

# Knowledge, attitude and Perception Regarding Risk Factors of Overweight and Obesity Among Secondary School Students in Ikeja Local Government Area, Nigeria

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## ABSTRACT

**Context:** Childhood obesity has risen dramatically in the last four decades. Childhood obesity is likely to continue through adulthood and increases the risk of non-communicable diseases later in life. **Aims:** This study assessed the knowledge, attitude, and perception of the secondary school students in Ikeja local government, Lagos state towards the risk factors of overweight and obesity. **Methods and Materials:** This descriptive cross-sectional study was carried out using a structured questionnaire administered on consenting participants. The completed questionnaires collected from the participants was then analyzed. **Statistical Analysis Used:** Data were analyzed using SPSS version 22.0. **Results:** The prevalence of overweight and obesity were 6.6% and 1.4%. Overall knowledge (<50%) of students regarding the risk factors of overweight and obesity was very low. Majority of the students (97.4%) do daily exercise, 48.4% spend at least 30 minutes doing exercise daily. However, 62.0% watching television, 18.7% play video games, and 35.8% sleep for more than 8 hours daily. Participants also showed negative perception towards the effects of overweight and obesity. There was a significant association between age, gender, class, and body mass with knowledge, attitude, and perception of respondents towards risk factors and effects of overweight and obesity ( $P < 0.05$ ). **Conclusions:** Despite the low prevalence of overweight and obesity, low knowledge, poor attitude and negative perception regarding risk factors of overweight and obesity, the majority of the students perceived regular exercise as an important means of reducing overweight and obesity.

**Keywords:** Attitude, knowledge, overweight, obesity, perception

## Introduction

Globally, obesity is a major public health problem, a significant contributor to ill health and also a global problem that affects more than 300 million people worldwide.<sup>[1]</sup> Being overweight and

obesity are linked to more deaths worldwide than underweight.<sup>[2]</sup> According to Agarwal *et al.*, obesity results from an imbalance between food intake and energy output leading to excessive fat accumulation in the body.<sup>[3]</sup> Obesity once seen predominantly in developed or high-income countries is now on the rise and a potential health problem in developing or low-income countries.<sup>[1,4]</sup>

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## Literature review

A study has shown that obesity has nearly tripled worldwide since 1975 and more than 1.9 billion adults ( $\geq 18$ ) were overweight in 2016. Over 650 million of the overweight people in 2016 were obese. The number of adults overweight in 2016 accounted for 39% of adults and 13% of them were obese. Furthermore, most of the world's population live in countries where overweight and obesity kills more people than underweight.<sup>[2]</sup>

Recent WHO global estimates show that 41 million children under the age of 5 years were overweight or obese in 2016. In Africa, the number of overweight children under 5 has increased by nearly 50% since 2000.<sup>[2]</sup> Over 340 million children and adolescents aged 5–19 were overweight or obese in 2016, also, the prevalence of overweight and obesity among children and adolescents aged 5–19 has risen dramatically from 4% to just over 18% between 1975 and 2016; the rise has occurred similarly among both boys and girls.<sup>[2]</sup> In 2016, 18% of girls and 19% of boys were overweight whereas just under 1% of children and adolescents aged 5–19 were obese in 1975. Also, 124 million children and adolescents (6% of girls and 8% of boys) were obese in 2016.<sup>[3]</sup>

According to WHO report, many low-income and middle-income countries are now facing a “double-burden” of disease as these countries continue to deal with the problems of infectious diseases and undernutrition, they are also experiencing a rapid upsurge in noncommunicable disease risk factors such as obesity and overweight, particularly in urban settings.

## Gap in knowledge

Many researchers have reported the various prevalence of obesity and overweight among school children and adolescents in Nigeria but there is limited information on the knowledge attitude and perception of secondary school students regarding the risk factors of overweight and obesity. Therefore, this study is very important because the findings thereof will help in the management of obesity in adolescents. Though the study is limited to Ikeja local government, it is a good representation of Lagos and Nigeria because Ikeja is highly populated and Lagos is one of the Nigerian cities with the highest population.

## Subjects and Methods

This was a cross-sectional descriptive study that took place in Ikeja Local Government Area of Lagos state, Nigeria. Ikeja is the capital city of Lagos state with a total area of 49.92 km<sup>2</sup>, land 49.92 km<sup>2</sup>, elevation of 39 m, an estimated population of 861, 300 and density of 17,254/km<sup>2</sup> in 2015.<sup>[6]</sup> The study population comprised of 305 secondary school students from all functional Secondary Schools in Ikeja. Random sampling technique was used to collect data from participants. Primary data collected through a structured questionnaire. The questionnaires were distributed to individuals who consented to participate in the study and completed questionnaires were collected.

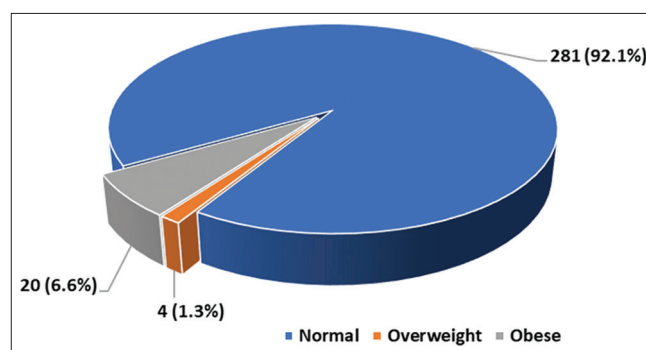
Clearance was obtained from the Education District VI under which selected school in Ikeja local government belong. This research was conducted with approval from the heads of the selected schools and from the teachers. Parents signed the informed consent form to approve the participation of their wards. No names were printed on the questionnaires and the respondents were assured of their confidentiality.

Data analysis was done using SPSS version 22.0. Chi-square test was employed to test the quantitative variables to check for the association, relationship joint influence by categorical variables obtained from the questionnaire.

## Results

This study comprised 305 secondary school students of which 136 (44.6%) were males and 169 (55.4%) females. The majority 30.2% of the students were 16 years old, (22.3% were 17 years old while only 10 (3.3%) were between 13 and 14 years. The study comprised 24.3% senior SS1, 40.0% SS2 and 35.7% SS3 students [Table 1]. The majority, 92.1% of the students had normal weight, 6.6% were overweight and 1.3% were obese [Figure 1].

Students' knowledge of risk factors was above 50% for only a few parameters including oily food (51.5%), fast food (62.0%), and soft drinks (80.3%). Increase age recorded 40.3% level



**Figure 1:** Body mass index of senior secondary school students in Ikeja LGA, Lagos

**Table 1: Demographic characteristics (n=305)**

Parameter	Frequency	Percent
Age		
≤14	10	3.3
15	47	15.4
16	92	30.2
17	68	22.3
18	36	11.8
19	52	17.0
Gender		
Male	136	44.6
Female	169	55.4
Class		
SS1	74	24.3
SS2	122	40.0
SS3	109	35.7

SS-Senior Secondary

of knowledge, lack of regular exercise (34.4%), coffee intake (35.4%), diabetes mellitus (31.8%) while their knowledge on other risk factors was below 30% [Table 2].

Students of age 16–17 had significantly higher (10.0%) knowledge of risk factors of overweight and obesity than those of ages 18–19 (4.5%) and 13–15 years ( $P < 0.001$ ). Similarly,

**Table 2: Knowledge of students regarding risk factors of overweight and obesity**

Parameter	Knowledge	Percent (%)
Family history	69	22.6
Increasing age	123	40.3
Smoking	12	3.9
Overweight	52	17.0
Lack of regular exercise	105	34.4
Gestational diabetes	20	6.6
Low birth weight	28	9.2
Mental stress	32	10.5
Impaired glucose tolerance	4	1.4
Sedentary lifestyle	60	19.7
High cholesterol level	52	17.0
Hypertension	40	13.1
Oily food	157	51.5
Fast food	189	62.0
Soft drinks	245	80.3
Reduced physical activities	80	26.2
High calorie food	60	19.7
High salt intake	43	14.1
Physiological stress	44	14.4
Oral contraceptives	36	11.8
Obesity	60	19.7
Coffee intake	108	35.4
High energy drink intake	69	22.6
Diabetes mellitus	32	31.8
Family history of CVD	12	7.9
Old age group	24	7.9

**Table 3: Association between different socio-demographic parameters and knowledge of risk factors of overweight and obesity among respondents**

Variables n (%)	Knowledge		P
	Good	Poor	
Age in Years			
13 - 15	-	57 (100.0)	<0.001*
16 - 17	16 (10.0)	144 (90.0)	
18 - 19	4 (4.5)	84 (94.5)	
Gender			
Male	4 (2.9)	132 (97.2)	0.022*
Female	16 (9.5)	153 (90.5)	
Class			0.003*
SS1	1 (1.4)	73 (98.6)	
SS2	15 (12.3)	107 (87.7)	
SS3	4 (3.7)	105 (96.3)	
Body Mass Index			<0.001*
Normal	12 (4.3)	269 (95.7)	
Obese	-	4 (100.0)	
Overweight	8 (40.0)	12 (60.0)	

\* Significant association exist at P value of <0.05

female students showed higher knowledge (9.5%) than their male counterparts (2.9%),  $P = 0.022$ . Higher knowledge was also seen among SS2 and overweight students than others ( $P < 0.05$ ). However, good knowledge of overweight and obesity was significantly lower than poor knowledge among all the selected variables ( $P < 0.05$ ), [Table 3].

Majority of the students (97.4%) do daily exercise. Almost half (48.4%) spend  $\leq 30$  minutes doing exercise daily and 35.4% spend over 1-hour daily on exercise. Sixty-two percent

**Table 4: Attitude towards risk factors of overweight and obesity among respondents**

Attitude	Frequency	Percent
Daily exercise	297	97.4
Time spent doing exercise/day		
≤30 minutes	144	48.4
>30 mins - 60 minutes	48	16.2
Above 60 minutes	105	35.4
Average time spend watching TV/day		
1 - 2 hours	189	62.0
>2 hours	116	48.0
Time spend playing video games/day		
Don't play video games	188	61.6
≤2 hours	60	19.7
>2 hours	57	18.7
Time spend using computers/day		
Don't use computer	136	44.6
≤hours	125	41.0
>2 hours	44	14.4
Time spend Sleeping/day		
≤6 hours	73	23.9
7-8 hours	123	40.3
>8 hours	109	35.8
Consumes alcohol	24	7.9
Takes drug for weight gain	28	9.2
Eat fast foods daily	32	10.5
Consume sugar sweetened drinks daily	44	14.4
Eat fruits daily	12	3.9

**Table 5: Association between selected variables and the attitude of the respondents**

Variables n (%)	Attitude		P
	Positive	Negative	
Age in Years			
13-15	-	47 (100.0)	<0.002*
16 - 17	12 (7.5)	148 (92.5)	
18 - 19	4 (4.5)	84 (94.5)	
Gender			
Male	4 (2.9)	132 (97.2)	0.105*
Female	12 (7.1)	157 (92.9)	
Class			<0.001*
SS1	2 (2.7)	72 (97.3)	
SS2	11 (9.0)	111 (91.0)	
SS3	3 (2.8)	106 (97.2)	
Body Mass Index			<0.251*
Normal	-	281 (100.0)	
Obese	-	4 (100.0)	
Overweight	8 (40.0)	12 (60.0)	

\* Significant association exist at P value of <0.05

spend 1–2 hours watching television, 18.7% play video games for ≤2 hours daily, 14.4% spend more than 2 hours using computers, and 35.8% sleep for more than 8 hours on average daily. Other attitudes include consumption of alcohol (7.9%), fast food (10.5%), sugar-sweetened drinks while only 3.9% eat fruits daily [Table 4]. Table 5 shows a significantly higher negative attitude of students than a positive attitude ( $P < 0.005$ ) towards risk factors of overweight and obesity. Negative attitude was significantly higher in students of age 13–15, males, SS1 and SS3 as well as in normal and obese students ( $P < 0.05$ ).

Table 6 shows that 50.8% of the respondents agreed that chest pain after doing some work but disappeared following a period of rest was an effect of overweight and obesity, about half (52.5%) agreed that feeling of tiredness immediately after a little work or even without doing any work was an effect of overweight and obesity. Only 14.4% of the students agreed that obesity increases the risk of diabetes, 11.8% agreed that effects of obesity and overweight may also include social bullying. There is a significant association between age, gender, class, and body mass with poor perception of respondents towards the effects of overweight and obesity. Poor perception is significantly higher among students aged 13–15, males, SS1 and SS3 but no association between body mass and students' perception on the effects of overweight and obesity ( $P > 0.05$ ) [Table 7].

## Discussion

There were more females in the study than males. This is similar to the previous studies in Nigeria and Zambia.<sup>14,7</sup> but contrasts the finding of Baker *et al.*<sup>18</sup>

This study showed a low prevalence of overweight (6.6%) and obesity (1.3%). The findings are similar to previous studies in Nigeria. Mustapha and Sanusi in Ondo state recorded prevalence of overweight as 5.8% and obesity as 1.1%.<sup>9</sup> In Kano state, Nigeria, the prevalence of overweight and obesity were reported as 8.9% and 3.3% respectively<sup>4</sup> while in Lagos state, Nigeria, the prevalence of overweight and obesity were reported as 5.8% and 1.7%.<sup>11</sup> However, higher prevalence of overweight (27.4% and obesity (18.6%) were recorded in Ibadan, Nigeria.<sup>10</sup>

The knowledge of the participants regarding risk factors of overweight and obesity was generally poor. Similar findings

were reported among students of Sikar, Rajasthan in 2014,<sup>11</sup> among primary school children in Dar es Salaam, Tanzania in 2014<sup>12</sup> and among secondary school students in Monze, Zambia in 2017.<sup>14</sup> On the contrary, Omotola reported high knowledge of risk factors of overweight and obesity among Students of Royal Crystal College, Ile-Ife, Nigeria.<sup>7</sup> The contrasting report of the finding of this study and Omotola's study might not be unconnected to the fact that this study was conducted in a larger population of Ikeja local government while Omotola's research was conducted in a single school.

A significant association was found between socio-demographics and knowledge of risk factors of overweight and obesity. This also contradicts the previous report in Ile Ife, Nigeria<sup>7</sup> but similar to the findings of Ranjit Kaur who found a strong association between sex, and class and obesity knowledge.<sup>11</sup>

The attitude of participant towards the risk factors of overweight and obesity was generally low except daily exercise which recorded over 90%. A strong association was also seen between demographics, body mass index, and attitude. Almost half of the students spend more up to 2 hours watching television and sleep for at least 7 hours per day. Other attitudes include lengthy time spent playing video games, alcohol consumption, fast food consumption, consumption of sugar sweetened drinks while less than 5% eat fruits daily. A negative attitude towards the risk factors of obesity and overweight was also found to be significantly associated with the students' demographics (age and gender), class and body mass index. This finding is also similar to previous findings<sup>7,12</sup> but contradicts the findings of Mangalathil *et al.*<sup>11</sup>

Like knowledge and attitude, the perception of students towards the effects of overweight and obesity was generally poor and was found to be significantly associated with age, gender, class, and body mass of the students.

## Conclusion

This study showed a low prevalence of overweight and obesity among students of Ikeja local government, low knowledge, poor attitude and negative perception regarding risk factors of overweight and obesity. However, the majority of the students perceived regular exercise as an important means of reducing overweight and obesity.

**Table 6: Perception regarding effects of overweight and obesity among the respondents**

Perception	Agree	Disagree	Undecided
Chest pain after doing some work but goes after rest	155 (50.8%)	110 (36.1%)	40 (13.1%)
Chest pain that radiates to neck, shoulder and arm	64 (21.0%)	177 (58.0%)	64 (21.0%)
Chest tightness or shortness of breath after doing some work	96 (31.5%)	153 (50.2%)	56 (18.4%)
Feeling of tiredness quickly, after a little work or even without doing any work	160 (52.5%)	113 (37.0%)	32 (10.5%)
Obesity increases the risk of diabetes	44 (14.4%)	181 (59.3%)	80 (26.2%)
Social bullying	36 (11.8%)	156 (51.1%)	113 (37.0%)
Gives Poor body image	104 (34.1%)	132 (43.3%)	69 (22.6%)
Predispose one to depression	40 (13.1%)	108 (35.4%)	157 (51.1%)
Gives pain around the joints especially when walking	152 (49.8%)	101 (33.1%)	52 (17.0%)

**Table 7: Association between the perception and selected variables of the respondent**

Variables n (%)	Perception		P
	Good	Poor	
Age in Years			
13 - 15	8 (17.0)	39 (86.0)	0.049*
16 - 17	44 (27.5)	116 (72.5)	
18 - 19	24 (27.3)	64 (72.7)	
Gender			
Male	20 (2.9)	116 (85.3)	<0.001*
Female	56 (33.1)	113 (66.9)	
Class			
SS1	13 (17.6)	61 (82.4)	<0.001*
SS2	57 (46.7)	65 (53.3)	
SS3	6 (5.5)	103 (94.5)	
Body Mass Index			
Normal	68 (24.2)	213 (75.8)	0.251
Obese	-	4 (100.0)	
Overweight	8 (40.0)	12 (60.0)	

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### Conflicts of interest

There are no conflicts of interest.

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