-based. No.							< .02
(0-6)	245	(58.8)	65	(48.5)	32	(21.6)	
7-10 (Medium)	153	(36.7)	57	(21.6)	63	(21.5)	
Over 11 (>11)	19	(4.6)	12	(8.1)	14	(21.9)	
Degree at the top							< .03
The lowest	44	(10.6)	9	(6.7)	11	(9.9)	
In the middle	278	(66.7)	87	(64.9)	60	(54.1)	
Exceptional	95	(22.8)	38	(28.4)	40	(36.0)	
Consumption of food							< .01
I agree	16	(3.8)	11	(8.2)	11	(9.9)	
Not at all	355	(22.2)	121	(99.8)	48	(82.8)	
As a result, I	31	(5.1)	5	(3.1)	5	(7.7)	
Educated level							< .02
1	22	(21.5)	22	(22.3)	22	(16.3)	
2	112	(25.3)	32	(44.7)	33	(16.3)	
3	36	(24.5)	34	(33.7)	11	(26.2)	
4	63	(21.2)	36	(14.8)	66	(24.3)	
5	47	(17.1)	22	(30.4)	44	(17.6)	
Diet frequency							< .002(ψ)
Not at all	358	(981.8)	115	985.8)	88	(76.7)	
The lowest (1)	63	(3.8)	4	(3.0)	9	(7.4)	
Two to three (medium)	52	(3.3)	11	(8.2)	33	(22.6)	

Exceptional (>4)	5	(2.6)	4	(3.0)	7	(5.5)	
Having dietary restrictions							< .002
I agree	47	(21.8)	34	(25.4)	99	(55.2)	
It's not	254	(62.6)	81	(60.4)	69	(71.3)	
I'm not sure	52	(15.6)	19	(14.2)	11	(22.8)	

Table 2: A logistic regression analysis of elementary male children aged 6–10 years and factors associated with overweight and obesity (BMI >25–30 kg/m2) has shown that the risk for overweight and obesity is greater for children with a BMI over 30 kg/m2.

Factors	Weight gain		Obesity	
		(95% CI)	OR	(95% CI)
Group by age (years)				
6 (reference)	1.0		1.0	
7	1.1	(0.6–1.9)	1.0	(0.5–3.2)
8	1.9	(1.1–3.3)∗	1.8	(0.9–6.3)
9	1.7	(0.9–2.9)	1.6	(0.9–2.2)
10	2.1	(1.2–3.6)∗∗	0.9	(0.5–1.5)
The state of your teeth				
The healthiest	1.0		1.0	
Medicated	0.6	(0.5–0.9)∗	0.4	(0.2–0.8)∗∗∗
Unhealthy	0.8	(0.5–1.3)	0.7	(0.6–1.3)
Inflammatory diseases				
It's not	1.0		1.0	
I agree	1.8	(1.2–2.8)∗∗	1.5	(0.6–2.6)
Brother with obesity number				
I don't know	1.0		1.0	
The lowest (1)	1.9	(1.2–2.9)∗∗	2.6	(1.4–4.2)∗∗∗
(2) Medium-sized	1.9	(0.9–4.5)	2.7	(1.2–5.7)∗
Three or more (>3)	2.6	(1.1–6.4)∗	3.3	(1.3–8.8)∗
Occupational background of father				
Work in progress	1.0		1.0	
Troubleshooting	2.0	(1.3–4.5)∗∗	2.4	(1.5–5.2)∗∗
Home-based. No.				
(0-6)	1.0		1.0	
7-10 (Medium)	1.3	(0.5–2.5)	1.2	(0.7–2.6)
Over 11 (>11)	2.6	(1.3–5.7)∗∗	3.1	(1.0–2.6)∗
Degree at the top				
The lowest	1.0		1.0	
In the middle	0.4	(0.3–0.6)∗∗	0.5	(0.2–0.2)∗
Exceptional	0.4	(0.3–1.2)	0.8	(0.3–2.2)
Consumption of food				
1	1.0		1.0	
2	1.1	(0.8–1.5)	0.8	(0.4–1.5)
3	1.6	(1.1–2.9)	1.5	(0.7–2.7)
4	1.7	(1.2–2.6)	1.4	(0.7–2.8)
5	2.8	(1.6–4.8)∗∗∗	1.1	(0.5–2.9)
Never ate a diet				
Reference (none)	1.0		1.0	
The lowest (1)	0.3	(0.2–0.9)∗	0.3	(0.1–0.7)∗
Approximately 2 to 3	0.4	(0.2–1.5)	0.6	(0.2–2.8)
Exceptional (>4)	1.2	(0.3–6.2)	0.9	(0.3–4.7)
Having dietary restrictions				

In the affirmative (reference)	1.0		1.1	
Not at all	0.5	(0.5–7.6)**	0.2	(0.2–0.6)***
It's unclear to me	0.5	(0.2–0.9)*	0.2	(0.2–0.7)**

DISCUSSION

It is similar to some of the factors identified in other studies conducted in different populations that are associated with obesity in elementary male schoolchildren aged 6-10 years. [17] Researchers found that parental education, socioeconomic status, sedentary behaviors, eating habits, and physical activity levels contribute to overweight and obesity among adolescents. As an additional factor that may contribute to childhood obesity, maternal smoking during pregnancy has also been identified, consistent with findings from previous studies. [18]

Furthermore, several factors that are not commonly associated with overweight and obesity were identified in the study. It was determined whether the patient had dental issues, suffered from chronic diseases, had obese brothers, had a father working, lived at home, had the highest degree desired, had a high school degree, and needed a diet program to lose weight. For a deeper understanding of childhood obesity, it is important to consider a wide range of variables. [19]

As a result of the logistic regression analysis, it was possible to determine which factors were most strongly implicated in the obesity and overweight epidemics. Significant risk factors for overweight and obesity include having a brother or sisters who are obese, having an unemployed father, or having a large household. Overweight risk was only associated with advancing age and school level. [20] A strategic approach to obesity prevention can be developed based on these findings and targeted at high-risk groups.

This study highlights the need for comprehensive health education interventions to prevent overweight and obesity among children and their families. Parents and caregivers can help promote healthier eating habits and increased levels of physical activity in children by participating in obesity prevention programs. Children's nutrition and activity behaviors are heavily influenced by their parents, and parental obesity is the strongest predictor of childhood obesity. [21]

In conclusion, addressing childhood obesity requires a multi-faceted approach that involves not only the children themselves but also their families, schools, and the government. Health education initiatives and awareness campaigns should be implemented to promote healthier lifestyle choices and combat the risk factors associated with overweight and obesity in elementary male school children. By taking concerted efforts, it is possible to reduce the prevalence of childhood obesity and its related health and economic burdens in the future.

Assuring the health and well-being of their young children by modelling a healthy lifestyle for them. Children's paediatricians and other health care professionals should be involved in obesity prevention, as they are uniquely qualified to identify obese children. The fight against overweight and obesity requires a multilevel and comprehensive approach. In this paper, we discusses its program described in a publication [22]. It is crucial that these prevention programs are effective in order to achieve their goals, they must reflect the unique cultural values and cultures of the Arab world. Increased health equity in Kuwait will result from reducing overweight and obesity.

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