

LIFESTYLE AND ANTHROPOMETRIC STATUS OF TRADERS IN UBANI ULTRA-MODERN MARKET IN UMUAHIA, ABIA STATE

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ABSTRACT

Background: Non-communicable diseases (NCDs) have overtaken communicable diseases as the leading causes of morbidity and mortality in Nigeria.

Objective: The study assessed lifestyle and anthropometric status of traders in Ubani ultra-modern market in Umuahia Abia state, Nigeria.

Materials and methods: The cross-sectional study of 200 traders randomly selected by ballot in Ubani-Ultra modern market used validated/pretested questionnaire to assess the socio-economic, lifestyle and food consumption of the respondents. Height and weight were measured with a stadiometer and digital bathroom scale respectively, while waist circumference (WC) and hip circumferences were measured with non-stretchable tape using standard methods. Body mass index (BMI) and waist-Hip ratio (WHR) were calculated and compared with their standards. Data were analyzed using IBM SPSS Statistics, version 21. Pearson's correlation was used to determine the relationship between lifestyle and anthropometric status and significance was judged at $p < 0.05$.

Results: Most (61%) of the respondents were females while 39% were males. Majority (88.5%) were (18-47) years while 11.5% were above 48years; 57.5% were married and 38.5% were single. Majority (91.5%) had secondary/tertiary education and earned ₦10,000 - ₦29,000 monthly from sales. Some (27.5%) of the respondents were obese, 29% were overweight 45% had normal BMI. Low risk with WC and WHR were found in 61% and 81% while high risk was 26.5% and 19% respectively. There was negative relationship ($r = -0.137$, $p=0.027$) between WHR and number of fats/oil consumed and a positive weak relationship ($r = 0.183$, $p=0.005$) between WC and number of leguminous foods consumed. Those who consumed vegetables, dairy products and fats and oil had significantly ($p<0.05$) lower waist circumference.

Conclusion: Most of the respondents were either overweight or obese; majority had low risk with WC and WHR. Food diversification is recommended to reduce risk of non-communicable diseases.

Key words:

INTRODUCTION

Healthy lifestyle is defined as the type of lifestyle that provides, preserves, and enhances the level of health and welfare (1). Noticing the role of lifestyle in preventing diseases, improving the quality of life, increasing life expectancy, and improving mental and physical health is of paramount importance (2). The patterns of lifestyle are deeply rooted in old habits and affect the person's health in the long term (3). According to the World Health Organization, non-communicable diseases (NCDs) kill 40 million people each year, equivalent to 70% of all deaths globally (4). Each year 15 million people die from NCDs between the ages of 30 and 69 years with over 80% of these premature deaths occurring in low- and-middle income countries like Nigeria (5). Unhealthy lifestyles practices such as tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets have been identified as risk factors of non-communicable diseases (5). More than one third of deaths occur as a result of unhealthy lifestyles worldwide, which are the main cause of developing cardiovascular diseases, hypertension, type 2 diabetes, tooth decay, stroke, and number of cancers (6). Nowadays,

lifestyle modification is an important strategy to prevent non communicable diseases (7). The diseases which result from unhealthy lifestyles are the most common causes of mortality and morbidity as well (8). Poor health status is one of the most important reasons of premature retirement and decreased capability and work output. Overweight and obesity are important risk factors that underlie the emergence of chronic diseases. The nutritional status of the traders may deteriorate due to chronic diseases that originate from certain lifestyles. Changes in dietary intake, food consumption patterns and physical activity levels all contribute to the problem of increasing obesity and co-morbid conditions of chronic diseases (9). Moreover, healthy traders would be more productive, less likely to be absent from their shops due to illness, and more involved in their business (10). Therefore, this study assessed the lifestyle, food consumption and anthropometric status of traders in Ubani Ultra-Modern market in Umuahia, Abia state.

MATERIALS AND METHODS

A cross-sectional study of 200 traders in Ubani-Ultra modern market was conducted using a simple random sampling. The total population of traders was obtained from the market union executives. The market although a 10,000+ traders capacity, had a total of only 300 traders as many of the traders could not afford the high cost of renting shops and have resorted to selling their wares in the streets from their cars. Sample size was calculated using the population formula: Sample size (n) = $N = \frac{N}{1+N(e)^2}$ Where: N = population size; e = level of precision (0.05). Thus sample size (n) = $N = \frac{300}{1+300(0.05)^2} = 171$. The sample size was made up to 200.

Questionnaire validated by lectures in Human Nutrition and Dietetics Department, Michael Okpara University of Agriculture, Umudike was used to assess the socio-economic, lifestyle and food consumption status of the respondents. Weight was measured to the nearest 0.1 kilogram (kg) using a bathroom scale. This was done with minimal clothing on, in line with the standard methods described by WHO (11). The height of each subject was measured with a constructed height scale made from wooden rod and fibre glass tape attached with the subjects standing erect on bare feet and heels put together, heels, buttocks and back of head touching the upright rule and height read to the nearest 0.1cm in line with the standard methods (11). Waist circumference measurement was done using a non-stretchable tape. The tape was placed not very tight around the top of the upper hip bone of the respondent's and the measurement was recorded to the nearest centimeter (12). Waist circumference was classified as high risk and low risk according to the standard reported (acefitness.org). Hip circumference was measured using the same non stretchable tape, identify the widest part of the buttocks and then the measurement was recorded to the nearest centimeter (12). Body mass index (BMI) was calculated and categorized using the WHO standard (11). Waist and hip ratio (WHR) was calculated and graded using

the classification by Lee and Nieman (13) as WHR for men > 0.90cm = at risk, < 0.90cm is normal; for women > 0.80cm = at risk, < 0.80cm is normal. All the data were analyzed using IBM SPSS Statistics, version 21. The Statistical Package for Service Solution (SPSS version 21) was used to analyze the data. Descriptive statistics (frequency and percentage) was obtained for the socio-economic and demographic characteristics and lifestyle pattern and anthropometric status. Dietary habit was classified as light eaters (1 -3 meals per day) and heavy eaters (more than 4 meals per day). Smoking habit was classified as light smokers (≤ 1 stick of cigarette per day) and heavy smokers (> 2 sticks per day). Alcohol consumption was categorized as light drinkers (< 1 - 2 bottles per day) and heavy drinkers (> 3 bottles per day). Pearson's correlation coefficient was used to determine the relationship between lifestyle and anthropometric status and significant difference was judged at $p < 0.05$.

RESULTS

Table 1 shows the socio-demographic information of the traders. Most (61.0%) of the respondents were females while 39% of the respondents were males. Majority (88.5%) of the traders were young adults (18-47 years), whereas very few (11.5%) were older adults (above 48 years). Christianity was the dominant religion as vast majorities (93%) of the respondents were Christians, very few (2% and 5%) of the respondents were Muslims and Traditionalist respectively. Furthermore, vast majorities (91%) of the traders were Igbos; few (8%) were of Hausa and Yoruba ethnic group respectively. This is due to the fact that the study area is dominated by Igbos. More than half (57.5%) of the traders were married; 38.5% were single, few (3%) were widowed and very few (1%) were divorced. Few (8.5%) of the traders had low educational status (i.e. no formal and primary education), while majority (91.5%) had high educational status (i.e. secondary education and above). Also, most (61.5%) of the traders were low income earners, while others (38.5%) were high income earners.

Table 1: Socio-demographic information of the traders

Variable	Frequency (F)	Percent (%)
Gender		
Male	78	39.0
Female	122	61.0
Total	200	100.0
Age Category		
Young Adults (18-47years)	177	88.5
Old Adults (Above 48 years)	23	11.5
Total	200	100.0
Religion		
Christianity	186	93.0
Islamic	4	2.0
Traditional	10	5.0
Total	200	100.0
Ethnic group		
Igbo	182	91.0
Hausa	8	4.0
Yoruba	8	4.0
Idoma	2	1.0
Total	200	100.0
Marital Status		
Singled	77	38.5
Married	115	57.5
Divorced	2	1.0
Widower	6	3.0
Total	200	100.0
Educational Level Category		
Low Educational Status (No formal and Primary Education)	17	8.5
High Educational Status (Secondary Education and Above)	183	91.5
Total	200	100.0
Monthly Trading Income Category		
Low Earners(N10-29,000)	123	61.5
High Earners(Above N30,000)	77	38.5
Total	200	100.0

Table 2 shows the lifestyle of the traders which comprises dietary habits, physical activity level, smoking and alcohol consumption. The result on their dietary habits revealed that most (97.5%) of the traders were light eaters who ate 1-3meals per day whereas very few (2.5%) were heavy eaters who ate above four meals in a day.. The result on their activity level showed that most (52%) of the traders had a sedentary lifestyle whereas 48% had an active lifestyle in terms of exercise frequency and their nature of trade involving much

physical exercise. The result on their smoking revealed that majority (95.5%) of the respondents never smoked whereas very few (4.5%) smoked. Very few (2.5% and 2.0%) traders among those that smoked had 1-2 sticks and 3-4sticks of cigarette per day respectively. The result on alcohol consumption revealed that 41% of the trader’s that consumed alcohol took 1-2 bottles of alcohol per day, while most (54%) of the trader’s do not take any form of alcohol.

Table 2: Lifestyle characteristics of the traders

Variable	Males		Females		Total [F=200,100.0%]	
	F	%	F	%	F	%
Dietary Habits						
Light Eaters (1-3meals per day)	78	100.0	117	95.9	195	97.5
Heavy Eaters (Above 4 meals per day)	0	0.0	5	4.1	5	2.5
Total	78	100.0	122	100.0	200	100.0
Physical Activity Levels						
High Physical Activity	45	57.7	51	41.8	96	48.0
Low Physical Activity	33	42.3	71	58.2	104	52.0
Total	78	100.0	122	100.0	200	100.0
Smoking						
Light Smokers (less than 1 stick of cigarette)	5	6.4	0	0.0	5	2.5
Heavy Smokers (2 sticks of cigarette and above)	4	5.1	0	0.0	4	2.0
Non-Smokers	69	88.5	122	100.0	191	95.5
Total	78	100.0	122	100.0	200	100.0
Alcohol Consumption						
Light Drinkers (1-2 bottles per day)	27	34.6	55	45.1	82	41.0
Heavy Drinkers (3 bottles and above per day)	4	5.1	6	4.9	10	5.0
Non-drinkers	47	60.3	61	50.0	108	54.0
Total	78	100.0	122	100.0	200	100.0

Table 3 shows the anthropometric status of the traders. Some (27.5%) of the respondents were obese, 29% were overweight 45% had normal BMI and none was underweight. Low risk with WC was found in 61% of the respondents and 12.5% were at very low risk.

However, 26.5% were at high risk and none was at very high risk of developing abdominal obesity. The WHR result showed that 81% were at low risk and only 19% had high risk.

Table 3: Anthropometric status distribution of the traders

Variable	Males		Females		Total [F=200,100.0%]	
	F	%	F	%	F	%
Body Mass Index Status (BMI)						
Underweight	0	0.0	2	1.6	2	1.0
Normal (18.5-24.99)	40	51.3	50	41.0	90	45.0
Overweight (25.0-29.9)	29	37.2	29	23.8	58	29.0
Obese class I (30.0-34.9)	9	11.5	26	21.3	35	17.5
Obese class II (35.0-40.0)	0	0.0	10	8.2	10	5.0
Obese class III (>40.0)	0	0.0	5	4.1	5	2.5
Total	78	100.0	122	100.0	200	100.0
Waist Circumference (WC)						
Very Low Risk (<70cm for females; <80cm for males)						
	11	14.1	14	11.5	25	12.5
Low Risk (70-89cm for females; 80-99cm for males)						
	55	70.5	67	54.9	122	61.0
	12	15.4	41	33.6	53	26.5
High Risk (90-109cm for females; 100-120cm for males)						
Very High Risk (>110cm for females; >120cm for males)						
	0	0.0	0	0.0	0	0.0
Total	78	100.0	122	100.0	200	100.0
Waist-Hip Ratio Status (WHR)						
Low Risk (< 0.80 for females ; <0.95males)						
	57	73.1	105	86.1	162	81.0
High Risk (> 0.86 for females ; >1.0 for males)						
	21	26.9	17	13.9	38	19.0
Total	78	100.0	122	100.0	200	100.0

Table 4 shows the relationship between food consumption, anthropometric status (BMI, WHR WC), income and lifestyle characteristics of the traders. There was no significant relationship ($p > 0.05$) between BMI, smoking habit and income of the traders with all the foods consumed. There was a negative significant ($p < 0.05$) relationship ($r = -0.159$; $p = 0.025$) between fruits consumption and waist hip ratio. There was a positive strong significant ($p < 0.01$) relationship between consumption of leguminous foods and waist circumference ($r = 0.183$; $p = 0.009$) of the traders. There was a negative strong significant ($p < 0.01$) relationship between all the foods and alcohol consumption. There was a positive significant ($p < 0.01$) relationship between fats and oil ($r = 0.214$; $p = 0.002$), fish ($r = 0.239$; $p = 0.001$), carbohydrates ($r = 0.222$; $p = 0.002$), dairy products ($r = 0.396$; $p = 0.000$) consumed and type of exercise practiced by the traders.

Table 4: Relationship between the food consumption, anthropometric status, income and lifestyle characteristics of the traders

Number of foods consumed more than four times a week	BMI r(p-value)	Waist-Hip Ratio r(p-value)	Correlation		Alcohol Consumption r(p-value)	Type of exercise practiced r(p-value)	Income r(p-value)
			Waist circumference (cm) r(p-value)	Smoking r(p-value)			
Vegetables	-0.027(0.705)	-0.109(0.124)	-0.151*(0.033)	-0.057 (0.421)	-0.239**(0.001)	0.127(0.073)	0.119 (0.094)
Fruits	0.059(0.410)	-0.159*(0.025)	-0.057(0.424)	-0.002(0.974)	-0.265**(0.000)	0.109(0.124)	0.039(0.586)
Fats and oil	-0.078(0.271)	-0.137(0.054)	-0.150*(0.034)	-0.040(0.576)	-0.391**(0.000)	0.214**(0.002)	-0.035(0.618)
Fish	0.057(0.420)	-0.054(0.450)	-0.067(0.346)	-0.067(0.348)	-0.341**(0.000)	0.239**(0.001)	0.069(0.332)
Carbohydrate rich foods	-0.001(0.986)	-0.003(0.970)	-0.095(0.181)	0.000(0.999)	-0.377**(0.000)	0.222**(0.002)	0.088(0.215)
Dairy products	-0.040(0.577)	-0.113(0.111)	-0.133(0.061)	-0.068(0.337)	-0.248**(0.000)	0.396**(0.000)	0.053(0.458)
Leguminous foods	0.045(0.531)	0.183**(0.009)	0.121(0.088)	0.005(0.943)	-0.316**(0.000)	0.010(0.890)	0.008(0.906)

** Correlation is significant at 0.01 level

* Correlation is significant at 0.05 level

DISCUSSION

It might almost be affirmed that majority of the native trade is in the hands of the women and by them largely controlled and this is in line with the result of this research (14). This could be why there were more females than males. The majority of the traders in this study that had secondary and tertiary level of education had been similarly reported in another study (15). This may be attributed to the need to maintain accurate book-keeping of stocks by the trader which requires a minimum of secondary education. The low income reported among the respondents may be attributed to the low patronage of Ubani Ultra-Modern market by customers, who opted for other close-by markets other than the Ubani Market because the market is located in the outskirts of Umuahia metropolis. Easy access to markets has a way of affecting patronage. The low income could also have poverty as its consequential effect.

The result on their activity level showed that most (52%) of the traders had a sedentary lifestyle whereas 48% had an active lifestyle in terms of exercise frequency and their nature of trade involving much physical exercise (i.e. moving from one part of the market to the other sourcing for customers). The reason for most involved in less activity is not farfetched as most traders just sit in their stall to sell their products and thus are mostly engaged in sedentary activities, coupled with long hours of physical inactivity and high energy intake (16). The result of this study was higher than the 20.9% reported in traders with active lifestyle in Port Harcourt (17). The low physical activity noticed in this study is similar to that found among market women in Kwara state (18). Healthy and active lifestyle is one of the basic health-promotion strategies (19). Based on the health promotion approach, people should be empowered to accept their health responsibility and follow a healthy lifestyle (20). The few of the respondents that smoked is commendable as smoking causes a range of serious health problems, including

cancer, heart disease, stroke, asthma, emphysema, vascular disease and damage to most body organs and smokers' health problems can impact on their work performance and affect productivity through more frequent absence from work due to sickness and multiple 'smoke breaks' while at work (21). Despite common thinking that smoking is a stress reliever, research has found that it actually increases psychological distress while providing no medicinal benefits (22). Most of the traders do not take any form of alcoholic drink which could be because most of the respondents in the study were females and generally in this part of the country drinking of alcohol is not fancied among females. However, less than half of the respondents consumed at least 1 – 2 bottles per day. Mbah et al. (23) also reported consumption of 1 - 2 bottles of alcoholic drinks by few respondents in their study.

In as much as few of the respondents had low risk of co-morbidity with WC and WHR, many were either overweight or obese and others had normal BMI. This may be attributed to increase in energy intake (high consumption of roots and tubers as staple foods) with decreased energy expenditure as reflected by high prevalence (52%) of physical inactivity in this study. The causes of obesity among market traders are not farfetched as these groups of people are mostly engaged in sedentary activities, coupled with long hours of physical inactivity and high energy intake (16). Similar studies equally revealed high prevalence of obesity among market traders across Nigeria (24, 25). The findings in this study are comparable to 28.1% prevalence of obesity reported among traders in Sokoto state (25) but higher than 12.3% recorded among traders in an urban market in Lagos State (24) and also higher than the 31.7% prevalence of obesity recorded among Nigerian adults in Rivers state (26). This could be related to the high prevalence of unhealthy eating habits and sedentary lifestyle among the participants in this

study. A study by (27) had reported negative association between physical activity and body weight.

The significant relationships identified between food consumption, anthropometric status, income and lifestyle shows that an increase in fruits consumption led to a decrease in the waist circumference of the traders; as consumption of leguminous food increased, waist hip ratio of the traders increased; as alcohol consumption decreased, consumption of foods from the listed categories increased and as type of exercise increased, the consumption of fats and oil, fish, carbohydrates, dairy products increased. Lower income is associated with higher risk for subsequent obesity (28). However, the perspective of a potential reverse causality is often neglected, in which obesity is considered a cause for lower income, when obese people drift into lower-income jobs due to labour-market discrimination and public stigmatization (28). In an earlier study, Vadstrup *et al.* (29) noted an inverse association of waist circumference with total drinks of wine consumed weekly and that those who consumed 1-7 drinks per week had smallest waist circumference. This could also be why in the present study majority were at low risk with waist circumference. The findings from this study agrees with that from other studies which reported that fruit consumption was inversely associated with body adiposity (30). Ghalaeh (31) also reported potentially favourable role of fruit consumption in effective body weight management. There were significant correlations between fruit and also fruit and vegetable and body weight and BMI among female university students. There was no significant correlation between fruit and vegetable as well as fruit or vegetable separately with waist circumference

CONCLUSION

Most of the traders were light eaters, majority did not smoke, less than half consumed one form of alcoholic drink and most engaged in less physical activity. Some of the respondents were either overweight or obese while majority had low risk of co-morbidity with WC and WHR. There was no significant relationship between BMI, smoking habit and income of the traders with all the foods consumed.

Conflicts of interest: There is no conflicts of interest

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