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KNOWLEDGE, ATTITUDE AND PRACTICE OF SELF-CARE AMONG DIABETIC PATIENTS IN A TERTIARY HEALTH FACILITY IN RIVERS STATE

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ABSTRACT

Background: Diabetes Mellitus (DM) is one of the most challenging public health problems in the 21st century. In 2014, it was the cause of 4.9 million deaths and was accountable for 11 % of the total global health expenses. By 2030, diabetes is projected to be the 7th leading cause of death. However diabetes complications and subsequent death could be prevented or at least practically reduced if a culture of knowledge, attitude and practice of self-care is inculcated in DM patients. This study aimed to assess the level of knowledge, attitude and practice of self-care among diabetic patients in University of Port Harcourt Teaching Hospital. **Methods:** This was a descriptive cross-sectional study. Convenience sampling method was used to recruit 359 diabetic patients from the endocrinology clinic in UPTH between October and December 2017. A semi-structured interviewer- administered questionnaire was used to obtain data from the selected diabetic patients. **Results:** A total of 359 patients were studied, with a mean age of 55.42 ± 11.90 years. The proportion of good, fair and poor knowledge of diabetes self-care among the 359 respondents were 43.7%, 35.1% and 21.2% respectively. Majority of the study participants had good attitude (78.8%) and practice (59.3%) while 21.2% had poor attitude and practice (40.6%) towards diabetes self-care. **Conclusion:** The overall knowledge was unsatisfactory while attitude and practice of self-care among diabetic patients in UPTH was good. To prevent complications of diabetes, there is an urgent need for coordinated educational campaigns to intensify training on self-management skills.

KEYWORDS: Knowledge, Attitude, Practice, Self-care, Diabetes mellitus.

INTRODUCTION

Diabetes is one of the most prevalent chronic diseases, with a handful of common and preventable risk factors as well as major behavioral risk factors.[1] Globally, diabetes has been established as a prototypical chronic disease that affected 347 million people in 2008[2] and 387 million in 2014. About 77% of them reside in low and middle income countries (LMICs) with a majority being the adult population. It is projected that by 2035, 592 million people will suffer from diabetes.[3] In 2014, diabetes was the cause of 4.9 million deaths and was responsible for 11 % of the total global health expenses. More than 80% of diabetes deaths occur in developing countries. By 2030, diabetes is estimated to be the 7th leading cause of death.[4] The World Health Organization in its report, stated that Nigeria has the greatest number of people living with diabetes in Africa, with an estimated burden of about 1.7 million which is projected to be elevated to 4.8 million by 2030.[4] More perturbing than the number of people with diabetes in Nigeria is the number who remain undiagnosed or untreated. This relatively large number poses a great burden on the meagre health budget. The net effect is that many patients present to secondary and tertiary health care centres with advanced disease and attendant high morbidity and mortality.

Diabetes has a wide coverage across the country. In the rural areas of Nigeria, diabetes is prevalent in 0%-2% of the population, whereas in the urban regions the figures are much higher at 5%-10%.[5] The divergence in prevalence values is often seen as a result of westernization and demographic transition; the progressive shift in the population from rural to urban centres raising fears that a diabetes epidemic is on the horizon. Diabetes is uncommon in children in Nigeria, clinical statistics reveal the number of children and adolescents with diabetes is gradually on the increase.[6]

Diabetes undoubtedly has changed the landscape of health care in Nigeria over the decades. It has been associated with the resurgence of tuberculosis and with the rising prevalence of end-stage kidney disease, erectile dysfunction, and stroke.[7] It has also led to higher numbers and the majority of cases of lower extremity amputation (LEA) in Nigeria.[8] On medical wards, diabetics have the longest infirmary check and highest medical bills with several complications, such as

stroke, heart failure, and LEA from foot gangrene.[9] Not surprisingly, diabetes remains one of the costliest diseases to manage largely because of the associated complications and the comorbidities.[10]

Self-care is defined as the actions individuals take to ensure a healthy lifestyle, to meet their social, emotional and psychological needs, to care for their long-term condition and to prevent further illness,[11,12] Currently, self-care is largely considered as an integral part of patient management in long term conditions.[13]

Self-care disease management is patient-centered. It is designed to effectively self-manage their conditions with success. This utilizes effective, best-practice care strategies for adult patients with chronic diseases. This in turn empowers the patient to understand their disease, in other to implement effective care strategies, to ensure desired health outcomes. Self-care focuses on three key areas, which includes patient's education on the pathophysiology of the disease, therapeutic interventions as well as self-management strategies. Hence the effectiveness of any self-care plan depends on active patient participation which stems from the knowledge available to the patient and the application of such knowledge.[14] This knowledge creates desired health results, preserves and improves the quality of life, lowers healthcare costs and conquers the detriment of chronic disease.[14,15]

The self-care practices of individuals are influenced by their knowledge about diabetes; the more they know about their ailment, the more they possess self-management skills. Many research work published have shown that the diabetic populace do not have enough awareness of diabetes, the proper use of medications, life style modifications, dietary plans, myths associated with insulin and other education programs on health matter. Hence, this study seek to assess the level of knowledge, attitude and practice of self-care among diabetic patients visiting University of Port Harcourt teaching hospital.

Methods

Study location

The study was conducted at the Medical Out-Patient Department of University of Port Harcourt Teaching Hospital (UPTH) which is located at Alakahia, along the East –West Road of Port Harcourt metropolis, Rivers State, Nigeria. It was founded in 1980 but officially commissioned by the federal government in 1985. UPTH is one of the two tertiary hospitals in Port Harcourt with teaching and research facilities and affiliated to the federal University of Port Harcourt. It runs several specialist clinics among which is the Endocrinology clinic which holds on Wednesdays.

Study population

This study was a descriptive cross-sectional study conducted among confirmed diabetic patients who were registered and receiving care in the medical out-patient clinic of the Endocrine Unit in the University of Port Harcourt Teaching Hospital. Diagnosed diabetics for at least six months were included in the study while diabetic patients who were too ill or pregnant were ineligible to participate.

Sampling method

Cochran formula for determining minimum sample size was used to determine our sample size of 359. This study employed a convenience sampling method. On each clinic day, all consenting diabetic patients who met the inclusion criteria were enrolled into the study until the end of the 8th week when all the 359 participants were obtained for the study.

Since I experienced some delay in obtaining ethical clearance, I was left with a short time for data collection, this necessitated the use of convenience sampling technique instead of systematic sampling which is the ideal. The endocrinology clinic registered about 50 patients on the average weekly hence within 8weeks, I administered the questionnaire with the expectation of getting at least 359 patients as the population for the study. Care was taken to exclude patients on repeat visit so as to avoid administering the instrument more than once on the same patient.

Study procedure

The questionnaire was administered by the researcher and 3 trained interviewers. The interviewers were trained during a two-hour session, whereby the aim and objectives of the study were explained to them. They were told possible challenges they might encounter while administering the questionnaires and how to tackle them (For instance, those that may wish not to disclose information to a researcher should not be coerced). On each clinic day as patients await there turns to see the doctor, the researcher politely engaged them generally, explained the aim of the research and craved their indulgence to provide the information needed. The researcher and assistants then meet patients individually for data collection.

Study instrument

The instrument for data collection was a semi- structured interviewer-administered questionnaire written in English Language comprising of 36 items. The tool was developed based on literature and the Michigan Diabetes and Research Training questionnaire.[16] A pre-test of the questionnaire was done with sample of 30 diabetic patients who were attending diabetes clinic at Military Hospital, Port Harcourt. Questions that were not well understood by respondents were reframed, before interviewing the study sample. The questionnaire was also scrutinized by my supervisor and inputs made were effected. The tool was divided into five sections: Section A dealt with socio-demographic information which includes patient's age, gender, monthly income, occupational and educational status. Section B was based on medical and social history including the duration of

the disease, presence of co-morbidities, family history and data on previous and current fasting blood glucose levels while Sections C, D and E were for data on knowledge, attitude and practice of self-care in diabetes management respectively.

A total of 14 items were used to ascertain the level of knowledge of self-care among diabetic patients which included basic knowledge of diabetes, advantages of exercise, complications of diabetes, groupings of food, ideal body weight and obesity. For the 14 items on knowledge question, the maximum possible score was '14' and the minimum score was '0'. Poor knowledge corresponded to a score of (0- 4); fair knowledge corresponded to a score between,[5-9] good knowledge corresponded to a score of.[10-14]

A total of 12 items were included and used to assess respondents' attitude towards self-care of diabetes. A five point likert scale was used to measure attitude. Questions evaluating attitude towards the treatment of diabetes were associated with the five categories of response: 'strongly agree', 'agree' 'neutral' 'disagree' and 'strongly disagree'. Each positive response (agree) was assigned a score of '1', and each negative response has a score of '0'. For the 12 attitude related questions the maximum attainable score was '12' and the minimum score was '0. Poor attitude corresponded to a score between (0-8); good attitude corresponded to a score of.[9-12]

A total of 10 items were used to assess self-care practice towards management of diabetes. Questions covered areas such as glucose monitoring, physician visit, weight management, exercise, foot care, smoking, consumption of alcohol, compliance to drug and dietary plan. The maximum attainable score was '10' and minimum was '0'. Poor self-care practice corresponded to a score between (0-6); good self-care practice corresponded to a score of (7-10).

Data analysis

Data was coded into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS version 23.0). Descriptive data was presented in frequency distribution tables. Summary statistics was done using mean and standard deviation for continuous variables. Chi-square test was used to ascertain association between variables. Significance level was set at 95% confidence interval. $P < 0.05$ was considered statistically significant.

Ethical considerations

This study was conducted with adherence to ethical standards. Written informed consent was obtained from participants. Approval for this study was obtained from the Ethics and Research Committee of the University of Port Harcourt. Confidentiality was maintained in line with standard medical practice.

Study limitation

Data regarding self-care practices was mainly on verbal responses. Since the responses to the questions were all self-reported, there could be the problem of recall from the respondents, which might make the reliability of the responses difficult to validate.

RESULTS

A total number of 359 questionnaires were administered to diabetic patients receiving care in UPTH, 359 of the consistent and completely filled questionnaires were analyzed, giving a response rate of 100%.

Socio-Demographic characteristics of respondents

Table 1: Age, Sex and Marital status distribution among respondents.

Characteristics	Frequency (n=359)	Percentage (%)
Age years		
≤ 25 – 35	17	4.8
36 – 45	76	21.2
46 – 55	80	22.3
≥56	186	51.8
Mean age	***55.42 ± 11.90years***	
Sex		
Male	155	43.2
Female	204	56.8
Marital Status		
Single	46	12.8
Married	267	74.4
Separated	8	2.2
Divorced	17	4.7
Widow/Widower	21	5.8

Table 1 showed that the mean age of respondents was 55.42 ± 11.90 years, 186(51.8%) were within 56 years age group and above, 80(22.3%) were within 46-55 years , 76(21.2%) were within 36-45 years, while 17(4.8%) were within 25-35 years age group. 204 (56.8%) were females, while 155(43.2%) were males. Most of the

respondents were married 267(74.4%), 46(12.8%) were single, 21(5.8%) have lost their spouse, 17(4.7%) were divorced, while 8(2.2%) were separated.

Table 1b: Educational level, employment Status and Monthly income of respondents.

Characteristics	Frequency (n=359)	Percentage (%)
Educational Level		
None	37	10.3
Primary	77	21.4
Secondary	127	35.4
Tertiary	118	32.9
Employment Status		
Unemployed	129	35.9
Employed	179	49.9
Retired	51	14.2
Monthly Income		
<50,000	213	59.3
50001-250000	139	38.7
≥250001	7	1.9

Table 1b shows that 127(35.4%) had only completed their secondary school education, 118(32.9%) had attained tertiary level of education, 77(21.4%) stopped at primary school, while 37(10.3%) didn't go to school. Most 179(49.9%) of the respondents were employed, 129(35.9%) were unemployed, while 51(14.2%) were retired. Majority 213(59.3%) of the respondents have a monthly income <50,000 naira, 139(38.7%) earn within 50001-250000 naira, while 7(1.9%) earn within 250001 naira and above.

Knowledge of diabetes self-care

Table 2a: Level of knowledge on self-care among diabetic patients.

Characteristics	Frequency (N=359)	Percentage (%)
Glucosylated Haemoglobin (Hba1c) Is A Test That Measures Your Average Blood Glucose Level In The Past Weeks		
True	104	29.0
False	47	13.1
Don't Know	208	57.9
Total	359	100.0
Diabetes Is A Hereditary Disease		
True	202	56.3
False	83	23.1
Don't Know	74	20.6
Total	359	100.0
A Can Of Diet Soft Drink Can Be Used For Treating Low Blood Glucose Levels.		
True	198	55.2
False	49	13.6
Don't Know	112	31.2
Total	359	100.0
Vegetables And Fruits Should Be A Part Of Your Meal Daily		
True	272	75.8
False	32	8.9
Don't Know	55	15.3
Total	359	100.0

Regarding if Hba1c is a test that measures average blood glucose level in the past week, 104(29.0%) said is true, 47(13.1%) said its false while 208(57.9%) had no knowledge about it. Regarding knowledge on if diet of soft drinks can treat low blood glucose levels, 198(55.2%) said true, 49(13.6%) said false, while 112(31.2%) said had no knowledge. Regarding knowledge of if vegetables and fruits are part of daily meal, 272(75.8%) said true, 32(8.9%) said false, while 55(15.3%) had no knowledge.

Table 2b: Level of knowledge on self-care.

Characteristics	Frequency (N=359)	Percentage (%)
Exercising Regularly Can Help Reduce High Blood Sugar Levels		
True	236	65.7
False	52	14.5
Don't Know	71	19.8
Total	359	100.0
For A Person In Good Blood Glucose Control, Exercising Has No Effect On Blood Sugar Levels		
True	129	35.9
False	91	25.3
Don't Know	139	38.7
Total	359	100.0
Infection Is Likely To Cause An Increase In Blood Sugar Levels		
True	168	46.8
False	53	14.8
Don't Know	138	38.4
Total	359	100.0
Eating Foods Low In Fat Decreases Your Risk For Heart Disease.		
True	211	58.8
False	50	13.9
Don't Know	98	27.3
Total	359	100.0

Regarding knowledge on if exercise aids in reducing high blood sugar level, 236(65.7%) said true, 52(14.5%) said false, while 71(19.8%) had no knowledge. Regarding knowledge on for a person to have good blood glucose level exercise has no effect, 129(35.9%) said true, 91(25.3%) said false, while 139(38.7%) had no knowledge of it. Regarding knowledge on if infection can cause an increase in blood glucose level, 168(46.8%) reported true, 53(14.8%) said false, 138(38.4%) had no knowledge of it. Regarding knowledge of if eating food low on fats decreases the risk of having heart diseases, 211(58.8%) said true, 50(13.9%) said false, while 98(27.3%) had no knowledge of it.

Table 2c: Level of knowledge on self-care.

Characteristics	Frequency (N=359)	Percentage (%)
Diabetes Can Affect The Eyes, Foot, Kidney, Heart Etc		
True	259	72.1
False	40	11.1
Don't Know	60	16.7
Total	359	100.0
Poor Control Of Diabetes Could Result In Greater Chance Of Complications		
True	221	61.6
False	45	12.5
Don't Know	93	25.9
Total	359	100.0
Taking A High Dose Of Insulin May Cause The Blood Sugar Level To Rise.		
True	111	30.9
False	84	23.4
Don't Know	164	45.7
Total	359	100.0

Regarding knowledge of if diabetics can affect eyes, foot kidney and heart, 259(72.1%) said true, 40(11.1%) said false, while 60(16.7%) had no knowledge. Regarding knowledge of if poor control of diabetics could cause complications, 221(61.6%) said true, 45(12.5%) said false, 93(25.9%) had no knowledge. Regarding knowledge of if high doses of insulin may cause blood

sugar level to rise, 111(30.9%) said true, 84(23.4%) said false, while 164(45.7%) had no knowledge.

Table 2d: Level of knowledge on self-care.

Characteristics	Frequency (N=359)	Percentage (%)
Overweight Is A Risk Factor For Diabetes		
True	211	58.8
False	58	16.2
Don't Know	90	25.1
Total	359	100.0
Having Regular Check-Ups With Your Doctor Can Help Spot The Early Signs Of Diabetes Complications.		
True	254	70.8
False	46	12.8
Don't Know	59	16.4
Total	359	100.0
Attending Your Diabetes Appointments Will Stop You From Getting Diabetes Complications		
True	220	61.3
False	82	22.8
Don't Know	57	15.9
Total	359	100.0

Regarding knowledge on if overweight is a risk factor, 211(58.8%) said true, 58(16.2%) said false, while 90(25.1%) had no knowledge. Regarding knowledge on if regular check-ups with doctors aids in early detection of signs of diabetic complication. 254(70.8%) said true, 46(12.8%) said false, while 59(16.4%) had no knowledge. Regarding knowledge on if keeping up with diabetics appointment can aid in stopping diabetes complication, 220(61.3%) said true, 82(22.8) said false, while 57(15.9%) had no knowledge.

Attitude towards self-care among diabetic patients

Table 3a: Attitude towards self-care.

Characteristics	Frequency (N=359)	Percentage (%)
There Is Not Much Use In Trying To Have Good Blood Sugar Control Because The Complications Of Diabetes Will Happen Anyway		
Strongly agree	70	19.5
Agree	59	16.4
Neutral	65	18.1
Disagree	148	41.2
Strongly disagree	17	4.7
Total	359	100.0
Diabetes Affects Almost Every Part Of A Diabetic Person's Life		
Strongly agree	121	33.7
Agree	121	33.7
Neutral	57	15.9
Disagree	56	15.6
Strongly disagree	4	1.1
Total	359	100.0
I would not readily disclose if i have diabetes		
Strongly agree	73	20.3
Agree	89	24.8
Neutral	64	17.8
Disagree	116	32.3
Strongly disagree	17	4.7
Total	359	100.0

Regarding attitude towards good blood glucose control in preventing complications of diabetes, 165(46%) strongly agreed that there is need to have good glycemic control while 129(35.9%) said there is not much use in trying to

have good control because the complications of diabetes will happen anyway while 65(18.1%) were neutral. Regarding attitude towards disclosing one's diabetic status, 133(37%) said they would readily disclose if they are diabetic, 161(45.1%) said they would not while 64(17.8%) were neutral.

Table 3b: Attitude towards self-care.

Characteristics	Frequency (N=359)	Percentage (%)
Diabetes Can Affect A Person's Self Esteem		
Strongly agree	97	27.0
Agree	113	31.5
Neutral	65	18.1
Disagree	58	16.2
Strongly disagree	26	7.2
Total	359	100.0
I Feel Smoking And Drinking Do Not Have Effect On My Blood Sugar Level		
Strongly agree	58	16.2
Agree	62	17.3
Neutral	76	21.1
Disagree	136	37.9
Strongly disagree	27	7.5
Total	359	100.0
I Skip My Appointment With The Doctor		
Strongly agree	60	16.7
Agree	67	18.6
Neutral	60	16.7
Disagree	155	43.1
Strongly disagree	18	5.0
Total	360	100.0

Regarding if diabetes affects self-esteem, 210(58.5%) agreed, 84(23.4%) disagreed while 65(18.1%) were neutral. Regarding if smoking and alcohol consumption have negative effect on blood sugar level, 163(45.4%) agreed, 120(33.5%) disagreed and 76(21.1%) were neutral.

Table 3c: Attitude towards Self-care.

Characteristics	Frequency (N=359)	Percentage (%)
It Does Not Matter Whether I Regularly Monitor My Blood Sugar Level		
Strongly agree	72	20.1
Agree	50	13.9
Neutral	63	17.5
Disagree	153	42.6
Strongly disagree	21	5.8
Total	**359**	**100.0**
Type 2 diabetes is a very serious disease.		
Strongly agree	148	41.2
Agree	116	32.3
Neutral	53	14.8
Disagree	38	10.6
Strongly disagree	4	1.1
Total	**359**	**100.0**
Having diabetes changes a person's outlook on life		
Strongly agree	132	36.7
Agree	125	34.7
Neutral	80	22.2
Disagree	14	3.9
Strongly disagree	9	2.5
Total	**359**	**100.0**

Regarding attitude towards diabetes changing one's outlook on life, 257(71.4%) agreed, 23(6.4%) disagreed while 80(22.2%) were neutral. Regarding perception of diabetes as a very serious disease, 264(73.5%) agreed, 42(11.7%) while 53(14.8%) were neutral.

Table 3d: Attitude towards Self-care.

Characteristics	Frequency (N=359)	Percentage (%)
People with diabetes should learn a lot about the disease so that they can be in charge of their own diabetes care		
Strongly agree	152	42.3
Agree	112	31.2
Neutral	59	16.4
Disagree	31	8.6
Strongly disagree	5	1.4
Total	359	100.0
My diabetes self- care is poor		
Strongly agree	102	28.4
Agree	63	17.5
Neutral	61	17.0
Disagree	118	32.9
Strongly disagree	15	4.2
Total	359	100.0
Support from family and friends is important in dealing with diabetes		
Strongly agree	188	52.4
Agree	84	23.4
Neutral	56	15.6
Disagree	23	6.4
Strongly disagree	8	2.2
Total	359	100.0

Regarding attitude towards gaining knowledge about diabetes for better self-management, 264(73.5%) agreed, 36(8.6%) disagreed while 59(16.4%) were neutral. Regarding support from family and friends being important in dealing with diabetes, 272(75.8%) agreed, 31(8.6%) disagreed while 56(15.4%) were neutral.

Practice of Self-Care among diabetics

Table 4a: Level of self-care practice.

Characteristics	Frequency (N=359)	Percentage (%)
Do you check your blood sugar level regularly		
Yes	284	79.1
No	75	20.9
Total	359	100.0
Do you measure your blood pressure often		
Yes	281	78.3
No	78	21.7
Total	359	100.0
Do you adhere strictly to your drug regimen		
Yes	291	81.1
No	68	18.9
Total	359	100.0
Are vegetables and fruits part of your daily meal		
Yes	295	82.2
No	64	17.8

Total	359	100.0
Do you engage in physical activity regularly		
Yes	264	73.5
No	95	26.5
Total	359	100.0

Regarding practice of blood glucose monitoring, 284 (79.1%) said Yes, while 75(20.9%) said No. Regarding if they adhered strictly to drug regimen, 291(81.1%) said Yes while 78(21.7%) said No. Regarding regular engagement in physical activity, 264(73.5%) said Yes and 95(26.5%) said No. Regarding vegetables and fruits being part of daily meal, 295(82.2%) said Yes, 64(17.8%) said No.

Table 4b: Level of Self-Care Practice.

Characteristics	Frequency (N=359)	Percentage (%)
Do You Engage In Physical Activity Regularly		
Yes	264	73.5
No	95	26.5
Total	359	100.0
Are You Able To Use The Glucometer		
Yes	229	63.8
No	130	36.2
Total	359	100.0
Do You Put On Protective Foot Wears Regularly To Avoid Hurting Your Foot		
Yes	165	46.0
No	194	54.0
Total	359	100.0
Do You Smoke		
Yes	94	26.2
No	265	73.8
Total	359	100.0
Do you take alcohol		
Yes	114	31.8
No	245	68.2
Total	359	100.0
Do you control your weight		
Yes	205	57.1
No	154	42.9
Total	359	100.0

Regarding regular engagement in physical activity, 264(73.5%) said Yes and 95(26.5%) said No. Regarding weight control, 205(57.1%) said Yes, 95(42.9%) said No. Regarding foot-care, 165(46%) said Yes while 194(54%) said No.

DISCUASSION

Knowledge of self-care

In this study, it was observed that the proportion of participants with good level of diabetes self-care knowledge was 43.7%, those with fair knowledge was 35.1% and 21.2% had poor knowledge. This is not in agreement with a study done by Konduru et al[17] which showed that among diabetic patients, only 9% had good knowledge, 45% had fair knowledge and 46% had poor knowledge regarding diabetes mellitus. A study done in Nepal by Anju and colleagues[18] revealed poor level of overall knowledge among diabetic patients. Another study done by Madeleine *et al.*[19] to explore knowledge of self-care among 80 diabetic patients attending a diabetes clinic in Kigali showed that participants had knowledge of some aspects of diabetes self-care, but also had a knowledge gap in others. For example the majority of respondents knew the importance of blood sugar testing, they also knew the normal range of blood glucose but some of them did not comply with the recommended frequency of testing for the blood sugar level every day once or twice for someone not using insulin and 4 to 5 times a day for those on insulin therapy.

Adisa et al[20] conducted a study among diabetics receiving care at a secondary health-care facility in Ibadan, southwest Nigeria. The study revealed an overall poor knowledge (26.9%) of self-care which is not in agreement with the work done by Idongesit et al[21] at

two tertiary hospitals in Nigeria (University of Uyo Teaching Hospital and University of Calabar Teaching Hospital) that revealed a high overall knowledge of70% among diabetic patients.

Attitude towards self-care

The majority of the study participants (78.8%) in this study had good attitude towards self-care. This correlates with the findings in a study done by Purvi et al[22] in Bangladesh which showed good level of positive attitudes towards diabetes care. The Nepal study finding showed poor level of attitude, while other studies from urban area of South India and UAE reported the contradictory findings of positive and good level of attitude among diabetic patients.[23] The study by Purvi et al showed females have better attitude towards self-care compared to males. This is in agreement with the findings in this study.

A cross-sectional study in a Primary Health Unit (PHU) in the municipality of Ribeirao Preto, Brazil was conducted with sample consisting of 79 type 2 diabetes mellitus persons. In relation to the scores obtained using the Diabetes Psychological Attitudes Questionnaire ATT - 19, it was found that most subjects presented scores below 70 points, which indicates that they have not yet achieved a positive attitude towards the modifications in the life style expected in order to obtain good metabolic control. Conversely, it is necessary to consider that knowledge does not always lead to attitude change in the patient faced with the daily demands that the treatment imposes in the quotidian. The study conducted by Adisa et al[20] among diabetics receiving care at a secondary healthcare facility in Ibadan, southwest Nigeria as well reported an overall poor attitude (26.9%) towards self-care, which correlates with poor attitudes found in the Nepal study.

Practice of self-care

In this study, 59.3% of the participants had good level of self-care practices. Although some self-care practice gaps were identified in areas of foot care (194 out of the 359 participants do not practice foot-care) and self – monitoring of blood glucose level. A few of the patients had glucometers at home but not all of them know how to operate it.

It was also observed in this study that respondents above 55 years of age had better self-care practice (70.6%) compared to those who are younger. This may be due to the fact that as people get older, they tend to place more value on their health and consciously engage in risk-reduction behaviors to avert diabetes complications.

The likelihood of good practice among females was more as compared to male in the study done by Anju et al. This finding contradict with the previous studies from Asia and Middle East.[24,25] Results obtained from a study done in Bangladesh by Purvi (2016) showed levels of self-care practice to be poor in 12%, moderate in 72% and good in 16% of the study participants.

A study was conducted in Seven tertiary health institutions covering the six geopolitical regions of Nigeria, the study sites included AKTH, Kano; UNTH, Enugu; UPTH, Port Harcourt; LUTH, Lagos; UCH, Ibadan; LASUTH, Lagos; and National Hospital, Abuja. Findings revealed that adherence to dietary recommendations was practiced by 67% of patients who claimed to be on a "regular" diet. However, adherence to exercise recommendations was poor with only 35.9% of patients claiming to exercise "regularly" and 26.7% not exercising at all. This is better than the figures obtained from studies of diabetic patients from other populations by Chuang et al[26] and Leif et al.[27] The seemingly high percentage of patients observing dietary measures in this study did not translate into good quality of glycemic control.

CONCLUSION

Diabetes self-care knowledge was generally unsatisfactory; attitude and practice of self-care was good among the sample studied and some knowledge gaps were identified. To improve patients' knowledge of self-care and hence, active participation in their care, the reach and frequency of diabetes messages should be increased, and emphasis placed on the areas where knowledge was found to be inadequate.

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Conflicts of interest

The authors declare no conflict of interest.

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