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Knowledge of Glycemic Control among Diabetic Patients in Federal University Teaching Hospital, Owerri

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Abstract

The researchers investigated the knowledge, attitude, practices and hindrances to glycemic control among diabetic patients in Federal University Teaching Hospital, Owerri, Nigeria. The study adopted a descriptive survey research design. The study was guided by four research questions and two hypotheses. The sampling technique employed is a multi-stage sampling procedure which was used to select a sample size of 169 diabetic adult patients in Federal University Teaching Hospital, Owerri. The instrument used for data collection is a questionnaire structured by the researcher to elicit information on knowledge, attitude, practices and hindrances to glycemic control. The reliability of the instrument was determined using cronbach alpha statistics which yielded a reliability index of 0.83. The research questions were answered using frequency counts, percentages and mean while the hypotheses were tested using chi-square statistics all done with the SPSS 24 software package. Findings from the study are: 88 (53.00%) of the respondents have low knowledge of diabetes and glycaemic control. 53 (32.00%) have average knowledge while only 24 (15.00%) of the respondents have high knowledge of diabetes and glycemic control. The researchers recommend among others that: adequate health education programmes should be scheduled for diabetic patients on the importance of self-examination and following the prescribed diet regime.

Keywords*: knowledge, glycemic control, diabetic patients*

Introduction

Glycemic control is an essential strategy to prevent the chronic metabolic disease complications such as metabolic syndrome, cardiovascular and kidney disease, and diabetes.[1-3] Among chronic metabolic disease, glycemic control management has been a domain of interest from the past years. The glycemic index shows an increasing fasting blood glucose level after consuming a high carbohydrate containing diet. The glycemic index is directly associated with different chronic metabolic diseases among the human population.[4]

Self-monitoring of glycemic control is a cornerstone of diabetes care that can ensure patient participation in achieving and maintaining specific glycemic targets. The most important objective of monitoring is the assessment of overall glycemic control and initiation of appropriate steps in a timely manner to achieve optimum control. Therefore, good glycemic control in achieving the goals of minimizing acute complication, delay or eliminating chronic complications thereby reducing the morbidity and mortality and the loss of productive hours associated with diabetes.[5] It was reported that 88.2% of the patients were aware that diabetes could affect the retina while low

levels of knowledge among patients with diabetes, low family income, low self-care and low literacy rates were the factors which contributes to poor glycemic control.[6]

Research Methodology

Research Design

The descriptive survey research design was adopted for the study.

Area of Study

The study was carried out in the Federal University Teaching Hospital, Owerri, Imo State.

Population of the Study

The target population consists of all the adults with diabetes who have registered at the Federal University Teaching Hospital, Owerri and are receiving diabetes specific treatment in the OPD of the hospital. The population under study was be 150 – 200 diabetic patients.

Inclusion Criteria

The patients included are from 18 years of age and those who had given written informed consent and have a diagnosis of diabetes mellitus. In addition, the included patients have to be out-patients or had to have just completed any standard modality of diabetes mellitus treatment within the time of the study or preceding six months.

Exclusion Criteria

Patients who either failed to give consent, or had known active psychosis, dementia of conjunctive impairment were excluded from the study. Those not residing in Imo State and those not present at the time of study were also excluded.

Sample Size and Sampling Technique

The sample size consists of diabetic adults who were currently receiving diabetes specific treatment at the Federal University Teaching Hospital, Owerri and were used for the study. This was calculated using Taro Yamane formula. A multi staged sampling procedure was used to select the study group in Federal University Teaching Hospital, Owerri. All the diabetic adults who met the inclusion criteria were selected for the study while those who did not were excluded from the study. Convenience sampling was used to access those who participated in the study.

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

Where

n = the sample size required

N= the total known population of the study

e = level of significance = 0.05

I = unit (a constant)

$$X = \frac{n \times p}{I \times N}$$

$$n = \frac{250}{1 + \frac{250}{250}(0.05)2}$$

1+250 (0.0025)
1+ 0.625
1.625
n = 250
1.625
= 153.8 = 154
n = 154
Increment of sample due to attrition = 10%
This will give a value of 15.4
Thus, sample size will be 154 + 15 = 169. This makes up 67.9% of the population.

Instrument for Data collection

The questionnaire was drawn strictly from an extensive literature search on knowledge, attitude, practice, and hindrance to glycemic control and the selected objectives. The questionnaire was divided into 5 sections; section A consists of some questions on socio-demographic characteristics of the respondents. Section B, C and D is derived from an instrument by Asmelash *et. al*.[7] and this will be used to adopt questions on knowledge, Attitude and Practice towards glycemic control. Section E is an adopted instrument from Schmitt *et al* [8] which was tagged Diabetes self-Management Questionnaire (DSMQ) and it contains questions on hindrances to glycemic control.

Method of Data Collection

After obtaining ethical approval, the ward heads were informed of the need for the research before data collection. Two research assistants were instructed on the purpose of the study and how to administer the questionnaires after obtaining consent from the respondents who were willing to participate in the study. The researcher and assistants administered the instrument to the patients and possible explanations were given to those who did not understand certain questions. The questionnaires were retrieved following completion and collation. This exercise was done on a daily basis until the required sample was gotten.

Method of data analysis

Data analysis was done using SPSS version 28. Analysis was done using descriptive and inferential statistics. The strongly agree and agree were recoded as 'agree'. The overall mean of the scales was calculated and reported and the average cut-off point of 2.5 was used for level of significance. The mean between 2.5 to 4 was rated as positive knowledge or a higher level of knowledge, attitude and hindrances of the diabetic patient to glycemic control. Logistic analysis was done to determine the factors between variables like age, gender, education and occupation to level of knowledge of glycemic control, attitude and practice of glycemic control, while a P-value of value less than 0.05 was considered to be statistically significant.

Ethical Consideration

Ethical approval was obtained from the ethics committee of the Federal University Teaching Hospital, Owerri.

Informed consent was also obtained from the respondents and they were assured of their confidentiality and anonymity as results from the research work will be kept confidential.

Results

One hundred and sixty-nine (169) questionnaires were administered, but one hundred and sixty-five (165) questionnaires were completely and correctly filled upon which analysis was based.

Table 1: Socio demographic distribution of Participants

Variables		Frequency (n=165)	Percentage (%)
Age	Less Than 30 years	3	2.0
	30 – 39 years	7	4.0
	40 – 49 years	84	51.0
	50 – 59 years	61	37.0
	60 years and above	10	6.0
	Total	**165**	**100**
	Mean age = 45 years		
Gender	Male	53	32.0
	Female	112	68.0
	Total	**165**	**100**
What is your highest level of education	No formal education	58	35.0
	Primary	50	30.5
	Secondary	50	30.0
	Tertiary	7	5.0
	Total	**165**	**100**

Table 1 shows the socio demographic characteristics of the respondents. It indicates that more than half of the respondents 51% were within the age range of 40-49years, which make up the largest population of the respondents while the least age group 2% were below 30years. Most of the respondents 68% were females while 32% of the respondents were males. This implies that this disease is more common among females than males. In addition, a large percentage 35% of the participants had no formal education while more than half 65% are not illiterate to primary and secondary school education. Therefore, this study showed that majority of the respondents were female and most were between 40-49 years of age while less than half of the respondents are illiterates with no formal education.

Table 2: knowledge of diabetic patients towards diabetes and glycemic control in Federal University Teaching Hospital, Owerri

Knowledge of diabetes and glycaemic control	Options	Frequency n=165	Percentage %
Knowledge of name of the prescribed medication glycemic control	Yes	64	39.00
	No	101	61.00
Name of the medication	Insulin	23	36.00
	Metformin	30	47.00

	Glipizide	12	17.00
	Ginerin	0	0
	Others	0	0
Side effects of medication	Blurry vision	35	21.00
	Dizziness	25	15.00
	Nausea	8	5.00
	Vomiting	12	7.00
	Diarhea	13	8.00
	Constipation	12	7.00
	I don't know	61	37.00
Target level of HbA/C	Less than 6.5%	40	24.00
	6.5%	53	32.00
	6.5% and above	73	44.00
Range of normal fasting blood glucose level	70-100mg/dl	45	27.00
	101- 125mg/dl	53	32.00
	126mg/dl and above	67	41.00
Is diabetes mellitus a contagious disease?	Yes	24	16.00
	No	139	84.00
Food choices for diabetes patient (*multiple choice option)*	Chocolate	122	74.00
	Cake	153	93.00
	Rice	96	58.00
	Egg	73	44.00
	Wheat bread	48	29.00
Going for eye examination	Yes	92	56.00
	No	73	44.00
Foot examination	Yes	63	38.00
	No	102	62.00
Frequency of foot examination	Every 3 months	9	14.00
	Every 6months	35	56.00
	Yearly	16	25.00
	Never	3	5.00
Exercise	Every day	28	17.00
	Twice weekly	92	56.00
	Weekly	23	14.00
	Monthly	21	13.00
	Never	-	
Mode of taking diabetic medication	Orally	61	37.00
	Injection	104	63.00
Complications of diabetes (*multiple options)*	Loss of vision	112	68.00
	Amputation	122	74.00
	Hypertension	101	61.00

	Death	139	84.00
	Polycythemia	73	44.00
	Sickle cell disease	73	44.00
	Ischaemia	96	58.00

Table 2 shows the knowledge of diabetic patients towards diabetes and glycemic control in Federal University Teaching Hospital, Owerri. The study showed that majority of the respondents did not know the name of their prescribed medication for their glycemic control and out of the few 39% that could identify the prescribed medication; more were placed on metformin 18% compared to the few 7% who were placed on Glipizide. However, most of the participants 79% were novice to the medication side effect of the prescribed medication while less than one-third of the participants 21% could identify blurred vision as the common side effects of the medication.

This study further revealed that most participants lack the knowledge on the target level of HbA/C and normal fasting blood level or ranges but most of the participants 84% acknowledge that diabetes mellitus is not a contagious disease and more than half of the respondents know the type of food to avoid (like chocolate, cake, rice, etc.) and to tolerate as a diabetic patient.

However, for eye and foot examination most of the participants go for eye checkup while few get appointment for foot examination regularly. Majority of the participants create chance for exercise two times on a weekly basis. This finding implies that majority of the respondents lack knowledge in the theoretical part of their illness management.

Table 3: Summary of Level of knowledge of diabetic patients towards diabetes and glycemic control

Level of knowledge	**Frequency**	**Percentage (%)**
Low knowledge	88	53.00
Average knowledge	53	32.00
High knowledge	24	15.00
Total	**165**	**100.00**

Table 3 shows the participants summary level of knowledge towards diabetes and glycemic control. The data show that 88 (53.00%) of the respondents have low knowledge of diabetes and glycaemic control. 53 (32.00%) have average knowledge while only 24 (15.00%) of the respondents have high knowledge of diabetes and glycemic control.

Discussion

Majority (51%) of the respondents were aged 40-49yrs. Majority of patients were female (68%), this result correlates with a study conducted by Fareed *et al.*[9] who reported that majority of the females were affected by poor glycemic controls within the region of Saudi Arabia. These results

are also similar due to the high consumption of unhealthy diets or intake of avoidable foods like high level of fats, sugar, cholesterol and sodium. Moreso, larger percentage of the patients do not go for tertiary education (93%). This implies that many respondents are not graduates (34%) only 7% were graduates from this study.

Findings from the study revealed that 88 (53.00%) of the respondents have low knowledge of diabetes and glycaemic control. 53 (32.00%) have average knowledge while only 24 (15.00%) of the respondents have high knowledge of diabetes and glycemic control. This finding is in line with a study led by Bakkar *et al.* [6] who reported in a study on levels of knowledge and attitude of diabetic patients towards glycemic control in the middle east, that there is a low level of knowledge (22%) among the participants of their study which was basically as a result of low literacy rates.

Similarly, Ismacil and Ali [10] also supported this study as they found that knowledge of diabetes management and glycemic control by diabetic patients were poor which led to poor glycemic control, and poor attitude and practice towards glycemic control affected the management of diabetes. This result also related to Abouammoh and Alshamrani [11] who pinpointed that despite the advancement and development of the disease research, the patients' level of disease knowledge remains low affecting the glycemic controls. In line with Fareed *et al.* [9] who stated that poor quality of knowledge was observed among diabetic patients living in Saudi Arabia, in comparison to those living other states. Besides this low level of knowledge was observed regarding the complications provided by diabetes, unaware of the importance of medicines, ineffective clinical control. This result was similar to the previous studies because it was conducted in a developing country and majority of the respondents were not aware of the importance of the medication and ineffective clinical control.

Conclusion

The knowledge, attitude, practice and hindrances to glycemic control among diabetic patients in Federal University Teaching Hospital, Owerri, Nigeria had been examined and analyzed with the use of statistical tools. The level of participant's knowledge towards glycemic control were low. Therefore, this study concludes that morbidity and mortality rates could reduce if concerns are shown towards the high cost of diabetic care and proper health education of patients.

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