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ASSESSMENT OF NURSING STUDENTS' KNOWLEDGE ON THE RISK FACTORS OF TYPE 2 DIABETES MELLITUS IN A PRIVATE UNIVERSITY IN SOUTHWEST NIGERIA

Ikeh I.U.^{1*} and Abiodun O.O.¹

¹Faculty of Nursing Science, Achievers University, Owo, Ondo State, Nigeria

*Corresponding E-mail: ikehify28@gmail.com

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Abstract

This research assessed the knowledge level of Nursing students regarding the risk factors associated with Type 2 Diabetes Mellitus (T2DM) in a private University in southwest Nigeria. Due to the fact that the prevalence of T2DM is reaching alarming rate globally, it becomes imperative for healthcare professionals, particularly nurses, to have good knowledge of the risk factors contributing to the development of T2DM. This study employed a cross-sectional descriptive design. The 200 to 500 levels nursing students from Achievers University, Owo were recruited for the study. Ethical clearance was obtained from the appropriate authority and a structured questionnaire was used collect data from 148 respondents. The result showed that 58(39%) respondents had a fair level of knowledge on the risk factors of T2DM. Furthermore, 96(65%) had high exposure to the risk factors of developing T2DM. This actually confirms the fair level of knowledge that was demonstrated by respondents. Therefore, it is recommended that nursing curricula should be improved such that there will be integration of interactive learning methods, interactions with diabetes specialists, and increase emphasis on emerging risk factors of T2DM.

Keywords: Assessment; Knowledge; Nursing Students, Prevalence, T2DM

1. Introduction

Type 2 Diabetes mellitus (T2DM) is a serious long-standing public health concern due to its swiftly growing and huge burden with serious though avoidable consequences worldwide (Abiodun *et al.* 2020). It is a group of serious metabolic disorder in which an

individual has high blood sugar levels because the body cells do not utilize the insulin it produces (Akpor *et al.* 2022).

The World Health Organization (WHO, 2019) estimated that more than 220 million people worldwide had diabetes mellitus (DM) and without interventions, this number

is likely to increase more than double by 2030. A significant number of patients with DM live in sub-Saharan Africa and Nigeria (World Population Review, 2019; Uloko *et al.* 2018; Abiodun *et al.* 2020). A recent meta-analysis reported that approximately 5.8% (about 6 million) of adults in Nigeria are living with DM (Uloko *et al.* 2018). It was estimated that one out of every eleven adults had DM while there were more than 40,800 deaths from the disease in 2015 (IDF, 2015); WHO 2015; Abiodun *et al.* 2020)

Adequate knowledge of the risk factors of T2DM is key to prevention and early detection of its attending complications (Abiodun *et al.* 2020). Therefore, both health workers and members of the public should be educated about diabetes mellitus (WHO, 2020) as increased knowledge regarding the disease has immense benefits (Abiodun *et al.* 2020).

There are many risk factors for T2DM in the contemporary world, some of them are; rapid urbanization, adoption of diets that are not healthy and bad exercise patterns (Alotaibi *et al.*, 2017). Meanwhile, some other factors which are not modifiable are genetics and increase in the number of aged people, The level of knowledge of nursing students on T2DM and its risk factors is key in determining how well they will be able to teach other young adults and their patients in the course of their nursing career on the same subject matter.

2. Materials and Method

Research Design

The study adopted a cross-sectional descriptive design. This research design was chosen in order to include various levels of students in the Faculty of Nursing Science in Achievers University, Owo, Ondo State in the study.

2.1 Research Setting

The study was conducted at Achievers University, Owo. Achievers University is a private university established in 2007 and accredited by the National Universities Commission. Achievers University, Owo is located at Kilometer 1, Idasen-Ute Road Owo, Ondo. The university sprang from the Achievers Group of Education and Training Organization, located in Ibadan, Oyo State of Nigeria. The University has the following Colleges and Faculties; College of Social and Management Sciences, College of Law, College of Social and Management Sciences, College of Natural and Applied Sciences, Faculty of Nursing Science, Faculty of Health Sciences and Faculty of Medical Laboratory Science.

2.2 Target Population

The target population was 200 to 500 level, male and female students in the Faculty of Nursing Science, Achievers University, Owo, Ondo state.

2.3 Sample Size Determination

The total number of nursing students in the four levels was 899 as at the time of data collection.. Taro Yamane formula was used to determine the sample size from the figure above. The formula is given in equation 1:

$$n = \frac{N}{1 + N(e^2)} \quad (1)$$

Where n = sample size;

N = target population of respondent = 899

e = margin error = 8% = 0.08

$$\text{Therefore, sample size} = \frac{899}{1 + 899(0.08^2)}$$

Approximately n=133

10% attrition rate is 15. Hence, 15 + 133= Therefore, the sample size selected through calculation was 148 students.

Inclusion Criteria: Undergraduate Nursing Students from 200 to 500 levels who were willing to participate were recruited.

Exclusion Criteria: Students who were not undergraduates in the Faculty of Nursing Science, Achievers University, Owo and Nursing Students in the Faculty who were in 100 level were excluded.

2.4 Sampling Techniques

A simple random sampling technique was used to select respondents during the session.

2.5 Instrument for Data Collection

Data was collected using a self-structured, questionnaire that was made with the aid of extensive literature review and contributions from specialists on the subject matter. The questionnaire had the following sections; Section A: This section was used to collect socio-demographic data (age, gender, ethnicity, religion, marital status and levels of the respondents). Section B: This section was used to collect data on respondents' level knowledge on the risk factors for the development of T2DM. Section C: This section was used to evaluate respondents' exposure to the risk factors for developing T2DM.

2.6 Validity of the Instrument

The instrument was constructed by experts in the field of diabetes as well as those in tests and measurements. Each item was logically examined and the relevance of the contents and statements were confirmed to ensure validity of the instrument before the questionnaire was used for the study.

2.7 Reliability of Instrument

The reliability of the research instrument was determined through test-retest method. Responses were analyzed and a reliability of 0.8 gotten before using the instrument.

2.8 Method of Data Collection

Ethical clearance was obtained from the appropriate Committee. Research assistants were recruited and each level (200-500 levels) students were well informed on the objective of the study. Informed consent was gained and confidentiality of data and anonymity were guaranteed. The questionnaire was administered to each respondent and they were retrieved back immediately. All the questionnaires used were manually sorted out before data entry into the computer.

2.9 Data Analysis

The data was analyzed using Statistical Package for Social Sciences (SPSS) version 28. The results were presented using tables and figures as appropriate.

3. Results

Findings revealed that majority of the respondents were between the age range of 18 and 24 years, the mean age was 20 ± 11.9 . Also, it was revealed that most of the respondents were females; this is in accordance with many studies among nurses because nursing is a female dominated profession and this is in agreement with the findings of Abdul Rahman (2016); Abiodun *et al.* (2016); Abiodun *et al.* (2018) in their studies where they reported that there were more females in their studies which they did among nurses. Majority were also Christians and Yorubas. This is because the study was done in the ancient town of Owo in Yoruba land. Majority of the respondents were in 400 and 500 levels, this agrees with the findings of Abdul Rahman (2016) and Donkor and Mehmet (2020).

Table 1: Respondents' Socio-demographic Information

Variable	Options in Years	Frequency	Percentage
Age Mean Age = 20±11.9	> 18	34	22.9%
	18-24	87	58.8%
	25-30	18	12.2%
	< 30	9	6.1%
Gender	Female	82	55.4%
	Male	66	44.6%
Religion	Christianity	97	65.5%
	Islam	51	34.5%
	Others	0	0.0%
Ethnicity	Yoruba	104	70.3%
	Igbo	41	27.7%
	Hausa	3	2.0%
Academic level	200	24	16.2%
	300	37	25.0%
	400	39	26.4%
	500	48	32.4%
	Total	148	100

Table 2: Knowledge Level of Respondents on the Risk Factors of T2DM

Categorization of Knowledge Level	Score Range	Frequency	Percentage (%)
Poor	0-10	39	26.4 %
Fair	11-20	58	39.1%
Good	21-30	51	34.5%
Total		148	100%

Findings showed that 39(26.4%) of the respondents had poor knowledge of type 2 diabetes mellitus, 58(39.1%) had fair knowledge while 51(35.5%) had good

knowledge of the risk factors of T2DM. This partially agrees with the findings of Donkor and Mehmet (2020) which showed that 20.3% of their study participants had poor

knowledge, 27% had fair knowledge, and 52.7% had good knowledge.

**Table 3: Respondents Exposure to the Risk Factors of Type 2 Diabetes Mellitus.
Please choose only one option**

Questions	Yes	No
Is either of your parent or grandparent managing T2DM?	76 (51.4%)	72 (48.6%)
Are you a black?	148 (100%)	0 (0.0%)
Do you eat more of artificial foods than you eat organic foods?	103 (69.6%)	45 (30.4%)
Are you older than 35 years of age?	5 (3.4%)	143 (96.4%)
Do you consume sugary/energy drinks 3 to 5 days in a week?	108 (73.0%)	40 (27.0%)
Do you drink alcohol or smoke?	15 (10.1%)	133 (89.9%)
Do you engage in planned exercise/workout sessions up to 3 times in a week?	25 (16.9%)	123 (83.1%)
Is your body mass index more than 25?	38 (25.7%)	110 (74.3%)

Findings revealed that a little above half of the respondents submitted that either of their parent or grandparent is managing T2DM which means that it is hereditary in their families. This finding agrees with the study carried out by Uloko, 2017 which reported risk factors for the pooled prevalence of DM were a family history of DM. Majority reported that they are blacks. This is in consonance with the reports of (World Population Review, 2019; Uloko *et al.* 2018; Abiodun *et al.* 2020) on the fact that more blacks have T2DM.

More than two-third eat more artificial foods than they eat organic foods and that they consume sugary/energy drinks 3 to 5 days in a week this is a major risk factors for developing T2DM, this is in agreement with the findings of Uloko *et al.* (2018); Arugu and Maduka (2017); Agofure and Oghenerume (2022). Eating healthy foods

has been found to help in reducing the levels of blood glucose among T2DM patients up to 58% (Thojampa, 2019).

Majority of the respondents submitted that they do not have regular planned exercises weekly, this is another risk factor for the development of T2DM. It means that those who are not working out have higher tendencies of developing T2DM as they age and become less active. This is in agreement with the study of Thojampa, (2019) and (Rajasekharan *et al.* 2015). Whereas, some of the merits of having regular workouts are; adequate control of blood pressure levels, better utilization of insulin by body cells, improved blood sugar control, and protection of the heart (Rajasekharan *et al.* 2015). Exercise also makes the body utilize more energy and as well as improves the function of the lungs (Thojampa, 2019).

Table 4: Respondents Level of Exposure to Risk Factors of T2DM

Risk	Frequency	Percentage (%)
Low Exposure to Risk Factors of T2DM	52	35
High Exposure to Risk Factors of T2DM	96	65
Total	148	100

Generally, this finding shows that 52(35%) of the respondents are at low risk while 96 (65%) are at high risk of developing type 2 diabetes mellitus. These findings agree with those of the studies of Whiting (2014) and Uloko (2017) that the risk factors for the pooled prevalence of DM were a family history, unhealthy dietary habits, cigarette smoking, older age, physical inactivity and obesity.

4. Conclusion

This study concluded by showing that only 58 (39%) of the respondents had fair knowledge of the risk factors of T2DM among the respondents. Also, more than half of the respondents had high exposure to the risk factors for developing T2DM. This implies that the respondents need to be more exposed to be more intentional on the learning about T2DM especially how to handle the non-modifiable risk factors and prevention. Adequate class room teachings with and exposure practical sessions in groups will also be helpful. All these will help them to gain enough knowledge on daily self-care activities that will help them to avoid the disease and teach their clients and patients well on T2DM. Primary prevention of T2DM should be emphasized through nurses because they interact with people across the lifespan.

From this study, it is recommended that periodic comprehensive and systematic health education and promotion programmes for T2DM prevention should be ensured in

order to raise awareness in communities. Awareness should cover areas such as diabetes prevention, management and treatments. Primary prevention should therefore be taken seriously. Additionally, nursing students should be part of the programmes so that they can gain more knowledge too because the implications of the study are beyond the academic realm. Inadequate knowledge among nursing professionals could compromise patient care and contribute to the surge in prevalence of diabetes-related complications.

It is also recommended that nursing curricula should be upgraded such that there will be better utilization of interactive learning methods, frequent interactions with specialists in diabetes care and more emphasis will be on the emerging risk factors of T2DM which are modifiable in nature. More studies should be done on the subject matter in other Faculties of Nursing Science in the region and in the country.

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