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Original Research Article.

Childhood Obesity, Its Association and Impact Among School Children (8-15 Yrs) in Riyadh, Saudi Arabia

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ABSTRACT

Introduction: Obesity is a medical condition in which excess fat has accumulated to the extent that it may have a negative effect on health. Childhood obesity is one of the most serious global public health challenges for the 21st century. In 2010, WHO estimated that 42 million children under 5 years of age were overweight or obese. The Gulf region is not exempt. Study in a number of different areas and provinces have reported a high prevalence of overweigh and obesity in Saudi children in all age groups.

Objectives: This study aimed to identify the risk factors related to obesity in early life and to identify the children perception toward obesity in the selected schools in Riyadh.

Methods: Cross-sectional study on a sample of 192 female students aged from 8-15 years. Data was collected using a questionnaire form. Then BMI was calculated measuring weight and height then analyzed using SPSS.

Results: 90% of the participants were Saudis and 9.4 % were non Saudis. The BMI of the participants was:13.5% obese, 16.7% overweight, half the participants was normal 53.6% and the remaining 16.7% underweight. Majority (74.5%) of them think that both nutrition and physical activity are equally important. About 90.1% of the participants think that obesity is a problem. More than two thirds of the participants come from obesity-free families, where 27.6% come from obese families.

Conclusions: Study provide an evidence of increase in the prevalence of obesity among school aged girls in Riyadh in comparison to previous studies. Overweight showed higher prevalence than obesity.

Keywords: Obesity, Overweight, Childhood, Risk Factors, Perception.

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INTRODUCTION

Childhood obesity is on the rise and considered as a serious health problem worldwide. In 2010, World Health Organization (WHO) estimated that 42 million children under 5 years of age were overweight or obese. Childhood obesity is one of the most serious global public health challenges for the 21st century.

Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have a negative effect on health, leading to reduced life expectancy. Body mass index (BMI) has traditionally been used to identify individuals who are the most likely to be overweight or obese. It is calculated by dividing the weight (in kilograms) by the height. The relationship between body fat percentage and BMI differs between ethnic groups.

The Gulf region is not exempt. Surveys in a number of different areas and provinces have reported a high prevalence of overweigh and obesity in Saudi children in all age groups.

Saudi Arabia is one of the fastest growing economies of the world. The growth and prosperity, however, have brought pronounced changes in the lifestyle of our people. Most notably, watching TV represents an important risk factor.2 Also, eating habits are less healthful and the level of physical activity has declined. Over the last two decades the influence of the western world has led to an increased consumption of fast foods and sugar-dense beverages. Simultaneously, technological advances – cars, elevators, escalators and remotes have led to a decrease in our level of activity. Our traditional dependence on locally grown natural produce such as dates, vegetables and wheat has also shifted. Not only has the quality of our food contributed to this problem, but it is also influenced by the quantity we eat. Today's meals are substantially larger than just a decade ago. Consequently, obesity is increasing in the Kingdom at an alarming rate.

According to al-Nuaim AR, Et al." The pattern of growth and obesity in Saudi Arabian male school children"3 The overall prevalence of overweight was 11.7% and obesity 15.8% in 9061 male school children, attending public schools in Saudi Arabia ages ranged from 6-18 y There was a statistically significant variation in the regional distribution of overweight and obesity. The highest prevalence (18.0%) was in Riyadh, and the lowest was in Sabea (11.1%) located in the Southern region.

"Obesity among Saudi children" conducted by Al Shehri, Et al.1 In 2013 showed that the Overweight and obesity occur in all provinces of Saudi Arabia although at a variable prevalence. Eastern province children have the highest prevalence and the Southern province children have the lowest prevalence of overweight and obesity. When grouped according to age, overweight and obesity tend to increase with age.

hospital-based study done by Taha D, Et al.4 "The prevalence of metabolic syndrome and cardiovascular risk factors in a group of obese Saudi children and adolescents" they studied 57 obese Saudi children and adolescents with mean age of 9.8 and BMI 31.6. Results showed Systolic BP was elevated in 24 of the 57 subjects. Of the 39 children who had a lipid profile in their records, 10 had hypertriglyceridemia, 8 had hypercholesterolemia, 6 had elevated LDL cholesterol levels, and 6 had low HDL cholesterol levels. Impaired fasting glucose was found in 10 of 38 patients in which it was measured, and 9 of 25 patients had fasting hyperinsulinemia. Eleven of 37 patients met the diagnosis of the metabolic syndrome. Alarming evidence-based data resulted from Al-Shehri study "Childhood obesity prevalence among primary schoolboys at Al-Iskan sector, Holy Makkah, Saudi Arabia".5 The study included 258 male primary school children between 6 and 12 years. The prevalence of overweight was12.4% and that of obesity was 20.2% birth weight above normal was significantly associated with them. El Mouzan, Et al. report" Prevalence of overweight and obesity in Saudi children and adolescents"6 established baseline national prevalence rates for overweight, obesity and severe obesity in Saudi children and adolescents.

It is difficult to follow up the problem because access to reliable national data is not possible and there is no accuracy about the rate and distribution, and accurate information about the rates and time trends is not always applicable.

In this study, we are aiming to identify the risk factors of obesity in early life. Also we are aiming to assess the perception and awareness of children aged 8-15 years toward obesity.

METHODOLOGY

The present study was a descriptive cross sectional survey carried out at three different Elementary and Intermediate schools, 142th Elementary school, Almanar private school and Hind umm salamah intermediate school in Riyadh, Saudi Arabia, from January 2016 to February 2016. The study received ethical approval from college of medicine, Almaarefa Colleges. On a sample of 192 female students aged from 8-15 years. Data was collected in face-to-face interviews using a questionnaire form. Then BMI was calculated measuring weight and height of the participants. The study includes female student aged between 8 to 15 years old who were accessible during the data collection period with exclusion of the children below or above 8 - 15 years old, who have endocrine disease, genetic disease or using drugs like cortisone. all the participants thoroughly briefed on the purposes and various procedure of the study. Questionnaire was designed and modified based on literature review. It consists mainly of four sections: 1) Sociodemographic characteristics; 2) Obesity Risk Factors; 3) Awareness of obesity; 4) perceptions of obesity. The statistical package for social sciences version 20 was used for data analysis. Descriptive analysis was used in the form of frequencies and percentage for categorical variables, mean and standard deviation for continuous variables. The study was done with the considerations of the privacy which preserved and an informed consent taken, participants' anonymity assured by assigning each participant with a code number for the purpose of analysis only and The tools used in this study are validated, collected data used for the purposes of this study only.

Table 1: Sociodemographic characteristics

Variable	Categorize	Number	Percentage (%)
Age	**8**	1	0.5
	9	14	7.3
	10	27	14.1
	11	35	18.2
	12	44	22.9
	13	44	22.9
	14	22	11.5
	15	5	2.6
Nationality	**Saudi**	174	90.6
	Non-Saudi	18	9.4
Class	**1**	7	3.6
	4	101	52.6
	8	84	43.8

Graph 1: BMI

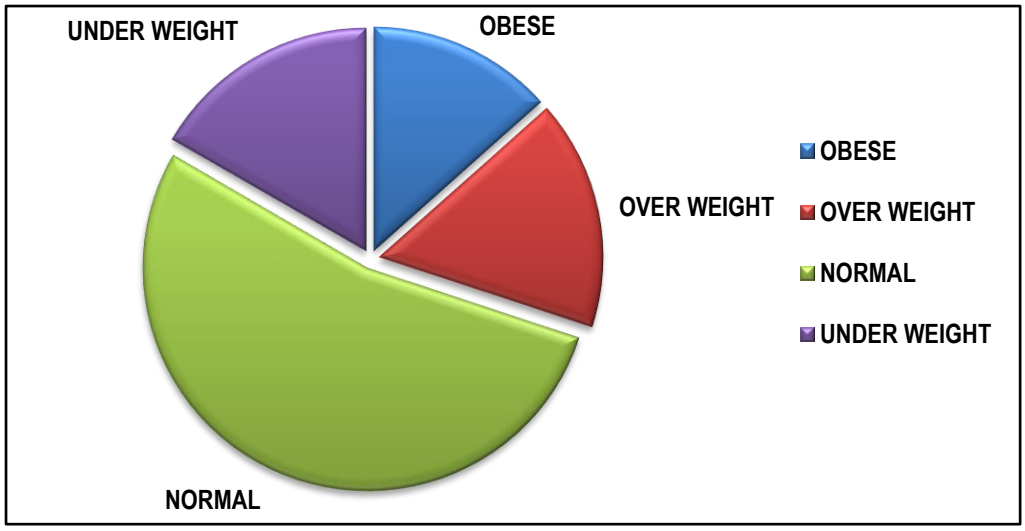
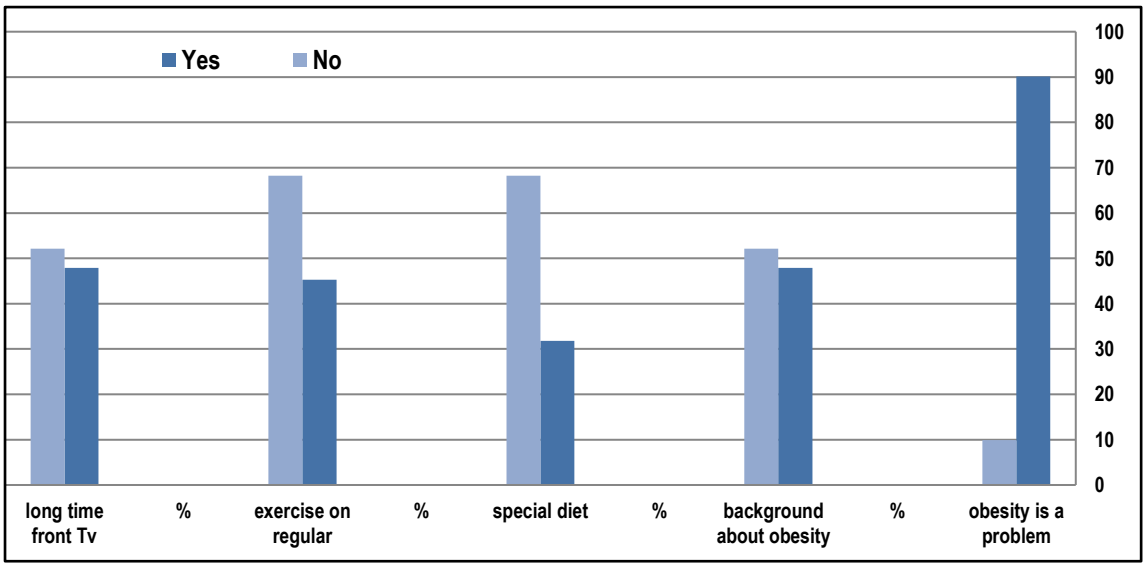


Table 2: Awareness

Items	Mean(SD)	Categories	Participants n(%)	*P*-value
In general, would you say your health is	1.18(0.39)	Healthy	156(81.3)	0.02
		Not-healthy	36(18.8)	
Nutrition vs. Physical Activity, Which do you think is more important for your health and wellbeing	2.59(0.73)	Nutrition	29(15.1)	0.76
		Physical activity	20(10.4)	
		Both	143(74.5)	
How often do you eat breakfast?	1.80(0.84)	Always	82(42.7)	0.112
		Sometimes	74(38.5)	
		Rarely	27(14.1)	
		Never	9(4.7)	
How many meals you eat daily	2.77(0.79)	1	9(4.7)	0.61
		2	59(30.7)	
		3	90(46.9)	
		4	34(17.7)	
At school, you usually	1.76	Lunch from home	87(45.3)	0.002
		Buy meal from cafeteria	83(43.2)	
		Fast food	2(1)	
		Eat snacks	20(10.4)	



Graph 2: Perception

RESULTS

Sociodemographic Characteristics

A total of 192 responded to the questionnaire. Majority of Participants were between the ages of 11-13, 90% of them were Saudi compared to non-Saudis 9.4.

BMI

The BMI of the participants was:13.5% obese, 16.7% overweight, half the participants was normal 53.6% and the remaining 16.7% underweight.

Risk Factors

More than two thirds of the participants came from obesity-free families 72.4%, where 27.6% come from families with obese members, 91 % of the participants they don't suffer from any diseases

3.1 % suffer from chronic Lung disease, remaining suffer from other chronic condition.

Participants were asked "How often do you consume soft drinks per week", majority 43% of them answered 1-3 times a week, and 31% reported they don't consume soft drinks at all and they were asked about how often they eat chocolates and biscuits per week, the majority 34.4% answered 4 or more times, whilst minority 3.6% answered they don't eat chocolates and biscuits at all. When asked about fast food, 14.1% ate fast food four times per week while 16.7% stated they don't eat fast food at all. the rest ranged from 1-3 times a week with the majority being 35.4% ordering fast food twice per week.

Awareness

The participants were asked "Nutrition vs. physical activity, which one do you think is more important for your health and wellbeing?" And the majority think that both nutrition and physical activity are equally important. Also, they were asked "how often do you eat breakfast?" 42.7% always ate their breakfast, while 9% never ate breakfast. When we asked about how many meals they eat a day, a group of 59 girls declared that they ate 2 meals a day, while the majority which were 90 girls ate 3 meals a day, and the results showed a smaller number of girls who ate 4 meals a day 34, and 9 having only one meal a day. 43% of them Buy from the cafeteria, while 18% said they have snacks more often.

Perception

Around half of the participants do not have a background on obesity, and they represent 52.1%, while the remaining 47.9% reported they have a background on obesity. About 90.1% of them think that obesity is a problem.

50% of the participant had a special diet program followed in their homes, they also exercise on a regular basis 47.9 % of the participants said they spend long periods in front of the TV, and 52.1% said they don't.

The study provides an evidence of an increase in the prevalence of obesity among school aged girls in Riyadh in comparison to previous studies.

DISCUSSION

The current study was a descriptive cross sectional survey. Conducted on 192 female students aged from 8-15 years attending 142th Elementary school, Almanar private school and Hind umm salamah intermediate school in Riyadh, Saudi Arabia. Assessing the risk factors of obesity in early life. Also assessing the perception and awareness of children aged 8-15 years toward obesity.

This review highlights the severity of excess weight among Saudi children. It provides an evidence-based estimation of overweight and obesity in children as a public health problem in Saudi Arabia which corresponds with El-hazmi, Et al.[7] study in 2002. The latest national data indicate that overweight has reached 23% among school-age children, whereas obesity has reached 10%. Overweight among preschool children is reported to be 6 % and obesity is 9.3%. The prevalence of obesity is increasing substantially, and obesity is one of the major contributors to the incidence of various diseases due to its pathophysiological link to other cardiovascular risks such as hypertension and diabetes**.**

The overall results of this study provide an evidence of an increase in the prevalence of obesity and overweight among school aged girls in Riyadh in comparison to previous studies. Overweight showed higher prevalence than obesity (16.7 and 13.5 respectively) in the sample taken that corresponds with Al-Dossary SS e.[8] study. Combined, overweight and obesity represent one third of the sample size, while half of the sample size is represented by normal weight. There's contribution of consuming chocolates and sweets numerous times a week to overweight, consumed by one third of the participants, considering one third of the sample size having excess weight which get along with Amin T, Et al.[9] study that showed frequent consumption of sweets/candy and carbonated drinks were all predictors of obesity and overweight. More than two thirds of the participants come from obesity-free families, while one third come from families with obese members, corresponding to the ratio of overweight to normal, one third to two thirds. Canteen food is consumed often by 48% of the participants with fewer tendencies to bring home prepared breakfast or snacks. Exercise and a diet program were found applied in half of the participants corresponding to the results; around 50% had normal BMI**.** In conclusion this review demonstrates that overweight and obesity among children in Saudi Arabia should be considered a serious public health problem, evidencing an ongoing rise in the prevalence of obesity among school aged girls in Riyadh by about 7% indicating a serious susceptibility of overweight problems in Saudi Arabia.

SOURCE OF SUPPORT

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Conflict of Interest: None Declared.

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