
NUTRITIONAL KNOWLEDGE OF DIABETIC PATIENTS IN ABEOKUTA, NIGERIA

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ABSTRACT

Objectives

This study was carried out to assess the nutritional knowledge, nutrients intake and nutritional status of the diabetic patients in Abeokuta, Nigeria.

SUBJECTS AND METHODS

A total of 104 diabetic patients were recruited from Federal Medical Centre Abeokuta and Sacred Heart Hospital Lantoro, Abeokuta, Ogun state. Structured pretested questionnaire was used to collect data on socio demographic characteristics and nutritional knowledge of the respondents. Anthropometric measurements such as weight, height, waist, and hip measurements were used to determine the Body Mass Index (B.M.I.) and Waist to Hip Circumferences (WHR) which were used to classify nutritional status. Information on food intake was obtained from 24hours dietary recall techniques and compared with WHO 2000 standard. Data were analyzed using descriptive statistics with Statistical package for social scientists version 15.0.

RESULTS

Majority of the respondents were female (52%). More than half were from polygamous family (62%), most of the respondents were suffering from type II diabetes mellitus. 52% had incorrect nutritional knowledge of diabetes care and management. Using the body mass index classification by W.H.O, 2000 to assess the nutritional status, 42% were overweight, 33% had normal weight while 24% were under weight. The 24 hours dietary recalls showed that the mean protein intake (34 ± 0.8) and energy intake (810.03kcal) were low.

CONCLUSION

This study revealed that not all the subjects have proper knowledge of management and care of the diseases condition; therefore, there is an urgent need for intensive nutritional education for the people.

Keywords: *Complications, Under Nutrition, Nutritional Knowledge, Management*

INTRODUCTION

Diabetes mellitus is a clinical syndrome characterized by hyperglycemia and disturbances of carbohydrates, fat and protein metabolism that are associated with absolute or relative deficiencies in insulin action and/ or insulin secretion (Deepashree and Jamuna, 2007). Although it is an endocrine diseases in origin, its major manifestations are those of metabolic diseases (WHO, 1994). It is well establish that poor control of diabetes results in markedly increased risk for heart diseases, stroke, blindness, kidney failure, leg

amputation and early death (WHO,1985).On the other hand , scientific evidence has clearly demonstrated that most diabetes-related pathologies are potentially avoidable if optimum metabolic control is achieved (UK,1998).The management of diabetes is however dependent to a great extent on the affected person's own abilities to carry out self care in his daily lives and patient education is considered an essential component of achieving this objective (Tan,1997).There is further evidence that people affected with the disease often have inadequate knowledge about the nature of diabetes, its risk factors and associated complications (Sivaganam,2002), and that this lack of awareness may be the underlying factor affecting attitudes and practices towards its care. Diabetes education, with consequent improvements in knowledge, attitudes and skills leads to better control of the diseases and is widely accepted to be an integral part of comprehensive care (Rafique *et al*; 2006). . So far, little has been done to assess the current knowledge level of the people suffering from the diseases. Nutrition educations are likely to be effective if the nutritional knowledge of the people living with the diseases is known. This study attempted to assess the nutritional knowledge, nutritional status and nutrients intake among the people living with the diseases.

SUBJECTS AND METHODS

Subjects

The study was carried out in Federal medical centre, Idiaba and Sacred heart hospital, Lantoro, Abeokuta, Ogun state capital where people from different local government in the state come for treatments. An ethical approval was obtained from the ethical committee of the hospital. The consent of the subjects were sought and obtained. The following inclusion criteria were used for the subjects

- They were mentally balanced (the subjects were able to answer questions on their nutritional knowledge, consciously and correctly).
- Only willing participants were allowed to participate
- Both sexes were recruited
- No discrimination on tribes and cultures.

SAMPLING PROCEDURE

Convenience sampling method was used in this study.

A structured pretested questionnaire was used to obtain information from one hundred respondents (104). The questionnaire form was adapted from FANTA (2006). Using interview method, subjects were asked to recall what meals and drink they had taken for the previous 24-hours (Caterson 1998).. This information included details of amount of food consumed, which was estimated in household measures, estimated amounts, and other portion sizes of snacks consumed. The 24 hours dietary recall was carried out 3 times on two week days and one weekend day.

ANTHROPOMETRIC MEASUREMENTS

The anthropometric data obtained was used to determine the Body Mass index (BMI)

1) Weight Measurement:

The subjects' weight was measured using bathroom weighing scale. The scale was placed on a flat surface and the subject was made to stand uprightly on it barefooted. The readings were done in duplicates to the nearest 0.1kg and the average weight was constantly checked for accuracy (Caterson 1998).

ii) Height Measurement

The subjects heights were measured using the hospital heightometer, following the method described by Caterson, 1998..

WAIST/HIP RATIO

Waist Circumference

Subjects were made to stand erect with the abdomen relaxed; at the sides and at the feet together. The tape was placed around the subjects in a horizontal plane; at the level of the natural waist (narrowest point) with the tape making contact on the skin. The measurement was taken to the nearest 0.1cm with minimum clothing (Caterson 1998).

HIP CIRCUMFERENCE

Subjects were made to stand erect with their arm at the side and feet together. The measurer was in the front of the subjects with an assistant for proper positioning of the tape. The measurement was taken to the nearest 0.1cm (Caterson 1998).

Waist Hip Ratio of the subject will be expressed as the
$$\frac{\text{Waist (cm)}}{\text{Hip (cm)}}$$

This was taken as an indicator of the pattern of subcutaneous adipose tissue distribution among the subjects.

WAIST HIP RATIO

The Waist – Hip Ratio of the subject based on their sex and age was classified as

Male	Female	health risk based on WHR
<0.95	0.80	Low risk (Normal)
0.96 – 1	0.81 – 0.85	Moderate risk (overweight)
>1.0	>0.85	High risk (obese)

Source: Caterson (1998)

NUTRITIONAL KNOWLEDGE OF THE RESPONDENTS

Nutritional knowledge of the participants was assessed using the method described by Rafique *et al*;2006. The questionnaires covered knowledge regarding symptoms, optimal control levels, hypoglycemia, recognition of micro vascular and macro vascular complications, diet and exercise, beliefs about the diabetes, use of insulin and nutrition related beliefs and practices regarding diets, medications, adherence and self monitoring. Taking into consideration local myths, specific questions on belief were added. A scoring system was developed for each components, each correct answer was given a score of 1. Three

categories were defined on the basis of the score obtained by each participants; poor (<40% of the score); acceptable (41%-60%) of the total score and good (>60% of the total score)

RESULTS AND DISCUSSION

The socio demographic characteristics of the respondents are given in table 1. Seventy one (71%) of the respondents suffering from diabetes mellitus in our study were adults between the ages of 51-70 years of age. This observation is supported by the outcome of the research work of Ramchandram, 2000, he observed similar finding in a related work carried out. He observed that age was a risk factor for the onset of diabetes mellitus. More than half of the respondents were women (52%), this finding is in agreement with the research work of Rafique *et al*;2006 that observed similar findings in their research work. Education is an important aspect in the management of diabetes. The overall management of diabetes include management through drugs, diets and physical exercise and the educated subjects perceive the diabetes education in a better way (Deepashree and Jamuna,2007). Implementation of knowledge regarding the management helps the subjects to live a better quality of life (Deepashree and Jamuna,2007). Table 2 shows that more than half of the respondents(52%) had incorrect nutritional knowledge of the management and care of the disease condition. These findings revealed that majority of the respondent do not have proper nutritional knowledge. This is also reflected in the nutritional status of the respondents as majority of the patients were either overweight or underweight as indicated by BMI and WHR. Anthropometric status of a population is a very good indicator of overall healthy status of the population (Caterson 1998). Nutritional status has a very remarkable impact on the individuals' development, ability to grow, learn and develop mechanism against diseases. BMI is one of the indices used to diagnose and estimate the degree of obesity in adults. Another index is the waist-hip ratio which is an indicator of fat distribution rather than the amount of total body fat. Disease conditions like cardiovascular diseases and renal diseases, which are generally found to be associated with higher values of BMI (overweight), were all found to be positively related to high blood pressure. Risk of heart attack, heart failure, stroke and kidney disease have been found to be increased with increasing blood pressure (JNC, 2003).

Table 3 shows the nutritional anthropometry of the subjects which revealed that 33% had normal BMI, 43% were overweight. In this group, obesity may have functioned as a predisposing factor for diabetes. The risk of non insulin dependent diabetes increases continuously with BMI and decreases with weight loss (WHO, 1994). Waist circumference is a convenient and simple measurement which is an a proximal index of intral abdominal fat mass and total body fat (Deepashree and Jamuna, 2007). The changes in waist circumferences reflect changes in risk factors for cardiovascular diseases and other forms of chronic diseases. Waist to hip ratio is a useful tool for identifying individuals at risk of chronic diseases. Ideal values of waist to hip ratio are 1.0 in men and 0.85 in women. According to the classification in table 4, 25% were under weight (both men and women), 34% were overweight while 35% had normal weight. The result indicated that 35% of the subjects were prone to cardiovascular diseases. Using standard method, the food intake of the

respondents was determined and computed using food composition table. Result obtained in table 4 shows that the mean energy intake for the both subjects was 810 ± 0.3 kcal which was below the recommended allowances likewise the protein intake. This low energy intake could be as a result of the awareness of the complication of the diseases condition which made the subjects to reduce their energy given intake in order to control hyperglycemia.

CONCLUSION AND RECOMMENDATION

The study revealed that the nutritional knowledge of the respondents was low. In the light of these findings, it is recommended that importance of nutrition should be emphasized to all the patients and Government and non governmental organization should organized programs to assist the patients suffering from the disease condition.

Table 1: Socio Demographic Characteristics of the Respondents

Parameters	Frequency	Percentage
Age		
31-50	30	29
51-75	74	71
Sex		
Male	50	48
Female	54	52
Religion		
Christianity	45	43
Islam	50	48

Table: 1 Socio Demographic Characteristics of the Respondents Continues

Parameters	Frequency	Percentage
Traditional Education		
None	9	9
Primary	30	29
Secondary	42	40
Tertiary	20	19
	12	12
Monthly income		
< N5,000	8	8
N6,000-10,000	15	14
N11,000-15,000	20	19
N16,000-20,000	7	7
N21,000-25,000	20	19
N26,000-30,000	10	10
Above N30,000	24	22

Table2: Nutritional Knowledge of the Respondents

No of Questions	Correct	Incorrect	Total
1	56	48	104
2	50	54	104
3	41	63	104
4	50	54	104
5	56	58	104
6	44	60	104

Table 2: Nutritional Knowledge of the Respondents Continues

No of Questions	Correct	Incorrect	Total
7	49	55	104
8	57	47	104
9	50	54	104
10	44	60	104
11	58	56	104
12	45	59	104
13	55	49	104
14	46	58	104
15	45	59	104
16	48	56	104
17	43	61	104
18	62	42	104
19	47	57	104
20	50	54	104
21	69	35	104
22	50	54	104
23	62	42	104

$$\% \text{ of correct} = \frac{1167}{2394} \times 100\% = 49\%$$

$$\% \text{ of incorrect} = \frac{1225}{2392} \times 100\% = 51\%$$

Table 3: Anthropometric Indices of the Respondents

Bmi	Nutritional Status	Frequencies	Percentages
< 16.00	Severe Underweight	-	
16.00- 18.49	Underweight	25	24
18.50- 24.99	Normal weight	35	33
25.0-29.99	overweight	44	43
30.00-39.00	Obesity Grade II	-	
>40	Obesity Grade III	-	
Wais to Hip Circumference			
	Underweight	24	25
	Overweight	33	34
	Normal	43	35

Table 4: Mean Nutrient Intake of the Respondents

Nutrient	Mean intake
Energy (Kcal)	810±0.3
Protein (g)	34.03
Fat (g)	46±0.3

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