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ASSESSMENT OF KNOWLEDGE AND PREVENTIVE MEASURES OF DIABETES MELLITUS AMONG PATIENTS IN KISHI TOWN, OYO STATE, NIGERIA

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ABSTRACT

Introduction: Diabetes mellitus is a growing health concern in Nigeria, with significant impacts on individuals' health and quality of life. Understanding knowledge, attitude, and preventive practices is crucial to reduce burden of the disease. This study assessed knowledge and attitude towards preventive measures of diabetes mellitus among patients attending selected hospitals in Kishi Town, Oyo State, Nigeria. *Methodology*: The study used a descriptive cross-sectional study witha structured questionnaire involving 192 respondents, selected through multistage sampling technique, from six hospitals in Kishi Town. The data were analyzed using descriptive statistics and chi-square tests, with a significance level set at $p < 0.05$. *Results*: This showed that 73.4% of respondents had good knowledge of diabetes mellitus, with a significant association between education level and knowledge ($p < 0.001$). There was positive attitude (71.3%) towards diabetes management, and age was significantly associated with attitudes ($p < 0.02$). Preventive measuresof regular physical activity (58.9%) and blood sugar monitoring (47.4%) were reported by 51.0% mostly by the respondents. However, religion was not significantly associated with preventive practices ($p > 0.28$). *Conclusion and Recommendations*: Despite good knowledge and positive attitude towards diabetes, there were gaps in preventive practices due to certain constraints. Health educational programs focused on preventive measures and healthcare access.

INTRODUCTION

Diabetes mellitus is a medical condition that occurs because of insufficient production of insulin in the body or when the body cannot make use of the insulin that is produced by the pancreas effectively. It has emerged as one of the most pressing public health challenges globally, affecting millions of individuals and placing immense pressure on healthcare systems (WHO, 2024). This medical condition is one of the most common and fastest growing non-communicable disease worldwide and when prolongedcan lead to dysfunction and failure of many body organs, particularly the eyes, kidneys, nerves, heart and so on (Xing Chen, et al., 2025). It affects 537 million people worldwide and it is predicted that by the year 2045, the total number of people living with the condition will rise to more than 784 million (Global Diabetes data report, 2025). Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels due to insufficient insulin production, ineffective use of insulin, or both (Brutsaert, 2023). There are primarily three types of diabetes: Type 1 diabetes (insulin-dependent), Type 2 diabetes (non-insulin-dependent), and gestational diabetes. Type 2 diabetes is the most

prevalent, accounting for 85-95% of all cases globally (Brutsaert, 2023). Risk factors for developing diabetes include obesity, physical inactivity, unhealthy diets, family history, and certain ethnic backgrounds. Those most susceptible to diabetes often have a combination of these risk factors, compounded by socio-economic challenges and limited access to healthcare services. According to the World Health Organization (WHO, 2024), the prevalence rate of diabetes mellitus rose from 200 million to 830 million and has been rising rapidly in low- and middle-income countries than in high-income countries. The chronic nature of this disease and its potential for severe complications, including cardiovascular diseases, kidney failure, and lower limb amputations, highlight the urgent need for effective prevention and management strategies. According to a study on global, regional and country-level diabetes prevalence estimates by Sun, *et al*. (2022), the global diabetes prevalence in ages 20-79 year old was estimated to be 10.5% (536.6 million people) and rising to 12.2% (783.2 million people) in the year 2045. Also, the prevalence of diabetes was similar in men and women between the ages of 75-79 years; higher in urban areas (12.1%) than the rural areas (8.3%) and higher (11.1%) in high-income countries as compared with low-

income countries which is 5.5%. Moreover, a relative increase in the prevalence of diabetes is expected to occur in middle-income countries (21.1%) in comparison to high-income countries (12.2% and low-income countries (11.9%) between 2021 and 2045. In the WHO African regions, the prevalence rates of diabetes among 18 years old and above increased from 6.4% in 1990 to 10.5% in 2022. Also, only 26.1% of adults aged 30 years and above were diagnosed with diabetes and receiving treatment (WHO, 2024). In 2023, a higher age-standardised rates of diabetes were observed in North America and the middle East among 8 to 9 million people (9.3%) and at the regional level in Oceania among 11 to 13 million people (12.3%) (Sun, *et al*., 2022). Nationally, Quatar has the world's highest age-specific prevalence of diabetes with 73-79 million people (76.1%) within the ages of 75-79 years (Sun, *et al*., 2022). In total, the diabetes prevalence, especially among older adults revealed an increase in type 2 diabetes in 2021 with 95 to 96 million people (96.0%) and 95.4% diabetes DALYs worldwide which were attributable to high body mass index (Ong, *et al*., 2021). Also, diabetes-related health expenditures were estimated at 966 billion USD in 2021 and are projected to reach 1,054 billion USD by 2045 (Sun, *et al*., 2022). In Canada, over 3 million individuals are affected by diabetes, with projections indicating an increase to 4.2 million by 2030 (Lau et al., 2024). Indigenous populations face an even higher risk, being 3 to 5 times more likely to develop the condition than non-indigenous Canadians (Lau et al., 2024). Similarly, in the United Kingdom, approximately 5.6 million people are living with diabetes, with 4.4 million diagnosed and 1.2 million estimated to be undiagnosed (Whicher*et al*., 2019). This prevalence has been steadily rising, with an increase of 167,822 cases reported between 2021 and 2022 (Whicher*et al*., 2019).

In Nigeria, the situation is equally alarming. The IDF estimates that around 1.4 million adults in Nigeria were living with diabetes as of 2021, and this number is expected to rise to 2.5 million by 2045 (IDF Diabetes Atlas, 2021). The escalating prevalence of diabetes in Nigeria can be attributed to urbanization, lifestyle changes, and dietary habits that favor processed foods high in sugars and fats. These factors contribute to rising obesity rates, a significant risk factor for Type 2 diabetes. Despite the increasing prevalence, awareness of diabetes and its risk factors remain critically low among the general population. and knowledge about the disease remain alarmingly low among the general population.A survey conducted in various regions of Nigeria revealed that less than 30% of individuals could accurately identify the symptoms and risk factors associated with diabetes (Odeyemi et al., 2021). This lack of understanding translates into poor preventive practices, such as inadequate dietary management and limited engagement in physical activity, both essential for diabetes prevention and control. Furthermore, many patients fail to seek regular medical check-ups, resulting in delayed diagnosis and treatment (Shawarna, et al., 2021). Recent studies revealed that in Oyo State, there has been an increase in diabetes cases, particularly among adults aged 45-64 years, placing a considerable burden on the healthcare system (Adeloye et al., 2021). However, in Kishi Town, which is part of this larger health crisis, there has been dearth in conduct of researchto assess the knowledge levels and preventive practices related to diabetes among patients attending healthcare facilities.

The following hypotheses were raised and tested for the study.

Hypotheses

H$_O$1: There is no significant relationship between level of education and knowledge regarding diabetes mellitus among patients attending selected hospitals in Oyo State, Nigeria.

H$_O$2: There is no significant relationship between religion and preventive measures among patients attending selected hospitals in Oyo State, Nigeria.

A chi-square test of independence was conducted to examine the relationship between religion and preventive measures for diabetes. The results showed that religion was not significantly associated with the adoption of preventive measures, p = 0.28 (Table 2).

MATERIALS AND METHODS

A descriptive cross-sectional research design was used for the study. This design was employed to assess the level of knowledge on diabetes mellitus and preventive measures used by the respondents in Kishi town, located within Oyo State, Nigeria. The population for the study were patients attending selected hospitals in the study location. The sample size was calculated using the Cochran's formula, arriving at 192 respondents, with the attrition rate included. The sampling technique that was employed for this study was the multistage sampling technique which was divided into three stages. The first stage was the selection of 4 hospitals out of the six hospitals within Kishi town through simple random sampling while a proportionate sampling technique was used for the second stage to determine how many respondents would be selected from each hospital based on its patient load. The third and last stage was selectionofevery 'nth' eligible patient attending the selected hospitals through systematic random sampling. The study instrument was validated by experts in the field and the reliability coefficient was assured. Data was collected by the researcher and research assistants after obtaining an institutional ethical approval and all ethical principles were adhered to during collection of data. The obtained data was entered into an SPSS software package 25.0 and this was coded and analyzed using descriptive statistics. Inferential statistics of Chi-square test were used to examine relationships between variables related to knowledge and preventive measures of diabetes mellitus and the level of significant was set at p < 0.05.

RESULTS

The mean age of the respondents was 41.6 ± 14.1.Respondents who were females were 113 (58.9%) while males were 79 (41.1%). Majority of the respondents had tertiary education, 82 (42.7%) and most of them were of Muslim religion 95 (49.5%) – Figures 1& 2 below:
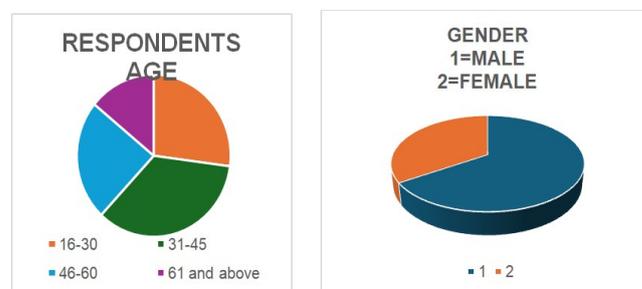

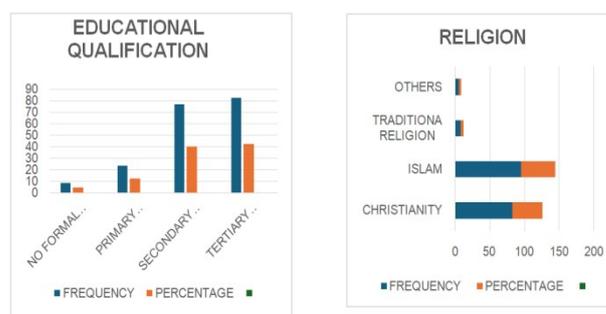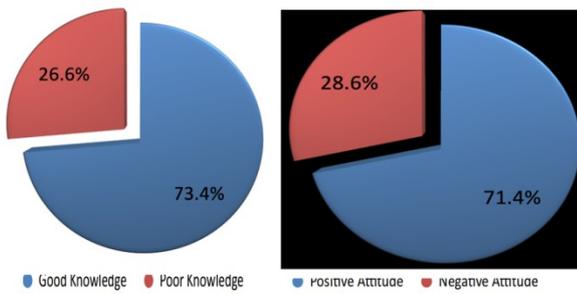**Figure 1. Charts of respondents' age and gender**

Figure 2. Charts on educational qualification and religion.

Furthermore, this study revealed good knowledge141 (73.4%) of diabetes mellitus among the respondents and they also demonstrated a positive attitude137 (71.4%) towards diabetes mellitus and its management (Figures 3 & 4).

Figures 3 & 4. Knowledge and attitude towards diabetes

Out of the 192 respondents, 98 (51.0%) of them demonstrated good preventive practices for diabetes mellitus (Figure 4).
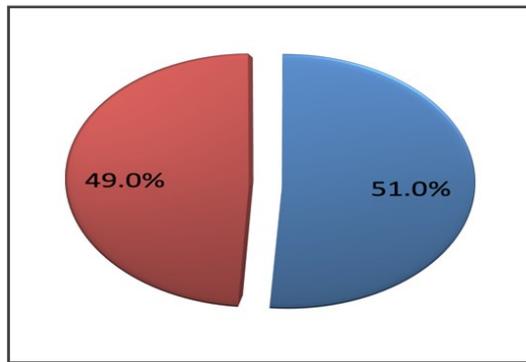

Figure 4. Preventive practices on diabetes mellitus

Test of Hypotheses

HO1: There is no significant relationship between level of education and knowledge regarding diabetes mellitus among patients attending selected hospitals in Oyo State, Nigeria. A chi-square test was conducted to examine the relationship between the level of education and knowledge about diabetes mellitus. The findings showed hat there was a significantassociation between education level and knowledge (p < 0.001) – Table 1.

Table 1. Association between education and level of knowledge on diabetes mellitus

Level of education	Knowledge		X^2 value	P-value	Significance
	Poor N (%)	Good N (%)			
No formal education	7 (77.8)	2 (22.2)	45.0	<0.001	Significant
Primary school	18 (75.0)	6 (25.0)			
Secondary school	20 (26.0)	57 (74.0)			
Tertiary education	6 (7.3)	76 (92.7)			

HO2: There is no significant relationship between religion and preventive measures among patients attending selected hospitals in Oyo State, Nigeria. A chi-square test of independence was conducted to examine the relationship between religion and preventive measures for diabetes.

The results showed that religion was not significantly associated with the adoption of preventive measures, p = 0.28 (Table 2).

Table 2. Association between religion and preventive measures of diabetes mellitus

Religion	Poor preventive Measures N (%)	Good preventive Measures N (%)	X^2 Value	P-Value	Significance
Christianity	38 (45.8)	45 (54.2)	3.9	0.28	Not Significant
Islam	49 (51.6)	46 (48.4)			
Traditional beliefs	5 (62.5)	3 (37.5)			
Others	2 (33.3)	4 (66.7)			

REFERENCES

Brutsaert, E.F., (2023). Diabetes mellitus – hormonal and metabolic disorders. https://www.msdmanuals.com

Lau, D.C.W., Shaw, E., Quansah, K. & Girard, L.P., (20240. Prevalence of adult type-2 diabetes and related complications in Alberta, Canada: A retrospective, observational study using administrative data. Open access journal 48(3)

Global Burden of Disease Study. (2019). Global Burden of Disease Study 2025: Results. Institute for Health Metrics and Evaluation. Retrieved from https:// vizhub.healthdata.org/gbd-resultsWorld Health Organization. (2024). *Diabetes* [Fact sheet]. Retrieved from https:// www.who.int/news-room/fact-sheets/detail/diabetes

Ong, K. L., Stafford, L. K., McLauhlin, S. A., Boyko, E. J.,Vollset, S. E., *et al*., (2021). Global regional and national burden of diabetes from 1990 to 2021, with projections of prevalence to 2050: A systematic analysis for the global burden of disease study 2021. Lancet, 402(10397); 202-234

Sun, H., Saeedi, P., Karuranga, S., Pinkepank, M., Ogurtsova, K., *et al*., (2022). IDF Diabetes Atlas: Global, regional and country-level diabetes prevalence estimates for 2021 and projections for 2045. Diabetes research clinical practice, 183:109119.doi

Shawarna, R., Samaro, S. & Ahmad, Z., (2021). Knowledge, attitude and practice of patients with type 2 diabetes mellitus with regard to their disease: A cross-sectional study among Palestinians of the West bank. BMC Public health 21(472)

Whicher, C.A., O'Neil, S. Holt, R.I.G., (2019). Diabetes in the UK:2019. Diabetic Medicine 37(2), pages 242-247