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Prevalence of overweight and obesity among school age (6-12 years) children in Port Harcourt, Nigeria

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Abstract
Background: Obesity is one of the non-communicable diseases of public health concern worldwide with negative impact on growth and development of school age children.
Objectives: This study investigated the prevalence of overweight and obesity among school age (6-12 years) children in Port Harcourt.
Methodology: The study was cross-sectional survey involving 200 randomly selected children form randomly selected primary school in Port Harcourt, Nigeria. Data was collected using structured questionnaire which included information on socio-economic status of the students, feeding habits, types of illness frequently affected to them, food consumption pattern and body mass index. The data collected were analyzed with descriptive statistics using SPSS version 17.
Result: About 55.0% were female while 45.0% were male. More than half (51.5%) of the children were in primary 1 to 3 while (48.5%) were primary 5-6. Most of them (99.0%) ate snacks and 90.0% took soft drinks. Most of the children (63.5%) visited fast food restaurants and (81.5%) reported not have suffered from any illness. On the other hand, most of them (89.5%) reported none physical activity. The children consumed more of the starchy and tubers (60.0%), than fruits and vegetables (27.5%). On the body mass index, (15.0%) of them were under-weight while (22.59%) of the respondents were overweight and (7.5%) were obese.
Conclusion: The study revealed a relatively high prevalence of overweight and obesity among the school age children in Port Harcourt. There is a need for the public health policy in Rivers state for early intention in order to prevent unhealthy generation. There is also a need to investigate similar studies in rural areas.

Keywords: Overweight, obesity, prevalence, starchy food

Introduction
Childhood obesity and overweight is a health problem that needs effective approaches. Its prevalence is becoming a threat to public health worldwide affecting both developed and developing nations (Wang and Lobstein, 2006) [7]. Obesity and overweight represent a rapidly growing risk to the health of people in an increasing number of countries (WHO, 2000) [8]. In Nigeria, overweight and obesity have been established as one of the public health concern of the 21st century, by World Health Organization (2000) [8]. In the last few decades, the cause of death especially in the developing country like Nigeria has gradually been shifting from the infectious diseases to non-communicable diseases (NCDS) that were strongly attributed to overweight and obesity. Globally, the prevalence of overweight and obesity among children and adolescents has significantly increased over the last three decades particularly in Africa.

Children who are overweight could experience conditions like depression, anxiety, low-self-esteem and peer rejection. Overweight and obesity are nutritional disorder emanating from calorie imbalances. The trend of obesity and over weight is rising with urbanization, changes in lifestyle and social-economic transition is considered to be among the causes of obesity and overweight in which residing in cities provides more access to more fast foods and the emergence of people with high income that can afford the fast foods, that is, foods with high glycemic index (Izuora, *et al.*, 2013) [3]. In fast growing cities like Port Harcourt, children are more exposed to city culture with sedentary life style and high intake of energy dense foods, soft drinks and less nutritious foods.
The prevalence of children obesity and overweight in Port Harcourt is not well established by the health specialist and policy makers, as there is no enough data that documents the problem

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of overweight and obesity among school age children. This study was carried out to investigate the prevalence of overweight and obesity among school age (6-12 years) children in Port Harcourt.

Materials and Methods
A cross-sectional descriptive study was conducted to assess the prevalence of overweight and obesity among school age children in elementary school in Port Harcourt.
The sample size of 200 children were randomly selected from primary schools. A structured questionnaire was used to collect the data. The study population comprised of male and female children, aged 6-12 years.
Anthropometric measurements were carried out on each student. Weights and heights were measured according to standard procedures described (Massaiger, 2004) [4]. Weight was measured to the nearest 0.1kg with an electronic scale, with children wearing light clothing and without shoes. Weight was recorded twice and the mean value was used in the analysis. Individual height was measured with a wooden stadiometer placed on a flat surface. The student stood on the based part of the device with feet together (without shoes). The shoulders, the buttocks and the heels had to touch the vertical measuring board. The height was measured to the nearest 0.1cm and recorded twice. The body mass index was then computed from the measurement.

Statistical Analysis
Data collected from the participants were coded and analysed using SPSS version 17. Frequencies and percentages were computed.

Results
Table 1 shows the age, sex and educational distribution of the participants. Two hundred participants recruited for the study comprised 90 males, (45%) and 11o females (55%). Their ages managed from 6-12 years. The age range that fell within 6-8 years was 39.5% among the participants. Similarly, the age range that fell within 9-12 years was 60.5%. Educationally, participants that were in primary 1-3 was 51.5%, while primary 4-6 was 48.5%.

Table 1: Age, sex and educational distribution of the participants

Variables	Frequency	Percentage
Age (years)		
6 – 8	79	39.5
9 – 12	121	60.5
Total	200	100
Sex		
Male	90	45
Female	110	55
Total	200	100
Educational level		
Primary 1-3	103	51.5
Primary 4-6	97	48.5`
Total	200	100

Table 2 presents the food consumption pattern of the participants. It was observed that majority of the respondents at more of the starchy foods and tubers (60.0%) with fruits and vegetables less preferred (27.5%). Milk and milk product also ranked high (76.0%) in the table of the children.

Table 2: Food consumption pattern of the school age (6-12 years) children Food groups; frequency of food consumption

	Always		Sometimes		Rarely		Never	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Starchy and tubers	**120**	**60**	**80**	**40**	**0**	**0**	**0**	**0**
Dark green vegetables	64	32	131	65.5	4	2	1	0.5
Vegetable oils	10.1	50.5	91	45.5	8	4	0	0
Fruits & vegetables	55	27.5	33	16.5	10	5	2	1
Organ meat	25	12.5	72.0	36.0	76	38.0	27	13.5
Meat & fish	99	49.5	87.0	43.5	6	3.0	8	4.0
Egg	115	57.5	77	38.5	5	2.5	3	1.5
Legume								
Nuts & seeds	122	61.0	70	35.0	6	3.0	2	1.0
Milk & milk produc	152	76.0	42	21.0	4	2.0	2	1.0

From table 2, it is observed that majority (76.0%) of the children take milk and milk product. And most of them (60.0%) consume starchy and tubers. Good number of the children (61.0%) enjoy nuts and seeds every time.

Table 3: Lifestyle profile of the subjects

Variables	Frequency	Percentage
Do you eat snacks?		
Yes	198	99
No	2	1
Total	200	100
Do you take soft drink?		
Yes	180	90
No	20	10
Total	200	100
Do you visit fast food restaurant		
Yes	127	63.5
No	73	36.5
Total	200	100
Do you exercise?		
Yes	21	10.5
No	179	89.5
Total	200	100

Table 3 indicated that 99.0% of the respondents enjoy snacks. Majority (90.0%) take soft drinks. Most of the participants visit fast food restaurants. The children hardly exercise as 89.5 of them never participated in active exercise.

Table 4: Types of illness faced buy the respondents

Variables	Frequency	Percentage
Chest pain	4	2.0
Constipation	3	1.5
Diarrhea	2	1.0
Typhoid fever	14	7.0
Sleeping opnea	1	0.5
Measles	2	1.0
Pneumonia	5	2.5
None	163	81.5
Others	6	3
Total	200	100

Table 4 shows the types of illness faced by the respondents. Majority of the participants 81.5% said that the had no sign of illness, while people with typhoid fever responses was 7.0%.

Table 5: Body mass index of the respondents

Weight (6-12 years)	Frequency	Percentage	Status
618.5	30	15.0	Underweight
18.5 – 24.99	110	55.0	Normal weight
25 -29.9	45	22.5	Over weight
30 and above	15	7.5	Obese
Total	200	100	

Table 5 shows the body mass index (BM1) a cross the school age children the data revealed that majority of the children were overweight while 15.0% were underweight with 7.5% being obese.

Discussion
The study determined the prevalence of overweight and obesity among school children aged 6-12years in Port Harcourt using BMI. The prevalence of overweight and obesity obtained using BM1 shows that 22.5% of the children are overweight, while 7.5% of the children are obese. The observed prevalence of overweight was lower that the 272 of the global overage for the prevalence of overweight among children of the same age range (WHO, 2000) [8]. The prevalence of overweight and obesity in the area could be attributable to life style (Story, 2001) [6].

Prevalence of overweight in the Eastern Mediterranean region ranged from 15% to 40% amongst children of same age group, (Charles, *et al*., 2011) [2]. The prevalence of overweight (22.5%) in this study was higher than the prevalence observed in Delta State, Nigeria which was 9.9% (Odenigbo, *et al*., 2009) [9]. This could be attributed to this study which ws undertaken in an urban setting; where snacks are order of the day.

It has been reported that in Africa and indeed, in most developing countries overweight and obesity, were closely linked with ignorance of healthy eating, affluence and higher social status (Ansa, V. O. *et al*., 2001) [1]. Also the fast changing lifestyle of Nigerians are more apparent in the school age children than any other group.

Conclusion
The study depicted moderate prevalence of overweight and obesity among school age (6-12years) in Port Harcourt, Nigeria. However, efforts should be made to promote routine checks of BMI of school age children in area so as to initiate adequate therapy should the need arise. Furthermore, introduction of nutrition education program to encourage and promote lifestyle choice in Nigeria Education curricula is highly recommended.

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