
Assessment of Dietary Pattern of Carbohydrate Intake among Urbanized Adult in Abeokuta South Ogun State Nigeria

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ABSTRACT

High carbohydrate intake has adverse effects on lipid and glucose metabolism and these changes would be expected to increase the risk of coronary heart disease and type 2 diabetes mellitus. This study was carried out to assess the pattern of dietary carbohydrate intake among urbanized adult in Abeokuta south. Three hundred adults were randomly selected for the study. The socio demographic characteristics of the respondents were determined using pretested structured questionnaire. Body Mass Index (BMI) was used to determine the nutritional status. The socio demographic result showed that 46% of the respondents were female, majority (43.5%) of the respondent fall between age ranges, 51.2% were between 21-30 years of age, 26.2% of the respondent were married, 55.5% were single while 17.9% are divorced. The result of BMI showed that 11% of the adult were underweight, 48% of the adults had normal weight, 29% were overweight and 12% had obesity grade 1. The main carbohydrate food eaten was macaroni (78.7%) followed by amala (73.7%) and lafun (73.1%). The study showed that macaroni is now the most commonly consumed carbohydrate among urbanized adult in Abeokuta south. The study showed that malnutrition is still common among the study population therefore there is need for nutrition counseling and advocacy.

Keywords: Carbohydrate Intake, Coronary Heart Disease, Diabetes Mellitus, Urbanized Adult, Socio Demographic Characteristics, Body Max Index, Malnutrition.

INTRODUCTION

Dietary intake in developing countries is undergoing transition from largely high fibre, calories. The changing pattern particularly with respect of carbohydrate intake is contributing to

increasing prevalence of obesity which is a major risk factor for many non-communicable diseases worldwide including hypertension, diabetes mellitus, cardiovascular disease, stroke and several cancers (Popkin,

2006). High carbohydrate intake has adverse effects on lipid and glucose metabolism and these changes would be expected to increase the risk of coronary heart disease and type 2 diabetes mellitus. High carbohydrate diets have previously been found to result in self-report of lower satiety and greater motivation to eat. In a balance diet the carbohydrate should represent the bigger part of the energetic metabolism energy consumed as either carbohydrate, fat or protein is either lost or used for internal or external work or stored if in excess (Popkin, 2006).

The major dietary carbohydrate in Nigeria are roots and tuber served as different types of "swallow". A group of bolus meals are eba, pounded yam, amala, semovita and tuwo (Oguntona *et al.*, 1998). In general bolus meals are thick pastes made by adding boiling water to processed starchy vegetable, animal protein or fat. The plant use for those bolus meals includes cassava, yam, plantain, corn, wheat and rice. Within Nigeria there is some regional variation in the type of bolus meals with greater consumption of rice and maize based meals in the north and consumption of yam and cassava based meals in south (Oguntona *et al.*, 2002).

Carbohydrate food were typically based on a range of staple tuber and

roots especially cassava, yams and maize in sub-Sahara Africa. Study revealed that a stiff porridge of maize is the most common carbohydrate food (Hoffmester *et al.*, 2005).

Dietary carbohydrate can be subdivided into several categories based on the number of sugar units present. A large percentage of the usual meals consumed are carbohydrate.

The changing pattern particularly with respect to carbohydrate intake is contributing to increasing prevalence of obesity, which is a risk factor for many non-communicable diseases worldwide including hypertension, diabetes mellitus, cardiovascular disease, stroke and several cancers (Popkin, 2006).

Pattern of dietary carbohydrate intake is an important aspect of nutrition which has implication on the physiological well been of an individual. Therefore this study aimed to determine pattern of carbohydrate consumption in Abeokuta.

METHODOLOGY

Area of Study and Background Information

Abeokuta south local government has an area of 71km and population of 250,278 at the 2006 census. The local government of Abeokuta south

divided into 15 wards for the purpose of electing councilor.

It is an urbanized area and also important as the trading center for rice, maize, cassava, yam, palm kernel and the largest product and export of kola nut in Nigeria owing to its history important as the traditional seat of the local or native authority in Egba since 1898.

It is situated on the Ogun River 64miles north of Lagos by railway and 81miles by water. Abeokuta is the largest city and capital of Ogun state in south west Nigeria.

SAMPLING PROCEDURES

A purposive and simple random sampling method was to select a representative sample of 300 adults in Abeokuta south local government was used. A pretested questionnaire was used to obtain information from subject. The questionnaire comprises of the following section.

SECTION A

- Personal data
- Socio economic characteristics,
- Food frequency of consumption,

ANTHROPOMETRIC MEASUREMENT (WEIGHT MEASUREMENT)

The subject weight was measured using bathroom weighing scale. The scale placed on flat surface and the subject was made to stand upright on its bare footed with minimum clothing's. The reading was done in duplicate to the nearest 0.1kg and the average weight was constantly checked for accuracy.

HEIGHT MEASUREMENT

A Heightometer was used to measure the subject height. The subject was made to stand erect on the base placed without shoes, socks head tie, in order to give accurate distance between the size of the feet and the crown of the head. As the subject were looking straight ahead, the head piece was sliced down to the head crown and the height was taken was to the nearest 0.1cm and repeated to obtain highest value.

BODY MASS INDEX

This was determined by dividing the weight of each subject 1 kilometer by the square of the height in meters.

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

ANTHROPOMETRIC MEASUREMENT

The anthropometric data obtained is used to determine the body mass index (BMI). The body mass index BMI was calculated using the weight and height data of the subject as shown below:

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

The subject, will be classified using the (WHO 1998) classification

- Under weight (<18.5) kg/m²
- Normal weight (18.5-26.9)kg/m²
- Over weight (25.0-29.9)kg/m²
- Obesity Grade (30.0-34.9)kg/m²
- Obesity Grade II (35.0-39.9)kg/m²
- Obesity Grade III (Extreme) (>/40.0) kg/m²

Furthermore BMI below 18.4 kg/m² was classified according to the degree of energy defined as shown below.

- 17.0-18.4kg/m²=chronic energy deficiency (CED) grade I
- 16.0-16.9kg/m²=CED Grade II

RESULT AND DISCUSSION

Table 1 shows that the percentage of female is 46% while the percentage of male is 53%, majority (43.5%) of the respondent were between age range of 19-20, 51.2% were within aged range of 21-30, 35.5% of the respondent were Yoruba, 22.6% were Igbo, 32.6% Hausa while 4.7% were

others, 36.9% of the respondent were Christian, 24.6% were Muslim and 38.2% were traditional worshipers 26.2% of the respondent were married, 55.5% were single while 17.9% are divorced. Thirty three (33.9%) of the respondent attended secondary school, 31.2% attended high institution, 27.2% had vocational trainee and 7.2%, 26.9% of the respondent were unemployed, 26.9% were self-employed, 13.6% were unskilled and 3.7% were professionals.

Table 2 shows the classification of the body mass index of respondents. It revealed that 11% of the adult were underweight, 48% of the adults had normal weight, 29% were overweight and 12% had obesity grade 1.

The result shows that macaroni is the major carbohydrate food eaten by urbanized adult in Abeokuta south. The study revealed that almost every one eat bolus meal and amala is the commonest type of bolus meal eaten, followed by lafun and akpu. Regular soda and unsweetened juice were consumed more frequently than diet soda and sweeten juice. Coffee was consumed more than hot chocolate and tea. Half of the study population consumes alcohol.

Among the traditional carbohydrate foods, amala which also was consumed

as ceremonial/celebratory food is now also consumed more frequently than before. This may be related to availability of fast food restaurants, it remain the one of less expensive type of bolus meal available in Abeokuta south market and restaurant.

This study reflects the practice of diverse Abeokuta south ethnic and cultural groups. The study population is however, more educated than the average Abeokuta south population. Being mostly employed, they may also have more disposable income to spend on relatively expensive food items such as spaghetti and prefer such meals because of its short time preparation.

Cassava a starch root tuber is a major carbohydrate food and is consumed as different types of bolus meals such as eba, akpo, and fufu. Cassava is the highest producer of carbohydrates per weight among crops plants. Abeokuta is one of the leading world producers of cassava, where it was the most common plant on which bolus meals are based.

RECOMMENDATION AND CONCLUSION

In conclusion, the study showed that the main carbohydrate foods eaten by urbanized adult in Abeokuta south is

changing. The study showed that malnutrition is still common among the study population therefore there is need for nutrition counseling and advocacy.

RECOMMENDATION

- Fruit and order nutrient like protein, vitamin, mineral should also be consumed
- In obese adult there should be reduction in cholesterol
- Physical activities should also be encourage

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TABLE 1: SOCIO ECONOMIC CHARACTERISTICS OF SUBJECT

VARIABLES	FREQUENCY (N)	PERCENTAGE
Sex		
Male	160	53
Female	140	46
Age		
19-20	131	44
21-30	154	51
31-40	15	5.0
ETHNICITY		
Yoruba	107	37
Igbo	68	25
Hausa	98	33
Others	14	5
RELIGION		
Christian	111	37
Islam	74	25
Others	115	38
MARITAL STATUS		
Married	79	26
Single	167	56
Divorce	54	18
OCCUPATION		
Unemployed	81	26
House wife	86	29
Self employed	81	27
Unskilled	41	14
Professionals	11	4
EDUCATION		
Primary school	-	-
Secondary School	102	34
Higher institution	94	31
Vocational training	82	27
Quranic education	22	7
SPORT		
Bicycling	123	41
Football	57	19
Jogging	51	17
Golfing	56	18.6

**TABLE 2: CLASSIFICATION OF RESPONDENTS NUTRITIONAL STATUS
BODY MASS INDEX (BMI)**

Variables (kg/m ²)	Frequency	Percentage %
<18.5 UNDER-WEIGHT	34	11.0
18.5-24.99 NORMAL	149	48
25-30 OVER-WEIGHT	80	29
>30 OBESE	37	12
TOTAL	300	100.0

THE FREQUENCY OF CARBOHYDRATE CONSUMPTION

FOOD	<1 time per week	2-4 times per week	5-6 times per week	Occasionally	Never
Brown rice	27	19	18	32	13
Spaggetti	35	15	10	16	24
Yam	25	22	6	42	2
Eba	30	18	9	26	16
Amala	15	28	20	16	10
Bread	14	20	17	30	17
Fufu	24	21	12	11	26
Semo	22	28	8	26	15
plantain	36	19	17	19	9
Corn	31	17	14	19	10
Akpo	44	21	2	26	3
Tuwo	20	34	8	27	7
Lafun	14	38	18	12	15
cocoyam	9	25	21	29	9
Potato	28	30	19	16	16
Irish potato	18	14	19	33	5
macaroni	38	13	12	11	10
Indomie	24	25	9	25	8
Oat	29	37	8	13	9
Pap	19	29	19	10	0
Eko	22	28	32	5	7
Custard	20	18	0	16	11
Rye	20	28	18	18	7
Regular	23	24	7	28	12
Diet soda	23	15	10	26	17
sweetens	35	17	4	29	11
unsweetened	18	34	12	28	6
Tea	18	24	25	18	11
Coffee	25	21	17	24	4
Hot	21	19	23	12	20
Alcohol	14	13	23	29	12

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