Assessment of Nutritional Status of Diabetic Patients in Ogun State, Nigeria

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The study assessed the nutritional status of diabetic patients in Ogun State, Nigeria. Three research questions were used to guide the study. Two referral medical hospitals were used for the entire study. The out-patient departments of the Olabisi Onabanjo University Teaching Hospital, Sagamu (OOUTH) and the Federal Medical Centre, Idi-Aba, Abeokuta (FMCA) were used. The OOUTH covered the entire Ijebu division of Ogun State while FMCA covered the Egba division of Ogun State. A total of 90 respondents were recruited for the field survey and 37 (41.9%) of them were male while 53 (58.9%) were female. The female who were observed were 23 (43.4%) and the male were 5 (13.5%) showing a very great prevalence of obesity among the female. Lack of education was not the cause of diabetes mellitus. Based on the findings, it was revealed that only 5 (13.5%) male and 14 (26.4%) female had no formal education. Others had one level of education or the other. There is high prevalence of obesity among female respondents. Conclusion was drawn. Among the recommendations stated is that there should be urgent and serious enlightenment campaign by the ministry of health both at federal and state level so that people in the community will be more aware of the ailment. The campaign should also stretch to local government areas.

Key Words: Assess, nutritional status, diabetes and patient

Introduction

Health is wealth. A nation that promotes good health status of her people develops rapidly. Food supply and intake is very important to the body regardless of age, sex, religion, occupation or season. Food must be taken with consciousness for well-being of the body. Too much or two little food intake may cause serious damage to the body system. This can result to various diseases. Among them is Diabetics.

Diabetes mellitus is a state that begins when the pancreas stop completely, the insulin production or the produced insulin is not efficient in the body. In that case, the cells do not get the food necessary for their life. It is a chronic disease that lasts for many years. It can cause serious health problems which include: Kidney failure, Heart disease, Stroke and Blindness.

Agbabiaka (2010) explained that for over 2000 years, diabetes has been recognized as a devastating and a deadly disease. In 1922 Fredrick Banting and his assistant Charles Best discovered insulin to save the lives of diabetics. It has reached the level of great public concern as over four million people are suffering this ailment and only 20 percent of this group is aware of what they passing through (Lang, Galloway and Scarlett 2008). According to Ogbo (2008) at least 171 million people worldwide suffer from diabetes. They continued that it is increasing rapidly and it is estimated that by 2030, the number will almost double. It is estimated that diabetes mellitus (DM) currently accounts for 5.2% of all

deaths worldwide (Roglic, Unwin, Bennett, Mathers, Tuomiletito, Magi Conolly and King 2000). The number of people with DM is expected to double from 175 million in 2000 to 353 million in 2030 (Yoeh, Stuckler and Brownell 2006). The largest increase is expected to occur in developing countries with 305 million individuals likely to have DM by 2030 (Yaeh et al 2006). The prevalence of DM in adults varies markedly between different populations e.g 2.6% in Nigeria (Okesina, Oparinade, Akindoyin and Erasmus1999). 18% in mauritius Soderbery and more than 50% in Pima Indians in U.S (Ravussin, Valencia, Esparza, Bennett and Shuly1994) have been related to unfavourable trends in factors such as overweight and sedentary habits as demonstrated in longitudinal, ecological and migration studies (Soderberg, Zimmet, Tuomilelito, Courten, Dowse, Ghison, Gareeboo, Alberti and Shaw 2005) and to interaction between environmental and genetic factors when individuals become exposed to an obesogenic environment. This call for concern in the community we find ourselves.

Since insulin discovery, medical breakthrough continues to prolong and ease the level of people with diabetes. In 1935 Roger Hingworth discovered there were two types of diabetes. Insulin sensitive (type 1) and Insulin insensitive (type II) (Diabetes blue circle symbol 2006).

Type I diabetes (Insulin Independent Diabetes Mellitus (IDDM) is the leading chronic disease among children and young adult (30) Agbabiaka

(2010) reported that it sometimes starts from birth. In types diabetes, the person immune system attacks the system cells of the pancreas that normally synthesis the hormone insulin. Soon the pancreas can no longer produce insulin and after each meal, blood glucose remains elevated even though the body tissues are simultaneously starting from glucose. The person must receive insulin from an external source to assist the cell in taking up the needed glucose from the blood.

Type 2 Diabetes (Non-Insulin Depended Diabetes Mellitus (NIDDM). Type 2 Diabetes is as a result of insulin resistance of the body cells which may be combined with relatively reduced insulin secretion. It is the most common type. Insulin may be present often in normally large amount. The pancreas becomes less able to produce insulin. People with type 2 Diabetes must take insulin to supplement their own insulin. This type 2 Diabetes occurs particularly in people that are 35 years and above. People with this disease often become obese because they over eat due to the cell's resistance to insulin. Type 2 Diabetes also increases with age. People need to beware of excess weight gain and also watch their alcohol intake. This calls for the assessment of nutritional status of Diabetic patients in Ogun – State, Nigeria.

Justification of the Study

Owing to the high level of type 2 diabetes and its prevalence in Ogun State, Nigeria and the world in general, there is a need to study the diet intake of these patients so as to assist them to understand how to modify their diet. This will improve their health condition and also the development of the community.

Objective of the Study

The broad objective of the study is to assess the nutritional status of Diabetic patients in Ogun – State, Nigeria.

The specific objectives of the study are to;
(i) determine the socio-economic characteristics of the respondents attending out-patients department (OPD) in selected hospitals in Ogun State.
(ii) assess the anthropometric status of diabetic patients attending OPD in Ogun State.
(iii) determine the nutritional status of diabetic patients in the study area.

Research Questions

The following questions sought answers to the following:
(1) What are socio-economic characteristics of diabetic patients in Ogun State?
(2) What is the anthropometric status of the respondents in the study area?
(3) What is the nutritional status of the respondents in the study area?

Methodology

This study was designed to assess the nutritional status of Diabetic patients in Ogun State, Nigeria. Both primary and secondary data was used for the study Purposive sample technique was used to select 90 diabetic patients randomly. The primary data was collected from out patients department of the Olabisi Onabanjo University Teaching Hospital, Sagamu and the Federal Medical Centre, Idi-Aba, Abeokuta, Nigeria using questionnaire. Secondary data was collected through internet, bulletins, textbooks and journal articles.

The instrument used was questionnaire consisted of three sections. These are: Section A: this contained the socio-economic characteristics of the respondents; age in years, marital status, sex, occupation, income per month, number of dependants staying with them and highest educational attainment. Section B contained the medical history of the respondents with questions like:
- When did you discover that you have diabetes mellitus?
- When did you start going to hospital to see doctor?
- Are you placed on medication?
- If yes, how long have you been on the medication?

The sample size of the population was gotten using the following formula:

$$n = \frac{z^2 pq}{d^2} \text{ where:}$$

n= the desired sample size (when population is greater than 1000)
z= the standard normal deviate, usually set as 1.96 which corresponds to 95% confidence, the degree of accuracy desired usually set at 0.05 or occasionally at 0.02
p= prevalence rate of diabetes mellitus

Therefore, the calculated sample size was:

$$n = \frac{(1.96)^2 * (0.03) * (0.97)}{(0.05)^2} = 45 \text{ (approx)}$$

The desired sample size for this research was 45 patients from each hospital making a total value of 90. Also anthropometric data of the respondents which comprised of the weight, height and Body Mass Index (BMI) of the respondents were taken. Section C contained 24 –hour food recall table. It was targeted at gathering information on the diet intake of the patient within 24 hours period. It was done face to face early in the morning before the patients eat any food. Just like the name implies, the

patients were asked to recall all they ate the previous day. The parameters in the food recall table were as follow: Food and drink consumed, time the food eaten, place, description of the food, amount of the food and finally the quantity of the food. The data collected was subjected to descriptive analysis using frequency counts, frequency percentages, mean, and standard deviation. One of the parameters of the questionnaire was the Mass Index Body (BMI). It was calculated by measuring the weight of the patients and divide by the height.

$$BMI \qquad \frac{Weight\ (km)}{Height\ m^2}$$

Results and Discussions

Table 1 showed that there were a total of 37 male in the population and 53 female in the population under study. Only 1(1.9%) female falls below 30 years of age and 12(32.4%) male fall in the age group. 13 (35.1%) of the male in the population fall within the age group of 61 to 70 which is the highest in the male population while 19(35.8%) female fall under the 51 to 60 age group establishing it as the highest in the study. Male within the age group 81 to 90 have the lowest number of 2(5.4%) among the male population under study (Table 1). 31(83.8%) of the male population were married and 40(75.5%) of the female were also married, however there were no single respondents in the study sample. 5(13.5%) of the male and 14(26.4) of the female had no formal education. This implied that 32(86.5%) of the male and 39(73.6%) of the female had some level of formal education. Majority of the respondents fall under the N10,100 to N50,000 income status, with 21(56.8%) and 38(71.7%) for the male and female respectively. On pensioners, 17(45.9%) had the highest distribution among the male respondents and 27(50.9%) of the female are Traders. This implied that the socio-economic status of the respondents is very important determinant factor in the nutritional

status of the diabetes mellitus. According to Diabetes blue circle symbol (2006), there are two types of DM. Type 2 diabetes mellitus occurs particularly in the people that are 35 years and above. DM increases in age. People need to beware of excess weight gain and also watch alcohol intake.

Table 2 showed a clear classification of the various BMI categories that among diabetics under study. 22(59.5%) were overweight while 5(13.5%) were obese among the male population. Among the female 22(41.5%) were overweight while 23(43.4%) were obese. This implied that the female in the population under study had the highest prevalence of obesity. This result agreed with the U.S. National Health and Nutrition Examination Survey of 1994 which indicated that extreme obesity was found in 2% of the men and 4% of the women, showing the high prevalence of obesity in the women.

Table 3a showed that, majority of the patients take protein based diet which was recommended by the doctor. From the study it was discovered that the doctors prescribed diet according to the patient's tolerance level, where some were allowed to take some carbohydrates in their diets, some are not allowed at all. Beans and beans products are chiefly consumed by the patients, it makes up the bulk of their diets and this is because of the protein level of beans and beans products. They take wheat bread because of its protein content, vegetable was also found in their diets and whenever they take carbohydrate foods, it was always minimal.

From Table 3b, the patients take less of animal proteins like meat and fish in the morning (break fast), but the case is different in the afternoon (lunch) and night (dinner) where they take much of these animal proteins. The percentage of those who take fish is greater than those who take meat in their diets. This implied that Fish with high protein value is able to meet the nutritional requirement and also reduces the threat of cardiovascular diseases that may occur as a result of taking meat products (since some of them have high fats).

Research Questions 1: What is the Socio-economic characteristics of Diabetic patients.

Table 1: Distribution of Respondents Socio-economic characteristics

Characteristics	Male Frequency (%)	Female Frequency (%)
Age		
*Below 30	12(32.4)	1(1.9)
*41-50	9(24.5)	2(3.8)
*51-60	4(10.8)	19(35.8)
*61-70	13(35.1)	16(30.2)
*71-80	9(24.5)	14(26.4)
*81-90	2(5.4)	1(1.9)
Total	**37(100)**	**53(100)**
Marital Status		
*Married	31(83.8)	40(75.5)
*Widowed	6(16.2)	13(24.5)
Total	**37(100.0)**	**53(100.0)**
Educational Status		
*Primary 6	17(45.9)	17(32)
*Modern 3	3(8.1)	7(13.2)
*Secondary	6(16.2)	4(7.5)
*Tertiary	6(16.2)	11(20.8)
No Formal Education	5(13.5)	14(26.4)
Total	**37(100.0)**	**53(100.0)**
Income status		
*1100-10,000	5(13.5)	10(18.9)
*10100-50,000	21(56.8)	38(71.7)
*50,100-100,000	10(27.0)	4(7.5)
*Above 100,000	1(2.7)	1(1.9)
Total	**37(100)**	**53(100)**
Occupation		
*Artisan	6(16.2)	1(1.9)
*Pensioner	17(45.9)	18(34.0)
*Trader	9(24.3)	27(50.9)
*Civil Servant	2(5.4)	5(9.4)
*Farmer	1(2.7)	1(1.9)
*Non	--------	1(1.9)
*Others	2(5.4)	----------
Total	**37(100)**	**53(100)**

Source**:** Field Survey, 2012

Research Questions 2: What is Anthropometric data of the Diabetic patients in the study area?

Table 2: The BMI classification of the Respondents

BMI Classification	Male Frequency (%)	Female Frequency (%)
Under weight	1(2.7)	2(3.8)
Normal	9(24.3)	6(11.3)
Overweight	22(59.5)	22(41.5)
Obese	5(13.5)	23(43.4)
Total	**37(100)**	**53(100)**

Source: Field Survey, 2012

Research Questions 3: What is the Food/diet analysis of the diabetic patients?

Table 3a: The Food intake of the Respondents

Food	Frequency	Percentage (%)
Breakfast		
*Rice	2	2.2
*beans	18	20.0
*Yam	3	3.3
*Rice and beans with stew	11	12.2
*Beancake with pap	10	11.1
*Moi-moi with pap	6	6.7
*Beans with pap	9	10.0
*Semovita with vegetable soup	2	2.2
*Bread and beancake	2	2.2
*No food	4	4.4
*Sliced bread	4	4.4
*Wheat and vegetable soup	2	2.2
*Water yam	1	1.1
*Oat	2	2.2
*Yam and beans	1	1.1
*Beans and bread	6	6.7
*Plantain with vegetable soup	2	2.2
*Eba with vegetable soup	1	1.1
*Pap with vegetable soup	1	1.1
*Bread and tea	3	3.3
Total	**90**	**100**
Lunch		
*Rice	2	2.2
*Beans	8	8.9
*Yam	3	3.3
*Rice and beans with stew	8	8.9
*Amala with vegetable soup	13	14.4
*Beans with pap	2	2.2
*Semovita with vegetable soup	6	6.7
*Beans and plantain	6	6.7
*Bread and beancake	4	4.4
*No food	7	7.8
*Sliced bread	3	3.3
*Wheat and vegetable soup	11	12.2
*Fufu with vegetable soup	1	1.1
*Moi moi and garri	2	2.2
*Yam and beans	3	3.3
*Beans and bread	6	6.7
*Plantain with vegetable soup	1	1.1
*Eba with vegetable soup	2	2.2
*Biscuits	2	2.2
Total	**90**	**100**
Dinner		
*Rice	2	2.2
*Beans	3	3.3
*Yam	2	2.2
*Rice and beans with stew	13	14.4
*Amala with vegetable soup	15	16.7
*Beancake with pap	4	4.4
*Moi moi with pap	7	7.8
*Beans with pap	6	6.7
*Semovita with vegetable soup	7	7.8
*Beans and Plantain	2	2.2
*No food	7	7.8
*Sliced bread	5	5.6
*Wheat and vegetable soup	7	7.8
*Fufu with vegetable soup	2	2.2
*Water yam	2	2.2
*Oat	1	1.1
*Beans and bread	1	1.1
*Eba with vegetable soup	1	1.1
*Pap with vegetable soup	3	3.3
Total	**90**	**100**

Table 3b: The Food supplements in the Respondents' Diet

Food Supplements	Frequency	Percentage (%)
Breakfast		
*Fish stew with crayfish	13	14.4
*Meat stew	1	1.1
*No fish	2	2.2
*No meat	1	1.1
*With fish and meat	4	4.4
*No fish and meat	29	32.2
*Fish only	12	13.3
*Meat only	11	12.2
*Skimmed milk	7	7.8
*With tea	3	3.3
*No milk and sugar	2	2.2
*Not specified	5	5.6
Total	**90**	**100**
Lunch		
*Fish stew with crayfish	9	10.0
*Meat stew	5	5.6
*Beans with crayfish	1	1.1
*With fish and meat	4	4.4
*No fish and meat	24	26.7
*Fish only	22	24.4
*Meat only	17	18.9
*With offal	2	2.2
*Not specified	4	4.4
Total	**90**	**100**
Dinner		
*Fish stew with crayfish	13	14.4
*Meat stew	7	7.8
*Beans with crayfish	2	2.2
*No fish	2	2.2
*With fish and meat	10	11.1
*No fish and meat	12	13.3
*Fish only	23	25.6
*Meat only	11	12.2
*Skinned milk	1	1.1
*No milk and sugar	1	1.1
*With dried fish	1	1.1
*Not specified	7	7.8
Total	**90**	**100**

Source: Field Survey, 2012

Findings of the Study

(1) Out of the total of the population size of 90, it was discovered that the male were 37(41.9%) and the female are 53(58.9%). This implied that majority of DM patients are female.

(2) There is a high prevalence of obesity among the female respondents. This means that they are more susceptible to certain cardiovascular diseases which could occur as a result of eating meat and its products.

(3) Majority 19(35.82%) female respondents are within the ages of 51 to 60 years

(4) Majority 40(75.5%) of female respondents are married

(5) Majority 17(32.0%) of male and female respondents possess primary 6 education

(6) The income status of female was 8(71.7%) and 21(56.8%) male

(7) Majority 27(50.9%) of female respondents are traders

(8) Majority 18(34.0%) of female respondents are pensioners

(9) 25(43.4%) of female respondents are obese, 22(41.5%) are overweight and 6(11.3%) are normal while 2(3.8%) of the respondents are underweight.

(10) 18(20.0%) respondents take beans, 11(12.2%) had the food intake of rice and beans with stew and 10(11.1%) and beancake with pap for their breakfast.

Conclusion

The nutritional needs of human beings vary according to their physiological stage, age and health conditions. This special consideration will be observed when preparing meals for these people based on their socio-economic status and health condition. Diabetic patients need supplements of insulin and should drastically reduce his or her consumption of carbohydrates foods. Such patients should consume generous amounts of legumes and leafy vegetables. They should also reduce their fats and oils consumptions. The reduction in the consumption of energy foods should be accompanied by regular physical exercises to improve blood circulation and tighten the sagging muscles.

Recommendations

(1) There should be urgent serious enlightenment campaign by the ministry of he
(2) alth both at federal and state level so that people in the community will be more aware of the ailment. The campaign should also stretch to local government areas (grass root).
(3) People should be able to discipline themselves to eat less sugar containing food like chocolate, pastries and also eating of junk food which has no nutrients.
(4) The older people need to exercise regularly to avoid the ailment because lack of it can lead to

obesity which is one of the complications of diabetes.
(5) The government should make a law asking companies to print warning signs on the labels of their products indicating that the product contains high amount of sugar and also stating who should take them and who should not and how to consume them. This will help in reducing the ailment.

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