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EATING HABIT AND NUTRITIONAL STATUS OF A NIGERIAN PRIVATE UNIVERSITY STUDENTS

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ABSTRACT

The study aimed at determining the eating habit and nutritional status of Babcock university undergraduate students. Multiple stage random technique and systematic sampling was used to select 288 respondents and a structured questionnaire was used to elicit information on the socio-demographic data and eating habit. The BMI of the respondents was determined using weight and height squared and the 24- hour dietary recall was analyzed using Total Dietary Assessment software. The relationship between eating habit and nutritional status was determined using Chi- square. Most of the respondents in the study were between 18-21 years (73.6 %) consisting of 45.6 % male and 53.7 % female. The respondents (54.8 %) consumed two meals in a day, 63.9 % eats in response to hunger while others eat due to different factors. Consumption of fruits and vegetables was poor as only 17.0 % and 14.9 % consumed fruits and vegetable daily. Many of the respondents consume snack regularly (85.4 %) with 33.7 % consuming in- between meals and 14.2 % snacking late in the night. Prevalence of overweight and obesity was high among the respondents as 30.4 % were overweight and 27.1 % were obese. Mean calorie intake and % RDA being 3223.04± 687.66 and 111.14 for males and 2429.45 ± 243.14 and 110.43 for females. Frequency of consumption, snacking, period of snacking, soft drink consumption and, poor fruit and vegetable consumption all had significant (P< 0.05) effect on the nutritional status.

Keywords: Eating Habits Nutritional Status Body mass Index Overweight Obesity University students

INTRODUCTION

Poor eating habits among young adults in the university is a major public health issue (Nelson *et al*., 2008). Many of these university students result to poor eating habits due to academic stress and tight schedules that take time (Rubina *et al.,* 2009). Students see this way of life as temporary and a means of survival with the feeling that the academic pursuit which is of higher importance is the reason for being in school thus paying little attention to healthy eating and diets. Unconsciously these habits picked up at this age can eventually becomes part of an individual's lifestyle in adulthood and generally persist with age becoming a hindrance to the adoption of healthy behaviors. University students tend to make their own food choices based on cost of food and availability of fast food. They lack knowledge of healthy food choices that may affect eating habits and nutritional status negatively (Gan *et al.,* 2011).

Rapid changes in physical growth and psychosocial development have placed these young adults at nutritionally vulnerable groups as the poor eating habits fail to meet the dietary requirements. Chin and Nasir (2009) revealed that meal skipping; particularly breakfast, snacking and various weight loss dietary behaviours were some of the unhealthy eating behaviours depicted by young adults. Moreover, Gan et al. (2011) highlighted the presence of unhealthy eating behaviours and inadequate nutrient intake among university students and concluded that there was a need to promote healthy eating habits among young adults to achieve a healthy nutritional status.

This study will help to determine the prevalence of poor eating habits among private university undergraduate students and it will also provide information on the nutritional status of the students with the view of encouraging them to form good eating habit.

MATERIAL AND METHODS

Private universities have high concentration of students from affluent homes and this is reflected in Babcock University. Babcock University is one of the few private universities with high enrollment and was selected for this study due to its proximity. Also more importantly, the university operates cafeteria system where lacto-ovo vegetarian diet is served which is unique compared to other universities. Apart from cafeteria food, students have access to other outlets where both lacto-ovo and non-vegetarian diet are served.

Total population of undergraduate students in the university was obtained from the registry and sample size was determined using:

$$n = \frac{N}{1+N(e)2}$$

Where n is the sample size, N is the population size, and e is the level of precision.

A 95% confidence level and P = 0.05 were assumed for the equation (Yamane, 1967).

Two hundred and eighty-eight students of the university were selected through multiple -stage random technique and systematic sampling. Simple random technique was used to select among schools, departments and study levels of the respondents. While respondents were selected using systematic sampling by the use of class attendance.

Data collection

A structured questionnaire was used to collect information on the socio- demographic data and eating habit of the respondents. Anthropometric measurements were done by measuring height and weight. Height was determined using a heightometre and measurements were read and recorded to the nearest 0.1cm. Beurer digital weighing scale (model BG 42) was used in measuring the weight of the respondents and measurements was read and recorded to an accuracy of 0.5 kg (Lohman, 1998).

Dietary intake assessment was conducted using 24 hour dietary recall protocol and food frequency (per week) method in a standardized procedure as described by Maziya- Dixon et al, 2006.

Data analysis

Body mass index (BMI) of the respondents was calculated using;

$$BMI = \frac{\text{weight (kg)}}{\text{Height (m)}^2}$$

The respondents were classified as normal, underweight, overweight and obese by comparing their BMI with WHO reference.

The 24- hour dietary recall was analyzed using Total Dietary Assessment software ver-

sion 3.0 and SPSS version 20.0. Association between eating habit and nutritional status was determined using Chi- square. Results were presented using simple descriptive analysis i.e percentage and frequency.

RESULTS AND DISCUSSION

The socio- demographic characteristics of the respondents is as shown in Table 1. Most of the respondents were between the ages of 18-21 years (73.6%). There were 45.6% male and 53.7% female respondents. Majority of the respondents were Christians (87.5%) and many were Yorubas (55.6%).

Table 1: Demographic characteristics of the respondents

	Frequency	Percentage (%)
Age		
18-21	212	73.6
22-25	76	26.4
Sex		
Male M Male	132	45.6
Female	156	53.9
Religion		
Christianity	252	87.5
Islam	28	9.7
Others	8	2.8
Ethnic group		
Igbo	72	25.0
Yoruba	160	55.6
Hausa	16	5.6
Others	40	13.9

Table 2 presents the eating habit of the respondents. Majority (54.8%) of the respondents consumed two meals in a day and 20.8% ate more than three times daily. People ate because of different reasons but many (63.9%) of the respondents ate in response to hunger, an indication of controlled eating habit among this group of respondents. However other respondents ate as a result of different psychological reasons (anger, boredom, sadness etc.) which is supported by the findings of Ganasegeran *et al.* (2012) and Adeoye and Adeoye (2009) who reported that many undergraduate students eat as a result of different psychological factors signifying compulsive eating behaviour.

Many of the respondents (85.4%) consumed snack regularly (five times and above in a week) with 33.7% consuming in- between meals and 14.2% snacking late in the night. It was also observed that 25% of the respondents consumed carbonated drink daily and 19.8% consumed it more than twice in a week. The high percentage of snacking and

carbonated drink consumption with the high percentage (37.5%) of those who do not eat in the cafeteria despite the fact that every student is expected to eat in the cafeteria, collaborate earlier reports of Yahia et al. (2008) and Alizadeh and Ghabili (2008) that university students have frequent snacking habits and have a higher frequency of fast food consumption .Consumption of fruits and vegetables is low among the respondents as only 17.0% and 14.9% consumed fruits and vegetable daily (Table 3). This is corroborated by the report of Moy *et al.* (2009) and Huang *et al.(*2003) that, university student fail to meet the recommended intake of fruit and vegetable.

Table 2: Eating habit of the respondents

	Frequency	Percentage (%)
Frequency of eating (main meal)		
Once a day	18	6.3
Twice a day	158	54.8
Three times a day	52	18.1
More than three times a day	60	20.8
Do eat in response to		
Anger	16	5.5
Boredom	56	19.4
Sadness	8	2.8
Hunger	184	63.9
Other reasons	24	8.3
Eat in the cafeteria		
Yes	180	62.5
No	108	37.5
Regular Snacking(≥5 times/wk)		
Yes	246	85.4
No	42	14.6
Period of snacking		
Morning	8	3.0
Afternoon	109	37.8
Evening	33	11.5
Late in the night	41	14.2
In-between meals	97	33.7
Consumption of carbonated drinks		
Daily	72	25.0
Once a week	56	19.4
Twice a week	103	35.8
More than twice	57	19.8

Table 3: Fruit and vegetable consumption

	Frequency	Percentage
Eat fruits		
Daily	49	17.0
Once a week	77	26.7
Twice a week	121	42.0
More than twice	41	14.2
Eat vegetables		
Daily	43	14.9
Once a week	87	30.2
Twice a week	95	33.0
More than twice	63	21.9

Table 4 and 5 presents mean energy and nutrient intake of the respondents. Percentage recommended daily allowance (% RDA) for male respondents was 228.84, 115.08, 293. 81 and 111.14 for carbohydrate, protein, fat and calories. Furthermore percentage of RDA for female respondents was 182.90, 151.91, 592.67 and 110.43 for carbohydrate, protein, fat and calories respectively. Intake of carbohydrate, protein, fat and calorie was high for both male and female respondents while fiber consumption was low compared to RDA. Also, intake of vitamin A, vitamin C, folate and calcium was found to be poor among the respondents. This finding is in collaboration with a previous study in China where medical students exhibited early risk factors for chronic diseases due to poor eating habits (Sakamaki, 2005). Also Gan et al. (2011), Nnanyelugo highlighted the presence of unhealthy eating behaviours and inadequate nutrient intake among university students.

Table 4: Mean energy and nutrient intakes for male respondents

Nutrient	Range	Mean±SD	RDA	RDA%
Calories(Kcal)	1120.93- 3539.40	3223.04 ± 687.66	2900	111.14
Protein(g)	18.11 - 106.18	66.75 ± 24.94	58	115.08
Carbohydrate(g)	128.89 - 513.21	297.50 ± 122.56	130	228.84
Fiber(g)	0.00 - 35.3900	15.91 ± 11.84	38	41.86
Fat(g)	2.20 - 117.98	54.65 ± 36.83	18.6	293.81
Vitamin A(RE)	0.00 - 851.00	825.64 ± 149.54	900	91.7
Vitamin C(mg)	0.00 - 28.37	20.37 ± 5.62	90	22.63
Folate(mcg)	0.00 - 522.50	165.19 ± 148.03	400	41.29
Vitamin B12(mcg)	0.00 - 3.99	1.89 ±0 .89	2.4	37.08
Calcium(mg)	0.38 - 1000.00	259.08 ± 231.67	1000	25.90
Zinc(mg)	0.01 - 15.0000	7.27 ± 3.57	11	66.09
Iron(mg)	3.22 - 27.06	11.61 ± 5.55	8	145.12

Table 5: Mean energy and nutrient intakes of female respondents

Nutrient	Range	Mean±SD	RDA	RDA%
Calories(Kcal)	1854.75-2655.60	2429.45 ± 243.14	2200	110.43
Protein(g)	55.64-79.67	69.88 ±7.29	46	151.91
Carbohydrate(g)	268.94 -385.06	237.77±35.25	130	182.9
Fiber(g)	18.55 - 26.56	23.29 ± 2.43	25	93.16
Fat(g)	61.83 -88.52	77.64 ± 8.10	13.1	592.67
Vitamin A(RE)	55.57 -7697.08	1105.67± 182.35	700	157.95
Vitamin C(mg)	0.00 -312.77	33.01 ± 27.95	75	44.01
Folate(mcg)	0.00 - 642.10	237.27 ±191.16	400	59.31
Vitamin B12(mcg)	0.00- 6.38	1.67 ± 1.2	2.4	69.58
Calcium(mg)	11.88 -1820.25	558.64 ± 462.33	1200	46.55
Zinc(mg)	3.43 -12.00	7.66 ± 2.98	12	63.83
Iron(mg)	4.86 -24.88	13.80 ± 5.97	15	92

BMI classification of the respondents is presented in Table 6. Among the respondents, 30.6% were overweight and 29.1% were obese. This observation is in accordance with the study conducted on Lebanese university students and some other universities (Bertsias *et al*., 2003) who reported higher prevalence of obesity. Also to substantiate this finding is the report of Chinedu and Emiloju (2014) who presented prevalence of overweight among young adult. With the high prevalence of overweight and obesity among these respondents many of them are likely to be obese in future going by the report of Gius (2011).

Table 6: BMI classification of the respondents

BMI(kg/m²)	Frequency	Percentage (%)
Underweight	4	1.4
Normal	112	38.9
Overweight	88	30.6
Obese I	48	16.6
Obese II	36	12.5

The relationship between eating habit and nutritional status of the respondents is as represented in Table 7. It was found that frequency of consumption, snacking, period of snacking, soft drink consumption and, fruit and vegetable consumption all have significant ($P< 0.05$) relationship with the nutritional status. This is in support of earlier report of Caballero (2007) that total calorie consumption plays an important role in obesity with most of these extra calories coming from an increase in fat and carbohydrate consumption in snacks and sweetened beverages.

Table 7: Relationship between eating habits and nutritional status

	Underweight (%)	Normal weight (%)	Over-weight (%)	Obese I (%)	Obese II (%)	X^2	P
Frequency of consumption							
Once a day	4(1.4)	6(2.1)	-	8(2.8)	-	54.492[a]	.000
Twice a day	-	66(22.9)	52(18.1)	20(7.0)	20(7.0)		
Three times a day	-	16(5.6)	16(5.6)	8(2.8)	12(4.2)		
More than three times	-	28(9.7)	16(5.6)	12(4.2)	4(1.4)		
Snacking							
Yes	4(1.4)	100(34.7)	78(27.1)	32 (11.1)	32(11.1)	30.368[a]	.000
No	--	12(4.2)	10(3.5)	16(5.6)	4(1.4)		
Period of snacking							
Morning	---	--	--	4(1.4)	4(1.4)	67.631[a]	.000
Afternoon	4(1.4)	33(11.5)	32(11.1)	16(5.6)	24(8.3)		
Evening	--	13(4.5)	16(5.6)	4(1.4)	-		
Late In The Night	--	25(8.7)	4(1.4)	8(3.1)	4(1.4)		
In Btw Meals	--	41(14.2)	36(12.5)	16(5.6)	4(1.4)		
Consumption of carbonated drinks							
Daily	-	32(11.1)	20(6.9)	20(6.9)	-	60.218[a]	.000
Once/wk	-	16(5.6)	24(8.3)	12(4.2)	4(1.4)		
Twice/wk	4(1.4)	35(12.2)	40(13.9)	4(1.4)	20(6.9)		
More than twice	-	29(10.1)	4(1.4)	12(4.2)	12(4.2)		
Consumption of fruits							
Daily	-	20(6.9)	23(7.5)	-	6(2.1)	40.832[a]	.001
Once/wk	-	20(6.9)	19(6.6)	24(8.3)	14(4.9)		
Twice/wk	4(1.4)	51(17.7)	30(10.4)	24(8.3)	12(4.2)		
More than twice	-	21(7.3)	16(5.6)	-	4(1.4)		
Consumption of vegetables							
Daily	-	8(2.8)	20(6.9)	4 (1.4)	11(3.8)	47.796[a]	.000
Once/wk	-	36(12.5)	18(6.3)	22(7.6)	11(3.8)		
Twice/wk	4(1.4)	32(11.1)	38(13.2)	14(4.9)	7(2.4)		
More than twice	-	36(12.5)	12(4.2)	8(3.0)	7(2.4)		

CONCLUSION AND RECOMMENDATION

This study has established a high level of overweight and obesity among the private university undergraduate students with snacking, period of snacking, and consumption of carbonated drink having significant relationship with the nutritional status of the respondents. It is been recommended that students should increase their consumption of fruit and vegetable while frequency of snacking is reduced.

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