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Experience of Burden in Self-Care of Type 2 Diabetes Mellitus: A Qualitative Study in Indonesian Context

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ABSTRACT

Background: Effective management of Type 2 Diabetes Mellitus (T2DM) depends on self-care practices, including lifestyle modifications, dietary management, and medication adherence. However, in rural Indonesian populations, these practices are often hindered by limited healthcare access, low health literacy, and sociocultural barriers, resulting in diverse and complex patient experiences. **Methods:** This qualitative study used a phenomenological approach to explore the lived experiences of T2DM patients in rural Indonesia. Participants were recruited through snowball sampling, starting with initial referrals from local healthcare workers. A total of 25 participants (15 females and 10 males) were included. Semi-structured interviews were conducted to investigate self-care practices, challenges, and support systems. Data were analysed using the Colaizzi method to systematically identify key themes and subthemes. **Results:** Three main themes emerged: (1) Knowledge and Health Literacy, highlighting significant gaps in understanding and low literacy levels among participants; (2) Emotional Impact, encompassing anxiety, diabetes-related distress, and efforts to maintain well-being; and (3) Influencing Factors in Self-Care, such as adherence to treatment, barriers to healthcare access, cultural influences, and the role of family and social support. Participants faced substantial challenges managing their condition, underscoring the need for improved education and tailored support systems. **Conclusion:** This study highlights the need for culturally sensitive interventions and enhanced education to improve Type 2 Diabetes Mellitus (T2DM) management in rural Indonesia. Addressing emotional well-being, health literacy, and healthcare barriers is essential. Family involvement and community-based support can foster sustainable self-care practices and improve diabetes outcomes.

Keywords: Cultural Barriers; Health Literacy; Indonesia; Qualitative Study, Rural Population; Self-Care; Type 2 Diabetes Mellitus

INTRODUCTION

Diabetes mellitus (DM) is a chronic condition characterised by hyperglycaemia resulting from the body's inability to produce or effectively utilise insulin (Diane *et al*., 2022). The rising prevalence of DM, combined with increased mortality rates, imposes significant emotional, economic, and social burdens on individuals and societies. DM is linked to severe complications such as cardiovascular diseases, kidney failure, blindness, depression, and diabetic foot ulcers, which can lead to amputations if left unmanaged (Azeem, Khan & Liaquat, 2022; Seidu *et al*., 2022).

Lifestyle factors, including obesity, sedentary behaviour, and excessive consumption of processed, sugar-rich foods, exacerbate genetic predispositions towards DM. These interactions are particularly evident among adults (Celik *et al*., 2022). Effective DM management relies on patient education about medication adherence, dietary adjustments, increased physical activity, and other self-care behaviours, such as regular blood sugar monitoring and routine medical check-ups (Onyango *et al.*, 2022). Collaboration among patients, families, and healthcare providers is critical to achieving better health outcomes and reducing diabetes-related complications and mortality (Mutyambizi *et al*., 2020).

Despite established treatment protocols, many patients struggle with medication adherence, a cornerstone

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of DM management. Barriers such as high costs, side effects, complex regimens, and inadequate education often hinder adherence, particularly in rural areas (Berkoh *et al.*, 2022). Addressing these challenges in underserved settings can significantly reduce complications and hospitalisations (Bingham *et al*., 2021; Sabarathinam, 2023).

Self-management is fundamental to chronic disease care, encompassing behaviours like smoking cessation, alcohol moderation, regular monitoring of vital signs, and maintaining a balanced diet (Paudel *et al*., 2022). The American Association of Diabetes Educators (AADE) identifies seven key self-care behaviours: healthy eating, staying active, regular monitoring, medication adherence, problem solving, healthy coping, and risk reduction (Leslie Kolb, 2020; Paudel *et al*., 2022). However, individual self-care experiences vary widely, shaped by factors like cultural context, health literacy, social support, and access to healthcare services (Bogale *et al.*, 2022). These factors significantly shape individuals' perspectives, priorities, and expectations regarding their condition and available support systems.

In rural areas, diabetes management requires a holistic approach. Nurses play a pivotal role as both care providers and educators, offering guidance on blood sugar monitoring, medication adherence, and lifestyle changes (Alshammari *et al*., 2021). Additionally, nurses offer psychosocial support, helping patients cope with emotional challenges related to their diagnosis. Nurses empower patients to manage their condition independently by teaching coping techniques and building self-efficacy. They also provide psychosocial support, empowering patients through culturally tailored interventions to maintain sustainable self-care practices (Huang, 2024). Limited access to healthcare information, financial constraints, and treatment adherence challenges further complicate diabetes care in rural areas. Poor glycaemic control, indicated by elevated HbA1C levels, often results from these systemic barriers (Sabarathinam, 2023). Additionally, socio-cultural factors and dietary misconceptions contribute to suboptimal self-management (Agidew *et al.*, 2021).

Indonesia's rich cultural diversity, with over 300 ethnic groups, significantly influences health attitudes and practices, including the use of alternative medicine (Lukman, Leibing & Merry, 2020). Religious beliefs also shape perceptions of health and illness, integrating faith into health management (Bayhakki & Thaniwatthananon, 2019; Indrayana *et al*., 2019). Educational disparities across regions affect health literacy, which in turn impacts health behaviour and treatment adherence (Eliza *et al*., 2022). Furthermore, Indonesia's family-oriented society emphasises collective caregiving during health crises, fostering resilience but also presenting unique challenges (Atlas, 2019). However, geographic and economic inequalities create barriers to uniform healthcare access nationwide (Lukman, Leibing & Merry, 2020).

Support from the family and community enhances self-management behaviours and reduces complications, particularly in rural settings. This study explores the experiences and challenges of T2DM patients in rural Indonesian communities, highlighting the critical need for culturally sensitive approaches to improve self-care and healthcare delivery.

METHODOLOGY

Research Design

This study employed a qualitative design using semi-structured interviews to explore the self-care management experiences of individuals with Type 2 Diabetes Mellitus (T2DM) in rural Indonesia. A phenomenological framework, as described by Creely (2018), was adopted to gain an in-depth understanding of the participants' lived experiences.

Data Collection

Data were collected through semi-structured interviews, conducted by the researcher, who served as the primary instrument of the study. Each participant was interviewed twice, with each session lasting between 30 and 60 minutes. The interviews were audio-recorded and supplemented with observational field notes to enrich the contextual understanding of participants' experiences. This method allowed for in-depth exploration of individual self-care practices related to T2DM.

Sampling and Participants

Participants were selected through a snowball sampling, starting with referrals from the coordinator of a

chronic disease control program. The inclusion criteria required participants to be between the ages of 35 and 70, have a T2DM diagnosis for at least six months, be capable of communicating in Indonesian, and be free from major speech, hearing, or cognitive impairments. Additionally, participants needed to express a willingness to engage in the study (Speziale, Streubert & Carpenter, 2011).

Data Analysis

All interview recordings were transcribed verbatim and analysed using the Colaizzi method— a rigorous phenomenological analysis technique. This method enabled the identification of recurring themes and subthemes from the data (Creswell & Creswell, 2018; Creswell, 2014). NVivo 12 was used to manage and code the data, ensuring systematic and organised analysis.

Trustworthiness and Rigor

To ensure the credibility and validity of the findings, triangulation was employed by cross-verifying data from interview transcripts, audio recordings, and field notes. This multi-source validation strengthened the consistency of the results. Member checking was conducted during the second round of interviews to validate the interpretations, thereby enhancing the trustworthiness of the study.

Ethical Consideration

The researchers obtained ethical clearance from the Bakti Tunas Husada University with reference number 290/E.01/KEPK-BTH/XI/2023 on 24th November 2023.

Ethical considerations were rigorously upheld throughout the study, following the principles outlined in the Belmont Report (Polit & Beck, 2021). Informed consent was obtained from all participants before data collection, ensuring voluntary participation and a clear understanding of the study's objectives and procedures. To enhance the credibility of the findings, various methodological strategies were systematically employed. Triangulation was performed by comparing multiple data sources—including audio recordings, field notes, and interview transcripts—to ensure consistency. Member checking allowed participants to review and validate the findings, thereby enhancing accuracy. Peer debriefing with colleagues provided impartial insights and further reinforced the credibility of data interpretation. Additionally, thorough documentation and the maintenance of an audit trail supported the dependability and confirmability of the research process. These strategies, as guided by Creswell and Creswell (2018) and Creswell (2013), significantly contributed to the study's overall credibility and reliability.

RESULTS

A total of 25 participants (15 females and 10 males) were included in the study. As shown in Table 1: Age distribution: 60% were aged 46–65 years, 32% were over 65, and 8% were aged 35–45 years; educational background: 80% completed senior high school, 12% held a bachelor's degree, and 8% completed only elementary or junior high school. Marital status: 88% were married. Duration of diabetes management: 84% had been managing diabetes for over 10 years.

Table 1: Respondent's Characteristic

No	Respondent's Characteristic	N (%)
1	**Age**	
	35-45 years old	2 (8)
	46-65 years old	15 (60)
	> 65 years old	8 (32)
	Mean ± SD	52 ±0.657
2	**Gender**	
	Male	10 (25)
	Female	15 (75)
3	**Education**	
	Elementary-Junior High School	2 (8)
	Senior High School	20 (80)
	Bachelor's degrees	3 (12)

4	**Status**	
	Single	1 (4)
	Married	22 (88)
	Widow /widower	2 (8)
5	**Ethnic Group**	
	Sundanese	24 (96)
	Betawi	1 (4)
6	**Live with Family**	
	Live with children	1 (4)
	Lives with mother and family	1 (4)
	Live with partner	23 (92)
7	**Long Suffering**	
	1-5 years	0 (0)
	6-10 years	4 (16)
	>10 years	21 (84)

The demographic characteristics of the participants provide a comprehensive context for understanding their self-care management experiences. The findings indicate that the majority of participants were middle-aged women with a senior high school education who had been managing diabetes for over a decade. These characteristics suggest a population with substantial experience in diabetes self-management, coupled with a significant reliance on family and community support systems.

From the analysis, several key themes emerged that encapsulate the participants' experiences with diabetes self-care management. These themes, systematically organised, underscore the complex dynamics and challenges participants face in managing their conditions effectively. As detailed in Table 2, the themes illustrate the diverse strategies and coping mechanisms employed by participants, offering valuable insights into the broader context of diabetes care in rural settings.

Table 2 summarises the main themes and subthemes related to diabetes self-care management, highlighting the complexities and influencing factors identified during the analysis. These findings provide a more profound understanding of the multifaceted nature of self-care management in rural communities and emphasise the need for tailored interventions that address these challenges.

Table 2: Themes and Subthemes in Diabetes Self-Care Management

Main Theme	Subthemes	Description
Knowledge and Health Literacy	Lack of knowledge about diabetes	Participants demonstrated a limited understanding of diabetes, its potential complications, and necessary self-care practices.
	Low Health Literacy	Participants faced difficulties in comprehending medical instructions and health-related information, which hindered informed decision-making.
Emotional Impact	Anxiety	Participants experienced anxiety related to the progression of their condition and uncertainties about their future.
	Diabetes Distress	Emotional strain arising from managing diabetes, including frustrations with treatment regimens and perceived personal failures.
	Maintaining Well-being	Efforts to sustain a sense of normalcy and maintain positive mental health despite challenges in diabetes care.
Influencing Factors in Diabetes Self-Care Management	Adherence to Treatment	Challenges in consistently adhering to prescribed treatments due to side effects, forgetfulness, or lack of motivation.
	Barriers to healthcare access	Issues such as long distances to healthcare facilities, financial constraints, and limited availability of healthcare professionals.
	Cultural Influence	Cultural beliefs and practices that affect dietary choices, medication adherence, and health-seeking behaviours.
	Family and Social Support	The role of family and community in providing emotional, informational, and practical assistance to support self-care.

Knowledge and Health Literacy: Research indicates that low health literacy is a significant barrier to informed decision-making among diabetes patients.

Emotional Impact: Emotional challenges, including anxiety and diabetes-related stress, significantly affect patients' adherence to disease management routines.

Several influencing factors significantly impact the self-care management of diabetes patients. Treatment adherence is often hindered by barriers such as medication side effects, physical discomfort, and financial constraints, making it challenging for patients to follow prescribed regimens consistently. Barriers to healthcare access further exacerbate these challenges, particularly in rural areas, where limited accessibility to healthcare facilities contributes to inequities in diabetes management and leaves many patients underserved. Additionally, cultural influences play a critical role, as practices like dietary preferences and alternative medicine may conflict with medical recommendations, creating obstacles to effective disease management. Lastly, family and social support are vital in promoting better self-care behaviours, such as monitoring food intake and blood sugar levels.

Theme 1. Knowledge and Health Literacy

1. Lack of Knowledge About Diabetes

This subtheme addresses participants' limited understanding of diabetes, its symptoms, and effective management practices. Many individuals only recognise basic symptoms, like thirst or fatigue, without understanding the necessary steps to control their conditions through medication, diet, and lifestyle modifications. For example:

- "I know that diabetes affects my blood sugar, but I don't understand how insulin works or why I need to adjust my diet."
- "I sometimes feel confused about why I need to check my blood sugar levels so often, and I'm not sure how to interpret the results."

2. Low Health Literacy

Low health literacy reflects participants' difficulties in accessing, understanding, and using health information effectively. This often results in confusion, particularly when healthcare providers offer conflicting advice, making it challenging for patients to make informed decisions about their care. For instance:

- "The doctors tell me different things each time I visit, and I'm not sure which advice to follow, so I end up feeling lost."
- "I have difficulty understanding the information in the pamphlets given to me, and I don't always know what steps to take after reading them."

Theme 2: Emotional Impact

This theme delves into the emotional and psychological responses individuals experience while managing Type 2 Diabetes Mellitus (T2DM). It is broken down into three sub-themes: Anxiety, Diabetes Distress, and Maintaining Well-being.

1. Anxiety

Anxiety involves the fear, worry, and uncertainty that individuals feel when managing their diabetes. Patients often worry about their health outcomes, potential complications, and the social implications of their illness, which can hinder effective self-care and negatively impact their quality of life. Examples include:

- "I'm afraid my blood sugar levels will never be under control, which makes me worry constantly."
- "I fear that if my condition gets worse, I might have to quit my job and become a burden to my family."

2. Diabetes Distress

Diabetic distress is the emotional burden and frustration directly related to managing diabetes. Such distress includes feeling overwhelmed by the daily demands of managing the condition and struggling to maintain motivation. Examples include:

"Sometimes, I feel overwhelmed with all the things I need to do, like taking medications, checking my blood sugar, and preparing special meals."

- "I get frustrated because no matter how much effort I put in; my condition doesn't seem to improve."

3. Maintaining Well-being

Despite these emotional challenges, some individuals actively strive to maintain their well-being by adopting coping strategies and staying positive. These efforts might include engaging in healthy habits, seeking social support, or participating in spiritual or stress-relief activities. Examples include:

- "I try to maintain a balanced diet and go for daily walks to keep my body and mind in a positive state."
- "Praying and meditating help me manage my stress and accept my condition."

Theme 3: Influencing Factors in Diabetes Self-Care Management

This theme explores the various factors that influence individuals' ability to manage their self-care in handling T2DM. These factors include adherence to treatment, barriers to healthcare access, cultural influence, and family and social support.

1. Adherence to Treatment

Treatment adherence encompasses how well patients follow the healthcare recommendations, including taking medication, following dietary guidelines, and engaging in physical activity. Poor adherence can hinder treatment outcomes and increase the risk of complications. Examples include:

- "I always try to take my medication on time, but sometimes I forget."
- "I find it difficult to stick to the recommended diet, especially when I am outside the house."

2. Barriers to Healthcare Access

Barriers to healthcare access involve the challenges patients face in obtaining necessary care, such as geographical distance, financial limitations, and the complexity of healthcare processes. These barriers can prevent patients from accessing timely and quality care. Examples include:

- "The nearest health center is too far from my home, and it is difficult for me to visit regularly."
- "The cost of consulting a doctor is too high, so I rarely check my condition."

3. Cultural Influence

Cultural influence examines how cultural values and practices affect self-care behaviours. For instance, some patients might rely on traditional medicine or experience social pressure related to dietary habits that hinder effective diabetes management. Examples include:

- "In our culture, rice is a staple food, and it is difficult for me to replace it with something healthier."
- "I prefer using herbal remedies over medication from the doctor because it is part of our family tradition."

4. Family and Social Support

Family and social support play a crucial role in diabetes self-care management. Having support can motivate patients to adhere to treatment and maintain their care plans. Examples include:

- "My husband always reminds me to take my medication and eat on time."
- "I feel more motivated to exercise because my friends support me and often exercise with me."

DISCUSSION

Indonesia's diverse educational and healthcare experiences highlight significant variations in cultural perspectives and self-care practices among patients (Lukman, Leibing & Merry, 2020). For individuals with diabetes, self-efficacy-confidence in one's ability to manage behaviours such as dietary adherence, physical activity, medication compliance, and blood glucose monitoring—is critical for effective disease management (Orem, 2001). Enhancing health awareness can encourage active participation and foster more proactive self-care behaviours (Enggarwati, Dahlia & Maria, 2022).

However, Indonesia's cultural and social diversity presents challenges when generalising findings. With

over 300 ethnic groups, each characterised by unique traditions and health beliefs, self-care practices for managing type 2 diabetes mellitus (T2DM) are deeply rooted in cultural contexts (Indrayana *et al*., 2019). While this study provides valuable insights into specific rural settings, its findings may not fully represent the broader spectrum of rural areas in Indonesia. Future comparative studies across different cultural backgrounds are necessary to capture the full extent of Indonesia's diversity and enhance the generalisability of these findings.

Self-care practices are influenced by various factors, including health literacy, emotional barriers, and social support. Many patients struggle to understand medical information and its implications for self-care management, which hinders their ability to effectively manage their condition (Pourhabibi *et al.*, 2022). Limited health literacy can significantly hinder patients' ability to access, understand, and apply health information, often resulting in suboptimal decision-making (van der Gaag *et al.*, 2022). Furthermore, factors such as family history, health literacy, and recommendations from healthcare providers have been shown to significantly influence self-care behaviours ($r = 0.22$, $p < 0.05$) (Misra *et al*., 2022). Similarly, a study by Gupta *et al*. (2024) highlights that patients in rural areas often face limited access to healthcare services, financial constraints, and sociocultural beliefs that hinder diabetes self-care practices (Gupta *et al.*, 2024). Additionally, Burleson, Stephens and Rimal (2025) emphasise that variations in adherence to self-care behaviours are influenced by multiple factors, including access to healthcare resources and differences in measurement methodologies (Burleson, Stephens & Rimal, 2025).

Frailty has been recognised as a significant complication of diabetes, particularly in older adults, leading to reduced muscle strength and an increased risk of adverse health outcomes. The presence of multimorbidity further exacerbates diabetes-related frailty, necessitating integrative management approaches that combine lifestyle interventions with pharmacological treatment. As diabetes increases the risk of frailty, addressing its impact through structured and holistic interventions is crucial for improving long-term health outcomes (Sinclair *et al.*, 2025).

Emotional barriers, including depression and anxiety, exacerbate these challenges, with patients being 2–3 times more likely to experience these conditions. These psychological issues are often underdiagnosed yet closely associated with poor adherence and increased complications Incorporating empathetic approaches in patient education can enhance emotional well-being and improve the effectiveness of self-care practices (Franquez, Souza & de Cássia, 2023). Interventions aimed at addressing these barriers have shown promise. For example, mindfulness-based programs have demonstrated efficacy in reducing stress, improving HbA1C levels, and enhancing self-management behaviours, highlighting their potential as effective strategies for improving diabetes outcomes (Lu *et al.*, 2021).

The role of nurses in supporting T2DM self-management, particularly in rural settings, remains underexplored. Nurses act as facilitators by providing education, regular monitoring, and emotional support, empowering patients to overcome barriers such as diabetes-related distress and low health literacy (Yoon *et al*., 2022). In addition, family support plays a crucial role in diabetes self-care, particularly in ensuring adherence to dietary restrictions, medication intake, and regular check-ups. However, some patients report a lack of family support, which negatively impacts their ability to manage their condition effectively (Gupta *et al.*, 2024). This support system not only provides practical assistance but also offers emotional reinforcement, significantly enhancing diabetes management outcomes (Molla *et al*., 2022). Burleson, Stephens, and Rimal (2025) further highlight that adherence to diabetes treatment in rural settings is often complicated by variations in definitions and measurement modalities, making it difficult to standardise interventions across different populations (Burleson, Stephens & Rimal, 2025). Goins *et al*. (2022) identified various forms of support—emotional, instrumental, informational, and judgemental—that significantly influence self-care practices (Goins *et al*., 2022). Similarly, Molla *et al*. (2022) highlighted that 54.9% of patients in a cross-sectional study reported good social support, underscoring the critical role of family systems in diabetes management (Molla *et al*., 2022).

Diabetes self-care behaviours are influenced by environmental and social factors, including extreme weather conditions, time constraints, and cultural beliefs regarding alternative medicine (Gupta *et al.*, 2024). These cultural traditions and socioeconomic constraints in rural areas significantly impact diabetes self-

management, contributing to variations in adherence to treatment guidelines. Similarly, Burleson, Stephens, and Rimal (2025) emphasise that a lack of standardised adherence measures complicates the evaluation of effective interventions, particularly in diverse rural populations. Collectively, these challenges underscore the need for tailored interventions that address both the clinical and sociocultural dimensions of diabetes care (Burleson, Stephens & Rimal, 2025).

Incorporating culturally sensitive nursing interventions tailored to Indonesia's rural settings can further enhance diabetes management. Guided by frameworks such as Dorothea Orem's Self-Care Deficit Nursing Theory, these interventions have the potential to significantly improve patient outcomes (Queirós, Vidinha & Almeida Filho, 2014). Community-based education programs and peer support groups led by nurses can help bridge gaps in healthcare access while aligning care with patients' unique cultural and social needs.

Digital health tools, such as mHealth applications, offer significant opportunities to enhance self-management practices for individuals with diabetes. However, challenges such as low digital literacy and limited integration into existing healthcare systems continue to hinder their widespread adoption. In November 2024, the Indonesian Ministry of Health integrated the Digital Diabetes Diary (3D) feature from the PRIMAKU (Program Imunisasi Anakku meaning My Child's Immunization Program) application into the SATUSEHAT (Satu Sehat meaning to One Health) mobile application. This initiative enables real-time blood glucose monitoring for children with diabetes, highlighting the transformative potential of digital tools in improving disease management (Schubert, 2024). Additionally, non-invasive blood glucose monitoring technology using photoplethysmography (PPG) signals and artificial intelligence (AI) has demonstrated promising accuracy and clinical applicability, offering a transformative approach to patient- centred diabetes care (Zeynali *et al.*, 2025). These technological advancements underscore the importance of collaborative approaches that integrate digital tools with traditional care methods to improve outcomes for rural patients.

A recent study reported that 89.5% of respondents experienced anxiety related to the financial burden of diabetes management, further emphasising the need for cost-effective and accessible healthcare solutions (Vitale, Wentzell & Laffel 2022). To address these challenges, multidisciplinary strategies that combine structured programmes, family and community support, and digital tools are essential. For instance, the Diabetes Online Community (DOC) provides psychological, informational, and self-management support, fostering empowerment and reducing isolation (Oser *et al*., 2020). Tailoring diabetes self-management programmes to the cultural, logistical, and behavioural needs of specific populations has been shown to effectively overcome barriers and improve patient outcomes. Liang *et al*. (2024) demonstrated that a culturally adapted, theory-driven, and structured self-management programme for insulin-treated adults significantly improved self-efficacy and self-care behaviours and reduced diabetes-related distress among Chinese participants.

Building on these successes, integrating culturally sensitive nursing training and community-based programmes can further enhance outcomes, particularly in underserved rural areas. Such strategies align with global best practices in diabetes care while addressing the unique challenges faced in Indonesia. In conclusion, improving self-management for T2DM requires a holistic approach that incorporates family and community support, culturally sensitive care, and innovative digital tools. Strengthening nursing education and adopting multidisciplinary strategies will foster sustainable improvements in diabetes care, especially in rural areas.

CONCLUSION

Effective self-care management is crucial for individuals with Type 2 Diabetes Mellitus (T2DM) in rural Indonesia to prevent complications and improve quality of life. This study identified several factors influencing self-care, including limited access to healthcare services, low health literacy, sociocultural influences, and the pivotal role of family and community support. Emotional barriers, such as anxiety, diabetes-related distress, and depression, further impede self-management and adherence to treatment.

To mitigate these challenges, integrating digital health solutions, such as telemedicine and remote monitoring applications, can bridge gaps in healthcare accessibility. Additionally, enhancing the role of diabetes care specialists and expanding community-based education programmes can significantly improve self-care behaviours among underserved populations. Interdisciplinary collaborations among healthcare providers,

policymakers, and local communities are crucial for developing sustainable and accessible diabetes care models tailored to rural settings.

The findings of this study align with medium-range theories, emphasising the interplay between self-care experiences, healthcare accessibility, and social support systems in rural communities. To improve patient outcomes, healthcare professionals must adopt personalised, culturally sensitive care approaches that acknowledge the unique needs and beliefs of rural populations.

Future research should explore patient expectations and healthcare providers' perspectives to gain a more comprehensive understanding of self-care barriers and facilitators. Moreover, developing home-based management tools that facilitate real-time communication, monitoring, and patient education can help overcome geographic and logistical challenges, ensuring continuous and effective diabetes care in remote areas.

Limitation

This study acknowledges certain limitations. The in-depth, context-rich insights provide valuable understanding of the self-care challenges faced by individuals with Type 2 Diabetes Mellitus in rural Indonesia. While cultural and socioeconomic diversity may affect broader applicability, these findings offer an important foundation for future research. To build on this work, larger, more representative studies using mixed-method approaches must be done to enhance relevance and deepen understanding of diabetes self-management in diverse rural settings.

Conflict of Interest

The authors declare that they have no conflict of interests.

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