

Exploring Experiences, Barriers, and Needs in Medication and Dietary Adherence among Type 2 Diabetes Patients: Qualitative Study

Yuniharce Kadang^{1*}, Gerfan Patandung¹

^{1*}Pharmacy Study Program, Politeknik Sandi Karsa, Makassar, Indonesia

*Corresponding author email : yuniharce@gmail.com

ABSTRACT

Background: Type 2 diabetes requires sustained medication use and dietary modification, yet adherence is disrupted by treatment burden, family routines, food practices, financial constraints, and interpretations of illness. Understanding these interacting influences is essential for feasible patient-centred care.

Research Objective: This study aimed to explore patients' experiences of medication and dietary adherence, identify perceived barriers, and describe the support needed for sustainable self-management.

Methods: A qualitative descriptive study was conducted at Sandi Karsa Hospital from January to March 2026. Twenty-six people with type 2 diabetes were recruited through purposive sampling. Data were collected through face-to-face semi-structured interviews. Transcripts were analysed thematically. Credibility was supported through member checking, peer discussion, reflexive notes, and an audit trail. Data saturation occurred by interview 23 and was confirmed through three interviews.

Results: Five themes were identified: interpreting adherence through bodily experiences; managing practical medication barriers; negotiating dietary recommendations in family and social life; developing adherence strategies; and expecting individualised care. Participants sometimes adjusted medication according to symptoms, concerns about adverse effects, or disrupted routines. Dietary adherence was constrained by family meals, food costs, and social obligations. Medication routines, family reminders, affordable dietary guidance, and professional communication facilitated adherence.

Conclusion: Medication and dietary adherence were interconnected behaviours shaped by personal, relational, economic, and healthcare conditions. Sandi Karsa Hospital should implement family-inclusive counselling involving physicians, nurses, pharmacists, and nutritionists. Care should address treatment concerns, simplify routines, and provide culturally appropriate dietary recommendations.

Keywords: Diabetes Mellitus, Type 2; Diet; Medication Adherence; Patient-Centered Care; Qualitative Research



This work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)

BACKGROUND

Type 2 diabetes mellitus (T2DM) is a long-term metabolic condition that demands continuous self-management beyond periodic clinical consultation. More than 95% of people with diabetes have type 2 diabetes, and persistent hyperglycaemia can progressively damage the cardiovascular system, kidneys, eyes, and peripheral nerves (Sriraman et al., 2023). The International Diabetes Federation estimated that 589 million adults aged 20–79 years were living with diabetes in 2024, with this number projected to reach 853 million by 2050. Indonesia carries a particularly substantial burden and ranks fifth globally in the number of adults living with diabetes (Omonaiye et al., 2025). These figures indicate that improving access to diagnosis and treatment is essential, but access alone is insufficient. The effectiveness of diabetes care ultimately depends on patients' ability to integrate medication use and dietary recommendations into everyday life.

Medication and dietary adherence are interconnected foundations of glycaemic control. Antidiabetic medicines help regulate blood glucose, whereas dietary modification influences glucose fluctuations, body weight, cardiovascular risk, and medication requirements. Nevertheless, adherence is often treated as a simple matter of following professional instructions (Chauke et al., 2022). This interpretation overlooks the fact that patients must repeatedly make treatment decisions while working, travelling, attending social events, managing household responsibilities, and responding to changing symptoms (Alsayed et al., 2023). Adherence is therefore not a fixed personal characteristic but a dynamic behaviour shaped by clinical, psychological, social, economic, and cultural conditions. When difficulties remain unidentified, healthcare providers may interpret uncontrolled blood glucose as patient negligence and respond by intensifying treatment without addressing the circumstances that make the original regimen difficult to sustain (Montilva-Monsalve et al., 2023).

Existing evidence demonstrates that medication adherence among adults with diabetes varies considerably. A qualitative systematic review identified perceived support, treatment knowledge, medication-related problems, and the ability to establish routines as major influences on medication-taking behaviour. Regimen complexity, adverse effects, polypharmacy, interrupted routines, weak patient-provider communication, and inadequate family support can undermine consistent medicine use (Orozco-Beltrán et al., 2022). Conversely, understandable information, supportive relationships, reminder strategies, and the incorporation of treatment into established daily routines can promote adherence. Indonesian qualitative evidence similarly suggests that patients may modify medication schedules, stop medicines when symptoms improve, combine prescribed therapy with traditional remedies, or make decisions based on personal beliefs regarding the long-term effects of medicines (Y. Zhang et al., 2022). Such practices cannot be fully understood through adherence scores because the same numerical classification may represent forgetting, deliberate dose adjustment, financial difficulty, fear of adverse effects, or competing cultural interpretations of treatment.

Dietary adherence is equally complex. Recommendations to reduce sugar, regulate carbohydrate portions, and maintain regular meal patterns are implemented within family meals, local food traditions, economic limitations, and social obligations. Patients may understand dietary advice but consider it expensive, incompatible with available food, or socially isolating (Griauzde et al., 2022). Family members can support meal planning, yet they may also discourage dietary change when separate meals are viewed as inconvenient. Emotional stress, hunger, taste preferences, work schedules, and the symbolic meaning of food further influence daily choices. Consequently, knowledge-focused education may improve awareness without resolving the practical and relational conditions that sustain non-adherence (Mondoh et al., 2025).

Although previous studies have identified numerous determinants of diabetes self-management, important gaps remain (Parikh et al., 2024). First, medication and dietary

adherence are frequently examined separately, even though patients negotiate both behaviours simultaneously. Second, quantitative research commonly measures the prevalence and statistical predictors of non-adherence but provides limited insight into how patients interpret treatment recommendations, resolve conflicts between medicines and meals, or modify routines over time (Hu et al., 2023). Third, qualitative studies have often concentrated primarily on barriers, giving less attention to patients' expressed needs, adaptive strategies, and preferred forms of support. Finally, findings generated in other sociocultural and healthcare contexts may not adequately explain how family influence, traditional health beliefs, food practices, financial constraints, and communication with healthcare professionals interact in the everyday lives of Indonesian patients.

The novelty of this study lies in its integrated, patient-centred exploration of medication adherence and dietary adherence as mutually connected experiences rather than isolated behaviours. By examining experiences, barriers, coping practices, and support needs together, the study seeks to reveal how individual interpretations interact with family relationships, treatment characteristics, healthcare encounters, and material living conditions. This approach may identify discrepancies between professionally prescribed care and what patients can realistically implement, while also recognising the practical knowledge patients develop through living with diabetes.

Accordingly, this qualitative study aims to explore the experiences of patients with T2DM in adhering to prescribed medication and dietary recommendations; identify the personal, treatment-related, familial, sociocultural, economic, and healthcare-system barriers influencing adherence; and describe the forms of information, communication, family involvement, and professional support patients consider necessary for sustainable diabetes self-management. The findings are expected to inform context-sensitive, non-judgmental, and patient-centred adherence interventions.

METHODS

This study employed a qualitative descriptive design (Kongsa et al., 2024) to explore the experiences, barriers, and support needs of patients with type 2 diabetes mellitus in adhering to prescribed medication and dietary recommendations. This design was selected because it enabled the researchers to obtain detailed accounts of participants' everyday practices and understand how personal beliefs, family relationships, treatment characteristics, economic circumstances, and interactions with healthcare professionals influenced adherence. The study was conducted at Sandi Karsa Hospital from January to March 2026.

The study involved 26 informants diagnosed with type 2 diabetes mellitus. Participants were recruited using purposive sampling to ensure that those selected had direct experience of managing medication and dietary requirements. The inclusion criteria were patients aged 18 years or older, clinically diagnosed with type 2 diabetes mellitus for at least six months, prescribed oral antidiabetic medication and/or insulin, receiving outpatient or inpatient services at Sandi Karsa Hospital during the study period, and willing to describe their experiences. Patients who were medically unstable, had cognitive or communication difficulties that prevented meaningful participation, or were unable to complete the interview were excluded. Recruitment continued until the researchers determined that the interviews provided sufficient information and no substantially new themes emerged.

Data were collected through individual, face-to-face, semi-structured interviews. An interview guide was developed based on the research objectives and relevant literature. The main areas explored included participants' experiences of taking diabetes medication, following dietary recommendations, understanding treatment goals, managing side effects, integrating treatment into daily routines, obtaining and preparing appropriate food, responding to social and family influences, communicating with healthcare

professionals, and identifying the support needed to maintain adherence. Open-ended questions such as "Can you describe how you manage your diabetes medication in everyday life?" and "What makes it difficult for you to follow the recommended diet?" were followed by probing questions to clarify experiences and elicit specific examples. Interviews were conducted in a private and comfortable setting, lasted approximately 35-60 minutes, and were audio-recorded with participants' permission. Field notes were also written to document non-verbal expressions, contextual information, and the researchers' initial reflections.

Audio recordings were transcribed verbatim and checked against the original recordings to maintain accuracy. Data were analysed using thematic analysis following the stages of familiarisation with the data, initial coding, grouping related codes, developing preliminary themes, reviewing and defining themes, and producing an interpretative narrative. Two researchers independently reviewed selected transcripts and compared coding decisions to improve analytical consistency. Medication-related and dietary experiences were initially coded separately and subsequently examined together to identify connections between treatment routines, eating practices, family involvement, financial limitations, cultural beliefs, and healthcare support. Data collection and analysis were conducted concurrently, allowing emerging findings to guide subsequent probing and determine information saturation.

Trustworthiness was maintained through credibility, dependability, confirmability, and transferability procedures. Credibility was supported through prolonged engagement, member checking of key interpretations, and comparison of interview findings with field notes. Peer discussions were conducted to evaluate codes and themes, while an audit trail documented recruitment, data collection, coding, and analytical decisions. Reflexive notes were maintained to recognise and minimise the influence of researchers' assumptions. Detailed descriptions of the participants, research setting, and social context were provided to help readers assess the transferability of the findings.

RESULTS

Characteristics of Informants

Table 1.
Individual Characteristics of Informants (n = 26)

Infor mant code	Age (years)	Sex	Educational level	Occupational status	Duration of diabetes	Current treatment
P01	38	Female	Junior high school	Self-employed	1 year	Oral antidiabetic medication
P02	46	Female	Elementary school	Homemaker	3 years	Oral antidiabetic medication
P03	40	Male	Senior high school	Self-employed	2 years	Oral antidiabetic medication
P04	48	Female	Senior high school	Homemaker	4 years	Oral antidiabetic medication
P05	42	Male	Higher education	Employee	5 years	Oral antidiabetic medication
P06	44	Female	Junior high school	Homemaker	3 years	Oral antidiabetic medication

P07	52	Male	Senior high school	Self-employed	5 years	Oral antidiabetic medication
P08	45	Female	Elementary school	Homemaker	2 years	Oral antidiabetic medication
P09	56	Male	Senior high school	Employee	4 years	Oral antidiabetic medication
P10	59	Male	Junior high school	Self-employed	6 years	Oral antidiabetic medication
P11	57	Male	Senior high school	Self-employed	7 years	Oral antidiabetic medication
P12	49	Female	Senior high school	Homemaker	6 years	Oral antidiabetic medication
P13	60	Male	Higher education	Employee	8 years	Oral antidiabetic medication
P14	66	Female	Senior high school	Retired/unemployed	9 years	Oral antidiabetic medication
P15	55	Female	Junior high school	Homemaker	7 years	Oral antidiabetic medication
P16	51	Male	Higher education	Employee	10 years	Oral antidiabetic medication
P17	53	Female	Senior high school	Self-employed	8 years	Oral antidiabetic medication
P18	58	Female	Elementary school	Homemaker	9 years	Insulin
P19	61	Female	Junior high school	Retired/unemployed	10 years	Insulin
P20	62	Male	Senior high school	Retired/unemployed	12 years	Insulin
P21	63	Female	Elementary school	Homemaker	14 years	Insulin
P22	64	Female	Higher education	Employee	11 years	Oral medication and insulin
P23	54	Female	Junior high school	Self-employed	13 years	Oral medication and insulin
P24	54	Female	Senior high school	Homemaker	15 years	Oral medication and insulin
P25	68	Male	Higher education	Retired/unemployed	17 years	Oral medication and insulin
P26	72	Female	Elementary school	Retired/unemployed	20 years	Oral medication and insulin

Themes and Subthemes

The thematic analysis generated five main themes and thirteen subthemes. The findings showed that medication and dietary adherence were not experienced as separate

behaviours. Both were negotiated simultaneously within daily routines, symptom interpretations, financial conditions, family meals, and social relationships.

Table 2.
Themes and Subthemes

Main theme	Subthemes
Interpreting adherence through bodily experiences	Taking medication according to perceived symptoms; fear of long-term medication effects; treatment fatigue
Managing practical barriers to medication adherence	Forgetfulness and disrupted routines; side effects and regimen complexity; financial and access-related difficulties
Negotiating dietary recommendations in everyday life	Tension between recommendations and family meals; affordability and availability of healthy food; social events and cultural food practices
Developing strategies to sustain adherence	Establishing medication routines; family reminders and emotional support; learning through personal experience
Expecting more responsive and individualised care	Need for practical dietary education; consistent communication with professionals; personalised and family-inclusive support

Theme 1: Interpreting Adherence Through Bodily Experiences

Several informants evaluated the need for medication according to how their bodies felt rather than consistently following the prescribed schedule. The absence of symptoms was sometimes interpreted as evidence that blood glucose was controlled. Consequently, medication was occasionally reduced or stopped without consultation.

"When my body feels normal and I am not dizzy, I sometimes think my sugar is already stable, so I do not take the medicine that day."

(P04, female, 48 years)

Some informants were concerned that taking medicine continuously could damage the kidneys or cause dependency. These concerns were generally influenced by conversations with relatives, neighbours, or information obtained outside formal healthcare services.

"I know the medicine controls my blood sugar, but I am also afraid because people say that taking medicine for many years can damage the kidneys."

(P11, male, 57 years)

Long-term treatment also produced boredom and emotional fatigue. Adherence became more difficult when participants felt that diabetes management would never end.

"The difficult part is not taking the tablets once or twice. It is knowing that I may have to take them every day for the rest of my life."

(P19, female, 61 years)

Theme 2: Managing Practical Barriers to Medication Adherence

Forgetfulness was common, particularly when informants travelled, worked outside the home, attended social activities, or experienced changes in their usual schedules. Treatment regimens involving several medicines or different administration times were considered especially difficult.

"At home, I remember because the medicine is on the table. When I go to work early or attend an event, I often realise at night that I missed the morning dose."

(P07, male, 52 years)

Adverse effects such as nausea, weakness, stomach discomfort, and fear of hypoglycaemia also influenced adherence. Some informants independently modified the timing or dosage to avoid unpleasant experiences.

"Sometimes I feel weak after taking the medicine, especially when I have not eaten enough. Because of that, I occasionally skip it."

(P15, female, 55 years)

Although hospital services facilitated treatment access, transportation expenses, consultation schedules, and the cost of additional medicines or glucose monitoring remained concerns for some informants.

Theme 3: Negotiating Dietary Recommendations in Everyday Life

Dietary adherence was described as more difficult than medication adherence because eating occurred within a shared household context. Most informants ate the same food prepared for other family members, making portion control and separate meal preparation challenging.

"The doctor tells me to reduce rice, but everyone at home eats rice. It is difficult to prepare a different meal only for me."

(P02, female, 46 years)

Healthy food was sometimes perceived as more expensive, less available, or requiring additional preparation. Informants therefore adapted professional recommendations to household resources rather than following them literally.

"I understand that vegetables and fish are better, but we buy food according to what the family can afford that day."

(P21, female, 63 years)

Social gatherings presented another difficulty. Refusing food could be interpreted as disrespectful, while explaining the illness repeatedly caused discomfort.

"At family events, sweet drinks and cakes are always served. If I refuse everything, people keep asking questions, so sometimes I eat a little even though I know I should not."

(P10, male, 59 years)

Theme 4: Developing Strategies to Sustain Adherence

Informants developed practical strategies, including placing medicines near eating utensils, using mobile-phone alarms, carrying medication when travelling, and linking medication schedules with prayer or mealtimes.

"I take my morning medicine after breakfast and the evening dose after Maghrib prayer. Connecting it with a regular activity helps me remember."

(P13, male, 60 years)

Family support was particularly influential. Spouses and children reminded participants to take medication, helped prepare appropriate meals, accompanied them to hospital visits, and encouraged them when treatment became burdensome.

"My daughter reminds me and prepares smaller portions of rice. When the family participates, I do not feel that I am managing the disease alone."

(P18, female, 58 years)

Theme 5: Expecting More Responsive and Individualised Care

Participants wanted dietary information that was practical, affordable, and compatible with local foods. General instructions such as "avoid sweet foods" or "reduce carbohydrates" were considered insufficient for daily decision-making.

"I need examples of what I can eat, how much rice is allowed, and what affordable local foods can replace it—not only a list of prohibitions."

(P24, female, 54 years)

Informants also expected consistent explanations regarding medication benefits, possible adverse effects, missed doses, and the use of traditional remedies. Several participants suggested involving family members in education because household decisions strongly affected their adherence

"It would be helpful if my wife also received the explanation because she buys and prepares the food at home."

(P09, male, 56 years)

Data collection and analysis were undertaken concurrently. Preliminary patterns became increasingly repetitive after the twentieth interview. By the twenty-third interview, no substantially new codes or conceptual categories emerged regarding medication routines, dietary barriers, family influence, financial limitations, or healthcare support needs. Three additional interviews were conducted to verify the stability and diversity of the findings. These interviews reinforced the existing themes without generating a new theme; therefore, data saturation was considered achieved at 26 informants.

DISCUSSION

This study explored how patients with type 2 diabetes mellitus experienced and negotiated medication and dietary adherence in their everyday lives. Five interrelated themes were identified: interpreting adherence through bodily experiences, managing practical medication barriers, negotiating dietary recommendations within daily life, developing strategies to sustain adherence, and expecting more responsive and individualised care. The findings suggest that adherence was not simply determined by patients' knowledge or willingness to follow medical advice. Instead, it emerged through continuous negotiation among bodily sensations, treatment burden, family practices, economic capacity, social expectations, and interactions with healthcare professionals. This integrated interpretation is important because medication and dietary behaviours were experienced simultaneously rather than as independent components of diabetes care.

The first theme showed that several participants used physical symptoms as an informal basis for deciding whether medication was necessary. Feeling well was sometimes interpreted as evidence that blood glucose had returned to normal, leading some patients to delay, reduce, or temporarily discontinue medication. This interpretation is clinically important because type 2 diabetes can remain asymptomatic even when blood glucose is poorly controlled (Hu et al., 2023). The World Health Organization notes that symptoms may be mild and develop slowly, while vascular, renal, neurological, and ocular complications may progress over time (Eisinger et al., 2025). Patients who rely mainly on bodily sensations may therefore underestimate the need for continuous treatment and routine monitoring.

This finding should not be interpreted merely as a lack of discipline. Patients attempt to make treatment decisions using knowledge that is immediately available to them, including perceived symptoms, previous experiences, information from relatives, and beliefs about the risks of long-term medication. Indonesian qualitative evidence has similarly demonstrated that people with type 2 diabetes may adjust their medication according to symptoms, personal evaluations of treatment effectiveness, or concerns about adverse consequences (Buss et al., 2022). These findings indicate a difference between the biomedical understanding of diabetes as a chronic condition requiring continuous control and patients' experiential understanding of illness as something that becomes relevant when symptoms appear. Healthcare professionals should therefore explain the distinction between feeling healthy and achieving safe glycaemic control rather than simply instructing patients to take medicines regularly.

Fear that long-term medication could damage the kidneys or result in dependency was another important influence. These concerns may be reinforced by community narratives or misunderstood information about diabetes complications. Renal damage caused by prolonged hyperglycaemia may be mistakenly attributed to prescribed medication, particularly when kidney disease develops after years of treatment. This misunderstanding can produce a paradox in which medicines intended to reduce complications are perceived as their cause (Alyami et al., 2022). Counselling should directly

address this concern using understandable explanations and should provide patients with opportunities to discuss adverse effects without fear of being criticised. Shared decision-making may be more effective than one-directional education because it recognises patients' concerns as meaningful and allows treatment decisions to be negotiated (Khalil et al., 2024).

The emotional fatigue associated with lifelong therapy also contributed to inconsistent adherence. Participants did not describe medication-taking only as a technical behaviour; they experienced it as a repeated reminder of living with a chronic illness. Treatment fatigue may become more pronounced when the regimen includes several medicines, when patients have comorbidities, or when the benefits of adherence are not immediately visible. A qualitative systematic review identified treatment complexity, medication-related concerns, inadequate knowledge, disrupted routines, and insufficient support as major influences on adherence among adults with diabetes and comorbidities (Kwakye, 2025). These findings support the need for healthcare providers to assess treatment burden during follow-up rather than assuming that a prescription that was initially acceptable remains manageable over time.

The second theme revealed that forgetfulness was usually connected to disrupted routines rather than a simple failure of memory. Participants were more likely to miss medication when travelling, working early, attending social events, or experiencing changes in meal schedules (Mira-Martínez et al., 2025). This distinction has practical implications. General reminders to "remember the medicine" may be less useful than helping patients identify situations in which their routines are most vulnerable. Habit-based strategies, pill organisers, mobile-phone alarms, simplified schedules, and portable medication containers could help patients maintain treatment during routine disruptions. Where clinically appropriate, healthcare professionals should also review whether the number and timing of doses can be simplified.

Perceived side effects, including weakness, gastrointestinal discomfort, and fear of hypoglycaemia, encouraged some patients to alter doses independently (Omonaiye et al., 2025). These experiences illustrate the close relationship between medication and diet: patients may skip medication when food intake is delayed or insufficient, while unpleasant effects after taking medication may reduce confidence in the regimen. Consequently, medication counselling should be integrated with information about meal timing, symptom recognition, and appropriate responses to missed meals or doses. Patients also need clear guidance about when adverse effects require clinical consultation. Without this information, self-adjustment becomes a practical coping strategy, although it may increase the risk of unstable glycaemic control.

The third theme demonstrated that dietary adherence was embedded in household and social relationships. Participants commonly shared meals with family members and found it impractical to prepare separate dishes. Family food preferences, meal schedules, and purchasing decisions could therefore either support or undermine recommended dietary changes. Previous qualitative research has likewise identified family food habits, social priorities, food availability, and competing household needs as barriers to dietary adherence (Ye et al., 2025). A systematic review also identified social pressure, cultural insensitivity, misconceptions, healthcare inequity, and time limitations as recurring obstacles to dietary recommendations (Sharifi et al., 2024). The present findings reinforce the argument that dietary adherence cannot be understood solely as an individual choice.

Economic limitations further shaped how participants translated dietary advice into practice. Recommendations may be technically correct but difficult to implement when patients perceive healthy foods as expensive, unavailable, or inconsistent with the household food budget (P. Zhang et al., 2024). Generic instructions to consume special "diabetic foods" may unintentionally reinforce the belief that a healthy diet requires costly products. Dietary counselling should instead identify affordable local alternatives,

appropriate portions, accessible cooking methods, and realistic meal combinations. Indonesian research on food selection among patients and their families also emphasises the importance of culturally appropriate foods and family-based meal planning (Singh et al., 2025). Therefore, effective dietary education should begin with what patients currently eat and what their households can afford.

Social gatherings created an additional conflict between disease management and the cultural meaning of food. Accepting food may express respect, belonging, and appreciation, whereas refusal may require repeated disclosure of illness or risk offending the host. Patients may therefore intentionally consume restricted foods to maintain social harmony. Such behaviour should not automatically be classified as ignorance. It represents a negotiation between health expectations and social identity. Healthcare professionals can respond by discussing portion control, food selection at social events, and respectful ways of communicating dietary needs rather than expecting complete avoidance of culturally important occasions.

The fourth theme identified practical strategies that helped participants maintain adherence. Linking medication with meals, prayer times, or other established activities transformed treatment into a routine rather than a separate task. Family members also provided reminders, prepared food, accompanied patients to appointments, and offered emotional encouragement. Evidence suggests that integrating family support into diabetes self-management education can improve self-care behaviours and clinical outcomes (Okazaki et al., 2022). A more recent meta-analysis found that family-based interventions improved HbA1c among adults with type 2 diabetes, although the form and quality of family involvement varied across interventions (Alnahdi et al., 2025). Family involvement should nevertheless be negotiated with patients because support can become controlling, blaming, or intrusive when relatives are not adequately informed.

The final theme concerned unmet needs for practical, consistent, and individualised healthcare. Participants wanted more than lists of prohibited foods or general reminders to comply. They needed specific explanations about medication benefits, side effects, missed doses, portion sizes, affordable menus, and the safe discussion of traditional remedies. This expectation is consistent with the 2026 American Diabetes Association Standards of Care, which emphasise person-centred care, positive health behaviours, and continuing diabetes self-management education and support (Seiglie et al., 2025). Education should therefore be treated as an ongoing process that responds to changes in treatment, family circumstances, economic resources, and patients' confidence, rather than as information delivered only at diagnosis.

The integrated nature of the findings constitutes the principal contribution of this study. Medication-taking was affected by meal timing and food availability, while dietary decisions were influenced by family support, financial capacity, and interpretations of treatment. Interventions that address medication and diet separately may therefore overlook the points at which these behaviours intersect. Sandi Karsa Hospital could respond by introducing brief adherence assessments during routine consultations, involving nurses, physicians, pharmacists, and nutritionists in coordinated counselling, and inviting a family member to participate when approved by the patient. Follow-up communication could focus on collaboratively solving specific barriers rather than repeating standard recommendations.

Several limitations should be considered. The study was conducted at a single hospital, so the experiences may not represent patients receiving care in other settings. The findings relied on participants' accounts and were not intended to objectively measure medication use, dietary intake, or glycaemic control. Women and patients using oral medication constituted the majority of the sample, which may have shaped the range of experiences captured. Nevertheless, purposive recruitment, variation in participant characteristics, concurrent analysis, and saturation across the final interviews strengthened

the depth and credibility of the findings. Overall, the study demonstrates that sustainable adherence requires care that is practical, culturally responsive, family-sensitive, economically realistic, and grounded in patients' lived experiences.

CONCLUSION

This study concludes that medication and dietary adherence among patients with type 2 diabetes mellitus is a dynamic process influenced by symptom interpretation, fear of long-term medication effects, treatment fatigue, disrupted routines, side effects, financial limitations, family eating patterns, and social obligations. Adherence was strengthened when patients established practical routines, received family support, and obtained clear and relevant information from healthcare professionals. Sandi Karsa Hospital is therefore recommended to provide individualised diabetes education that integrates medication management with affordable and culturally appropriate dietary planning. Healthcare professionals should assess adherence barriers routinely, explain medication benefits and side effects clearly, involve family members with the patient's consent, and provide practical guidance for managing missed doses, meal schedules, and social events. Coordinated support from physicians, nurses, pharmacists, and nutritionists is required to ensure that diabetes care is sustainable, non-judgmental, and responsive to patients' everyday circumstances.

ACKNOWLEDGMENTS

The authors express their sincere gratitude to Politeknik Sandi Karsa for its institutional support and valuable assistance throughout the research process. The authors also thank all participants who willingly shared their experiences and provided meaningful information for this study.

DAFTAR PUSTAKA

- Alnahdi, H., Alghamdi, R., Alyamani, S., Taha, S., Rayes, R., Almadani, A., Yassin, H., Alhamed, L., Alhozali, A. M., & Alfares, K. (2025). Diabetes management: Self-management education and support program evaluations in Jeddah, KSA. *Journal of Taibah University Medical Sciences*, 20(4), 507-516. <https://doi.org/https://doi.org/10.1016/j.jtumed.2025.07.005>
- Alsayed, A. O., Ismail, N. A., Hasan, L., Syed, A. H., Embarak, F., & Da'u, A. (2023). A systematic literature review for understanding the effectiveness of advanced techniques in diabetes self-care management. *Alexandria Engineering Journal*, 79, 274-295. <https://doi.org/https://doi.org/10.1016/j.aej.2023.08.026>
- Alyami, M., Serlachius, A., Law, M., Murphy, R., Almigbal, T. H., Lyndon, M., Batais, M. A., Algaw, R. K., & Broadbent, E. (2022). Utility and Acceptability of a Brief Type 2 Diabetes Visual Animation: Mixed Methods Feasibility Study. *JMIR Formative Research*, 6(8). <https://doi.org/https://doi.org/10.2196/35079>
- Buss, V. H., Varnfield, M., Harris, M., & Barr, M. (2022). A Mobile App for Prevention of Cardiovascular Disease and Type 2 Diabetes Mellitus: Development and Usability Study. *JMIR Human Factors*, 9(2). <https://doi.org/https://doi.org/10.2196/35065>
- Chauke, G. D., Nakwafila, O., Chibi, B., Sartorius, B., & Mashamba-Thompson, T. (2022). Factors influencing poor medication adherence amongst patients with chronic disease in low-and-middle-income countries: A systematic scoping review. *Heliyon*, 8(6), e09716. <https://doi.org/https://doi.org/10.1016/j.heliyon.2022.e09716>
- Eisinger, F., Holderried, F., Mahling, M., Stegemann-Philipps, C., Herrmann-Werner, A., Nazarenus, E., Sonanini, A., Guthoff, M., Eickhoff, C., & Holderried, M. (2025). What's Going On With Me and How Can I Better Manage My Health? The Potential of GPT-4 to Transform Discharge Letters Into Patient-Centered Letters to Enhance Patient Safety: Prospective, Exploratory Study. *Journal of Medical Internet Research*, 27.

- <https://doi.org/https://doi.org/10.2196/67143>
- Griauzde, D. H., Ling, G., Wray, D., DeJonckheere, M., Mizokami Stout, K., Saslow, L. R., Fenske, J., Serlin, D., Stonebraker, S., Nisha, T., Barry, C., Pop-Busui, R., Sen, A., & Richardson, C. R. (2022). Continuous Glucose Monitoring With Low-Carbohydrate Nutritional Coaching to Improve Type 2 Diabetes Control: Randomized Quality Improvement Program. *Journal of Medical Internet Research*, 24(2). <https://doi.org/https://doi.org/10.2196/31184>
- Hu, L., Jin, X., Li, Y., Wang, H., Yang, D., Zhang, Z., He, X., Liao, J., Chen, W., & Gong, N. (2023). Perspective of People With Type 2 Diabetes Toward Self-management: Qualitative Study Based on Web Crawler Data. *Journal of Medical Internet Research*, 25. <https://doi.org/https://doi.org/10.2196/39325>
- Khalil, S. H. A., Khaled, M., Zakhary, R., & Shereen, M. (2024). The Rate of Insulin use and Suboptimal Glycemic Control among Egyptian Patients with T2DM: Cohort Analysis of Eighth Wave of the International Diabetes Management Practices Study (IDMPS). *Current Diabetes Reviews*, 20(3). <https://doi.org/https://doi.org/10.2174/1573399820666230602100629>
- Kongsa, A., Thongsri, P., Chiangkhong, A., & Chongjarearn, A. (2024). Perceptions of Medication Adherence among Elderly Patients with Hypertension in Bangkok: A Qualitative Study. *The Open Public Health Journal*, 17. <https://doi.org/https://doi.org/10.2174/0118749445280796240206102656>
- Kwakye, I. N. (2025). Exploring the interpretive processes of symptom perception among diabetes patients in eastern region of Ghana. *Dialogues in Health*, 7, 100260. <https://doi.org/https://doi.org/10.1016/j.dialog.2025.100260>
- Mira-Martínez, S., Malih, N., Angullo-Martínez, E., Zamanillo-Campos, R., Yañez, A. M., Bennasar-Veny, M., Gómez-Juanes, R., Konieczna, J., Jiménez, R., Serrano-Ripoll, M. J., Fiol-deRoque, M. A., Leiva, A., Galmes-Panades, A. M., Miralles-Xamena, J., Vidal-Thomàs, M. C., Gómez-Cobo, C., Gervilla, E., Oña-Gil, J. I., & Ricci-Cabello, I. (2025). A Multifaceted Digital Intervention for the Prevention of Type 2 Diabetes Mellitus in Primary Care (PREDIABETEXT): Cluster Randomized Trial. *Journal of Medical Internet Research*, 27. <https://doi.org/https://doi.org/10.2196/70981>
- Mondoh, A., Craig, H., Crotty, M., Contreras, F., & le Roux, C. W. (2025). How do patients choose between obesity medications: A thematic analysis. *Obesity Pillars*, 15, 100187. <https://doi.org/https://doi.org/10.1016/j.obpill.2025.100187>
- Montilva-Monsalve, J., Dimantas, B., Perski, O., & Gutman, L. M. (2023). Barriers and Enablers to the Adoption of a Healthier Diet Using an App: Qualitative Interview Study With Patients With Type 2 Diabetes Mellitus. *JMIR Diabetes*, 8. <https://doi.org/https://doi.org/10.2196/49097>
- Okazaki, K., Takahashi, N., Shingaki, T., Perez-Nieves, M., & Stuckey, H. (2022). Key factors for overcoming psychological insulin resistance: A qualitative study in Japanese people with type 2 diabetes. *Primary Care Diabetes*, 16(3), 411-416. <https://doi.org/https://doi.org/10.1016/j.pcd.2022.02.009>
- Omonaiye, O., Mekonnen, A., Gilfillan, C., Wong, R., Rasmussen, B., Holmes-Truscott, E., Namara, K. M., Manias, E., Lai, J., & Considine, J. (2025). Evaluation of diabetes mellitus medication-taking behavior among first- and second-generation Australians of Chinese heritage: A nationwide cross-sectional study. *Exploratory Research in Clinical and Social Pharmacy*, 18, 100600. <https://doi.org/https://doi.org/10.1016/j.rcsop.2025.100600>
- Orozco-Beltrán, D., Morales, C., Artola-Menéndez, S., Brotons, C., Carrascosa, S., González, C., Baro, Ó., Aliaga, A., Ferreira de Campos, K., Villarejo, M., Hurtado, C., Álvarez-Ortega, C., Gómez-García, A., Cedenilla, M., & Fernández, G. (2022). Effects of a Digital Patient Empowerment and Communication Tool on Metabolic Control in People With Type 2 Diabetes: The DeMpower Multicenter Ambispective Study. *JMIR Diabetes*, 7(4).

- <https://doi.org/https://doi.org/10.2196/40377>
- Parikh, R., Bhargava, Y., & Shukla, A. (2024). Gestational Diabetes and Poor Healthcare Affordability Among Pregnant Women: A Double Whammy! *Procedia Computer Science*, 235, 767-778. <https://doi.org/https://doi.org/10.1016/j.procs.2024.04.073>
- Seiglie, J., Tobolsky, S., Crespo Trevino, R., Cordova, L., Cromer, S., Caballero, A. E., Alegria, M., Miranda, J. J., Wexler, D., & Mayberry, L. (2025). Adapting a Text Messaging Intervention to Improve Diabetes Medication Adherence in a Spanish-Speaking Population: Qualitative Study. *JMIR Human Factors*, 12. <https://doi.org/https://doi.org/10.2196/66668>
- Sharifi, Z., Soleimani, Z., Mahini, S. M., Nejabat, M., & Molavi Vardanjani, H. (2024). Assessment of multidimensionality determinants of eye care adherence among type 2 diabetic patients in Shiraz, Iran. *Clinical Epidemiology and Global Health*, 29, 101679. <https://doi.org/https://doi.org/10.1016/j.cegh.2024.101679>
- Singh, J., Sangwan, R. K., Mudgal, S. K., & Huda, R. K. (2025). Empowering diabetes care: Patient practices and the role of mobile health - A qualitative exploration. *Dialogues in Health*, 7, 100231. <https://doi.org/https://doi.org/10.1016/j.dialog.2025.100231>
- Sriraman, S., Sreejith, D., Andrew, E., Okello, I., & Willcox, M. (2023). Use of herbal medicines for the management of type 2 diabetes: A systematic review of qualitative studies. *Complementary Therapies in Clinical Practice*, 53, 101808. <https://doi.org/https://doi.org/10.1016/j.ctcp.2023.101808>
- Ye, Q., Xu, R., Li, L., Zhao, M., Wang, S., Peng, S., Chen, S., Ahmed, F., Wu, C., & Wang, K. (2025). The Dual Impact of Time and Content Exposure of Social Media on Diabetes Self-Management in Older Adults: Cross-Sectional Study. *JMIR Aging*, 8. <https://doi.org/https://doi.org/10.2196/67312>
- Zhang, P., Tao, X., Ma, Y., Zhang, Y., Ma, X., Song, H., Liu, Y., Patel, A., Jan, S., & Peiris, D. (2024). Improving the management of type 2 diabetes in China using a multifaceted digital health intervention in primary health care: the SMARTDiabetes cluster randomised controlled trial. *The Lancet Regional Health - Western Pacific*, 49, 101130. <https://doi.org/https://doi.org/10.1016/j.lanwpc.2024.101130>
- Zhang, Y., Han, H., & Chu, L. (2022). Effectiveness of restricted diet with a plate in patients with type 2 diabetes: A randomized controlled trial. *Primary Care Diabetes*, 16(3), 368-374. <https://doi.org/https://doi.org/10.1016/j.pcd.2022.03.007>