# An Interpretive Description of Sociocultural Influences on Diabetes Self-Management Support in Nigeria

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## Abstract

The purpose of this study is to explore how Nigeria's social and cultural environment influences professional diabetes self-management support practices. This interpretive descriptive study is based on two diabetes clinics in southeastern Nigeria. Nineteen healthcare providers, including nurses, were purposely selected and engaged in participant observation and interviews. Concurrent data generation and analysis facilitated iterative constant comparative analysis. Findings show significant factors influencing diabetes self-management support include belief in the supernatural origin of diabetes, individual–family interdependence, myths and limited understanding of diabetes, lack of health insurance, poverty, and the rigidity of a hierarchical acute care model of diabetes services. Thus, there is an urgent need to adapt diabetes self-management support strategies to fit people's contexts. By doing so, specific challenges in the healthcare system can directly be addressed while capitalizing on identified strengths and adapting select strategies that constructively foster person-centered and culturally appropriate care.

## Introduction

Diabetes is one of the leading causes of mortality and morbidity worldwide. The number of adults living with diabetes has increased considerably, from 108 million people in 1980 to 537 million people in 2021(International Diabetes Federation [IDF], 2019). The global increase in the prevalence of diabetes is reflected in Africa, where more than 19 million people currently live with diabetes, with the figure expected to rise to 47 million people by 2045, a 2.5-fold increase (IDF, 2022). Among the total population of people living with diabetes in Africa, an estimated 2.7 million people reside in Nigeria, with more than half of this figure undiagnosed (IDF, 2022). However, some experts believe that around 11 million Nigerians live with diabetes (Uloko et al., 2018). Despite these escalating numbers, Nigeria lacks a well-developed chronic-health care system. As a developing nation, Nigeria faces many challenges commiserate with incorporating chronic care within a health care system primarily designed to address acute and infectious diseases (Okpetu et al., 2018).

Like other chronic illnesses, diabetes presents a unique challenge; for instance, type 2 diabetes (T2DM) has no cure but can be managed with medications and lifestyle measures such as diet, physical activity, self-monitoring, regular intake of prescribed drugs, and other activities that depend on the patient's self-care behavior. Therefore, self-management is the foundation of diabetes management (American Diabetes Association, 2016; Diabetes Canada Clinic Practice Guidelines Expert Committee et al., 2018). Self-management refers to an individual's ability—in conjunction with family, community, and healthcare providers—to manage symptoms, treatment, lifestyle changes, and psychosocial, cultural, and spiritual consequences of their health condition

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(Wilkinson & Whitehead, 2009). Self-management is not the sole responsibility of patients; healthcare providers also have a crucial role. Persons with chronic illnesses such as diabetes primarily need assistance from healthcare providers to help them develop appropriate "cognitive, behavioral, and emotional responses needed to maintain a satisfactory quality of life" and to monitor their condition (Barlow et al., 2002, p. 178). We conducted this study to explore how healthcare providers help individuals living with diabetes to self-manage their diabetes within the context of Nigeria, including how the local social and cultural environment influenced self-management support practices.

## Background

Nigeria is the most populous African country, with an estimated population of 200,000,000 (Knoema, n.d.). The country is characterized by continued population growth; the United Nations Department of Public Information (2017) projects that the Nigerian population will rise to 264 million people in 2030 and 410 million people in 2050. Nigeria's population is comprised of more than 300 ethnic groups with different languages and cultural practices (Minority Rights Group, n.d.). Three major ethnic groups in Nigeria namely Igbo, Hausa, and Yoruba make up 60% of the population (Adegbami & Uche, 2015). Pidgin English is understood across the country, however, English is the official language. The current study was carried out in Southeastern Nigeria, predominantly occupied by Igbo.

The traditional healthcare system in Nigeria comprises popular and folk systems that exist side-by-side with the biomedicine practiced in hospitals and clinics (Ahwinahwi & Chukwudi, 2016; James et al., 2018). The folk system is comprised of traditional medicine practitioners such as priests or priestesses, herbalists, diviners, local midwives, seers, or spiritualists (Ezekwesili-Ofili & Okaka, 2019; Okonkwo, 2012). The folk system offers a cheaper alternative to biomedical services, which many embrace because it aligns with their cultural beliefs and is more accessible, cheaper, and considered natural (Ezekwesili-Ofili & Okaka, 2019; Oreagba et al., 2011).

### Chronic Disease Management in Nigeria

Nigeria has three levels of health care: tertiary, secondary, and primary healthcare systems (Fasanmade & Dagogo-Jack, 2015). At the fundamental level, community healthcare centers exist within the communities. These centers provide accessible and affordable health care primarily focused on disease prevention and the treatment of minor ailments (Aregbeshola & Khan, 2017; Koce et al., 2019). The secondary and tertiary levels of government specialists and private hospitals in Nigeria serve as referral points for primary health care centers and offer specialized care for different diseases including diabetes (Koce et al., 2019; Oyewole et al., 2020).

Chronic diseases, such as diabetes, have become one of the most significant causes of death and disability in Africa (Atun et al., 2017). Currently, 80% of the total deaths in low- and middle-income countries—of which countries in Africa constitute a significant proportion (World Health Organization, 2019)—are due to chronic illnesses. Poor glycemic control is reported among more than 50% of persons living with diabetes (Adeloye et al., 2017). Its underlying causes have also been widely documented. These include inadequate knowledge of the disease and its management by patients, cultural beliefs that interfere with biomedical interventions, poverty, and lack of access to health care (Attoye et al., 2020; Jasper et al., 2014; Ogbera & Ekpebegh, 2014).

Although some Nigerian studies have proposed some factors that influence diabetes management (Bosun-Arije et al., 2019; Ojewale et al., 2019), how these factors influence professional self-management support values or practices and how healthcare providers attempt to accommodate patients' sociocultural needs in their interactions with patients has not been fully explored. The purpose of this study is to explore how the Nigerian social and cultural context influences healthcare providers' self-management support practices in two outpatient diabetes clinics in Nigeria. To achieve this purpose, a flexible emergent research design is used through which we describe and interpret experiences and practices within the context of individual, professional, clinical, and organizational circumstances (Thorne, 2016).

## Methods

We used an interpretive description design in this study. Interpretive description is an applied qualitative research approach developed for nursing and other practice-based professions (Thorne et al., 1997). It is used to identify patterns and themes within subjective experiences and generate an explanation to inform clinical practice (Thorne, 2008). It is practice-focused and facilitates a process of shared interpretation between the researcher and participants while also acknowledging and situating the experience within the broader macro and micro level structures and processes (Thorne, 2016). Epistemologically, interpretive description, like other qualitative research methods, operates under the assumption that truth is personal and reality is created through people's interactions with the world (Scotland, 2012). Therefore, researchers using interpretive description must interact with study participants throughout the research process to access the multiple views of reality (Thorne, 2016). The purpose of this study is to understand the shared and unique perspectives of the individual healthcare providers in these settings, and the micro and macro elements of the culture in which these experiences are situated. We use an interpretive descriptive methodology for this study because of the nature of knowledge required and the audience that would benefit from it.

**Table 1.** Participant Characteristics.

|  | N = 19 | % |
|---|---|---|
| Gender |  |  |
| Male | 7 | 36.8 |
| Female | 12 | 63.2 |
| Profession |  |  |
| Physicians | 7 | 37 |
| Nurses | 4 | 21 |
| Dietitians | 5 | 26 |
| Health educators | 3 | 16 |
| Professional experience (years) | Range = 2–36 | |
|  | M = 18 | |
| Number of years working in the present clinic | Range = 1–12 | |
|  | M = 8 | |
| Education level |  |  |
| Diploma | 1 | |
| Bachelor's degree or equivalent | 9 | |
| Graduate degree | 9 | |

This study was carried out in two tertiary health institutions in southeastern Nigeria from August 2018 to December 2019. Hospital 1 is a federally funded tertiary hospital in a large city. Its endocrinology clinic serves about 40 to 60 people weekly. Hospital 2 is state-owned and funded and is located in a poor rural area about 80 km from a large city. Its endocrinology clinic is held weekly and serves fewer patient population. The primary investigator, Sandra Iregbu, is a Nigerian Igbo-registered nurse who has worked with people with diabetes in acute care inpatient settings. The other three researchers, Wendy Duggleby, Jude Spiers, and Bukola Salami are registered nurses with extensive qualitative research and diabetes expertise. Permission to conduct this study was obtained from the research ethics board of the University of Alberta (PRO Pro00081155) and the ethical committees of the two hospitals where this study was carried out. Participants provided informed consent before data collection, and verbal consent was obtained from patients and family members present during observations. Iregbu generated all data and led the analysis.

About 19 healthcare providers (out of a total of 23 healthcare providers) that worked in both outpatient diabetes clinics were purposely and theoretically selected to participate in the study. None of them withdrew after admission to the study (Table 1).

## Data Collection and Analysis

Concurrent data collection and analysis occurred throughout the study. Data were collected by Iregbu via (a) face-to-face and phone interviews, (b) participant observation, and (c) review of clinic documents, such as patients' educational materials, and the food guide used in dietary counseling. Iregbu started with participant observation in both clinics and began formal interviews one month later. Informal

discussions were brief, unrecorded, and generally pertained to something that had occurred in the clinic consultation.

Interviews were conducted in English using a semistructured interview guide, and interview questions evolved as the study progressed. Questions covered in the interview included the following:

1. Could you tell me about your experience in working with out-patients with diabetes?
2. What is your goal when you provide care for persons with type 2 diabetes?
3. How do you help patients in managing their diabetes?
4. What influences the nature and extent of care you provide to persons with type 2 diabetes at the clinics?
5. Do you encounter any difficulties in supporting patients in managing their diabetes?
6. How do you resolve them?

A total of 23 formal audio-recorded interviews were conducted with 19 participants. Fifteen participants were interviewed once, and four were interviewed twice; second interviews were done to follow up on ideas and issues that were identified during data analysis, and to refine developing categories and themes. In addition, the second interview provided an opportunity for exploring how the social and cultural context influenced self-management support practices. Interviews lasted approximately 1 hour and were digitally recorded.

Immediately following each interview, Iregbu generated a participant profile that described the participant, interview, main messages, and methodological notes; this was a way to ensure all team members were aligned in their initial understanding of informants and data. About 17 of the 23 interviews were face-to-face while the rest (6) were conducted by phone due to the increasingly unsafe road and security issues in Hospital 2 at the time, and the difficulty in scheduling time for a second interview in Hospital 1.

All the participants (including those that were later interviewed by phone) were observed as they provided care to patients at both clinics. Iregbu assumed an observer-as-participant stance to generate data (Kawulich, 2005; Salmon, 2015), observing the clinic in Hospital 1 for 120 hours, and Hospital 2 for 58 hours. This stance enabled her to interact freely and closely with participants to fully understand what goes on in both clinics without participating in patients' care. All clinic staff were aware of Iregbu's role as a researcher and introduced her to patients and their families. Iregbu shadowed healthcare providers as they provided care to patients and did not collect data from patients' medical records. Study participants were healthcare providers; therefore, the focus of observation was on healthcare providers' action strategies in offering self-management support to patients and families. Iregbu also observed patients' reactions to the health care providers' actions, such as the kind of

questions patients asked, how questions were asked, and how education and support were framed.

There were no formal interviews with patients. However, informal conversations were involved when necessary to inquire about their understandings and feelings about their clinic visit. Before observing any healthcare provider/patient interactions, verbal information was presented to the patients and family members present regarding the purpose of the study and why the clinic consultation was being observed. Patients and their family members were allowed to agree to be observed or not and were informed that observation or lack thereof would not affect their care. Verbal consent was obtained from the patient and family members present before any observation. Detailed descriptive field notes were written immediately after leaving the clinic and were uploaded for analysis. Fieldnotes were recorded in English unless healthcare provider/patient interaction occurred in Igbo. With a specialized clinic, experienced and articulate participants, and the use of multiple data sources utilized in this study, we were able to capture a reasonable range of experiences to address the aims of the study.

To minimize the observer effect, Iregbu regularly explained to participants the purpose of the study, which was not to judge but to understand their experiences. Participants were informed that their names and the names of the hospitals would be withheld and not published. Other strategies used to mitigate observer effects included providing necessary information regarding the nature of the study, and detailing what the researcher would be doing at the field site and during each visit. Iregbu took time to create rapport with the clinic staff to make them feel at ease with her by arriving at the clinic early before each clinic day and engaging in small talks with participants before the start of clinic activities. Iregbu wrote short notes during clinic activities to avoid undue suspicion and developed notes further at the end of the session. Furthermore, we looked for consistency in the behavior and accounts of participants; where nontypical behavior was suspected, Iregbu explored further by observing for consistency in such behavior for that particular health care provider as well as among other health care providers. We also compared data across different sources; for instance, we compared interview and observation data to determine consistency. Discrepancies indicated the need to return to the field for more exploration.

Interviews were transcribed verbatim, cleaned, and de-identified. All data were managed in Quirkos 2.4.2© (2021). We followed the analysis processes suggested by Thorne (2016). First, we immersed ourselves in the data to facilitate a global understanding of participants' experiences. Next, constant comparative techniques were employed to sort, code, compare and categorize data, and develop emergent themes. We conducted coding individually and as a team to ensure consensus in interpretation. Further analysis involved rereading the interview transcripts, listening to audiotapes, continued reflection on field notes and the available clinic documents, and reading other authors' accounts in the empirical literature (Thorne, 2016). The above processes ensured that the findings were grounded in the data, enabled us to look at the data from multiple perspectives, and led to deeper insights that strengthened the validity of our research findings. Concurrent data collection and analysis allowed emerging findings to guide the process of data generation. Our research strategies of theoretical sampling, concurrent data generation and analysis, theoretical sensitivity, and the use of multiple data sources helped incrementally build and ensure rigor (Morse et al., 2002).

## Results

### Research Setting and Clinic Processes

*Hospital 1.* Hospital 1 was a tertiary health institution located in one of the capital cities in Nigeria. It had an endocrinology clinic as one of the operational clinics housed within its medical outpatient department. Up to 90% of the patients seen at the endocrinology clinic were persons with diabetes; hence, it was synonymously known as the diabetes clinic. Healthcare providers who worked in the diabetes clinic included doctors, nurses, dietitians, and health educators. Health educators were university graduates employed in Hospital 1 to provide health talks to people on various topics within different clinics. Nurses, doctors, and dietitians had their offices within the clinic; health educators visited the clinic reception every morning to provide a general health talk to the patients waiting in the reception area. The diabetes clinic operated twice in a week along with two other specialist clinics.

Patients visited the diabetes clinic on referral, usually from the general outpatient department, accident and emergency unit, or other hospitals. The diabetes clinic in Hospital 1 had three offices: nurses and dietitians shared one, while doctors used the other two. The office, which served both the nurses and dietitians, was small compared to the number of people who used it and the number of people who moved in and out during the peak 09:00 to 14:00 hours. At times, the clinic was so noisy that it was difficult to hear the health educator. The nurses recorded patients' weight, blood pressure, and blood glucose readings in their private folders before taking them to the doctors. Patients were then called to see the doctor in the order that the folders were received in.

Most patients paid out of pocket except a few who had health insurance as active federal government workers or workers in a private organization. The consultation fee and diet counseling fees were compulsory. Patients were required to show proof of payment before being attended to by a healthcare provider.

Each endocrinology clinic day in Hospital 1 typically began with health education given by health educators. Health educators initiated a Christian prayer with patients before giving them a general health talk. It was given in a

**Table 2.** Themes and Subthemes.

| Themes | Subthemes |
| --- | --- |
| 1. Cultural beliefs and practices | i. Belief in the supernatural origin of diabetes |
| | ii. Individual–family interdependence |
| 2. Myths and limited understanding of diabetes and its management | |
| 3. Lack of health insurance and poverty | |
| 4. The rigidity of a hierarchical acute care model of diabetes services | i. Role validity, role boundaries, and teamwork |
| | ii. Lack of infrastructure: forcing adaptations to self-management support practices |

lecture format and lasted between 30 and 60 minutes. Patients and their relatives were usually addressed in a mixture of Igbo and English. At the end of the health talk, health educators allowed patients to ask questions. Sometimes handouts covering different diseases were offered to patients for a token fee of ₦50 (CAD 0.2¢). In addition, two educational resources were available in Hospital 1: a diabetes diet guide and a diabetes tip pamphlet.

*Hospital 2.* Hospital 2 followed a similar procedure as Hospital 1, except that there are no health educators and no general health education. This diabetes clinic was held once a week, and the clinic had fewer staff. Hospital 2 also differed from Hospital 1 in terms of geographical location and funding. The federal government owned and funded Hospital 1, whereas the state government owned and funded Hospital 2. Hospital 2 was situated in a rural community; thus, it drew patients from the surrounding villages, mostly the elderly and people of lower socioeconomic status. In contrast, Hospital 1 drew relatively younger people due to its location in a bigger city. Besides the hospital staff and their relatives—some of whom visited Hospital 2 as patients when they were ill—many other patients were retired, elderly, poor farmers, or traders.

It was readily apparent from observational and interview data that participants' self-management support approach and practices represented healthcare providers' attempts to accommodate their patients' core sociocultural beliefs and values in the context of a health care structure that was more aligned to traditional acute care and infectious disease management. Key sociocultural themes influencing self-management support approaches included (1) belief in the supernatural origin of diabetes and individual–family interdependence; (2) myths and limited understanding of diabetes and its management; (3) lack of health insurance and poverty; and (4) the rigidity of a hierarchical acute care model of diabetes services (see Table 2 below for a list of themes and subthemes)

### Cultural Beliefs and Practices

The lay and popular beliefs and practices described by participants and observed in these settings included (a) beliefs in

the supernatural origins of diabetes such as spiritual attacks in the form of curses or ill wishes (which can be treated and cured through spiritual practices and herbal remedies) and (b) individual–family interdependence that prioritized family rather than individual role responsibilities and decision making. Therefore, healthcare providers needed to decide whether or how to address misleading supernatural beliefs for each patient and how to balance individual and family authority and autonomy.

*Belief in the supernatural origins of diabetes.* Participants described how their patients' widespread beliefs in the supernatural origins of diabetes profoundly impacted self-management of diabetes and support strategies. For example, the solutions to diabetic complications in the feet "*acha-ere*" are supposedly found in prayer houses or by a spiritual healer, which often leads to distressingly delayed health care:

> If they have a diabetic complication like gangrene, most of them will go and be treating it and say it is *acha-ere* [directly translates as *that which rots as it ripens*]. That is what most of them are doing. You see them only when it is bad and forming maggots; the thing is getting so bad, some will go to church and be doing prayers, pouring olive oil to the wound. Some go to native doctors and say it is *acha-ere*. So, when they are rushed to the hospital, they end up with amputation, or the person will lose his/her life. (Dietitian)

Patients did not readily talk about their beliefs in the supernatural origin of their diabetes with their healthcare providers. Some patients verbally attributed their nonadherence to prescribed medications to their inability to afford them; however, healthcare providers' further probing often opened alternative beliefs about the cause and management of diabetes. For instance, one woman told her physician that she had skipped her medication for a long time because she did not have enough money for a refill. However, she told the PI that she knew diabetes was not the cause of her problem, instead, her sister-in-law had used her evil influence on her to cause her foot problems. In her personal health beliefs, traditional treatments based on herbs and spiritual exercises were more valuable than the prescribed medical treatment. Healthcare providers attributed nonadherence to therapeutic recommendations among some educated patients who were

neither poor nor educationally disadvantaged to this inherent belief in the supernatural cause of diabetes.

Traditional beliefs regarding the cause and treatment of diabetes strongly affected patients' disposition to medical treatment. Some healthcare providers felt that patients' lack of adherence resulted from the low level of priority patients accorded to their medical treatment due to their belief in the supernatural origin of their condition. In addition, there was often a complex role played by poverty, ignorance, and cultural beliefs in diabetes self-management. Healthcare providers felt that they needed to be alert to the possibility that their first contact with a patient may be their only contact because of patients' tendency to resort to traditional medicine:

> Because we have cultural problems in this part of the country, people believe diabetes is from curses. Therefore, how they perceive our treatment is different. If you see them today, that may be the last time you can see them. They may go to traditional health care practitioners. I have a couple of them who stopped-educated people, you know, some people you think are even educated; some stop the treatment, they even start trying other types of maybe herbal concoctions. They come back to you when it worsens; then, the complications would have set in like liver problems and renal problems. (Endocrinologist)

Despite believing that diabetes can be cured through supernatural means, many patients had heard stories or had a family member or friend with diabetes, creating a conflict between their assumed knowledge and the biomedical knowledge provided in the diabetes clinics. In addition, patients who held expectations of a cure were distressed by conflicting hopes and medical reality:

> Patient: "My parents lived up to 100. I do not know where this diabetes came from; I do not know if I was bewitched; sometimes, I feel like dying and resting."
>
> Physician: "Diabetes is not the end of everything, but you see it as such." [At that point, the patient started wiping tears from her eyes]. "I hope you are not crying."
>
> Patient: "Crying does not solve any problems. This diabetes has overtaken my life; I cannot even hold a pen properly; my hand trembles." (Hospital One field note).

Healthcare providers perceived some patients were "living in denial" in that they cried out for help, holding out hope for a cure through religion, faith, and superstition. The saying, "it is not my portion," meaning, "it cannot happen to me," was typical. Many patients emphasized that one could live in divine health if one followed through with their faith and fulfilled their obligations as Christians. A diagnosis of an incurable condition such as diabetes contradicted this principle; hence, the statement, *it is not my portion*.

The pervasiveness of beliefs around the notion of supernatural origins of disease forced healthcare providers to routinely encourage the patients by offering hope. Much of their self-management support was manifested as persuading and explaining to patients that diabetes is an incurable but manageable medical or physical condition:

> We tell the patient that you have this disease, but it does not mean you will not live a healthy life. We try to convince the patient because some of them will start crying as soon as they come; as soon as they are diagnosed, their mindset will change, and some will think it is death knocking. However, we assure the patient that it is not like that; it is not the end of the world. You can still manage it and live an everyday healthy life. (Dietitian, Hospital Two)

When the consequences of these beliefs have critical implications in adherence, the healthcare provider would attempt to disabuse beliefs of witchcraft or spells with factual biological information.

> In terms of beliefs, we explain how diabetic foot ulcer occurs, the damage to the nerves, the blood vessels, and the loss of sensation. . . We tell the person how the thing came about. Disabuse the person's mind that somebody in [City] does not cause it because maybe they had a little quarrel. (Endocrinologist)

Healthcare providers readily acknowledged that patients may decline medical interventions for spiritual or cultural reasons and that bringing the family in and providing education would not always be successful so that "some eventually agree, you know, agree to the treatment, others do not, and eventually, they die." (Endocrinologist). In addition to beliefs in the supernatural origin of diabetes, a strong family orientation was visible among this cultural group, which also factored in their self-management support practices.

*Individual–family interdependence.* Igbo culture is profoundly family oriented. It was common to see patients arriving at the clinic with their relatives. Most patients—especially males—came with at least one or two relatives. Relatives were deliberately included in the consultation because diabetes care responsibilities were frequently shared among family members. Igbo cultural values mean that a male patient's dietary management is perceived as the responsibility of the patient's wife, daughter, or other female members of the family rather than the individual living with diabetes:

> For any person with type 2 diabetes above 40, even if he does not have complications, I may invite the wife next time. We will put the wife through what diabetes is and how the husband needs support. The diet, for instance, she may be the person preparing the food, so if you talk to her about diet, she will see the need to do what you have advised the husband to do. (Endocrinologist).

Healthcare providers strongly believed that family members were indispensable care partners who provided essential emotional, physical, and financial support:

> I have already said that most patients pay out of pocket for their treatment. They may not be able to cope, carry the whole burden. They may not be able to do some of the things you tell them to do. Some may be completely helpless if they do not have relatives who can assist. (Endocrinologist)

The involvement of patients' relatives had much value in this context; however, cultural values around sick roles, fear of diagnosis, and elders' respect occasionally led patients' relatives to protect the patients by hiding facts or news about a patient's condition, especially for older patients. It was not uncommon for relatives to attempt to shield an elder by hiding the fact that diabetes is incurable, which placed healthcare providers in a position of defying family preferences to emphasize medical information. For example, an older woman in her mid-eighties was accompanied to the clinic by her granddaughter. The doctor started to explain how diabetes affects the whole body, and explained how complications occur. As soon as the doctor started talking, the granddaughter interjected and said in English, "Tell me, do not tell her because she is too emotional. I will know how to relay that to her." The patient asked, "my sugar (diabetes), has it been cured, or is it still there?" The doctor explained, "it is incurable; you will need to take your drugs regularly." The patient sighed in exasperation and said, "*Haa, o bu na o nweghi olila?*" ["so, does it mean that I will never be healed of this disease?"]. The granddaughter told the doctor, "Tell her that she will be cured." The doctor said, "No, I would tell her the facts, or she may stop taking her medications." (Field Note).

Sometimes a patient's relatives refuse a particular form of treatment or strengthen the patient's resolve not to accept certain forms of treatment. Healthcare providers respected such decisions if the patient agreed with the family despite no valid reason. Such was the case of a patient in her mid-sixties with dry gangrene on her left leg who was offered the option of amputation. The patient refused the proposed amputation and said, "My children said that you people (healthcare providers) have not given me real treatment and that my wound will heal if properly treated" (field note).This incident was not unusual because family members were involved in important decisions, even decisions that could decide between life and death. Family members had a say in each other's lives and took part in important decisions regarding treatments. They also could and did override decisions made by healthcare providers. Diabetes self-management, in this context, was not just an individual affair; instead, family members were intimately involved with self-management activities, such as meal planning and monitoring blood glucose, and were critical stakeholders in decision making.

## Myths and Limited Understanding of Diabetes and Its Management

Healthcare providers acknowledged patients' widespread lack of understanding of diabetes and its management even if they had attended the clinic for some time. For instance, many patients did not know the standard parameters for blood glucose values. They looked to the nurses to interpret fasting blood sugar results. Patients' gross lack of understanding diabetes management was evident during participant observation as highlighted here: "Doctor (D: ): 'When were you first diagnosed with diabetes?' Patient (Pt.): 'Four years ago, and then it cleared.'" This patient had already been seen by the endocrinologist and was referred for diet counseling. Dietitians regularly identified considerable gaps in knowledge that they tried to bridge within the limits of available time before providing dietary counseling. Unfortunately, very few patients were referred to dietitians. Furthermore, few referrals were followed up as patients often did not understand their one-time dietitian fee covered all consultations for a year.

Dietitians reported that about a quarter of all patients that came to the clinic sought their services. Clinic patients with less than the basic understanding of diabetes were common, even if they had lived with the condition for more than 2 years. One way to explain the limited understanding was that the supernatural belief system may overwhelm and obscure comprehension of biomedical facts. Healthcare providers reported that shifting fundamental social beliefs about the supernatural causes of diabetes was challenging and required regular repetition:

> Many people see diabetes as any other disease condition like malaria or typhoid fever that you will treat as soon as diagnosed. We try to make them understand that diabetes is a different ball game; it lasts for life. However, even at that, because of culture, people do not believe that. They rather listen to people outside than believe what the doctor tells them. (Endocrinologist)

Patients and their family members either experienced this repetition of basic information as an attempt to help them understand diabetes or they perceived it as a conversational shutdown. They felt that the healthcare provider was using the power of professional knowledge to stop a patient's attempts to appeal to supernatural beliefs. Both approaches were observed in both clinics.

There was often a mix-up of accurate and inaccurate information among the patient population. For instance, healthcare providers reported a prevailing assumption that patients with diabetes could only eat foods that do not contain carbohydrates or sugar. However, cassava (a starchy root vegetable) is a staple food for Igbo and is rich in carbohydrates; it is consumed daily in many households. Other everyday carbohydrate sources included yam, cocoyam, rice, and plantain, which are calorie-dense foods. Diets in Igbo

culture are rich in carbohydrates and oil; when consumed freely, as is often the case with many Igbo people, these foods may make the control of blood glucose a considerable challenge. These traditional foods are widely available in local and open markets, and are cheaper than processed foods.

The lay beliefs directed persons with diabetes to eat supposed alternatives such as wheat, beans, and unripe plantain, which were believed to be low in carbohydrates. In addition, persons with diabetes are expected to drink tea or maize gruel (akamu) without sugar. Often, these expectations placed a dietary burden on individuals with diabetes because some of these foods were neither widely available nor inexpensive. Avoiding cassava but not finding cheap alternatives led to a monotonous diet, which was another barrier to long-term adherence.

Culturally, participants perceived food as a profoundly important social activity, especially in this family-based Igbo culture. It was typical that patients generally did not understand what constituted a diabetic diet, and appeared to assume they could eat unlimited quantities of certain supposedly "carbohydrate-free" foods such as wheat, beans, and unripe plantain:

> Since I was diagnosed with diabetes in 2006, I have seen a dietitian only once, and she taught me the kind of foods and quantity to eat and gave me a diet guide. . .I have not been using the diet guide because I am now managing myself. My wife tries a lot; she cooks *Moi-Moi* (bean pudding) for me every morning; in the afternoon, I eat beans and maybe unripe plantain or something else. In the night, I eat wheat. (Field note)

Healthcare providers perceived that most patients preferred to listen to their families and others rather than their healthcare providers. Therefore, they tried to change underlying cultural beliefs and practices through health education; however, a cognitive and rational discussion based on assumptions of biomedical knowledge held only by healthcare providers did not usually prevail when patients had more familiar, reassuring, and deeply held lay supernatural beliefs regarding diseases and their evolution. In addition, the existing cultural beliefs/practices and general widespread misconceptions were complicated by the absence of health insurance, which meant that most patients must bear the total cost of their medical treatment.

### Lack of Health Insurance

Many patients paid out-of-pocket for their treatment. On an average, patients were expected to pay a total of ₦2,000 (CAD $6.2 at the exchange rate of $1 to ₦322): ₦500 (CAD$1.6) for the doctor's consultation, ₦500 (CAD $1.6) for fasting blood sugar or random blood sugar (RBS), and ₦1,000 (CAD $3.1) to see a dietitian. This amount did not include the cost of drugs, laboratory investigations, and

treatment of comorbidities. Two thousand naira is significant considering the income of the average Nigerian; this amount represents about 7% of the new monthly minimum wage (₦30,000 [CAD $93]) in Nigeria).

Poverty was more pronounced in state-owned and -operated Hospital 2, which received less funding than federally funded Hospital 1 and served a more impoverished community. This discrepancy was a result of more significant revenue income for the federal government than the state governments. Participants explained that inadequate funding was evident in the comparatively fewer staff who worked in Hospital 2. Patients' inability to afford medical bills and drugs was more visible in Hospital 2. This inability to sustain the out-of-pocket costs for required medications, supplies, and lab investigations limited healthcare providers' capacity to provide comprehensive care:

> Due to financial constraints, they do not have glucometers; sometimes, it is difficult to monitor their blood glucose because I will not be able to make adjustments in their treatment that I would like to do because they do not have a proper glycemic profile that they have been doing before they came to the clinic. So sometimes, we are forced to use fasting blood sugar done on presentation to adjust. . . . We request HbA1C. It is done every three months or every quarter; however, the cost is also a constraint. Most of our patients pay out of their pockets, and the cost of doing it is also exorbitant, and sometimes they do not have the result that would have been used for adjustment. (Endocrinologist).

Healthcare providers perceived that a typical response of many who could not pay out-of-pocket was to appeal to supernatural powers ("God") to solve their problem. Healthcare providers regarded this response as resistance or denial and became concerned because the inability to sustain the cost of hospital treatment caused dangerous delays in seeking treatment. In addition, patients' inability to afford necessary resources for diabetes self-management forced healthcare providers to adapt their treatment even if it meant making do with less-than-ideal monitoring/treatment. The above situation is complicated by the structure of diabetes care.

### The Rigidity of a Hierarchical Acute Care Model of Diabetes Services

The structure of diabetes care in both clinics reflected a rigid traditional hierarchical structure, originally designed for acute disease management. Neither the hospital nor the community provided structure or resources for ongoing diabetes self-management education or support. As a result, participants provided self-management support to patients in a generalized system that offered no extra accommodations for managing persons with diabetes. In addition, healthcare providers tended to work in silos, and interprofessional

collaboration was not evident. Subthemes here include (a) role validity, role boundaries, and teamwork and (b) lack of infrastructure forcing adaptations to self-management support practices.

*Role validity, role boundaries, and teamwork.* There were no dedicated diabetes educators in the two study settings: consequently, it was unclear whose role was to provide self-management education. In addition, self-management support services were not streamlined; there were no coordinated referrals, and there appeared to be little collaboration among the different healthcare providers, as observed by the PI and highlighted by a nurse:

> Our relationship with doctors is not fantastic. . ..here, you do not give suggestions to the doctor; they think they know everything. When you see a diabetic patient and make suggestions to the doctors, some doctors will ignore you, which has messed up my relationship with them. (Nurse)

Nurses felt underutilized in Hospital 1. The nursing role in patients' education was incrementally removed by the employment of general health educators even though this role was oriented to reducing general health illiteracy rather than diabetes education. This role differentiation inadvertently limited nurses' role in the clinics to checking vital signs following the traditional rigid hierarchy common in both hospitals. Health Educators' role was to provide general brief layperson summaries on different health conditions. Diabetes was not a very observed topic.

Interestingly, despite the lack of health educators in Hospital 2, the nurses' role still did not include formal patient education. The absence of a designated diabetes educator in both hospitals gave rise to a situation in which it was unclear who should carry out diabetes education. Some of the participating doctors believed that doctors were the only ones who provided diabetes-specific education to patients in the clinics and that other healthcare professionals contributed little or nothing in those terms. This belief is shown in remarks by one physician participant:

> Patient management is multidisciplinary; one healthcare professional does not do it. Healthcare educators should, eh, play major roles, but it is as if the primary physician, endocrinologist does everything- almost everything; sometimes [also] the dietary education is done by us. (Endocrinologist, Hospital One)

Participating resident doctors in Hospital 2 believed that they had the necessary knowledge to provide diet counseling; therefore, they only referred patients to dietitians when patients had additional conditions such as obesity: "Extreme cases only, like obese patients, are referred to the dietitian . . .patients who cannot help themselves. . .you ask them to see the dietitian so that they can do some more serious

things" (Resident Doctor). Dietitians in both hospitals emphasized the significance of low rates of referrals, which they attributed to forgetfulness on the part of the doctors, as this dietitian stated: "Most of the time, the doctors forget to refer patients to us and just give them drugs. This happens mostly when the patients are too many; the doctors do not remember" (Dietitian). Nurses perceived their roles did not make good use of their knowledge or skills and they provided more emotional and psychological support for patients, although there was little privacy available for nurses in the clinics. The unclear role assignment meant diabetes education was not regularly provided and, when provided, was not structured. Unfortunately, the status quo persisted despite the increasing need to adapt strategies and resources to meet the needs of patients with diabetes.

Participating healthcare providers identified gaps and mismatches between the services they offered, and patients' needs for self-management support. The continual lack of essential resources and apparent lack of interest or leadership capacity in the hospitals to effect change resulted in a feeling of helplessness among healthcare providers who had learned to adapt to the circumstances. Healthcare providers recounted ways to strengthen self-management support in the two clinics; however, they appeared powerless and unable to make any real change as individuals or a group. For instance, they discussed employing diabetes educators, creating dedicated time for diabetes education, providing different educational tools, and putting structures for continued support to patients outside the hospital.

However, despite their insights, conditions at the clinics remained the same. For example, when asked if the clinic could identify and share freely available and credible internet resources, the response was that this was not possible or useful due to time, energy, and role expectations. Coiera (2011) described this inaction as "system inertia," which refers to a failure by a human organization to effect change despite the clear indication that change is crucial. The system inertia resulted in healthcare providers feeling powerless and impacted their perceived ability to effect change, as a physician highlighted: "The factors are not in the control of healthcare providers. To me, given the right environment and the right amenities, healthcare providers will be able to do what is expected." In Hospital 2, system inertia was blamed on a government that had no interest in providing adequate funding for the hospital.

> One of the problems we have here is practicing in an area where the government seems insensitive to what they need to do. The problem most times is not that the government has no resources; if you have an administration that is interested in doing this thing, they get it done. Sometimes it is a question of personal interest. If a governor is interested, he can do what needs to be done, but you cannot just do anything if he is not interested. So that is the issue, we keep on praying. . .maybe somebody just comes and decides to do something one day. (Resident doctor)

*Lack of infrastructure: Forcing adaptations to self-management support practices.* Healthcare providers recounted the different ways in which the lack of requisite resources and the consequent inertia affected their practice. Lack of support for continuing education for healthcare providers resulted in a lack of skills for individualized support for patients. Many nonphysician healthcare providers cited their lack of specialized training by the hospital or government as a profound limitation. They felt convinced that they could support patients better if they had more training.

> The government does not send us for training. It affects us because you cannot give what you do not have. When you send someone to a seminar, symposium, or training, the person will be knowledgeable and interact with the patient. You cannot give what you do not have. (Nurse)

Lack of diabetes self-management support skills impact the efficacy of patient education. When asked about what she tells patients when she notices their blood glucose is outside the recommended parameters, a nurse revealed:

> I do not have any special training on diabetes, so when they have high fasting blood sugar, I tell them the much I know; for instance, I ask them, what do you eat? Do you take your medications? I tell them to stick to their medications. (Nurse)

Many healthcare providers had a basic knowledge of diabetes; however, specialized strategies and skills to support self-management were absent. Healthcare providers felt comfortable giving generalized advice but could not give details or provide practical, individualized information that would guide patients in problem-solving and making informed decisions in their day-to-day lives with diabetes. Instead, healthcare providers focused on providing rules and enough information for patients to understand that they must follow the rules. For example, patients were told measurements of what to eat during diet counseling; however, patients were not taught how to maneuver or make complex decisions. Patients were taught to follow a meal plan rather than counting carbohydrates and calories or learning how to balance their blood sugar if they needed or wanted to eat more food than specified. No situations were observed where healthcare providers focused on how to balance medication, diet, and exercise. Likewise, healthcare providers did not discuss with patients how other factors, such as hormones or stress, affect blood glucose or how to manage social events, such as those involving social pressure to accept food from hosts. Lack of specialized self-management support knowledge was further complicated by a lack of dedicated time for education, which forced healthcare providers to rush through diabetes education.

The two clinics did not designate specific times or personnel for diabetes education; therefore, it was only provided within the time available for consultation. When provided, it was usually brief, and sometimes, omitted entirely. Consequently, many patients passed through the clinics without fully understanding their condition or its management. Each healthcare provider sometimes provided little bits of education, which meant the patient/family needed to put all the information together as they went from one healthcare provider to the next. Healthcare providers did not have a uniform approach or structured education plan; instead, each healthcare provider decided what to tell the patient. However, the absence of a diabetes educator left a gap because no one helped patients connect these bits of information, keep track of what was covered or not covered, or help patients learn how to solve the problem and integrate their diabetes knowledge into their daily lives:

> We try as much as we can to talk to the patients in the clinic there. However, you know, considering the nature of our clinic, how busy it is, and the number of patients we see, we usually do not have enough time to [give] thorough education. However, at least, we give them an overview. (Endocrinologist)

The level of detail referred to above may have contributed to patients' apparent lack of understanding perceived by the healthcare providers. The absence of specialized personnel or resources for self-management education also meant that patients' psychosocial needs were often missed, which ultimately meant it was more difficult for patients to maintain adequate self-management without ongoing support. Healthcare providers acknowledged the absence of a structure for continued self-management support and patient follow-up. There was no structure in place to coordinate the care of patients within the community, and none to reach patients who failed to appear for clinic appointments or send reminders to patients. Healthcare providers could only call patients at their own cost and occasionally give their cell phone numbers to call between clinic appointments. However, many patients did not follow up, which resulted in some returning with critical conditions.

In summary, healthcare providers in both hospitals practiced in settings with (a) strong cultural beliefs and practices and (b) barriers such as lack of health insurance and the absence of specialized structures for providing ongoing education and other forms of self-management support for patients. Patients manifested intense emotional responses to the diagnosis of diabetes, ranging from doubt to denial to emotional distress, all of which affected their health-seeking behavior and ultimately their self-management. The prevailing supernatural health belief systems and persistent misconceptions fueled the misunderstanding about the cause, course, and medical management of diabetes. Healthcare providers practiced family-centered care because the family, not the individual, is at the center of decision-making in Igbo culture. Families play a pivotal role in providing instrumental support and in self-management decision-making. The structure of diabetes care in both clinics was patterned after

the acute care clinics with no proactive measures to attend to the peculiar needs of patients with diabetes.

## Discussion

For a considerable time, researchers have focused on patients as the source and center of diabetes nonadherence, noncompliance, and lack of appropriate self-management knowledge, skills, or attitudes in African settings (Oluma et al., 2021; Ugwu et al., 2020). In contrast, our study findings highlight a gap in care and support for persons living with diabetes. As can be seen in this study, Nigerian healthcare providers frequently contend with social and structural barriers that impair their capacity to fully support persons living with diabetes, such as lack of infrastructure and resources, role and teamwork normative practices that fostered siloed parallel practices, and role or organizational inertia. Despite dominant cultural beliefs around supernatural health belief models and specific family needs, which demand healthcare providers to tailor their self-management support to suit individual circumstances, healthcare providers' self-management support practices reflected a partial transition from an acute care service model to an integrative, holistic, and interdisciplinary chronic care model. In their patient interactions, individual practitioners strove to compensate for combinations of factors that might explain the status quo such as lack of health insurance and misconceptions about the cause, course, and management of diabetes, and the organization of diabetes care.

From a patient perspective, reliance on alternatives to biomedical care is framed as nonadherence to prescribed medications by healthcare providers, yet seeking alternative solutions is a natural consequence when patients cannot afford the cost of medical treatment (de-Graft Aikins, 2005). Few patients in the study clinics had health insurance. As a result, patients frequently skipped essential services to avoid extra costs, which had inevitable long-term complications, thereby placing additional burdens on the individuals, families, and society. Nigeria's national and private insurance organizations provide coverage for only a minute percentage of the Nigerian population (Okpani & Abimbola, 2015; Onyenekwe et al., 2020). Significant associations between patients' financial status and medication compliance among persons with diabetes receiving care have been identified in Kwara (Abdulazeez et al., 2014) and Lagos states in Nigeria (Awodele & Osuolale, 2015). As diabetes exponentially increases, providing financial assistance for diabetes self-management will be more cost-effective than alternative tertiary care.

The current organization of diabetes care in Nigeria renders self-management support challenging because the required resources are nonexistent. The staff seem constrained by the status quo and do not feel that they could apply the best practice standards. Essential features of current best practice recommendations include interdisciplinary

teamwork, dedicated diabetes educators, and structured individual, family, and group education (Diabetes Canada Clinic Practice Guidelines Expert Committee et al., 2018). The practice approach observed in the clinics reflected parallel practice as different professional groups carried out their activities in relative isolation. Consequently, some professional groups, such as nurses, were grossly underutilized.

Interprofessional collaboration among professionals is key to meeting the needs of patients with diabetes who face diverse challenges such as medical, informational, psychosocial, and lifestyle and dietary changes (Morgan et al., 2015). This approach assumes mutual respect and recognition of each professional discipline's specific knowledge and contributions which enables the care team to generate solutions to complex problems with patients and their families to improve patient care while promoting maximal use of health professionals' time and expertise (Herbert et al., 2007; Morgan et al., 2015). The roles appear impermeable to change, and the traditional hierarchy, which privileges endocrinologists' knowledge and skills, satisfy only the physicians. Healthcare providers, such as dietitians and nurses, were aware of alternative structures but did not seem to harness momentum or power to initiate change or even access patient education resources that might complement their teaching. While this may reflect the lack of time that staff faced in these busy clinics, it also reflects a sense of dependence on hierarchy for professional learning and patient education resources.

Despite less than adequate clinic infrastructure, the healthcare providers in this study attempted to bridge the chasm between biomedical recommendations, such as blood testing, and medications with the realities of patients' situations. Many researchers have observed the pervasive use of herbs, prayers, and other nonmedical remedies among patients with different forms of chronic illnesses in Africa (Abdulrehman et al., 2016; Adejoh, 2014; Adejumo et al., 2015; Sule, 2013) and, in particular, the strong belief systems in southeastern Nigeria around the power of prayer to cure diabetes (Sule, 2013). Frequently, such supernatural beliefs were assumed and unarticulated, and often obscured by a more socially acceptable explanation of inability to pay. While not observed in this study, Olorunfemi and Ojewole (2019) found that diabetes patients thought their medications could poison or harm them. Healthcare providers in the present study considered the belief in the supernatural origins, course of diabetes, low levels of health literacy, and diabetes knowledge to be significant factors leading to poor self-management among patients.

Family members are essential stakeholders in diabetes self-management in this context and have significant power and authority levels to steer the management outcome. The concept of self-management must be reexamined in the light of this study because the term "self" is defined differently in family-oriented cultures, where the family is intimately involved in diabetes management and may speak or make decisions on behalf of the family member living with

diabetes. This strong family orientation contrasts with western cultural values that emphasize self-determination and independence in diabetes self-management (Pulvirenti et al., 2014). In this study, it was a normative social value that family members helped patients with self-care activities, such as food preparation, blood sugar checks, administering insulin, and sharing the financial cost of hospital treatment, echoing the findings of Sule (2013) and Abdulrehman et al. (2016). A growing body of evidence suggests that family involvement in self-management support is associated with increased self-efficacy, improved knowledge and self-care, and better glycemic control (Baig et al., 2015; Lee et al., 2018; Ojewale et al., 2019). Although we illustrated different ways of how families support patients in managing their diabetes in this study, families were not always helpful. For example, family members sometimes discouraged patients from following specific medical recommendations, such as amputation surgery. The significant effects of family involvement on self-management in the Nigerian context underscore the need to make patients and their family members essential partners in self-management support.

Many healthcare providers in the present study did not feel confident in providing self-management support. Some, especially nurses and health educators, admitted that they were unprepared for self-management support roles. Similarly, Abrahams et al. (2019) noted that the absence of in-service training for healthcare providers in specific aspects of chronic care hindered their capacity to provide self-management support. Practitioners in chronic disease care must be specially prepared for their roles and require a specialized set of skills to be successful. Adequate preparation results in a skilled and confident clinical team that can support patients in managing their chronic conditions. This could be achieved by enriching the curriculum of training for nurses and other healthcare providers and promoting a culture of yearly continuing education to incorporate current ideas in chronic illness management such as, empowerment, self-management support, and psychosocial implications of living with a chronic illness.

## Limitations

This study was carried out in two government-owned hospitals in one state in Nigeria, mainly used by people of low- and middle-income brackets. Individuals in the higher socioeconomic class generally use private hospitals; therefore, the assumptions and inferences made in this study may not apply to private hospitals or hospitals across Nigeria. The congruence of findings with other research strongly suggests that similar challenges such as supernatural beliefs, myths, health illiteracy, poverty, lack of insurance, and absence of chronic care infrastructure existed. It is the various combinations that will generate slightly different constellations of challenges that must be acknowledged and addressed

in self-management support practices. Nigeria consists of people from multiple ethnic groups with different cultural beliefs and practices; therefore, there needs to be further investigation of how healthcare providers integrate or counter sociocultural beliefs and practices in different Nigerian contexts, and those in similar developing countries. We aimed to generate a deep understanding of the experiences of self-management support among Nigerian healthcare providers providing care to persons with type 2 diabetes that synthesizes individual knowledge, values, and practices within the practice setting and sociocultural context. Our findings are a significant start to exploring how healthcare providers can accommodate sociocultural factors and the structural and conceptual constraints on evolving person-centered self-management support practices in Nigeria.

## Conclusion

The essential contribution of this study is its focus on health care providers and how they perceive, acknowledge, accommodate, or resist influential sociocultural factors in their self-management support practices in Nigeria, a developing country with a rapidly rising incidence of diabetes. Despite recognition and attempts to mitigate the impact of financial insecurity on self-management expectations, healthcare providers endeavored to bridge a wide chasm between biomedical understanding of diabetes and a supernatural explanation. Normative cultural values foster family-based care, but significant deficiencies in the organizational and professional structure of the diabetes clinics prevent all health care workers from contributing to the best of their professional disciplinary abilities. This study illustrates how perceived nonadherence and noncompliance in two tertiary care clinics is a product of continuing application of acute care structural assumptions to the context of a chronic condition that can only be managed, not cured. Developing robust self-management support programs that are cognizant of culture and socioeconomic status, and the resource capacity of developing nations requires the active contribution of all health care professionals working in conjunction with administrators to reimagine self-management support specific to Africa and other resource-constrained areas.

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