

Assessment of Weight Status among a Multiethnic Based Children Sample

ADEOGUN John Olufemi, PhD

Exercise Physiology Unit
Faculty of Education
Lagos State University
Nigeria

Abstract

The study used the BMI – for – age to screen children for overweight and determined their weight status categories. Two thousand five hundred (2500) male and female children from Festac town in Lagos metropolis served as participants for the study. The participants' age, height and weight were taken to determine the Body Mass Index (BMI) and this was correlated for age as recommended for children and teenagers. The descriptive statistics of mean, range and percentage and percentile were used in presenting the results. The results revealed that 11.88% of the pupils studied were overweight while 29% were at risk of been overweight and a total of 40.88% were either overweight or at a risk of been overweight. The study finally concludes that since overweight children have the tendency to grow to be obese adults, efforts must therefore be made to control; the predisposing factors to obesity right from childhood.

Keywords: obese, overweight, healthy weight, underweight

Introduction

Body weight is a significant determinant of health and diseases, both overweight and obesity have been associated with diseases. In adults, overweight is defined as a BMI of 25 to 29, obesity is defined as BMI greater than 30, and extreme obesity defined as a BMI greater than 40. In children, overweight is conservatively defined as a BMI at or above the Ninety-fifth percentile on the growth charts (Zoeller, 2007 in Adeogun, 2011). Globally, the prevalence of overweight and obesity in children and adolescent is increasing. High prevalence of overweight and obesity has been reported from African continent. In a study on children/adolescents from Ethiopia, 25% were overweight while in Nigeria Bakari, Onyemelukwe, Sani, Aliyu, Hassan & Aliyu (2007) in Adeogun and Oladipupo-Okorie (2009) reported that more than a third of population in Suburban Northern Nigeria were either overweight or obese. Adeogun, Setonji & Owoyemi (2010) also reported 28.33% among children in the South Western part of Nigeria.

Childhood obesity is a medical condition that affects children (Adeogun and Adeyeye 2010), it is characterized by a weight well above the mean for their height and age and a body mass index well above the norm. Childhood obesity is considered by many to be an "epidemic" in Western countries, in particular, the United States, United Kingdom and Australia. Over 15% of American children are currently considered obese, and the number is growing and about 20-25% of Australian children classified as overweight or obese. (Wikipedia, 2007). Based on the most recent data from National Health and Nutrition Examination Survey and using the Body Mass Index (BMI) as the criterion measure, the prevalence of overweight and obesity in the United States continues to rise and increased significantly; just from 1994 to 2004, 13.8% and 14.0% of female and male children/adolescent were overweight. In India, Chhatwal, Manorama & Kaur, (2004) in Adeogun & Adeyeye (2010) reported the prevalence of overweight and obesity among boys and girls ranging from 9.9% to 12.4%.

In recent times, many kids spend more time in-front of television, computer and video screens; their physical activity levels have decreased, and their body weights have increased. Obese children now have diseases like type 2 diabetes that used to only occur in adults. Without a change in diet or exercise patterns, childhood obesity can lead to life – threatening conditions including diabetes, high blood pressure, heart disease, sleep problems, cancer, and other disorders. As reviewed by Adeogun & Oladipupo-Okorie (2009), childhood obesity is particularly troubling because the extra pounds often start kids on the path to health problems that were once confined to adults, such as diabetes, high blood pressure and high cholesterol.

Body Mass Index (BMI) is a number calculated from a child's weight and height. BMI is a reliable indicator of body fatness for most children and teens. BMI does not measure body fat directly, but research has shown that BMI correlates to direct measures of body fat, such as under water weighing. BMI can be considered an alternative for direct measures of body fat. Additionally, BMI is an inexpensive and easy – to – perform method of screening for weight categories that may lead to health problems. For children and teens, BMI is age – and – sex – specific and is often referred to as BMI – for – age.

This study therefore used the BMI – for – age to screen children residing in Festac town, Lagos for overweight and placed them in their various weight status categories.

Methods and Materials

The population for the study comprised all children attending school (public and private) and residing in Festac town. The Purposive sampling technique was used in selecting two thousand five hundred (970 males and 1530 females) children for the study.

The main instruments for data collection were the weighing scale and stadiometer. The weighing scale was used to measure the participants' weight while the stadiometer was used to determine their heights; weights were measured to the nearest kilogram while heights were measured to the nearest centimeters following the ISAK recommendations. All the measurements took place between the hours of 8am–10am.

The following steps were followed in calculating and interpreting BMI using the BMI Percentile:

1. Before calculating BMI, obtain accurate height and weight measurements
2. Calculate the BMI and percentile using the Child and Teen BMI Calculator. The BMI number is calculated using standard formulas.
3. Review the calculated BMI-for-age percentile and results. The BMI-for-age percentile is used to interpret the BMI number because BMI is both age-and sex-specific for children and teens. These criteria are different from those used to interpret BMI for adults-which do not take into account age or sex. Age and sex are considered for children and teens for two reasons:
 - The amount of body fat changes with age. (BMI for children and teens is often referred to as BMI – for – age)
 - The amount of body fat differs between girls and boys
4. Find the weight status category for the calculated BMI-for-age percentile as shown in the following table. These categories are based on expert committee recommendations.

Table I: Weight status category for the calculated BMI-for-age percentile

Weight Status Category	Percentile Range
Under weight	Less than the 5 th percentile
Healthy weight	5 th percentile to less than the 85 th percentile
At risk of Over weight	85 th to less than the 95 th percentile
Over weight	Equal to or greater than the 95 th percentile

Ethical Considerations

Prior to taking the measurements, the head teachers and subject teachers were duly informed of the nature of the research, pupils were also given informed consent forms explaining in details the nature of the study to their parents/guardians and only children who volunteered and had their consent forms signed by their parent or guardian took part in the study. Data collected during the study were kept confidential. All measurements were conducted in strict privacy where the participants were neither heard nor seen by other people

Results

Table II: Demographic data

Sex	Total	Percentage (%)
Male	930	37.2
Female	1570	62.8
Total	2500	100

The above table shows that 37.2% of the total participants were males while 62.8% were females

Table III: Age, Weight, Height and BMI

Sex	Age		Weight		Height		BMI	
	X	Range	X	Range	X	Range	X	Range
Male	8.85	13-7	30	47-26	127	155-114	24.9	35.48-17.65
Female	8.30	12-7	38	59-25	139	159-119	27.6	39.65-18.26

The above table shows that the mean age for the males was 8.85 while the range was 13-7 years; the mean age for females was 8.30 while the range was 12 – 7 years. The means weight (kg) for both males and females were 30 and 38 respectively with a respective range of 47 – 26 and 59 – 25. The mean height (cm) for males was 127 with a range of 155 – 114, while the mean height for female was 139 with a range of 159 – 119. The mean body mass index (BMI) for males was 24.9 with a range of 35.48 – 17.65, while the BMI for females was 27.6 with a range of 39.65 – 18.26.

Table IV: Weight Status Categorization

Weight Status Category	Male		Female		Total	
	No	%	No	%	No	%
Underweight	6	0.65	7	0.44	13	0.52
Healthy Weight	587	63.12	878	55.92	1465	58.60
At Risk of Overweight	240	25.81	485	30.89	725	29
Overweight	97	10.43	200	12.74	297	11.88

The above table presents weight status categorization of both male and female primary school pupils residing in Festac town.

Discussion

The results obtained in table iv above shows that when the sampled children were screened for overweight with the use of the BMI – for – age and classified into weight status recommended for children and teens, 0.65% of the males were underweight while only 0.44% females were also underweight, in all 0.52% of the pupils studied were underweight.

The results also shows that 63.12% and 55.92% of male and female children respectively were with healthy weight, this implies that a total of 58.60% of the children studied were classified as having healthy weight. It was also revealed in table iv that 10.43% of the males were at risk of overweight while 12.74% females were also classified to be at risk of overweight 25.81 % of the male children were overweight with 30.89% female children classified as been overweight. The result further revealed that 29% of the children sampled were at risk of overweight while 11.88% were actually overweight.

In all, 40.88% of the children studied were either at risk of been overweight or overweight. The implication of this is that these children who were overweight have the tendency to become obese adult. This is in line with Torgan (2002), who opined that overweight children and adolescent have a 70% chance of becoming overweight or obese adults. As a matter of fact, children who eat more calories than they need gain weight beyond what's needed to support their growing frames. In these cases, the added weight increases their risk of obesity and weight – related health problems and are likely to grow up to be obese adults.(Wilmore and Costil, 1994).

Conclusion and Recommendations

The study concludes that 0.52% of the pupils studied were underweight while 29% were at risk of been overweight with 11.88% been overweight. In all, 40.88% of the pupils were either overweight or at risk of been overweight. However, the study further revealed that more females (12.74% and 30.89%) were overweight and at risk of overweight respectively than males (10.43% and 25.81%).

There are no indications that prevalence of overweight among children and obesity among adults is decreasing, many studies in different parts of the world are reporting significant rise in overweight and obesity among both children and adults with their possible resultant health hazards. Proactive measures should therefore be taken to ensure that everybody keeps a healthy weight. There is need to intensify efforts on creating more awareness on the health implications of overweight and obesity as well as in educating people on how to inculcate fitness into ones daily schedule, from childhood to adulthood and create an exercise culture at home, in schools and in the community at large. However, there appears to be gaps between what we know and what we do (personal best practices), behaviour and health are influenced by individuals' attributes and by people's environment, altering the environment can therefore improve health both directly and indirectly via behaviour, hence, creating an enabling environment for reducing overweight and obesity is recommended.

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