

Lifestyle and nutritional status of urban school teachers in Ibadan, Nigeria

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Abstract

Objective: The study was designed to determine the lifestyle and nutritional status of urban school teachers in Ibadan.

Methods: The study was descriptive and cross-sectional in design. A random sample of 423 teachers (279 males and 144 females) aged 21 to 60 years from six public and six private secondary schools in Ibadan North Local Government Area constituted the study population. A semi-structured interviewer-administered questionnaire and a dietary diversity questionnaire were used to determine the socio-demographic and lifestyle characteristics, as well as the dietary diversity of the respondents. Anthropometric indices such as weight (kg), height (m), hip (cm) and waist (cm) circumference of the teachers were measured using standard procedures to determine their Body Mass Index (weight/height,² kg/m²) and waist to hip ratio respectively. Body composition was determined with a body composition monitor. Data was analyzed using descriptive statistics and Pearson's Chi-square test at 5% level of significance was applied to the data.

Results: The mean age of the teachers was 41 ±7.7 years, of which 34.0% were males, 8.5% and 0.7% were alcohol consumers and current cigarette smokers respectively. Most (78.0%) of the teachers either had at least medium (≤5 food groups) while 22.0% had high (≥6 food groups) dietary diversity. 55.3% were either overweight or obese. Females were significantly more overweight or obese and had higher waist circumference and waist-hip ratio than the male teachers (p<0.05). Also, percentage body fat was twice as high in females as in males while the percentage muscle mass was 1.5 times higher in

males than females. Visceral fat was also higher in females while the resting metabolism was higher in males.

Conclusion: Alcohol intake and cigarette smoking were low among the teachers while overnutrition was common and more prominent among the female teachers.

Keywords: lifestyle, dietary diversity, nutritional status, school teachers.

INTRODUCTION

Over nutrition has been linked to imbalanced energy intake in relation to energy expenditure, sedentary activities and has been shown to lead to increased absenteeism from work, reduced productivity, chronic diseases and reduced lifespan (1). Wolf and Colditz highlighted that obese workers were twice as likely to be less active and be absent from work than non-obese normal weight workers (2). Several reports have shown great benefits in productivity if adequate nutrition is ensured (3,4). Hunt reported that maintenance of the normal nutritional status of populations can raise national productivity levels by 20% (5). In spite of all these evidences, few nutrition studies in Nigeria have focused on adults generally and workers specifically. Most school based nutrition studies and interventions in Nigeria have focused on school children and the relationship of nutrition to health and academic performance (6). This can be partly attributed to available statistical data which indicates that a larger number of children die from

malnutrition than do adults. However, adults constitute 55.5% of the Nigerian population, this suggests that malnutrition among these group of individuals can have a long lasting effect on not just their households and their children but on the economic development of the nation at large. Teachers constitute a significant fraction of the Nigerian workforce. Pobee, Plahar and Owusu described teachers as sedentary workers, due to the nature of their work which allows for more sitting during the day thereby allowing for little physical activity (7). Siminialayi, Emem and Dapper reported the prevalence of obesity at 31.7% and 16.3% using waist circumference and Body Mass Index (BMI) respectively among Nigerian adults in Rivers State (8). Aside being adults, evaluation of nutritional status of teachers is important as many studies have reported that school teachers have a greater potential to influence a child's health than any other person outside the child's home (9).

Dietary diversity has long been recognised as a key element of assessing the quality of diets. Increasing the variety of foods across and within food groups is recommended in most dietary guidelines because, intake of varieties of food ensures adequate intake of essential nutrients which promote good health (10). The lifestyle, dietary habits and nutritional status of teachers may serve as models for school children and adolescents, and these may greatly impact the children's health and well being. For teachers to serve as positive nutrition role models, they must understand and practice a healthy lifestyle and also make healthy dietary choices which will ultimately reflect their good nutritional status and health. Thus, this study was conducted to assess the lifestyle and nutritional status of urban school teachers in Ibadan, Nigeria.

MATERIALS AND METHODS

Ethics

The study was approved by University of Ibadan and University College Hospital, Ibadan Ethics Committee.

Sampling and respondents

The study was descriptive and cross sectional in design. Respondents were selected using a random sampling technique. Ibadan North Local Government Area (LGA) was selected by balloting from the five urban LGAs in Ibadan, Oyo State,

Nigeria. Six wards out of the twelve wards in the LGA were selected as the study areas using simple random sampling. From each of the selected wards, one public and one private secondary school were selected by balloting for the study, making a total of 12 schools. All teachers from the schools who were above 20 but less than 60 years, who filled informed consent form, and had no history of serious illness within the last one month prior to the study, constituted the study population.

Data collection and analysis

A semi-structured, interviewer-administered questionnaire was used to obtain information on socio-demographic and lifestyle characteristics of the teachers. A dietary diversity questionnaire was used to determine the dietary quality based on the 24-hour food groups intake. Food and Agriculture Organization/Belgium Survival Fund (11) method was used for dietary diversity classification with modification into at least medium (≤ 5 food groups) and high (≥ 6 food groups) dietary diversities. Weight was measured with light clothing using a Spring Platform Bathroom Scale (Hana Mechanical: Model BR9011), and height was measured using a calibrated stadiometer. Body Mass Index (BMI, Kg/m^2) was determined by dividing weight (kg) by height (m) squared and classified as underweight (< 18.5), normal weight (18.5-24.9), overweight (25.0-29.9), obesity grade 1 (30.0-34.9), obesity grade 2 (35.1-39.9) and obesity grade 3 (≥ 40.0). Mid-upper arm circumference (MUAC) was measured using a non-stretchable metric" tape. Waist circumference was measured at the level of the umbilicus and hip circumference at the most prominent part of the buttocks using a non-stretchable measuring tape, both were used to calculate the waist to hip ratio and classified according to WHO cut-off ranges (12). Body composition (percentage body fat, percentage muscle mass, visceral fat and resting metabolism) was assessed using the OMRON Body Composition Monitor (Model BF511). Data were analysed using descriptive statistics and Chi-square test at 5% level of significance.

RESULTS

Socioeconomic characteristics

A total of 423 teachers participated in the study. The

socio-demographic characteristics of the teachers are shown in Table 1. The mean age of the teachers was 41 ± 7.7 years and about one-third (37.6%) of the teachers were aged 41-50 years. Majority of the teachers were females (66.0%) and Yoruba (91.5%). All the teachers (100.0%) had tertiary education and majority (83.0%) were University graduates.

Almost half (46.8%) were earning at least N40,000.00 monthly while a few of the teachers (7.8%) earned not more than N10,000.00 monthly. There were no significant gender differences in age, marital status, ethnicity, religion, educational qualification and monthly income of the teachers ($p > 0.05$).

Table 1: Socio-demographic characteristics of the teachers

Characteristics	Sex		Total n (%)	P value
	Male n (%)	Female n (%)		
Age in years	144(100.0)	279(100.0)	423(100.0)	
21-30	39(27.1)	36(12.9)	75(17.7)	0.17
31-40	33(22.9)	93(33.3)	126(29.8)	
41-50	54(37.5)	105(37.6)	159(37.6)	
51-60	18(12.5%)	45(16.1%)	63(14.9)	
Mean (\pm SD)	42(5.7)	41(8.2)	41(7.7)	
Marital status				
Single	33 (22.9)	42 (15.1)	75 (17.7)	0.17
Married	111 (77.1%)	237 (84.9)	348 (82.3)	
Ethnicity				
Yoruba	132 (91.7)	255 (91.3)	387 (91.5)	0.31
Others	12(8.3)	24(8.6)	36 (8.5)	
Religion				
Islam	36 (25.0)	33 (11.8)	69 (16.3)	0.11
Christianity	108 (75.0)	246 (88.2)	354 (83.7)	
Educational Qualification				
HND/NCE/OND	9 (6.2)	63 (22.6)	72 (17.0)	0.10
University degree	135 (93.8)	216 (77.4)	351 (83.0)	
Monthly income (₦)				
10,000	18 (12.5)	15 (5.4)	33 (7.8)	0.49
10,001-20,000	24 (16.7)	39 (14.0)	63(14.9)	
20,001-30,000	12 (8.3)	33 (11.8)	45(10.6)	
30,001-40,000	24 (16.7)	60 (21.5)	84 (19.9)	
40,000	66 (45.8)	132 (47.3)	198 (46.8)	

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

Lifestyles Characteristics

The lifestyle characteristics of the teachers are presented in table 2. A low proportion (8.5%) of the teachers took alcohol and most teachers (99.3%) were non-smokers. The proportion (20.8%) of males

who were currently taking alcohol was higher (1.1%) than female teachers ($p < 0.05$). Teachers that took less than three meals per day constitute about half

(50.4%); the most skipped meal by the teachers generally was lunch (63.4%), followed by breakfast (23.9%) while dinner was the least skipped (12.7%) meals. Higher proportion of male (32.0%) than female teachers (19.6%) skipped breakfast and higher proportion of female (17.4%) than male teachers (4.0%) skipped dinner. There was no significant difference in the skipping of lunch by both male and the female teachers ($p>0.05$). The major reasons for skipping meals by the teachers were: lack of time to prepare meal (56.4%), general habit (33.8%) and a

few (7.0%) could not afford three meals a day. Majority (68.8%) of the teachers were not taking fruits and vegetables daily. About half (53.9%) were taking nutrient supplements and more than half (51.3%) of the teachers were not performing physical exercise regularly. Gender comparison showed no significant differences in the smoking status, number of meals consumed per day, meal skipped and exercise status of the teachers ($p>0.05$).

Table 2: Lifestyle characteristics of the teachers

Characteristics	Sex Male n (%)	Female n (%)	Total n (%)	P value
Do take Alcohol				
Yes	33 (22.9)	3 (1.1)	36 (8.5)	0.00
No	111 (77.1)	276 (98.9)	387 (91.5)	
Do smoke cigarette				
Single	3(2.1)	-	3 (0.7)	0.16
Married	141 (97.9%)	279 (100.0)	420 (99.3)	
Consumed at least 3 meals daily				
Yes	69 (32.0)	141 (50.5)	210 (49.6)	0.77
No	75 (52.1)	138 (49.5)	213 (50.4)	
Meal often skipped				
Breakfast	24 (32.0)	27 (19.6)	51 (23.9)	0.10
Lunch	48 (64.0)	87 (63.0)	135 (63.4)	
Dinner	3 (4.0)	24 (17.4)	27 (12.7)	
Reason for skipping meal				
No time to prepare meal	51 (68.0)	69 (50.1)	120 (56.3)	0.46
Cannot afford three meals a day	6 (8.0)	9 (6.5)	15 (7.0)	
General habit	15 (20.0)	57 (41.3)	72 (33.8)	
Lack of appetite	3 (4.0)	3 (2.2)	6 (2.8)	
Regularly took fruits and vegetable				
Yes	43 (29.9)	89 (31.9)	132 (31.2)	0.71
No	101 (70.1)	190 (68.1)	291 (68.8)	
Table nutrient supplement				
Yes	84 (58.3)	144 (51.6)	28 (53.9)	0.45
No	60 (41.7)	135 (48.4)	195 (46.1)	
Perform exercise regularly				
Yes	83 (57.6)	123 (44.1)	206 (48.7)	0.11
No	61 (42.4)	156 (55.9)	217 (51.3)	

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

Dietary diversity of the teachers

The dietary diversity of the teachers is shown in Table 3. Majority (78.0%) had at least medium

dietary diversity while 22.0% had high dietary diversity scores.

Table 3: Dietary diversity score of the teachers

Classification	Values	Frequency	Percentage (%)
At least medium dietary diversity	5 food groups	330	78.0
High dietary diversity	6 food groups	93	22.0

Anthropometric indices and body composition of the teachers

Anthropometric indices and body composition of the teachers are as shown in Table 4. Female teachers were heavier but shorter than the male teachers and the BMI of female teachers (28.0 ± 5.4 Kg/m) was significantly higher to that of the male teachers ($23.314.0$ Kg/my ($p < 0.05$)). Similarly, the female teachers had larger mid-upper arm, waist and hip circumferences than the male teachers ($p < 0.05$). The body composition of the teachers shows that the percentage body fat was twice higher in female than in male teachers ($p < 0.05$) while percentage muscle mass was about 1.5 times higher in male than female teachers ($p < 0.05$). The visceral fat level was also higher in female than male teachers ($p < 0.05$) while the resting metabolism was higher in male than female teachers ($p < 0.05$).

The classification of the body mass index and waist-

hip ratio of the teachers are shown in Table 5. Based on BMI, only two-fifth (41.1%) of the teachers had normal weight; the proportion (62.5%) of male teachers with normal weight was about twice the proportion (30.1%) of their female counterparts. Among the male teachers, about one-tenth (10.4%) were underweight, one-quarter (25.0%) were overweight and a few (2.1%) had obesity grade 2. Among the female teachers, 39.8% were overweight, one-fifth (20.4%) had obesity grade 1, 4.3% and 5.4% had obesity grade 2 and 3 respectively. The waist-hip ratio of the teachers revealed that about two-fifth (39.7%) of the teachers had normal values. Teachers with waist-hip ratio values higher than the normal for sex were five times higher in females (82.8%) than the males (16.7%) ($p < 0.05$).

Table 4: Anthropometric and fat composition variables of the teachers

Variables	Means (SD)		P value
	Males	Female	
Weight (Kg)	68.4 (12.5)	73.1 (15.0)	0.03
Height (m)	1.7(0.1)	1.2 (0.1)	0.13
Body Mass Index (kgm^{-2})	23.2 (4.0)	28.0 (5.4)	0.01
MUAC (cm)	30.4(4.1)	32.6 (4.7)	0.04
Waist circumference (cm)	85.5 (12.6)	95.6 (12.8)	0.01
Hip circumference (cm)	96.4 (11.2)	106.0 (12.1)	0.07
Waist-Hip ratio	0.89 (1.1)	0.89 (0.8)	
Body composition			
% body fat	18.1(6.9)	40.2 (8.5)	0.01
% muscle mass	38.6 (4.6)	25.3 (3.8)	0.02
Visceral fat level	5.9(3.3)	7.3 (2.5)	0.03
Resting metabolism (Kcal)	1556.4 (135.7)	1423.7 (160.3)	0.01
Dietary Diversity Score	7.3 (1.6)	7.4 (1.6)	0.74

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

Table 5: Classification of Body Mass Index and Waist to Hip ratio of the teachers

Variables	Sex			X ² (p-value)
	Male n (%)	Female n (%)	Total n (%)	
Body Mass Index Classification (Kgm⁻²)				
Underweight (< 18.5)	15 (10.4)	0 (0.0)	15 (3.5)	0.01
Normal weight (18.5 – 24.9)	90 (62.5)	84 (30.1)	174 (41.1)	
Overweight (25.0 – 29.9)	36 (25.0)	111 (39.8)	147 (34.8)	
Obesity Grade 1 (30.0 – 43.9)	0 (0.0)	57 (20.4)	57 (13.5)	
Obesity Grade 2 (35.0 – 39.9)	3 (2.1)	12 (4.3)	15 (3.5)	
Obesity Grade 3 (≥ 40.0)	0 (0.0)	15 (5.4)	15 (3.5)	
Waist-Hip ratio				
Normal (≤ 0.85 for males, 0.95 for females)	120 (83.3)	48 (17.2)	168 (39.7)	0.01
Abnormal (> 0.85 for males, 0.95 for females)	24 (16.7)	231 (82.8)	255 (60.3)	

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

DISCUSSION

Lifestyle and nutritional status are inextricably linked and both interplay to influence health and well being of individuals. A healthy lifestyle is known to include adequate nutrition such as taking at least five, portions of fruits and vegetables per day, adequate physical activity and avoidance of tobacco or alcohol abuse (13). Low incidence of alcohol use and cigarette smoking were observed among the school teachers in Ibadan. The low incidence of alcohol and cigarette use could be considered a healthy lifestyle among the study population. However, this observation may not be a general practice among Nigerian adults, as the findings of this paper are quite different from an earlier report on adults of South East Nigeria which indicates regular smoking and high level of alcohol consumption in the adult population (14-15). This disparity might indicate lifestyle differences between geographical regions and ethnic groups in Nigeria. The observed gender differential in alcohol consumers and cigarette smokers agrees with the earlier report which state that males were more likely to use alcohol and smoke than Nigerian females (16). Alcohol has been described as the most commonly used psychoactive drug in Nigeria (16). Also, studies in Nigeria have associated alcohol dependence and excessive alcohol consumption with major depressive disorder among young adults and a strong risk factor for stroke in adults above 45 years (16,17). This indicates the need for continual public enlightenment in Nigeria on the implications of excessive alcohol consumption and cigarette smoking.

Skipping of meal has been identified as a lifestyle

factor that inhibits good nutrition; it results in inadequate nutrients intake and can promote reliance on junk foods. In this study, meal skipping was higher in male than in female teachers. The observation that lunch was the most skipped meal in this study does not agree with the earlier report that breakfast was the most skipped meals among Nigerians (18). Skipping of meals among the teachers was mainly attributed to lack of time in this study, which is similar to a report on Nigerian students (18).

Ajayi and Okike reported that vitamin supplementation produced a significant increase in haemoglobin concentration and erythrocyte count in Nigerians (19). Many of the teachers in this study took nutrient supplements; however, majority had low to medium dietary diversity, which indicates that the teachers will require nutrition education on the need to diversify their food intake, to include more varieties of foods in their diet. Dietary diversity is universally recognised as a key component of a healthy diet, a means of eating more healthy food groups, which is associated with higher balance intake of macro- and micro-nutrients.

Anthropometric measurement involves measurement of body physical dimensions which are significant determinants of health and diseases. Underweight is an indication of poor energy reserve, and a predisposing factor for infection. Unlike the female teachers, double burden of malnutrition (underweight and overweight) was observed among the male teachers. Underweight prevalence of 10.4% among the teachers in this study is higher than 6.7% reported among adults in Suburban Northern Nigerian Communities (20). The differences could be

attributed to differences in dietary pattern, ethnicity, geographical location and the occupation of the different study populations. More than a half of the teachers were either overweight or obese. The prevalence of obesity among the teachers (30.1%), is very close to 31.7% and 33.8% reported among adults in Okrika and Ogbomoso in Rivers and Oyo states in Nigeria respectively but lower than 49.3% and 54.8% reported among the Kalabaris in South-South and adult civil servants in Asaba, Delta state, all in Nigeria (8, 21-23). A higher level of obesity was observed among female than male teachers, which agrees with the earlier reports that obesity was strongly correlated with female gender in Nigeria (21, 24). The high prevalence of obesity among the teachers could partly be explained by low level of regular physical exercise and most especially among the female teachers who in addition generally have lower resting metabolism than their male counterparts. Kruger, Venter, Vorster and Margetts (25) reported a strong relationship between development of overweight/obesity and physical inactivity among individuals. Most of the teachers were not performing regular physical activities apart from the activities of their main roles as teachers which is categorised as sedentary activity. High levels of both BMI and WHR (abdominal obesity) have been shown to be good predictors for non-communicable, nutrition-related chronic diseases and also risk factors for increased morbidity and mortality among adult population (26). Majority of the teachers (60.3%) in this study had abdominal obesity which is an indication of accumulation of fat in the upper region of the body, thus predisposing them to several health risks of chronic diseases, and also increase their risk of mortality (26). The level of overweight and obesity observed among the teachers indicates that the teachers need to organise regular moderate physical activities within their work schedule to enable them achieve and maintain normal weight for good health.

CONCLUSION AND RECOMMENDATION

This study has revealed that alcohol intake and cigarette smoking were low among the urban school teachers in Ibadan. The teachers' lifestyle was characterized by low performance of physical

activity, meal skipping and low dietary diversity. There was high rate of overweight among the male and female teachers and obesity among female teachers. These conditions may reduce their productivity and also predispose them to non-communicable diseases later in life. The teachers may also negatively influence the dietary habits of students. Dietary habits of the teachers would rub off on their students. Nutrition education and organization of regular physical activity for teachers in Ibadan are important for them to maintain good health and be a role model for their students.

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