

Lifestyle and Prevalence of Overweight and Obesity among Secondary School Teachers in Uzo-Umahi LGA of Enugu State, Nigeria

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Research Article

Volume 3 Issue 5

Received Date: September 18, 2018

Published Date: September 28, 2018

Abstract

A cross sectional, descriptive study was carried out on rural secondary teachers in Uzo – Umahi LGA of Enugu State, Nigeria. The study was designed to elicit information on lifestyle, prevalence of overweight and obesity using questionnaire. The results showed that majority of the male teachers (70.2%) consume alcohol while soft drink was consumed majorly among the female teachers (74.7%). Smoking was low (2.1%). Meal skipping was generally high (males 63.8%; females 59%). Lunch was most skipped among the male teachers (31.9%) while breakfast was most skipped among the females. Major reason for skipping meal was attributed to lack time. Report on physical activities showed that more male teachers (87.2%) participate in exercise than the female teachers (66.3%); with many of them spending about 60 -120minutes on exercise per week. Prevalence of overweight and obesity grade 1 was more in the female teachers (36.1 and 7.2%). Results on waist-hip ratio classification (WHR) showed that majority of the male teachers (91.5%) were at low risk of having cardiovascular diseases, while majority of the female teachers (75.9%) were at high risk of cardiovascular diseases. There was significant relationship between socioeconomic status with physical exercise, time spent on exercise and meals skipped

Keywords: Lifestyle; Overweight; Obesity; Teachers; Socioeconomic Status

Introduction

Non-communicable diseases such as obesity and obesity-related morbidity as result of unhealthy lifestyle are becoming a problem of increasing importance in Nigeria than it used to be in the past. Changes in diet, cigarette smoking, alcohol consumption, and inadequate

exercise are some of the factor responsible for obesity-morbidity. Apart from disease condition and mortality, faulty lifestyle is associated with economic down turn, for instance a joint report prepared by World Health Organization and World Economic Forum, WHO/World Economic Forum [1] states that India incurred an accumulated loss of \$236.6 billion in 2015 as result of

unhealthy lifestyles and faulty diet. Income loss of \$8.7 billion in 2005 in India as result of diseases due to faulty life style was projected to rise to \$54 billion in 2015. Also Pakistan faced an accumulated loss of \$30.7 billion with income loss of \$5.5 billion to \$6.7 billion in 2015. Though there are no data to show the association between income loss and faulty lifestyle in Nigeria, various studies from different parts of the country shows increase in prevalence of overweight and obesity. These call for the need to carry study that will statistically establish factors responsible for increase rate of overweight and obesity in Nigeria.

Teachers constitute an important fraction of Nigerian workforce that plays significant role in the educational sector; these set of worker are described as sedentary workers due to the nature of their work which allows for more sitting during the day [2]. Only few nutrition studies in Nigeria have focused on adults particularly teachers to crown it almost all school based nutrition studies and interventions in Nigeria are focused on school children, their health and academic performance [3]. This work is therefore designed to evaluate the prevalence of overweight and obesity among teachers and to determine the factors associated with overweight and obesity among teachers.

Materials and Methods

Sampling and Respondents

The study was descriptive and cross sectional designed. Uzo-uwani Local Government Area of Enugu State was used for the study consists of fifteen Government Secondary Schools; ten out of the fifteen secondary schools used for the study were randomly selected by balloting without replacement.

Sample Size Calculation

The sample size was drawn from the secondary teacher in the area, using the formula by Areoye [4]:

$$N = \frac{Z^2 P(100-P)Z}{x^2}$$

Where: N = sample size, Z = confidence interval taken at 95% degree of probability which is 1.96% approximately 2%, P = Prevalence obesity (P=13.5 from study of Fadupin, et al. [5] was used, X² = width of confidence interval at 5% level of probability.

Preliminary Visit

A visit was made to local government chairman and the educational secretary of Uzo-uwani Local Government

Area to inform them of the research and to seek their permission to interact with the teachers.

Informed Consent

The study was approved by the Department of Human Nutrition and Dietetics of Micheal Okpara University of Agriculture, Umudike Nigeria and Informed consent was obtained from the respondents after the nature the study was fully explained to them.

Anthropometrical Measurements

Waist circumference: The subjects were asked to remove all heavy and tight clothing, belts were loosened and pockets emptied. Subjects stood with their feet fairly close together (about 12-15cm) with their weight equally distributed to each leg. Subjects were asked to breathe normally and the readings of the measurement were taken at the distance around the smallest area below the rib cage and above the navel at the end of gentle exhaling. The non stretchable measuring tape was held firmly, ensuring its horizontal position. Measurement was recorded to the nearest 1cm. This procedure will be conducted twice and the averages of the two measures were recorded.

Hip circumference: Hip circumference was measured while the respondent was standing erect with their arms at the side and feet together. The non stretchable measuring tape was kept horizontal around hip and butt. Measurement was made to the nearest 0.1cm. Waist-Hip ratio was assessed as;

For females: <0.8 = Low risk for cardiovascular diseases. 0.8-0.85 = Moderate risk for cardiovascular diseases; >0.85 = High risk for cardiovascular diseases. For Males: <0.9 = Low risk for cardiovascular diseases. 0.9 - 0.95 = Moderate risk for cardiovascular diseases; >0.95 = High risk for cardiovascular diseases [6].

Data Collection and Analysis

A semi-structured questionnaire was used to obtain information on socio - economic and life style characteristics of the teachers. Weight and height were measured as described by Tolonen. Body Mass Index (BMI) was calculated from information elicited from body weight and height measurements. Body Mass Index (BMI) was assessed as underweight - <18.5, Normal - 18.5 -24.9, overweight - 25.0 - 29.9, obesity grade 1- 30 -34.9, grade 11 - 35 -39.9, grade 111 - ≥ 40 kg/m² respectively [7].

Data analysis: Statistical package for service solution (SPSS version 20) was used to analyze the data.

Descriptive statistics was computed for the socio-economic characteristics, personal data and lifestyle. Mean and standard deviation was applied on the anthropometric characteristics while Pearson chi-square test evaluates the effect of lifestyle on the anthropometric status. Level of significance was judged at $p < 0.05$.

Results

Personal and Socio-Economic Characteristics of Respondents

Personal characteristic and socio-economic characteristics of the respondents is shown on Table 1. Ages of the respondents ranged between 18 to 60 years,

with a good number of the teachers falling within the age range of 30-35 years (males 26.6%, females 26.5%). Very few of them fell within 18-23 years (male 5.3%; female 6%). Information on religion and ethnicity revealed majority of the respondents to be Christians (88.3% and 91.6% for males and females respectively); major tribe was Igbo. More females teachers were married (81.9%) compared to their male counterparts (64.9%). Monthly income ranges between #10,000 – #60,000 with majority of teachers earning between #20,000.00 - #30,000.00. Attainment of University degree was more among the male teachers (81.9%); about half the female teachers had NCE certificates.

Variables	Male	Female	Total	p-value
	F (%)	F (%)	F (%)	
Age(years)				
18-23	5(5.3)	1(1.2)	6(3.4)	
24-29	20(21.3)	22(26.5)	42(23.7)	
30-35	25(26.6)	31(37.3)	56(31.6)	
36-41	14(14.9)	22(26.5)	36(20.3)	0.004
42-47	9(9.6)	2(2.4)	11(6.2)	
48-53	6(6.4)	1(1.2)	7(4.0)	
54-60	15(16)	4(4.8)	19(10.2)	
Total	94(100)	83(100)	177(100)	
Marital status				
Single	29(30.9)	10.0(12)	39(22)	
Married	61(64.9)	68(81.9)	129(72)	
Divorced	4(4.2)	2(2.4)	6(3.4)	0.005
Widowed	0(0)	3(3.6)	3(1.7)	
Total	94(100)	83(100)	177(100)	
Family size				
3-Jan	34(36.2)	31(37.3)	65(36.7)	
6-Apr	35(37.2)	39(47)	74(41.8)	
9-Jul	20(21.3)	11(13.3)	31(17.5)	0.31
10<above	5(5.3)	2(2.4)	7(4)	
Total	94(100)	83(100)	177(100)	
Educational status				
TC11	1(1.1)	1(1.2)	2(1.1)	
NCE	32(34)	42(50.6)	74(41.8)	0.197
OND	2(2.1)	0(0)	2(1.1)	
BSc	49(52.1)	31(37.3)	80(45.2)	
MSc	9(9.6)	7(8.4)	16(9)	
Ph.D	1(1.1)	2(2.4)	2(1.7)	
Total	94(100)	83(100)	177(100)	
Monthly income				
10,000-19,000	13(13.8)	4(4.8)	17(9.6)	
20,001-29,000	13(13.8)	19(22.9)	32(18.1)	0.007
30,001-40,000	25(26.6)	31(37.3)	56(31.6)	
40,001-50,000	15(16)	16(19.3)	31(17.5)	

50,001-60,000	13(13.8)	11(13.3)	24(13.6)	
60,001 and above	15(16)	2(2.4)	17(9.6)	
Total	94(100)	83(100)		

P - Probability value of Pearson's Chi-square test F - Frequency % - Percentage

Table1: Personal and socio-economic characteristics of teachers.

Life Style Characteristics of Secondary School Teachers

Life style characteristics of the teachers are presented on Table 2. Majority of the male teachers (70.2%) consume alcohol while soft drink was observed to be consumed more among female teachers (74.7%). Smoking was observed only among the male teachers at the prevalence of about 2.1%. Prevalence of meal skipping was generally high among the teachers (males 63.8%;

females 59%). Lunch was most skipped among the male teachers (31.9%) while breakfast was most skipped among the females. Major reason for skipping meal was attributed to lack time. Report on physical activities showed that more male teachers (87.2%) participate in exercise than the female teachers (66.3%); with many of them spending about 60 -120minutes on exercise per week.

Variables	Male		Female		Total		P-value
	F	(%)	F	(%)	F	(%)	
Alcohol consumption							
Yes	66	70.2	24	28.9	90	50.8	
No	28	29.8	59	71.1	87	49.2	0
Total	94	100	83	100	177	100	
Soft drink consumption							
Yes	74	78.7	80	96.4	154	87	
No	20	21.3	3	3.6	23	13	0
Total	94	100	83	100	177	100	
Cigarette smoking							
Yes	13	13.8	4	4.8	17	9.6	
No	81	86.2	79	95.2	160	90.4	0.04
Total	94	100	83	100	177	100	
Physical exercise							
Yes	82	87.2	55	66.3	137	77.4	
No	12	12.8	28	33.7	40	22.6	0
Total	94	100	83	100	177	100	
Time spent on physical exercise per week							
60mins-120mins	59	62.8	38	45.8	97	54.8	
180mins-240mins	18	19.1	10	12	28	15.8	
More than 240mins	5	5.3	7	8.4	12	6.8	0.01
Do not practice at all	12	12.8	28	33.7	40	22.6	
Total	94	100	83	100	177	100	
Skip meals							
Yes	60	63.8	49	59	109	61.6	0.51
No	34	36.2	34	41	68	38.4	
Total	94	100	83	100	177	100	
Meal skipped							
Breakfast	27	28.7	30	36.1	57	32.2	
Lunch	30	31.9	13	15.7	43	24.3	
Dinner	3	3.2	6	7.2	9	5.1	0.07
Not Applicable	34	36.2	34	41	68	38.4	

Total	94	100	83	100	177	100	
Reason for skipping meal							
Limited time	40	42.6	25	30.1	65	36.7	
Can't afford it	9	9.6	2	2.4	11	6.2	
Fasting	10	10.6	17	20.5	27	15.3	0.019
Don't want to be fat	1	1.1	5	6	6	3.4	
Not Applicable	34	36.2	34	41	68	38.4	
Total	94	100	83	100	177	100	

Prevalence of overweight, obesity and classification waist-hip ratio (WHR) of respondents

Table 2: Lifestyle characteristics of secondary school teachers.

Prevalence of overweight, obesity and classification waist-hip ratio (WHR) of respondents is presented on Table 3. Body Mass Index (BMI) classification showed low prevalence of underweight in studied population (male 2.1%; female 2.4%); more male teachers had normal bodyweight (69.1%) compared to female teachers

(54.2%). Prevalence of overweight and obesity grade 1 occurrence was more in female teachers (36.1 and 7.2%). Results on waist-hip ratio classification (WHR) revealed majority of the male teachers (91.5%) to be at low risk of cardiovascular diseases, while majority of the female teachers (75.9%) were at high risk of the disease.

Variables	Male		Female		Total		P-Value
	F	(%)	F	(%)	F	(%)	
BMI (kg/m ²)							
Underweight	2	2.1	2	2.4	4	2.3	
Normal weight	65	69.1	45	54.2	110	62.1	0.23
Overweight	22	23.4	30	36.1	52	29.4	
Obese grade I	5	5.3	6	7.2	11	6.2	
Total	94	100	83	100	177	100	
WHR							
Low risk	51	54.3	0	0	51	28.8	
Moderate risk	35	37.2	20	24.1	55	31.1	0
High risk	8	8.5	63	75.9	71	40.1	
Total	94	100	83	100	177	100	

p - Probability value of Pearson's Chi-square test

f=frequency, %=percentage

Table 3: Prevalence of overweight, obesity and classification waist-hip ratio (WHR) of respondents.

Relationship between Socio-Economic, Lifestyle and BMI of Respondents

Relationship between socio-economic, lifestyle and BMI of respondents is shown on Table 4. The result showed significant relationship between monthly

incomes, physical exercise and time spent on exercise, meal skipping and type of meal skipped with BMI. There was no significant relationship between educational status, alcohol, soft drink and cigarette consumption respectively with BMI.

Variable	Underweight		Normal		Overweight		Obesity		p-value
	(F)	(%)	(F)	(%)	(F)	(%)	(F)	(%)	
Educational Status									
TC II	0	0	2	1.8	0	0	0	0	
NCE	4	100	46	41.8	19	36.5	5	45	

ND	0	0	2	1.8	0	0	0	0	
BSc	0	0	52	47.3	23	44.2	5	45.5	0.556
MSc	0	0	7	6.4	8	15.4	1	9.1	
Ph.D	0	0	1	0.9	2	3.8	0	0	
Total	4	100	110	100	52	100	11	100	
Monthly Income									
₦10000-₦20000	1	25	14	12.7	1	1.9	1	9.1	
20001-30000	2	50	21	19.1	9	17.3	0	0	
₦30001-₦40000	0	0	37	33.6	13	25	6	54.4	0.032
₦40001-₦50000	1	25	16	14.5	11	21.2	3	27.3	
₦50001-₦60000	0	0	16	14.5	7	13.5	1	9.1	
₦60001 and Above	0	0	6	5.5	11	21.2	0	0	
Total	4	100	110	100	52	100	11	100	
Alcohol consumption									
Yes	1	25	57	51.8	28	53.8	4	36.4	0.528
No	3	75	53	48.2	24	46.2	7	63.6	
Total	4	100	110	100	52	100	11	100	
Soft drink consumption									
Yes	4	100	94	85.5	46	88.5	10	90.9	0.783
No	0	0	16	14.5	6	11.5	1	9.1	
Total	4	100	110	100	52	100	11	100	
Physical exercise									
Yes	2	50	89	80.9	35	67.3	11	100	0.033
No	2	50	21	19.1	17	32.7	0	0	
Total	4	100	110	100	52	100	11	100	
Time spent on physical exercise in a week									
60mins-120mins	1	25	57	51.8	31	59.6	8	72.7	
180mins-240mins	1	25	24	21.8	2	3.8	1	9.1	
More than 240mins	0	0	8	7.3	2	3.8	2	18.2	0.023

Table 4: Relationships between socio-economic status, life style and BMI.

Discussion

Information on personal and socio-economic characteristics revealed that majority of the respondents was married and had educational qualification of above TC11. Lifestyle characteristics revealed low prevalence of smoking among the teachers. High prevalence of alcohol and soft drink consumption was however recorded in the males and females teachers respectively. High prevalence of alcohol intake was earlier reported among adult male in Southeastern Nigeria [8,9]. Alcohol intake is known to encourage fat deposition along the abdominal region and make unavailable key nutrients such as zinc and iron. Also

consumption of alcohol greater than 45g per day is said to decrease oxygen and nutrient supply to the brain which may result in hemorrhagic stroke in individuals [10]. High prevalence of soft drink consumption noted in the female teachers also calls for concern; consuming soft drink could be a refreshing experience but the fact remains that it only supplies individuals with majorly empty calories.

Findings on physical exercise showed that more male teachers participate in physical exercise than the female teachers. It is how ever worthy of note that more people participate in exercise in this study than previously reported [11]. Increase participation in physical excise

could be as a result of public enlightenment of the role of physical exercise on health.

Examination of dietary habit showed that breakfast was most skipped meal by female teachers while male teachers' lunch. Lack of time was major reason for skipping meal. Reason given for skipping meal in this study was in line with report from other studies [4,12]. In children meal skipping, particularly breakfast leads to poor class performance; in adults meal skipping could lead to overeating at meal time; overtime this lifestyle could result in obesity.

The prevalence of overweight in respondents was higher than that of obesity. It was however observed that the prevalence of overweight and obesity were higher in the female teachers than in their counterparts. Higher prevalence of obesity in female teachers could be due low participation in physical exercise and higher soft drink consumption. Prevalence of underweight and grade 1obesity were low compared with results from other studies [9,11]. Recent enlightenment campaign on effects of overweight and obesity on health from social media could be responsible for low prevalence of overweight and obesity in this study.

Conclusion

Majority of the subjects had normal body weight. Prevalence of overweight was high while the prevalence of obesity was low. Factors responsible for overweight and obesity could be effects physical in activities and dietary pattern.

References

1. WHO/World Economic Forum Reports (2008) Preventing Non communicable Disease in work place through diet and physical activities.
2. Pobeer RA, Plahar WA, Owusu WB (2013) Association between Anthropometry and Blood Pressure among Female Teachers of Child-Bearing Age in Ghana. *Journal of Biology Agriculture and Healthcare* 3(3): 197-208.
3. Essien M, Haruna MJ, Emebu RK (2012) Prevalence of Malnutrition and its Effects on the Academic Performance of students in some selected secondary schools in Sokoto Metropolis. *Pakistan Journal of Nutrition* 11(5): 511-515.
4. Areoye MO (2008) *Research Methodology with statistics for health and social science*. Nathadex Publication, saw-mil Ilorin 2nd (Edn.) nathadex pp: 112-115.
5. Fadupin GT, Adeoye A, Ariyo O (2014) Lifestyle and nutritional status of urban school teachers in Areoye Ibadan, Nigeria. *Nigeria Journal of Nutrition Sciences* 35(1): 86-96.
6. Yusuf S, Hawken S, Ajo S (2005) Obesity and the risk of myocardial infarction in 27,000 participants from 52 countries; a case control study. *Lancet* 366(9497): 1640-1649.
7. World Health Organization (2002) *Physical Inactivity*. In WHO Annual Report.
8. Obot IS (1990) The use of tobacco products among Nigerian adults: a general population survey. *Drug and alcohol dependence* 26(2): 203-208.
9. Obot IS (2000) The measurement of drinking patterns and alcohol problems in Nigeria. *Journal of substance abuse* 12(1): 169-181.
10. Wardlaw GM and Hampl JS (2007) *Perspectives in Nutrition*. McGraw Hill, New York, 7th (Edn).
11. Ekpenyong C, Akpan E (2013) Contextual trend in preventing obesity epidemic in developing countries: role of the key players. *European Journal of Preventive Medicine* 1(1): 20-31.
12. Afolabi W, Towobola S, Oguntona C, Olayiwola I (2013) Pattern of fast foods consumption and contribution to nutrient intake of Nigerian university students. *International Journal of Education and Research* 1(5): 1-10.

