



Nutrition Management of Type 2 Diabetes Mellitus among Adult Male Patients in Selected Hospitals in Anambra State

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Abstract

The study identified Nutrition Management of Type 2 Diabetes Mellitus among Adult male patients in selected Hospitals in Anambra state, Nigeria. Specifically, the study assessed the perceived causes of Type 2 Diabetes mellitus, awareness of the importance of proper nutrition for the management of diabetes mellitus and the challenges and benefits of adopting proper nutrition. The research adopted a survey research design. One hundred and fifty diabetic patients were selected from three government hospitals by simple random sampling. A structured questionnaire with 25 identified items was used for data collection. The instrument was validated by three experts. Data collected were analyzed using the simple percentage method. Results show that perceived causes of type 2 diabetes include; too much consumption of confectioneries (70.3%), eating too much starchy food (62.5%), and refined foods (51.6%), and it is usually inherited (54.7%). More than half (66.75) of the respondents knew about proper nutrition from dietitians/nutritionists, 26.7% got to know from a doctor while a few (6.6%) got to know from nurses. (40%) of the respondents stated that they believe prayer can heal them, 38.6% stated that the foods are costly, 36.6% said that they don't have time to prepare food, while 33.3% stated that the kind job can be a hindrance, 30.6% respondents don't like the way the foods are being prepared, while 29.3% stated that they don't know about the proper nutrition, 26% of the respondents stated that the food is not always available, 25.4% said that don't like some of the foods, while 20.6% stated that culture forbids most of the foods, it is difficult to maintain, 20.0% complained that some of them are seasonal and cannot be easily preserved. The findings of the study revealed that proper nutrition has been very helpful for those patients who practice it. It is recommended that family members should pay attention to the proper nutrition of the adult male that is suffering from type 2 diabetes mellitus to ensure adequate nutrient intake. The study, therefore, concluded that for an adult male to live long, he requires to manage his condition with proper nutrition.

Key Words: Nutrition Management, Type 2 Diabetes Mellitus, Adult Male,

Introduction

Scientific evidence abounds to show that the prevalence of diabetes mellitus is increasing around the world at a rate that appears dramatic as to have been characterized as an epidemic (San Diego, 2013). According to Adams (2017), diabetes mellitus is a metabolic disorder in which the ability to utilize the primary fuel (glucose) is more or less lost, thus affecting the metabolism of other energy nutrients; fat and proteins. Glucose accumulates in the blood and is lost in the urine, causing excessive urination, thirst and hunger, and, over time, multiple system complications. There are several forms of diabetes mellitus, all characterized by a failure to maintain the concentration of blood glucose within the normal range. The most prevalent type of diabetes is type 2 known as non-insulin dependent diabetes mellitus (NIDDM) and occurs when the body fails to respond to insulin in the normal way.

Globally, an estimated 422 million adults were living with diabetes in 2014, compared to 108 million in 1980. The global prevalence (age-standardized) of diabetes has nearly doubled since 1980, rising from 4.7% to 8.5% in the adult population. The number of cases of diabetes is currently estimated to be around 150 million worldwide, and that number is expected to double by 2025. According to WHO (2021), diabetes caused 1.5 million deaths in 2012; higher-than-optimal blood glucose caused an additional 2.2 million deaths, by increasing the risks of cardiovascular and other diseases; forty-three cent of these 3.7 million deaths occur nearly entirely among adults less than 65 years of age (WHO, 2021).

Over the past decade, diabetes prevalence has risen faster in low- and middle-income countries than in high-income countries. Unfortunately, in many of the lower-income societies, there is a lack of effective policies to create supportive environments for healthy lifestyles and a lack of access to quality health care. As a result, the prevention and treatment of diabetes, particularly for people of modest means, are not being pursued (World Health Organization [WHO], 2021).

When diabetes is uncontrolled, it has severe consequences for health and well-being. Diabetes can lead to serious complications including blindness, kidney failure, heart disease, and strokes (Eze & Njoku, 2018). Globally, the associated complications with their corresponding morbidity and mortality rates have been reported by Oliveria (2016) as follows: neuropathy (36.2%), nephropathy (24.4%), retinopathy (20.2%), macrovascular (10.0%) and microvascular (9.2%). In addition, diabetes and its complications impact harshly on the finances of individuals and their families, and the economies of nations. People with diabetes who depend on life-saving insulin, pay the ultimate price when access to affordable insulin is lacking. To address this growing health challenge, world leaders have since early this decade committed to reducing the burden of diabetes as one of four priority non-communicable diseases (NCDs) WHO (2021). As part of the 2030 agenda for sustainable development, member states have set an ambitious target to reduce premature mortality from NCDs including diabetes, by one-third, achieve universal health coverage, and provide access to

affordable essential medicines (WHO, 2021).

Among several factors that have been found to contribute to the diabetes mellitus epidemic, environmental factors have drawn particular attention because of the rapidity of the increase in type 2 or the so-called 'maturity-onset diabetes mellitus (Seike et al., 2019). Type II diabetes mellitus is closely related to lifestyle factors including diet, physical activities, alcohol and smoking as well as obesity and a family history of diabetes (Mahler, 2016). Type II diabetes mellitus often goes hand in hand with being overweight (Garrow et al., 2017). Sedentary lifestyles also increase the risk of type 2 diabetes, especially with the presence of excess abdominal fat. Eze and Njoku (2018) noted that consumption of saturated fats may increase the risk of developing type 2 diabetes as opposed to the consumption of sufficient fibre from fruits, vegetables, and whole grain cereals.

Most men with diabetes mellitus have no idea of how to manage their illness effectively. They have various perceptions about the causes of diabetes. Some attribute diabetes mellitus to witchcraft, hereditary, diets and so on. While others are ignorant of the causes of diabetes mellitus and this ignorance about their illness results in mismanagement which may ultimately lead to death. Living with diabetes mellitus requires knowledge and effective management (Uddin et al., 2011). Management of diabetes involves measuring and recording blood glucose levels, eating an adequate diet and involving in regular exercise (Walker, 2015), in addition, to the strong cooperation between patients and doctors. Doctors, Nurses and

Dieticians/Nutritionists are essential in the successful management of diabetes mellitus. Often, the primary health care doctor makes the initial diagnosis of diabetes and provides the basic information to the patient on the management programme using drugs then a dietician/nutritionist helps the patients with the proper diet to manage the disease.

Diabetes mellitus remains a universal and significant health problem, despite enormous research undertakings. Its management requires a multidisciplinary healthcare approach, which includes a combination of diet, insulin therapy, exercise and behaviour modification, to ensure long-term results (Fadupin et al., 2014). In the case of type 2 diabetes, nutritional adjustments are important in preventing and managing the disease. The relationship between nutrition and health cannot be over-emphasized. Good nutrition enhances the body's immunity against diseases. This reflects an increase in associated risk factors such as being overweight or obese.

Diabetes mellitus is a serious and life-deteriorating disease whose causes are strongly correlated with nutritional habits and practices. Many men in present-day Nigeria including Anambra state might be at risk of diabetes mellitus as a result of changes in diet and dietary pattern, and lifestyle. A lot of men work away from home and as a result, depending on food vendors, restaurants and refined meals to satisfy their hunger. This may affect their nutrient intake and could interact with other lifestyle practices to predispose them to the risk of type 2 diabetes. The researcher, therefore, wishes to investigate the

usefulness of nutrition in the management of type 2 diabetes mellitus.

Purpose of the Study

The main purpose of this study is to analyze the role of nutrition in the management of diabetes mellitus in adult males. Specifically, the study determined the;

1. perceived causes of diabetes mellitus;
2. awareness of the importance of proper nutrition for the management of diabetes mellitus, and
3. challenges and benefits of adopting proper nutrition

Methodology

Design of the study: This study adopted a survey research design.

Population for the study: The population for this study was one hundred and fifty-two (150) men. This comprised sixty-five (65) diabetic outpatients visiting NAUTH Nnewi, forty-five (45) diabetic patients visiting General Hospital Onitsha and forty (40) diabetic patients visiting General Hospital Amaku Awka (Sources: Hospital Administrative Director (D, A) Hospitals statistics and Records).

Sample for the study: All 150 patients diagnosed with type 2 diabetes were used for the study as the number was manageable.

The instrument for Data Collection: A structured questionnaire was used to elicit information from adult male patients. The questionnaire was divided into three sections, section one sought data on the perceived causes of diabetes mellitus, section two contained items on awareness of the importance of proper nutrition for the management of diabetes mellitus and section 3 obtained data on

the challenges and benefits of adopting proper nutrition. Sections one and three used frequency and percentage rating scales while section 2 used the 'Yes' and 'No' rating scales.

Validation and reliability test: Three experts from Home Economics and Hospitality Management Education validated the instrument. The instrument was subjected to trial testing in two private hospitals in the area of the study to test its reliability of the instrument. A Cronbach alpha value of 0.82 was obtained, hence, this indicated that the instrument was reliable.

Ethical Clearance and informed consent:

Ethical approval for the study was obtained from the chief medical directors of the hospitals. Informed consent was obtained from the patients using a form. The researcher explained to the participants the purpose of the study and the confidentiality of the data obtained before they signed the form.

Method of Data Collection: One hundred and fifty (150) copies of the questionnaire were distributed to adult male patients with type 2 diabetes by 3 research assistants. Efforts were made to ensure that the items were filled correctly without omitting any needed information. One hundred and fifty (150) of the distributed questionnaires were returned.

Data and Statistical Analysis: Information obtained from the questionnaire were coded and analyzed using the computer software, statistical product and service solution (IBM-SPSS) for windows, version 20. The data obtained from the questionnaire were analysed using frequency and percentages. All responses that had up to 50% response were accepted as a factor.

Results

Perceived causes of type 2 diabetes mellitus

In table 1 below, a greater proportion of the respondents perceived the causes of type 2 diabetes mellitus to include; consuming too much confectioneries (70.3%), eating too many starchy foods

(62.5%), too much glucose from the liver (56.8%), diabetes is usually inherited (54.7%), comorbid of hypertension (53.1%), and eating refined food (51.6%). Other lesser perceived causes are physical inactivity (46.9%) and obesity (41.1%).

Table 1: Perceived causes of type 2 diabetes mellitus

Causes of type 2 diabetes	Frequency	Percentage
It is usually inherited	105	54.7%
Taking soft drinks daily can cause the disease	25	13.0%
Too much glucose from the liver	109	56.8%
It is common for those to eat starchy food	120	62.5%
Smoking can cause type 2 diabetes	30	15.6%
It is common for an adult male to eat refined foods	99	51.6%
Common in those with hypertension	102	53.0%
It is associated with inactivity	90	46.9%
Too much consumption of confectioneries can cause the disease	135	70.3%
It can be caused by overweight	50	26.0%
Obesity can lead to type 2 diabetes	79	41.1%
Intake of too many alcoholic drinks can cause diabetes	30	15.6%

Awareness of the importance of proper nutrition in the management of diabetes mellitus

In Table 2, it was observed that all the respondents are aware of the importance of proper diet for the management of diabetes mellitus. Data showed that the

majority (66.7%) of the respondents get to know about the importance of proper nutrition in the management of diabetes mellitus from dietitians/nutritionists, 26.7% from the doctor and a few (6.6%) got to know from nurses.

Table 2: Percentage Responses of the respondents on awareness of the importance of proper nutrition for the management of diabetes mellitus

Items	Yes F (%)	No F (%)	Total
Are you aware of the importance of proper diet for the management of type 2 diabetes mellitus	150 (100)	0 (0)	150 (100)
Sources of information			
From my doctor	40 (26.7)	110 (73.3)	150 (100)
From Dietitian/Nutritionist	100 (66.7)	50 (33.3)	150 (100)
From Nurses	10 (6.6)	140 (93.4)	150 (100)
Through mass media	0 (0)	150 (100)	150 (100)
From friends /relations	0 (0)	150 (100)	150 (100)
Through workshop/campaign	0 (0)	150 (100)	150 (100)

Challenges and benefits of adopting proper nutrition for the management of diabetes mellitus

As observed from Table 3, more than half of the respondents did not consider it challenging to adopt the nutritional management of diabetes. Less than half (40%) of the respondents stated that they believe prayer can heal them, 38.6 % stated that the foods are costly, 36.6% said that they don't have time to prepare food, while 33.3% stated that the kind of job can be a hindrance, 30.6% respondents don't like the way the foods

are being prepared, while 29.3% stated that they don't know about the proper nutrition, 26% of the respondents stated that the food is not always available, 25.4% said that don't like some of the foods, while 20.6% stated that culture forbids most of the foods, it is difficult to maintain, 20.0% complained that some of them are seasonal and cannot be easily preserved. It is also observed that the practice of proper nutrition is very helpful by a high percentage of the respondents (83.3%), while moderately helpful is slightly above 16%.

Table 3: Percentage Responses of the respondents on challenges and benefits of adopting proper nutrition for the management of diabetes mellitus

Items	Frequency	Percentage (%)
Challenges		
The foods are costly	58	38.6
They believe prayer can heal them	60	40.0
The foods are not always available	40	26.0
They don't have time to prepare the food	55	36.6
The kind of job can be a hindrance	50	33.3
Culture forbids most the foods	30	20.6
They don't think it is necessary	29	19.3
It is difficult to maintain	31	20.6
They don't like some of the foods	38	25.4
Some of the foods are seasonal and cannot be easily preserved	30	20.0
They were not properly advised	40	26.6
They don't like the way the food is being prepared	46	30.6
How beneficial is the information about nutritional management of diabetes?		
Not beneficial	0	0
Moderately helpful	20	16.7
Very much helpful	100	83.3

Discussion

The findings of this study showed that the perceived causes of diabetes mellitus among the respondents were too much consumption of confectioneries and starchy foods, glucose from the liver, genetics, comorbid of hypertension, and eating refined foods. Carbohydrate metabolism develops type 2 diabetes which occurs when the body can not properly use the insulin it makes. When one consumes carbohydrates, the digestive system breaks down the digestible ones into sugar, which enters the blood. As the blood sugar levels rise, the pancreas produces insulin, a hormone that prompts cells to absorb blood sugar for energy or storage. This is in line with the findings of Ukegbu et al. (2013). Olatona et al. (2019) also observed that consumption of alcohol, processed cereals and obesity were linked to type 2 diabetes. Asiimwe et al. (2020) also confirmed that high blood pressure (hypertension), high body mass index (overweight and obese), smoking, alcoholism, and family history were significantly related to being diabetic. This study also found that the presence of a family history of diabetes, being overweight and being obese and ill feeding by adult males increase the chances of acquiring type 2 diabetes.

The finding of this study also showed that all the respondents are aware of the importance of proper nutrition in the management of diabetes mellitus. The majority of them got the information from dieticians and nutritionists; some were informed by doctors while a few got the information from nurses. There is widespread awareness of diabetes mellitus among adult males due to adequate awareness education among health workers. This is in line with the observation of Kiren et al. (2017) which showed that the majority of the participants heard about adequate diet for diabetic patients and its importance in managing diabetes mellitus.

A further finding of the study showed that the majority of the respondents did not find it challenging to follow the proper nutritional guidelines for managing diabetes. Hence most of them found that adopting the recommended diet was beneficial to them. However, some of them reported that they preferred to handle their problems through prayers. This is because of the belief pattern of the average African where he sees everything from a spiritual point of view, and as such might be unwilling to explore other non-spiritual remedies. Others stated that the recommended foods were usually costly and some did not have the time to prepare the special meals as a result of their job demands. Some of these men could not afford the special diets. Some others did not like special foods or the way they are being prepared since they are not used to such meals. This is in agreement with (Jessica et al., 2020) who stated that the foods environment limited participants' access to healthy foods, understanding of diabetes and communication with clinicians about healthy eating was limited, the stress in large part from poverty, were seen as factors for both poor eating and diabetes.

Conclusion

Diabetes mellitus is one of the major health problems of an adult male which often results in morbidity and mortality from complications. Perceived causes of type 2 diabetes include too much consumption of confectioneries and starchy foods, glucose from the liver, genetics, a co-morbid of hypertension, and eating refined foods. All the respondents were properly informed of the importance of proper nutrition in the management of diabetes mellitus, by nutritionists, doctors and nurses. A good number of them also adhere to proper nutrition which they find beneficial to their health. However, some of them could not adopt adequate nutritional management as a

result of religious beliefs, insufficient time to prepare the meals as well as dislike and lack of money to buy the recommended foods.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Improvement and advancement of education programs on media are emphasized to sensitize the public about the burden and complications of type 2 diabetes should be emphasized.
2. The government (Ministry of Health) should design and implement a strategy for early diagnosis and an appropriate population-based nutrition management programme which should be a public health and economic priority.
3. The government (Ministry of Health) should enlighten diabetic patients on the risk factors of diabetes mellitus and its nutritional management, especially in hypertension, high BMI and faulty eating habits should be mounted.

References

Adams, T.D., Gress, R.E. & Smith, S.C. (2017). Long-term mortality after gastric bypass surgery. *Journal of Medicine*.10(61),75-87.

Asiimwe, D., Godfrey, O.M., & Kiconco, R. (2020). Prevalence and risk factors associated. *American Diabetes Association (ADA)*. 42(5), 13-28.

Azizi, A.I., Aghaee, G.H., Ebrahmi, T.U.& Ranjbar, B.J. (2011). Nutrition knowledge, the attitude and practices of college students. *Journal of Physical Education and Sport*, 9(3), 349-357

Brekke, H.K.& Luduiqsson, J. (2009). Daily vegetable intake during pregnancy negatively associated to islet autoimmunity in the offspring: the ABIS study. *Pediatric Diabetes*, 4 (50), 244.

Ejike, C.E., Uka, N.K., & Nwachukwu, S.O. (2015). Diabetes and pre-diabetes in adult Nigeria: Prevalence, and correlation of blood glucose concentrates with measures of obesity. *African Journal of Biochemisry Research*,

9 (3), 55-60.
<https://doi.org/10.5897/AJBR2015.0817>

Eze, N.M. & Njoku, H.A. (2018). *Foods and nutrition today: Understanding nutrition for students in tertiary institution*. Grand - heritage global communication.

Fadupin, B.S., Wade, R.C. & Goyder, J.N. (2014). *Type 2 Diabetes*.
<http://www.perio.org/type/mbc.diabetes.html>.

Garrow, R.B., Rubino, B. S., Correa, L.P. & Piriheiro, M.C. (2017). *Management of Diabetes mellitus in the elderly*. Annabelle Rodriguez Publishers.

Jessica, Y.B. (2020). Challenges to healthy eating for people with diabetes in - income, minority neighbourhood. *Diabetes care* ncbi.nlm.nih.gov

Kiren, J. Vinshnu, P. and Gayathri, R. (2017).Awareness of Balanced diet among diabetes patients. *Journal of Pharmaceutical Science and Research*,9 (2), 245-247

Lavoiser, C. E. (2013). *Nutrition*. Harcourt College Publishers.

Mahler, S. R. (2016). Lack of Insulin in the management of type 1 diabetes: A search for solution. *USA Journal of Diabetes Mellitus*,14, (1), 67-78.

Olaton, F.A., Airede, C.A., Aderibigbe, S.A., & Osibogun, A. (2019). Nutritioanl knowledge, dietary habits and nutritional status of diabetes patients attending teaching hospital in Lagos, *Nigeria Journal of Community, Medicine and Primary Health Care*, 31(2), 90-103.

Oliveria, M.C. (2016). *Morbidity and mortality rates in diabetes mellitus*. Nishio publishers Ltd.

Osuafor, T.O. (2018). *Problems of diabetes patients*. Delta publications.

San, D. (2013). *Diabetes Treatment: Scripps Health*.
<https://www.diabetes.org>

Uddin, B.K., Horio, N.M., & Ohtsuru, A.M. (2011). Improve glucose tolerance of experimental diatetic patient". *American Journal of Nutrition Science and Diabetes*, 3(4), 33-44.

Ukegbu, A.U., Madukwe, O.O, Onyeonon, U.U., Chukwuonye, T.I., Akhiemien, M. & Ogah, O. (2013). Food consumption pattern of adult population in Abia state East Nigeria. *Journal of Community Nutrition and Health*, 2 (1). 84-91.

- Walker, D.M. (2015). Similarities determination and case in an intelligent decision support system for diabetes management. <http://etd.ohiolink.edu/send-pdf.cgi>.
- WHO. (2021). WHO Nutrition for older persons. <https://www.who.int/nutrition/healthinfo/topic/diabetes/index1.html>