ORIGINAL ARTICLE

Prevalence of Obesity and Overweight in Preschool Children in Northwest of Tehran, Iran

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Abstract:

Background: Nowadays childhood overweight and obesity are considered as a global epidemic, the prevalence of childhood obesity is increasing in the Iran. *Aim and Objectives:* For prevention and control the disease, knowledge of population statistics of obesity and overweight is essential, so this study aimed to determine the prevalence obesity and overweight and related factor in preschool children in northwest of Tehran in 2015. *Material and Methods:* This cross-sectional study was performed on 17484 preschool children aged 5-7 in northwest of Tehran (Regions 2, 5 and 6 of Tehran Municipality), capital of Iran. Data collection was performed by 11 general practitioner and 24 trained experts that measuring height by Non-elastic tape measure with an accuracy of 1 cm, and weight by Analog scales SECA brand with accuracy 100 g between May until the end of October 2014, and WHO Child Growth Standards is used to classify overweight and obesity. Data analysis is done by using SPSS.11.5 software and chi-square test. *Results:* The prevalence of overweight and obesity in children was respectively 20 and 6.8, prevalence of obesity and overweight was different based on sex (p=0.001), so the prevalence of obesity in girls was higher than boys and the prevalence of overweight in boys was higher than girls. Also prevalence of obesity children in 7 year age was higher compared children 5, 6 years old. *Conclusion:* Our findings showed a relatively high prevalence of overweight and obesity in preschool children, therefore, the plan for the control and prevention of the problem must be a high priority for health policy maker, also further epidemiological studies into the etiology and trend are essential.

Keywords: Prevalence, Obesity, Overweight, Children, Iran

Introduction:

Overweight and obesity are defined as a weight that is greater than what is generally considered healthy for a given height. Various indices such as Body Mass Index (BMI), waist-to-hip ratios, and waist circumference and body fat percentage are used as anthropometric indicators to measure obesity among children [1]. Overweight and obesity are defined based on BMIs of 2 and 3 standard deviations respectively above the WHO growth standard median [2].

Overweight and obesity are complex diseases that have not been fully recognized [3], Overweight and obesity are a serious public health problem, associated with various impairments and medical disorders [4], Obesity is a chronic disease that is strongly associated with an increase in mortality and morbidity including, certain types of cancer, cardiovascular disease, disability, diabetes mellitus, hypertension, osteoarthritis, and stroke [5]. Until recently increasing prevalence of overweight and obesity among pediatric population in Europe and worldwide contributes to major well-known risks for metabolic consequences in later life [6].

Estimates show that 43 million children worldwide are overweight or obese. Of them, 35 million live in developing countries. Furthermore, 92 million children are at risk for overweight [7], the prevalence of overweight and obesity in childhood has increased rapidly during the last decade, although there is wide variation between countries. In the WHO-HBSC study, the results showed prevalence above 10% among school-aged children in most nations, with a range of 7.6% (Latvia) to 28.8% (USA) [8], in United States is still faced with approximately 12.7 million children struggling with obesity [9]. In some country, a nutritional transition was observed, characterized by a sharp reduction in the prevalence of under nutrition and an increase in obesity [10]. So obesity and overweight is considered as an epidemic [11].

In Iran, obesity and overweight in children should be considered a serious problem, and Iran is among the countries with a high childhood obesity prevalence [12], in Tehran the prevalence of overweight and obesity in children were 12% and 23.7% respectively [13], and in another the prevalence of overweight and obesity was 9.81% and 4.77% in boys and 10.31% and 4.49% in girls, respectively [14].

The rise in the rate of obesity in school-aged children, adolescents, and young adults in the last 30 years is a clear healthcare crisis that needs to be addressed. Given the immediate and long-term health consequences of obesity, much time and effort has been expended to address this epidemic [9]. The first step in control the disease is information about prevalence, incidence and distribution the disease, so it seems to be important to survey the prevalence of weight disorders in population. The aim of this study was to determine the prevalence of overweight / obesity among children.

Material and Methods:

This cross-sectional study was performed on 17487 preschool children (all preschool children in population about 1800000 persons) aged 5-7 in northwest of Tehran (Regions 2, 5 and 6 of Tehran Municipality), capital of Iran since April 2015 to December 2015.

Data collection:

Data collection was performed by 11 general practitioner and 24 trained experts with license (MS) of general health that measuring height by non-elastic tape measure with an accuracy of 1 cm and weight by Analog scales SECA brand with accuracy 100 g between the month of May until the end of October 2014, and WHO Child Growth Standards was used to classify overweight and obesity. Data analysis was done by using SPSS.11.5 software and chi-square test.

Results:

The sample comprised 17487 preschool children living in Tehran. The prevalence of overweight and obesity in the total population under survey were 20 and 6.8 respectively; Table 1 shows the prevalence of overweight and obesity in the population under survey. The prevalence of overweight was higher in boys than girls (21.4% vs. 18.6%), also the prevalence of obesity was higher in girls than boys (8.1% vs. 5.6%). Chi-square tests showed that the prevalence of obesity and overweight significantly differed by gender (P = 0.001). Results showed that the prevalence of obesity and overweight significantly differed by age (P = 0.001). The highest prevalence of obesity was observed in 7 year old children.

Table 1: Prevalence of Overweight and Obesity Based on the WHO Criteria

Situation number	Non-Obese and Non-Overweight	Overweight	Obesity
Number (17487)	12796	3497	1194
Percent (100%)	73.2	20	6.8

Table 2: Prevalence of Overweight and Obesity Based on Sex and Age

Variable	Non-Obese and Non-Overweight	Overweight	Obesity	P
Age				
5	46 (75.4)	11 (18)	4 (6.6)	0.001
6	11712 (72.9)	3296 (20.5)	1059 (6.6)	
7	1038 (76.4)	190 (14)	131 (9.6)	
Sex				
Girl	6303 (73.3)	1598 (18.6)	698 (8.1)	0.001
Boy	6493 (73.1)	1899 (21.4)	496 (5.6)	

Discussion:

This study aimed to determine the prevalence obesity and overweight and related factor in preschool children in Iran in 2015, according to the results, the prevalence of overweight and obesity in children was respectively 20 and 6.8. Our findings showed a relatively high prevalence of overweight and obesity in preschool children compared to other published reports.

Previous studies reported that the prevalence of overweight and obesity in children were 11.8% and 15%, respectively, in north Iran [15]; 9.6% and 9.2%, respectively, in east Iran [16], In a study in Tehran at 2012 the prevalence of overweight and obesity in children were 12% and 23.7% respectively [13].

The prevalence of overweight and obesity in children were 31.7% and 16.9%, respectively were reported in United States [17], Also estimate showed, 25.6% of the children in the United States were obese [18] and that 17% of the children in Pakistan were overweight and 7.5% were obese [19].

Prevalence of obesity and overweight different between country and region, this discrepancy

revealed disparities in social and economic status [13], and may relate to changes and differences in key environmental factors [18].

In developed country the prevalence of obesity and overweight is higher than developing and under developed country, but in developing and under developed country the prevalence of obesity and overweight are increasing, for example, secular trends indicate increasing prevalence rates in Brazil 4.1 to 13.9% during 1974–1997, in Thailand 12.2 to 15.6% during 1991–1993, and in India 9.8 to 11.7% during 2006–2009 [20], moreover in some developing country, a nutritional transition was observed, characterized by a sharp reduction in the prevalence of under nutrition and an increase in obesity [10]. The prevalence of obesity and overweight is expected to increase in Iran in future and hence, national preventive strategy for childhood obesity is necessary [19].

In our study, the prevalence of childhood obesity and overweight was higher than previous studies, so concluded the prevalence of obesity increasing among Tehranian primary school children [21], According to the result of this study and pervious study, in Tehran, overweight and obesity are a serious problem [22].

A high socioeconomic status, residence in metropolitan cities, female gender, unawareness and false beliefs about nutrition, marketing by transnational food companies, increasing academic stress, and poor facilities for physical activity are most Important determinants of childhood obesity [20], Excessive consumption of food, inappropriate diet, excessive feeding, food insecurity [23], changes in lifestyle and industrialization [24] in Iran may explain the increased prevalence of obesity and overweight.

Therapeutic lifestyle changes and maintenance of regular physical activity through parental initiative and social support interventions are the most important strategies in managing childhood obesity. Also, high-risk screening and effective health educational programs are urgently needed in developing countries [20].

In the present study, the prevalence of obesity in girls was higher than boys and the prevalence of overweight in boys was higher than girl, Based on previous study, sex isn't a known risk factor for obesity in this age [25]. But in some study a difference in prevalence of obesity was observed between sexes, these sex differences may stem from differences in physical activity status as well as physiological, hormonal, behavioural, and socio-cultural factors [26].

Also prevalence of obesity in children of 7 year age was higher compared children 5, 6 years old.

In Iran 7 year age coincides to the year of schooling, so the difference in prevalence of obesity between different age groups may relate to the physical activity and behavioral factors [26].

Conclusion:

Our study show that the prevalence rate in children was high indicating that the childhood obesity in Tehran is a serious problem, Therefore plan and implementation program to reduce the prevalence of obesity are essential in Tehran, also periodic surveys to monitor obesity rates in order to evaluate success of the programme can be useful.

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