Asian Pac. J. Health Sci., 2015; 2(2): 20-24 e-ISSN: 2349-0659, p-ISSN: 2350-0964

Assessment of the prevalence of obesity in idema community, ogbia local government area of bayelsa state

Ephraim-Emmanuel, Benson Chukwunweike, Dotimi, Doris Atibinye, Wellington Goodness Ogbomade, Opemipo Olayinka

Department of Dental Health Sciences, Bayelsa State College of Health Technology, Otuogidi, Ogbia
Department of Community Health Sciences, Bayelsa State College of Health Technology, Otuogidi, Ogbia

ABSTRACT

Background: Recently, there have been reports of increasing incidences of shift in body weight pattern in Nigeria from underweight to overweight and obese individuals. This is a serious healthcare issue as obesity is a risk factor for many non-communicable diseases. Hence, this research aims to study the prevalence of obesity in Idema, a rural community in Bayelsa State, Nigeria. **Method:** A cross sectional survey design was carried out on 81 subjects of Idema Community using the body mass index (BMI) to determine their obesity profile. **Result:** It was found that 11 (13.58%) of the participants were obese, 18 (22.23%) were overweight, 39 (48.14%), were normal weight, 13 (16.05%) were underweight. A mean BMI of 23.27± 5.56 S.D. (which lies within the normal weight range) for the study population was observed. **Conclusion:** Although, there were cases of obesity in Idema, it is not prevalent in the community. Nevertheless, since obesity is a burgeoning public health issue in rural areas in Nigeria, it is important that it is addressed urgently before its incidence rises.

Keywords: Obesity, Body mass index.

Introduction

Worldwide, obesity has more than doubled since 1980 with over 200million men and 300million women obese [1]. Obesity, which is a risk factor in chronic illnesses or non-communicable diseases such as diabetes, hypertension, stroke and in recent cases some cancers is becoming prevalent in developing countries including Nigeria [2-4]. Opine that obesity is an emerging problem in Nigeria with social, health and economic implications. Although, most public health experts believe that obesity is an emerging problem in Nigeria, there is paucity of empirical data and information to support this claim [4]. To this end, this research which aims at studying prevalence of obesity in Idema community; a rural community in Nigeria is germane in bridging an identified research gap.According to the prevalence of overweight and obesity in Nigeria was estimated at 29%in men and 39% in women. Furthermore, it was projected to increase by 10% in 2015 [1]. Consequently, the rate of non-communicable diseases such as stroke, diabetes, hypertension and cancers and deaths resulting from these diseases are most likely to increase. For instance, the WHO recorded 17% increase in deaths as a result of these non-communicable diseases afore mentioned [3, 5]. This double tragedy of communicable and non-communicable disease in resource-crunched healthcare setting in Nigeria should be a source of utmost concern to public health experts around the country. This research aims to serve as a clarion call for the need to educate more people especially at the primary healthcare level on the importance of maintaining healthy weight. Some authors suggest that developing countries including Nigeria have not taken cognisance of the burden of the implication of obesity due to a number of factors/ other pressing issues such as weak governance and institutional structuring, technological divide, political stability, communicable diseases and worse off the socio-cultural issue associated with overweight is good health [6, 7]. According to an international comparison study of 85 countries with obesity, it was found that in recent times, the Body Mass Index (BMI) levels were highest in low and middle income countries as opposed to the popular belief that high BMI is associated with high income countries [6].

**Correspondence*

Ephraim-Emmanuel

Department of Dental Health Sciences, Bayelsa State College of Health Technology, Otuogidi, Ogbia

Determination of obesity level in individuals

Against the backdrop that obesity is a major culprit of non-communicable diseases in developing countries including Nigeria, it is imperative that the parameter for determining the obesity status of an individual be discussed. In most literature, the term overweight and obesity are used concurrently; however, the BMI is a standard parameter that classifies body weight into varying categories. According to the WHO, this classification of body weight should include degrees of underweight and gradation of excess weight or over weight associated with non-communicable diseases [8-10]. This recommended classification of BMI is defined as the weight in kilograms (kg) divided by height in metres square and it is the tool of measurement of obesity in this research.

Table1: Body Mass Index (Bmi) Cut-Off Limits

BMI(Kg/m^2)	Rating, Risk of Disease
>40	Extremely obese, Extremely high risk
35-39	Highly obese, Very high risk
30-34	Obese , High risk
25-29	Overweight, Increased risk
22-24	Acceptable, Very low risk
18-21	Trim, low risk
<18	Underweight, increased risk

(Source: Jensen, 2009)

Nevertheless, some authors argue that the BMI alone is not sufficient in determining if an individual is obese or not. They suggest that the waist circumference should be added to the BMI as it predicts health risk better than BMI alone [7, 11]. On the contrary, studies have shown that BMI is correlated to more direct measures of body fat such as underwater weighing and dual energy X-ray absorptiometry[12].The BMI cut-off points are applied to population data to inform policy development, prevention and intervention programmes [9]. The 1997 WHO expert consultation on obesity of related chronic disease in developing countries recognized the importance of abdominal fat as a complementary indicator to the BMI to measuring obesity [1].BMI cut-off points are also used clinically to identify higher risk individuals for screening, identify individuals for absolute risk assessment determine the type and intensity of treatment, monitor individual for effect of treatment over time and determine institutional policies on individuals [9].

Relationship between Obesity and Rural Communities

Previously, there have been debates about the prevalence of obesity in high income and developed countries [13, 14]. However, recent studies have shown that low and middle income countries/developing countries now suffer the same fate of problems/consequences associated with obesity like their high income/developed counterparts [3, 4, 8]. Also, even within a developing country like Nigeria, there are some disparities in the prevalence of obesity between rural and urban communities. Arguably, these disparities are associated with socio-economic factors that differentiate rural and urban communities [15-16]. Opines that there is a nutrition transition from 'traditional' food to Western diets in developing countries is a leading cause of obesity in addition to change in physical activity pattern and lifestyle.

METHOD

A cross sectional study was carried out in Idema Community located within the Ogbia Local Government Area of Bayelsa State, Nigeria. Many Idemas were originally farmers and fishermen but today, they are involved in other diversified professions. Due permission to carry out this study was obtained from the Olilema of Idema Community and the choice to be a subject used in this study was completely voluntary. A convenience sampling was used to select 81 subjects whose weight and height measurements were recorded and used for the computation of the Body Mass Index of our subjects.

RESULTS

Demographic Statistics

Altogether, 81 subjects were involved in this study. 35 (43.2%) were males and 56 (56.8%) were females. The mean age was 25±9.06 S.D. with a modal age of 19.This is shown in table below.

Table 2: Demographic Statistics

	AGE	GENDER
MEAN	25.06	Male: 35 (43.2%) Female: 46 (56.8%)
MODE	19	
STD. DEVIATION	9.06	

BODY MASS INDEX (BMI) STATISTICS

For BMI, a mean BMI (in Kg/m^2) of 23.27$\pm$ 5.56 S.D. and a BMI range of 12 – 35.70 were gotten. This is shown in table 3.

Table 3: Basic Metabolic Index Statistics of subjects

	BMI (kg/m^2)
MEAN	23.27
MODE	23.30
STANDARD. DEVIATION	5.56
RANGE	23.70

Obesity profile of subjects

With the collected BMI data collected at Idema Community, it was found that majority of subjects, n= 39 (48.14%), were of normal weight; 13 (16.05%) were underweight; 18 (22.23%) were overweight and 11 (13.58%) were obese. Remarkably, more males than females (12.35%: 3.70%) were underweight, more females than males 25 (30.86%): 14 (17.28%) had normal weight measurements and also found to be overweight (12.35%: 9.88%) and obese (9.88%: 3.70%). Altogether, 29 (35.81%) subjects were either overweight or obese. These results are shown in table 4 below.

Table 4: Obesity Profile of Subjects

PARAMETER	MALE	FEMALE	TOTAL
UNDERWEIGHT	10 (12.35%)	3 (3.70%)	13 (16.05%)
NORMAL	14 (17.28%)	25 (30.86%)	39 (48.14%)
OVERWEIGHT	8 (9.88%)	10 (12.35%)	18 (22.23%)
OBESE	3 (3.70%)	8 (9.88%)	11 (13.58%)
OVERWEIGHT + OBESE TOTAL	**11 (13.58%)**	**18 (22.23%)**	**29 (35.81%)**

Discussion

With the increasing prevalence of obesity in both developed and non-developed countries as well as their contributory roles in various diseases and illnesses, it has become very necessary for preventive strategies to be adopted in reducing this rising prevalence cutting across the young and old; pre-menopausal and post-menopausal women and so on. [7, 17, 18, 19] .Considering the mean BMI (in Kg/m^2) of 23.27$\pm$ 5.56 S.D. (which lies within the normal weight range), gotten from our study population, it can be deduced that obesity is prevalent in our study area; n= 11 (13.58%). However, majority of subjects, n= 39 (48.14%), were of normal weight, 13 (16.05%) were underweight and 18 (22.23%) were overweight. Despite the low prevalence of obese individuals within our study area, it still needs to be tackled and brought down to the barest minimum so as to further reduce the number of future morbidities or mortalities that may occur if this is left unchecked. Previous studies have however shown a higher prevalence of obesity than what was recorded in our study area [20]. Reported an obesity prevalence of 29% in Canada and reported obesity prevalence of 42.04% in Zaria, Northern

Nigeria. [7,10]. In India, however got lower obesity prevalence compared to our study.

More female than male subjects within our study area were found to be overweight (12.35%: 9.88%) as well as being obese (9.88% : 3.70%). This is corroborated by a similar study carried out within the Ogbia Local Government Area of Bayelsa State and may be associated with pregnancy- associated obesity as well as post-menopausal obesity which may be prevalent among the female subjects used in our study and the fact that on the average, women have greater amounts of total body fat than men with an equivalent BMI. [1, 7, 21].These findings however disagree with those of, who reported higher body mass index measurements in males than in females[22].The fact still remains that obesity is a modern day health challenge and is linked with a vast number of diseases including those affecting the cardiovascular system, endocrine system, respiratory system, gastro-intestinal system amongst others. Although there may differences in percentage of body fat associated with a given body mass index among various populations, obesity still remains a worldwide prevalent disease which requires a more targeted approach of educating the populace on the dangers of obesity by various health agencies and bodies. Individual persons are also not left out as without the efforts of individuals to adhere to healthy recommendations provided by various health agencies, obesity would still remain a universal health challenge. [11, 21, 23, 24, 25, 26].

Conclusion

There is the prevalence of obesity among community dwellers of Idema community of Bayelsa State, Nigeria. This prevalence was also found to be higher among female subjects. We however recommend that though the prevalence is not significantly high, controlling obesity in Idema Community of Bayelsa State should still be of public health concern and measures be put in place to completely curb its prevalence not just in Idema Community but all over the world.

References

1. World Health Organization. Waist Circumference and Waist-Hip Ratio: Report of a WHO Expert Consultation, Geneva, 8-11 December, 2008.
2. NIH. Clinical Guidelines Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report. 1998.
3. Abubakaria AR. & Bhopal RS. Systematic review on the prevalence of diabetes, overweight/obesity and physical inactivity in Ghanaians and Nigerians. *Public Health*, 2008; (122):173–182.
4. Afolabi WAO, Addo A A, Sonibare MA. Activity pattern, energy intake and obesity among Nigerian urban market women. *International Journal of Food Sciences and Nutrition*, 2004 55 (2):85-90.
5. World Health Organization. Global strategy on diet, physical activity and health: obesity and overweight 2010.
6. Durazo-Arvizu RA, Luke A, Cooper RS, Cao G, Dugas L, Adeyemo A, Boyne M, Forrester T. Rapid increases in obesity in Jamaica, compared to Nigeria and the United States. *Bio-Med Central Public Health*, 2008; 8 (133).
7. Achie LN, Olorunshola KV, Toryila JE, Tende JA. The body mass index, waist circumference and blood pressure of postmenopausal women in Zaria, Northern Nigeria. *Current Research journal of Biological Sciences* 2012; 4(3): 329-332.
8. World Health Organization. Obesity: Preventing and managing the global epidemic. report on a WHO consultation on obesity, Geneva, 3–5 June, 1997. WHO/NUT/NCD/98.1. Technical Report Series Number 894.Geneva: World Health Organization, 2000.
9. World Health Organization Expert Consultation. Appropriate Body-Mass Index For Asian Populations and Its Implications for Policy and Intervention Strategies. *Lancet* 2004; 363: 157–163.
10. World Health Organisation. The Impact of Chronic Disease in Nigeria: Facing the Facts 2005.
11. Naik JL, Dudekula AB, Reddy KSN. (2012). Association between Body Mass Index and Hypertension: A Cross Sectional Study in an adult male population. *Asian J. Exp. Biol. Sci.* 2012; 3(2):368-377.
12. Janssen I, Katzmarzyk PT, Ross R. Waist circumference and not body mass index explains obesity-related health risk. *Am J Clin Nutr*, 2004; 79 (3): 379-384.
13. Centers for Disease Control and Prevention. Body Mass Index: Consideration for Practitioners 2014.
14. Renzaho A. M. N. Fat, rich and beautiful: Changing socio-cultural paradigms associated with obesity risk, nutritional status and refugee children from sub-saharan Africa. *Health & Place* 2004; (10): 105–113.

15. Prentice AM. The emerging epidemic of obesity in developing countries. *International Journal of Epidemiology*, 2006; (35): 93–99.

16. Scott A., Ejikeme CS., Clottey EN, Thomas JG. Obesity In Sub-Saharan Africa: Development Of An Ecological Theoretical Framework. *Health Promotion International* 2012.

17. Popkin BM. The nutrition transition in low income countries: An emerging crisis. *Nutrition Review*. 1994; (52): 285 -298

18. Lee S, Bacha F, Arslanian SA. (2006). Waist Circumference, Blood Pressure and Lipid Components of the Metabolic Syndrome. *The Journal of Pediatrics* 2006; (149): 809-16.

19. Chen B, Li FH. Waist Circumference as an Indicator of High Blood Pressure in Preschool Obese Children. *Asia Pac J Clin Nutr* 2011; 20 (4): 557-562.

20. Hollander EL, Bemelmans WJ, Boshulzen HC, Friedrich N, Wallaschofski H, Guallar-Castillon P, Walter S, Zillikens MC, Rosengren A, Lissner L, Bassett JK, Giles GG, Orsini N, Heim N, Visser M, Groot LC. The association between waist circumference and risk of mortality considering body mass index in 65 to 74 year olds: a meta-analysis of 29 cohorts involving more than 58,000 elderly persons. *International Journal of Epidemiology* 2012.

21. Zilli T, Chagnon M, Van NT, Bahary JP, Guay JP, Dufresne A, Taussky D. Influence of abdominal adiposity, waist circumference and body mass index on clinical and pathologic findings in patients treated with radiotherapy for localized prostate cancer. *Epub;* 2010; 116(24): 5650-8.

22. Dotimi DA, Hamilton-Ekeke J, Ephraim-Emmanuel BC, Kei BO. Bozy MI. (2013). The Prevalence of Large Waist Circumference and High Body Mass Index and Their Relationship with Blood Pressure of Staff of the Bayelsa State College of Health Technology Otuogidi-Ogbia Town. *African Journal of Education and Information Management 2013*; 14(1&2):105-113.

23. Guagnano MT, Ballone E, Colagrande V, Vecchia DR, Manigrasso MR, Merlitti D, Riccioni G, Sensi S. Large waist circumference and risk of hypertension. *International Journal of Obesity 2001;* 25 (9) 1360-1364.

24. Zhu S, Heshka S, Wang Z, Shen W, Allison DB, Ross R, Heymsfield SB. Combination of BMI and Waist Circumference Risk Factors in Whites. *Obes Res.* 2004; 12(4):633-45.

25. Wildman RP, Gu D, Reynolds K, Duan X, Wu X, He J. Are waist circumference and body mass index independently associated with cardiovascular disease risk in Chinese adults? *Am J Clin Nutr 2005*;82(6): 1195-1202.

26. Nanaware NL, Gavkare AM, Surdi AD. Study of correlation of body mass index (BMI) with blood pressure In school going children and adolescents. *International Journal of Recent Trends in Science and Technology, 2011;* 1 (1): 20-26.

27. Warren TY, Wilcox S, Dowda M, Baruth M. Independent association of Waist Circumference With Hypertension and Diabetes in African American Women, South Carolina, 2007-2009. *Prev Chronic Dis* 2012; (9):110-170.

Source of Support: Nil
Conflict of Interest: None