Research Article

Knowledge of diabetes mellitus among adults in Umualika Eberi community, Rivers State, Nigeria

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ABSTRACT

Introduction: Diabetes mellitus is a significant public health issue globally. The burden is particularly severe in low- and middle-income countries in sub-Saharan Africa. A lack of knowledge about diabetes exacerbates its impact, leading to late diagnosis, poor management, and increased complications. This study examined the knowledge of signs and symptoms, risk factors, control, management, and complications of diabetes mellitus among adults in the Umualika Eberi community, Rivers State, Nigeria.

Method: This descriptive study involved 240 of the 600 adult residents of Umualika Eberi community, men and women aged 20 years and above. A structured questionnaire was administered to every second adult. Data analysis was done using frequency tables and percentages.

Results: The findings revealed that the level of knowledge about diabetes mellitus among the adults in the Umualika Eberi community was generally low. Respondents demonstrated limited awareness of the signs, symptoms, risk factors, and effective management of diabetes.

Conclusion: The study recommends that the health sector prioritize public education initiatives and provide practical tools for diabetes prevention and management.

Keywords: diabetes mellitus, type 2 diabetes knowledge, risk factors, Nigeria

Introduction

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by persistent hyperglycemia. It may be due to impaired insulin secretion, resistance to peripheral actions of insulin, or both.[1] It is a significant public health issue globally, with an estimated 537 million adults aged 20–79 years living with diabetes as of 2021, and this number is projected to rise to 643 million by 2030 and 783 million by 2045.[2,3] Diabetes is one of the top 10 causes of death globally. Together with cardiovascular disease, cancer, and respiratory disease, these conditions account for over 80% of all premature noncommunicable disease (NCD) deaths.[4] The

Lancet Commission on Diabetes published in 2020 highlights the unequal burden of the disease on people in low-income and middle-income countries (LMICs), reporting that 80% of diabetes cases occur in LMICs.[5,6] In the WHO African Region, the prevalence of diabetes among adults aged 18 and above has surged from 6.4% in 1990 to a staggering 10.5% in 2022, nearly doubling in just over three decades.[7,8,9] Currently, over 24,6 million Africans live with diabetes, a number projected to increase to 59,5 million by 2050.[10] The global diabetes burden has far-reaching implications for sub-Saharan Africa, where the prevalence of the disease is increasing at an alarming rate. In Nigeria, the International Diabetes Federation (IDF) estimates that approximately 3.6 million adults are living with diabetes, and many more remain undiagnosed due to limited awareness and inadequate healthcare infrastructure.[3]

Multiple studies have shown that awareness among diabetics regarding diabetes is poor. This lack of knowledge can lead to poor outcomes for the patients as they are unaware of how to optimize their health and avoid potential complications.[11] Diabetes self-care activities refer to the behaviours that people with or at risk of DM follow to effectively self-manage their disease. Inadequate self-care in diabetics is a major problem, which health care providers encounter. The results of various studies indicate that diabetics often lack suitable self-care practices and do not participate in their day-to-day care, even though the effectiveness of diabetes treatment heavily relies on self-care conditions[12] - which include healthy eating, being physically active, monitoring of blood sugar, compliance with medications and risk-reduction behaviours.

The mortality pattern at Nigerian tertiary hospitals further underscores the need for community-level interventions. Henshaw Uchechi Okoroiwuhi (2020) found that 3.6% of all autopsies in southern Nigeria in a study population involved patients with diabetes, emphasizing the disease's substantial contribution to preventable deaths.[13]

This study seeks to bridge this gap by assessing the knowledge of DM among adults in Umualika Eberi. Specifically, it aims to evaluate their understanding of the signs and symptoms, risk factors, complications, and management strategies associated with the disease.

Method

A descriptive cross-sectional design was used to conduct this study. It provides an efficient and effective means of assessing the knowledge of respondents about DM at a specific point in time. The study was conducted in Umualika village, located in the Eberi community of Omuma Local Government Area (LGA) in Rivers State, Nigeria. This area has recorded cases of deaths linked to DM. Notably, the population in this community traditionally checked glycaemic control by tasting urine or observing ants' attraction to urine on the ground, highlighting a significant knowledge gap about DM and its management.

Population: The study targeted adult males and females aged 20 years and above in Umualika village, with a total population of 600 adults.

Study Instrument: A structured questionnaire was developed and administered by the researchers. The questionnaire comprised 20 questions designed to assess respondents' knowledge of DM, with response options of "YES," "NO," and "DON'T KNOW." A total of 240 questionnaires were distributed among 600 adult residents of the Umualika Eberi community. The questionnaires were given to every second adult, and 200 were successfully retrieved, yielding an 83% response rate. This method minimized challenges associated with recording responses and ensured comprehensive data collection.

Validity and Reliability of the Questionnaire: Its content was reviewed by experts in public health and diabetes research to confirm that it accurately measured knowledge of DM. A pilot test was conducted with a sample of 20 adults from a neighbouring community to evaluate the clarity, relevance, and comprehensiveness of the questions. The reliability of the questionnaire was assessed using Cronbach's alpha, which yielded a reliability coefficient of 0.82, indicating a high level of internal consistency. This ensured that the questionnaire reliably captured the intended information.

Data Analysis: The collected data were analyzed using statistical methods, including frequency tables and percentages, to summarize respondents' demographic characteristics and their knowledge of DM.

Ethical Considerations: Ethical approval for the study was obtained from the appropriate ethics review board. Participants were informed about the purpose of the study and their role in it. Informed consent was obtained from all respondents before administering the questionnaire.

Results

The demographic data of respondents showed a diverse group of respondents with a notable representation of

Table 1. Management, control, and complications of diabetes mellitus (N = 200)

Items	Yes	No	Total
Physical activities and exercise are important in managing diabetes.	45%	55%	100%
Taking insulin injections helps in the control and management of DM.	70%	30%	100%
Going for a medical checkup is good for diabetes?	75%	25%	100%
In untreated diabetes the sugar in the blood increases.	58%	42%	100%
Can diabetes lead to another sickness??	47%	53%	100%
Will diabetes affect the kidney if not treated?	35%	65%	100%
Can diabetes lead to stroke and heart failure??	80%	20%	100%

older individuals (31% of respondents), a slight female majority (55%), a high percentage of married individuals (50%), and a predominance with primary education (44%). The data collected revealed that most respondents (90%) reported having heard of DM, while 10% demonstrated limited knowledge. This level of awareness was unexpected, as most residents attributed signs and symptoms of diabetes to other conditions, reflecting a superficial understanding of the disease. Additionally, the high incidence of diabetes in the study area suggests that preventive and control measures are not widely practiced.

The management, control, and complications of DM are in Table 1.

A chi-square test was conducted to evaluate the relationship between educational level and knowledge of diabetes risk factors. The results showed a significant association (χ^2=15.3, p<0.05 / χ^2= 15.3, p < 0.05 /χ^2=15.3, p<0.05), indicating that respondents with higher educational levels (secondary: 26%, tertiary: 10%) were more likely to identify diabetes risk factors compared to those with primary or no formal education.

Regarding complications, 80% of respondents know that diabetes can lead to stroke and heart failure, while 65 % of respondents do not agree that diabetes affects the kidneys if not treated. A correlation analysis revealed a moderate positive relationship (r=0.47, p<0.01) between respondents' level of education and their knowledge of diabetes complications. This suggests that educational interventions could improve awareness of complications such as kidney damage, stroke, and heart failure.

In terms of management, 55% of respondents did not agree that exercise and diet are essential, suggesting limited awareness of control measures. This lack of knowledge aligns with data from Olalekan Isaac Olatunde (2025), who reported poor diabetes management practices in Nigerian communities due to inadequate awareness.[14]

Discussion

The findings highlight a significant knowledge gap in understanding DM among the adult population of Umualika. While general awareness of diabetes is relatively high, detailed knowledge about risk factors, complications, and management strategies remains limited.

To address these gaps, the study recommends:

- Health Education Campaigns: Focused on risk factors, complications, and management, tailored to various educational levels.
- Community Engagement: Collaboration with local health authorities to implement diabetes prevention programs.
- Policy Development: National health bodies should develop and disseminate guidelines for diabetes prevention and management.
- Capacity Building: Training healthcare providers to deliver effective education on diabetes control and prevention.

Conclusion

The adult population in Umualika exhibited limited knowledge of DM, particularly regarding risk factors, complications, and management. Educational level was significantly associated with knowledge, underscoring the importance of targeted health education initiatives.

Comparing these findings with global studies, such as those by the International Diabetes Federation (2021), highlights that poor diabetes awareness is a common issue in LMICs. The global state of diabetes management highlights the urgent need for a comprehensive intervention strategy, especially for diabetes control.

Proper health education, integrated into national health policies, is essential to equip individuals with the knowledge necessary to prevent diabetes, manage its complications, and adopt healthier lifestyles. By addressing these gaps, the community can reduce the burden of DM and improve overall health outcomes.

Conflict of Interest: none

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