SELF-MANAGEMENT PRACTICES OF DIABETES MELLITUS AMONG PATIENTS ATTENDING GENERAL HOSPITALS IN AKWA IBOM STATE

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Abstract

The aim of the study was to determine the self-management practices among patients attending general hospitals in Akwa Ibom State, Nigeria. The study employed descriptive survey research design. The population comprised of 4200 patients attending the 13 general hospitals in Akwa Ibom State. The sample consisted of 420 patients representing 10% of total population and this was based on Nwana (2001) rule of thumb. Stratified random sampling was adopted to select the sample. The instrument for data collection was a structured questionnaire developed by the researchers and validated by health experts in public health. Later, the instrument was subjected to test retest method, to determine the reliability coefficient of the instrument. Data generated from it was subjected to Pearson Product Moment reliability coefficient which yielded a coefficient of .87 which was considered adequate for the study. Data were collected by visiting the selected hospitals where the instrument was administered to the patients with the help of research assistants. The instrument was collected from the respondents immediately or on the spot after filling. Data generated were analyzed using mean to answer the research questions and ANOVA to test the hypotheses. The results of the study revealed that overall, the patients adopted good self- management practices of diabetes mellitus ($\bar{x}$ = 2.87; SD = .765). Both male and female patients had good self-management practices of diabetes mellitus male (x=2.86; SD=o.765), female ($\bar{x}$ = 2.85; SD = .070). The result also revealed that overall, the study population with both non-formal education ($\bar{x}$ = 2.98; SD = o.79); secondary education ($\bar{x}$ = 2.81; SD = o.69; tertiary education ($\bar{x}$ = 2.98; SD = 0.79) and post graduate education ($\bar{x}$ = 2.93; SD = 0.55) had good self-management practices of diabetes mellitus; except respondents with primary education. The data were further subjected to inferential statistics which revealed no significant difference in self – management practices of diabetes mellitus based on gender t (418) = 2.377, p = 494) whereas there was significant difference in the self- management practices of diabetes mellitus based on level of education f(4.415 = 23.924, p = .000) and age f(6,413 = 2.996, p = .000). These results imply that patients of different educational levels and Age brackets adopted different self- management practices of diabetes mellitus. The researchers recommended that patients should be taught about self- management practices in hospitals and that pre-diabetic conditions should be dictated early and nipped in the board before they become full-blown diabetes.

Key words: *Self-management practice, Diabetes mellitus, General hospitals.*

Introduction

Diabetes self-management typically occurs in the home and includes: Testing blood sugar (glucose) Consuming balanced meals and appropriate portion sizes. Engaging in regular exercise.Drinking water and avoiding dehydration, medication adherence, ***and*** foot ***self***-examination.Diabetes mellitus is a chronic disease associated with abnormally high levels of glucose in the blood due to inadequate production of insulin, a pancreatic hormone which lowers blood glucose or inadequate sensitivity of B-pancreatic cells to the action of insulin (Shiel, 2019). According to World Health Organization [WHO] (2018), diabetes mellitus is confirmed by persistent or recurrent high glucose diagnosed by any of the following: fasting blood glucose greater than or equal to 7.0mmol/l (126mg/dl), random plasma glucose greater than or equal to 11.1 mmol// (200 mg/dl) plus symptoms of high blood glucose, plasma glucose greater than or equal to11.1 mm0l/l (200 mg/dl) two hours after 75 gram oral glucose load as in a glucose tolerance test, glycated haemoglobin (HbAIc) greater than or equal to 48 mmol/mol.

American Diabetes Association (ADA, 2014) defined diabetes mellitus as a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action or both. Okoye (2014) was of the view that several pathogenic processes are involved in the development of diabetes mellitus and they include autoimmune destruction of the B- cells of the pancreas with consequent insulin deficiency to abnormalities that result in resistance to insulin action.

WHO (2018), classified diabetes mellitus into Type 1 diabetes mellitus, Type 2 diabetes mellitus, gestational diabetes and diabetes mellitus caused by other factors. Type 1 diabetes mellitus also known as immune mediated diabetes is associated with autoimmune B- cell destruction in the pancreas leading to absolute insulin deficiency. Type 2 on the other hand, accounts for about 90-95% of diabetes mellitus and is also known as adult onset diabetes mellitus (Okoye, 2016). Gestational diabetes mellitus (GDM) is the third type of diabetes and is defined as the degree of glucose intolerance with onset or first recognition during pregnancy. Gestational diabetes mellitus represents nearly 90% of all pregnancies complicated by diabetes mellitus (Adeleke, 2018). ADA (2006) opined that the fourth type of diabetes mellitus can be caused by numerous factors including monogenetic defects in B-pancreatic cell function, genetic defects in insulin action, diseases of the exocrine pancreas like the pancreatitis and pancreatic carcinoma,,endocrine enopathies like acromegaly and Cushing's syndrome, drugs and chemicals such as vacor and intravenous pentamidine, infections like congenital rubella and coxasachie B virus infection and other immune mediated causes such as stiff-man syndrome and sometimes systemic lupus erythematosus.

Walker, Colledge and Penman (2018) grouped complications of diabetes mellitus into acute and long term (chronic) and according to them the ones

considered as acute include the following: diabetes ketoacidosis (DKA), hyperglycaemic hyperosmolar state (HHS) and hyperglycaemia. The ones considered as long term complications occur due to a mix of microangiopathy,macroangiopathy and immune dysfunction in the form of autoimmune disease or poor immune response, most of which are difficult to manage. Microangiopathy can affect all vital organs like kidneys (diabetic nephropathy), heart (myocardial infarction), and brain (stroke) as well as eyes (diabetes retinopathy), nerve (diabetes neuropathy), lungs and locally gums and feet (diabetes foot disease). Obirikorang(2016) also added that macrovascular problems can lead to cardiovascular disease including erectile dysfunction and female infertility.

Engelau and Geiss (2014) opined that diabetes mellitus is fast assuming epidemic dimensions in parts of the world including Nigeria. Before now diabetes was regarded as the disease of the aged, but today medical field is bewildered by age bracket of those infected. The statistics of those suffering from diabetes mellitus is unknown in Nigeria, but estimates as provided by Ibitoye and Ugege (2017) are in the region of 8-10% of the population. Also, Duru and Obi (2016) rated Nigeria the 5th among African countries in terms of prevalence of diabetes mellitus.. In Africa, it is estimated the prevalence to be 1% in the rural areas, and ranges from 5% to 7% in urban sub-Saharan Africa. Recently figures released by the International Diabetes Federation (IDF, 2018), indicates that the number of people living with diabetes Mellitus is expected to rise from about 400 million in 2018 to 552 million in 2030, if no urgent action is taken. This alarm raised by IBF calls for research especially in self-management of the disease.

From personal experience self-management goes a long way in helping patients in pulling through the disease for a long period. Funnel, Brown and Childs (2010), were of the view that self-management of diabetes mellitus implies day to day fulfillment of process leading to optimized resources, skills and abilities, attitude and values to attain goals of metabolic control that minimize the onset of acute and chronic complications at the lowest cost and with the best quality of life for patients and family alike. Self-management of diabetes would include maintaining diet, exercise as well as blood sugar values and monitoring medications. It would include self-foot check and monitoring other symptoms that are caused by diabetes mellitus. Self- management consists of a complex and dynamic set of processes and it is deeply embedded in ones unique life situation. Support from diabetes specialist nurses and family caregivers is a necessity of self-managing diabetes.

Falck (2018) while describing the self-management practices stated that diabetes mellitus is not curable for most people, but that treatment include medications, lifestyle adjustments and managements of diabetes complications. He opined that the main aim of diabetes management is to return blood sugar to a

safe threshold and reduce the risk of complications while helping a person with diabetes to resume daily function.

The main objective of the study was to determine the self-management practices of diabetes mellitus patients attending general hospitals in Akwa Ibom State. The study was guided by the following research questions:

1. What are the self-management practices of diabetes mellitus among patients attending general hospitals in Akwa Ibom State
2. How do the self-management practices of diabetes mellitus differ among patients according to age?
3. How do the self-management practices of diabetes mellitus differ among patients according to level of education
4. How do the self-management practices of diabetes mellitus differ among patients according to gender?

Methodology

The study employed descriptive research design method. Population of the study comprised of 4200 patients attending 13 general hospitals in Akwa Ibom State. The sample was 420 patients representing 10% of the study population; this was based on Nwana (1999) rule of thumb. The stratified random sampling technique was used to select the study sample; each hospital was treated as a stratum. From each stratum (hospitals) random sampling was used to select 32 participants in 9 hospital and 33 in four other hospital on their clinic days. Instrument for data collection was a structured questionnaire developed by the researchers which was validated by health experts. Test retest method was adopted to test the reliability of the instrument. Data from it were subjected to Product Moment reliability coefficient which gave 0.87. Data were collected by visiting the selected hospitals and by the help of research assistants, the questionnaires were distributed to the patients and were collected on the spot. Data generated were analyzed using mean to answer the research questions while one-way-ANOVA and t-test were used to test the hypotheses.

Results

Table 1: Self-management practices of diabetes mellitus among patients in general hospitals in Akwa-Ibom State (n=420)

SN	Items	$\bar{x}$	SD
1.	I Should check my blood sugar level regularly as a part of my treatment.	3.53	.554
2.	Food I choose to eat makes it easy to achieve optimal blood sugar level.	3.19	.697
3.	I keep all doctors' appointments as recommended for my diabetes treatment.	3.33	.682
4.	Diabetes medication/insulin is not required as a part of	1.76	.787

	treatment.		
5.	I occasionally eat lots of sweets or other foods rich in carbohydrates.	1.93	.816
6.	Engaging in regular physical activity will help me achieve optimal blood sugar level	3.14	.800
7.	I should strictly follow the dietary recommendation given to me by my doctor or dietician	3.32	.650
8.	I tend to avoid diabetes related doctors' app0itment and it does not matter	2.06	.908
9	I should also maintain optimal weight by measuring my weight regularly	3.03	.796
10	Whenever I am on a trip, I carry my insulin/medications and blood sugar tester	3.12	.727
11	I eat a well-balanced diet a lot food exchange	2.98	.742
12	I attend seminars on diabetes mellitus to get myself more informed on diabetes mellitus	3.18	.806
13	I carry sweet drinks or candy around in case of low blood sugar	2.37	.907
14	I should be very cautious if one or both of my parents ar already diabetic	2.88	.815
15	I support screening for diabetes in all pregnant women	3.29	.801
	Cluster	**2.87**	**.765**

Note. $\bar{x}$< 2.50 = poor DM self-management practices; $\bar{x} \geq 2.50$ = Good DM Self-management practices

Results in Table 1 show that overall, the patients adopted good self-management practices of diabetes mellitus ($\bar{x}$ = 2.87; SD = .765)

Table 2: Self-management practices of diabetes mellitus among patients in general hospitals in Akwa-Ibom State by age

	<30 (=33)		30-39 yrs (n=22)		40-49 yrs (n=60)		50-59 yrs (n=84)		60-69yrs (n=114)		>70 yrs (n=107)	
Items	$\bar{x}$	**SD**	$\bar{x}$	**SD**	$\bar{x}$	**SD**	$\bar{x}$	**SD**	$\bar{x}$	**SD**	$\bar{x}$	**SD**
I Should check my blood sugar level regularly as a part of my treatment.	3.41	.507	3.65	.489	3.62	.555	3.65	.549	3.34	.577	3.58	.496
Food I choose to eat makes it easy to achieve optimal blood sugar level.	3.45	.671	33.45	.510	3.40	.694	3.17	.876	3.06	.553	3.08	.660
I keep all doctors' appointments as recommended for my diabetes treatment.	3.64	.492	3.64	.492	3.57	.593	3.45	.735	3.15	.707	3.20	.621
Diabetes medication/insulin is not required as a part of treatment.	1.86	.640	2.05	1.04	1.88	.846	1.45	.782	1.70	.703	1.83	.720
I occasionally eat lots of sweets or other foods rich in carbohydrates.	1.78	.647	1.45	.510	1.80	.935	1.68	.679	2.19	.921	2.09	.666
Engaging in regular physical activity will help me achieve optimal blood sugar level	3.14	.710	2.73	1.03	3.55	.649	3.18	.853	3.02	.815	3.15	.684
I should strictly follow the dietary recommendation given to me by my doctor or dietician	3.45	.739	3.41	.66	3.60	.616	3.50	.668	3.03	.658	3.26	.484
I tend to avoid diabetes related doctors' app0itment and it does not matter	2.50	1.225	2.50	.85	1.90	.986	1.62	.743	2.18	.746	2.20	.895
I should also maintain optimal weight by measuring my weight regularly	2.86	1.125	2.91	1.10	3.33	.681	3.29	.886	2.86	.664	2.90	.628
Whenever I am on a trip, I carry my insulin/medications and blood sugar tester	3.00	.873	3.23	1.06	3.37	.736	3.43	.716	2.96	.630	2.93	.587
I eat a well-balanced diet a lot	2.77	.528	3.09	.868	3.28	.739	3.05	.820	2.89	.629	2.84	.754

food exchange												
I attend seminars on diabetes mellitus to get myself more informed on diabetes mellitus	3.18	.733	3.18	.853	3.23	1.125	3.25	.903	3.14	.639	3.18	.684
I carry sweet drinks or candy around in case of low blood sugar	2.50	1.225	2.23	1.15	2.15	.840	2.10	.900	2.71	.828	2.35	.802
I should be very cautious if one or both of my parents are already diabetic	2.27	.883	2.41	.959	3.07	.918	2.92	.732	2.94	.732	2.93	.780
I support screening for diabetes in all pregnant women	3.23	.752	3.14	1.037	3.48	.676	3.35	.857	3.16	.782	3.36	.780
Cluster	**2.86**	**0.95**	**2.87**	**0.85**	**3.02**	**1.20**	**2.87**	**0.78**	**2.82**	**0.71**	**2.86**	**0.68**

Self-Management Practices of Diabetes Mellitus among patients by age

Note $\bar{x} < 2.50$= Poor DM self – management practices; $\bar{x} \geq 2.50$ = Good DM self – management practices. Results in Table 2 show that overall, the respondents within the age bracket of <20 years to>70 years had good DM self management practices. Those within the age bracket of 40-49 years had the highest mean score indicating that they are the best in self – management of DM

Table 3: Self-management practices of diabetes mellitus among patients in general hospitals in Akwa-Ibom State by level of educational attainment

Items	Educational attainment									
	None (n=3)		Primary (n=9)		Secondary (n=249)		Tertiary (n=140)		Postgraduate (n=21)	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
I Should check my blood sugar level regularly as a part of my treatment.	3.33	1.155	2.44	.527	3.39	.537	3.78	.417	4.00	.000
Food I choose to eat makes it easy to achieve optimal blood sugar level.	3.33	1.155	2.44	.527	3.07	.600	3.36	.787	3.81	.402
I keep all doctors' appointments as recommended for my diabetes treatment.	3.33	1.15	2.44	.726	3.14	.650	3.64	.578	3.90	.301
Diabetes medication/insulin is not required as a part of treatment.	2.33	.577	2.33	.707	1.81	.669	1.67	.970	1.38	.498
I occasionally eat lots of sweets or other foods rich in carbohydrates.	2.33	.577	2.56	.527	2.10	.826	1.67	.741	1.38	.498
Engaging in regular physical activity will help me achieve optimal blood sugar level	3.00	.000	2.78	.441	3.09	.733	3.16	.918	3.71	.644
I should strictly follow the dietary recommendation given to me by my doctor or dietician	2.67	.577	2.33	.866	3.11	.606	3.67	.486	3.90	.301
I tend to avoid diabetes related doctors' app0itment	2.00	.000	2.00	.500	2.28	.810	1.81	1.02	1.29	.463

and it does not matter										
I should also maintain optimal weight by measuring my weight regularly	3.00	.000	3.00	.441	2.85	.632	3.25	.983	3.81	.402
Whenever I am on a trip, I carry my insulin/medications and blood sugar tester	3.33	1.155	3.33	.667	2.88	.643	3.49	.651	3.90	.301
I eat a well-balanced diet a lot food exchange	3.67	.577	3.67	.500	2.85	.679	3’16	.755	3.57	.676
I attend seminars on diabetes mellitus to get myself more informed on diabetes mellitus	3.33	1.155	3.33	.667	3.06	.673	3’39	.894	3.81	.602
I carry sweet drinks or candy around in case of low blood sugar	2.00	000	2.22	.667	2.47	.815	2.24	1.015	2.29	1.189
I should be very cautious if one or both of my parents are already diabetic	3.00	000	2.33	.707	2.91	.738	2.84	.918	3.05	.973
I support screening for diabetes in all pregnant women	2.67	.577	2.00	.500	3.17	.825	3.51	.673	3.86	3.59
Cluster	**2.69**	**0.55**	**2.15**	**0.52**	**2.81**	**.69**	**2.98**	**0.79**	**2.93**	**0.55**

Note. $\bar{x}$< 2.50 = poor DM Self-management Practices; $\bar{x}$> 2.50 = Good DM Self-management Practices.

Results in table 3 show that overall, the patients with both non-formal education (x=2.69; SD= o.55; secondary education (x= 2.81; SD=.69) tertiary education (x=2.98; SD .79) and postgraduate education (x=2.93; SD= .55) had good self-management practices of diabetes mellitus, except those with primary education (x=2.15; SD=.52).

Table 4: Self- management of diabetes mellitus among patients in general hospitals in Akwa-Ibom State by gender

	Items	Gender Male (n=148)		Female (n=270)	
		$\bar{x}$	SD	$\bar{x}$	SD
1.	I Should check my blood sugar level regularly as a part of my treatment.	3.68	.511	3.45	.562
2.	Food I choose to eat makes it easy to achieve optimal blood sugar level.	3.29	.767	3.14	.651
3.	I keep all doctors' appointments as recommended for my diabetes treatment.	3.49	.695	3.25	.661
4.	Diabetes medication/insulin is not required as a part of treatment.	1.65	.864	1.82	.736
5.	I occasionally eat lots of sweets or other foods rich in carbohydrates.	1.78	.779	2.01	.824
6.	Engaging in regular physical activity will help me achieve optimal blood sugar level	3.24	.803	3.08	.794
7.	I should strictly follow the dietary recommendation given to me by my doctor or dietician	3.55	.587	3.19	.650
8.	I tend to avoid diabetes related doctors' app0itment and it does not matter	1.75	.895	2.24	.870
9.	I should also maintain optimal weight by measuring my weight regularly	3.25	.840	2.91	.746
10.	Whenever I am on a trip, I carry my insulin/medications and blood sugar tester	3.26	.801	3.05	.674
11.	I eat a well-balanced diet a lot food exchange	3.03	.786	2.95	.717
12.	I attend seminars on diabetes mellitus to get myself more informed on diabetes mellitus	3.37	.731	3.08	.827
13.	I carry sweet drinks or candy around in case of low blood sugar	2.22	.932	2.46	.883
14.	I should be very cautious if one or both of my parents are already diabetic	2.92	.837	2.86	.803
15	I support screening for diabetes in all pregnant women	3.36	.800	3.26	.801
	Cluster	**2.92**	**.775**	**2.85**	**.070**

Note $\bar{x}$< 2.50 = Poor DM Self – management practices x ≥ 2.50 = Good DM Self-management Practices

Results in table 4 show that overall, both Male and Female patients had good self – management practices of diabetes mellitus (Male, X=2.87; SD=.765; Female, X= 2.85; SD=.070).

Discussions

Table 1 revealed that overall, the patients adopted good self-management practices of diabetes mellitus ($\bar{x}$=2.87; SD = .765). Table 2 shows that the respondents within the age bracket of 20 years had good self-management practices of diabetes mellitus ($\bar{x}$= 2.82; SD = 0.69), also age bracket of 20-29 years ($\bar{x}$= 2.86; SD= 0.95), 30-39 years ($\bar{x}$= 2.87; SD= 0.85), 40-49 years ($\bar{x}$= 3.02; SD = 1.2) 50-59 years ($\bar{x}$ = 2.87; SD = 0.78), 60-69years ($\bar{x}$ = 2.82; SD=0.71) and $> 70\ years$ ($\bar{x}$ = 2.86; SD= 0.68) respectively indicated good management practices for diabetes mellitus. These results were expected based on the amount of education going on in our social media our radio and TV stations across country on diabetes mellitus. The result is also in agreement with that of Kadiri (2005) and Ali and Jimoh (2014) who stated that self- management especially, life style changes can help to control and prevent diabetes mellitus and its complications. Specifically, age bracket of 40-49 years were the highest ($\bar{x}$ = 3.02; SD = 1.2) while those of age bracket of 60-69 years showed the lowest self-management practices ($\bar{x}$ = 2.32; SD = 0.71). This result was expected as it agrees with that of Diaz, (2017) who found out that diabetes mellitus traditionally believed to only affect the older age group is now increasingly diagnosed among the adolescents and younger adults who are becoming aware of the disease. However, the findings seem to partially disagree with that of Asha (2014), who found that the majority of the patients who had good self- management practices fell within the age group of 60-70 years. The result also supports the finding of Lyolomhe &lyalomhe (2010), who found out that males tend to be more associated with good knowledge and good self management practices. The Results in Table 3 show that overall, the study population with both non-formal education ($\bar{x}$ = 2.69; SD = 0.55); secondary education ($\bar{x}$ = 2.81; SD = 0.69); tertiary education ($\bar{x}$ = 2.98; SD = 0.79) and post graduate education ($\bar{x}$ = 2.93; SD = 0.55) had good self-management practices of diabetes mellitus, except respondents with primary education ($\bar{x}$ = 2.15; SD=0.52). However, respondents with tertiary education had the highest ($\bar{x}$ = 2.98; SD = 0.79), while respondents with primary education had the lowest management practices of diabetes mellitus. This result was expected in view of the fact that it agrees with that of Abdullahi and Hamzat (2011), who found out that there was a significant relationship between level of education and self- management practices of diabetes mellitus. It also agrees with that of Xu,Toobert, Savage, Pan, Whitmer (2008), who asserted that higher level of education and longer duration of diabetes mellitus contribute to improved diabetes knowledge which in turn linked with enhanced self- efficacy.

Further analyses of result in table 4 showed that overall, both male and female patients had good self-management practices of diabetes mellitus (male $\bar{x}$ = 2.86; SD = 0.765; Female $\bar{x}$ = 2.85; SD = .070). When the data were further subjected to inferential statistics, it revealed no significant difference in self-management practices of diabetes mellitus based on gender t(418) = 2.377, p =.494, whereas there were significant differences in the self- management practices of patients of diabetes mellitus based on level of education F(4,415=23.924, p= .000) and age F(6,413 = 2.996, p = .000). These results imply that patients of different educational levels and age brackets adopted different self-management practices for diabetes mellitus. However, the results seem to disagree with the findings by Olusegun, Olusegun, Olufemi, oladimeji, Almed, Segun, Olusogo and Olaleye (2014) which revealed that majority of the participants with good knowledge of diabetes self-management practices where males and this is consistent with the findings of Abdullahi and Amzat (2010) which revealed more middle age males than females demonstrated significant knowledge of self- management practices of diabetes complications

Conclusions

Overall, the respondents demonstrated good self- management practices of diabetes mellitus. Both males and females demonstrated good self- management practices. Mean score of the respondents within the age bracket of 40-49 years indicated the highest self-management practices of diabetes mellitus while the age bracket of 60-69 years had the lowest self-management practices of diabetes mellitus. Male respondents had the highest good self-management practices than the female respondents. Respondents with tertiary education had the highest good self- management practices, while those with primary education had the lowest self- management practices. There was no significant difference in the self-management practices of patients based on gender, while there was a significant difference in self-management practices of patients based on level of education and age of respondents.

Based on the finding and conclusions of the study the following recommendations were made:

1. Patients should be taught self- management practices options available while attending hospitals for routine checkup. Pre-diabetes conditions should be dictated early and efforts should be made to nip such cases in the board before they become full blown diabetes.
2. Health care workers working with diabetic patients should intensify self care management education especially for those who are not highly educated especially those with lower than secondary school education.

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