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Prevalence of Diabetes and Knowledge of Risk Factors Among Patients' Relatives in Ekiti State University Teaching Hospital, (EKSUTH), Ado-Ekiti, Ekiti State, Nigeria

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ABSTRACT: *This study investigated prevalence of diabetes and knowledge of risk factors among relatives of diabetic patients in Ekiti State University Teaching Hospital (EKSUTH), Ado-Ekiti, Nigeria. After receiving Ethical approval and informed consent, structured questionnaire was administered to relatives of diabetic patients in male medical ward of the hospital. Measurement of fasting blood glucose (FBG) was also done following standard procedures. Descriptive and inferential statistics were used for data analysis. 13 (10.8%) had FBG at diabetes level. 7.8-12.1mg/dl. On knowledge of diabetes risk factors, 77 (64.1%) knew that family history is a risk factor, 84(70%) identified overweight, 80 (66.6%) knew of sedentary lifestyles, 100 (83.3%) identified high blood pressure and 86 (71.6%) knew unhealthy eating as a risk factor for diabetes. In conclusion, knowledge of diabetes risk factors was high and prevalence of diabetes was higher among male than female. The study recommends advocacy targeted at relatives of patients to encourage lifestyle modifications may help reduce prevalence of diabetes*

KEY WORDS: prevalence, diabetes, knowledge, risk factors, patients' relatives

INTRODUCTION

Diabetes mellitus is a collection of metabolic disorders that cause dysfunction of the pancreas (American Diabetes Association [ADA], 2018). Type 2 diabetes, often known as adult-onset diabetes, is rapidly becoming as a worrisome condition, with its occurrence being labelled as a worldwide epidemic (Adeleye, 2021). Currently, the estimated global population living with this particular kind of diabetes is 537 million, and it is expected to double by the year 2030, according

to the International Diabetes Federation (IDF, 2021). The incidence of diabetes in the Africa area is steadily rising, and it is predicted that by 2045, the rate would quadruple compared to the current rate, according to the International Diabetes Federation (IDF, 2019). The current estimated prevalence rate of type 2 diabetes in Africa is at around 2.8%. (IDF, 2021) The prevalence rates of diabetes in Malawi and Ethiopia are around 2%, whereas Ghana, Sudan, and South Africa have rates over 3%. In Nigeria, studies have estimated a diabetes prevalence rate ranging from 5% to 7% (Enang et al., 2014; Uloko et al., 2018). Based on this statistics, it seems that Nigeria has the greatest prevalence of diabetes in Africa.

Various risk factors associated with type 2 diabetes have been identified, including a family history of diabetes, particularly in close relatives, advancing age (over 45 years), being overweight, lack of regular physical activity, hypertension, hyperlipidemia, unhealthy eating habits, and inadequate stress management (Uloko, 2018). Furthermore, family history has repeatedly been identified as an autonomous risk factor among all the non-modifiable risk variables. Researchers have established that the prevalence of diabetes is more than twice as high in those with a family history of the disease compared to those without a family history, according to many studies (Ard, et al., 2020; Zhang, et al., 2015).

Diabetes may lead to a variety of consequences, including cardiovascular diseases like stroke and heart attack, visual problems such as retinopathy, kidney failure, non-healing ulcers (diabetic foot), hearing impairment, and other connected conditions (ADA, 2018). Regrettably, due to the absence of symptoms during the early stage, many individuals present themselves at the hospital with diabetes-related problems. The diagnosis of diabetes is established by the presence of a fasting blood glucose concentration over 126 mg/dl or a two-hour postprandial level beyond 200 mg/dl on two distinct occasions.

Diabetes is a prevalent factor leading to hospitalisation and mortality in Ekiti. A research conducted on the pattern and result of medical admissions at EKSUTH found that 18% of the overall admissions were attributed to Diabetes Mellitus, 13% were attributed to High Blood Pressure, and 11% were attributed to Heart Failure. Mortality was seen in more than 60% of individuals experiencing complications of diabetes (Adeoti et al., 2015). This discovery aligns with the results obtained from other hospitals in Nigeria (Eze, et al., 2013; Uloko, et al., 2018).
Sustainable development target 3 mandates that nations must attain a 30% decrease in untimely fatalities caused by non-communicable ailments. Given that diabetes is a significant contributor to mortality worldwide and research has consistently shown that those with a family history of diabetes are more susceptible to developing the condition, it is imperative to implement preventive measures for this group. To do this, it is crucial to comprehend the knowledge of risk factors for diabetes and the prevalence of diabetes within this specific demographic. The index research was conducted in response to this context.

Research Purpose
To investigate the awareness of diabetes risk factors and the prevalence of diabetes among relatives of patients with diabetes in EKSUTH.

Research Objectives
- To determine the level of awareness of diabetes risk factors among patients' relatives in EKSUTH
- To assess the prevalence of diabetes among offspring of diabetes patients in Ekiti State Teaching Hospital

Research Questions
Two research questions were raised for the study
1. What is the level of knowledge of diabetes risk factors among patients' relatives in EKSUTH?
2. What is the prevalence of diabetes among patients' relatives in EKSUTH?

Research Hypotheses
The following research hypotheses were tested at 0.05 level of significance
1. There is no significant difference in the prevalence of diabetes among male and female patients' relatives in EKSUTH
2. There is no significant difference in self- reported prevalence of diabetes among male and female patients' relatives in EKSUTH

METHODOLOGY

The study was a cross-sectional descriptive research that investigate knowledge of diabetes risk factors and prevalence of diabetes among relatives of patients admitted for cases of diabetes and diabetes complications in Ekiti State University Teaching Hospital, Ado- Ekiti, Ekiti state. Purposive sampling technique was used to select 120 offspring and siblings of patients with diabetes in male medical ward of EKSUTH. The research instrument was a self-designed questionnaire comprised of two sections. Section 'A' was designed to collect the demographic information of the respondents while section 'B' was designed to collect information related to knowledge of diabetes risk factors. The researchers subjected the instrument to face and content validity determination by submitting it to other experts in nursing and health education. The corrections and observations of these experts were noted and used to construct the final draft of the contents of the instrument for this study. The instrument was also pilot tested among twenty patients' relatives who were not part of the study. The collected data was analyzed item by item and subjected to Cronbach's Alpha reliability test, the coefficient value of 0.78 was determined.
Permission to collect data and appropriate ethical approval was collected by the appropriate committee in the institution. Information regarding the purpose, procedure, risk and benefits of the research was provided verbally to the respondents and verbal informed consent was obtained.

Fasting Blood glucose was checked with Accu-chek softclix prolancing device, FBG of 126mg/dL and above was considered high. Collected data were sorted and coded and entered into SPSS version 23 for analysis. Categorical data was presented as frequency counts and percentages, then compared with Chi-Square, while continuous data will be presented as mean (standard deviation). Binary logistic regression was used to identify the predictors of diabetic risk factors among the participants at 0.05level of significance.

RESULTS

Table 1: Demographic variables of the respondents

Variables	Categories	Total	Percentages
Sex	Male Female	61 59	50.6 49.2
Religion	Christian Muslim	101 19	84.3 15.7
Occupation	Civil servant artisan self-employed Unemployed	45 19 43 13	37.5 15.8 35.8 10.8
Relationship with the patients	1st degree (children and siblings) 2nd degree (uncles, cousins and nephews)	87 33	72.5 27.5

Table 1 showed that 120 patients relatives participated in the study, 61 (50.8%) males and 59 (49.2%) females. 101 (84.2%) were Christians and 19 (15.7%) were Muslims. Also, 45 (37.5%) were civil servants, 19 (15.8%) participants were artisans, 43 (35.8%) were self-employed and 13 (10.8%) were unemployed. 1st degree relatives were 87 (72.5%) while 2nd degree relatives were 33 (27.5%).

Table 2: Awareness of diabetes risk factor

Variables	Categories	Total	Percentages	Mean	Standard Deviation
Family history	Yes No	77 43	64.2 35.8	1.64	.482
Overweight	Yes No	84 36	70 30	1.70	.460
Sedentary lifestyle	Yes No	80 40	66.7 33.3	1.67	.473
Presence of high blood pressure	Yes No	100 20	83.3 16.7	1.83	.357

Table 2 showed that the diabetes risk factors identified by the respondents; 77(64.2%) knew that family history as a risk factor, 100 (83.3%) identified high blood pressure, 80 (66.7%) knew sedentary lifestyles and 84 (70%) identified overweight as a risk factor. Overall, the knowledge of diabetes risk factor is high. Using a cut-off mean score of 1.50 for the rating scale, all the items had mean scores above the cut-off point. This implies that the knowledge level of diabetes risk factors was high among the respondents.

Table 3: Prevalence of diabetes among the respondents

Variables	Self -reported		On measurement	
	N	%	N	%
	Yes	No	Yes	No
Prevalence of high blood Glucose	8	6.7	13	10.8

The table shows that 8 respondents reported having being diagnosed with diabetes, but on measurement, 13 were found with random blood glucose ranging between 7.8-12.1mg/L.

Table 4: Chi-Square comparison of CVD risk factors profile based on gender

Variables	Male	%	Female	%	P-value	Decision
Diabetes	5	4.2	3	2.5	.717	Not Significant

Table 4 revealed that more male than female reported diabetes, (4.2% vs. 2.5%, p =.717) This implies that there was significant difference in self-reported CVD risk factors among male and female relatives of patients with stroke except for diabetes

Table 5: Logistic regression prediction of diabetes risk factors profile

Predictor variables	B	95% C.I (EXP B)		p-value
		Lower	Upper	
Age	0.399	.049	9.207	.765
Sex	0.358	0.586	3.453	.436
Religion	0.231	0.077	8.227	.847
Relationship with patients	0.183	0.317	2.183	.709

Table 5 revealed the result of Binary Logistic Regression analysis for the prediction of diabetes risk factors profile based on demographic variables of age, sex, religion and relationship with patients. The analysis revealed no significant relationship with any of the observed variables at 95 % confidence interval. This implies that relatives of patients with diabetes are at risk of developing diabetes regardless of their age, sex, religion and relationship.

DISCUSSION

The study found a general high level of knowledge of diabetes risk factors among the respondents. Seven risk factors were identified, hypertension was identified as a risk factor by 83.3%, followed by cigarette smoking which was the least identified with 59.2%. This finding is contrary to the finding of Aminde, et al (2017) who found an overall poor knowledge of diabetes risk factors among 45% of respondents. The differences in finding may be due to the population understudies. Aminde, et. al (2017) studies a general population while the index study took place among people who have relatives with diabetes who have been participating in diabetes care.

This study also found prevalence of diabetes to be 10.8% which is almost similar to the findings of other researchers in Nigeria (Dahiru, et al., 2016). The similarities in findings confirmed the increasing prevalence of diabetes in Nigeria. Comparing the prevalence of self-reported diabetes, this study found that self-reported raised blood glucose was lower than the actual prevalence rate during measurement. This finding is also similar to the finding of Jingi and Noubiap (2015) among family physicians where self-reported diabetes rate was almost times three during measurement. The similarities in finding is a pointer to the importance of periodic medical check for everyone so as to detect diabetes risk early in order to initiate prompt treatment.

CONCLUSION

The study reveals a commendable overall awareness of diabetes risk factors among respondents, with hypertension being the most widely recognized risk factor (83.3%) and cigarette smoking the least acknowledged (59.2%). Despite this high awareness, the prevalence of diabetes stands at 10.8%, suggesting that knowledge alone may not be sufficient to prevent the disease. The disparity in the recognition of specific risk factors, particularly the relatively lower awareness of smoking as a risk factor, highlights potential areas for targeted interventions and health education campaigns. These findings emphasize the need for comprehensive strategies that go beyond general awareness to address specific risk factors and reduce the prevalence of diabetes within the population.

Recommendations

Based on the findings of the study, the following recommendations were made:

- Relatives of diabetes patients should be encouraged to check their blood sugar periodically. This could help in early diagnosis and prevention of diabetes complications
- Diabetes health education should involve patients' relatives during and after hospitalization.

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