The Prevalence of Overweight and Obesity among 12-15 Year Old Males in Military-Affiliated Schools in Jordan

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Abstract

Objectives: To determine the prevalence of overweight and obesity in males aged 12–15 years as part of a screening program of public schools in Jordan.

Methods: Data collection took place in a three week period during the school year 2011-2012 as part of a screening program conducted by the Royal Medical Services in the military affiliated schools in Jordan. Students from schools located in Amman, Zarqa and Eastern parts of Jordan, which constitute 26% of the total population of 12-15 year old males in military affiliated schools in Jordan, were screened. Weight was measured to the nearest kilogram, and height was measured to the nearest centimetre. Body Mass Index (BMI) was calculated. The data was analyzed using descriptive statistics.

Results: The data of 998 students was available for analysis, all were males aged 12–15 years. The mean BMI was 20.54 (95% confidence interval 20.25–20.82) standard deviation 4.57. Overweight as defined by BMI of 25–29.9 was present in 101 students (10.2%), and obesity in 35 students (3.5%).

Conclusion: The prevalence of overweight in this cohort was 10.2% and obesity is 3.5% which compares favourably to international estimates at this age group. Further studies on different cohorts or age groups are needed.

Key words: Childhood obesity, Jordan, Overweight

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Introduction

Obesity is a major health care problem all over the world. It is a risk factor for many diseases and conditions that are ever increasing, from cardiovascular diseases, diabetes mellitus, psoriasis, bronchial asthma, psychological problems, as well as problems with jobs at young adulthood. It was seen some time ago as an epidemic of developed countries only, but recently it is recognized that obesity, especially in children and adolescents is a health care issue in the developing countries, too. Overweight and obesity is assuming epidemic levels in both developed and developing countries. In Jordan, studies showed that obesity is prevalent in adults with alarming levels. The route of obesity stems from childhood and adolescence.

This study aims to add to the existing literature from Jordan, looking at the prevalence of overweight and obesity in young males aged 12-15 years (6th-9th grade) in three military-affiliated schools in Jordan.

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Methods

As part of screening program conducted by the Royal Medical Services for the military-affiliated schools in Jordan at Amman, Zarqa and eastern parts of Jordan, and during a three week period in the school year 2011-2012, a medical team consisting of an epidemiologist and two nurses visited three schools each in a different area. The age range of the students was from 12-15 years (6th-9th grade) and all were males. The equipment used were a stethoscope, an electronic scale to measure weight to the nearest kilogram, and height to the nearest centimeter, Snellen chart, otoscope, vaccines, and the school’s medical charts. Students were asked about their general state of health, whether there are any illnesses in the presence of the school mentor and the school’s nurse. Those with incomplete vaccination history were asked if they want vaccination, and family consent was obtained for vaccination. Students with health problems discovered during the history and physical examination were referred for further evaluation to the nearest military hospital.

Data analysis was performed using Excel spreadsheet for different calculations of the mean, standard deviation, and other descriptive statistics. Calculation of BMI was done by dividing weight in kilograms by the height in meters square (Kg/m$^2$).\(^{(13)}\) Grading the weight was performed using WHO international system, and National Heart, Lung, and Blood Institute recommendations for classification of obesity.\(^{(14,15)}\)

Results

The total number of 12-15 year old males in these schools is 3,804; a total of 998 (26%) males took part in the study. Their age range was 12-15 years. Mean BMI was 20.539 Kg/m$^2$. The 95% confidence interval for actual Mean was 20.25 through 20.82 with a standard deviation of 4.57. The median was 19.63 Kg/m$^2$, with highest BMI being 55.37 Kg/m$^2$, and the lowest 11.97 Kg/m$^2$. Average Absolute Deviation from Median = 3.33

Table I shows that the prevalence of overweight and obesity in our population is 10.2% and 3.4% respectively; while normal weight was seen in 47.7% of our population. Underweight males constituted 38.6% of the study sample.

Sub classification of obese males showed that 2% (21 subjects), were class I; 1.1% (11 subjects) were class II, and only three subjects (3%) were class III.

Discussion

This study aims to add to the existing literature from Jordan, looking at the prevalence of overweight and obesity among different age groups, different populations with variable socioeconomic and demographic characteristics,\(^{(15-17)}\) which will help to modify these variables to achieve the best control of the epidemic of obesity among Jordanians.

In our study, the prevalence of overweight and obesity among males aged 12-15 years was 10.2%, 3.4% respectively. This compares to other studies from Jordan among different age groups and different geographical locations. In a study by Khader \textit{et al.} looking at the prevalence of overweight and obesity among 2,131 children 6-12 years of age in the North of Jordan, reported that 19.4% were overweight (18.8% of boys and 19.9% of girls) and 5.6% were obese (5.6% of boys and 5.5% of girls).\(^{(11)}\)

A cross-sectional study aimed to estimate the frequency of overweight and obesity in adolescents as defined by the International Obesity Task Force, aged 15 or 16 years was obtained from eight public schools in Amman. In this sample 17.5% were overweight and 9.6% were obese.\(^{(18)}\)

In a study by Musaiger \textit{et al.}\(^{(19)}\) looking at the prevalence of overweight and obesity among adolescent 15-18 year olds in seven Arab countries, reported that Jordanian males had a prevalence of 21.6, 10.2% respectively.

Analysis of prevalence of obesity in both males and females in various countries, where data were collected for children and adults aged between 3 and 19 years showed the prevalence in
Bahrain was (12–17 years) 15%, Syria (15–18) 12%, Lebanon (3–19) 8%, Tunisia (11–19) 6%, and Egypt (11–19) 6%. In a study by European environment and health information system (ENHI) looking at the prevalence of overweight and obesity in children and adolescents in European countries aged 11 and 13 years, the range was from 5-25% during the year 2005-2006, and compared to 2001-2002 with similar numbers. This is similar to our figures from Jordan.

The trend of the prevalence of weight and obesity in Jordan is increasing both with age and in the same age groups over time. The prevalence of obesity among Jordanian adults increased to 19.5% in 2004, a 52.3% increase from the 2002 prevalence of 12.8%. In 2004, approximately 55.0% of adult respondents (52.3% of men and 57.1% of women) were categorized as either overweight or obese, an increase from the 2002 prevalence of 45.2%. Weight awareness was inconsistent, with 27.8% of obese respondents reporting that they considered their weight to be nearly average; in 2002, 22.2% of obese respondents considered their weight to be average. The overall prevalence of overweight and obesity among children were 6.0% and 5.5%, respectively. Among adolescents, the overall prevalence rates of overweight and obesity were 13.7% and 10.0%, respectively.

It is shown from our study and other Arab and international figures that that obesity is epidemic (rather than a pandemic) and this has an impact on the personal, community and national level, by increasing diseases related to obesity, as well as methods to minimize the prevalence of obesity.

The knowledge of the factors that contribute to adolescent and childhood obesity is important, with many explanations from different populations as well as from Jordan.

This increased awareness may be achieved by media, schools, and homes aiming to increased physical activity, decreased time watching TV, and other incentives to decrease fast food consumption.

In Jordan, the effort to increase awareness of obesity is active with the establishment of "The society against overweight and obesity" and with the Ministry of Health starting an initiative to combat obesity, cholesterol, Diabetes mellitus and hypertension.

Limitation of the Study

The population is limited to schoolchildren in military-run schools from three governorates, but as previous investigators argue, these schools are open to all sectors of the population, and therefore there is no reason to believe that these children are different from schoolchildren in the rest of the country.

Conclusion

This study aims to add to the existing ever expanding literature about obesity with the aim of guiding policy makers and public to the effects of this epidemic on overall population health and utilization of health resources later in life. Efforts should be made to educate public, including young adolescents about the risks of obesity to their health and the health of the nation.

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