

Diabetes self-management: a qualitative study of education needs, practices and caregiver support in the Keta Municipality of Ghana

Cynthia Tetteh,¹ Farrukh Ishaque Saah ,^{2,3} Hubert Amu⁴

To cite: Tetteh C, Saah FI, Amu H. Diabetes self-management: a qualitative study of education needs, practices and caregiver support in the Keta Municipality of Ghana. *BMJ Public Health* 2024;**2**:e000640. doi:10.1136/bmjph-2023-000640

► Additional supplemental material is published online only. To view, please visit the journal online (<https://doi.org/10.1136/bmjph-2023-000640>).

CT and FIS contributed equally.

Received 9 October 2023
Accepted 30 July 2024



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¹School of Nursing and Midwifery, University of Health and Allied Sciences, Ho, Volta Region, Ghana

²Clinical and Public Health Services Department, Ministry of Health, Kigali, City of Kigali, Rwanda

³Department of Population and Health, University of Cape Coast, Cape Coast, Central Region, Ghana

⁴Department of Population and Behavioural Sciences, University of Health and Allied Sciences, Ho, Volta Region, Ghana

Correspondence to

Dr Farrukh Ishaque Saah; fsaahpnur14@uhas.edu.gh

ABSTRACT

Introduction A major part of diabetes management involves patients' self-management. Poor self-management increases the risk of complications from the condition. Good self-management requires appropriate and adequate education and caregiver support, typically provided through structured diabetes education programmes. Education on various topics, including self-management, is a key component of diabetes management services in Ghana. However, challenges such as limited knowledge, economic constraints and sociocultural factors hinder self-management practices. We explored the self-management education (SME), practice and support needs of adults with type-2 diabetes (T2D) at the Keta Municipal Hospital.

Research design and methods This phenomenological study involved 16 adults living with T2D and two healthcare providers in the Keta Municipality of Ghana. Data were collected through in-depth and expert interviews using interview guides. Interpretative phenomenological analysis was employed to analyse the data using NVivo V.12.

Results SME was provided within an hour during the first section of the monthly diabetes clinic covering dietary needs and restrictions, physical exercises, adherence to medication and wound prevention and care. SME needs were individualised SME and extension of education to the general population. The participants practised self-management activities. They attributed their improved practices to both the general group education and the individualised goals and input received during individual counselling sessions. Motivators for self-management were cues from negative health outcomes, wanting to survive the condition for a long time and SME received. Challenges to self-management entailed job roles, insufficient medication dosages and unavailability of medication at the hospital during review visits.

Conclusions The study suggests that individualised SME and caregiver support may enhance self-management practices and outcomes. This underscores the significance of considering patient-specific factors and support systems when designing effective diabetes management strategies. The provision of comprehensive SME, including group and individual sessions, along with the utilisation of visual aids, can contribute to improved self-management outcomes.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Self-management is critical to diabetes care and its practice is influenced by the quality of education received by people living with diabetes.

WHAT THIS STUDY ADDS

⇒ This study shows that there are gaps in diabetes self-management education, specifically, the approach to providing the education and the content of the education provided. It also shows that the quality of education influences support from caregivers and leads to good self-management practices.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Thus, this study has a strong implication for self-management education during routine diabetes care services in that service providers have to adopt multiple approaches and techniques to providing education on self-management and recognise the important role of well-informed caregivers.

INTRODUCTION

Chronic non-communicable diseases (CNCs), including diabetes, continue to pose significant challenges globally,¹ with diabetes being a pressing concern in both developed and low-income and middle-income countries (LMICs).² LMICs disproportionately account for 80% of global diabetes-related deaths annually.³ Diabetes significantly burdens healthcare systems worldwide, with its numerous related illnesses and complications.⁴ Poorly managed type-2 diabetes (T2D) increases the likelihood of cardiovascular diseases, nerve injuries, strokes, and foot ulcers leading to lower extremity amputations, loss of sight, kidney failure and untimely death.⁵

Lifestyle changes, including nutrition or dietary therapy, increased physical exercise, weight loss, proper education and self-management approaches, are

essential to improving health outcomes for individuals with diabetes.^{6,7} Ample studies emphasise the significance of lifestyle modifications, such as weight control, regular physical exercises, appropriate diets and medications, in reducing the risk of associated complications.^{8–11}

In Ghana, diabetes prevalence varies across regions, with some areas, like the Volta Region, reporting higher rates of 8.7%.¹² Long-lasting complications from diabetes are also common, such as peripheral neuropathy and eye problems, which may be linked to poor adherence to management protocols, including dietary recommendations and physical exercise.¹³ Individuals living with CNCs, including diabetes, play a crucial role in managing their conditions through home care, dietary management, physical activity and access to information.

Self-management is a pivotal aspect of diabetes management, placing the core responsibility on the individuals themselves. Inadequate compliance with treatment can hinder effective blood glucose control.⁸ Assessing patients' attitudes towards self-management and identifying educational needs are essential to promoting therapy compliance and achieving care objectives in diabetes management.¹⁴

Successful management of diabetes requires active patient involvement alongside clinical care. However, in many developing countries like Ghana, adherence to and confidence in practising recommended dietary measures and other self-management activities, a crucial self-management intervention, are lacking among people living with diabetes.² In Ghana, studies have reported poor self-management practices among people living with diabetes. This has been linked to patient-related factors, sociodemographic and economic factors, condition-specific factors, and healthcare system-related factors.^{15–18} Reports indicate that less than 50% of patients achieve treatment objectives, primarily due to non-compliance with management practices.¹⁹ A significant factor in non-compliance is a lack of confidence in enacting these management practices.²⁰ Poor adherence to management activities, such as nutritional regimes, physical activity and weight control, increases the risk of complications like kidney disease, cardiovascular conditions and blindness, leading to elevated hospitalisation and mortality rates associated with diabetes in developing countries.^{20, 21} Structured self-management education interventions, however, appear to be almost absent in Africa^{21, 22} with few piloted programmes within the region.^{22–24}

The American Diabetes Association (ADA) advocates for personalised diabetes management strategies instead of a 'one-size-fits-all' approach.²⁵ In Ghana, public health facilities typically provide diabetes education through unstructured group sessions conducted before clinic visits.²² Patients often arrive very early, sometimes before dawn, to ensure they get a spot in the queue.²² These group sessions offer basic information about diabetes management to all patients collectively, without customisation for individual needs. The educational materials

used include handouts, laminated cards depicting local food items and visual aids illustrating self-care practices and potential diabetes complications. Notably, there are no structured Diabetes Self-Management Education and Support programmes available in Ghana.²² Consequently, patients typically receive broad, general advice rather than specific, personalised guidance that addresses their unique situations.

Despite anecdotal evidence of people living with diabetes in the Keta Municipal Hospital not achieving treatment goals, little is known about their self-management practices and education needs that impact their self-management practices. Tailored education and assistance for self-management are essential when caring for individuals with chronic diseases like diabetes. Hence, this study explored the self-care practices and educational needs of people living with diabetes in the Keta Municipal Hospital. This study sheds light on gaps in patients' self-management, informing the customisation of self-management education for improved management outcomes, enhanced quality of life and treatment adherence. Moreover, the findings contribute valuable information for policy and intervention development to empower people living with diabetes to actively contribute to their management.

Conceptual framework

The conceptual framework (figure 1) builds on the Theory of Self-care in Chronic Illness and serves as the guiding foundation for the research.²⁶ The selected theory is deemed relevant because of its alignment with the study's objectives. The framework is composed of three main interconnected blocks: patient factors (block 1), self-care education (block 2) and diabetes self-care (block 3).

Patient factors encompass various elements such as demographic, sociocultural, socioeconomic and health-related factors.^{26, 27} These patient-related factors play a crucial role in influencing diabetes self-care practices. When these factors are favourable, they can positively impact self-care behaviours. Conversely, when patient factors are not conducive, they hinder effective self-care practices.²⁷

Self-management education represents the educational aspect of diabetes self-care. It includes factors related to patient education, awareness and understanding of diabetes and its management.^{26, 28} Adequate self-management education is essential for empowering individuals with diabetes to actively manage their condition and make informed decisions regarding their self-management.^{27, 28}

Diabetes self-management constitutes the core aspect of the framework and encompasses all activities and behaviours undertaken by individuals to maintain their health while living with diabetes.²⁷ This block comprises three key elements: self-care maintenance, monitoring and management practices. These elements collectively form the basis for effective diabetes self-management.

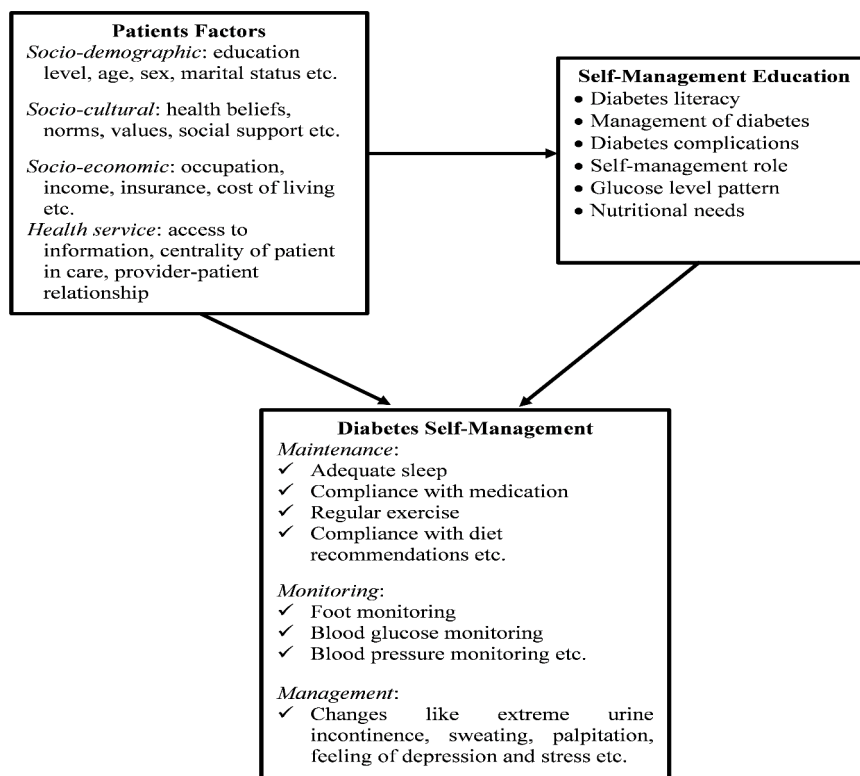


Figure 1 Conceptual framework on diabetes self-management.

The linkages between the blocks are vital for understanding the interactions within the framework.²⁶ Patient factors and self-management education are independently linked to diabetes self-management. Patient factors influence diabetes self-management practices directly while self-management education acts as an additional factor that impacts the individual's ability to engage in effective self-management. The framework, thus, helps explain the complex interplay between patient factors, self-management education and diabetes self-management, ultimately contributing to the identification of challenges and education needs related to diabetes self-management in the Keta Municipality of Ghana.

MATERIALS AND METHODS

We used the Consolidated criteria for Reporting Qualitative research guidelines in reporting this study.

Study design

This was a qualitative study which adopted a phenomenological design. The design is flexible as it can answer all different kinds of research questions including what, why and how of a concept.²⁹ This design, thus, allowed this study to understand the social and psychological phenomena of self-management in diabetes management from the perspectives of the individuals living this experience.³⁰ The study's interest was to provide an understanding of the experience of living with diabetes and self-managing the condition through education and caregiver support.

Study setting

The study was conducted in the Keta Municipality in Ghana's Volta Region. The municipality is bordered on the North by the Akatsi South District, to the East by the Ketu North and South Districts and to the West by the South Tongu District. On the South, it shares a border with the Gulf of Guinea.³¹ The Keta Municipal Hospital, located in Dzelukope in Keta, was established in the year 1926 but opened for official use in 1935. It is a secondary-level facility and receives clients from across the municipality and neighbouring towns for primary and secondary healthcare including diabetes care. The hospital has a capacity of 110 beds and employs a staff of 6 medical doctors, 179 nurses, 38 midwives and 175 allied health professionals. Among its 12 departments are the outpatient department, public health unit, records unit, maternal and child health unit, mental health unit, hypertension and diabetes unit, and laboratory unit, among others.

Study population and sampling

The study population was people living with T2D for not less than a year who access diabetes care at the Keta Municipal Hospital and health professionals providing diabetes management services at the facility. Participants were included in the study if they had been diagnosed with T2D for at least 1 year and were at least semidependent. This criterion was to ensure that selected participants had established self-care routines and had received some education on diabetes management. The level of independence was set from independent

to semidependent to ensure that the participants could engage in self-management activities. They related their experiences with self-management education as part of the management service they receive and their self-management practices and impacts. The healthcare providers running the diabetes clinic were purposively included to add expert insight on the experiences in diabetes self-management of patients who attend the clinic. The study sample size was achieved through data saturation, a point in which no new insight was gotten from included participants and redundancy was attained. Overall, 16 people living with diabetes and 2 healthcare providers from the 5 health professionals at the diabetes clinic of the hospital participated in the study.

The study employed a purposive sampling technique to recruit potential participants who met the inclusion criteria. This approach allowed the researchers to screen and select individuals with specific characteristics of interest carefully.³² In this process, potential participants were identified and approached based on their relevance and suitability to the research objectives, ensuring participants possessed the desired attributes necessary for the study's focus.

Procedures

Data for the study were collected using two in-depth interview guides (online supplemental file S1); one for people living with diabetes and the other for health professionals providing diabetes management services. The questions were crafted from literature and experts' contributions and encompassed: participants' sociodemographic information, self-management practices, caregiver support and challenges in self-management and self-management education (approach/strategy and topics/content) and education needs. The comorbidity status of the participants was also explored. This was to afford the study to examine whether diabetes self-management practices were influenced by the comorbidity status.

Face-to-face in-depth interviews and expert interviews were employed to collect data from participants living with diabetes and healthcare providers with the support of two trained research assistants and CT. The exit strategy was used in recruiting the participants, that is, potential participants were approached by the research team after receiving their routine services and those who accepted to participate were selected. However, appointments were scheduled with service providers to interview them at their convenience. The in-depth interviews with people living with diabetes were conducted using three languages namely, Ewe, Twi and English whereas only English language was used in the expert interviews. All interviews were tape-recorded with the participants' consent and took 20–35 min. Field notes were taken during the interviews.

All data and its copies were securely password protected on the principal investigator's personal computer without access by third parties to maintain participants' confidentiality. All study data have been carefully deidentified to

remove any identifiable information about the participants. In addition, pseudonyms have been used during data analysis to protect participants' anonymity.

In light of the ongoing COVID-19 pandemic, the research assistants and study participants adhered to physical/social distancing guidelines, wore face masks throughout the interview and maintained regular hand-washing or use of hand sanitiser. These measures were taken to prioritise the health and safety of all persons involved in the research.

Data analyses

All the audio recordings were transcribed into English verbatim. The transcripts were cross-checked in detail with their digital recordings (playback) to identify and rectify any omissions and inaccuracies and assess the consistency and articulacy of the translations. The data analysis was phenomenological and inductive. The interpretative phenomenological analysis (IPA) was adopted using NVivo V.12 with manual coding to analyse the data via four sequential stages and codes identified following the guidance set by Moustakas.³³ Initial codes were independently produced by FIS and HA who are expert qualitative researchers with experience in NCDs research but were not directly involved in diabetes healthcare. Any differences were reconciled to ensure the reliability of the results produced. Disagreements were resolved through discussion between the two researchers conducting the analysis. If consensus could not be reached, a third researcher, CT, was consulted to provide additional input and reach a resolution.

RESULTS

Sociodemographic characteristics of study participants

Table 1 shows the sociodemographic characteristics of the participants living with diabetes. There were eight males and eight females. Most of them (75.0%) were aged more than 60 years. The majority of them (81.3%) were working. While 43.8% had been diagnosed with diabetes within 1–5 years, 31.2% had been diagnosed more than 10 years ago. The majority of the participants (62.5%) reported having comorbidity with hypertension.

Thematic results

Three main themes emerged from the analysis. These were diabetes self-management education, diabetes self-management practices and associated challenges, and the impact of caregiver support in diabetes self-management.

Diabetes self-management education

Table 2 presents the subthemes on self-management education among the participants. It shows that all the participants received self-management education. However, two main gaps in self-management education were reported, namely; extending education to close relatives and contacts and individualised self-management education.

Table 1 Sociodemographic characteristics of participants living with diabetes

Sociodemographic variable	Frequency (N=16)	%
Sex		
Female	8	50.0
Male	8	50.0
Age (in years)		
40–49	4	25.0
50–59	6	37.5
60–69	2	12.5
70–79	4	25.0
Working status		
Employed	7	43.8
Self-employed	6	37.5
Not working	3	18.7
Duration awareness of condition (in years)		
1–5	7	43.8
6–9	4	25.0
10+	5	31.2
Comorbidity status		
Yes, with hypertension	10	62.5
No	6	37.5

Self-management education was explored and all the patients noted that they are given self-care education during services. They, however, explained that the education is provided during the diabetes clinic, a session dedicated to providing management services to diabetes clients. As part of the general diabetes care service being provided, there is the first session (between 30 min and 1 hour) where the nurse/health professional at the unit provides self-management education on topics such as

Table 2 Thematic results on diabetes self-management education

Theme	Subtheme
Self-management education	1. Education provided to all <ul style="list-style-type: none"> – Topic: diet, exercise, wound prevention – Frequency: during monthly diabetes clinic session – Duration: 30 min to 1 hour at start of clinic session – Approach: oral with visual aids (flipcharts, pictures), group and individualised
	2. Education needs: <ul style="list-style-type: none"> – Need to extend education to close relatives/contacts – Individualised self-management education

appropriate dietary practices, adherence to management decisions including medications/injections, wound prevention and care, and physical exercise. Starchy food is a common term used by healthcare professionals in Ghanaian context to denote carbohydrates for easy understanding by patients. This comes at the backdrop that starch breakdown into glucose ineffectively in people with diabetes than it does in people without diabetes.³⁴ Starchy foods can raise blood glucose levels relatively quickly and significantly due to their carbohydrate content.³⁴ The following quotes present the participants' views:

Yes, (they educated us) on food. They said she should avoid sugar, meat, starchy foods etc. They said we should take tom brown and wheat. They said we can even use the tom brown to cook Banku.—Participant 1

They have been educating me for some years now but now they have stopped. They said we should not eat starch foods and meat, we should also avoid alcohol, and carbohydrates and eat only one ball of Kenkey. we should not eat too much but we should eat in bits at frequent intervals.—Participant 3

We were told one can lose eyesight and become paralysed as well. We are educated on our diets. ...alcohol and starch-containing foods. Taking good care of yourself, making sure to avoid cuts (wounds).—Participant 5

This finding was supported by the health professionals who emphasised the importance of self-management education as a key component of the service. They clarified that if a patient expresses the need, they arrange individual sessions to address the patient's specific concerns and provide personalised education. For instance, a nurse said, '...After that, we check other vital signs then we give education, we arrange them for consultation. After consultation, some people who need individual counselling are given those talks.' The other health professional also detailed the comprehensive education provided to newly diagnosed individuals with diabetes encompassing various aspects of diabetes, including understanding the condition, recognising its signs and symptoms, navigating diagnostic tests, managing medications and making important lifestyle changes to better manage the condition. He said:

For the newly diagnosed, we give them an overview of diabetes, we teach them what diabetes is, the signs and symptoms, diagnostic investigations, medications that they can be put in and then how to manage it. Most of the time, we talk to them about exercise and lifestyle modifications. These are what we educate them on.

Additionally, participants reported that the education sessions were consistently conducted in a group setting. They explained that during clinic sessions, education takes place in the waiting area, where nurses provide information and address patients' general and specific questions and comments. Some participants also mentioned that visual aids such as charts and photos are occasionally used during the education sessions to enhance understanding. Their views are summarised below:

We are educated in a group and after the education, we are asked if we have any questions or clarifications. So, we ask questions based on our individual experiences and they explain to us. Sometimes, they use flip charts and sometimes they do not. Since I started coming here, they used the chart about 3 times. These charts that they use have images of our body and various body organs on them.—Participant 10

They show us photos of people who have managed their condition badly which has led to amputation of their limbs.—Participant 9

In support of group education and the use of charts, a health professional explained the process of how they interact with those with diabetes when they come for healthcare services, where they initially gather them for a group discussion, provide general information and then offer individual counselling, especially to those who are referred to their unit or those with unstable blood sugar levels. The use of visual aids like flip charts to aid in their educational efforts was also noted. She remarked:

First, when they come, we group all of them and talk to them. Then after that, we give them individual talks especially those who are being referred to our unit. Or those who will call us, sister please I want to talk to you. or those we have identified that their sugar level keeps shooting or is not stable. So, we want to find out what exactly is causing it. But we normally give them a general talk first to identify those who need individual counselling. We use flip charts most of the time.

However, one participant mentioned that he also engages with healthcare providers during individual information sessions, which usually include one-on-one services like blood sugar and blood pressure checks and the issuance of prescriptions. He (Participant 12) said, ‘No, it is group-based. But on two occasions, I had to engage the facilitator myself.’

Some participants expressed that self-care education has positively impacted their practice of self-management and overall management outcomes. They highlighted how education and counselling have played a vital role in dispelling fears, improving their knowledge about diabetes and positively influencing their lifestyle and well-being. Their views are expressed below:

...It is through this education I have changed my lifestyle of eating. I just eat anything at all but after practising what I learn from here, my sugar level now is always okay.—Participant 8

Yes, we are educated on things to eat, and how to live and they also encourage us. Initially, I was scared that if someone has diabetes, the person will die and it was through these conversations and education that I am relieved now. Initially, I was scared, I was growing lean and was thinking a lot but now I am okay.—Participant 9

Furthermore, the study identified two primary education needs for self-management: extending self-care education to the general population and individualising self-care education to address each individual’s specific situation. Several participants suggested that health professionals should reach out to communities, churches and other social gatherings to provide diabetes self-care education, enabling those close to individuals living with

Table 3 Thematic results on diabetes self-management practices and challenges

Theme	Subtheme
Self-management practices	<ol style="list-style-type: none"> All participants practice some level of self-management, specifically in terms of diets and exercise: <ul style="list-style-type: none"> Specific practices: <ul style="list-style-type: none"> Physical exercises Adherence to medication Eating approved foods Avoiding restricted foods Self-monitoring of condition No involvement of the patient in their care: information and decision
Challenges in self-management practice	<ol style="list-style-type: none"> Threat posed by job role Medication finishing before the expected time for review Unavailability of medication at facility

diabetes to offer valuable support. A male patient (Participant 15) stated, ‘...nurses should be extending care to your family. ...but I think that one will be too much for them. That is why sometimes I bring people to the church to educate the congregation on certain aspects of diabetes management.’

Another participant emphasised the importance of individualising self-management education based on an individual’s specific circumstances, environmental factors and social makeup, rather than providing generic information. The participant with diabetes (Participant 13) said:

It would be very difficult because not everybody is having the money. They can advise that especially the food that we take, we should abide by the hospital instructions common to us. Because somebody will go home and if he or she does not have anything and the “Apple” is prepared for him or her, they have no option. Exercising too is another one. One does not need to go too far away, stay around the house.

Diabetes self-management practices and associated challenges

The study further explored participants’ practice of diabetes self-management, their motivations and the challenges they faced as shown in table 3. All participants reported engaging in one form of self-management practice or another, however, most participants did not feel involved in their care by healthcare providers. Three main challenges to self-management were identified: a threat to time availability posed by job role, medication finishing before the expected time for review and unavailability of medications at the facility.

All the participants practised some self-management activities including self-monitoring using a blood sugar testing device, eating appropriate foods and at appropriate times, adherence to medications/injections,

physical exercises and adherence to food restrictions including alcohol. The following are their views:

We always wake up at dawn to go fishing and I have been carrying the machine every day for some distance and that is also a form of exercise because we were told not to rest in one place.—Participant 5

Normally, I do some health walks. As a man, you have to take some strong alcohol but it came to a point I had to minimise it. And I said I am off the alcohol for now. Apart from fruits, I do not take any starchy food like cassava dough, I only take corn flour.—Participant 6

However, a participant stated that he practices self-medication in addition to the medications received from the hospital. He (Participant 3) said, ‘*After a meal, I do walk for a while before taking my bath and finally go to bed. In addition, I bought another medication and have been taking it with those received from the hospital.*’

The motivation for the level of self-management was explained by some of the participants. This included cues from negative health outcomes for individuals living with diabetes who did not practice adequate self-management and the education received during visits to the hospital. On taking a cue from the negative outcomes of a known person with diabetes due to non-adherence to self-management, the participant explained that he practices self-management as much as possible to avoid ending up with the same fate. The male with diabetes said:

Alright, I should say some people are completely broken down, some like I said have been amputated. Recently, a cousin of mine who is also a pensioner died of diabetes. You will become a physically handicapped or challenged person. Looking at such examples, I advise myself to be cautious to prevent further deterioration of my health.—Participant 6

Also, on self-management practice resulting from self-management education received, a participant with diabetes noted:

On the food aspect, we are encouraged to eat lots of vegetables. Initially, I did not like vegetables but now it is a part of my treatment, so I am eating them now. With salad like this, I like the cream a lot but we were educated not to take it because without it I cannot take salad, it was difficult for me initially. But now I have realised it is not helping me so I have stopped. Now, I only use palm oil for cooking.

Others explained that self-management practice is to ensure their long-term survival with the disease. They cite that these activities can help them control the condition. A man (Participant 7), for instance, said, ‘*Usually, it is a matter of taking care of yourself. Do not go about taking anything if you want to live longer. Manage it and you will survive. That is all.*’ Another averred, ‘*I was educated that when you do not adhere to treatment and the sugar level goes up, it might lead to other complications including death, so this is what keeps me going.*’

Some participants argued that their self-management practice has impacted positively on their health. They explained that their self-management practice has

limited some complications and ensured their well-being. For instance, a male participant (Participant 7) noted, ‘*It is having an impact. Because I realised that I am now getting arthritis, but I am conquering it through the exercise.*’ Another (Participant 10) opined:

From the very beginning, I did not see any improvement but for about a month to two now, I have seen an improvement. I was weak initially; I could not even walk down the stairs by myself. I had to support myself with a walking aid.

Although all the participants practice some level of self-management in their diabetes management at home, some of the participants noted some challenges that hinder their ability to adequately maintain their health. These challenges have resulted in their inability to adhere to diet restrictions, medication and exercise regimens among others. Three main challenges to self-management practice identified were inflexible job role, medications finishing before the review date and unavailability of medications at the facility. While some participants noted they have to work and care for themselves without any support which limits their adherence to medication and physical exercise regimen, others posited that their self-care practice is hindered by insufficient medications given for the stated review period. They explained that they are unable to take the medications when they finish as they wait till the stipulated review date before going for additional doses. Participant 4 for instance, stated:

They give me the prescription, if I go and I do not get it, I go and buy it myself. At times, they give me a date to come but the medicine finishes before the day. I have to go to the pharmacy and buy it.

On unfavourable job roles, some participants explained that their job demands such as time and travel commitments hinder their self-management practices. They noted that due to reporting time for work, for instance, they are unable to engage in physical exercises or have sufficient sleep. Participant 3 said:

Yes, they said we should eat on time. At the onset, mine was serious so I was told not to ride a bicycle, or motor, and not even drive. I should avoid strenuous activities and standing for so long. But truth be told, I have been doing all these things because there is no one there so I do all kinds of strenuous work before stopping the carpentry.

Also, the unavailability of medication at the hospital hinders adherence to medication regimens among some of the participants. Participants noted that they are willing to adhere to the medication regimen but sometimes when they run out of medication, they are unable to get a refill at the hospital due to stock outs. Participant 7, for instance, noted:

I may say they did not write the actual number of tablets I should take. At times, you have to buy, you have to pay for the medicines. They will say they do not have the medication. You have to pay something.

Table 4 Thematic results on caregiver support in diabetes self-management

Theme	Subtheme
Impact of caregiver support on self-management	1. Support with chores/work to allow time for self-care practices like physical exercise
	2. Monitor and support adherence to medication
	3. Prepare appropriate foods

Impact of caregiver support on diabetes self-management

Caregiver support and its impact on participants' self-management practices were also investigated. Three subthemes emerged regarding caregiver support, namely, support with chores/work, monitoring adherence to medications and preparation of appropriate meals (table 4). Most of the participants had relatives such as siblings, children or spouses as their caregivers.

Regarding the kind of caregiver support received, it was noted that most of the caregivers provided financial, social and emotional support to the participants. For instance, some participants received financial contributions to their care such as paying hospital bills and covering the cost of recommended meals as well as support in preparing their meals. A female participant, for example, said:

She is a fishmonger. She smokes and sends fish to Togo for sale. She cooks for me too. If I do not have it for over three months, she cooks for me to eat. I brought her here (hospital) and we were educated on the management. So, she ensures I eat only what was advised.—Participant 5

Others due to this support had time to rest, monitored to adhere to medication and physical exercise regimen.

So sometimes when I forget some things, it is my husband that reminds me. He also encourages me to adhere to the treatment regimen because he takes my books and goes through them. He assists me in the purchase of the medications and also reminds me of what to do and not to do.—Participant 8

DISCUSSION

This study aimed to explore self-management practices and education among individuals with diabetes. It further revealed that diabetes education sessions are routine components of diabetes management services at the hospital, but they lack individualised education and extension to the general population to offer self-management support for people with diabetes. Nevertheless, self-management education positively influenced self-management practices, including self-monitoring blood sugar levels, engaging in physical exercises, adopting a healthy diet, ensuring adequate rest and complying with treatment and medication regimens. Caregiver support, mainly from relatives or spouses, also played a significant role in positively influencing self-management practices among the participants.

The provision of self-management education during clinic sessions, sometimes using charts and photos, aligns with the position that access to comprehensive management through the health system should include counselling and patient monitoring.³⁵ This aligns with the conceptual framework's emphasise on the importance of patient education and awareness in diabetes management.²⁸ However, evidence suggests that the best self-management outcomes are attained when both group and individual education sessions are used together.^{36–38} The use of visual aids like charts and photos in self-management education, as observed in this study, aligns with the argument that such tools can assist in disease self-management,³⁹ as they create lasting mental images and enhance subconscious processing of information and decision-making. This finding supports the self-management education component of the framework, indicating that providing educational materials and tools can empower individuals with diabetes to actively engage in managing their condition.²⁸

The finding that individualised self-management education is a major educational need for the participants supports existing literature. For instance, the ADA suggests that diabetes management strategies should be customised to the specific patient rather than adopting a one-size-fits-all approach.²⁵ This underscores the importance of addressing individual patient characteristics, such as demographic, sociocultural and health-related factors, as highlighted in the framework.^{26 27} The need for modified education strategies that provide individualised self-management plans that consider different individuals' understanding, educational level, support system and challenges ensure good self-management practice.⁴⁰ This is consistent with the framework's emphasis on considering patient factors in designing effective diabetes self-care interventions. Thus, assessing patient literacy and tailoring education sessions accordingly is essential to address the diverse needs of individuals with diabetes.

Furthermore, the study found that patients engaged in various self-management activities, such as adhering to a healthy nutrition plan, engaging in physical exercise, complying with medication regimens and self-monitoring blood sugar levels. These findings are consistent with recommendations from the ADA, which stresses the importance of support for self-management practices in individuals with diabetes.⁴¹ They are also in line with previous studies reporting high levels of adherence to diet recommendations and restrictions.^{42 43} These findings align with the diabetes self-management component of the conceptual framework, which emphasises self-care maintenance, monitoring and management practices.²⁷ The participants' understanding of management activities, underlying explanations and cues from situations of negative health outcomes for people with diabetes seemed to motivate their adherence to self-care activities. However, the study did not find self-management practices like foot care and sleep among the participants.⁴¹ This may mean a lack of knowledge or ability to engage

in these self-management practices, highlighting the need for tailored education to address individual needs and preferences, as suggested by the framework. Self-management practices like foot care and regular glucose monitoring and the use of mHealth/eHealth tools to support self-management practices, may not be feasible for individuals in LMICs due to economic constraints, poor awareness and knowledge of diabetes self-management tools and inadequate healthcare infrastructure.² Future interventions could focus on enhancing patients' understanding of the rationale behind self-management practices and providing tailored education to address individual needs and preferences. By empowering patients with knowledge and skills to manage their condition effectively, healthcare providers can help promote sustained behaviour change and improve long-term health outcomes for individuals with diabetes.

More so, the study found three main challenges to self-management practice, comprising inflexible job roles, medications finishing before the review date and unavailability of medications at the facility. The challenges affected their ability to adhere to diet restrictions, medication and exercise regimens among others. Work presents psychosocial conditions that affected the patients' self-management practices which supports the findings by Loerbroks *et al* that psychosocial working conditions negatively impact diabetes self-management.⁴⁴ This implies that diabetes patients' self-management practice is inhibited by real-life social demands such as time pressure, work demands, workload and work routine. Again, medications finishing before review or at the facility during review identified as a barrier to self-management in this study is consistent with the findings of many studies.^{45 46} When patients run out of medications, their adherence to medication regimen as part of their self-management is constrained. These challenges align with the patient factors component of the conceptual framework, which emphasises the influence of demographic, socioeconomic and health-related factors on diabetes self-care practices.^{26 27} They underscore the multifaceted nature of diabetes management and the importance of addressing systemic barriers that impact individuals' ability to engage in self-care, as proposed by the conceptual framework.^{26 27} Healthcare providers and policy-makers should consider implementing interventions to address these challenges, such as flexible work arrangements to accommodate self-management activities, ensuring adequate medication supply and improving access to healthcare services. Future research could explore strategies to mitigate these challenges and support individuals with diabetes in overcoming barriers to self-management. Additionally, interventions tailored to address specific challenges, such as job-related stress or medication accessibility issues, could be developed to improve self-management outcomes and enhance the quality of life for people living with diabetes.

Regarding the impact of caregiver support on self-management activities, the findings align with

conclusions from other studies.^{47 48} Caregiver support from family members emerged as a major motivating factor for patient self-management.⁴⁷ This support, involving monitoring and tracking the self-management behaviours of relatives with diabetes and administering medications or injections, emerged as a crucial motivator for patients and led to essential changes in self-management behaviours.⁴⁸ Without tailored education on self-management, caregivers may be unable to provide personalised support for the self-management of their relatives with diabetes. Again, this finding implies that where caregivers lack a good understanding of the patient's condition and the best way to support their self-management practices, patients may risk nonadherence to management measures. To further address the importance of caregiver support, future research could delve deeper into the specific mechanisms through which caregivers are empowered to facilitate self-management and explore strategies to integrate caregiver involvement better into diabetes management programmes. This may include implementing interventions that empower caregivers with the knowledge and skills to effectively support patients in their self-management efforts. Additionally, healthcare policies could be developed to recognise and support the vital role of caregivers in the management of chronic conditions like diabetes. This finding is also congruent with the conceptual framework, which emphasises the influence of caregivers and close relatives in self-management as they assist in self-monitoring, tracking activities and administering medications or injections.²⁶

Strengths and limitations

The study depended on self-reporting by participants regarding social behaviour and thus may suffer from social desirability bias. However, participants were encouraged to provide as much as possible honest responses. Some questions sought to explore issues retrospectively which has the potential of risking recall bias. The use of probes allowed for prompts to increase recalling past events.

CONCLUSION

The study concludes that although people living with diabetes practice self-management, their practice is hindered by job roles which affect time availability and financial capability to assume self-care behaviours. It will likely limit the extent of self-management practice and subsequently increase complications from the condition for them. Efforts to limit the extent of health deterioration from diabetes through management measures may thus fail, increasing serious morbidities and high mortalities associated with the condition.

Also, the finding that most diabetes self-management education is conducted in groups during waiting times, indicates limited individualised care. This implies that self-management education does not address individual issues which can help address individual issues that may hinder or support self-care practice. As such,

self-management education may not produce maximised effort in actual practice. The implication of the systematic and individual factors that hinder self-management practices is that there are health system gaps that present as challenges for the participants and that individualised care which can help address personal factors is lacking.

The management of the Keta Municipal Hospital should implement individualised self-management education to support the general education provided during diabetes clinic sessions. Also, the Ministry of Health and the Ghana Health Service should design and implement innovative interventions to address system gaps in service delivery and support for people with diabetes.

Acknowledgements We acknowledge that this paper is drafted from the master's thesis of Cynthia Tetteh submitted to the Ghana Institute of Management and Public Administration under the supervision of Dr Napoleon Koranteng.

Contributors CT and FIS equally provided intellectual input into the conceptualisation of the study, methodology, data analysis and drafting of the manuscript. They are also responsible for the overall content as guarantors. HA contributed to the methodological rigour of the study. All authors contributed equally to reviewing the manuscript.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study received ethical approval from the Ghana Institute of Management and Public Administration's (GIMPA) Institutional Review Board (Reference: GM/IRB/013/22). Additionally, permission was granted by the management of Keta Municipal Hospital. Before their inclusion in the study, written informed consent was obtained from all participants, ensuring their voluntary participation and understanding of the research's purpose and procedures.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement All data relevant to the study are included in the article or uploaded as online supplemental information.

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ORCID iD

Farrukh Ishaque Saah <http://orcid.org/0000-0001-8395-8369>

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