Knowledge, Attitudes and Practices of People with Type 2 Diabetes Mellitus in a Tertiary Health Care Centre, Umuahia, Nigeria

Odenigbo Marian A* and Inya-Osuu Joy

Department of Human Nutrition and Dietetics, Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria

Abstract

Background: Knowledge and practice of people living with Diabetes Mellitus (DM) play an important role in determining the success of the overall disease management.

Objective: This cross sectional study aimed to explore the level of knowledge, attitude and practice (KAP) of people with Diabetes Mellitus (DM) regarding their food consumption.

Methods: A total of 197diabetic patients attending a diabetic clinic in Nigeria successfully completed this study. A structured questionnaire was used for data collection.

Results: The subjects' ages were from 30 yrs and above. More than half of the subjects (52%) had tertiary education. Only 27% among this studied population had normal weight, 57% and 12.5% were overweight and obese respectively. KAP test showed that 57% had poor knowledge, while 56.6% and 51% had poor attitude and practices respectively. The relationship between KAP and nutritional status was not significant (P>0.05). This result indicated that the sub group with current normal BMI could consequently deteriorate in their nutritional status. Their food consumption pattern confirmed this poor KAP with irregular intake of fresh fruits and vegetable and restriction of starch staples on daily basis.

Conclusion: This study provided an insight that diabetic patients have poor knowledge on dietary management which influenced their attitude and food consumption practices despite their educational background. Therefore, there is urgent need for diabetes education programs to improved and prolonged life span of diabetics.

Keywords: Diabetes mellitus; KAP; Knowledge; Attitude; Practice; Food consumption

Introduction

Diabetes Mellitus (DM) is a chronic disease and an emerging epidemic of the 21st Century which threatens to overwhelm the healthcare system in the near future [1]. DM prevalence is estimated to rise further to 5.5% in 2025 [2]. However, poorly controlled diabetes mellitus leads to complications like kidneys, heart, brain, and eyes. It has been reported that non-compliance to both dietary and medical advices and poor follow-ups visits are among the causes of rise in DM complications [3]. The presence of complications consequently means more health care visitation and more financial implications. Increase in the cost for management of DM from 1998-2005 has been reported [4]. This high economic burden on patients can be alleviated if they are properly educated on DM and its dietary management.

It has been reported that patient's education is the most effective way to lessen the complications of diabetes and its management [5]. And the relevance of KAP has been emphasis by earlier studies who anticipated effective education and behavioral change when patients' characteristic in terms of knowledge, attitude and practices about diabetes are ascertained [6-8]. In DM management, unlike the treatment of acute illnesses, the most important choices affecting the health and well-being of people with diabetes are made by themselves and not by their physician or any other health professional [9].

Therefore, the understanding of food lifestyle among people with DM using KAP will influence overall DM management because nutrition education is likely to be more effective if we know the knowledge, attitude and practices of DM patients about their food consumption habits.

Materials and Methods

Subjects

The protocol for this descriptive cross-sectional study was approved by the ethical committee of Federal Medical Center, Umuahia, Abia State, Nigeria. A total of 200 diabetic patients from consecutive visit to the diabetic out - patient clinic, Federal Medical Center, Umuahia were recruited in the study which took place from June – September, 2011. However, only 197 respondents had completed data for this study analysis. The inclusion criteria were; formal diagnosis of type-2 DM, out-patients, ages from 30 years and above, DM management with diet alone or diet and oral hypoglycemic agents (OHA)/insulin and willingness to sign the consent form. Exclusion criteria were in-patients, gestational DM, type-1 DM.

Data collection

A structured questionnaire was designed, reviewed and validated before data collection for this study. The data on each part of the questionnaire was obtained by interview except anthropometry which was collected by measurement of the subjects' body weight and height.

Knowledge test

Data on Knowledge test was collected by asking the subject questions like what causes diabetes mellitus, should diabetics drink a lot of water etc. Score for correct answer was 2 marks; fair answer had 1 mark while wrong answer had 0 marks. Their level of knowledge was categorized as poor (0-7 marks), fair (8-12 marks) and good (13 and above marks).

Attitudes and practices

The attitude and practices were also determined using questions such as how often do you eat fruits and vegetables, do you consult a dietician concerning your food intake, how often do you eat starchy staples etc. Good attitude and practices had 13 and above marks, fair (8-12 marks) and poor (0-7 marks).

Nutritional status

Body Mass Index (BMI) classification according to WHO [10] was adopted; normal (18.50 - 24.99), overweight (25.00 - 29.99), obesity (30.00 and above). Height and body weight of each subject were measured by a standard procedure.

Statistical analysis

Data obtained from the questionnaires were analyzed using Statistical Package for Social Science (SPSS) version 15.0 packages. Chi square was used to determine the relationship between nutritional status and KAP (knowledge, attitude and practices) with a significant difference at 5% probability level.

Results and Discussions

The characteristics of the enrolled subjects were shown on Table 1. Majority of the respondents were male (52.5%) and 47.5% female. Their ages were from 30 years and above; 42.5% was between 51 and 60 years, while only 26.5% was more than 60 years and 5.5% was between 30-40 years. This finding agrees with an earlier report that majority of the people with diabetes in developing countries are within the productive age range of 45-64 years [11]. As a person advances in age from 45 and above, the risk of becoming diabetic is high because organs like the pancreas becomes weak and unable to produces or absorb sufficient insulin [12]. More than half of the subjects (52%) had tertiary education, while 9.5% and 6.5% had primary and no formal education respectively. Their occupations varied from civil service (39%), trading (33.5%), farming (5.5%), clergy (6.0%) and artisan (1.5%). Their level of literacy and occupation could be explained by the urban location of this study area which is the capital city.

Table 2 showed the subjects' nutritional status. Majority of these subjects (57%) were overweight and only 12.5% was obese. Normal weight was observed among 27% of the respondents whereas 1.5% was underweight. This finding is consistent with previous studies that reported presence of overweight and obesity as complications of DM [13,14].

More than half of the studied population (57%) had poor knowledge about the causes of diabetes mellitus, some stated that intake of plenty water causes DM. Only 7.5% had good scores, while 35.5% had fair score. Their attitude towards dietary management such adherence to dietary advice was also poor (56.6%). Only 12% had a good score for attitude toward dietary management. Majority (51%) of the subjects showed poor practice such as irregular visitation to their dietician/ doctor's appointment. Only 10% had good scores while 39% had fair score for practices.

These findings indicated that subjects' knowledge influenced their attitude which consequently affects their practices towards dietary intake [8]. However, this poor knowledge on dietary management was not influenced by their good educational background (Table 1). This is not consistent with the report of a previous studies which demonstrated that educational status improved background knowledge on DM [15,16]. Thus, great efforts by health personnel would be needed to boost the level of knowledge among diabetics in our society for improved attitude and dietary practices.

The relationship between KAP and the subjects' nutritional status (Table 4) showed that none of the obese and underweight subjects had good knowledge of dietary management while 66.7% of the underweight and 48% of the obese had poor knowledge. More than half of the subjects with normal nutritional status (55.6%) had moderate knowledge. However, this varied nutritional status was not significantly

Classifications	Variables	Frequency	Percent
Sex	Male	105	52.5
	Female	95	47.5
Age (years)	30-40 years	11	5.5
	41-50 years	49	24.5
	51-60 years	85	42.5
	>60 years	53	26.5
	No response	2	1.0
Educational Status	Non formal education	13	6.5
	Primary education	19	9.5
	Secondary education	62	31.0
	Tertiary education	104	52.0
	No response	2	1.0
Occupation	Civil/Public service	78	39.0
	Farming	31	15.5
	Business/Trading	67	33.5
	Clergy	12	6.0
	Not employed	2	1.0
	Artisan	3	1.5

Table 1: Characteristics of the subjects.

BMI values	Frequency	Percent
Underweight	3	1.5
Normal Weight	54	27.0
Over Weight	115	57.5
Obese	25	12.5
Missing Data	3	1.5
Total	200	100

Table 2: Nutritional status of the subjects.

	Frequency	Percent
Knowledge		
Good	15	7.5
Fair	113	35.5
Poor	69	57.0
Total	**197**	**100.0**
Attitude		
Good	21	12.0
Fair	63	31.5
Poor	113	56.5
Total	**197**	**100.0**
Practices		
Good	20	10.0
Fair	77	39.0
Poor	100	51.0
Total	**197**	**100.0**

Table 3: Scores on knowledge, attitude and practices test.

KAP	Nutritional Status				F-Value	P-Value
	Underweight	Normal	Overweight	Obese		
Knowledge						
Good	0 (0.0)	4 (7.4)	11 (9.6)	0 (0.0)		
Moderate	1 (33.3)	30 (55.6)	69 (60.0)	13 (52.0)		
Poor	2 (66.7)	20 (37.0)	35 (30.4)	12 (48.0)	0.410	P>0.05
Attitude						
Good	0 (0.0)	7 (13.0)	11 (9.6)	3 (12.0)		
Moderate	0(0.0)	16 (29.6)	39 (33.9)	8 (32.0)		
Poor	3 (100.0)	31 (57.4)	65 (56.5)	14 (56.0)	0.819	P>0.05
Practices						
Good	1 (33.3)	5 (9.3)	10 (8.7)	4 (16.0)		
Moderate	0 (0.0)	21 (38.9)	48 (41.7)	8 (32.0)		
Poor	2 (66.7)	28 (51.9)	57 (49.6)	13 (32.0)	0.594	P>0.05

Table 4: Comparison of nutritional status and KAP among the subjects.

Food Items	<2 times/week (%)	2-3 times/week (%)	>3 times/week (%)
Cassava meal	99	1	-
Yam dishes	98	5	0.5
Cocoyam dishes	58.5	41	8.5
Plantain dishes	93.0	33.5	43.5
Maize dishes	90.57	18.5	7
Wheat meal	16.7	41.7	41.7
Oat Meal	55	21	24
Irish Potatoes	34	53.5	12.5
Sweet Potatoes	89.9	6.5	3.5
Rice dishes	91	3.5	5.5
Cowpea dishes	42	63	23
Soya bean	29.5	48.0	22.5
Breadfruits	19	60	21
Fresh fruits	88.5	18	9.5
Vegetables	52.5	46.5	44.5

Table 5: Food consumption pattern of the subjects.

influenced by their knowledge (P>0.05). Their attitude toward dietary management was generally poor among the underweight subjects (100%), while more than half of the obese, overweight and subjects with normal nutritional status also demonstrated poor attitude. Majority of the underweight (66.7%), normal (51.9%), overweight (49.6%) and obese (32%) subjects had poor practices toward DM management. The relationship between the subjects' nutritional status and their KAP was not statistically different (P>0.05).

This finding highlights the need of an urgent nutrition education in diabetic clinics to educate patients about healthy eating which would lead to better preventive and management techniques in DM. This is because up to 51.9% subjects who had normal nutritional status portrayed poor practices toward dietary management that implies nutritional status deterioration in future if food intake practices is not improved.

Table 5 showed that most starchy staples were mainly consumed less than twice per week with the exception of plantain dishes (43.5%) and wheat meal (41.7%) that had high frequency consumption for more than 3 times per week. Legumes such as cowpea (48.5%), soya (48%), moi-moi (63%), and breadfruit (60%) were mainly consumed 2-3 times per week. Fresh fruits such as apple, orange, banana were not consumed regularly on daily basis by 88.5%, rather they were consumed less than twice per week. More than half of these subjects (52.5%) do not consume vegetable on daily basis(less than 2 times a week). This demonstrated poor food intake pattern, explained their poor scores on KAP test (Table 3). Nevertheless, 46% reported they consumed vegetables in their meals between 2-3 times per week while 44.5% consumed vegetables more than 3 times per week. However, these were below the recommended five or more daily servings for vegetables and fruits [17].

Conclusion

This study revealed that people with diabetes mellitus in an urban area of Abia state, Nigeria had poor knowledge, attitude and practices towards DM and dietary management. Though this studied population had good educational background, their food consumption pattern was irregular in fresh fruits and vegetables intake as well as restriction of starch staples. Therefore, this calls for an urgent diabetes education programs to improve overall wellbeing and prolong life span of people suffering from DM.

References

1. Zimmet P, Alberti K, Shaw J (2001) Global and societal implications of the diabetes epidemic. Nature 414: 782-787.

2. King H, Aubert RE, Herman WH (1998) Global burden of diabetes, 1995-2025: prevalence, numerical estimates, and projections. Diabetes care 21: 1414-1431.

3. Testa MA, Simonson DC (1998) Health economic benefits and quality of life during improved glycemic control in patients with type 2 diabetes mellitus. JAMA 280: 1490-1496.

4. Ramachandran A, Ramachandran S, Snehalatha C, Augustine C, Murugesan N, et al. (2007) Increasing expenditure on health care incurred by diabetic subjects in a developing country: a study from india. Diabetes care 30: 252-256.

5. Mazzuca SA, Moorman NH, Wheeler ML, Norton JA, Fineberg NS, et al. (1986) The diabetes education study: a controlled trial of the effects of diabetes patient education. Diabetes care 9: 1-10.

6. Shah VN, Kamdar PK, Shah N (2009) Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. Inter J Diabetes Dev Ctries 29: 118-122.

7. Saadia Z, Rushdi S, Alsheha M, Saeed H, Rajab M (2010) A Study Of Knowledge Attitude And Practices Of Saudi Women Towards Diabetes Mellitus. A (KAP) Study In Al-Qassim Region. The Internet Journal of Health 11.

8. Ardena GJRA, Paz-Pacheco E, Jimeno CA, Lantion-Ang FL, Paterno E, et al. (2010) Knowledge, attitudes and practices of persons with type 2 diabetes in a rural community: phase I of the community-based Diabetes Self-Management Education (DSME) Program in San Juan, Batangas, Philippines. Diabetes Res Clin Pract 90: 160-166.

9. Anderson RM, Funnell MM, Fitzgerald JT, Marrero DG (2000) The Diabetes Empowerment Scale: a measure of psychosocial self-efficacy. Diabetes care 23: 739-743.

10. (2008) Organization WHO: BMI classification 1.

11. Fourlanos S, Varney MD, Tait BD, Morahan G, Honeyman MC, et al. (2008) The rising incidence of type 1 diabetes is accounted for by cases with lower-risk human leukocyte antigen genotypes. Diabetes care 31: 1546-1549.

12. Franz MJ, Bantle JP, Beebe CA, Brunzell JD, Chiasson JL, et al. (2002) Evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. Diabetes care 25: 148-198.

13. Astrup A, Finer N (2000) Redefining type 2 diabetes:'diabesity'or 'obesity dependent diabetes mellitus'? Obes Rev 1: 57-59.

14. Nadler ST, Stoehr JP, Schueler KL, Tanimoto G, Yandell BS, et al. (2000) The expression of adipogenic genes is decreased in obesity and diabetes mellitus. Proc Natl Acad Sci U S A 97: 11371-11376.

15. Nilsson P, Johansson SE, Sundquist J (1998) Low educational status is a risk factor for mortality among diabetic people. Diabet Med 15: 213-219.

16. Baradaran H, Knill-Jones R (2004) Assessing the knowledge, attitudes and understanding of type 2 diabetes amongst ethnic groups in Glasgow, Scotland. Practical Diabetes International 21: 143-148.

17. Thompson FE, Kipnis V, Subar AF, Krebs-Smith SM, Kahle LL, et al. (2000) Evaluation of 2 brief instruments and a food-frequency questionnaire to estimate daily number of servings of fruit and vegetables. Am J Clin Nutr 71: 1503-1510.