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Self-care Practices and Associated FactorsAmong PeopleLiving with Diabetes Mellitus in Ilorin, North-Central, Nigeria: A Hospital-Based Cross-sectional Study

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Abstract

Diabetes mellitus (DM) is a chronic metabolic disorder of increasing global concern due to its rising prevalence and associated complications. Self-care practices are critical towards effectively managing the condition; however, these practices are often influenced by other factors. This study assessed self-care practices and the factors influencing them among patients with type 2 diabetes mellitus (T2DM) at the University of Ilorin Teaching Hospital (UITH).

A facility-based cross-sectional study was conducted among 153 T2DM patients selected by systematic random sampling between January and March 2025. Data were collected through interviewer-administered, structured questionnaires. Self-care domains assessed included: Self-blood glucose monitoring, diet, exercise, medication adherence, foot care, and home monitoring of blood pressure and weight.Data analysis was done using SPSS version 22.0, and a p-value of <0.05 was considered statistically significant.

The mean age of participants was 58.8 ± 11 years, with females comprising 64.1%. Although 76.5% of respondents were aware of self-care practices, the overall average adherence rate was 44.6%. Regular blood glucose monitoring (82.4%) and clinic follow-up (69.3%) were the most common practices, while the least reportedwas foot care (17.6%). The Chi-square test showed that employment status had a statistically

significant association with diabetes self-care practices (p = 0.046), with employed respondents being more likely to report good self-care practices compared with those who were unemployed or retired.

Though the awareness was high, self-care practices among T2DM patients were relatively low. Gender and employment status emerged as significant determinants, highlighting the importance of tailored interventions to promote health education and improve access to resourcestowards fostering better self-care practices.

Keywords: Diabetes Mellitus, Self-care, Hospital, Practice, Nigeria.

Introduction

Diabetes mellitus (DM) is a chronic, non-communicable metabolic disorder characterized by hyperglycaemia due to inadequate production of insulin by the pancreas or when the body cannot effectively utilize the insulin it produces. DM is of great concern because its prevalence is increasing rapidly across the world,and it is associated with several complications, such as neuropathy, cardiovascular diseases, retinopathy, and nephropathy, leading to high morbidity and mortality.[1-3]Studies have suggested that the progressive increase in the prevalence rates of DM, especially type 2 DM (T2DM),is associated with lifestyle changes, dietary changes, overweight/obesity, physical inactivity, alcohol consumption, and cigarette smoking, which are potentially modifiable factors.[4,5]

Combating DM requires a holistic and multidimensional approach, which includes regular testing, appropriate treatment, comprehensive education, proactive screening for complications, and consistent follow-up care. One effective way of doing this is to ensure that individuals with DM have adequate knowledge about and practiseself-care. Self-care plays a central role, empowering individuals to actively participate in managing their condition effectively, and is a major contributor to improved quality of life and reduced risk of complications.[6,7]

The World Health Organization (WHO) defines Self-care as "the ability of individuals, families and communities to promote and maintain their own health, prevent disease, and to cope with illness, with or without the support of a health or care worker".[7] The management of DM requires lifestyle modification through self-care practices. Diabetes self-care is possibly the most important factor contributing to controlling blood glucose.[1,8,9]Effective DM self- care practices include regular self-monitoring of blood glucose, dietary management and nutrition, physical activity, adherence to medication, and foot care. And these are usually carried out by the affected individual or their families.

Several factors have been noted to be associated with the level of self-care among diabetic patients. These factors havesociodemographic, cultural, economic, and geographic undertones, which make DM self-care practices differ across the globe.[9,10]This study aimed to assess self-care practices and identify factors influencing these practices among patients with type 2 diabetes mellitus (T2DM) attending healthcare

facilities in Ilorin, Nigeria.The findings are expected to provide insights into the contextual factors affecting self-care among individuals with T2DM and create support systems and interventions that can help in improving the well-being of these individuals.

METHODOLOGY

Study Setting

The University of Ilorin Teaching Hospital (UITH) was established on May 2, 1980, as one of the second-generation teaching hospitals in Nigeria. It is located in Ilorin, Kwara State, and is a major public tertiary healthcare facility, offering a wide range of general and specialized medical services across various fields of medicine, and serving as a referral centre not only for Kwara State but also for nearby states of Oyo, Ondo, Ekiti, Osun, Niger, and Kogi States, as well as for patients from some other distant parts of the nation.[11] It commenced operations in July1980, using the General Hospital and Maternity Hospital, Ilorin, which were owned by the Kwara State Government as its temporary site. The permanent site of the hospital was declared openby the president in May 2007, while full relocation took place in April 2010.

The hospital has 25 inpatient wards and a total of about 600 beds, with over 150 medical and dental consultants across variousspecialties. It also boasts of several healthcare professionals, including nurses, physiotherapists, and medical laboratory technologists, among others.Thousands of patients are seen in the hospital at the General Outpatient clinics, and Specialized Clinics, while many others come in as emergencies through the Accident and Emergency department.

Study Design and Population

The study design wasa facility-based descriptive cross-sectional study, carried out among patients with DM who were on routine follow-upat the Medical Outpatient Department clinics of UITH.This approach was used to ensure the inclusionof individuals with a confirmed diagnosis of T2DM receiving DM care, follow up and education, thereby ensuring accurate case identification, reliable clinical information,and an objective assessment of self-care practices.

Study Period

The study was conductedbetween2ndJanuaryand 31st March 2025.

Sample Size Determination

The sample size was determined using Cochran's formula[12]for sample size estimation in cross-sectional studies. Assuming a 95% confidence interval, a 5% margin of error, a 10.3% prevalence of good diabetes self-care practices among participants in a study in a similar setting,[13] and accounting for a 10% non-response rate, the final sample size was 153.

Sampling Technique and Selection

Patients were selected by systematic random sampling. The study used an interviewer-administered questionnaire.

Inclusion and Exclusion Criteria

Patients who were 18 years of age or older and diagnosedwith type 2 DM, who had at least two follow-up visits in the clinic and consented were included in the study. Patients who were critically ill and those who were unable to provide the required information, and pregnant mothers were excluded.

Research Instrument and Data collection

The data collection process was conducted by trained research assistants using an interviewer-administered, anonymous, structured questionnaire. The information in the questionnaire included socio-demographic characteristics (age, sex, marital status, educational levels, employment status, etc.), diabetes-related data (diabetes duration, mode of diabetes treatment, etc.), duration of T2DM diagnosis, and self-care practices related information.

The instrument for data collection was a validated and pretested researcher-developed questionnaire, drawing on insights theDiabetes Self-Care Activities Scale (SDSCA)and from previous studies, to assess self-care activities of individuals with diabetes in the following areas: Diet, Exercise, Self-blood glucose monitoring (SBGM), DM medications adherence, and foot care. Additional items on home blood pressure and weight monitoring were included due to their relevance in diabetes management.[12-19]Research assistants translated the questions from English to Pidgin English and Yoruba and provided clarifications as needed by the patients.

Data Analysis

Data were analysed using the Statistical Package for Social Sciences (SPSS), version 22.Each of the 7 self-care practices was scored as:No – 0 and Yes – 1, giving each respondent a possible minimum total score of 0 and a maximum of 7. Equal weighting was applied to all domains to provide a standardised measure of overall self-care engagement, consistent with approaches used in similar descriptive studies.[20]Individual self-care scores were calculated by summing the values of the seven items. The overall mean score was subsequently calculated across all participants to evaluate the general level of self-care adherence within the study population.Scores (< 3) signifypoor self-care activities and (≥ 3) suggestgood self-care activities.[20,21]

Frequency tables and cross-tabulations were used to summarize the data. Chi square test was used for Inferential statistics to test for association between variables. A 95% confidence level was adopted, and results with a p-value less than 0.05 were considered statistically significant.

Ethical Consideration

The Ethics Committee of the University of Ilorin Teaching Hospital, Ilorin, Kwara State, granted ethical approval for the study. Written consent was taken from each participant. All participants took part voluntarily, and strict measures were implemented to ensure their confidentiality and anonymity.

RESULTS

A total of 153 respondents participated in the study. The mean age of participants was 58.8 ± 11 years, with the majority within the 50–59 age group (43; 28.1%). The majority of participants were female (98; 64.1%). Approximately two-fifths had completed secondary education (62; 40.5%), and over half of the respondents were employed (88; 57.5%). More than one-third, 59 (38.6%) had been diagnosed with type 2 diabetes mellitus (T2DM) within the preceding one to five years. (Table 1)

Table 1: Socio-demographic Characteristics of Study Respondents

Socio-demographics	**Frequency (N=153)**	**Percentage (%)**
Age Group (years)		
40 - 49	39	25.5
50 - 59	43	28.1
60 - 69	40	26.1
70 - 79	24	15.7
≥80	7	4.6
Mean Age	58.8 ± 11	
Gender		
Male	55	35.9
Female	98	64.1
Marital Status		
Single	14	9.2
Married	108	70.6
Divorced	4	2.6
Widow	27	17.7
Education Level		
No formal education	39	25.5
Primary	14	9.2
Secondary	62	40.5
Tertiary	38	24.8
Employment Status		
Employed	88	57.5
Retired	26	17.0
Unemployed	39	25.5
EstimatedMonthly Income		
Less than 10,000	17	11.1

10,000 - 30,000	22	14.4
30,000 - 50,000	16	10.5
More than 50,000	88	57.5
Nil	10	6.5
Religion		
Christianity	59	38.6
Islam	94	61.4
Financial Support		
Family	91	59.5
Religious org	23	15.0
Nil (Self-funded)	39	25.5
Living Arrangement		
Live Alone	13	8.5
Live with family	140	91.5
Duration of T2DM diagnosis		
Less than 1 year	30	19.6
1 - 5 years	59	38.6
6 - 10 years	31	20.3
Over 10 years	33	21.6

Most respondents, 117 (76.5%), were aware of diabetes self-care practices, with healthcare professionals(doctors and nurses) being the primary source of information. The main reason for self-care among the respondents was to prevent complications, 78 (51.0%). However, nearly a quarter (23.5%) reported they had no specific reason for engaging in self-care [Table 2].

Table 2: Respondents' Awareness of Self-care Practices

Variable	**Frequency (N=153)**	**Percentage (%)**
Awareness of self -care practices		
Yes	117	76.5
No	36	23.5
Sources of information on self -care practices		
Doctor/Nurse	93	60.8
Family/Friends	14	9.2
Personal research	12	7.8
Not sure/Don't know	34	22.2
Reason for self-care		
Just a routine practice	3	2.0
For general well-being	13	8.5
To improve glucose control	23	15.0
Prevent complications	78	51.0
Nil	36	23.5

Out of the 153 respondents, the majority(126; 82.4%) reported doing regular home blood glucose monitoring.Adherence to dietary counselling and recommended meal plans was observed among 88 respondents (57.5%), while less than half, 65 (42.5%), engaged in regular physical exercise.A majority (106; 69.3%) reported DM medications adherence. Home monitoring of blood pressure was practicedby 30 (19.6%), while 36 (23.5%) monitored their body weight at home.Foot care and examination practices were the least reported self-care activity, with only 27 respondents (17.6%) engaging in regular foot care, while a significant majority (126; 82.4%) did not perform any form of foot examination.The overall average adherence to DM self-care practice was 44.6% [Table 3].

Table 3: Self-care Practices Among Study Respondents

Variable	**Frequency (N=153)**	**Percentage (%)**
Regular Home Blood Glucose Monitoring		
Yes	126	82.4
No	27	17.6
Adherence to dietary counsel		
Yes	88	57.5
No	65	42.5
Involvement physical exercise		
Yes	65	42.5
No	88	57.5
DM medications adherence		
Yes	106	69.3
No	47	30.7
Blood pressure home monitoring		
Yes	30	19.6
No	123	80.4
Home monitoring of body weight		
Yes	36	23.5
No	117	76.5
Foot exam and care		
Yes	27	17.6
No	126	82.4
Overall Average DM self-care practice		**44.6%**

Table 4 shows the association between socio-demographic characteristicsand diabetes self-care practices. Overall, most variables were not significantly associated with self-care practices ($p > 0.05$). Although variations were observed across age groups,

gender, marital status, educational level, income, religion, financial support, living arrangement, and duration of diagnosis, these differences did not reach statistical significance.Employment status was the only factor that showed a significant association with diabetes self-care practices (p = 0.046). Employed respondents were more likely to report good self-care practices.

Table 4: Association Between Socio-demographic Characteristics And DM Self-Care Practices

Socio-demographics	Good	Poor	$\chi 2$	P-value
Age Group (years)				
40 - 49	29(74.4)	10(25.6)	6.862	0.144
50 - 59	24(55.8)	19(44.2)		
60 - 69	26(65.0)	14(35.0)		
70 - 79	14(58.3)	10(41.7)		
≥80	2(28.6)	5(71.4)		
Gender				
Male	64(65.3)	34(34.7)	1.197	0.274
Female	31(56.4)	24(43.6)		
Marital Status				
Single	12(85.7)	2(14.3)	5.833	0.120
Married	68(63.0)	40(37.0)		
Divorced	2(50.0)	2(50.0)		
Widow	13(48.1)	14(51.9)		
Education Level				
No formal education	26(66.7)	13(33.3)	1.430	0.698
Primary	9(64.3)	5(35.7)		
Secondary	35(56.5)	27(43.5)		
Tertiary	25(65.8)	13(34.2)		
Employment Status				
Employed	61(69.3)	27(30.7)	6.165	**0.046***
Retired	16(61.5)	10(38.5)		
Unemployed	18(46.2)	21(53.8)		
Estimated MonthlyIncome				
Less than 10,000	12(70.6)	5(29.4)	8.500	0.075
10,000 - 30,000	15(68.2)	7(31.8)		
30,000 - 50,000	5(31.3)	11(68.8)		
More than 50,000	58(65.9)	30(34.1)		
Nil	5(50.0)	5(50.0)		

Religion				
Christianity	37(62.7)	22(37.3)	0.016	0.900
Islam	58(61.7)	36(38.3)		
Financial Support				
Family	51(56.0)	40(44.0)	5.073	0.079
Religious org	14(60.9)	9(39.1)		
Nil (Self-funded)	30(76.9)	9(23.1)		
Living Arrangement				
Live Alone	8(61.5)	5(38.5)	0.002	0.966
Live with family	87(62.1)	53(37.9)		
Duration of T2DM diagnosis				
Less than 1 year	22(73.3)	8(26.7)	5.436	0.142
1 - 5 years	35(59.3)	24(40.7)		
6 - 10 years	22(71.0)	9(29.0)		
Over 10 years	16(48.5)	17(51.5)		

** P-value is less than 0.05 alpha level and significant*

DISCUSSION

The mean age of 58.8 years seen in this study aligns with global patterns andshowsthat T2DM predominantly affect middle-aged and older adults, which is consistent with global trends where ageing populations and urbanized lifestyles contribute to the prevalence of T2DM. The studies emphasize the importance of understanding this demographic to address the increasing global burden of the disease.[1,2,13,22-25] The higher proportion of female participants (64.1%) in this study is similar to patterns seen in other Nigerian diabetes research. This may be because women are generally more likely to seek healthcare as they tend to display positive health-seeking behaviour than men.[26-28]

Although 25.5% of respondents were unemployed, only 6.5% reported having no income. This may be because some individuals who were not formally employed could still have alternative sources of income, such as family support, informal trading, or remittances. Thus, unemployment may not necessarily equate to total absence of income, explaining why the proportion with nil income was smaller than the proportion unemployed.

Most participants (59.5%) relied on family members for financial support, and this is consistent with findings from other studies.[29-31]The principal motivation for engaging in self-care by about half of the respondents (51.0%) was to prevent complications, which is consistent with findings from other studies.[9,32-34]

The overall average DM self-care practice of 44.6% is comparable to the findings of Famakinwa et al. in Ondo, Southwestern Nigeria (49.9%),[13] and Kassie et al., in Southern Ethiopia (48.9%).[14] However, it is higher than the mean scores reported in West Shoa Zone, Ethiopia (39.8%),[35] Saudi Arabia (38%),[36] and the prevalence of good self-

care practice reported in Abeokuta, Southwestern Nigeria (26.8%).[37] This variation could be due to the difference in measurement instruments employed and how each study defined and assessed self-care practices.

Being employed was significantly associated with good DM selfcare practices. This may be because usually, unemployed participants, due to lack of resources are less likely to prioritise self-care compared to those who are employed.[38-40]This points to the fact that financial stability and access to resources can significantly affect a person's ability to maintain a consistent self-care routine.

CONCLUSION

This study highlights that while awareness of DM self-care practices was relatively high among respondents, actual practicewas suboptimal.Employment status significantly was associated with good DM self-care. These findings underscore the importance of tailored interventions to promote health education onbetter self-care practices and address financial challengestowards improving healthcare accessibility and affordability.

Limitations of the Study

The study used a cross-sectional design, hence precludes causal inferences. Also it relied on self-reported information and thus subject to recall and social desirability bias; to minimize this, the questionnaire was made simple, clear and unambiguous.

The study was limited to one healthcare facility and only included outpatients, which may affect the generalizability of its findings to other facilities and regions. However, the study offers useful insights on DM care in Nigeria.

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Nil.

Conflicts of Interest

There are no conflicts of interest.

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