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INITIAL DIABETES LIFESTYLE MODIFICATION PRACTICES AMONG DIABETIC PATIENTS IN FEDERAL UNIVERSITY TEACHING HOSPITAL OWERRI

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ABSTRACT

This study examined the impact of structured training programme on the knowledge, attitudes and practice of lifestyle modification among diabetic patients attending clinics in Federal University Teaching Hospital, Owerri, Imo State. The sample for the study comprised 109 diabetic patients which were selected using the purposive sampling technique. The instrument used for data collection was a self-structured questionnaire sectioned in four parts to elicit information on knowledge, attitude and practice of diabetes lifestyle modification. The major findings among others are that the intervention group had higher KAP scores after exposure to the structured programme more than the respondents in the control group, implying that structured programme is effective in improving the knowledge, attitude and practice of diabetes lifestyle modification among diabetic patients; and demographic variables of marital status and length of diabetes diagnosis independently have no significant correlation with knowledge (p=.773 and.263), attitude (p=.869 and .288) and practice (p=.088 and .789) scores of the respondents respectively while variables of age, gender and level of education, independently, have significant relationships with knowledge (p=.000, .000 and .040), attitude (p=.000, .000 and .005) and practice (p=.000, .000 and .002) scores of the respondents respectively post-intervention. The researcher recommends among others that nurse in different hospitals should make it a point of duty to help raise awareness on lifestyle modifications for diabetic patients.

KEYWORDS: Diabetes, lifestyle modification practices, attitude, knowledge.

INTRODUCTION

Diabetes is a major public health problem and complex metabolic disease which is currently considered one of the global challenges. However, our National Health Policy 2017 envisaged reducing premature mortality from diabetes and other non-communicable diseases to 25% by 2025. Diabetes Mellitus (DM) is one of the widespread and universal health problems that affect many people worldwide and it is defined as a metabolic disorder caused by different factors, which is characterized by hyperglycemia (elevated blood glucose level) and is usually associated with carbohydrate, fat and protein metabolism.[1-4] It causes irreversible damage to many organs in the body while running a silent course, thus most sufferers present late to the hospital with multiple complications that impose a huge economic burden for the restoration of health to a near-normal state.[5] In 2021, 38.4 million Americans, or 11.6% of the population, had diabetes. 2 million Americans have type 1 diabetes, including about 304,000 children and adolescent. Of the 38.4 million adults with diabetes, 29.7

million were diagnosed, and 8.7 million were undiagnosed.[6] The prevalence of diabetes mellitus (DM) has shown an increasing trend owing to population aging and lifestyle changes, and that, DM is becoming an epidemic in China, where the age-standardized prevalence of diabetes and pre-diabetes has been estimated at 9.7% to 11.6%.4 Over 30% of patients hospitalized owing to complications of diabetes are admitted to non-endocrinology departments for specialized management of their condition.[7]

According to the International Diabetes Federation (IDF), an estimated 9.3% of adults between the ages of 20 and 79 years worldwide are currently affected by metabolic disease. Projections estimate that by 2045, the number will have increased from the current 463 million to 700 million.[8] Diabetes is a prolonged disease with debilitating effect on man, about 415, 14.2 and 1.56 million people are diabetic globally, in Africa and Nigeria, respectively.[9] The burden of diabetes is also growing in Africa and it is estimated that the African

region will have the greatest percentage increase (143%) in the burden of diabetes between 2019 and 2045.[9] Nigeria is one of the 48 countries of the IDF African region. 537 million people have diabetes in the world and 24 million people in the AFR Region; by 2045 it will be around 55 million.[11] As at 2019, 8.2 million Nigerians were estimatedto have impaired glucose tolerance, with thenumber projected to increase to 11.5 millionby 2030.[10] The purpose of this study is to determine the initial lifestyle practices related to diabetes management among diabetic patients prior to the intervention.

RESEARCH METHODOLOGY
Research design
Quasi-experimental design is used to ascertain the impact of structured training programme on knowledge, attitudes, and practice of lifestyle modification among diabetic patients in Federal University Teaching Hospital Owerri.

Area of Study
The research was carried out in Federal Teaching Hospital Owerri.

Population of Study
The study population consists of patients who had been diagnosed with diabetes mellitus (DM) in Federal University Teaching Hospital Owerri, Imo State, Nigeria.

Sample size and sampling techniques
The sample size for the study is 109 diabetic mellitus patients. The sampling technique adopted for the study is purposive sampling technique. Due to the nature of the study (quasi experimental),there was no random selection of subjects, rather all the diabetes mellitus patients who pass inclusion criteria in the two wards for the study were purposively selected for the study.

One ward has 60diabetic patients and the other has 49 diabetes that passed the inclusion. The groups were assigned intervention and control groups by balloting. The intervention (experimental group) consisted 60 patients, while the control group consist 49 patients making a total of 109 respondents.

Inclusion criteria
Only individuals with diabetes Mellitus (DM) in the medical wards of Federal University Teaching Hospital Owerri, and were willing to participate in the study were recruited.

Exclusion criteria
The following were excluded from the study:
1. Individuals with gestational diabetes.
2. Diabetic patients with impaired memory or cognitive function.

Instrument for Data collection
A modified structured questionnaire was developed based on the objective of the study and topic, relevant literature. The questionnaire was developed in English language but also translated by a staff of the hospital in Igbo language-the most common language spoken in the region. The questionnaire was self-administered, but research assistant was available when needed. The questionnaire contained closed ended questions. The structured questionnaire consists of four sections. The first section captured data on the respondents' socio-demographic characteristics (age, gender, marital status, educational level, number of years diagnosed of DM). Section B comprised of baseline knowledge on diabetes mellitus and lifestyle modification of diabetes mellitus which includes respondents grading of their knowledge on DM. Section C captured information on attitudes towards lifestyle modification. Section D captured information on initial lifestyle practices related to diabetes mellitus management.

Validity of instrument
The instrument was subjected to face and content validity. The researcher's supervisor vetted the items of the instrument. Necessary corrections were made before approval by the supervisor and administration to the respondents.

Reliability of the instrument
Reliability of the instrument was ascertained by pilot testing of the instrument, testing and retesting method was used. Ten (10) questionnaires were administered to diabetic patients in Imo State specialist hospital, Umuguma. Another set of same questionnaires were administered to the same people after two weeks of first submission. The data were collected and analyzed using Pearson Product Moment Correlation Coefficient (PPMCC). A Correlation Coefficient index of 0.87 was obtained which indicated high reliability of the instrument.

Method of Data Collection
Training of Research Assistants.

This was for mobilization; the researcher met with the consultants and nurses in medical wards. The research assistants were trained on the purpose, objectives of the study, and its benefits at the first week of the study, method of data collection. This was also to seek their cooperation for the success of the study. Following ethical approval, instruments (questionnaire rating scale) were administered face-to–face by the researcher and the research assistants and the time frame for the completion of each questionnaire as between 30-60minutes.

Intervention procedure
Three major events took place in this phase.

Phase 1
The researcher and research assistants visited the wards Monday to Friday, in the second week of the study, to listen to health talk given to the patients by nurses and other health personnel, gaps were identified which was used to modify the training modules. Participants were selected for the study after seeking their consent. Further selection of participants continued in the third week. Questionnaires were administered as a pretest instrument to the diabetic patients in the hospitals. The results from this phase were also used to modify the training program for better intervention. Participants were followed-up via phone calls (at least a call per week for the period of the training) and text messages, reminding for the training program.

Phase 2
Three weeks training program was planned and applied to the group, participants were met at the wards. In the first week of the training, 30 participants were available on the first day of the training programme using teaching aids, others were followed-up and this yielded another 18 attendee for the training which covers the first module, week two and three follow-up produced good results as 48 participants were available for the training which covers the second, third and fourth modules using teaching aids. Ten (12) other participants were given training at different occasions in other to meet up with the sample size.

Phase 3
After the application of training program for experimental group, a post-test was conducted with the same questionnaire used for pre-test.

The Control Group
The control group was not exposed to any planned education programme which allowed them to proceed with their usual lifestyle during this period, but the researcher maintained contact with them regularly.

The patients with diabetes Mellitus received the routine care and unguided teaching by the nurses.

After three weeks, the researcher and research assistants re-administered the instruments (questionnaire) to the diabetic patients in both groups. Data collected was collated and analyzed.

Method of Data Analysis
Data obtained were coded and analyzed using the Statistical Package for Social Science (SPSS) version 21.00 statistical software. Variables and research questions were analyzed using descriptive and t-test statistics. Descriptive statistics, including the frequency, percentages, means and standard deviation were used to determine the distribution of the variables. Categorical variables such as gender, marital status and educational level were summarized by frequency and percentages. Continuous variables such as age, weight, height were summarized by medians, minimum, maximum or percentiles and described with frequency and percentages. Significance was set at $p < 0.05$.

Ethical consideration
During this study, the researcher acknowledged all ethical principles which govern the conduct of a research. The researcher observed the following ethical considerations:
- A letter of identification was collected from the Department of Nursing Science Imo State University Orlu,
- Institutional review board approval was obtained from Federal University Teaching Hospital Owerri, for Data collection procedure.Consequently, a letter was written to the ward heads for permission to carry on the study.
- The researcher assured the respondents that there would be confidentiality in dealing with their responses.
- The anonymity of the respondents was ensured and none of their names were mentioned during the course of this study.
- The respondent had the right to withdraw from the project at anytime they desired to.
- Prevention of physical and psychological harms to the respondents were ensured by the researcher. The respondents were reassured that the study will not constitute any harm to them.

RESULTS
Table 1: Demographic data of respondents.

Variable	Category	Frequency =109	Percentage (%)
Age (in years)	31-40	19	17.40
	41-50	18	16.50
	51-60	36	33.00
	61-70	27	24.80
	70 and above	9	8.30
Marital status	Single	0	0
	Married	82	75.20
	Divorced/separated	0	0
	Widower	27	24.80
Educational qualification	No formal education	9	8.30
	Primary education	9	8.30

	Secondary education	36	33.00
	Tertiary education	55	50.40
Gender	Male	54	49.50
	Female	55	50.50
Length of DM diagnosis	<1 year	10	9.20
	1-5 years	81	74.30
	6-10 years	0	0
	11-15 years	18	16.50
	15 years and above	0	0

Data on table 1 show the demographic characteristics of the respondents. The data show that majority of the respondents are aged 51-60 years (33.00%). Also, majority of the patients are married (75.20%). The data also show that majority of the respondents are tertiary education graduates (50.40%). Furthermore, 54 (49.50%) are males while 55 (50.50%) are females. Finally, majority of the respondents have been diagnosed with diabetes mellitus for 1-5 years (74.30%).

Table 2: Initial lifestyle modification practices among diabetic patients.

Variable	Options	Frequency intervention group=60	% intervention group	Frequency control group= 49	% control group
engaging in physical activity	Yes	25	41.70	20	40.80
	No	35	58.30	29	59.20
Major type of activity	Brisk walking	10	16.70	10	20.40
	Jogging	10	16.70	5	10.20
	Cycling	0	0	0	0
	Sports	5	8.30	0	0
	Gardening or farming	0	0	5	10.20
	Weight lifting	0	0	0	0
	None	35	58.30	29	59.20
Length of time spent on activities	< 30 minutes	10	16.70	4	8.20
	30 mins per session	5	8.30	13	26.50
	20-30 minutes	10	16.70	3	6.10
	No engagement in physical exercise	35	58.30	29	59.20
Frequency of engagement in physical exercise	Daily	0	0	0	0
	Three times weekly	10	16.70	10	20.40
	Once a week	15	25.00	10	20.40
	Never	35	58.30	29	59.20
Type of diet regularly eaten	High starch and fibre diet	20	33.30	19	38.80
	Low saturated fat intake	20	33.30	17	34.70
	Fruits and vegetables	10	16.70	4	8.20
	Any kinds of food	10	16.70	9	18.30
Frequency of checking blood glucose level	Daily	20	33.30	10	20.40
	Twice weekly	10	16.70	20	40.80
	Once weekly	5	8.30	0	0
	Only when symptoms show	25	41.70	19	38.80
Difficulty in practicing lifestyle modification	Always	25	41.70	29	59.20
	Occasionally	20	33.30	10	20.40
	Rarely	5	8.30	10	20.40
	Never	10	16.70	0	
Mean practice score		4.90		5.00	
Practice level	Good practice	21	35.00	17	34.70
	Poor practice	39	65.00	32	65.30

Note: Maximum practice score= 12 points

Data on table 2 show the initial lifestyle modification practices of the respondents for diabetes management. The data show that at pre-test, majority of the respondents in both the intervention (58.30%) and control group (58.20%) do not engage in physical exercise. Furthermore, none of the respondents engaged in daily exercise. Also, 41.70% of the respondents in the intervention group and 59.20% in the control group always had difficulties practicing lifestyle modifications. Generally, from the individual responses of the

respondents on practice questionnaire which was scored a maximum of 12 points, the mean practice scores of the respondents in the intervention group is 4.90 while those in the control group is 5.00, implying that majority (35%) of the patients in the intervention group and 34.70% in the control group had poor lifestyle modification practices.

DISCUSSION
Findings of the study in research question 3 show that respondents in the intervention group had initial mean practice score of 4.90 while those in the control group have initial mean practice score of 5.00. Specifically, 21 (35.00%) respondents in the intervention group have good practice levels while 39 (61.00%) have poor practice levels of diabetes lifestyle modification. On the other hand, 17 (34.70%) of the respondents in the control group have good practice while 32 (65.30%) have poor practice of lifestyle modification. Generally, 35.00% of the patients have good practice of lifestyle modification while 65.00% have poor practice of diabetes lifestyle modification. This is in line with the findings of Mekonnen *et al*.[12] who carried out a study on knowledge and attitude toward lifestyle modification among diabetics and recorded that practice of lifestyle modification was low among their respondents. Also supporting the findings above are the findings of Fatima[13] who carried out a study on the effect of Lifestyle Modification on Glycemic Control of Type 2 Diabetic Patients at Suez Canal University Hospital and recorded very low initial levels of lifestyle modification practices among the diabetic patients in the hospital.

CONCLUSION
Diabetes mellitus is a dangerous and chronic condition which affects the way the body turns food into energy. It is caused by either the body not producing enough insulin or not using insulin properly. Diabetes has certain complications ranging from heart disease, kidney disease, neuropathy, retinopathy and even amputations. As a result of these complications, it has become very pertinent that more awareness be made on the best lifestyle practices and modifications available for diabetic patients. Diabetic patients are also advised to take extra care of their health by managing their blood sugar levels, eating healthy diets, engage in exercise etc as these would help improve their life span and prognosis.

REFERENCES
1. Obeagu, E. I. Red blood cells as biomarkers and mediators in complications of diabetes mellitus: A review. *Medicine*, 2024; *103*(8): e37265.
2. Obeagu, E. I., & Obeagu, G. U. Management of diabetes mellitus patients with sickle cell anemia: Challenges and therapeutic approaches. *Medicine*, 2024; *103*(17): e37941.
3. Obeagu, E. I., Okoroiwu, I. L., & Obeagu, G. U. Some haematological variables in insulin dependent diabetes mellitus patients in Imo state Nigeria. *Int. J. Curr. Res. Chem. Pharm. Sci.*, 2016; *3*(4): 110-117.
4. Obeagu, E. I., & Obeagu, G. U. Utilization of Antioxidants in the management of diabetes mellitus patients. *J Diabetes Clin Prac*, 2018; *1*(102): 2.
5. Yusuf, A., Ala, O., Soyoye, D., Lamidi, A., Bamikefa, T., & Olamoyegun, M. Diabetes Mellitus Care in Nigeria: The Heights and the Hurdles. Western Nigeria Journal of Medical Sciences, 2023; 6(2): 184–194. Retrieved from https://wnjms.com.ng/journal/index.php/wnjms/article/view/211
6. American Diabetes Association. Diagnosis and Classification of Diabetes Mellitus. Media UK Ltd, Brighton, UK., 2010.
7. Obeagu, E. I., & Obeagu, G. U. Antioxidants and Gestational Diabetes Mellitus: A Comprehensive Review of Preventive Strategies. *Elite Journal of Health Science*, 2024; *2*(5): 19-29.
8. Obeagu, E. I., & Obeagu, G. U. Improving outcomes: integrated strategies for diabetes and sickle cell anemia. *Int. J. Curr. Res. Chem. Pharm. Sci.*, 2024; *11*(2): 20-9.
9. Dahiru T, Aliyu AA, Shehu AU. A review of population-based studies on diabetes mellitus in Nigeria. Sub-Saharan Afr J Med., 2016; 3: 59-64.
10. Adeleye J.O. The hazardous terrain of Diabetes mellitus in Nigeria: The time for action is now. Department of Medicine, College of Medicine, University of Ibadan/ university College Hospital, Ibadan, Nigeria. Research journal of health sciences, 2021; 9(1).
11. *International Journal of Diabetes and Metabolism,* 2019; 25(3-4): 113–117.
12. Mekonnen, C. K., Abate, H. K., & Tegegne, E. T. Knowledge, attitude, and practice toward lifestyle modification among diabetes mellitus patients attending the University of Gondar Comprehensive Specialized Hospital Northwest, Ethiopia. *Diabetes, Metabolic Syndrome and Obesity*, 2020; 1969-1977.
13. Fatma Ibrahim Abdel-LatifMegahed, Salwa Abbas Ali Hassan, Hassan Ali Abdelwahid and HanaaKassemFarg (2021). Effect of Lifestyle Modification on Glycemic Control of Type 2 Diabetic Patients at Suez Canal University Hospitals. Reviewed: 14 April 2021 Published: 19 May 2021. DOI: 10.5772/intechopen.97738