

Full Length Research Paper

Knowledge of diabetes management and control by diabetic patients at Federal Medical Center Umuahia Abia State, Nigeria

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This survey was undertaken to assess knowledge of diabetes management and control techniques on diabetic patients attending Federal Medical Center, Umuahia and Abia States, Nigeria. A descriptive research design was used for the study and a sample of 96 patients was used. The instrument used for data collection was the questionnaire. The data were analyzed using percentages. The major findings showed that 80.2% knew what diabetes is, its signs and symptoms and complications. However, over 75.0% of the subjects did not know the major causes of diabetes. On knowledge of management of diabetes, 88.5 and 74.0% did not know how to avoid complications and prevent/control diabetes respectively. More than two-thirds of the respondents did not know how to take care of themselves in terms of testing their urine and types of food to eat. Majority of them stated that they did not receive any organized education/counseling on diabetes; rather, the health care providers were regimentally prescribing appropriate nutritional and pharmacological treatment for them. It is recommended therefore, that a well-organized and equipped diabetic clinic be established and an educational and counseling programme conducted by nurses once a week to improve the patients' self-care measures in management of diabetes.

Key words: Diabetes, diabetes knowledge and control, health education, self-care management.

INTRODUCTION

Diabetes is one of the chronic diseases that affect both the young and old in our society. According to World Health Organization (2006), at least 171 million people worldwide suffer from diabetes and it is more prevalent in developed countries. According to American Diabetes Association (2006), there were about 20.8 million people with diabetes in United States alone, while in developing countries, increase in prevalence is expected to occur especially in Africa, where most patients will likely be found by 2030. This increase in incidence of diabetes in developing countries follows the trend of urbanization and lifestyle changes perhaps most importantly a "Western – Style" diet (World Health Organization, 2006).

In Nigeria though no estimate of the individuals suffering from diabetes has been made, in a recent screening

exercise carried out in Warri and Sapele where 787 people attended, 65% were diabetic and hyper-tensive (Urhobo National Association of North America, 2004). Also at University of Nigeria Teaching Hospital Enugu the number of patients that attend Wednesday diabetic clinic is alarming.

Diabetes is characterized by a disorder in metabolism of carbohydrate and subsequent derangement of fat and protein metabolism. Disturbance in production and action of insulin, a hormone secreted by the islets of langerhans in the pancreas is implicated in the disease (Shafer, 2000). In addition to insulin, aging, over weight and several other hormones affect blood glucose level there-by preventing glucose from entering the cells (Clavell, 2005). This leads to hyperglycemia, which may result in acute and chronic complications such as diabetic keto-acidosis, coronary artery disease, cerebrovascular disease, kidney and eye diseases, disorders of the nerves and others (Iwueze, 2007).

The management of diabetes poses a challenge to the

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medical and nursing staff as well as to the patients themselves. Since diabetes is a chronic disease, most diabetic patients need to continue their treatment for the rest of their lives. The emphasis is usually therefore, on the control of the condition through a tight schedule of blood glucose and urine sugar monitoring, medication and adjustment to dietary modification (American Diabetes Association, 2003; Iwueze, 2007). Such a chronic condition requires competent self-care, which can be developed from a thorough understanding of the disease process and the management challenges by the patient and family members. This pre-supposes a need for some form of diabetes education and counseling for the patient and family members. According to Colbert (2007) educating and supporting diabetic patients in managing their daily lives are important goals of diabetic patients care today.

Unfortunately, about a third of the people suffering from diabetes may not be aware of it early considering the insidious onset and development (Iwueze, 2007). Regrettably too, many who are diagnosed with the condition demonstrate fears about the future and a general distaste because of the predominant misconceptions about the disease and its management distaste because of the predominant. This is heightened by the superstitious explanation of causation of diseases dominant in Africa where most diseases are caused by "poison" and/or "evil spirits". Some of these problems highlighted can be taken care of if patients and indeed the general public are exposed to diabetes education (Iwueze, 2007).

Problem statement

Today's nurse is faced with challenges of providing high-quality evidence-based care to clients/patients in traditional as well as new innovative health care settings for both acute and chronic illnesses. Diabetes being a chronic illness requires sound knowledge of self-care by sufferers so that they can contribute meaningfully in the management of their lives (Iwueze, 2007).

A situation where diabetic patients visit clinics regularly and their blood glucose levels still remain high despite the treatment they receive is a problem that calls for attention. This is a very common observation in many diabetic patients (Iwueze, 2007). Sometimes, slight symptoms that these patients could take care of at home bring them back to the hospitals for medical checks. A good number of them, however, report to the hospital with severe complications, like gangrene that may lead to amputation and possible premature death, without any knowledge of the relationship between diabetes and gangrene (John, 2007).

The questions that readily come to mind are; what do these diabetic patients know about the diabetic process? What do they know about the management and control of diabetes? Do they know about self-care? (that is, their

own responsibilities in the management/control). Is there any organized counseling sessions for these patients by health care providers in the hospital? Answers to these questions prompted the researchers to carry out this study. Hence the purpose of the study was to assess the patient's knowledge about diabetes, its management and control.

The specific objectives of this study

1. Determine the patients' knowledge about diabetes mellitus.
2. Determine the patients' knowledge about diabetes management and control measures.
3. Determine patients' knowledge of self-care in diabetes management and control.
4. Identify health information received by the patients from the health care providers.

Operational definitions

Knowledge of diabetes

This involves the understanding of what diabetes is by the diabetic patients as shown by their answers to specific knowledge questions on diabetes. Knowledge of diabetes management: This involves understanding of the care given to the diabetic patients such as nutrition, exercise, self-monitoring and drug therapy, etc.

Knowledge of self-care

This involves the diabetic patients understanding of how to take care of themselves, in terms of the standard management; healthy diet, self monitoring, administration of insulin or oral drugs, care of the feet, nails and personal hygiene.

Nature of information received

The kind of teaching-/counseling the diabetic patients received from the health care providers such as; causes, signs and symptoms, self-care activities and prevention of complications of diabetes.

RESEARCH METHODS

A descriptive research design was used to conduct the study. This approach was considered appropriate, since little was known about what the patients already know about diabetes, its management/control and self-care. It was intended that through the descriptive approach, data would be collected with the view of unveiling the needed information, as the purpose of the study is to reveal current knowledge of the subjects.

Population and sample

The population of study was all the diabetic patients who attended the diabetic clinic at the Federal Medical Centre Umuahia during the time of study, totaling 96. They comprised of 72 females and 24 males. Since the entire population was used, there was no sampling.

Data collection

The instrument used for data collection was the questionnaire, which also served as interview guide for illiterate subjects. It consisted of 19 open and close ended questions arranged in three sections as follows: The first section "A" contained 5 questions used to collect the demographic data such as age, sex, marital status, educational status and occupation.

The second section "B" consisted of 7 questions to elicit information on the knowledge of diabetes process and management/control techniques by the diabetic patients (self care). The last section "C" contained 7 questions which dealt with self-monitoring of urine and kinds of foods eaten by the subjects. It also assessed the type of information they received and the health workers that provided them with the information.

Four research assistants were trained; one nursing officer from the Federal Medical Center (FMC) diabetic clinic and three final year student nurses from School of Nursing, Amachara and Umuahia. These assistants understood and spoke the native languages of the patients. They were trained on the purpose of the study and the process of administering the questionnaire to avoid bias. The literate subjects completed the questionnaires independently, while the questions were read out and interpreted for the illiterate respondents and their responses were recorded. Data collection exercise lasted 28 days.

Validity of instrument

The content of the questionnaire was obtained from recent literature on diabetes knowledge and self-management (Iwueze, 2007). Further information was gathered from discussions with nurses working at diabetic clinics, health educators as well as the authors' personal experiences gained while teaching nursing students both in the class and the clinical setting. Five Nigerian registered nurses assessed the face validity of the instrument. These included three working in the diabetic out patient clinic of the hospital and two lecturing in the Department of Nursing Sciences, University of Nigeria Enugu Campus.

They were asked to comment on the content and the appropriateness and clarity of questions. The questionnaire was then revised to accommodate their comments. A pilot study was conducted at another hospital in Umuahia which was chosen because it is similar and shared resources with the hospital where this study was conducted.

The corrected questionnaire was pilot tested on ten patients possessing similar characteristics to those used for the major study. Areas of ambiguity and misconceptions were identified and corrected before final administration to the study subjects.

Reliability of instrument

A test re-test method was used to assess for the reliability of the data-collecting instrument. The 19-item questionnaire was administered to 10 diabetic patients with comparable characteristics at Federal Medical Center Owerri at two weeks intervals. The data was computed using Pearson's product moment correlation coefficient method and the test yielded 0.89 at 0.5 level of significance

Table 1. Responses on what diabetes is; n = 96.

Option	Frequency	Percentage
Sugar disease	77	80.2
Bone disease	0	0
Fat disease	2	2.1
Blood disease	11	11.5
Do not know	6	6.25

($r = 0.89$).

Ethical considerations

In order to conform to the ethical and legal standards of a scientific investigation, the relevant authorities of the Federal Medical Center, Umuahia, scrutinized the proposal and permission was granted for the study to be conducted. The patients had a thorough explanation of the study and voluntarily agreed to participate in the study.

Data analysis

Data were analyzed using Statistical Package for Social Sciences (SPSS) windows 11.0 version and were presented in tables.

RESULTS

The findings showed that many of the patients (65%) were in the age range of 50 years or more and 4% were in the age range of 30 - 39 years old. 76.2% were females whereas 23.8% were males. They were mostly married (94%) and majority (79%) were literate. 83% of the respondents were civil servants while 7% were traders. As shown in Table 1, majority of the subjects (80.2 %) knew what diabetes is in terms of knowing that it is a sugar disease while only 6.25% did not know what diabetes is. Table 2 showed that most of the respondents (78.1%) stated that diabetes was caused by poison while only 14.6% had knowledge of the main cause of diabetes- lack of insulin. According to Table 3, majority of the subjects (88.5%) stated that avoiding starchy foods is a self-care measure in the prevention/control of diabetes, 74.0% stated that going to the chemist/patient medicine store for treatment is another measure, while only 4.2% stated that embracing a healthy eating plan is a self-care measure in diabetes prevention/control. In assessing methods of urine testing, 69.8% reported that non scientific methods should be used. The results also indicated that 11.5% claimed to know they should use test strips, whereas 18.75% indicated that test tablets should be used (Table 4).

Knowledge of the kind of food a diabetic patient should eat revealed that 47.9 and 35.4% agreed with eating of beans/meat and a lot of other proteinous foods, respectively, while 14.6% opted for whole grains, fresh

Table 2. Responses on causes of diabetes mellitus; n = 96. Each gave more than one response.

Option	Frequency	Percentage
Eating a lot of starchy food	48	50
Heredity	10	10.4
Hormonal dysfunction especially lack of insulin	14	14.6
Eating a lot of protein	8	8.3
Poison	75	78.1
Do not know	8	8.3

Table 3. Self-care measures to prevent/control diabetes to avoid complications; n = 96. More than one response each.

Options	Frequency	Percentage
Engage in regular exercise	7	7.3
Embrace healthy eating plan	4	4.2
Avoid intake of starchy food	85	88.5
Take drug therapy judiciously	28	29.2
By going to chemist / patent medicine store for treatment	71	74.0
Using herbs	52	54.1

Table 4. Self-care measure in urine testing for sugar; n = 96.

Options	Frequency	Percentage
Test Strip (Combustix, Clinistix)	11	11.5
Test tablets (Clinitest)	18	18.8
Non-scientific: Testing with tip of tongue and voiding on the ground and observe if ants will come around it	67	69.8

Table 5. The kind of food diabetic patients should eat; n = 96.

Options	Frequency	Percentage
A lot of beans and meat	46	47.9
A lot of starchy food	2	2.1
A lot of other proteinous foods	34	35.4
A lot of whole grains, fresh vegetables and a lot of fruits	14	14.6

vegetables and fruits (Table 5). Results on the cadre of health care providers that counseled them on diabetes showed that more than half (52.1%) of the respondents stated that they received counsel from laboratory scientists, while nurses ranked lowest (7.3%) (Table 6).

On the type of information provided by health workers, 39.7% received information on nature, sign and symptoms of the disease, 35.3%, on diet for diabetes, 14.7%, on self care/prevention of complications while 10.3% on the importance of exercise in diabetes

management (Table 7).

DISCUSSION

Majority of the subjects (80.2%) know what diabetes is in terms of knowing that it is a sugar disease. This finding was expected since all of them were already sufferers and most of them were literate. The findings agree with Ngwu (2005) in her study, which found that 75% of

Table 6. Health care providers that counseled the respondents on diabetes; n = 96.

Options	Frequency	Percentage
Nurse	7	7.3
Doctor	11	11.5
Dietitian	-	-
Laboratory scientists	50	52.1
None	28	29.2

Table 7. Types of counseling/information the respondents received; n = 68.

Options	Frequency	Percentage
Nature / Signs and symptoms of diabetes	27	39.7
Diet for diabetes	24	35.3
Importance of exercise in diabetes management	7	10.3
Self care / Prevention of complications	10	14.7

diabetic patients attending University of Nigeria Teaching Hospital Enugu had good knowledge of the disease. The belief of the respondents that diabetes is caused by “poison” despite their high level of literacy was surprising. This is likely to have grave consequences on their health-seeking behavior as well as on the general population because people might be dying of this diabetes, while seeking unorthodox treatment in a bid to rid themselves of the so-called “poisons”.

The knowledge of the subjects regarding self-care measures to manage/control diabetes in order to prevent complications revealed that significant number of subjects (74.0%) believed in patronizing patent medicine dealers, while a minority (4.2%) agreed that embracing a healthy eating plan is necessary. This showed lack of knowledge. Prevention of complication of diabetes involves complying with drug treatment and diet regimen as well as adapting simple health and self-care measures that prevent injury especially to the lower extremities of the body as well as maintain skin integrity. Lack of knowledge of this magnitude will likely place diabetics at risk of doing those things that might predispose them to complications. More than half of the respondents thought that herbs could cure diabetes. This again is another important finding because even though there are many potent herbs available for the treatment of many ailments, many of those works have not been conclusive. The implication of this finding is that it may likely affect their compliance to orthodox treatment. These two findings did not agree with Ngwu (2005) and Badruddia et al. (2002) who both found that the knowledge and awareness of respondents about diabetes was satisfactory. However, they agreed with Badruddia et al. (2002) in their findings that misconceptions were common. Majority of the respondents (88.5%) stated that the avoidance of starchy foods is a

self-care measure to prevent and control diabetes. This is a fairly good knowledge regarding diabetes management, which will likely guide them in the planning of their diet.

Regarding the Information about the knowledge of self-care in management of diabetes, their knowledge about method of urine testing was assessed. Majority reported that they utilized non-scientific method in testing urine for sugar. These include using the tip of the tongue to test urine and voiding on the ground and observing if ants will come around it. Testing urine by non scientific methods will not give accurate information about the level of the sugar in urine. The implication is that complications like hypoglycemia may still occur among the respondents.

The kind of food a diabetic patient should eat was another factor considered in determining the knowledge of self-care by the diabetic patients. The findings showed that only few patients had good knowledge of the nutritional management, which is an important factor in self-care. The percentage that responded positively to the option that they should eat a lot of whole grains, fresh vegetables and fruits was low. This showed lack of knowledge of the value of fruits and vegetables, as regards the role of antioxidants contained therein, in scavenging free radicals. These free radicals have been implicated in the causation of oxidative stress, which is fast becoming the nutritional and medical buzzword of the 21st century. Strand (2007) stated that it is beyond any doubt, the root cause of well over seventy (70) chronic degenerative diseases, of which diabetes is one. Dyuff (2006) also opined that whole grains and legumes fulfill the four dietary objectives for diabetics – high complex carbohydrates, high fiber, low fat and refined sugar. She also counseled that vegetables and fruits should be part of every meal. However, only 14.6% of the respondents knew this. This will likely have implications on their diet

and overall health.

Regarding responses to the nature of health information received by the patients from the health care providers, the respondents were tested on two aspects of information received on diabetes – the cadre of health care providers taught them anything on diabetes and the areas covered. Nurses were the least followed by the doctors. The findings were actually demoralizing because doctors and nurses were the irreducible pair that has the highest contact time with the patients, so they are expected to take the lead in providing relevant information to the patient/client. However, they have neglected this important aspect of their service. This agrees with Bushfield (1986) who stated that there is no concrete evidence to show that diabetic patients are periodically informed of the things they should do to be able to manage the disease. More than half of the respondents reported that the laboratory scientists taught them about diabetes. The implication is that these patients may not receive adequate information. Some of the patients got no information at all, yet they consulted doctors and were cared for by nurses. This finding is significant and implies that nurses and doctors despite their strategic position in the care of these patients are not living up to their responsibilities of health counseling and education of patients/clients.

In the case of the type of information received, the findings showed that all the aspects of health counseling/education were below 40% coverage. Patients hardly received relevant information from doctors and nurses during their course of treatment at Federal Medical Center Umuahia. This may likely lead to misconceptions and errors. Knowledge is power and information is the building block for knowledge.

RECOMMENDATIONS

1. A well-organized and structured education/counseling programme should be established at the Federal Medical Center, Umuahia as quickly as possible for diabetic patients.
2. Outreach programmes should be organized in schools, civil service centers and rural communities.
3. Health care providers should take time to explain in depth on diabetes, causes and prevention/control through health and self-care measures to prevent complications.
4. Family members of diabetic patients should also be counseled to adopt a healthy lifestyle in order to prevent diabetes.
5. Programmes such as exercise and self-care monitoring should be organized to equip them to effectively monitor their blood glucose level as well as control their diet accordingly.

Studies on similar context but with wider scope and much larger sample size are recommended to confirm findings of this study.

Conclusion

Based on the findings of the study, the researchers observed that majority of the diabetic patients in the Federal Medical Center Umuahia have knowledge of what diabetes mellitus is but do not know the causes, prevention, control, self monitoring and other self care measures. It will be beneficial if a diabetic clinic and information center for teaching diabetic patients is established. Also nurses, doctors, dietitians and other health team members should join hands to help these diabetic patients live healthy lives by providing them with the right information at every available opportunity. Lack of knowledge destroys people.

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