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RESEARCH ARTICLE

KNOWLEDGE AND PERCEPTION OF DIABETES MELLITUS MANAGEMENT AMONG PATIENTS IN FEDERAL MEDICAL CENTRE, YENAGOA BAYELSA STATE

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ABSTRACT

Diabetes Mellitus is one of the most challenging chronic illnesses these days. Poor knowledge and wrong perception of this disease and its management often results in poor control, severe complications and increased incidence of morbidity and mortality among its sufferers. This descriptive study was to assess knowledge and perception of diabetes mellitus and its management among diabetic patients in Federal Medical Centre, Yenagoa, Bayelsa State. Purposive sampling technique was used to select 150 patients using the rule of thumb and a structured questionnaire was used for data collection. A copy of the questionnaire was presented to clinicians, research experts and a statistician for review and necessary inputs and was pre -tested on 10 patients at Niger Delta University Teaching Hospital Okolobiri yielding a Pearson correlation coefficient of 0.89. Data obtained was presented in tables, figures; pie and bar charts and formulated hypotheses tested using Chi-square (X^2). Ethical approval was sought and obtained and all respondent were duly assured of confidentiality during the period of study. Findings revealed high knowledge as well as positive perception of diabetes mellitus and its management among participants. Cost of treatment, lack of awareness to seek care, educational status, and cultural beliefs were identified as factors influencing participants' perception of diabetes and its management. A significant relationship was observed between perception of respondents and their knowledge of diabetes mellitus and its management. Nurses were advised to ensure that diabetic patients have knowledge and positive perception of the disease condition and its management through continuous patient education.

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INTRODUCTION

Diabetes Mellitus is one of the most challenging chronic illnesses that pose life threatening complications. According to American Diabetes Association [ADA] (2009) *Diabetes mellitus (DM)* is a group of metabolic disease characterized by increased level of glucose in the blood (*hyperglycemia*) resulting from defects in insulin secretion, insulin action or both. Diabetes mellitus is a group of metabolic diseases in which a person has high blood sugar, either because the pancreas does not produce enough insulin, or because cells do not respond to the insulin that is produced (Shoback, 2011). This high blood sugar produces the classical symptoms of polyuria, polydipsia and polyphagia. Diabetes mellitus is classified into four broad categories: type 1, type 2, gestational diabetes and "other specific types". The "other specific types" are a collection of a few dozen individual causes (Shoback, 2011).

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According to International Diabetes Control (IDC) (2010), the prevalence of diabetes mellitus globally will reach 380 million by the year 2025 and that developing countries will be a major contributor to this increase. The World Health Organization (WHO) and International Diabetes Federation (IDF) have in a global report given estimate of 347 million people as living with diabetes, with 19.8 million from Africa. According to IDF 2013 report, Nigeria has the highest number of people with diabetes in Africa, with 3.9 million cases and 4.9 per cent national prevalence rate. About 3.747 million cases of diabetes were reported in Nigeria in 2014 alone (IDF, 2014). The reports show that more than 80 per cent of diabetes deaths occur in low- and middle-income countries and that diabetes will be the 7th leading cause of death by 2030. Poor knowledge and wrong perception regarding diabetes mellitus and its management can result in poor control, severe complications and increased incidence of morbidity and mortality among diabetes mellitus patients; thus the need to examine knowledge and perception of diabetes and its management among its sufferers. A cross-sectional survey of

diabetic patients attending the integrated diabetes clinic in Christian Medical College, Ludhiana, India revealed a limited knowledge of diabetes, its treatment and complications among patients. Findings revealed regional and individual social disparities in overall and newer anti-hyperglycemic medication which were not explained by other confounders (Gulabani, John, & Isaac (2008). Similarly, Hivert, Grant, Warner, Meigs and Shrader (2009) examine perceived risk of developing diabetes in 150 non-diabetic primary care patients in Massachusetts General Hospital. Primary care patients with higher perceived risk of diabetes it was observed were at higher actual risk but did not express greater intention to adopt healthier lifestyles. Chen, Chang, Hsieh, Huang and Liao (2011) used the validated Chinese version of the Insulin Treatment Appraisal Scale (ITAS) to evaluate the perception of insulin therapy among 100 insulin-treated patients and 100 OHA-treated patients respectively. Findings of the study revealed that diabetic patients placed on oral hypoglycaemic agents (OHAs) had more negative beliefs and attitudes towards insulin therapy than patients being treated with insulin. Furthermore, a study in Italy revealed that patients on group care showed positive attitudes, higher sense of empowerment and more internal locus of control than those in usual care (Chen, Magliano and Zimmet, 2011). In Nigeria, Adejoh, 2012 examined the influence of diabetes knowledge and perception of diabetes management behavior among the Igala people of Nigeria and found misconceptions, among the respondent who think that diabetes is caused by such things as excessive consumption of refined sugar and evil spirits. Respondents also believe that diabetes is curable using herbal means from competent herbalists (Adejoh, 2012). On the other hand, Okolie, Ehiemere, Iheanacho, and Kalu-Igwe (2009) in a descriptive study assessed the knowledge of diabetes management and control techniques on 96 diabetic patients attending Federal Medical Center, Umuahia, Nigeria and found that majority of the diabetic patients have knowledge of what diabetes mellitus is but do not know the causes, prevention, control measures, self-monitoring and other self-care measures necessary for its prevention.

MATERIALS AND METHODS

This is a descriptive study designed on diabetic patients in 25 wards/clinics of Federal Medical Centre, Yenagoa, Bayelsa State. Purposive sampling technique was used to select 150 patients from the target population using the rule of thumb. A structured questionnaire developed by the researcher was used as an instrument for data collection. The questionnaire consisted of four sections namely A, B, C and D. Section A was on personal /demographic data of the respondents, Section B elicited information on the level of knowledge of diabetes mellitus and its management. Section C had questions about respondent's perception of diabetes management and section D on the factors that influence their perception. A copy of the questionnaire was presented to clinicians, research experts and a statistician for review and necessary inputs. After effecting the corrections, the 33 items questionnaire was pre-tested on 10 respondents who were similar in characteristics to the study population at Niger Delta University Teaching Hospital Okolobiri. The test confirmed that the instrument was reliable for the study with a Pearson correlation coefficient of 0.89. The researcher with the research assistants visited the wards/clinics to distribute and retrieve the questionnaires to and from the participants after been duly completed. This was

repeated until the required sample size was obtained. Data obtained was presented in tables, figures, pie-chart and bar charts. Questions based on "agree", "disagree", and "undecided" were used to determine the level of knowledge and perception of management of diabetes among the respondents. Formulated hypotheses were tested using Chi-square (X^2). Permission to conduct the study was sought and obtained from the hospital and verbal consent was given to the respondents and confidentiality of information provided was ensured.

Table 1. Socio – demographic characteristics of the respondents

Age in years	
25 - 35	4 (2.7)
36 - 46	74(49.3)
47 - 67	22 (14.6)
58 – 68	50(33.3)
Gender	
Male	75 (50.0)
Female	75 (50.0)
Marital status	
Single	66(44.5)
Married	75(50.0)
Divorced	5(3.3)
Widowed	4(2.7)
Level of education	
Primary Education	15(10.0)
Secondary Education	29(19.3)
Tertiary Education	106 (70.7)
Occupation	
Student	17(11.3)
Businessman/Businesswoman	48 (32.0)
Civil servant	50 (33.3)
Others	35 (23.3)
Total	150(100)

Variables Frequency (%)

RESULTS

Table 1 above shows that majority 74(49.3%) of the respondents were within the age range of 36-46 years, followed by 58-68 years 56(33.3%), 47-57 years constituted 22(14.6%) while 25-35 years constituted only 4(2.7%). 75(50%) were both males and females. Majority 75(50%) were married, 66(44%) were single, 5(3.3%) were divorced while 4(2.7%) were widowed. Most of the respondents 50(33.3%) were civil servants, 48(32%) were into business, 35(23.3%) had other occupation while only 17(11.3%) were students. Majority 106(70.7%) had tertiary education, 29(19.3%) secondary education, while 15(10%) primary education. Table 2 below showed that majority 78(52%) of the respondents agree that Diabetes Mellitus is caused by excessive intake of sugar while 72(48%) had a contrary opinion. Most of the respondents, 127(84.7%) said exercise is an important aspect of Diabetes Management while 23(15.3 %) think otherwise. 95(63.3%) were not aware of the existence of Diabetes Association of Nigeria in Bayelsa State while 55(36.7 %) were aware. Majority 116(77.3 %) opined that obesity is one of the causes of Diabetes Mellitus while 34(22.7 %) disagreed. Most of the respondents, 119(79.3 %) said diabetes mellitus is hereditary while 31(20.7 %) said it is not. 95(63.3%) opined that People with diabetes mellitus should not take food rich in carbohydrate while 55(36.7%) think otherwise. majority of the respondents, 127(84.7%) disagreed to the opinion that diabetes mellitus is a spiritual sickness while 23(15.3%) agreed. 137(91.3%) said diabetes mellitus can be managed with diet while 13(8.7%) think diet is not an important factor in control

and management of diabetes mellitus. Majority of the respondents, 134(89.3%) said that diabetes mellitus cannot be treated only with drugs while 16(10.7%) said otherwise. 140(93.3%) said diabetes mellitus patient should avoid injury as much as possible while 10(6.7%) had a contrary opinion to this.

Table 2. Knowledge of Diabetes Mellitus and its Management

Variable (Response)	Frequency(%)
1. Diabetes Mellitus (diabetes mellitus) is caused by excessive intake of sugar	
Yes	72(48.0)
No	78(52.0)
2.Exercise is an important aspect of Diabetes Management	
Yes	127(84.7)
No	23(15.3)
3. Are you aware of the existence of Diabetes Association of Nigeria, Bayelsa State	
Yes	55(36.7)
No	95(63.3)
4.Obesity is one of the causes of Diabetes Mellitus	
Yes	116(77.3)
No	34(22.7)
5. Diabetes mellitus is hereditary	
Yes	119(79.3)
No	34(20.7)
6. People with diabetes mellitus should not takecarbohydrate	
Yes	55(36.7)
No	95(63.3)
7. Diabetes mellitus is a spiritual sickness	
Yes	23(15.3)
No	127(84.7)
8. Diabetes mellitus can be managed with Diet	
Yes	137(91.3)
No	13(8.7)
9. Diabetes mellitus can be treated only with drugs	
Yes	16(10.7)
No	134(89.3)
10. Should diabetic patients avoid injury as much as possible?	
Yes	140(93.3)
No	10(6.7)
Total	150(100)

Figure 1. Shows that that majority of the respondents, 111 (74%) had high level of knowledge of diabetes mellitus and its management while 39(26%) had low level of knowledge. Figure 2. Shows that 92(61.3%) were on oral anti-diabetic drug while 58(38.7%) were on injectables. Figure 3 shows that 92(61.3%) preferred oral anti-diabetic drugs, 44(29.3%) preferred injectables while 14(9.3%) preferred none.

Table 3. Respondents' perception of diabetes mellitus and its management

Variable (Response)	Frequency (%)
1. It is better to die than be managed in the hospital	
Agree	15(10.0)
Disagree	99(66.0)
Undecided	36(24.0)
2. Do you believe that the follow-up appointment and duration of treatment are too much?	
Agree	69(46.0)
Disagree	48(32.0)
Undecided	33(22.0)
3. Diabetes mellitus is a disease for the rich	
Agree	48(32.0)
Disagree	90(60.0)
Undecided	12(8.0)
4. Diabetes mellitus can be cured	
Agree	31(20.7)
Disagree	99(66.0)
Undecided	20(13.3)
5. Diabetic patient wound does not heal	
Agree	61(40.7)
Disagree	77(51.3)
Undecided	12(8.0)
6. Diabetes mellitus is a disease for the old people	
Agree	37(24.7)
Disagree	99(66.0)
Undecided	14(9.3)
7. Young people cannot have diabetes mellitus	
Agree	35(23.3)
Disagree	105(70.0)
Undecided	10(6.7)
Total	150(100)

Table 4 Factors influencing management of diabetes mellitus

Variable (Response)	Frequency (%)
1. Cost (finance)	
Yes	136(90.7)
No	14(9.3)
2.Occupational status	
Yes	84(56.0)
No	66(44.0)
3. Cultural factors	
Yes	96(39.3)
No	54(60.7)
4.Religious factors	
Yes	59(77.3)
No	91(22.7)
5. Awareness to seek care and go for test	
Yes	122(81.3)
No	28(18.7)
6. Educational status	
Yes	98(65.3)
No	52(34.7)
Total	150(100)

Table 3 above showed that majority 99(66%) of the respondents disagreed to the opinion that It is better to die than to be managed in the hospital, 36(24%) undecided while 15(10%) agreed. 69(46%) agreed that the follow-up appointment and duration of treatment are too much, 48(32%)

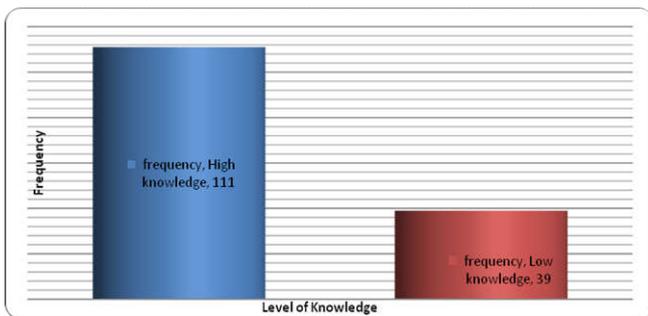


Figure 1. Respondents' Level of Knowledge of Diabetes Mellitus and its Management

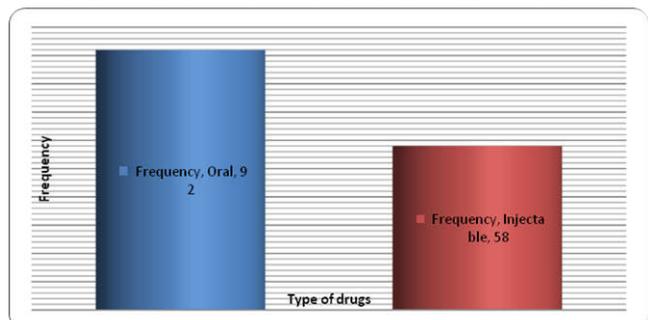


Figure 2. Type of Drugs Used in the Management of Diabetes Mellitus by Respondents

disagreed while 33(22%) undecided. Most 90(66%) disagreed that diabetes mellitus is a disease for the rich, 48(32%) agreed while 12(8%) undecided. 99(66%) disagreed that diabetes mellitus can be cured, 31(20.7%) agreed while 20(13.3%) undecided. 93(62%) disagreed that diabetes mellitus is a disease for the old people, 43(28.7%) agreed while 14(9.3%) undecided. Most respondents 105(70%) disagreed that Young people cannot have diabetes mellitus, 35(23.3%) agreed while 10(6.7%) undecided.

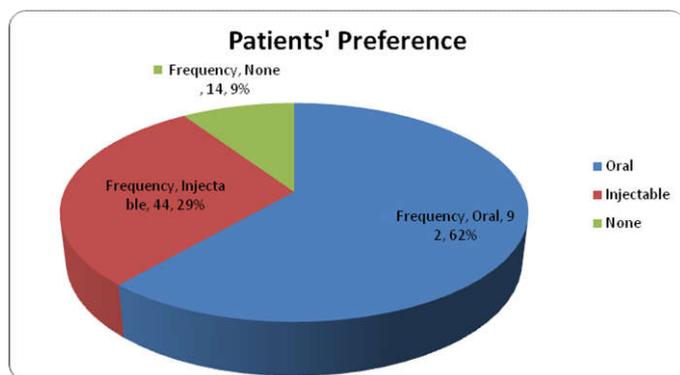


Figure 4. Patient's Drug Preference in the Management of Diabetes Mellitus by Respondents

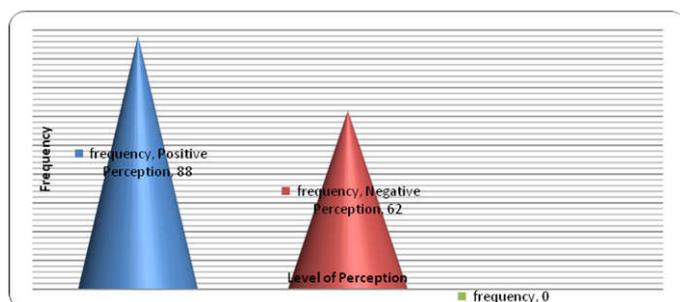


Figure 4. Respondents' level of perception of diabetes mellitus management

Figure 4 shows that majority 88 (59%) have positive perception on diabetes mellitus management while 62(41%) had negative perception.

DISCUSSION

Socio-Demographic Characteristics

Majority 74(49.3%) of the respondents were within the age range of 36-46 years. This implies that respondents are mainly in their third to fourth decade of life. Half (50%) of the respondents were married and were females and most were civil servants with tertiary education. This could be explained by the fact that educated diabetics tend to seek and obtain professional care for their conditions unlike the non-educated and elderly individuals that may lack financial support and moral encouragement.

Knowledge of Diabetes Mellitus and its Management

The result from this study reveals that most of the respondents have high level of knowledge on diabetes mellitus and its management (Table 2). This could be attributed to the fact that during their visit to hospitals, adequate attention was given as healthcare providers explain the disease condition and its

management. This finding contrasts that of Odili *et al.*, (2011) Gulabani *et al.*, (2008) who in their separate studies observed a low level of knowledge based on the diabetes knowledge test among most respondents in their study. The findings agree with that of studies in developed nations where virtually every diabetic is adequately knowledgeable of their condition and its management (Moodley and Rambiritch, 2007).

Respondent's Perception of Diabetes Mellitus and its Management

The study reveal that majority of the respondents had positive perception towards diabetes mellitus and its management. However, some of the patients have wrong perception of diabetes mellitus which was expressed by the fact that some of the patients stated that diabetes mellitus is a spiritual problem and as such they prefer to die of the condition rather than being managed by this condition. In addition, some of the respondents stated that diabetes mellitus cannot be cured and that it is a disease of the affluent alone. This finding is in line with the statement by Baddrudin *et al.*, (2002) who opined that some patients have wrong perception of diabetes mellitus.

Factors Influencing Respondents' Perception of Diabetes Mellitus

The result showed that the major factors influencing patients' perception of diabetes mellitus management include: cost, lack of awareness to seek care and go for test, educational status, and cultural belief. This corroborates finding of Odili, Isiboge and Eregie (2011) that those with higher level of education had higher knowledge of diabetes. Furthermore, Odili, *et al.*, (2011) opined that factors like availability of diabetes health education, good patient- health care giver relationship and patients' level of education influence their perception and knowledge on diabetes.

Hypotheses

Findings of the study revealed a significant relationship between perception of respondents and their level of knowledge of diabetes mellitus and its management with p value <0.05 . Hence, the null hypothesis is rejected and the alternative hypothesis (H_1) accepted. This implies that perception of the respondents influences their knowledge. On the other hand, the study found no significant relationship between educational status of respondents and their level of perception of diabetes mellitus and its management with p value >0.05 . Hence, the null hypothesis is accepted. This implies that educational status does not have any influence on the respondent's perception of diabetes mellitus and its management.

Nursing Implication

Nurses play central role in diabetic care and management. It is important therefore for them to have the necessary knowledge and skills to deliver this knowledge to patients during hospital visits. A team approach involving the patient is central for optimal patient care and should be ensured in every health care institution. It therefore implies that all nurses should be vigilant and make sure that diabetics have positive perception and knowledge of their condition and its management even in resource poor countries like Nigeria where poor knowledge

means poor health outcome especially among chronically ill individuals including diabetics.

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