

**ASSESSMENT OF CONSUMPTION PATTERN TOWARDS OVERWEIGHT AMONG SENIOR
SECONDARY SCHOOL ADOLESCENTS LIVING IN ILARO, OGUN STATE.**

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ABSTRACT

This study assessed the consumption pattern of senior secondary school adolescents living in Ilaro, Ogun State, Nigeria. The study used multistage random sampling technique to select sample of 267 students across selected secondary school in Ilaro. Structured and validated interview was used and data obtained were analysed using descriptive statistic such as frequency distribution and percentage, mean and chi square (X^2) to test the hypotheses.

Results indicated that the gender mean age of the respondents was 15.3 years. 25.8% of the female respondents had higher family size than their male counterpart which ranged from 6 – 8. Across the selected respondents, 78.7% of both male and female affirmed that they eat three times daily with mean value of 2.60. Result further revealed that most (55.8%) of the adolescents were disposed to relatively poor consumption pattern. The result of chi-square analysis shows there is no significant relationship between attitude and consumption pattern. It can be concluded that the consumption pattern of respondents are bad and if it continues unchecked could leads to overweight, obesity and risk of getting cardiovascular other non-communicable diseases in the future . The study recommends that there is need to develop an information booklet on prevention of overweight/obesity among adolescents.

Keywords: Assessment, adolescents, consumption pattern, multistage sampling, overweight.

INTRODUCTION

Overweight and obesity (Cole *et al.*, 2000, Molnar and Livingstone, 2000, NHMRC, 2013), are conditions of abnormal or excessive body fat accumulation in adipose tissue, to the extent that health may be impaired. After infancy, adolescence is the developmental stage at which the individual experiences

the most dramatic biological, psychological and social transitions (Freedman *et al.*, 2003; He, 2003; Jennifer, 2010; Musa *et al.*, 2012; Pereira *et al.*, 2013). Hormonal changes and physical growth (Ejike *et al.*, 2010; Hills and Byrne, 2010) are accompanied not only by significant changes in how individuals perceive and experience themselves, but also in the perceptions and expectations they elicit from others in their social environment. Also, as part of the deep physiological changes (Ejike *et al.*, 2010; Hills and Byrne, 2010) experienced during adolescence, core brain structures are reshaped to make new learning processes possible.

Consumption pattern refers to how people eat, which food they eat and with whom they eat as well as how people obtain, store, use and discard food (WHO1995)

It is perceived that poor consumption pattern has a lot of effects on health and arise from lack of knowledge of the cumulative effects of poor eating habit which may predispose adolescent to diet related disease (Masuri *et al.*, 2011).a

Adolescence is a period of immense change. It involves a transition from childhood dependency to adult self-sufficiency. Adolescents make significant developments in physical growth (Ejike *et al.*, 2010; Hills and Byrne, 2010), cognition, identity, and sexuality in order to achieve emancipation, identity formation and assumption of functional roles, for normal nutritional status. In abnormal nutritional status adolescent becomes over weight when energy intake does not exceed energy expenditure (Abioye-Kuteyi *et al.*, 1997). When the balance shifts and weight changes (Ejike *et al.*, 2010; Hills and Byrne, 2010). The number and size of fat cells determine the amount of fat in a person's body. The number of fat cells increases most rapidly during the growing years of late childhood (Freedman *et al.*, 2003; He, 2003; Jennifer, 2010; Musa *et al.*, 2012; Pereira *et al.*, 2013) and early puberty (Slyper, 2006; Hochberg, 2013; Janesick, 2012) after growth ceases, fat cell numbers may continue to increase whenever energy balance is positive. Obese people have more fat cells than healthy weight people; their fat cells are also larger. When energy intake exceeds expenditure, the fat cells accumulate triglycerides and expand in size. When the cells enlarge, they stimulate cell proliferation so that their numbers increase again. Thus obesity develops when a person's fat cells increases in number and in size. With fat loss, the size of fat cells shrinks, but not the number. The timing of the onset of obesity is important as it determines the possibility of weight gain as well as the ease of losing the extra weight (Schlenker, 2007).

Modernization has brought changes (Ejike *et al.*, 2010; Hills and Byrne, 2010) in dietary pattern and leisure activities. Sedentary behaviors and consumption of fatty and sweetened food and beverages have been recognized as causative factors for overweight and obesity (Cole *et al.*, 2000, Molnar and

Livingstone, 2000, NHMRC, 2013). In addition to physical complications, negative social and emotional associations of overweight (Landhuis, 2016; Ng *et al.*, 2014; Pupet *et al.*, 2002; Ramesh, *et al.*, 2010; Sonnevile *et al.*, 2012) and obesity (Cole *et al.*, 2000, Molnar and Livingstone, 2000, NHMRC, 2013) such as low self-esteem, being bullied, depression, behavioral and learning problems have been well studied.

Obesity which was predominantly in affluent countries is a potential health problem in developing countries despite the poor socio-economic situation. In Nigeria, 18% of adolescents are reported to be obese (WHO, 2003). Similarly, there is increasing prevalence of obesity (Akesode and Ajibode, 1983, Adienbo *et al.*, 2012) among women of childbearing age. Obesity is also said to be higher in urban than in rural communities. In a study conducted in Cross River State, Calabar, Nigeria, the prevalence of obesity (Akesode and Ajibode, 1983) in children (Cameron *et al.*, 2014, Ene-Obong *et al.*, 2012) and adolescents was estimated to be 2.3% to 4.0%. It was therefore concluded that Nigeria would experience a rise in the prevalence of Obesity (Adienbo *et al.*, 2012) in the near future. This implies that there would be an increase in the prevalence of chronic diseases such as cardiovascular diseases and other non-communicable diseases whose trend follows an increased prevalence of Obesity (Adienbo *et al.*, 2012).

HOW TO ASSESS NUTRITIONAL STATUS

There are various way of assessing nutritional status. They include: Anthropometric measurement, Biochemical Assessment Method, Clinical Assessment Method and Dietary Recall. For adults; general adequacy is assessed by measuring weight and height, the result is commonly expressed as the Body Mass Index (BMI) which is define as the of weight in (kilogram) divided by height in (meter square(m²)), body fat may also be estimated by measuring skin fold thickness and muscle diameter.

$$\text{BMI is calculated as: } \frac{\text{Body weight (in kilograms)}}{\text{Height}^2 \text{ (in meter square)}}$$

$$\text{Also; an alternate method for calculating BMI is: } \frac{\text{Weight (pound)} \times 703.1}{\text{Height}^2 \text{ (inches)}}$$

The current definition proposed by the US [National Institutes of Health](#) (NIH 2000) and the [World Health Organization](#) designates whites, Hispanics and blacks with a BMI of 25 or more as overweight (Landhuis, 2016; Ng *et al.*, 2014; Pupet *et al.*, 2002; Ramesh, *et al.*, 2010; Sonnevile

et al., 2012) . For Asians, overweight is a BMI between 23 and 29.9 and obesity for all groups are a BMI of 30 or more.

BMI, however, does not account for extremes of muscle mass, some rare [genetic](#) factors, the very young, and a few other individual variations. Thus it is possible for an individuals with a BMI of less than 25 to have excess body fat (Davison *et al.*, 2003, Ejike, and Ijeh, 2012, Limber *et al.* 2014, Rolland-Cachera *et al.*, 2010), while others may have a BMI that is significantly higher without falling into this category. Some of the above methods for determining body fat are more accurate than BMI but come with added complexity. If an individual is overweight (Landhuis, 2016; Ng *et al.*, 2014; Pupet *et al.*, 2002; Ramesh, *et al.*, 2010; Sonnevile *et al.*, 2012) and has excess body fat (Davison *et al.*, 2003, Ejike, and Ijeh, 2012, Limber *et al.* 2014, Rolland-Cachera *et al.*, 2010) it can create or lead to health risks. Reports are surfacing, however, that being mildly overweight to slightly obese – BMI being between 24 and 31.9 – may be actually beneficial and that people with a BMI between 24 and 31.9 could actually live longer than normal weight or [underweight](#) persons (Flegal *et al.*, 2005).

World Health Organization (2000) has also classified overweight using Body Mass Index as (normal) 18-24.5 (Overweight) 25-29.9, (severe obesity) 30-40, and (super obesity) > 50 for adults. However, as shown in Table 1 and Table 2, these criteria underestimate obesity in Asians, the international obesity Task Force (IOTF) has proposed the standards for adult obesity in Asia and India as follows. BMI < 23= overweight and BMI>25 =obesity.

Table 1: BMI Results for Boys

Age	Underweight	Healthy Weight	Overweight	Obese
13	15.2 or under	15.3-21.5	21.6-25	25.1 and over
14	15.9 or under	16-23.5	23.6-25.9	26 and over
15	16.6 or under	16.7-23.3	23.4-26.7	26.8 and over
16	17.2 or under	17.3-24.1	24.2-27.4	27.5 and over
17	17.6 or under	17.7-24.8	25-28.1	28.2 and over
18		18.2-25.5	25.6-28.8	28.9 and over

	18.1 or under			
19	18.6 or under	18.7-26.2	26.3-29.8	29.7 and over

Source: World Health Organization (2000)

Table 2: BMI Results for Girls

Girls	Underweight	Healthy Weight	Overweight	Obese
13	15.2 or under	15.3-22.5	22.6-26.2	26.3 and over
14	15.7 or under	15.8-23.2	23.3-27.1	27.2 and over
15	16.2 or under	16.3-23.9	24-28	28.1 and over
16	16.7 or under	16.8-25.5	25.6-28.8	28.9 and over
17	17.1 or under	17.2-25.1	25.2-29.5	29.6 and over
18	17.4 or under	17.5-25.6	25.7-30.2	30.3 and over
19	17.7 or under	17.8-26	26.1-30.9	31 and over

Source: World Health Organization (2000)

Obesity and Eating Behaviour of Adolescents: Nutritional problems of adolescents whether under-nutrition (Cameron, 1991), over nutrition or nutrition-related chronic diseases, are mainly the result of dietary inadequacies, which may be related to a number of factors that can be grouped under physiological, socioeconomic and psychosocial factors. The search for identity, the struggle for independence and acceptance, and concern about appearance, are changes (Ejike *et al.*,2010; Hills and Byrne, 2010) that may have a great impact on lifestyle, eating patterns and intakes of adolescents (Amiel *et al*, 2016). Thus reaction to weight bias, in addition to the stigmatization itself may influence eating patterns.

Dietary Intervention: Dietary changes (Ejike *et al.*,2010; Hills and Byrne, 2010) should be individualized and tailored to food preferences and allow for flexible approaches to reducing calorie

intake. Unduly restrictive and nutritionally unbalanced diets should not be used, because they are ineffective in the long-term and can be harmful. People should be encouraged to improve their diet even if they do not lose weight, because there can be other health benefits.

The present study therefore aimed at identifying the extent to which overweight adolescents are connecting to their healthy eating behavior and internalizing weight-based stigma and how this affects their quality of life, thus this research focused on assessing the consumption pattern of adolescent in senior secondary pupils living in Ilaro.

METHODOLOGY

This section discusses the methodology adopted for this study. Research methodology is often conceived as the plan of action, structure or strategies that a researcher proposes to follow in providing answers to prevailing research questions.

The Study Area: The study area was Ilaro town in Ogun state, Nigeria. Ilaro town is the head quarters of Yewa South local government, now known as YEWA LAND which replaced the Egbado division of the former western state and later became part of Ogun State of Nigeria, West Africa till this date.

Population of the Study: This study was conducted across secondary schools in Ilaro. We have about eleven secondary schools in Ilaro. The study used 267 adolescent secondary school students as sample.

Study Design: The research design for the study was descriptive and experimental design which involves public and private secondary school students. Descriptive survey research involves the gathering of information about the prevailing conditions or situations for the purpose of description and interpretation.

Sampling size and sampling Technique: Sampling is the process of drawing a sample from the population. For this purpose, the population is divided into a number of parts called sampling. Since all the schools in Ilaro town can be covered, relevant sampling techniques was adopted. Simple random sampling method was used to give schools and students equal chances of being selected. As shown in Table 3, 10 percent of adolescents participated, from all the secondary schools which cut across senior secondary schools.

Table 3: Sampling Technique and Sample size of the Respondents.

Name of school	Total number of pupils in senior class ss1-3	10 % Of pupils in senior secondary school of each school
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Yewa college Ilaro	450Pupils	45pupils
Poly staff college	200pupils	20 pupils
Aglican grammar school	320 pupils	32 Pupils
Itolu community senior school	370 pupils	37 pupils
Orronna high school	300pupils	30 pupils
Ansaru deen model school	120 pupils	12 pupils
Aunty kemi model college	140 pupils	14 pupils
Baptist high school	220 pupils	22 pupils
Deuteronomy Academy	140 pupils	14 pupils
Emmanuel high school	270 pupils	27 pupils
Optimum success college	240 pupils	24 pupils
TOTAL	2670 pupils	267 pupils

Source: Field Survey, 2018

Method of Data Collection: The research instrument for the study was basically structured questionnaire for the quantitative research. Open and closed-ended questions were asked. Question was drafted in line with the objectives of the study. A total of 267 questionnaires were administered on selected students, 133 boys and 134 girls participated in the answering the questions.

Data Analysis: According to the objectives of this study, the collected data was analyzed through Statistical Package for Social Sciences 20 (SPSS). Achieving the above, the quantitative data was edited and cleaned to eliminate inconsistencies that could undermine validity. Data generated from the structured questions were entered into the micro soft Access Software in order to minimize data entry error and to ensure effective data management. A descriptive analysis and chi-square analysis of data was undertaken. Quantitative variables were assessed using [t test](#) while qualitative ones were assessed using chi square. Descriptive statistics of mean and standard deviation were used to examine the age- and gender-specific

anthropometric indices. Differences between parameters compared were considered to be statistically significant within 95% confidence interval, a p-value ≤ 0.05 .

FINDINGS, RESULTS AND DISCUSSION

Across the selected respondents, results in Table 4 show that large (78.7 per cent) of both male and female affirmed that they eat three times daily with mean (2.60). This shows that the consumption pattern of respondent was high and if it continues could lead to overweight. 76.0% of the respondents affirmed that they like taking soft drink once every day. This is dangerous to their health because the sugar content in the soft drink is harmful and taking it every day could jeopardize their health and also results in obesity. Majority (88.4%) of the respondents do take lunch to school every day. 82.8% do skip breakfast. 80.9% of the respondents always take mid lunch and 62.9% do eat fruits everyday while 77.2% liked taking fatty foods every day. Also, 79.4 per cent eat sugary foods every day, 73.0% eat more than adequate amounts of foods every day, 60.3% liked eating snacks every day, 74.5% don't like eating beans every day, 62.5% like eating egg once every day while 54.3% normally eat carbohydrates food once every day, 53.6% like eating rice once every day. Furthermore, it was shown that 79.4% of the respondent could not miss swallow food once every day, 78.3% do not mind eating late at night and 67.8% eat large portion of food every day. With all these indicators it shows that majority of both male and female in the study area eat foods that could lead to overweight.

Table 4: Distribution of consumption pattern of the respondents

Variables	Everyday			Mean
	Once	Twice	Thrice	
How many times do you eat per day	49 (18.4)	8 (3.0)	210 (78.7)	2.60
I like taking cold soft drink	203 (76.0)	15 (5.6)	49 (18.4)	1.42
I do take lunch to school	236 (88.4)	14 (5.2)	17 (6.4)	1.18
I often skip my breakfast	221 (82.8)	32 (12.0)	14 (5.2)	1.22
I normally skip meals	216 (80.9)	30 (11.2)	21 (7.9)	1.27
I don't skip lunch	198 (74.2)	23 (8.6)	46 (17.2)	1.43
I always take mid-lunch	220 (82.4)	12 (4.5)	35 (13.1)	1.31
I do skip dinner	212 (79.4)	15 (5.6)	40 (15.0)	1.36
I eat fruits	168 (62.9)	79 (29.6)	20 (7.5)	1.45
I like taking fatty foods	206 (77.2)	41 (15.4)	20 (7.5)	1.30
I often eat sugary foods	212 (79.4)	26 (9.7)	29 (10.9)	1.31
I eat pretentious foods	195 (73.0)	54 (20.2)	18 (6.7)	1.34
I like eating snacks	161 (60.3)	51 (19.1)	55 (20.6)	1.60
I don't like eating beans	199 (74.5)	13 (4.9)	55 (20.6)	1.46
I like eating egg	167 (62.5)	33 (12.4)	67 (25.1)	1.62
I normally eat carbohydrate	145 (54.3)	74 (27.7)	48 (18.0)	1.64
I like eating rice	143 (53.6)	53 (19.9)	71 (26.6)	1.73
I cannot miss swallow food	212 (79.4)	12 (4.5)	43 (16.1)	1.37
I must eat swallow in a day	224 (83.9)	12 (4.5)	31 (11.6)	1.28
I don't mind eating late at night	209 (78.3)	24 (9.0)	34 (12.7)	1.34
I like eating beans	214 (80.1)	25 (9.4)	28 (10.5)	1.30
I don't eat late at night	207 (77.5)	24 (9.0)	36 (13.5)	1.36
I eat large portion of food	181 (67.8)	17 (6.4)	69 (25.8)	1.58
Grand Mean				1.46

Source: Field Survey, 2018. Figures in parenthesis are percentages

Level of consumption pattern of the respondents: Table 5 reveals the level of adolescent consumption pattern. It shows that most of the adolescents (55.8%) were having bad consumption pattern. However, about 44.2% of the adolescents were having good consumption pattern. This shows that most of the overweight were caused by their bad consumption thus, parent should guide against consumption pattern of their children to avoid sickness. This was in tandem with Demory-Luce., Morales, Nicklas, Baranowski., Zakeri, Berenson,(2004) that Changes in food group consumption patterns affect adolescent attitudes.

Table 5: Level of consumption pattern of the respondents (n = 267)

Level of consumption pattern	Frequency	Percentage
Bad consumption pattern	149	55.8
Good consumption pattern	118	44.2
Total	267	100.0

Source: Field Survey, 2018

CONCLUSION: This study concludes that the consumption pattern of respondents are bad and if it continues unchecked could leads to overweight, obesity and risk of getting cardiovascular other non-communicable diseases in adulthood .

RECOMMENDATIONS: Based on the finding and conclusion made in this study, the following are therefore recommended:

1. The students in the study area especially the female should be orientated considering their socio-economic status so as to curb the menace of overweight and obesity which could endanger their lives.
2. Also, there is need for enlightenment, improved awareness on adolescent's consumption pattern by all stakeholders; parents, teachers, governments, Non- Governmental Organization, private individuals and the society. This will lead to reduced obesity and overweight among adolescents most especially among secondary school aged students.

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