

Practice and Correlates of Diabetic Mellitus Management Among the Bayelsans



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Abstract

Diabetes mellitus is a chronic metabolic disorder characterized by elevated blood glucose levels which leads, over time, to serious damage to the end organs. This research aimed to assess the knowledge, attitude, practice, and confounding factors regarding diabetes mellitus among Bayelsans. A Stratified random sampling method was used to select four hundred (400) participants who were assessing the three randomly selected hospitals in Yenagoa and Ogbia LGAs of Bayelsa state. A questionnaire on knowledge attitude and practice (KAP) and confounding factors of diabetes mellitus was completed and data was analyzed using SPSS Version 23 software. In this study, the majority of respondents were male 221 (55.3%); the majority (35.8%) were in the age group of above 50 years; 20.5% were in the age group of 21-30 years, 17.8% were in the age group of 41-50 years; 22.5% were single, 51.2% were married, 25.8% were divorced or widowed; approximately 60% had formal education, while 12.5% and 15.5% had O and A Levels respectively; 55.5% were Christians, 32% were Muslims. The overall mean (standard deviation) of the knowledge, attitude, practice, and confounding factors was 2.20+0.9, 3.75+0.97, 2.26+0.99, and 2.6+0.9 respectively. Data showed poor adherence to diabetic practices. Some respondents only use herbs for treatment. Significant relationships between young and old concerning knowledge, attitude, practices, and confounding factors were demonstrated in the study. This cross-sectional descriptive study revealed an average level of knowledge of diabetes, a low level of attitude toward diabetic care, and a poor level of diabetic practices among the participants in the study. The study also demonstrated significant relationships between young and old concerning knowledge, attitude, practices, and confounding factors among diabetics. It is suggested that effective health education interventions are needed to improve diabetes knowledge, attitude, and practices, particularly regarding lifestyle modifications, weight loss, proper adherence to prescribed medications, and dietary management.

Keywords: Diabetics; Bayelsa; Knowledge; Attitude; and Practice

Abbreviations: KAP: Knowledge Attitude and Practice; DM: Diabetes Mellitus; GDM: Gestational Diabetes Mellitus; FMC: Federal Medical Centre; NDUTH: Niger Delta University Teaching Hospital; CKC: Christ the King Catholic; DKT: Diabetes Knowledge Test

Introduction

Diabetes is a chronic, metabolic disease characterized by elevated blood glucose levels (or blood sugar), which leads over time to serious damage to the end organs such as the heart, blood vessels, eyes, kidneys, and nerves [1]. To reduce morbidity and mortality of the people affected with diabetes, there is a need for proper awareness regarding diabetes mellitus and its complications. Diabetes mellitus (DM) is also seen as a chronic metabolic disorder characterized by high blood sugar resulting from defects in insulin production, insulin action, or both.

Type 1 Diabetes mellitus is characterized by the destruction of beta cells in the pancreas, typically secondary to an autoimmune process. The result is the absolute destruction of beta cells, and consequentially, insulin is absent or extremely low (Iradukunda

et al, 2021). Gestational diabetes mellitus (GDM) is a serious pregnancy complication in which women without previously diagnosed diabetes mellitus develop chronic hyperglycemia during gestation. In most cases, this hyperglycemia is the result of impaired glucose tolerance due to pancreatic β -cell dysfunction on a background of chronic insulin resistance. Risk factors for GDM include being overweight, obesity, advanced maternal age, and family history or any form of diabetes [2]. The purpose of this study is therefore to assess the knowledge, attitude, practice, and confounding factors of type 1 & 2 diabetes mellitus in three randomly selected hospitals in Bayelsa state.

Method

Study site: The study area for this research is Federal Medical Centre Yenagoa (FMC), Niger Delta University Teaching Hospital

Amassoma (NDUTH), Christ the King Catholic Hospital Imiringi (CKC).

Study design: A hospital-based cross-sectional descriptive study of KAP was used .

Sampling technique: A Stratified random sampling method was used in this study.

Data collection: Self-structured validated “Diabetes Knowledge Test (DKT)” questionnaire was used as an instrument to collect field data. The instrument was validated and certified by the competent authority. It was created and printed in hard copies and distributed also in hard copies to collect data from patients with Diabetes mellitus in Bayelsa state.

Data analysis: IBM SPSS Version 27, GraphPad insta3.0, and Microsoft Excel were used to analyze field data. Descriptive statistics such as Frequency, mean and standard deviation were used on variables and further presented in charts.

Ethical consideration: Approval and permission were obtained from Research and Ethics Committee Federal Medical Centre Yenagoa, Niger Delta University Teaching Hospital Amassoma, and Christ the King Catholic Hospital Imiringi, all in Bayelsa state.

Results

In this study, the majority were male; 221(55.3%) and female

were 179(44.8%), the socio-demographic characteristics of the study group are as follows: 10.5% of the diabetics are in the age group category of 10-20 years, 20.5% of diabetics are in the age group category of 21-30 years, 15.5% of diabetics are in the age group category of 31-40 years, 17.8% of the diabetics are in the age group category of 41-50years and 35.8% of the diabetics are in the age group category of above 50 years and were the most affected age group, which shows that age plays a vital role in diabetes mellitus. In terms of marital status, 51.2% were married, 22.5% were single, and 25.8% were divorced or widowed. Approximately 60% of the participants had formal education, while 12.5% and 15.5% had O and A Levels respectively. Men 55.3% of diabetics were most affected in the study, which seems to be the same across the globe. 55.5% were Christians, 32% were Islam and 10% were traditional worshippers.

Table 1 below shows the socio-demographic characteristics of the study group indicated by the frequency and percentage of scores by the participants.

Table 2 below shows the level of diabetic practices among various age groupings regarding diabetes mellitus indicated by the percentage of scores by the participants.

Table 3 below shows the level of diabetic practices regarding diabetes mellitus indicated by the frequency and percentage of scores by the respondents.

Table 1: Socio-Demographic Characteristics.

Demographics		Frequency	Valid Percentage
Total		400	100%
Gender	Male	221	55.30%
	Female	179	44.80%
	10 - 20 YRS	42	10.50%
	21 - 30 YRS	82	20.50%
Age	31 - 40YRS	62	15.50%
	41 - 50YRS	71	17.80%
	51 YRS & ABOVE	143	35.80%
	Single	90	22.50%
Marital Status	Married	205	51.20%
	Divorced	103	25.80%
	Others	2	0.50%
	O level	50	12.50%
	A level	62	15.50%
Education	OND/HND	129	32.30%
	Graduate (BSc, Bed)	88	22.00%
	Masters	10	2.50%
	PhD	14	3.50%
	Others	47	11.80%

Religion	Christianity	222	55.50%
	Islam	128	32.00%
	Traditional	40	10.00%
	Others	10	2.50%

Table 2: Level of Diabetic Practice among various Age Groupings.

s/n	Variables	10-20 years	21-30 years	31-40 years	41-50 years	51 years & above
1	Have you been tested for diabetes mellitus	8.50%	17.50%	10.00%	3.00%	24.30%
	Frequency	34	70	40	12	97
2	Have you been checking your blood glucose for at least once in two months	7.50%	16.50%	7.00%	1.50%	16.50%
	Frequency	30	66	28	6	66
3	Have you been smoking	3.00%	1.00%	4.00%	4.00%	9.80%
	Frequency	12	4	16	16	39
4	Have you ever participated in health education program related to diabetes	0%	0.50%	0.50%	0.50%	3.50%
	Frequency	0	2	2	2	14
5	Have you been checking your body weight	0%	0.50%	1.50%	1.00%	0.00%
	Frequency	0	2	6	4	0
6	Have you been checking your body mass index	0.50%	0.00%	0.50%	0.50%	0.00%
	Frequency	2	0	2	2	0
7	Have you ever participated in an outreach that involved free checking of random or fasting blood sugar	0%	0.50%	1.00%	0.50%	1.50%
	Frequency	0	2	4	2	6
8	Have you ever had a wound that refused to heal despite all efforts and medical intervention	0.00%	1.00%	1.00%	0.00%	0.50%
	Frequency	0	4	4	0	2
9	Do you often feel hungry immediately after eating	0.50%	1.00%	1.00%	0.50%	3.00%
	Frequency	2	4	4	2	12
10	Have you been feeling weak whenever you work	1.00%	1.0%	1.00%	0.50%	2.50%
	Frequency	4	4	4	2	10
11	Have you been treated for diabetes	0.50%	1.00%	1.50%	0.50%	2.50%
	Frequency	2	4	6	2	10
12	Have you been diagnosed with hypoglycemia	0.00%	0.00%	1.00%	2.00%	3.0%
	Frequency	0	0	4	8	12
13	Have you experienced numbness in the limbs	1.00%	1.50%	3.00%	8.50%	8.00%
	Frequency	4	6	12	34	32
14	Have you experienced frequent urination	1.50%	2.0%	3.00%	10.00%	7.50%
	Frequency	6	8	12	40	30
15	Have you experienced a dry mouth	1.50%	3.50%	3.00%	9.50%	10.00%
	Frequency	6	14	12	38	40
16	Have you been diagnosed with a hyperglycemic emergency	1.00%	0.0%	0.50%	4.00%	4.50%
	Frequency	4	0	2	16	18
17	Have you been checking your blood pressure at least once in two weeks	1.00%	0.00%	0.50%	2.00%	5.00%
	Frequency	4	0	2	8	20

18	Have you been addicted to alcohol	3.50%	1.00%	3.00%	5.50%	9.50%
	Frequency	14	4	12	22	38
19	Have you been diagnosed with obesity	0.00%	1.0.%	0.00%	2.00%	11.80%
	Frequency	0	4	0	8	47
20	Have you been treated for diabetic complications like diabetic foot ulcer	0.00%	0.0.%	0.00%	1.50%	5.00%
	Frequency	0	0	0	6	20
21	Have you encouraged people to check their blood glucose regularly	0.50%	0.0.%	0.00%	1.50%	4.00%
	Frequency	2	0	0	6	16
22	Have you been engaged in aerobic; exercise	3.50%	1.0.%	1.00%	2.00%	8.00%
	Frequency	14	4	4	8	32
23	Have you experienced constipation	5.00%	9.0.%	7.00%	8.30%	16.00%
	Frequency	20	36	28	33	64
24	Do you like eating fried or fatty foods	7.00%	15.5.%	10.50%	11.80%	23.50%
	Frequency	28	62	42	47	94
25	Have you been eating late-night food	8.00%	18.0.%	10.50%	10.80%	25.50%
	Frequency	32	72	42	43	102
26	Have you been drinking enough water early in the morning	7.00%	2.00%	0.50%	3.30%	18.60%
	Frequency	28	8	2	13	74
27	Have you seen children suffering from diabetes	7.00%	0.50%	0.00%	4.80%	24.00%
	Frequency	28	2	0	19	96
28	Have you met with diabetic people before	7.50%	0.50%	0.50%	4.30%	26.00%
	Frequency	30	2	2	17	104
29	Have you encouraged diabetic patients to go in for traditional medicine or herbs	7.00%	1.00%	0.00%	2%	23.00%
	Frequency	28	4	0	8	92
30	Do you check your eyes regularly	5.50%	2.5.%	2.00%	4.80%	6.00%
	Frequency	22	10	8	19	24

Table 3: Level of Diabetic Practice.

Variables	Frequency	Percentage (%)
Have you been tested for DM	253	63.30%
Been checking my blood glucose	196	49.00%
Smoking	87	21.80%
Ever participated in a health education program	20	5.00%
Been checking my body weight	12	3.00%
Been checking BMI	6	1.50%
Participated in outreach	14	3.50%
Had a wound that refused to heal despite all medical intervention	10	2.50%
Feel hungry after eating	24	6.00%
Feeling weak at work	24	6.00%
Treated for Diabetes	24	6.00%
Diagnosed with hypoglycemia	24	6.00%
Experienced numbness of the limbs	88	22.00%
Experienced frequent urination	96	24.00%

Experienced dry mouth	110	27.50%
Diagnosed of hyperglycemic	40	10.00%
Checked BP in two weeks	34	8.50%
Addicted to alcohol	90	22.50%
Diagnosed with obesity	59	14.80%
Treated diabetic complications like diabetic foot ulcer	26	6.50%
Encourage people to check their blood glucose regularly	24	6.00%
Engaged in aerobic; exercise	62	15.50%
Experience constipation	181	45.30%
Like eating fried or fatty foods	273	68.30%
Been eating late-night food	291	72.30%
Been drinking enough water early in the morning	125	31.30%
Seen children suffering from diabetes	145	36.30%
Met with diabetic people before	155	38.80%
Encouraged diabetics to go in for traditional medicine or herbs	124	31.00%
Check your eyes regularly	83	20.80%

The overall level of diabetic practices of the respondents was sub-optimal as only a few of them were found to demonstrate a good level of diabetic practice. Findings revealed that a greater percentage of the Participants demonstrated a poor level of diabetic practices regarding various aspects of diabetes specifically shown in the data. 21.8% were addicted to smoking, 22.5% were addicted to alcohol, and 14.8% were diagnosed with obesity.

Regarding diabetic practices, a little less than half (49%) could check their blood glucose regularly, less than one-tenth (8.0%), one-fifth (20.8%), respectively had regular checks of their, Blood Pressure, and eye, about 3.0%, and 1.5% respectively had a regular check of body weight and BMI. This is corroborated by the findings of [3,4]. They reported that more than half of the study subjects never had their blood sugar checked, over 50% of the study subjects were not involved with any preventive measures, about 65% used to take refined sugar liberally, and a large majority (80%) had no regular exercise activity. This study is also similar to findings from Eberechukwu et al, (2016) which revealed that only 31.1% had their eye examined regularly the rest had not been to an eye clinic due to lack of funds, time, no ocular problems and not having been referred to an eye doctor.

Findings also showed that; 5.0%, 3.5%, 15.5% and 6.0%, and 2.5%, respectively had ever participated in health education programs, outreaches, engaged in aerobic exercise, being diagnosed with hypoglycemia, and had wounds that refused to heal despite all medical interventions. Data also showed that 68.3% and 72.3% were addicted to fried or fatty foods and late-night meals

Discussion

The characteristic descriptors of the participants considered

in the study include age, gender, education, marital status, and religion. From the study above, male participants were more than female participants. The study further cuts across several age groupings in which the highest participants in this study were within the age category of 51 years and above who formed about 35.8% of the participants. The age category of (21 to 30 years) was next to them, forming about 20.5% of the total participants while the least participating group was the adolescents (10 to 20 years).

The study for the assessment of practice and correlates of diabetes mellitus management among the Bayelsans showed that 24% of the participants who had an average level of diabetic practices were in the age category of 51 years and above, 8.0% and 16.0% of the participants within that age group constantly experienced numbness of the limbs and constipation respectively. This data is in line with studies carried out by [5-7], in which age, poor dietary habits, physical inactivity, positive family history, and educational status were significantly associated with Type 2 Diabetes mellitus in both sexes.

The overall level of diabetic practices of the respondents was sub-optimal as only a few of them were found to demonstrate a good level of diabetic practices. Findings also revealed that a greater percentage of the Participants demonstrated a poor level of diabetic practices regarding various aspects of diabetes mellitus specifically shown in the data. 21.8% were addicted to smoking, 22.5% were addicted to alcohol, and 14.8% were diagnosed with obesity. This data corroborates the findings of Iradukunda et al, (2021), Rendall et al, [8-10] in which the majority of the participants were addicted to smoking, alcohol consumption, and diagnosed with obesity.

The data also revealed a little less than half (49%), less than one-tenth (8.0%), one-fifth (20.8%), 3.0%, and 1.5% respectively

had regular checks of their blood glucose, Blood Pressure, eye, body weight, and BMI. This study is similar to findings from [11,12], and Eberechukwu et al, (2016) which revealed that only very few respondents had their blood pressure and blood glucose regularly checked and only 31.1% had their eye examined regularly the rest had not been to an eye clinic due to lack of funds, time, no ocular problems and not having been referred to an eye doctor. Findings also showed that; 5.0%, 3.5%, 15.5% 6.0%, and 2.5%, respectively had ever participated in health education programs, and outreaches, engaged in aerobic exercise, diagnosed with hypoglycemia, and had wounds that refused to heal despite all medical interventions. Data also showed that 68.3% and 72.3% were addicted to fried / fatty foods and late-night meals. This is also in line with studies carried out by [4,13]. Even though the level of education was significantly and positively associated with knowledge, the association of gender, age, and attitude with knowledge was not significant. Herath also reported that the attitude towards diabetes was poor in the majority (90%) and the level of education had no significant effect on attitude. Also, more than a half of the study subjects never had their blood sugar checked. About half of the study subjects were not involved with any preventive measures and, about 65% used to take refined sugar liberally and a large majority (80%) had no regular exercise activity.

In the study, the overall mean (standard deviation) of the knowledge, attitude, practice and confounding factors was 2.20 \pm 0.9, 3.75 \pm 0.97, 2.26 \pm 0.99 and 2.6 \pm 0.9 respectively. Data also showed poor adherence to diabetic practices. Some respondents 26.3% only use herbs for treatment and only 20.5% were compliant with their prescribed medications. Significant relationships between young and old concerning knowledge, attitude, practices, and confounding factors were demonstrated in the study. The majority had either moderate knowledge of diabetes mellitus or above moderate knowledge of diabetes mellitus and even though level of education is significantly and positively associated with knowledge of diabetes mellitus, their level of education has no significant effect on attitude towards diabetic care and practices. This is in line with the findings of [4,5,14] in which the majority demonstrated either moderate or above moderate knowledge of diabetes, yet the respondents had poor attitude of diabetic care and their high level of education had no significant effect on attitude towards diabetic care.

With the analyzed clinical data of the participants in the study, 44.0%, 42.9%, 23.3%, 25.0%, and 16.7%, of the participants were sometimes involved in alcohol intake, smoking, diagnosed with obesity, have had wounds that refused to heal and had been treated for diabetic complications respectively. This study is similar to the findings of [13,15], and [2]. Also, the majority of the participants had co-morbidities: 85.5%, 7.8%, 8.3%, 38%, 56.3%, 33.8% and 1.00% had, Hypertension, congestive heart failure, liver disease, HIV/AIDS, high cholesterol level tuberculosis and kidney disease respectively. This study is also in line with the findings by [2],

and Iradukunda et al, (2021) work on the assessment of diabetic complications and associated factors in a Tertiary Hospital in Rwanda, using A 5-Year Facility- based Cross-sectional study with Retrospective charts review of 246 participants.

Iradukunda reports 48.5%, 24.2%, 52.4%, and 56.3%, of alcohol intake, smoking, obesity, and family history respectively as recorded diabetes mellitus risk factors. Also, in this study, analyzed data showed that a fifth (20%), about a third (29.0%) of the respondents. had been diagnosed with diabetes; less than a year, and less than five years ago respectively. Also, about a third (30.5%), about one-fifth (17.0%), a fifth (20.3%), and one-tenth (12.0%) had been diagnosed with diabetes less than ten years ago, more than ten years ago, during pregnancy, and diagnosed as a child respectively. A study by Eberechukwu et al, (2016) revealed that 68.9% of respondents had been diabetic for 5 years or less. Eberechukwu et al 2016 also reported that only 31.1% had had their eyes examined; the rest had not been to an eye clinic due to lack of funds, time, no ocular problems and not having been referred to an eye doctor.

Conclusion

This cross-sectional descriptive study revealed an average level of knowledge of diabetes, a low level of attitude toward diabetic care, and a poor level of diabetic practices among the participants in the study. The study also demonstrated significant relationships between young and old concerning knowledge, attitude, practices, and confounding factors among diabetics [16-50].

Study Limitation

This cross-sectional descriptive study has been able to detail the level of knowledge, attitude, practice, and confounding factors of diabetes among diabetics in Bayelsa state. Areas of strength and lapses have been noted and identified; the top most is that there is an average level of knowledge of diabetes among the participants.

Weaknesses identified were seen in the negative attitude towards diabetic care and poor diabetic practices among them. There are some misconceptions in attitude toward diabetic care; some use herbs only for treatment. The study also demonstrated significant relationships between young and old concerning knowledge, attitude, practices, and confounding factors among diabetics in Bayelsa state. However, their high level of education had no significant effect on their attitude towards diabetic care and practices.

Recommendation

The study suggested that effective health education interventions are needed to improve diabetic practices, particularly regarding lifestyle modifications, weight loss, proper adherence to prescribed medications, and dietary management. Health professionals must step up in the awareness campaign strategy.

Contribution to Knowledge

This study helps to identify gaps in knowledge and misconceptions, allowing for targeted educational interventions to improve understanding and awareness of diabetes and its complications. The study also provides information on the effectiveness of current practices and interventions, by identifying areas for improvement.

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Conflict of Interest

There was no conflict of interest among the Researchers.

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