

Prevalence and predictors of overweight and obesity among adults in rural and urban communities of Sokoto State, Nigeria

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ABSTRACT

Background: Overweight and obesity have reached epidemic proportions in both the developed and developing countries of the world. **Aim:** This study aimed to determine the prevalence and predictors of overweight and obesity in urban and rural populations of Sokoto State, Nigeria. **Materials and Methods:** A comparative cross-sectional study was conducted among 430 adults selected by multi-stage sampling technique. Anthropometric assessment was in addition to questionnaire administration. Data were analyzed using IBM SPSS version 25 statistical computer software package. **Results:** The prevalence of overweight and obesity was high in both the urban and rural groups in this study, but it was significantly higher ($p < 0.05$) in the urban group (overweight = 22.3%, obesity = 24.3%) as compared to the rural group (overweight = 17.7%, obesity = 7.4%). The predictors of overweight / obesity in the rural group were being married, average monthly income <N30,000:00 and consumption of fatty foods; while the predictors of overweight / obesity in the urban group were not engaging in moderate intensity sport, fitness or recreational activities, and family history of overweight and obesity. **Conclusion:** This study showed high prevalence of overweight and obesity among adults in urban and rural communities of Sokoto State, Nigeria. These findings underscore the need for the Ministry of Health, Sokoto State, Nigeria to organize sensitization campaigns through the mass media to create awareness on the prevention and control of overweight and obesity among the residents in the state. In addition, the Sokoto State Government should make poverty alleviation and provision of sports and recreation facilities in workplaces top priorities.

Keywords: Overweight, obesity, prevalence, predictors, adults

INTRODUCTION

Overweight and obesity have reached epidemic proportions in both the developed and developing countries in the world with at least 1.70 billion people being affected and at least 300 million being obese.^{1,2} In a study on the prevalence of overweight and obesity in adults in twenty European countries in 2014, it was found that overweight and obesity accounted for 53.1% of the studied population.³ It was estimated that in 2010, England had 6.6 million obese men (which account for 33% of the population) and 5.9 million obese women (which account for 28% of the population) and it is estimated that with the current trend, by 2050, 60% of males and 50% of females in England will be obese.⁴ In Malaysia a study found that 51.2% of the respondents were overweight /obese.⁵

an alarming rate.⁶ A study by Munyogwa and Mtunwa⁷ in Tanzania reported an obesity prevalence of 28.8%, while in Ghana the national prevalence of overweight and obesity was estimated to be 25.4%.⁸ In addition, Banwat et al⁹, and other researchers¹⁰⁻¹⁵ have also documented the prevalence of obesity in Nigeria.

Similar to the situation across the African continent, the burden of overweight and obesity is high in Nigeria. Data from the World Health Organization (WHO) shows that the prevalence of overweight and obesity increased by 20% between 2002 and 2010 in Nigeria.¹⁰ According to the 2010 WHO survey data on Nigeria, the prevalence of overweight was 26% and 37% in men and women respectively.¹⁰ High overweight prevalence rates were principally reported in studies conducted across

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Nigeria including Ile-Ife (20.3%),¹¹ and Lagos (22.2%).¹² The prevalence of obesity is also high in Nigeria in concomitance with that of overweight. In 2020 about 12 million persons were estimated to be obese in Nigeria with a considerably higher prevalence among women.¹³ High obesity prevalence rates were reported in several studies conducted across Nigeria including Abuja (22.3%),¹ Southwestern Nigeria (20.8%),¹⁴ and Sokoto (15.2%).¹⁵

Overweight and obesity are associated with several diseases including cardiovascular disease, diabetes and several types of cancers,¹⁶ and they are the fifth leading risk for global deaths. At least 2.8 million adults die each year as a result of being overweight or obese. In addition, 44% of diabetes burden, 23% of ischemic heart disease burden and between 16% and 41% of certain cancer burden are attributed to overweight and obesity.^{17,18}

Obesity is linked with huge economic cost, with an estimated cost of 147 billion dollars in 2008 in the United States of America.¹⁹ Although, there are no documented estimates of the economic cost of obesity in Nigeria, it may run into several billions of Naira a year, and it is believed that the increasing prevalence of obesity in Nigeria will cause significant impact on the national health budget, in addition to other costs including work absenteeism, presenteeism, increased risk of occupational accidents and injuries, reduced productivity, emotional and psychological problems, low self-esteem, anxiety, depression and suicidal attempts in extreme cases.^{4,20,21}

The development of obesity has been attributed to the contribution of environmental and genetic factors.¹⁴ Increasing number of communities worldwide are becoming vulnerable to the development of obesity or overweight as a result of increased dietary intake. It is believed that the fundamental cause of overweight and obesity is the energy imbalance between calories consumed and calories expended. Globally, there has been increased intake of energy-dense foods that are high in fat, and increase in physical inactivity due to increasing sedentary nature of many forms such as spending much time on TV, changing modes of transportation, increasing urbanization and so on.^{17,18} In addition to unhealthy dietary intake and physical inactivity several factors including age, gender, marital and socioeconomic status, occupation, and place of residence (i.e., rural versus urban) have been found to be associated with overweight and obesity.²²

Whereas, some data exist on the prevalence of overweight and obesity among urban and semi urban Nigeria,²² there is limited information exists on the prevalence of the risk factors for overweight and obesity in adult Nigerian population especially in rural setting.¹⁴ Also, data on obesity have been commonly reported in the past among specific risk groups such as hypertensive and diabetic populations and many of them are hospital-based.²³

Whereas, variations in the prevalence of overweight and obesity in urban and rural populations have been documented in several studies, sufficient attention has not been paid to the variations in the factors that are associated with them, and specifically those that predict their occurrence in the urban and rural populations across Nigeria.^{14,22} Knowing the prevalence and predictors of overweight and obesity in the urban and rural populations in Sokoto State is crucial to designing appropriate strategies for their prevention and control across the state. This study was conducted to determine the prevalence and predictors of overweight and obesity in urban and rural populations of Sokoto State, Nigeria.

MATERIALS AND METHODS

Study Design, Population and Area

A comparative cross-sectional study was conducted among adults aged eighteen years and above in rural and urban areas of Sokoto State, Nigeria, in November and December 2020. Sokoto State is located in the North western part of Nigeria between longitudes 4°8'E and 6°54'E and latitudes 12°N and 13°58'N. It shares common borders with Niger Republic to the north, Kebbi State to the southwest and Zamfara State to the east. It has 23 Local Government Areas with a total land area of about 32,000 square Km, and an estimated population of 5,033,495 projected for 2016 based on the 2006 general census.²⁴ Household members aged ≥ 18 years who were present at the time of conduct of the study and gave their consent to participate were considered eligible and enrolled in the study. Pregnant women and those too ill or with debilitating disease conditions that made it difficult to take their anthropometry were excluded.

Sample Size Estimation and Sampling Technique

The sample size was estimated at 215 per group using the formula for calculating the sample size for proportion in comparison of two groups,²⁵ a 13.9% prevalence of obesity in an urban area from a previous study,²⁶ a 5.6% prevalence of obesity in a rural area from a previous study,²⁷ and an anticipated 90% response rate.

The eligible participants were selected by a multi-stage sampling technique. In stage 1, one urban LGA and one rural LGA were selected from the 5 urban and 18 rural LGAs in the state (as classified by the state), in stage 2, two wards were selected from the 11 wards in each of the selected LGA, and in stage 3, one settlement was selected from each of the 4 wards. All the selections from stages 1 to 3 were done through a simple random sampling technique by balloting. The population of the selected settlements was obtained and used to do proportionate allocation of the number of respondents to be enrolled in the respective settlements. In stage 4, systematic sampling technique was used to enroll households to obtain the study subjects after obtaining the sampling frame.

Data Collection

The methods of data collection comprised personal interview and physical assessment (i.e., anthropometry). A structured interviewer-administered questionnaire was used to obtain information on the socio-demographic characteristics of the study participants and behavioral measurements. The questions on behavioral measurements were adapted from the WHO STEPS Instrument for chronic diseases risk factors surveillance that was used for a national survey on health behavior monitor among Nigerian adult population.²⁸ Weight was measured with shoes off to the nearest 0.5kg using a Seca Optimal scale; it was validated with a standard weight and corrected for zero error, while height was measured without shoes to the nearest 0.5cm using a stadiometer. Eleven final year students of School of Health Information Management (SHIM), Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria and 3 students from the College of Health Technology, Gwadabawa, Nigeria were recruited as research assistants and trained on general principles of research, ethics of field work, the objectives of the study, selection of study subjects, field activities, interpersonal communication skills and use of survey instrument. The questionnaire was pretested on 29 adults in one of the LGAs that were not selected for the study; the necessary adjustment was effected based on the observations that were made during the pretesting.

Operational definition of terms

Body mass index (BMI) was calculated as weight (kg) divided by height² (m²) and used as marker for overweight and obesity.²⁹ Underweight was defined as BMI less than 18.5kg/m², normal weight was defined as BMI of 18.5 to 24.9kg/m², overweight was defined as BMI of 25.0 to 29.9kg/m², while obesity was defined as BMI of 30.0kg/m² and above.

Data Analysis

Data were analyzed using IBM SPSS version 25 computer statistical software package. Quantitative variables were summarized using mean and standard deviation, while qualitative variables were summarized using frequencies and percentages. Frequency distribution tables were constructed; and cross tabulations were done to examine the relationship between categorical variables. Binary logistic regression analysis was used to determine the predictors of overweight and obesity. All levels of significance were set at $p < 0.05$.

Ethical Consideration

Institutional ethical clearance was obtained from the Research and Ethics Committee of Sokoto State Ministry of Health, Sokoto, Nigeria. Permission to conduct the study was obtained from the authorities of the selected LGAs, and informed consent was obtained from the participants before commencing questionnaire administration.

RESULTS

Socio-demographic characteristics of respondents

A total of 215 questionnaires each were administered to the respondents in the urban and rural groups. All the questionnaires administered in both groups were completely filled, returned and analyzed (giving a response rate of 100%). A larger proportion of the respondents in the urban group 58 (27.0%) were aged 26-35 years whereas, a larger proportion of the respondents in the rural group 50 (23.3%) were aged 36-45 years, but there was no significant difference ($p > 0.05$) in the age distribution of both groups. The rural group had a significantly higher proportion ($p < 0.05$) of males (rural = 74.0%; urban = 58.6%), Hausas (rural = 92.6%; urban = 58.1%), and Muslims (rural = 99.1%; urban = 72.6%). Whereas, the majority of the respondents in the urban group had tertiary education 128 (59.5%), a larger proportion of the respondents in the rural group had only Quranic education. A significantly higher proportion ($p < 0.05$) of respondents in the urban group gave a family history of overweight or obesity as compared to those in the rural group (urban = 25.1%; rural group = 16.7%) [Table 1].

Prevalence of overweight and obesity among respondents

There was a higher proportion of respondents with overweight in the urban group 48 (22.3%) as compared to the rural group 38 (17.7%) but the difference was not statistically significant ($p > 0.05$). There was a statistically significant higher proportion of respondents with

obesity in the urban group 52 (24.2%) as compared to the rural group 16 (7.4%); $\chi^2 = 34.141$, $p < 0.001$ (Figure 1).

Respondents' dietary habits

About two-thirds of respondents in both groups usually eat fatty foods (urban = 62.8%; rural = 61.9%), and also eat fruits at least 1-3 days per week (urban = 61.9%; rural = 56.3%). Only about half of respondents in both groups eat vegetables 1-3 days per week (urban = 50.7%; rural = 54.9%). There was no significant difference ($p > 0.05$) in the dietary habits of the respondents in both groups (Table 2).

Respondents' physical activity profile

A significantly higher proportion ($p < 0.05$) of the rural group respondents as compared to the urban group respondents trek to work (rural = 73.0%; urban = 46.0%), and their work schedule involves moderate intensity exercise (rural = 89.3%; urban = 62.8%) in about 4-7 days per week (rural = 75.0%; urban = 52.2%). Similarly, a significantly higher proportion ($p < 0.05$) of the rural group respondents as compared to the urban group respondents engage in moderate-intensity sport, fitness and recreational activities (rural = 77.2%; urban = 67.4%) in about 4-7 days per week (rural = 77.7%; urban = 39.1%) [Table 3].

Predictors of overweight and obesity among respondents

There were variations in the predictors of overweight and obesity among the respondents in the rural and urban groups. Whereas, the predictors of overweight and obesity among the rural group respondents were marital status, average monthly income, and dietary habits, the predictors of overweight and obesity among the urban group respondents were exercise profile and family history of overweight and obesity.

Among the rural group respondents, those that were married were about 5 times more likely to be overweight or obese (aOR: 4.860; 95% CI: 1.396 – 16.940; $p = 0.013$) as compared to those in the other marriage categories. Respondents that earn $\leq \text{N}30000$ monthly were about 3 times more likely to be overweight or obese (aOR: 3.365; 95% CI: 1.355 – 8.371; $p = 0.009$) as compared to those that earn $> \text{N}30000$ monthly. Respondents that usually eat fatty food were about 7 times more likely to be overweight or obese (aOR: 7.338; 95% CI: 1.630 – 33.025; $p = 0.009$) as compared to those who do not.

Among the urban group respondents, those who do not engage in moderate-intensity sport, fitness or recreational activities were about 4 times more likely to be overweight or obese (aOR: 3.839; 95% CI: 1.141 – 10.445; $p = 0.008$) as compared to those who do so. Also, respondents who gave a family history of overweight or obesity were about 4 times more likely to be overweight or obese (aOR: 3.715; 95% CI: 1.320 – 10.453; $p = 0.013$) as compared to those who did not (Table 4).

DISCUSSION

The study assessed the prevalence and predictors of overweight and obesity in urban and rural communities of Sokoto Northwestern Nigeria. Both overweight and obesity were more prevalent in the urban group in this study. Although, the prevalence of overweight in the urban group (22.3%) and the rural group (17.7%) was not significantly different, obesity was significantly more prevalent in the urban group (24.2%) as compared to the rural group (7.4%). This finding is not surprising in view of the fact that whereas there was no significant difference in the dietary habits of the respondents in both groups in which about two-thirds of the respondents in both groups eat fatty foods (urban = 62.8%, rural = 61.9%), a significantly higher proportion ($p < 0.05$) of the respondents in the rural group as compared to the urban group were engaged in physical activities including trekking to work, their work schedule involving moderate intensity exercise, and by engaging in moderate intensity sport, fitness and recreational activities.

The finding in this study is consistent with the finding of the Nigeria Demographic and Health Survey 2018²⁴ that reported a higher prevalence of overweight or obesity in urban areas (36.0%) as compared to rural areas (21.0%). Similar to the finding in this study, Adeloje et al.¹³ found the prevalence of overweight and obesity to be higher among urban dwellers (overweight = 27.2%, obesity = 14.4%) as compared to rural dwellers (overweight = 16.4%, obesity = 12.1%). Disparities in obesity prevalence rates in urban and rural communities have been reported in a number of studies, with urban communities having higher prevalence rates as compared to rural communities. It is believed that the interplay of socio-cultural lifestyle, high physical inactivity, high caloric energy intake and environmental factors may have contributed to the higher prevalence of obesity observed among the residents of urban communities as compared to their rural counterparts who majorly live an agrarian lifestyle.^{1,23}

Table 1: Socio-demographic characteristics of respondents

Variables	Urban group (n = 215) Frequency (%)	Rural group (n = 215) Frequency (%)	Test of significance
Age groups (years)			
18-25	53 (24.7)	42 (19.5)	$\chi^2 = 8.529$, p = 0.130
26-35	58 (27.0)	46 (21.4)	
36-45	45 (20.9)	50 (23.3)	
46-55	34 (15.8)	33 (15.3)	
56-65	14 (6.5)	28 (13.0)	
≥66	11 (5.1)	16 (7.4)	
Sex			
Male	126 (58.6)	159 (74.0)	$\chi^2 = 11.331$, p = 0.001*
Female	89 (41.4)	56 (26.0)	
Marital status			
Single	63 (29.3)	51 (23.7)	Fisher's exact, p = 0.097
Married	129 (60.0)	147 (68.4)	
Separated	4 (1.9)	1 (0.5)	
Divorced	6 (2.8)	1 (0.5)	
Widowed	13 (6.0)	15 (7.0)	
Ethnicity			
Hausa	125 (58.1)	199 (92.6)	$\chi^2 = 73.489$, p < 0.001*
Fulani	23 (10.7)	10 (4.7)	
Igbo	14 (6.5)	2 (0.9)	
Yoruba	29 (13.9)	1 (0.5)	
Others	24 (11.2)	3 (1.4)	
Religion			
Islam	156 (72.6)	213 (99.1)	$\chi^2 = 62.027$, p < 0.001*
Christianity	59 (27.4)	2 (0.9)	
Education			
None	14 (6.5)	24 (11.2)	$\chi^2 = 69.944$, p < 0.001*
Quranic	30 (14.0)	98 (45.6)	
Primary	8 (3.7)	14 (6.5)	
Secondary	35 (16.3)	20 (20.6)	
Tertiary	128 (59.5)	59 (15.5)	
Occupation			
Student	18 (8.4)	11 (5.1)	$\chi^2 = 11.393$, p = 0.010*
Trading/Business	109 (50.7)	142 (66.0)	
Civil servant	76 (35.3)	50 (23.3)	
Others (e.g., pension)	12 (5.6)	12 (5.6)	
Average monthly income (Naira)			
≤30000	101 (51.5)	154 (75.1)	$\chi^2 = 24.086$, p < 0.001*
>30000	95 (48.5)	51 (24.9)	
Family history of overweight or obesity			
Yes	54 (25.1)	36 (16.7)	$\chi^2 = 4.553$, p < 0.043*
No	161 (74.9)	179 (83.3)	

χ^2 = Pearson's Chi-square test; *Significant (p<0.05)

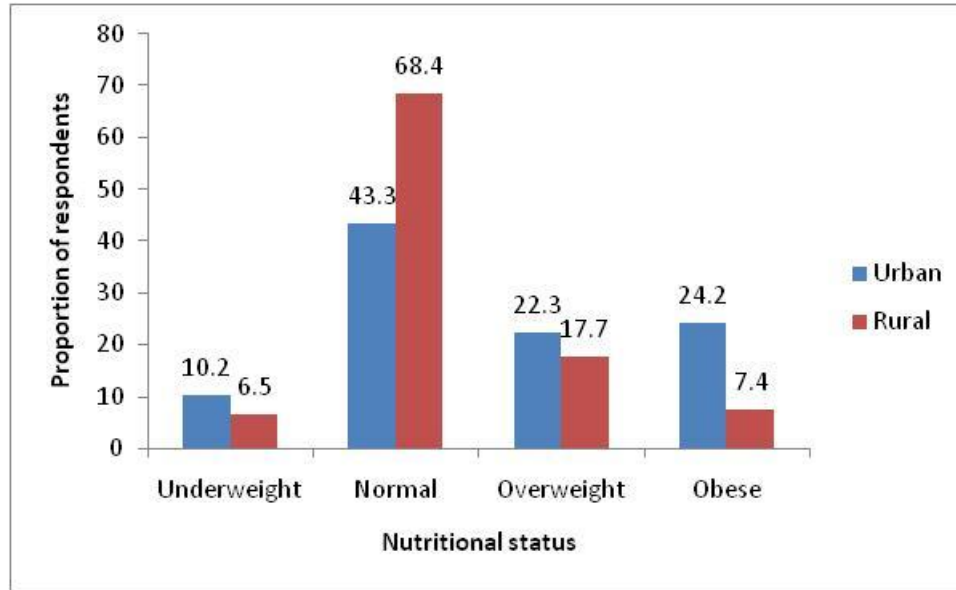


Figure 1: Prevalence of overweight and obesity among respondents

Table 2: Respondents' dietary habits

Variables	Urban group (n = 215) Frequency (%)	Rural group (n = 215) Frequency (%)	Test of significance
Usually eat fatty food			
Yes	135 (62.8)	133 (61.9)	$\chi^2 = 0.040,$ $p = 0.921$
No	80 (37.2)	82 (38.1)	
Number of days per week eat fruit			
Not at all	6 (2.8)	11 (5.1)	$\chi^2 = 2.752,$ $p = 0.253$
1-3	135 (62.8)	121 (56.3)	
4-7	74 (34.4)	83 (38.6)	
Number of days per week eat vegetable			
Not at all	4 (1.9)	12 (5.6)	$\chi^2 = 5.902,$ $p = 0.052$
1-3	109 (50.7)	118 (54.9)	
4-7	102 (47.4)	85 (39.5)	

χ^2 = Pearson's Chi-square test

Also, the residents of urban communities have more access to fast foods and high energy drinks, they are more at risk of physical inactivity as they have less space for leisure exercise in the overcrowded cities where they live, and mostly use automobiles for transportation as compared to the residents of rural communities who usually trek to their farms and working places.^{1,23}

In this study being married, average monthly income less than N30,000:00, frequent consumption of fatty foods were the predictors of overweight/obesity in the rural group, while not engaging in moderate intensity sport, fitness or recreational activities and family history of overweight/obesity were the predictors of overweight/obesity in the urban group.

Table 3: Respondents' physical activity profile

Variables	Urban group (n = 215) Frequency (%)	Rural group (n = 215) Frequency (%)	Test of significance
Method used in getting to work			
Trek to work	99 (46.0)	157 (73.0)	$\chi^2 = 45.604,$ $p < 0.001^*$
Ride a pedal bicycle	4 (1.9)	12 (5.6)	
Ride a motorcycle	63 (29.3)	30 (14.0)	
Ride in a car	49 (22.8)	16 (7.4)	
If trek to work, number of days per week			
≤3	39 (39.4)	76 (48.4)	$\chi^2 = 1.994,$ $p = 0.197$
≥4	60 (60.6)	81 (51.6)	
If ride a pedal bicycle, number of days per week			
≤3	3 (75.0)	10 (83.3)	Fisher's exact, $p = 0.607$
≥4	1 (25.0)	2 (16.7)	
Work involves moderate intensity exercise			
Yes	135 (62.8)	192 (89.3)	$\chi^2 = 41.497,$ $p < 0.001^*$
No	80 (37.2)	23 (10.7)	
Number of days per week involved in moderate intensity exercise as part of work			
1-3	64 (47.8)	48 (25.0)	$\chi^2 = 18.129,$ $p < 0.001^*$
4-7	70 (36.6)	144 (75.0)	
Engage in moderate intensity sport, fitness or recreational activities			
Yes	145 (67.4)	166 (77.2)	$\chi^2 = 5.124,$ $p = 0.024^*$
No	70 (36.6)	49 (22.8)	
Number of days per week engaged in moderate intensity sport, fitness or recreational activities			
1-3	98 (60.9)	37 (22.3)	$\chi^2 = 50.186,$ $p < 0.001^*$
4-7	63 (39.1)	129 (77.7)	

χ^2 = Pearson's Chi-square test; *Significant ($p < 0.05$)

The finding of the married respondents being almost 5 times more likely to be overweight or obese as compared to those in the other categories among the respondents in the rural communities in this study is consistent with the finding in a study conducted in Jos, Nigeria³⁰ in which the married individuals were 4 times more likely to be overweight/obese as compared to the non-married. Similarly, previous studies by Chan et al⁵ and Munyogwa and Mtunwa⁷ also found that respondents

who were married were more than 3 times more likely to be obese than those that were not married. It is believed that married men and women are less likely to be conscious of, or concerned about their body weight, and as such, they are more likely to experience a greater weight gain as compared to non-married individuals who are attempting to minimize weight gain in order to attract a partner.³¹

Table 4: Predictors of overweight and obesity among respondents

Variables	Urban group				Rural group			
	aOR	95% CI		p-value	aOR	95% CI		p-value
		Lower	upper			Lower	upper	
Marital status (*Married vs single / separated / divorced / widowed)	--	--	--	--	4.860	1.396	16.940	0.013**
Average monthly income (≤₦30000 vs >₦30000)	--	--	--	--	3.365	1.355	8.371	0.009**
Usually eat fatty foods (*Yes vs No)	--	--	--	--	7.338	1.630	33.025	0.009**
Engage in moderate-intensity sport, fitness or recreational activities (*No vs Yes)	3.839	1.141	10.445	0.008**	--	--	--	--
Family history of overweight or obesity (*Yes vs No)	3.715	1.320	10.453	0.013**	--	--	--	--

aOR = adjusted Odds Ratio; CI = Confidence Interval; * Reference group; **Significant (p < 0.05)

Also, marital roles appear to influence fatness and obesity among couples as they share similar behavior including dietary habits. A study suggests that, with the increase in income, the intake of higher energy and fat, and consumption of animal and processed foods increases, all of which are associated with overweight and obesity.³² Married individuals tend to have less time for physical exercise, in addition to exhibiting cultural attitudes to affluence and desire for weight gain (especially among women, as it is often perceived as a sign of affluence); these could also have contributed to the emergence of being married as a predictor of overweight and obesity in this study.

The finding of a relatively low average monthly income being a predictor of overweight or obesity in this study with those who earn ≤₦30,000:00 being 3 times more likely to be overweight or obese as compared to those who earn >₦30,000:00 per month is in consonance with the finding in a study by Iwuala et al.²⁰ in which persons with lower monthly income of less than ₦200,000 were almost 3 times more likely to be obese as compared to individuals who earn ≥₦200,000. A plausible explanation for the association between low income and obesity in this study and the later study is the fact that low-income earners may not be able to afford healthy foods, and as such resort to junk foods which are

unhealthy and predisposed them to overweight and obesity. This is further supported by the finding of respondents who usually eat fatty foods being about 7 times more likely to be overweight or obese as compared to those who do not among the rural group respondents in this study. This is in agreement with the findings in previous studies which reported a direct relationship between eating excessive fatty diet and being overweight/ obesity.^{33,34}

The emergence of low income and unhealthy diets as predictors of overweight and obesity in the rural communities in this study and the inextricable link between them is of serious concern as it brings to the fore the consequences of the inequalities in access to education and means of livelihood in the urban and rural populations of Sokoto State with significant differences in education and income. Whereas, about two-thirds (59.5%) of the respondents in the urban communities had tertiary education, less than a fifth (15.5%) of those in the rural communities had tertiary education. Also, whereas, close to half of the respondents in the urban area earn >₦30,000:00 per month, only about a quarter (24.9%) of those in the rural area earn >₦30,000:00 per month. It is therefore imperative for government to pay sufficient attention to the socio-economic development of the rural communities in the state to make them

economically productive, empower them to be able to afford healthy diets, and reverse the high prevalence of overweight and obesity in the state.

The finding of sedentary lifestyle being a predictor of overweight and obesity among the respondents in the urban communities in the state with those who do not engage in moderate intensity sport, fitness or recreational activity being about 4 times more likely to be overweight/ obese as compared to those who do so is in agreement with the findings in previous studies by Topara et al.,² and Chan et al.,⁵ which reported an inverse relationship between the level of physical activities and the risk of overweight and obesity. The finding in this study and the latter studies are not surprising because physical activity is known to cause elevation in daily energy expenditure, and it also increases the resting energy that is needed to promote fat oxidation which in turn decreases the body fat mass.

Also, the finding of family history of overweight/obesity being a predictor of overweight and obesity among the residents of the urban communities in this study with individuals with family history of overweight or obesity being about 4 times more likely to be overweight and obese compared to those without is consistent with the finding in a previous study by Omuemu and Omuemu.³⁵ It is believed that obesity could have a genetic component as it is known to run in families, and effective familial studies have shown a high correlation between BMI and parental obesity.³⁶ These findings underscore the need for the Sokoto State government to target “at risk individuals” (i.e., those with family history of overweight and obesity), particularly in the urban communities in the state, for weight control interventions.

CONCLUSION

This study showed high prevalence of overweight and obesity among adults in urban and rural communities of Sokoto State, Nigeria, but it was significantly higher in the urban communities as compared to the rural communities. Whereas, the predictors of overweight / obesity in the rural group were being married, average monthly income <N30,000:00 and consumption of fatty foods; the predictors of overweight / obesity in the urban group were not engaging in moderate intensity sport, fitness or recreational activities, and family history of overweight and obesity. These findings underscore the need for the Ministry of Health, Sokoto State, Nigeria to organize sensitization campaigns through the mass media to create awareness on the prevention and

control of overweight and obesity among the residents in the state. In addition, the Sokoto State Government should make poverty alleviation and provision of sports and recreation facilities in workplaces top priorities.

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Nil.

Conflict of interest

None declared.

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