

Self-Management Practices among Patients with Diabetes Mellitus (DM) Attending Tertiary Health Facilities in Anambra State, Nigeria

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Abstract: Diabetes mellitus (DM) is one of the major non-communicable diseases. Self-management in DM includes practices which are crucial for controlling DM, preventing complications and improving quality of life. This study assessed the self-management practices of People with DM attending tertiary health facilities in Anambra State, Nigeria. A descriptive cross-sectional study was conducted among 260 adult patients with diabetes receiving care at tertiary health facilities in Anambra State. Data were collected using a structured questionnaire that was validated and tested for internal consistency with reliability index of 0.82 (via Spearman-Brown Coefficient Correlation). Findings of the study revealed that DM patients attending tertiary health facilities in Anambra State have good knowledge (81.2%), a substantial number (43.9%) were positive in their perception of self-management of DM and healthy eating was carried-out to a high extent (93.7%). High cost of self-management was the major barrier to self-management while faith-healing emerged as the most commonly practiced non-medical self-management among the patients (68.2%). There were significant associations between knowledge and practice of self-management (p -value = 0.001) and between perception and practice of self-management (p -value = 0.005) among people with DM but no significant association was observed between demographic variables and the knowledge of self-management of DM as well as the extent of practice of self-management among DM patients respectively (p -values > 0.05). The findings suggest a multifaceted approach be extended to various stakeholders involved in the self-management as well as the management of Diabetes mellitus (DM) such as Diabetes mellitus patients/ people living with Diabetes mellitus (PLWDM) and their significant other, community leaders, social-media influencers, healthcare providers (Nurses, Doctors, Nutritionists/Dieticians and so on), health policy makers, health institution managers and the Government.

Keywords: Diabetes mellitus, Self-management, Self-care, Diabetics, Diabetic patients, self-management practices, tertiary health facilities.

INTRODUCTION

Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to serious damage to the heart, blood vessels, eyes, kidneys and nerves. The most common is type 2 diabetes, usually in adults, which occurs when the body becomes resistant to insulin or doesn't make enough insulin. In the past 3 decades the prevalence of type 2 diabetes has risen dramatically in countries of all income levels. Type 1 diabetes, once known as juvenile diabetes or insulin-dependent diabetes, is a chronic condition in which the pancreas produces little or no insulin by itself.¹

Diabetes Mellitus virtually affects every system of the body mainly due to metabolic disturbances caused by hyperglycemia. DM is one of the most common endocrine (hormone-related) disorders globally and represents a significant public health challenge, contributing to substantial morbidity, mortality, and economic burden.² It impairs the body's ability to use or produce insulin effectively, leading to a range of short-term and long-term complications.

Self-Management practices in diabetes care has been an evolutionary process of development of knowledge or awareness by learning to survive with the complex nature of the diabetes in a social context.³ Family and peer support are generally associated with improved glycemic control, better self-care, and higher quality of life.⁴ The American Association of Diabetes Educators (AADE) has defined the AADE 7 Self-Care Behaviors as a framework for patient centered diabetes self-management education and training (DSME/T) and care. The seven self-care behaviors essential for successful and effective diabetes self-management are healthy eating, being active, monitoring, taking medication, problem solving, healthy coping, and reducing risks.⁵ These proposed measures can be useful for both clinicians and educators treating individual patients and for researchers evaluating new approaches to care. Self-report is by far the most practical and cost-effective approach to self-Management assessment and yet is often seen as undependable.⁶

Despite established guidelines in the self-managed of DM, a significant proportion of DM patients experience poor glycemic control leading to increased patient discomfort and potentially negative health outcomes as well as complications.⁷ A significant problem in diabetes self-management is the persistent difficulty individuals face in consistently adhering to necessary lifestyle modifications like diet control, physical activity, medication adherence and blood glucose monitoring often due to factors like limited knowledge, lack of social support, cultural barrier, financial constraints and inadequate access to healthcare resources, leading to suboptimal

diabetes control and increased risk of complications. Studies have shown that people with diabetes mellitus come from a wide range of backgrounds and their knowledge, attitudes and perceptions about DM play an important role in their ability to be involved in self-management practices.⁸⁻¹¹ It is the responsibility of the nurse to provide adequate teaching to those involved which when adhered to by people with diabetes mellitus would improve their quality of life and deter morbidity and mortality.

Lack of skills and appropriate knowledge of self-care practices worsens the burden of the disease each year.¹² The researcher observed that information about self-management practices is not adequately communicated to people with diabetes mellitus and the entire. This leads to misinformation which leads to non-compliance with these practices and gives room for rumours and misconception

Furthermore, low health literacy, high use of herbal remedies, financial barriers, difficulty following dietary recommendations, depressive symptoms and limited communication with providers have been reported as risk factors for poor diabetes self-management.¹³ Identification of the main factors and conditions contributing to unwillingness to be involved in self-management practices by those with diabetes mellitus allows nurses and administration systems to eliminate situations that promote the wrong perception of diabetes mellitus and to incorporate changes that minimize them.

As far as the researchers' knowledge, the assessment of self-management practices of patients with DM attending tertiary facilities in Anambra State are not well understood. The need for proper counseling of people with DM is so important now because of the increase in the number of people with DM all over the world and of recent in Nigeria and in Anambra; issues of poor glycemic control, physical inactivity and so on; these cases can only be won if there is enough enlightenment to the general public in the right way. Identification of the main factors and conditions contributing to unwillingness to be involved in self-management practices by those with diabetes mellitus allows nurses and administration systems to eliminate situations that promote the wrong perception of diabetes mellitus and to incorporate changes that minimize them.

The aim of this study was to assess the self-management practices of People with Diabetes Mellitus.

Objectives of the Study

1. To assess the knowledge of people with Diabetes Mellitus attending tertiary health facilities in the Anambra State, Nigeria about Self-Management practices.
2. To determine perception of people with Diabetes Mellitus attending tertiary health facilities in the Anambra State, Nigeria towards Self-Management practices.

Hypotheses

1. There is no significant association between knowledge of self-management of DM patients attending tertiary health facilities in Anambra State and their practice of self-management.
2. The perception of people with diabetes mellitus in the tertiary health facilities in Anambra State towards self-management practices would not significantly influence their compliance with diabetes self-management practices.

Theoretical Review

The theory applied in this study is Dorothy Orem's self-care theory. An in-depth understanding of the ontological and epistemological assumptions of Dorothea Orem's self-care theories can be achieved through theory analysis.¹⁴ An analysis of the ontological and epistemological assumptions of Dorothea Orem's self-care theory and an evaluation of its significance for self-management practice among people with diabetes mellitus.

Orem's Self-Care Framework focuses on the actions taken by people who are considered legitimate patients to meet their own and their dependent others' therapeutic self-care demands, as well as on actions taken by nurses to effectively use nursing systems that will assist people who have limitations in their abilities to provide continuing and therapeutic self-care or care of dependent others. The goal of self-management in diabetes mellitus guided by Orem's Self-Care theory is to encourage patients to be involved in self-care with regards to self-management practices, and to compensate for or overcome patients' health-associated limitations in self-care or dependent care.¹⁵⁻¹⁷

Orem's theory defined Nursing as "The act of assisting others in the provision and management of self-care to maintain or improve human functioning at the home level of effectiveness."¹⁸ It focuses on each individual's ability to perform self-care, defined as "the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being."¹⁹⁻²¹

Dorothea Orem's Self-Care Theory focuses on each "individual's ability to perform self-care, defined as 'the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being.'"²² The Self-Care or Self-Care

Deficit Theory of Nursing is composed of three interrelated theories: the theory of self-care, the self-care deficit theory, and the theory of nursing systems, which is further classified into wholly compensatory, partially compensatory and supportive-educative.²³⁻²⁵

Theory of Self-Care is the first self-care theory, it focuses on the performance or practice of activities that individuals initiate and perform on their own behalf to maintain life, health, and well-being. It is presented in three categories: Universal self-care requisites are associated with life processes and the maintenance of the human structure and functioning integrity; Developmental self-care requisites are “either specialized expressions of universal self-care requisites that have been particularized for developmental processes or they are new requisites derived from a condition or associated with an event.” and Health deviation self-care requisites are required in conditions of illness, injury, or disease or may result from medical measures required to diagnose and correct the condition. The second theory of self-care is the theory of Self-Care Deficit. This theory delineates when nursing is needed. Nursing is required when an adult (or in the case of a dependent, the parent or guardian) is incapable of or limited in providing continuous effective self-care. Orem identified 5 methods of helping: Acting for and doing for others, guiding others, supporting another, providing an environment promoting personal development about meet future demands and Teaching another. Theory of Nursing System is the third theory of self-care. This theory is the product of a series of relations between the persons: legitimate nurse and legitimate client. This system is activated when the client’s therapeutic self-care demand exceeds the available self-care agency, leading to nursing. It is classified into three: Wholly Compensatory Nursing System which is represented by a situation in which the individual is unable “to engage in those self-care actions requiring self-directed and controlled ambulation and manipulative movement or the medical prescription to refrain from such activity. Persons with these limitations are socially dependent on others for their continued existence and well-being.” Partial Compensatory Nursing System which is represented by a situation in which “both nurse and perform care measures or other actions involving manipulative tasks or ambulation (Either) the patient or the nurse may have a major role in the performance of care measures.” and the Supportive-Educative System which is also known as a supportive-developmental system. The person “can perform or can and should learn to perform required measures of externally or internally oriented therapeutic self-care but cannot do so without assistance.”²⁶⁻³⁰

Application of Orem’s self-care theory in this Study

One of the goals of Orem’s self-care theory is to promote wellbeing. The goal of promoting wellbeing among people with diabetes mellitus is most likely to be met if patients are able to perform self-management practices which in turn will reduce symptoms and prevent acute complications of hyperglycemia.^{31,32}

Orem believes that human beings can take care of themselves and whenever this ability is distorted in a person, nurses can help individuals to regain this ability by providing direct care, and compensatory educational support.^{33,34} According to Orem, the nurse’s role may be that of a facilitator and agent of change.

As a result of the chronicity of diabetes mellitus, people with diabetes should cooperate in all phases of the control and treatment and should be able to do self-care activities. Self-management is crucial for the control of diabetes and includes self-monitoring of blood glucose, diet, setting insulin dosage, and doing regular physical activity. Since an important part of daily care in patients with diabetes is provided by the person himself or a family member, learning self-care skills is necessary for patients with diabetes.³⁵⁻³⁷

MATERIALS AND METHODS

Research Design

A cross-sectional study design was applied to assess self-management practices of people with diabetes mellitus attending tertiary health facilities in Anambra State, Nigeria. This design involves data collection process that gives insight in a situation under study with little or no control by the researcher. This design was applied by Young *et al.* in their study on “Assessment of patients knowledge and attitude towards diabetes and its relationship with glycemic control: A cross-sectional study in a Nigerian tertiary hospital.”³⁸

Area of the Study

This study was carried out in tertiary health facilities in Anambra State, Southeast Nigeria. The tertiary facilities act as referral centre for primary and secondary health facilities in and around the state providing specialized healthcare services to the inhabitants of Anambra State and its environs. These facilities include Nnamdi Azikiwe University Teaching Hospital (NAUTH) Nnewi; Chukwuemeka Odumegwu Ojukwu University Teaching Hospital (COOUTH) Awka and Federal Medical Center (FMC) Onitsha.

Population for the Study

Information from the Diabetic units of the hospitals showed that a total of two hundred and sixty (260) diabetic patients attend clinic in these hospitals at the time of this study. This is distributed in the table below.

Table 1: Population of DM Patients attending healthcare services in the tertiary health institutions in Anambra State.

S/N	Tertiary Health Facility	Population of Patients
1.	Nnamdi Azikiwe University Teaching Hospital, Nnewi	120
2.	Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka	80
3.	Federal Medical Center, Onitsha	60
	Total	260

Source: Diabetic clinics of the hospitals.

Table 1 shows the population distribution of Diabetes Mellitus Patients attending healthcare services in the tertiary health institutions in Anambra State.

Sample and Sampling Technique

In view of the population size, the researcher studied the entire population of diabetic patients attending healthcare services in the tertiary health institutions in Anambra State (260 patients). However, census sampling was used in the selection of respondents and participation was based on the researcher's established inclusion and exclusion criteria.

Inclusion criteria

- DM patients (male and female) who were willing to participate in the study
- DM patients that have accessed care in the hospitals for not less than one month
- Patients above 18 years of age who are able to give valid information to the researcher.

Exclusion criteria

- Unconscious patients
- Patients that are too old (above 90 years)
- Patients who cannot co-operate with the researchers or refuse to participate
- Patients who are physically, emotionally and mentally unstable

Instrument for Data Collection

Data collection for the study was achieved through researcher-structured questionnaire which was done after in-depth literature review and in line with the objectives of the study. The questionnaire has seven three sections (A-C).

Section A: contained items that were used to determine the socio-demographic data of the respondents.

Section B: contained items that were used to divulge information from the respondents on knowledge of what constitutes self-management.

Section C: has items that were used to determine the perception of the diabetic patients towards self-management practices.

Validity of the Instrument

The validity of the instruments was established by two experts in Medical-surgical Nursing and a specialist in Measurement and Evaluation. The objectives and hypotheses of the study were used by them as working tools. The instrument was validated for face and content and their actions led to restructuring of some of the items and removal of some.

Reliability of the Instruments

The internal consistency of the instrument was ascertained by pilot testing it using 26 DM patients accessing healthcare treatment at FMC Asaba who were not part of the study population. Data collected from the study were analyzed through Spearman Brown Co-efficient Correlation which yielded a reliability index of 0.82. The instrument was therefore said to be reliable for data collection for the study.

Ethical Considerations

Approved letter for the study was issued by the NAUTH Health and Research Ethics Committee (NAUTH/CS/66/VOL.18/VER.3/091/2025/69). Informed consent was signed by the respondents that participated in the study. Anonymity and confidentiality of privileged information from the participants were maintained throughout and after the study. Respondents were selected without bias. Since participation was on voluntary basis, each respondent was given the privilege to back out at any point in the course of the study but fortunately, none did.

Procedure for Data Collection

The letter of approval from the NAUTH Health and Research Ethics Committee was used by the researchers for self-introduction to the nurses in-charge of the Diabetic Clinic and wards where diabetic patients are treated in the hospital. The nurses in-charge too further step to introduce the researcher to the patients on each day the researchers came for data collection. The researchers explained the purpose and objectives of the study to the patients before collection of data on each day. The researchers were careful to ensure that data were not collected twice from any participant.

On each day of data collection, the researchers spent nothing less than forty-five (45) minutes to administer and retrieve the questionnaire from each participant. Respondents that needed clarification on some items in the questionnaire were attended to as demanded. The questionnaire was administered on face-to-face basis and a total of four months were spent for the administration of the questionnaire.

Method of Data Analysis

Data collected from the study were analyzed using the IBM SPSS database (version 25). The data were represented with descriptive statistical tools such as frequency tables, charts and percentages. Chi square was used to determine the association between variables. The level of significance (P) was set at 0.05 that is, $P=0.05$ (95% confidence interval).

Discussion of Findings

Sex: 54% of the respondents were male, while 46% were female.

Age: The mean age of respondents was 47 years, with a minimum age of 17 years and a maximum age of 90 years. The standard deviation of 9.27 years indicates a relatively broad age distribution across the sample.

Ethnic Background: The respondents were predominantly Igbo (85%), followed by Yoruba (10%), Hausa (3%), and Igala (2%).

Marital Status: A majority were married (58.6%), while 31% were single. Smaller proportions were divorced (5.4%) or widowed (5%).

Education: 31% of respondents had completed secondary school, and 23% had college-level education. A minority had no formal education (2%), and very few had advanced degrees such as PhD (5%).

Income: Most respondents earned between N70,000–N500,000 per month (60% combined), while 12% earned above N1,000,000.

Occupation: The largest occupational groups were business owners (29%), and traders (22.2%).

Duration of Diabetes Mellitus Treatment: The mean duration of treatment was 4.64 years, with a minimum duration of 0.08 years (approximately 1 month) and a maximum duration of 40 years. Standard deviation of 4.94 years, indicating significant variation in treatment experience among respondents.

Table 2: Knowledge of Self-Management Practices of Diabetes Mellitus among Patients attending tertiary health facilities in Anambra State.

Item	Yes		No	
	Count	Row N %	Count	Row N %
Self-management of DM is all about caring for yourself	221	92%	18	8%
Self-management of DM is only for the elderly	162	68%	77	32%
Self-management of DM is a lifelong care	214	90%	25	10%
Prevention of complications of DM is a measure of self-management	213	89%	26	11%
Choice of food is an aspect of self-management	218	91%	21	9%
Excessive alcohol consumption is a form of self-management	160	67%	79	33%
Engagement of manageable physical activity is a part of self-care	218	91%	21	9%
Strictly compliance to prescribed dietary recommendations is a form of self-care	210	88%	29	12%
Blood sugar measurement is not required as part of self-management	128	54%	111	46%
Prescribed diabetes medication\insulin is required as part of self-management	206	86%	33	14%

Average response: Yes=195;81.59% and No=44;18.41%

Table 2 displays the knowledge of self-management of people with Diabetes Mellitus attending tertiary health facilities in Anambra State. The findings from the study showed the patients generally displayed a strong understanding of diabetes self-management:

Self-care Awareness: 92% of respondents agreed that self-management is about caring for oneself.

Lifelong Care: 90% recognized diabetes management as a lifelong process, and 89% acknowledged the importance of preventing complications through self-care.

Diet and Physical Activity: 91% understood the role of diet and physical activity in diabetes self-management.

Misconceptions: 32% believed that diabetes management is only for the elderly and 46% stated that blood sugar measurement is not necessary for self-management.

Table 3: Mean and Percentage Distribution of Knowledge of Self-Management among People with Diabetes Mellitus Attending Tertiary Health Facilities in Anambra (N=239)

Variables	Mean	SD	N	%	Remark
Knowledge scores	8.16	1.96			High Knowledge
Level of Knowledge of Self-Management					
Low			12	5.0	
Moderate			33	13.8	High Knowledge
High			194	81.2	

Table 3 shows Mean and Percentage Distribution of Knowledge of Self-Management among People with Diabetes Mellitus Attending Tertiary Health Facilities in Anambra. The mean value of 8.16 shows that people with diabetes mellitus attending tertiary health facilities have high knowledge of self-management with 81.2% of them showing high level of knowledge of self-management.

Table 4: Perceptions towards Self-Management Practices.

Item	Strongly Disagree	Disagree	Undecided	Agree	Strongly agree
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	N	%	N	%	N	%	N	%	N	%
It cost a lot of money to manage diabetes mellitus	39	16%	100	42%	9	4%	53	22%	38	16%
It takes too long to learn how to manage diabetes mellitus	19	8%	100	42%	21	9%	75	31%	24	10%
Diabetes mellitus is a lifelong disease	29	12%	45	19%	26	11%	76	32%	63	26%
Diabetes mellitus is not curable, it can only be managed and it is challenging activity	39	16%	75	31%	29	12%	64	27%	32	13%
Managing diabetes mellitus has technical actions that are not easy to come by.	20	8%	92	38%	44	18%	60	25%	23	10%
Managing DM is best done by medical professionals and not by individual patients	52	22%	50	21%	56	23%	57	24%	24	10%
Patients have to know a lot about DM to be able to manage it appropriately	36	15%	39	16%	36	15%	49	21%	79	33%
It doesn't take very long to learn to manage DM	21	9%	64	27%	54	23%	82	34%	18	8%
Anyone can learn self-management of DM irrespective of educational status	22	9%	74	31%	34	14%	56	23%	53	22%
Self-management of DM is stimulating and encouraging	26	11%	43	18%	47	20%	68	28%	55	23%
Patients have to do unpleasant things while managing DM	23	10%	56	23%	76	32%	47	20%	37	15%
Someone should be responsible for his/her self-management to make life better.	51	21%	43	18%	11	5%	54	23%	80	33%

Table 4 shows perception of people with Diabetes Mellitus attending tertiary health facilities in Anambra state regarding self-management and the percentage distribution according to the nature of the perception of self-management.

Table 5 Mean and Percentage Distribution of Perception towards Self-Management practices among People with Diabetes Mellitus Attending Tertiary Health Facilities in Anambra (N=239)

Variable	Mean	SD	N	%	Remark
Perception of Self-Management of DM scores	3.09	0.35			Neutral
Perception of Self-Management of DM Category					
Negative			95	39.7	
Neutral			105	16.3	Neutral
Positive			39	43.9	

Table 5 shows the mean perception of people with diabetes mellitus attending tertiary health facilities in Anambra state regarding self-management and the percentage distribution according to the nature of the perception of self-management. The mean value of 3.09 indicates that people with diabetes mellitus attending tertiary health facilities have positive perception of self-management. This was confirmed by the percentage distribution which indicates that a considerable number (43.9%) of those living with Diabetes Mellitus have positive perception of self-management of diabetes mellitus.

The participants generally displayed a strong understanding of diabetes self-management:

Self-care Awareness: 92% of respondents agreed that self-management is about caring for oneself.

Lifelong Care: 90% recognized diabetes management as a lifelong process, and 89% acknowledged the importance of preventing complications through self-care.

Diet and Physical Activity: 91% understood the role of diet and physical activity in diabetes self-management.

Misconceptions: 32% believed that diabetes management is only for the elderly and 46% stated that blood sugar measurement is not necessary for self-management.

1. **Ho:** There is no significant association between knowledge of self-management of DM patients attending tertiary health facilities in Anambra State and their extent of the practice of self-management.

Table 6: Chi-square Test of Association between Knowledge of Self-management and Extent of Practice of Self-management by Diabetes Mellitus Patients Attending Tertiary Health Facilities in Anambra State (N=239)

Extent of Self-Management Practices	Knowledge of Self-Management			Df	X ²	P	Remarks
	Low (n=12) n(%)	Moderate (n=33) n(%)	High (n=194) n(%)				
Low Extent (n=31)	4(12.9)	10 (32.3)	17(54.8)	4	18.42	0.001	S
Moderate Extent (n=158)	8(5.1)	18(11.4)	132(83.5)				
High Extent(n=50)	-	5(10)	45(90)				

*S = Significant

The chi-square (X²) result displayed in Table 6 indicates that there was a significant association between knowledge of self-management by diabetes mellitus patients attending tertiary health facilities in Anambra state and the extent of the practice of self-management practices for diabetes mellitus, X² = 18.42, *p* = 0.001. Since the *p*-value was less than 0.05 level of significance, the null hypothesis was rejected. This implies that there is a significant association between knowledge of self-management of diabetes mellitus and the extent of practice of self-management among patients attending tertiary health facilities in Anambra state.

- Ho:** Perception of people with diabetes mellitus in the tertiary health facilities in Anambra State towards self-management practices would not significantly influence their extent of diabetes self-management practices.

Table 7: Chi-square Test of Association between Perception of Self-management Practices and Extent of Practice of Self-management by Diabetes Mellitus Patients Attending Tertiary Health Facilities in Anambra State (N=239)

Extent of Self-Management Practices	Perception of Self-Management			df	X ²	P	Remarks
	Negative (n=95) n(%)	Moderate (n=105) n(%)	High (n=39) n(%)				
Low Extent (n=31)	18(58.1)	9(29)	4(12.9)	4	14.00	0.005	S
Moderate Extent (n=158)	68(43)	66(41.8)	24(15.2)				
High Extent(n=50)	9(18)	30(60)	11(22)				

As shown in Table 7, there was a significant influence of perception of self-management and the extent of practice of self-management by diabetes mellitus patients attending tertiary health facilities in Anambra state, X² = 14.00, *p* = 0.005. Since the *p*-value was less than 0.05 level of significance, the null hypothesis was rejected. This implies that there was a significant influence of perception of self-management and the practice of self-management.

DISCUSSION

Findings of the study were discussed as follows:

Knowledge of people with Diabetes Mellitus attending tertiary health facilities in the Anambra State, Nigeria about Self-Management practices.

The findings from the study showed that majority of people with DM (81.59%) had good knowledge of self-management of diabetes mellitus with mean score of 8.16 and SD of 1.96. This may be attributed to a significant portion of respondents being made to be aware of crucial facts about self-management of DM during clinical visits. Many healthcare providers are also becoming interested in educating the diabetics on possible complications of DM and means to avoid them. This may have also yielded the increase in the knowledge level of the self-management among the patients.

This finding is consistent with a cross-sectional study conducted by Shrivastva, Anjali, Sameer, Karthik, and Gore³⁹ who assessed the knowledge and self-care practices about Diabetes among diagnosed Type 2 Diabetes Mellitus patients attending the out-patient facilities of Medicine Department at selected tertiary healthcare institutions of Udupi Taluk. This study found that majority of the participants (80%) knew about the various symptoms of Diabetes, about 72% of the respondents knew the consequences of the disease if not treated, more than 70% were aware of the complications of Diabetes, 70% of the respondents knew about how to deal with cuts and abrasions in foot in other words about footcare in Diabetes, about 65% of the respondents were aware of the role of diet and exercise in Diabetes. This study emphasized the need to strengthen the initiatives related to generating awareness about diabetes and improving self-care practices related to it. The consistency in both studies may be due to the fact that both were conducted in tertiary health institutions and as such would have similar patients.

The result from this study are in disagreement with the study conducted by Johnson, Jarvis, and Chipps⁴⁰ in two clinics for diabetes patients in the Ho municipality of Ghana; their findings showed that majority of their respondents had poor levels of diabetes self-management knowledge. This disagreement in study findings may be due to the disparity in study settings, as one was conducted in tertiary hospital while the other was in the clinic.

Also, another study by Zwane, Modjadji, Madiba, Moropeng, Mokgalaboni, Modupi, Andre, Kengne and Mchiza⁴¹ on Self-Management of Diabetes and Associated Factors among Patients Seeking Chronic Care in Tshwane, South Africa: A Facility-Based Study also disagreed with the result of the present study. They found out that almost two thirds of patients had average knowledge of self-management of diabetes as 55% had the knowledge. The disparity in the results of these studies (the one conducted in Ghana and in South-Africa) with the present study could be due to the type and location of the health facilities of both studies. Patients attending tertiary health facilities may appear more enlightened and more informed because of constant health education given to the patients by the nurses and other care providers, thus the disparity in results.

Perception of people with Diabetes Mellitus attending tertiary health facilities in Anambra State, Nigeria towards Self-Management practices.

The findings of this study revealed that majority of the respondents had a positive perception of self-management of Diabetes mellitus. This result may be due to these several key reasons. Primarily, a significant number of the respondents recognized the health risks associated with DM, acknowledging that people with Diabetes mellitus are at risk of various complications. This awareness of potential health issues seems to be a strong driver of the positive perception. The result is in line with the findings of Kumar, Mohammadnezhad, and Khan⁴² on Perception of Type 2 Diabetes Mellitus (T2DM) patients on diabetes self-care management in Fiji; which showed that Patients have good knowledge about T2DM and the self-care management they have to perform. It is the patients' attitude and behavior towards T2DM self-care management that affects patients' perception and their willingness to perform self-care management. The similarity in results could be due to similarity in settings and educational levels, as Anambra appears to be developed same as Fiji, hence both settings have more educated people.

This study is in incongruent with another study by Ong, Lee, Low, Low and Vasanwala⁴³ on Attitudes and perceptions of people with diabetes mellitus on patient self-management in diabetes mellitus: a Singapore hospital's perspective; which established that their study participants did not have a complete understanding of self-management in DM and thus had a negative perception of DM. The negative experiences and struggles of the participants in their day-to-day management had significantly affected their control and motivation. Healthcare providers may use these themes to better engage, educate and empower patients with DM towards self-management, enabling them to take charge of their condition. The disparity in result findings with this study may be due to the influence of social media. More Singaporeans appear to be involved more in "Tic-tok" and other social media platforms hence they are becoming more aware of the complications of DM and this influences their perception positively. This shows that knowledge affects perception, emphasizing the fact that the more people with DM are knowledgeable about DM, the more they are able to positively perceive the disease condition.

Association between knowledge of self-management of DM patients attending tertiary health facilities in Anambra State and the extent of their practice of self-management.

The findings of the study indicates that there was a significant association between knowledge of self-management by diabetes mellitus patients attending tertiary health facilities in Anambra state and the extent of the practice of self-management practices for diabetes mellitus with p-value of 0.001. Since the p-value was less than 0.05 level of significance, the null hypothesis was rejected. This implies that there is a significant association between knowledge of self-management of diabetes mellitus and the extent of practice of self-management among patients attending tertiary health facilities in Anambra state.

Findings from this study is similar to a study on Diabetes-related knowledge, attitude and practices (KAP) of adult patients with type 2 diabetes mellitus in the Free State province, South Africa was carried out by Maretha, Corinna, Reidb and Raubenheimer⁴⁴; which stated that a statistically significant association was found between knowledge and attitudes, indicating that better knowledge about diabetes could be associated with a more positive attitude towards diabetes. The fact that knowledge was associated with attitude indicates that interventions aimed at improving knowledge could benefit patients in more than one way.

Association between the Perception of people with diabetes mellitus in the tertiary health facilities in Anambra State towards and their self-management practices

Findings from the study shows that, there was a significant influence of perception of self-management and the extent of practice of self-management by diabetes mellitus patients attending tertiary health facilities in Anambra state, with p-value of 0.005. Since the

p-value was less than 0.05 level of significance, the null hypothesis was rejected. This implies that there was a significant influence of perception of self-management and the practice of self-management.

Study findings are in agreement with a study by Elisha, Chanapat, Ahmar, Iliatha, Nadal, Kanokporn, Mike, Orawan, Nuchanart, Sanjay, Kinra and Chaisiri⁴⁵ on Illness perceptions, self-care practices, and glycemic control among type 2 diabetes patients in Chiang Mai, Thailand using 200 participants which revealed that both illness perceptions and self-management practices were independently linked to glycemic control. Among illness perceptions, a sense of personal control was strongly associated with good glycemic control ($p = 0.01$). For self-management, appropriate diet ($p = 0.03$) and medication adherence ($p = 0.05$) were associated with good glycemic control.

Summary of Findings

The major findings of the study are summarized thus:

1. The study revealed that respondents have good knowledge of self-management of Diabetes Mellitus.
2. Majority of the respondents have neutral perception of self-management of Diabetes Mellitus.
3. The study found a significant association between knowledge of self-management of diabetes mellitus and the extent of practice of self-management.
4. Perception has a significant influence on the practice of self-management of Diabetes Mellitus

Conclusion

From the findings of this study, the researchers concluded that:

1. The study highlighted a high level of knowledge among the respondents towards self-management of Diabetes Mellitus.
2. Majority of the respondents expressed a neutral perception towards self-management of Diabetes Mellitus, signaling a lack of strong opinion towards self-management of Diabetes Mellitus.
3. The significant association between knowledge and the extent of practice of self-management implies that patients with good understanding of Diabetes mellitus are more likely to engage in the necessary self-care behaviors, such as healthy eating and the likes
4. Similarly, perception has a significant influence on the practice of self-management of Diabetes Mellitus as well as the extent of practice of self-management of DM.

Implications of Findings

The findings suggest a multifaceted approach be extended to various stakeholders involved in the self-management as well as the management of Diabetes mellitus (DM) such as Diabetes mellitus patients/people living with Diabetes mellitus (PLWDM) and their significant other, community leaders, social-media influencers, healthcare providers (Nurses, Doctors, Nutritionists/Dieticians and so on), health policy makers, health institution managers and the Government.

The study highlights the need for increased education and awareness initiatives targeting DM patients/PLWDM (through jingles, posters, radio and television shows) to improve their knowledge about DM. Effective communication and engagement between the care seeker and their provider is a major factor influencing the quality of care and long term outcome in any chronic illness.⁴⁶⁻⁴⁷ Additionally, interventions should aim to empower patients and their significant other on self-management practices that will significantly improve blood glucose control, reduces long-term complications, and enhance quality of life by empowering individuals to actively participate in their care.

Community leaders and social media influencers play a crucial role in shaping societal norms and attitudes towards self-management of DM. The importance of engaging these stakeholders (church leaders, village union leaders, “Umunna”, “Umuada”) cannot be over-emphasized. Findings highlights the importance of engaging these stakeholders in advocacy efforts to promote self-management of DM among PLWDM. This especially holds true for individuals living with diabetes mellitus (DM), that warrants constant and complex self-management activities, including monitoring, follow-up, education, including behavioural adjustments to ensure better quality of life.⁴⁸⁻⁵⁰

Nurses in particular and other healthcare providers in general, are often the first point of contact for PLWDM seeking information, guidance and support relating to Diabetes mellitus, its self-management and ways of preventing complications. The study underscores the importance of Nurses and healthcare providers being knowledgeable about Diabetes mellitus, thus empowering them in ways that would enable them provide individualized, culturally sensitive care and support to PLWDM and their families.

Acknowledgements

The researcher acknowledges the patients used for the study, the institutions used for the study and other researchers whose work was used for the study.

Conflict of interest

The researcher did not have any conflict of interest in the course of this study.

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