

# Knowledge of dietary and medical management of type-2 diabetes in an urban and rural community of Delta State Nigeria

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## Abstract

The study was designed to assess the knowledge of dietary and medical management of type-2 diabetes mellitus (T2DM) in Delta State Nigeria. The study utilised a descriptive cross-sectional design among 20 (10 urban and 10 rural) type-2 diabetes mellitus patients adopting a qualitative research methods. The result shows most of the participants were between the ages of 35-64 years and were diagnosed of the disease <5 years ago. In addition, most of the participants from both communities were knowledgeable of the signs and symptoms of the disease. However, participants from the rural community have some superstitious belief of the causes of T2DM. Furthermore, despite the participants demonstrating good knowledge of the medical and dietary management of the disease; some of the rural participants use herbs for the management of the disease. Lack of finance and culture were found to influence the choice of management of the disease. Therefore more awareness campaign on the benefits of proper management of the disease should be carried out in communities nationwide.

## Introduction

Type-2 diabetes mellitus (T2DM) is a long term metabolic disorder mainly characterised by high blood glucose and insulin resistance.<sup>1</sup> Over the years, the prevalence has risen and it is becoming an epidemic of the 21st century.<sup>2-3</sup> The prevalence of diabetes in Nigeria differs between the more modernised urban areas and the more conservative rural areas. For instance the prevalence of diabetes has been estimated to be between 0 to 2% of the population in rural areas but 5 to 10% in urban areas.<sup>4-7</sup> The high economic burden and complications associated with diabetes mellitus can be alleviated if patients have

proper awareness and knowledge of the disease as well as its management.<sup>2</sup> This study was designed to assess the knowledge of dietary and medical management of T2DM in Delta State Nigeria.

## Patients and methods

A cross sectional study design was used, undertaken in Ughelli South Local Government Area of Delta State. Otu-Jeremi (which is the headquarters of the local government), selected as the urban area of study; while Okwagbe (a rural settlement) was selected as the rural area. Inclusion criteria included adults both male and female from age 35 years and above who had been diagnosed with T2DM and living in the study area.

A sample size of twenty (20) respondents, ten each from both urban and rural community were purposively selected from the records department of the General Hospital in the Local Government Area. An in-depth interview guide, which was developed by the researcher, was used in collecting the data. The collected data were coded and thematically analysed for themes and content. Ethical clearance was obtained from the Department of Public and Community Health, Novena University, Ogume and from the management of the general hospital.

## Results

### 1. Profile of participants

The ranges of age and diabetes duration are shown in Table 1. There were equal numbers of males and females in both urban and rural groups. All 10 of the rural group were married; 6 of the urban group were married, 3 single and 1 divorced. The level of education was tertiary in 3 urban and 3 rural dwellers, secondary in 5 urban and 4 rural, primary in 1 urban and 1 rural, and none in 1 urban and 2 rural.

### 2. Awareness of type-2 diabetes

Most participants from the rural community had heard of diabetes as a disease, and identified the disease mainly by its signs and symptoms – 'I have heard of the sickness. When someone is urinating frequently and the person is losing weight' (Rural participants 1). Furthermore, one of the participants showed lack of awareness on types of diabetes – 'I only know of diabetes but don't know whether it has types' (Rural participants 3). Participants

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from urban community also demonstrated awareness of the disease, with some even stating their sources of information of the disease – ‘Yes I have read about it, heard it through TV, radio, health education and through seminars’ (Urban participants 9).

### 3. Knowledge of type-2 diabetes

Participants from both communities were able to mention the signs and symptoms of the disease – ‘From my own experience frequent urination, excessive thirst, the person losses weight’ (Rural participants 1). ‘When the person complains of passing urine excessively, excessive thirst, delay wound healing’ (Urban participants 3).

### 4. Causes of type-2 diabetes

The understanding of participants from the rural community of the causes of diabetes is a mixture of formal and superstition. While some believed type-2 diabetes was caused by taking too much carbohydrate, others believed it was caused by evil powers, others did not know the cause – ‘Too much intake of sweet food and soft drinks eg coca cola, fanta’ (Rural participants 2). ‘I believe it is affliction from the evil ones. I think it to be like that because nobody has it in my family’ (Rural participants 1).

The urban participants demonstrated a better understanding of the causes of type-2 diabetes. While some believed it to be hereditary, others believed it was due to insufficient production of insulin, and others did not know the cause – ‘Lack or insufficient production of insulin because insulin regulate blood sugar level’ (Urban Participants 3).

### 5. Knowledge of complications of type-2 diabetes

The main complications of type-2 diabetes mellitus highlighted by both participants from the urban and rural community were delay in wound healing, limb amputation and blurred vision. A few said they do not know any complications – ‘Delay wound healing, numbness of the extremities, blurred vision’ (Urban participants 4). ‘Delay wound healing leading to amputation of the affected limbs, bad eye sight, and weak erection’ (Rural participants 8).

### 6. Medical management of type-2 diabetes

The medical management of the disease among the rural dwellers was a mixture of both orthodox and traditional alternative medicine – ‘First of all I was using native medicine e.g squeeze bitter leave to drink. I also went to inquire from my ancestors of what am passing through whether the cause is as a result of violating any laws. I later go to see doctor at general hospital where I was given some medication to be taken regularly’ (Rural participants 3). ‘I use mostly herbs and native concussions’ (Rural participants 2).

Most of the urban participants affirmed to always

going to the hospital regularly for check-ups and blood glucose monitoring – ‘By attending clinic regularly for sugar blood test, taking of prescribed drugs’ (Urban participants 8).

In addition, most of the urban participants affirmed that the hospitals do give them drugs and some were

able to name the drug and the daily prescription. Only 3 (30%) took herbs to manage their diabetes – ‘Yes, tab glibenclamide 5mg twice daily’ (Urban participants 2). ‘Yes, diabinese (chlorpropamide) one daily’ (Urban participants 8).

For participants in Okwagbe, the rural community, despite affirming that the hospital gave drugs, all (100%) still took herbs, which according to one of the participants was due to lack of finance – ‘I take the drugs as prescribed but if am short of finance, I sometimes take native medication’ (Rural participants 5). ‘Doctor only give me drugs initial time such diabinese 1 daily, but now I rely on my herbs and keep to the diet as I was taught in the hospital’ (Rural participants 2).

When asked if they took their medication as prescribed; most in both communities answered in the affirmative. However, some in the rural community took herbal treatments – ‘I did not take the drugs as prescribed because I also take some roots alternatively’ (Rural participants 10). ‘I take the drugs as prescribed, there are sometimes I take native concussions because it helps me’ (Rural participants 9).

Most participants from both urban and the rural communities affirmed that they believe in the efficacy of the drug given to them in the hospital – ‘The drugs help if taken regularly’ (Rural participants 4). ‘I believe that the anti-diabetic drugs works’ (Urban participants 5).

### 7. Dietary management of type-2 diabetes

Some of the rural and urban participants said they managed their disease by taking less carbohydrate food – ‘I eat less carbohydrate food’ (Rural participants 7). ‘Those foods like excess carbohydrate e.g yam, mineral drinks. I do not take them much’ (Rural participants 1).

When asked if they were aware of foods not advised for diabetes patients; most from both communities answered in the affirmative and even listed some local foods – ‘I was told in the hospital that there are some food if they are eaten in excess, it makes it worst. For example yam, garri, sugar bread, jams, sweet potatoes, minerals’ (Rural participants 7). ‘Doctor said I should

Table 1: Age and diabetes duration of study groups

Variable	Urban	Rural
<b>Age</b>		
35-44	2	3
45-54	3	4
55-64	4	3
>64	1	0
<b>Duration</b>		
1-3 years	7	6
5-6 years	3	2
7-9 years	0	1
>9 years	0	1

not be taking too much carbohydrate food like yams, sugar bread, rice, soft drinks etc' (Urban participants 8). Because of this, most patients restricted their carbohydrate intake – 'I know that excess carbohydrate food cause elevation of blood sugar and so I do not take them' (Urban participants 10). 'I know that taking too much carbohydrate food increases the blood sugar level but at times one is tempted to eat them because the body system is used to it' (Rural participants 10). 'Taking much carbohydrate worsen type-2 diabetes but I still take them occasionally and especially when I do not have enough money' (Rural participants 9).

When the participants were asked what local foods type-2 diabetes patients were expected to consume, the participants listed some as follows – 'Black plantain, wheat flour, beans, pepper soup' (Rural participants 2). 'Amala, fish, vegetables, beans, water yam, black plantain, cracker biscuit, cray fish etc' (Rural participants 3). 'Amala, wheat flour, Beans, fish, black plantain, pepper soup' (Urban participants 7). 'Some of the food that is used to manage type-2 diabetes are, we were taught to eat more of black plantain, pepper soup, beans, amala, wheat bread, wheat flour, fish etc' (Urban participants 8).

## Discussion

The study shows most respondents were between the ages of 35 and 64 years, which is a common age for people with T2DM.<sup>8</sup> Furthermore, more respondents from both the urban and rural community attained secondary school education and most were married, similar to previous studies from Iran and Kenya which had a similar age group, and most patients from both studies were also married.<sup>9-10</sup> In addition, our study showed that most participants from both communities were diagnosed with T2DM less than 5 years ago, similar to a previous study from Nigeria.<sup>11</sup>

We found that most participants from both communities had awareness of diabetes. This finding is however different from a study in Nepal which showed lack of awareness of the disease among their respondents.<sup>12</sup> This high awareness can probably be attributed to the increase in prevalence of diabetes in Nigeria;<sup>7</sup> which has generated a lot of curiosity about the disease. This may be because the participants themselves, their family members, friends and neighbours, may be suffering from the disease which in turn is helping to create awareness, especially its signs and symptoms. This, increasing the rate of diagnosis of T2DM may create more awareness of the disease, especially in rural areas with limited health care facilities for the management of chronic disease.<sup>13</sup>

Despite many participants identifying the disease as an excess of sugar in the blood, some of the rural participants still had superstitious beliefs on the causes of the disease, as some of them said diabetes was due to 'affliction from evil ones'. This finding is similar to a previous study which showed a lack of understanding of the causes of diabetes.<sup>2</sup> Most participants from both communities were able to list some of the complications

of diabetes. This knowledge can probably be attributed to what the participants have seen others go through, as some of them affirmed that genetically diabetes runs in families. This finding is slightly different from a study in Delhi, India, where the respondents from rural area demonstrated more knowledge on diabetes complications than their urban slum counterpart.<sup>14</sup>

Most of our participants attended follow-up care in the hospital, and also took their medication as prescribed by their physician. However, participants from rural areas often took herbs for the treatment of the disease, particularly whenever there was lack of funds to buy drugs. This shows lack of finance is a major influence in the choice of treatment among diabetes patients. In addition, most participants were able to mention the name of oral diabetic drugs prescribed for them at the hospital, and participants from both communities said they believed in the efficacy of the prescribed drugs. This is similar to previous studies in Nigeria and India where most respondents had knowledge of the drugs prescribed for them.<sup>11,14</sup> Both the urban and rural participants in our study demonstrated knowledge on the risk of taking excess carbohydrate meals and the types of local food they are expected to consume. This finding is similar to previous studies in Nigeria.<sup>11,15-17</sup> This knowledge demonstrated by the participants is very important because it will help with maintaining good glycaemic control, thus reducing their chances of acquiring diabetes-related complications in the future.

In conclusion, our study found awareness and knowledge of T2DM to be good, but there was a knowledge gap on the causes of the disease among the rural participants, some of whom consumed herbs in the treatment of the disease often due to lack of finance to buy prescribed pharmaceutical drugs. Therefore, there should be more awareness campaigns with detailed education about diabetes and how it can be managed and prevented. Furthermore, a government organised drug insurance scheme to subsidise diabetes drugs would be very helpful, and may contribute to reduced future morbidity and mortality.

## Author declaration

The authors confirm that they have no competing interests to declare; that no animals were used in the research, and that informed consent was not required from patients.

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