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## Original Research Article

# Barriers and facilitators of self-management behaviours among adults with type 2 diabetes in Harare, Zimbabwe: a grounded theory study

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## ABSTRACT

**Background:** Improving self-management in patients with type 2 diabetes can decrease complications, encourage healthier lifestyles, and enhance quality of life. While guidelines specify key self-management practices for optimal glycaemic control, many patients find it difficult to adhere to them, especially in developing countries. This study sought to identify the barriers and facilitators impacting diabetes self-management among adults with type 2 diabetes. Gaining insight into these factors is essential for developing patient-centred strategies that effectively help improve health outcomes.

**Methods:** The study was guided by Charmaz's constructivist grounded theory. It employed two sampling methods: purposive and theoretical. Initially, purposive sampling involved selecting eight adults with type 2 diabetes to generate themes for further exploration. As categories emerged from data analysis, theoretical sampling was used to refine underdeveloped categories. A total of twenty-eight face-to-face semi-structured interviews were conducted.

**Results:** Data analysis revealed that living with type 2 diabetes involves engaging in self-management practices. Key facilitators included: receiving social support, being motivated to make changes, taking responsibility for the illness, and building a patient-healthcare professional relationship. On the other hand, barriers compromised: having financial difficulties, experiencing societal stigma, having health illiteracy, and experiencing food insecurity.

**Conclusions:** Patients with type 2 diabetes encounter various barriers and facilitators in managing their condition. The analysis highlighted how interpersonal, social, and economic factors affect their self-management behaviours for diabetes. These findings emphasise the need for interventions that are contextualised, culturally sensitive, and tailored to individual patients.

**Keywords:** Barriers, Facilitators, Self-management, Type 2 diabetes

## INTRODUCTION

Type 2 diabetes (T2D) is a significant public health issue, affecting healthcare utilisation, increasing medical expenses, and raising mortality rates.<sup>1</sup> The International Diabetes Federation (IDF) reports that one in nine adults aged 20-79 has T2D, with over 40% unaware of their condition.<sup>2</sup> Low-income nations face a heavier burden; for example, Africa had 24.6 million T2D cases in 2024, projected to grow to 59.5 million by 2050- a 142% rise if

urgent measures are not taken to address the pandemic.<sup>2,3</sup> Therefore, it is essential to develop and implement strategies that increase public awareness of the disease and encourage self-management. These efforts are crucial for reducing healthcare costs associated with T2D and preventing diabetes-related complications.

Over the past decade, type 2 diabetes in Zimbabwe has risen significantly, with around 850,000 cases reported in 2018.<sup>4</sup> Projections indicate that by 2035, over 1.2 million

Zimbabweans could have T2D unless urgent measures are implemented to curb the pandemic.<sup>5</sup> Furthermore, Zimbabwe lacks a national health insurance system, making healthcare inaccessible for most people. For example, the annual costs of managing T2D average about US\$1,300 per person, while diabetes-related complications raise this to approximately US\$2,884 per patient.<sup>6</sup> The absence of universal healthcare sharply contrasts with UN sustainable development goal 3, which aims to broaden access to healthcare, enhance care quality, and reduce financial hardship for patients.<sup>7</sup> The high costs associated with managing diabetes and the absence of universal coverage pose major barriers to effective diabetes self-management and access to treatment for individuals.

Type 2 diabetes self-management entails a person's proactive and responsible handling of the medical, social, and emotional aspects of their chronic condition, including collaboration with their social network and healthcare providers.<sup>8</sup> Effectively adapting to and maintaining consistent engagement in diabetes self-management has been linked to better health outcomes and decreased healthcare utilisation due to fewer acute and chronic diabetes-related complications.<sup>9</sup> Research indicates that achieving optimal diabetes self-management is challenging, with few individuals in SSA meeting treatment goals.<sup>10</sup> As a consequence, the majority of these patients are at a risk of serious diabetes-related complications that may result in poor quality of life and endangerment of life if no urgent action is taken to address these inequities and inequalities in diabetes care in this region of Africa.

Effective diabetes self-management depends on education, dietary guidance, and psychosocial support to control or reduce the illness's impact on health and well-being, with the aim of preventing diabetes-related complications.<sup>2,11</sup> The American Diabetes Association stresses the importance of engaging in recommended behavioural activities such as healthy eating, medication adherence, being active, monitoring, reducing risks, problem solving and healthy coping, which are all crucial for the successful management of T2D.<sup>11</sup> These approaches influence how patients perceive their risk of complications and manage their condition, highlighting the crucial role of self-management in shaping health outcomes.

Although guidelines for self-management are available, many patients, particularly in developing countries, do not follow them because of resource constraints, health illiteracy, and weak healthcare systems, thereby increasing their risk of diabetes-related complications.<sup>12</sup> Prior research indicates that adults with T2D in Zimbabwe lack adequate knowledge of diabetes and its self-management.<sup>13,14</sup> Addressing knowledge gaps in patients with diabetes is essential. Providing information, self-management training, and support from healthcare professionals, friends, and family can enhance diabetes self-management and improve their quality of life.

Previous research shows that most studies in the SSA region investigating barriers and facilitators of self-management behaviours have mainly used quantitative methods.<sup>3</sup> However, there is still a limited detailed understanding of these factors from the patients' perspectives. As T2D cases rise in Zimbabwe, research specifically exploring patients' barriers and facilitators to self-management remains scarce.

This study aimed to fill this gap by using a constructivist grounded theory (CGT) approach to explore the barriers and facilitators to diabetes self-management among adults with T2D. Understanding patients' views on these barriers and facilitators can help develop evidence-based support strategies, ultimately enhancing patient well-being and health outcomes.

## METHODS

This research utilised the CGT qualitative approach, which reflects the researcher's perspective of reality and the study's goals.<sup>15</sup> The epistemology of CGT- that knowledge is shaped by cultural, historical, and social contexts-guided this choice.<sup>15</sup> The method also highlights the researcher's active role in co-developing the core theory that emerged from the study, "living with diabetes". Incorporating symbolic interactionism in this CGT study helped build a theoretical understanding of patients' barriers and facilitators to their diabetes self-management behaviours.

### *Study setting, sampling, and data collection*

The study was conducted in Harare, Zimbabwe, from November 2023 to January 2024. The setting for this study was purposively selected community pharmacies (CPs), which agreed to host the study interview sessions. The participating CPs agreed to display study recruitment flyers and participant information sheets (PIS) after receiving formal written and verbal requests from the lead researcher.

The study utilized two sampling techniques: purposive and theoretical. First, purposive sampling was used to select eight adults with T2D to generate themes for further exploration. Participants were provided with a PIS detailing the study's objectives and procedures and were given at least 7 days to decide whether to participate. After reviewing and understanding the consent form, they signed it and were enrolled. Participants were also informed that they could withdraw at any time without explanation. To ensure confidentiality, all personal identifiers were removed from responses, and each participant was assigned a unique pseudonym. In-depth, face-to-face semi-structured interviews were conducted to gather detailed accounts of their experiences of diabetes self-management. Each interview lasted 40-60 minutes, was audio-recorded, and was transcribed afterwards by the lead researcher. Data collection and analysis occurred concurrently, despite the non-linear process; the methods

aligned with CGT principles.<sup>16</sup> Participants received US \$10 to cover transportation and other expenses.

As categories emerged during data analysis, we used theoretical sampling to further develop underexplored categories, following Charmaz's guidance.<sup>15</sup> This involved reviewing memos, field notes, or raw data to identify overlooked information and re-engaging with key participants to obtain more details on categories vital to the evolving theory.<sup>15</sup> Theoretical saturation was achieved when new data no longer yielded fresh insights or uncovered additional facets of the core category.<sup>15</sup> In total, twenty-three participants took part in twenty-eight interviews.

### Ethics

The study received ethical approval from both the Nottingham Trent University School of Health and Social Care and the Zimbabwe Medicines Research Council Ethics Committees (MRCZ/A/3096).

### Data analysis

The lead researcher manually analysed the data by thoroughly reviewing all interview transcripts, memos, and field notes collected during the study.<sup>15</sup> The study employed Charmaz's CGT data analysis framework, involving three interconnected coding stages: initial, focused, and theoretical. These stages were applied iteratively rather than sequentially.<sup>15</sup> Coding was performed immediately after each data collection to categorise and summarise interview information. The researcher moved between initial and focused coding as new insights emerged.<sup>15</sup> The focused and theoretical coding stages helped identify key categories. Additionally, the constant comparison method was used to identify similarities and differences in the data, thereby refining the analysis and developing a theoretical understanding of living with diabetes.<sup>16</sup>

## RESULTS

A total of 23 participants, all with T2D, were interviewed for this study. Participants' demographic details are presented in Table 1.

The analysis indicated that 'living with type 2 diabetes' is a process involving self-management behaviours shaped by participants' interpretations of their experiences within their socio-cultural contexts. Each participant faces unique challenges, which affect how they manage their condition. Their individual approaches to solving these challenges depend on how they interpret the meanings of their experiences, including the factors that facilitate or hinder their diabetes self-management. The data identified two main themes that clarify how participants perceive the influences on their self-management behaviours: engaging in proactive actions (facilitators); and facing constraints (barriers) (Table 2).

**Table 1: Demographics of study participants.**

Demographic	Count (%)	
Gender	Male	12 (52.17)
	Female	11 (47.83)
Age (years)	20-40	15 (65.21)
	41-60	8 (34.79)
Marital status	Married/partner	14 (60.86)
	Single	6 (26.08)
	Divorced	2 (8.69)
	Widow	1 (4.34)
Residential status	High density	7 (30.43)
	Medium density	13 (56.52)
	Low density	3 (13.04)
Educational status	No formal education	1 (4.34)
	Secondary education	6 (26.08)
	College	7 (30.43)
	University	9 (39.13)
Employment status	Employed formal	12 (52.17)
	Informal employment	7 (30.43)
	Unemployed	4 (17.39)
Smoking status	Smoker	1 (4.34)
	Non-smoker	22 (95.65)
Alcohol consumption	Yes	6 (26.08)
	No	17 (73.91)
Years lived with a diagnosis of diabetes	Less than 1 year	2 (8.69)
	1-3 years	9 (39.13)
	4-6 years	6 (26.08)
	7-10 years	4 (17.39)
	Over 10 years	2 (8.69)

**Table 2: Themes and subthemes.**

Themes	Subthemes
Engaging in proactive actions	Receiving social support
	Taking responsibility for illness
	Building a patient-healthcare professional relationship
	Being motivated to make changes
Facing constraints	Experiencing food insecurity
	Having health illiteracy
	Experiencing societal stigmatization
	Having financial difficulties

### *Engaging in proactive actions (facilitators)*

Facilitators of diabetes self-management behaviours are factors that support patients in adhering to their prescribed treatment regimens. Various factors contribute to effective self-management behaviours, and our study highlights the following attributes as essential for successful self-management practices: (i) receiving social support; (ii) being motivated to make changes; (iii) building a patient-healthcare professional relationship; and (iv) taking responsibility for their illness.

### **Receiving social support**

Receiving social support was identified by most participants as a central facilitator of diabetes self-management, reflecting a deep-rooted African culture of community networking. For example, many participants reported that receiving social support improved their self-management of diabetes.

*“My family has been extremely supportive. I could not have managed my condition without their help. They motivate me to take my medication and accompany me to my diabetes check-ups with my doctor. Their support is unmatched”. (Tafadzwa)*

This study highlights that ‘receiving social support’ was essential for participants’ well-being and health outcomes. Participants received diverse types of support- material, financial, emotional, and moral- from extended family, friends, and colleagues. Support from family and loved ones was offered willingly and regarded as a duty grounded in respect, social norms, and family values, without any expectation of repayment.

### **Taking responsibility for their illness**

Some participants took responsibility for their illness and sought ways to adapt to their new health situation. Their worries about possible negative diabetes-related outcomes drove them to actively manage their treatment and make lifestyle changes to support their self-management.

*“I take my medication daily to manage my condition. I have accepted full responsibility for my illness, which motivates me to take my medication consistently and make lifestyle changes. I use reminders to ensure I don't forget to take my medication. Additionally, I scheduled a face-to-face meeting with my local pharmacist to explore ways to enhance my self-management. I realised that understanding my illness better and taking complete responsibility for my health are crucial for achieving positive health results”. (Grace)*

The study found that when participants took responsibility for their illness, they felt more empowered to make lifestyle changes and gained a greater sense of control over their illness and future.

### **Building a patient-healthcare professional relationship**

Another factor influencing self-management behaviours was the relationship between patients and healthcare professionals (HCPs). While participants generally reported good rapport with their HCPs, some noted communication problems with other HCPs. Participants also highlighted the benefits they gained from strong professional ties with community pharmacists.

*“I visited the pharmacy and discussed with my local pharmacist how to optimise my treatment. At first, building*

*a rapport was challenging, but over time, he became very engaging and informative. He listened carefully and involved me in decisions about my self-care. He provided a clear treatment plan, and I noticed my health improved with each visit to the pharmacy. I am truly grateful to my pharmacist for dedicating his time to me, and I encourage other diabetes patients to engage with their pharmacist”. (Fungai)*

The study found that establishing strong relationships between patients and healthcare providers is crucial for enhancing patients’ self-management and overall well-being. Such relationships improve communication, facilitate information sharing, increase medication adherence, provide better lifestyle advice, and support healthier diabetes self-management behaviours.

### **Being motivated to make changes**

Another aspect of self-management behaviours concerns participants’ motivation to improve their lives, based on the perceived benefits of adopting lifestyle changes following a T2D diagnosis. Some participants were motivated to maintain positive self-management habits out of fear of diabetes-related complications.

*“Regarding my illness, I understand the importance of staying positive and motivated to manage it. I am fully aware of the potential repercussions and am committed not to let the illness defeat me. I take my medication diligently and exercise three to four times weekly. I also read extensively about diabetes and am satisfied with my current health status”. (Nicodimus)*

Personal motivation to change is crucial for achieving lasting improvements in diabetes management. Because patient motivation strongly influences behavioural change, HCPs need to assess their motivation levels to offer tailored counselling.

### **Facing constraints (barriers)**

While certain factors support effective diabetes self-management, this study also identified several barriers that hinder patients' independent management of their condition. The data analysis showed the following barriers: (i) facing food insecurity; (ii) facing financial constraints; (iii) lacking health literacy; and (iv) facing societal stigmatisation.

### **Experiencing food insecurity**

Study results indicated that participants had difficulty maintaining a healthy diet due to financial constraints, limited access to healthy foods, and insufficient skills to prepare nutritious meals aligned with their illness.

*“I want to live with my condition, but external factors affect my diabetes journey. I struggle not just to eat healthily but also to feed my family. Some medications*

*need to be taken after meals, which sometimes forces me to choose between medication and providing for my family. Often, I spend half of my money on medicine and the other half on limited food. It's a tough situation". (Wonder)*

Study findings revealed the growing sense of hopelessness among participants about their inability to feed themselves and their families due to resource shortages. Their helplessness is evident in statements indicating there is no solution to their current situation.

### **Having health illiteracy**

The study found that participants with low health literacy faced challenges in self-management. These patients often did not understand instructions from healthcare professionals, which affected their medication adherence and blood sugar control.

*"I hesitated to take my medication because I did not fully understand my illness or why I needed treatment. My family became more concerned as my blood sugar stayed uncontrolled. The medical advice I received was unclear, and I could not grasp the seriousness of the risks to my health". (Yolanda)*

Offering clear diabetes self-management education enhances patients' understanding of their condition and how to manage it. This approach can help address low health literacy and improve health outcomes.

### **Experiencing societal stigmatisation**

Societal stigma was recognised as an obstacle to participants' self-management behaviours. Participants expressed various views on how they believe society treats them due to their diabetes.

*"At funerals or weddings, the master of ceremonies sometimes calls out diabetic patients using inappropriate labels. It can be difficult to accept. You might hope that their words stem from ignorance about these few people, rather than malice. Although it is hard to endure, that is just how it is". (Tirivanhu)*

This study found that societal stigma around a diabetes diagnosis is driven by harmful misconceptions, blame, and judgment. These factors lead to negative health effects such as anxiety, depression, and poor self-management in individuals. To reduce stigma, educational efforts should focus on raising awareness and understanding of diabetes, while providing support for those managing the condition without fear or shame.

### **Having financial difficulties**

The study findings reveal that participants faced challenges in managing their T2D due to financial

constraints affecting both themselves and their extended families.

*"Purchasing insulin is draining me financially and emotionally. I can't afford it. Each week, I spend \$15 on a vial, totalling \$60 a month, which is beyond my means. I must choose between supporting my family and buying insulin, which is a difficult decision. Additionally, I skip diabetic check-ups because I cannot afford them. I must focus on the bigger picture, which means prioritising my family over my insulin. Financial difficulties make managing my condition very challenging". (Tirivanhu)*

This study found that many participants face financial difficulties due to living with T2D, which hinders their ability to manage their condition effectively.

## **DISCUSSION**

Our study aimed to explore the self-reported barriers and facilitators to diabetes self-management behaviours among adult patients with type 2 diabetes. The analysis of the data revealed that living with type 2 diabetes is a process characterised self-management behaviours, and this process was explained by two themes (1) engaging in proactive actions, informed by sub-categories of: (i) receiving social support; (ii) taking responsibility of the illness; (iii) being motivated to make changes; and (iv) building a patient-healthcare professional relationship, and (2) facing constraints, informed by sub-categories of: (i) experiencing food insecurity; (ii) facing financial difficulties; (iii) having health illiteracy, and (iv) encountering societal stigma. The resulting theoretical explanation represents our interpretation of how participants perceive their experiences living with type 2 diabetes and the actions they take to manage the condition within their contexts.

This study underscored the vital role of social support in motivating participants to adhere to their treatment plans. Family members play a significant role in improving treatment compliance by helping participants maintain healthy diets, adhere to medication regimens, and enhance overall health, consistent with previous research.<sup>17</sup> Other studies also demonstrate that family support greatly improves diabetes management and health outcomes.<sup>17-19</sup> Our findings strengthen existing evidence that social support is positively associated with treatment adherence in individuals with T2D, whereas support deficits are associated with lower adherence.<sup>20</sup> Additionally, consistent with prior findings, our study highlights the significance male participants attribute to their wives' assistance in meal planning and dietary management.<sup>21</sup> Given that social support is rooted in African traditions and culture, policymakers should consider integrating it into diabetes self-management strategies to enhance patient outcomes.

The study revealed that most participants formed professional relationships with healthcare professionals,

especially local community pharmacists. They appreciated the pharmacists' accessibility, which enabled them to visit without an appointment. Research shows that building trustworthy, consistent relationships with HCPs is crucial to supporting self-management.<sup>22</sup> Through their strong connection, the participant and pharmacist secured a credit facility for their medication supply, ensuring uninterrupted treatment and avoiding missed doses. Previous research emphasises that individuals with diabetes benefit from HCPs who understand the difficulties faced by socio-economically disadvantaged groups.<sup>23</sup> The strength of the patient-provider relationship is essential for effective self-management. Furthermore, HCPs working in diabetes care should be trained to provide empathetic, non-discriminatory support.

This study revealed that many participants lacked motivation to change their lifestyle, especially regarding physical activity. However, some participants' desire to stay healthy motivated them to start exercising, eat better, quit smoking, and reduce alcohol intake. Nonetheless, prior research aligns with our findings, indicating that patients often overestimate their physical activity levels.<sup>24</sup> Promoting more physical activity in T2D patients remains difficult, especially for those who overestimate their physical activity or face financial barriers to gym memberships.<sup>25</sup> Ultimately, without motivation, maintaining a healthy lifestyle- an essential part of diabetes management- likely remains unachievable.

Initially, some participants did not accept responsibility for their illness after diagnosis, relying instead on others to handle it. However, as they acquired more information and reflected on their situation, they later took responsibility. This study emphasises that accepting responsibility is crucial for effective self-management and health improvement, even though many health behaviour theories, such as the health belief model, often overlook this element.<sup>26</sup> Patients who externalise responsibility tend to experience challenges in adherence and poorer health outcomes.<sup>27</sup> It is also important to acknowledge that societal forces- political, economic, and social- shape social determinants of health, necessitating responsibility and action beyond individual efforts.<sup>28</sup> Furthermore, Greenhalgh suggests that responsibility also extends to broader societal contexts, highlighting the need for healthier environments and the removal of structural and cultural barriers to individual lifestyle choices.<sup>29</sup> These insights highlight the significance of patient education, empowerment, and shared decision-making in fostering a sense of agency and supporting effective self-management.

Several participants mentioned that food insecurity compelled them to make tough decisions when managing limited finances. A recurring theme was making trade-offs, such as skipping meals or saving food for later, to cope with scarcity. These findings align with previous research in low-income countries where T2D patients often skip medication due to food insecurity, which

negatively impacts their diabetes control.<sup>30</sup> Some participants felt emotionally distressed because food insecurity left them feeling helpless, consistent with previous research.<sup>31</sup> This emotional distress can impair diabetes management and glycaemic control. It is crucial to assess coping mechanisms and stress management skills in T2D patients experiencing food insecurity and to offer appropriate support. Notably, food-insecure individuals with diabetes may benefit from personalised dietary education that emphasises budgeting, planning affordable, nutritious meals, and resourcefulness.<sup>32</sup> Routine referrals of T2D patients to dietitians should be integrated into standard care to improve disease management and health outcomes.

A key finding of this study was the financial constraints participants faced across all aspects of self-management. These limitations affected their ability to purchase medications, adhere to dietary requirements, and attend regular medical appointments, consistent with previous research.<sup>33</sup> The findings also agree with prior research from low-income countries, particularly in SSA, where individuals with lower socio-economic status showed poorer glycaemic control than those with higher status.<sup>34</sup> In Zimbabwe, public healthcare services are free for pensioners and children under five at under-resourced government hospitals, but most adult T2D patients outside these groups must pay for their care or rely on private insurance. The high costs of medications and devices for T2D management are often prohibitive for many patients. Policymakers need to adopt a comprehensive approach that addresses social determinants of health to reduce these financial barriers.

The study also showed that participants with low health literacy had difficulty managing their health effectively, echoing earlier research that linked low health literacy to poorer diabetes self-care behaviours.<sup>35</sup> Previous research indicates that limited health literacy often leads to misinterpretation of healthcare instructions, resulting in lower medication adherence and poorer blood sugar control.<sup>36</sup> Few participants attended self-management education courses offered by third-sector organisations; those who did reported a better understanding of their illness and how to manage it. Consistent with these findings, Diabetes UK recommends that anyone newly diagnosed with T2D should participate in a suitable diabetes education program.<sup>37</sup> Providing self-management training to newly diagnosed T2D patients is crucial for helping them manage their condition and improve their diabetes outcomes.

Participants reported encountering diabetes stigma, including blaming and shaming attitudes towards those with T2D, negative stereotypes, discrimination, and social isolation. They also hesitated to disclose their condition outside their social circles due to fear of stigma. Prior research suggests that hiding a chronic illness can hinder self-management, lower self-esteem, and deprive patients of essential social support when they don't inform family

and friends.<sup>38</sup> Our findings align with research from developing countries, where diabetes patients often face significant social stigma.<sup>39</sup> Feelings of ostracism and abandonment are especially concerning in collectivist societies like those in Africa, where social bonds are highly valued.<sup>40</sup> Healthcare professionals should be trained to recognise and address diabetes stigma during patient assessments, making the evaluation of stigma a routine part of care. This is particularly important given the central role of family and community ties in African cultures. Furthermore, raising awareness and understanding about diabetes can help change community perceptions and enhance support for patients.

The findings corroborate earlier studies and further support our methodology. The CGT approach improved data richness and quality by incorporating field notes, memos, and a constant comparative analysis. However, participants were recruited only from community pharmacies in the CBD, which may have excluded those who do not use pharmacies for diabetes management or rely on hospitals and other healthcare providers. Since all participants were from a single city area, this could limit the generalizability of their demographic profiles. Additionally, this was a small observational study, so the results may not be widely applicable. Future research combining quantitative and qualitative methods could yield insights from larger, more diverse populations in various settings. Nonetheless, this study's findings will lay the groundwork for targeted interventions, and integrating additional research approaches could strengthen efforts to encourage behavioural change among individuals with T2D.

### **Implications for practice**

Public health policymakers should include CPs in diabetes management, as participants appreciated and trusted their professionalism and service quality. They see community pharmacists as approachable and knowledgeable, highlighting the importance of leveraging these skills within a 'multidisciplinary team' approach in primary care. Establishing a payment system between the Zimbabwe Ministry of Health and CPs, such as the UK Community Pharmacy Contractual Framework, can improve community pharmacists' uptake and provision of services.

### **CONCLUSION**

Patients with T2D face various barriers and facilitators to managing their condition. The analysis revealed how interpersonal, social, and economic factors influence their self-management behaviours. The findings suggest the importance of developing contextualised, culturally sensitive, and personalised interventions for patients with diabetes. These insights can help improve patient-centred diabetes counselling, particularly in education and training regarding self-management behaviours.

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