

# Clinical profile, knowledge, and beliefs about diabetes among patients attending a Tertiary Health Centre in Lagos: A cross-sectional survey

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## Abstract

**Introduction:** Diabetes affects 347 million people worldwide; more than 80% of the affected live in low- or middle-income countries. Patients' beliefs about their medical conditions are important in helping physician focus on beliefs that needed to be changed or reinforced. The overall aim of this study was to improve the standard of care of patients with diabetes.

**Methods:** The study designed was a cross-sectional survey; adults with diabetes attending diabetic clinic of LASUTH took part in the survey. Participants were asked to fill a structured questionnaire which was used to assess clinical patterns, beliefs, and practice about diabetes.

**Results:** One hundred and fifty patients with diabetes took part in the study. This study showed that more females presented with diabetes compared with males, type 2 diabetes is commoner than type 1 and there is a high association of the disease with hypertension or being overweight. More than half of the participants do not know the cause of diabetes, 13% believed that disease is curable, and 30% admitted to use alternative medications in addition to the anti-diabetic medications prescribed by the physicians.

**Conclusion:** Knowing patients' beliefs and knowledge about diabetes is important to impart overall care for them. Health education about a disease should be planned to address beliefs and knowledge of patients about their medical condition to address misinformation and misconceptions about their disease conditions.

**Key words:** Belief, diabetes, health education, Nigeria, practice

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## Introduction

Diabetes is a chronic noncommunicable disease which occurs either due to the inability of the pancreas to produce enough insulin for metabolism or ineffective use of the

endogenously produced insulin by the body.<sup>[1]</sup> The disorder affects 347 million people worldwide with more than 80% of the affected living in low- or middle-income countries.<sup>[2,3]</sup> Diabetes is projected to become the seventh leading cause of death globally by the year 2030. Cardiovascular diseases are responsible for 50–80% of deaths due to diabetes.<sup>[1,4,5]</sup> The overall risk of death from diabetes is more than double the risk of death in people without the disorder. The World

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Health Organization (WHO) projected in 2008 that 7.9–12% of Nigerian adults who are 25 years and above have raised blood sugar levels.<sup>[6]</sup>

Diabetic education is important both in the management and prevention of the early onset of complications associated with diabetes.<sup>[7]</sup> The risk of developing type 2 diabetes can be reduced through healthy diet and 30 min of regular moderate exercise in a day.<sup>[8]</sup> With good management and optimal blood sugar control, most of the complications associated with diabetes are preventable.<sup>[9,10]</sup> Poor knowledge about diabetes among those suffering from the disease affects their practices and attitude toward the care for the disease.<sup>[11,12]</sup>

Most people with chronic medical conditions usually go to the hospital with a set of beliefs, which is determined by their culture and societal values.<sup>[13]</sup>

Patients' beliefs about their medical conditions are important in helping physician focus on beliefs that needed to be changed or reinforced. The main objectives of this study are to assess participants' clinical profile, baseline knowledge and beliefs about diabetes, and its management. The study design was a cross-sectional survey with the use of a structured questionnaire.

## Methods

The study took place at the Lagos State University Teaching Hospital, Ikeja, a Tertiary Healthcare Centre in Lagos, South-Western Nigeria. The hospital is 740-bedded facilities.

The estimated minimum sample size for the study was calculated based on the highest prevalence of diabetes in Nigeria which was reported to be 2.8%,<sup>[14]</sup> standard normal deviate of 1.96, and precision level of 5%. Calculated minimum sample size was 42, but we, however, included 150 participants in our survey to increase the study power and to also increase its representativeness.

Male and female adults, 18 years and above attending the diabetic clinic of the hospital who gave their consent, were recruited into the study. Patients who were acutely ill and therefore not able or not willing to be a part of the study were excluded.

The study was a descriptive, cross-sectional design with the use of a structured questionnaire. Questionnaires for this study were distributed to consecutive consenting patients with diabetes during their clinic visit to the endocrinology clinic of the hospital. Attending doctors at the clinic helped patients to fill the questionnaire by explaining and interpreting the questions to them, particularly to patients who do not read or understand English.

The first section of the questionnaire assessed the sociodemographic characteristics and clinical profiles of the respondents and information about the anthropometric data was extracted from the case records. The second section of the questionnaire assessed knowledge and beliefs about the care of diabetes.

Body mass index will be assessed using the World Health Organisation classification.<sup>[15,16]</sup>

The protocol for this study was submitted to the Ethics Committee of the Lagos State University Teaching Hospital, Ikeja, for ethical review and approval. Data of all the participants were treated with strict confidentiality. None of the participants was identified by name or other identifiers.

## Results

A total of 150 patients with diabetes took part in the study; the age range of the participants was between 28 and 85 years with the mean age of 60 years. The sex distribution of the participants showed a female preponderance; 62.7% of patients in the study were females. The blood sugar was controlled in more than half of the study participants; this was estimated with the fasting blood sugar (FBS) which was within normal range in 54.2% of the patients. Table 1 shows the details of the clinical profile of participants.

**Table 1: Clinical and sociodemographic profile of patients with diabetes attending diabetics' clinic at LASUTH, Ikeja**

Variable	Output
Age (years)	
Range	28-85
Mean $\pm$ SD	59.8 $\pm$ 11.8
Sex, n (%)	
Male	56 (37)
Female	94 (63)
History of hypertension, n (%)	
Yes	118 (79)
No	32 (21)
Fasting blood sugar (mg/dl)	
< 70	16 (10.4)
70-130	81 (54.2)
> 131	53 (35.4)
BMI (kg/m <sup>2</sup> )	
Range	15.6-49.8
Mean $\pm$ SD	28.4 $\pm$ 6
Education, n (%)	
No formal education	30 (20.0)
Primary	33 (22.0)
Secondary	43 (28.7)
Postsecondary	44 (29.3)
<b>Total respondents</b>	<b>150 (100)</b>

LASUTH=Lagos State University Teaching Hospital; SD=Standard deviation; BMI=Body mass index

**Table 2: BMI distribution of patients attending diabetic clinic of LASUTH, Ikeja**

BMI group (kg/m <sup>2</sup> )	Classification	n (%)
<18.5	Underweight	3 (1.8)
18.5-24.9	Normal weight	41 (27.5)
25-29.9	Preobesity	53 (35.8)
30-34.9	Class 1 obesity	36 (23.9)
35-39.9	Class 2 obesity	7 (4.6)
≥40	Class 3 obesity	10 (6.4)

Based on the WHO classifications (WHO 2000, 2004). LASUTH=Lagos State University Teaching Hospital; BMI=Body mass index; WHO=World Health Organization

**Table 3: Beliefs about diabetes among patients with the disease who participated in the study**

Variable	n (%)
Believed causes of diabetes	
Weight problem	7 (5)
Spiritual	1 (1)
Inherited	22 (14)
Eating sweet food	37 (25)
Cause not known	83 (55)
Diabetes is curable	20 (13)
Believe in use of alternative medicine to cure DM	53 (35)
Currently using alternative medicine for DM	45 (30)

DM=Diabetes mellitus

History of hypertension was positive in 79% of the participants and was actually on anti-hypertensive medications. Most of the participants in this study were overweight, 71% had their weight above the normal limits, and 35% were clearly obese with their body mass index (BMI)  $\geq 30$  kg/m<sup>2</sup>. Table 2 shows the details of BMI distribution of participants.

Assessment of beliefs and practices about diabetes among the participants showed that more than half of the patients (55%) did not know about any perceived cause of diabetes. one third of participants in the study believed in the use of local herbs for treating diabetes and were actually using herbs in addition to the medications prescribed for them in clinic for the control of their blood sugar [Table 3].

## Discussion

This study showed that more females presented with diabetes compared with males, in which type 2 diabetes is commoner than type 1 and there is a high association of the disease with hypertension or being overweight.

A review of gender distribution among patients with diabetes showed that in many countries of sub-Saharan Africa, women are more likely to be obese or overweight compared with men and might therefore be expected to have

higher prevalence of diabetes mellitus.<sup>[17]</sup> The finding that more women presented with diabetes compared to men is in keeping with the findings.

National Diabetes Statistics Report, 2014, by the American Diabetes Association (ADA) revealed that in 2009–2012 review of the blood pressure of adults 18 years and above with diabetes, 71% of them have their blood pressure in the hypertensive range or are on anti-hypertensive medications.<sup>[18]</sup> The incidence of hypertension is high in patients with diabetes, particularly in type 2 diabetes.<sup>[19]</sup> Hypertension is twice as common in patients with diabetes compared with patient without the disease.<sup>[20]</sup> The finding that more than two-third of the participants in this study have hypertension is in keeping with high incidence of association of hypertension with diabetes.

Reports have showed that type 2 diabetes accounts for about 90% of all diabetes worldwide.<sup>[21,22]</sup> Although no tests were done in this survey to differentiate type 1 diabetes from type 2, the finding that more than 90% of our respondents have their diabetes being managed with oral hypoglycemic agents either alone or in combination with insulin is in keeping with the higher prevalence of type 2 diabetes compared with type 1.

Obesity is a known risk factor for the development of type 2 diabetes and is also known to worsen insulin resistance.<sup>[23-25]</sup> The finding that about two-third of our respondents are overweight as assessed with the BMI is in keeping with the known epidemiological patterns of diabetes. Oral hypoglycemic agents in combination with life style modifications such as increased physical activities, weight loss, and eating of healthy diet are the preferred management plans for type 2 diabetes.<sup>[26]</sup>

Glycemic control in patients with diabetes on anti-diabetic medication is routinely assessed by doing a FBS blood sugar level or by estimation of the glycosylated hemoglobin level. The latter method gives an estimate of the blood sugar level over a period of 2 to 3 months. Glycemic control for participants in this study was assessed with the FBS; routine estimation of glycosylated hemoglobin is not done at our center as at the time of this study. The American Diabetic Association suggested the following as the target blood sugar for nonpregnant adults with diabetes; a FBS of 70–130 mg/dl, 2 h postprandial level of  $\leq 180$  mg/dl, and hb1c of  $\leq 7\%$ .<sup>[24]</sup> The FBS of more than half of the patients in this study was within the recommended control level, using the ADA criteria.

Type 2 diabetes is a condition that can be prevented (WHO fact sheet), the treatment modalities for the disorder include life style modification, treatment of obesity, and use of medications such as oral hypoglycemic agents and/

or insulin.<sup>[23]</sup> The finding that 13% of our patients believed there is a cure for diabetes needed to be addressed. This is because such expectation cannot be met and leaves the impression that their physicians are not doing enough and may lead to patients seeking for other alternative form of intervention. Patients with such belief need to be better informed and educated about their condition.

The finding that most of the patients in this study were educated up to at least secondary education level was in keeping with what was reported in a similar study in Kenya.<sup>[27]</sup> The importance of this finding is that it appears that most of the patients who seek treatment at our center are better educated compared to the national average. This high proportion of patients with at least mid-level education could be taken advantage of during health education sessions.

Health education is an essential aspect of the management of diabetes. Leaflets and other education materials can be designed to address the gap in the knowledge of patients attending our clinics. This survey showed that more is still needed to be done in impacting the correct knowledge about diabetes to our patients; this is because more than half of the respondents did not know any cause of diabetes. In spite of the fact that majority of participants were clearly overweight, they did not see any association between being overweight and diabetes. Weight loss is an important aspect of life style modification option for the management of diabetes;<sup>[21]</sup> therefore, it is important for them to know about this association.

The study revealed that one third of participants in the study believed in the use of alternative medicine for treating diabetes, these alternative medicines include herbal supplements that are not normally prescribed within the setting of the hospitals. In a similar study at this center by Ogbera *et al.*, they reported that 46% of patients with diabetes seen in the clinics use alternative medications.<sup>[28]</sup> It is expected that due to the chronic nature of diabetes, some patients will naturally want to try something else in addition to what is been offered at the clinic. It is therefore important to educate this group of patients about the goal and targets for their care and what to expect. This will help them to focus on the goals of the management plan. Physicians should also endeavor to make efforts to know what alternative medications their patients are using without being judgmental and be ready to go into discussions with them on the issue.

### Limitations of the study

This study was a hospital-based study; therefore, the profile and the pattern of presentation of the participants in the study may not necessary to be representative of what obtained with the community. A community-based study may therefore be a more appropriate design for a more robust conclusion.

## Conclusion

This study showed that some of the practices and beliefs about diabetes are not correct and needed to be changed if various targets that are set for patients with the disease are to be met. Knowledge of these practices and beliefs are important to focus patients' expectations and compliance with the management plan of the healthcare team.

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### Conflicts of interest

There are no conflicts of interest.

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