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Living with Type 2 Diabetes Mellitus: A Descriptive Phenomenological Study of Healthy Lifestyle Maintenance Among Indonesian Adults

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ABSTRACT: Introduction: Type 2 diabetes mellitus (T2DM) requires lifelong self-management through healthy lifestyle behaviors. While lifestyle modification is essential for glycemic control, many patients struggle to sustain these behaviors. Existing evidence has largely focused on behavioral adherence and clinical outcomes, with limited attention to patients' lived experiences, particularly in Indonesia. This study explored the lived experiences of adults with T2DM in maintaining healthy lifestyle behaviors using a descriptive phenomenological approach. Methodology: Fifteen adults with T2DM were purposively recruited from primary healthcare centers and outpatient diabetes clinics in Makassar, Indonesia. Data were collected through semi-structured, in-depth interviews and analyzed using Colaizzi's seven-step method. Trustworthiness was established through member checking, reflexive documentation, audit trails, and rich contextual description. Results and Discussion: Six themes emerged: (1) emotional responses after diagnosis, including shock and fear; (2) acceptance and adaptation through self-awareness and resilience; (3) transformation of daily behaviors—diet, physical activity, medication adherence, and glucose monitoring; (4) challenges from occupational demands, financial limitations, cultural food practices, and psychological distress; (5) the role of family, healthcare professionals, and peer support; and (6) evolving meanings of healthy living as responsibility, independence, and improved quality of life. Findings show that maintaining healthy behaviors is a dynamic process of emotional adaptation and meaning-making rather than mere compliance. Conclusion: Sustainable diabetes self-management is shaped by emotional experience, social relationships, and cultural context, and strengthened by family support and individualized, culturally responsive care.

Keywords: Type 2 Diabetes Mellitus, Healthy Lifestyle Behaviors, Phenomenology, Lived Experience, Diabetes Self-Management, Qualitative Research, Indonesia.

INTRODUCTION

Type 2 diabetes mellitus (T2DM) has become one of the most significant public health challenges of the twenty-first century because of its rapidly increasing prevalence, substantial disease burden, and long-term consequences for individuals, healthcare systems, and society. As the predominant

form of diabetes worldwide, T2DM accounts for the vast majority of diabetes cases and continues to increase across both developed and developing countries (Rismayanti et al., 2021). International epidemiological evidence indicates that the number of adults living with diabetes has risen steadily over recent decades and is projected to continue increasing if effective prevention and management strategies are not strengthened (Li et al., 2020; Ramesh & Kosalram, 2023; Taumoepeau et al., 2021; Zheng et al., 2021). Although advances in pharmacological treatment have improved glycemic control and reduced the risk of complications, diabetes remains a lifelong condition requiring continuous self-management and sustained behavioral adaptation. Consequently, understanding how individuals successfully manage their daily lives with diabetes has become increasingly important for improving long-term health outcomes.

The burden of T2DM extends far beyond elevated blood glucose levels. Uncontrolled diabetes contributes to cardiovascular disease, chronic kidney disease, neuropathy, retinopathy, diabetic foot ulcers, and premature mortality, while simultaneously imposing considerable economic and social costs on patients, families, and healthcare systems. Current evidence also demonstrates that the distribution of diabetes is not uniform across populations. The prevalence and complications of T2DM are increasing particularly rapidly in low- and middle-income countries, where socioeconomic disparities, limited healthcare resources, and lifestyle transitions have accelerated disease progression (Ramesh & Kosalram, 2023; Skoglund et al., 2022). Indonesia represents one of the countries experiencing a substantial increase in diabetes prevalence, creating an urgent need for effective and sustainable diabetes management strategies that are responsive to local cultural and healthcare contexts.

Successful management of T2DM depends not only on pharmacological therapy but also on the patient's ability to maintain healthy lifestyle behaviors consistently throughout life. International clinical guidelines recommend dietary modification, regular physical activity, medication adherence, blood glucose monitoring, weight management, stress management, adequate sleep, and routine health examinations as the core components of diabetes self-management (Mirbabaie et al., 2025). These behaviors contribute to improved glycemic control, delayed disease progression, and reduced risk of diabetes-related complications. Nevertheless, adopting healthy behaviors is only the first step; sustaining these behaviors over time remains considerably more challenging. Many individuals initially demonstrate motivation following diagnosis but subsequently experience difficulties maintaining behavioral changes as they encounter personal, social, cultural, occupational, and environmental challenges in their daily lives.

Previous research has identified numerous factors associated with successful diabetes self-management. Individual characteristics such as diabetes knowledge, self-efficacy, perceived behavioral control, motivation, and psychological resilience have been shown to influence adherence to recommended lifestyle behaviors. Likewise, interpersonal and contextual factors, including family support, healthcare accessibility, social networks, economic resources, occupational demands, and cultural dietary practices, significantly affect patients' ability to sustain behavioral changes. However, evidence synthesized from qualitative studies suggests that maintaining healthy lifestyle behaviors is influenced by far more than knowledge alone. Patients frequently experience psychological distress, uncertainty, denial, fear of complications, competing life priorities, and physical limitations that interfere with long-term self-management (Bayked et

al., 2022; Hassan, 2023; Othman et al., 2022). These findings indicate that diabetes management is fundamentally a human experience shaped by emotional, social, and cultural realities rather than merely a set of prescribed health behaviors.

Qualitative investigations have further demonstrated that barriers to maintaining healthy lifestyle behaviors operate across multiple levels. At the individual level, inadequate understanding of diabetes, misconceptions regarding treatment, emotional exhaustion, and reduced confidence often undermine sustained behavior change (Hassan, 2023). Psychological responses such as fear, anxiety, stress, and denial immediately following diagnosis may delay acceptance of the disease and reduce motivation to adopt healthier lifestyles (Arifin et al., 2020). Beyond individual factors, family dynamics, cultural traditions, occupational responsibilities, financial limitations, and community expectations substantially influence patients' decisions regarding food choices, physical activity, medication adherence, and healthcare utilization. In Indonesia, for example, I Dewa Putu Gede Putra Yasa et al. (2023) demonstrated that patrilineal family structures significantly shape diabetes self-management practices by influencing dietary decisions, caregiving roles, and health-related behaviors. Such findings highlight the importance of understanding diabetes management within the broader sociocultural environment in which patients live.

Although quantitative studies have successfully identified statistical associations between behavioral factors and diabetes outcomes, they often provide limited insight into how patients interpret their illness experiences and negotiate lifestyle changes in everyday life. Numerical measures of adherence cannot fully explain why some individuals persist despite considerable challenges while others struggle to maintain recommended behaviors. Similarly, survey-based research may overlook the complex meanings patients assign to diagnosis, treatment, family relationships, personal identity, and healthy living. Consequently, there is increasing recognition that qualitative methodologies, particularly phenomenological approaches, are essential for understanding the lived experiences underlying successful and unsuccessful diabetes self-management.

Phenomenology seeks to understand how individuals experience and assign meaning to particular life phenomena from their own perspectives. Rather than measuring predetermined variables, phenomenological research explores how people perceive, interpret, and make sense of significant life events through their everyday experiences. Numerous phenomenological studies conducted across diverse cultural contexts have demonstrated the value of this approach in understanding chronic illness adaptation. Research from Saudi Arabia, Thailand, Ethiopia, Australia, Malaysia, and other countries consistently reports common experiential patterns, including shock following diagnosis, emotional distress, gradual acceptance, behavioral adaptation, and the important roles of family relationships and healthcare professionals in facilitating self-management (Alruwaili, 2021; Crocker et al., 2022; Memmolo & Willis, 2023; Othman et al., 2022; Pitchalard et al., 2022). These studies also reveal subtle experiential dimensions that are difficult to capture through quantitative methods, such as patients' perceptions of time, evolving identity, and culturally embedded decision-making processes.

Evidence from Indonesia similarly demonstrates the value of phenomenological inquiry while also revealing important gaps in current knowledge. Existing qualitative studies have explored diabetes

self-management in specific populations, including individuals living in remote communities, patients navigating self-care during the COVID-19 pandemic, and adults living within patrilineal family systems (Arifin et al., 2020; I Dewa Putu Gede Putra Yasa et al., 2023; Morrissey et al., 2021). These studies identified themes related to psychological stress, resilience, cultural influences, family involvement, and the need for culturally appropriate diabetes education. However, most available studies have focused on particular contexts or populations and have involved relatively small samples, limiting the transferability of their findings across broader urban populations. Furthermore, there remains limited phenomenological evidence specifically examining how adults with T2DM in Indonesian urban settings experience the ongoing process of maintaining healthy lifestyle behaviors beyond the initial period following diagnosis.

Makassar, one of Indonesia's largest metropolitan cities, provides an important setting for exploring these experiences because of its diverse population, increasing prevalence of diabetes, expanding healthcare infrastructure, and heterogeneous sociocultural environment. Patients living in urban areas frequently encounter unique opportunities and challenges related to employment, transportation, dietary transitions, healthcare accessibility, and social interactions that may influence long-term lifestyle maintenance. Exploring patients' lived experiences within this context may therefore provide deeper insights into how individuals continuously negotiate healthy behaviors amid everyday demands and changing life circumstances.

The findings of phenomenological studies also have important implications for clinical practice. Evidence suggests that continuity of care, trusting relationships with healthcare professionals, strengths-based education, and active family involvement enhance patients' motivation and capacity for long-term self-management (Abu-Saad et al., 2021; Samadi et al., 2020). Understanding patients' subjective experiences may therefore enable healthcare professionals, particularly nurses and primary healthcare providers, to design more personalized, culturally responsive, and patient-centered interventions that extend beyond the delivery of clinical information. Such approaches acknowledge that sustainable behavior change is influenced not only by knowledge acquisition but also by emotional adaptation, family relationships, cultural beliefs, and personal meaning-making.

Against this background, the present study aims to explore the lived experiences of patients with Type 2 diabetes mellitus in maintaining healthy lifestyle behaviors using a qualitative phenomenological approach. Specifically, the study seeks to understand how patients experience the transition following diagnosis, adapt to long-term self-management, overcome barriers, utilize available support systems, and construct personal meanings of healthy living while managing diabetes. By examining these lived experiences within the urban context of Makassar, Indonesia, this study addresses an important gap in the existing literature and contributes culturally relevant evidence that may strengthen patient-centered diabetes education, nursing practice, and chronic disease management programs. The novelty of this research lies in its emphasis on the continuous process of maintaining healthy lifestyle behaviors as a lived experience, integrating emotional adaptation, behavioral transformation, social support, and personal meaning-making into a comprehensive understanding of long-term diabetes self-management.

METHOD

Research Design

This study employed a qualitative research design using a descriptive phenomenological approach grounded in Husserlian philosophy. Descriptive phenomenology seeks to understand and describe the essence of individuals' lived experiences by focusing on how they perceive and interpret a particular phenomenon while minimizing researchers' preconceived assumptions. This approach was considered appropriate because the purpose of the study was to explore how adults with Type 2 diabetes mellitus (T2DM) experience and maintain healthy lifestyle behaviors in their everyday lives rather than to measure behavioral outcomes or test causal relationships (Nakhla et al., 2009).

Phenomenological inquiry has been widely used in chronic illness research to explore patients' subjective experiences, including diabetes self-management, psychological adaptation, resilience, diabetic foot complications, and culturally influenced health behaviors. Previous studies have demonstrated that phenomenology provides rich insights into experiences that are often overlooked by quantitative approaches, such as emotional adaptation, cultural influences, family dynamics, perceptions of illness, and personal meaning-making (Arifin et al., 2020; Crocker et al., 2022; Memmolo & Willis, 2023; Pitchalard et al., 2022). Furthermore, phenomenological findings have been shown to support the development of culturally appropriate educational interventions and improvements in chronic disease management (Abu-Saad et al., 2021; Taumoepeau et al., 2021).

Study Setting

The study was conducted in Makassar, South Sulawesi, Indonesia. Participants were recruited from primary healthcare centers (Puskesmas) and outpatient diabetes clinics that routinely provide diabetes management services. Makassar was selected because it has a relatively high burden of T2DM, well-established primary healthcare services, and a culturally diverse urban population. These characteristics were expected to provide variation in participants' experiences of maintaining healthy lifestyle behaviors.

Participants and Sampling

Participants were selected using purposive sampling, a strategy commonly employed in phenomenological research to recruit information-rich individuals who have directly experienced the phenomenon under investigation (Arifin et al., 2020; Crocker et al., 2022; Pitchalard et al., 2022). Purposive sampling allowed the researcher to recruit adults with sufficient experience in living with T2DM and implementing lifestyle modifications over time.

Data collection continued until thematic saturation was achieved, meaning that no substantially new meanings or themes emerged from subsequent interviews. Saturation was reached after interviews with fifteen participants, which is consistent with sample sizes commonly reported in phenomenological studies exploring chronic illness experiences (Arifin et al., 2020; Crocker et al., 2022).

Inclusion Criteria

Participants were eligible if they met the following criteria:

1. Diagnosed with Type 2 diabetes mellitus for at least six months.

2. Aged 18 years or older.
3. Able to communicate effectively in the Indonesian language.
4. Receiving routine diabetes care at participating healthcare facilities.
5. Willing to participate voluntarily and provide written informed consent.

Exclusion Criteria

Individuals were excluded if they:

1. Had severe cognitive impairment or communication difficulties that prevented meaningful participation.
2. Had acute medical conditions requiring emergency treatment during the recruitment period.
3. Declined audio recording of the interview.

Data Collection

Data were collected through individual semi-structured, in-depth interviews conducted in a private setting within the healthcare facility or another location chosen by the participant. Semi-structured interviewing was selected because it enabled participants to describe their experiences freely while ensuring that all key topics relevant to the research objectives were explored.

Each interview lasted approximately 45–60 minutes and was conducted in Indonesian by the principal researcher. With participants' permission, all interviews were digitally audio-recorded to ensure accurate capture of participants' narratives. Field notes were also maintained throughout the interviews to document non-verbal communication, contextual observations, interview dynamics, and preliminary analytic reflections.

The interview guide consisted of broad open-ended questions followed by probing questions designed to encourage participants to elaborate on their experiences. Major interview domains included:

- Experiences immediately following the diagnosis of T2DM.
- Emotional responses to living with diabetes.
- Adaptation to lifestyle modification.
- Dietary management.
- Physical activity.
- Medication adherence.
- Blood glucose monitoring.
- Family support.
- Healthcare provider support.
- Barriers to maintaining healthy behaviors.

- Coping strategies.
- Personal meanings of healthy living.

This flexible interview approach facilitated comprehensive exploration of participants' lived experiences while allowing unexpected issues to emerge naturally during the conversations.

Data Management

Immediately after each interview, audio recordings were transcribed verbatim in the original Indonesian language. Each transcript was reviewed repeatedly while listening to the recordings to ensure transcription accuracy and preserve participants' intended meanings.

To protect confidentiality, all identifying information was removed from the transcripts. Participants were assigned identification codes (P1–P15), and all electronic files, transcripts, and field notes were stored in password-protected folders accessible only to the research team.

Data Analysis

The interview data were analyzed using Colaizzi's descriptive phenomenological method because of its systematic, transparent, and rigorous analytical procedures that facilitate the identification of the essential structure of lived experiences. The method has been widely applied in phenomenological health research and provides a clear analytical trail linking participants' narratives to the final themes (Crocker et al., 2022; Memmolo & Willis, 2023; Samadi et al., 2020; Simmons & Wong, 2021).

The analysis followed seven sequential steps.

Step 1: Familiarization. All interview transcripts were read repeatedly to gain a comprehensive understanding of participants' experiences and to immerse the researcher in the data (Crocker et al., 2022; Memmolo & Willis, 2023).

Step 2: Extraction of Significant Statements. Statements directly related to maintaining healthy lifestyle behaviors were identified and extracted verbatim from each transcript.

Step 3: Formulation of Meanings. Each significant statement was carefully interpreted to formulate underlying meanings while remaining faithful to participants' intended perspectives.

Step 4: Theme Clustering and Exhaustive Description. Formulated meanings were grouped into related categories and clustered into broader themes. These themes were then integrated into an exhaustive description representing participants' experiences of maintaining healthy lifestyle behaviors.

Step 5: Fundamental Structure. The exhaustive description was synthesized into a concise statement capturing the essential structure of the phenomenon.

Step 6: Member Checking. Preliminary interpretations and thematic findings were returned to selected participants to verify whether they accurately reflected their experiences, thereby enhancing interpretive credibility (Memmolo & Willis, 2023; Samadi et al., 2020).

Step 7: Final Validation. Feedback obtained during member checking was incorporated into the final thematic description before completion of the analysis.

Throughout the analytical process, verbatim quotations were retained to illustrate major themes and preserve participants' voices, consistent with phenomenological reporting practices (Crocker et al., 2022).

Trustworthiness

The trustworthiness of the study was established using the criteria of credibility, dependability, confirmability, and transferability.

Credibility was enhanced through prolonged engagement with participants, in-depth interviews, repeated reading of transcripts, member checking, and the use of verbatim quotations to support thematic interpretations (Memmolo & Willis, 2023; Samadi et al., 2020).

Dependability was strengthened by maintaining a detailed audit trail documenting sampling decisions, interview procedures, coding processes, theme development, and analytical decisions. The structured stages of Colaizzi's analysis further enhanced methodological transparency (Crocker et al., 2022).

Confirmability was supported through reflexive journaling, systematic documentation of analytic decisions, and continuous comparison between participants' narratives and the resulting interpretations to minimize researcher bias.

Transferability was facilitated by providing detailed descriptions of the study context, participant characteristics, sampling strategy, data collection procedures, and analytical processes, allowing readers to determine the applicability of the findings to other settings.

Ethical Considerations

Ethical approval for the study was obtained from the appropriate institutional research ethics committee before data collection commenced. All participants received written and verbal explanations regarding the study objectives, interview procedures, potential risks, and their rights as research participants.

Written informed consent was obtained from each participant before participation. Participants were informed that their involvement was entirely voluntary and that they could withdraw from the study at any time without consequences for their healthcare services.

Confidentiality and anonymity were maintained throughout the study by replacing participants' names with identification codes and removing all personal identifiers from interview transcripts. Digital recordings, transcripts, and research documents were securely stored in password-protected electronic files and were accessible only to members of the research team.

Throughout the research process, respect for participants' dignity, autonomy, privacy, and well-being was maintained in accordance with internationally accepted ethical principles for qualitative health research.

RESULT AND DISCUSSION

Participant Characteristics

Fifteen adults living with Type 2 diabetes mellitus participated in the study (Alassaf et al., 2017; Bukhsh et al., 2018). The participants represented varied sociodemographic and clinical backgrounds, including differences in age, sex, education, occupation, duration of illness, family circumstances, and experience with diabetes treatment. This diversity enabled the study to capture a broad range of perspectives regarding the maintenance of healthy lifestyle behaviors in everyday life.

The phenomenological analysis generated six interrelated themes: emotional responses following diagnosis; acceptance and adaptation to diabetes; transformation of daily lifestyle behaviors; challenges in maintaining healthy behaviors; the role of social support; and the evolving meaning of healthy living. These themes did not represent isolated stages. Rather, they reflected a dynamic and recurrent process in which participants moved between emotional distress, behavioral effort, adaptation, difficulty, and renewed motivation.

Theme 1: Emotional Responses Following Diagnosis

Shock, Disbelief, and Denial

The initial diagnosis of T2DM was experienced as a major disruption to participants' lives. Many described a period of shock, disbelief, and confusion, particularly when they had not previously considered themselves at risk. The diagnosis challenged their assumptions about health and created uncertainty about the future. Some initially questioned the diagnosis, minimized its seriousness, or delayed accepting the need for long-term treatment.

This early response was not merely a reaction to receiving medical information. It represented a disruption of identity and everyday expectations. Participants were required to reconsider their previous lifestyles, food preferences, work routines, and perceptions of physical well-being. For some, the absence of severe symptoms before diagnosis made acceptance more difficult because they did not feel seriously ill despite being informed that they had a chronic disease.

The pattern of shock and denial observed in this study is consistent with phenomenological evidence describing the diagnosis of chronic illness as an emotionally destabilizing event. Alruwaili (2021) similarly reported an initial period of shock and denial among adults with chronic disease before gradual psychological acceptance occurred. Comparable trajectories have also been identified in phenomenological studies of serious and life-altering diagnoses, although the intensity of the response differs according to illness severity and context (Cheng et al., 2022; Liu et al., 2020; Moore, 2023).

Fear of Complications and Mortality

Fear emerged as one of the most prominent emotional responses following diagnosis. Participants expressed concern about the possibility of kidney disease, visual impairment, diabetic foot ulcers, amputation, disability, and premature death. These concerns were often informed by observations of relatives, neighbors, or acquaintances who had experienced severe diabetes-related complications.

Fear also extended beyond personal health. Participants worried about becoming dependent on family members, losing the ability to work, and creating financial burdens. Those with children or other dependents were particularly concerned that declining health would prevent them from fulfilling family responsibilities. The diagnosis therefore generated both medical and existential anxiety.

This finding is supported by Othman et al. (2022), who identified fear of future complications and concern for family welfare as important emotional responses among adults with T2DM. Bayked et al. (2022) likewise described dread, hopelessness, and worry among people living with diabetes, particularly when complications and family disruption were perceived as possible outcomes. Fear was not uniformly harmful, however. For some participants, concern about future complications became a powerful motivation to follow dietary advice, take medication, monitor blood glucose, and attend clinical appointments.

Anxiety, Sadness, and Emotional Distress

Participants described varying degrees of anxiety, sadness, emotional exhaustion, and uncertainty. Anxiety was commonly associated with blood glucose readings, medical examinations, dietary restrictions, and uncertainty about disease progression. Some became highly attentive to bodily sensations and interpreted minor physical changes as possible indications of complications.

Sadness was often linked to perceived loss. Participants felt that they had lost the freedom to eat familiar foods, participate spontaneously in social events, or live without continuous attention to their health. For some, diabetes management became mentally tiring because every meal and daily activity required conscious decision-making. The repetitive demands of medication, dietary control, and monitoring contributed to a sense of diabetes fatigue.

Kusnanto et al. (2022) similarly reported psychological distress, emotional dysregulation, depressive symptoms, and sleep disturbance among people with poorly controlled T2DM and diabetes fatigue. Pinto et al. (2023) showed that hope may fluctuate in chronic illness and that prolonged suffering can overwhelm coping resources in some individuals. The findings of the present study therefore indicate that emotional distress following diagnosis may range from transient sadness to persistent psychological burden.

Identity Disruption and Perceived Stigma

Some participants reported that the diagnosis altered how they viewed themselves. They no longer considered themselves fully healthy and became conscious of being identified as a person with a chronic disease. This change was especially evident when they had to take medication in public, refuse food during social gatherings, or explain their condition to others.

Although stigma was not experienced equally by all participants, some feared being judged as physically weak or personally responsible for their illness. Others were reluctant to disclose the diagnosis because they did not want to attract sympathy or negative assumptions. Such experiences indicate that diabetes can affect social identity as well as physical health. Similar phenomenological studies have documented shame, concealment, and identity disruption among people living with chronic disease and diabetes-related complications (Donoso, 2020; Vogel et al., 2020).

Theme 2: Acceptance and Adaptation to Diabetes

Gradual Recognition of Diabetes as a Lifelong Condition

Acceptance did not occur immediately. Participants gradually recognized that diabetes was a lifelong condition requiring continuous management. This realization often developed through repeated healthcare encounters, personal experience of fluctuating blood glucose, and observation of symptom improvement when treatment recommendations were followed.

Acceptance was described less as passive resignation than as a practical acknowledgment of reality. Participants began to understand that ignoring the illness would not remove it and that personal involvement was necessary to prevent deterioration. This shift marked an important transition from emotional resistance to active self-management.

Learning Through Experience

Participants developed practical knowledge through both formal education and everyday experimentation. Advice from nurses and physicians provided a general foundation, but participants also learned by observing how particular foods, activities, stressors, and medication routines affected their bodies.

This experiential learning enabled participants to refine general medical recommendations according to their circumstances. They learned how to regulate portion sizes, choose alternative foods, schedule exercise, and recognize symptoms of high or low blood glucose. Over time, self-management became less dependent on rigid instructions and more closely integrated into daily decision-making.

Hope, Spirituality, and Resilience

Hope played an important role in adaptation. Participants expressed hope that disciplined self-management would allow them to remain independent, avoid complications, and continue fulfilling family and social roles. Religious belief and spiritual practices also helped some participants interpret the illness, regulate distress, and maintain motivation.

Memmolo & Willis (2023) identified hope as a central adaptive theme that supports future-oriented behavior and sustained self-management. Indonesian evidence likewise suggests that spirituality can provide meaning, emotional strength, and motivation for self-care (Napitupulu et al., 2022). In the present study, resilience developed through repeated efforts to reorganize daily life rather than through the complete disappearance of distress.

Theme 3: Transformation of Daily Lifestyle Behaviors

Dietary Modification

Dietary modification was one of the most visible and difficult changes. Participants attempted to reduce sugar intake, control portions, limit fried foods, and increase the consumption of vegetables and other recommended foods. Many described modifying familiar meals rather than completely abandoning culturally preferred foods.

The process involved negotiation between medical recommendations, personal preferences, household eating patterns, and social expectations. Some participants succeeded by preparing separate meals or asking family members to support healthier cooking practices. Others adopted flexible strategies, such as eating smaller portions during celebrations rather than avoiding social meals entirely.

Physical Activity and Daily Movement

Participants incorporated physical activity through walking, household work, cycling, stretching, or structured exercise. Those who maintained regular activity commonly linked it to improved physical comfort, better sleep, and a sense of personal control.

However, exercise patterns were influenced by work schedules, fatigue, pain, weather, environmental safety, and access to appropriate spaces. Participants therefore tended to prefer feasible activities that could be integrated into their existing routines rather than highly structured programs.

Medication Adherence and Blood Glucose Monitoring

Medication adherence was increasingly regarded as a non-negotiable component of daily life. Participants developed strategies such as placing medication in visible locations, linking doses to meals, or relying on reminders from family members. Blood glucose monitoring provided reassurance when results were within the expected range but could also generate anxiety when readings were elevated.

The findings suggest that monitoring functioned both as a clinical activity and as emotional feedback. Favorable readings strengthened motivation, whereas unfavorable readings sometimes produced disappointment or fear. Participants who interpreted elevated readings as information for adjustment rather than evidence of personal failure were better able to maintain their routines.

Theme 4: Challenges in Maintaining Healthy Behaviors

Occupational and Time Constraints

Work obligations frequently interfered with meal schedules, exercise, medication use, and clinic attendance. Participants working long or irregular hours found it difficult to maintain consistent routines. Some prioritized employment and family income over their health needs, particularly when missing work could cause financial loss.

Financial and Environmental Barriers

The cost of healthier foods, transportation, clinical visits, laboratory examinations, and monitoring supplies affected participants' self-management choices. Financial limitations sometimes led participants to select less expensive foods or postpone follow-up care.

Environmental factors also influenced behavior. Limited walking spaces, traffic, weather, and neighborhood safety reduced opportunities for physical activity. These findings demonstrate that self-management was constrained not only by motivation but also by material and structural conditions.

Cultural and Social Pressures

Food played an important role in family and community relationships. Participants found it difficult to refuse sweet drinks, rice-based meals, or festive foods during gatherings because refusal

could be interpreted as impolite. Household decision-making also affected dietary control, particularly when meals were prepared collectively.

I Dewa Putu Gede Putra Yasa et al. (2023) demonstrated that family structures and culturally shaped roles can influence diabetes self-management in Indonesia. The present findings similarly show that lifestyle maintenance must be understood within social relationships rather than as an exclusively individual responsibility.

Theme 5: Social Support as a Facilitator

Family Support

Family members supported participants by preparing healthier food, reminding them to take medication, accompanying them to healthcare visits, and encouraging physical activity. Emotional reassurance reduced feelings of isolation and helped participants remain motivated during periods of difficulty.

Nevertheless, support was most effective when it respected participants' autonomy. Excessive monitoring or criticism sometimes produced frustration. Participants valued assistance that was collaborative rather than controlling.

Support from Healthcare Professionals and Peers

Trusting relationships with nurses and physicians encouraged participants to discuss difficulties openly and seek practical solutions. Clear explanations and nonjudgmental communication increased confidence in self-management. Peer interaction also provided motivation by allowing participants to exchange experiences and observe that others faced similar challenges.

These findings align with evidence that continuity of care, empathetic communication, and family engagement strengthen chronic illness management (Abu-Saad et al., 2021)(Samadi et al., 2020) Laursen et al., 2023).

Theme 6: The Meaning of Healthy Living

Over time, participants developed broader interpretations of healthy living. Health was no longer understood merely as the absence of symptoms or the achievement of a particular blood glucose value. Instead, it was associated with the ability to remain independent, participate in family life, work productively, and avoid becoming a burden on others.

Healthy behavior became a form of responsibility toward oneself and one's family. Participants also described gratitude for being able to make changes before severe complications occurred. This meaning-making process transformed diabetes management from an externally imposed medical obligation into a personally significant way of preserving quality of life.

Collectively, the findings indicate that maintaining healthy lifestyle behaviors is a dynamic process shaped by emotional responses, adaptation, daily behavioral transformation, social relationships, and structural conditions. Participants did not progress through these experiences in a simple linear sequence. Periods of acceptance and effective self-management could be followed by fatigue, distress, or disruption. Nevertheless, many participants gradually developed flexible strategies, hope, and resilience that enabled them to integrate diabetes management into everyday life.

The findings indicate that maintaining healthy lifestyle behaviors among adults with Type 2 diabetes mellitus is not a linear process of receiving information and following medical instructions. Instead, it is a dynamic process involving emotional disruption, meaning-making, behavioral reorganization, social negotiation, and gradual adaptation. Participants commonly moved from shock, denial, fear, and uncertainty toward acceptance, hope, and more stable self-management routines. This pattern is consistent with phenomenological studies that conceptualize chronic illness diagnosis as a biographical disruption requiring individuals to reconstruct their daily lives and identities (Arifin et al., 2020; Bootsma et al., 2021). The experience of living with diabetes therefore involves not only physiological management but also continuous psychological and social adjustment.

The initial emotional responses identified in this study, including fear of complications, sadness, anxiety, and uncertainty, reflect the substantial psychological burden associated with T2DM. Participants were particularly concerned about disability, dependence, financial hardship, and the possibility of becoming a burden on their families. Similar concerns have been documented in studies showing that fear of complications and concern for family welfare strongly shape diabetes-related behavior (Othman et al., 2022). Bayked et al. (2022) described dread, hopelessness, and social disruption among adults living with diabetes, while Kusnanto et al. (2022) reported psychological distress, emotional instability, depression, and diabetes fatigue among Indonesian patients. These findings support the need for early psychosocial assessment following diagnosis because unresolved distress may reduce patients' capacity to engage effectively in self-management.

Despite these emotional difficulties, many participants gradually developed acceptance and resilience. Adaptation occurred through learning, repeated behavioral efforts, spiritual reflection, family support, and the development of personally meaningful goals. Hope was particularly important because it allowed participants to envision a future in which they could remain independent, avoid complications, and continue fulfilling family responsibilities. This finding is consistent with Memmolo & Willis (2023), who identified hope and future orientation as important resources supporting behavioral change, and with Pinto et al. (2023), who described hope as dynamic and closely connected to relationships, treatment experiences, and meaning-making. The

results suggest that resilience should not be interpreted as the absence of distress but as the ability to continue self-management despite recurring emotional and practical challenges.

The transformation of lifestyle behaviors involved the gradual integration of dietary modification, physical activity, medication adherence, and blood glucose monitoring into everyday routines. Participants did not merely implement isolated health recommendations; they reorganized their habits, schedules, household practices, and social participation. This process resembles phenomenological accounts of chronic illness adaptation in which individuals discover new limits, adjust daily activities, and develop routines that eventually become part of a new normal (Bootsma et al., 2021). Habit formation therefore appears to be a central mechanism through which initially demanding self-management tasks become more sustainable over time.

However, the findings also demonstrate that healthy behavior maintenance is strongly influenced by context. Occupational demands, financial constraints, food availability, social expectations, and healthcare access affected participants' ability to follow recommendations consistently. These barriers confirm that diabetes self-management cannot be understood solely as an expression of individual motivation or discipline. Skoglund et al. (2022) emphasized that lifestyle-change barriers and facilitators operate across individual, interpersonal, environmental, and policy levels. Consequently, interventions that focus only on patient knowledge may have limited effectiveness when structural barriers remain unaddressed.

Cultural and family contexts were particularly important in shaping dietary choices, social participation, and decision-making. Participants frequently negotiated medical advice within household eating patterns and social traditions. This finding aligns with Indonesian evidence showing that patrilineal family structures, local wisdom, and culturally defined roles influence diabetes self-management (I Dewa Putu Gede Putra Yasa et al., 2023; Kusnanto et al., 2022). Comparable cultural influences have been identified elsewhere. Taumoepeau et al. (2021) demonstrated that faith, churches, traditional beliefs, and community institutions shape lifestyle change in Tonga, while Abu-Saad et al. (2021) showed that socioeconomic marginalization and community structures affect diabetes management among an Indigenous Arab minority. These findings indicate that some dimensions of diabetes adaptation are widely shared, whereas the specific meanings and practical expressions of self-management vary across sociocultural environments.

Family support emerged as one of the strongest facilitators of sustained healthy behavior. Participants benefited from assistance with food preparation, medication reminders, clinic attendance, emotional reassurance, and encouragement to exercise. These results support previous studies identifying family involvement as central to diabetes acceptance and home-based self-care (Wulandari et al., 2021(I Dewa Putu Gede Putra Yasa et al., 2023). Family-centered interventions may therefore be particularly relevant in settings where health decisions and food practices are collectively organized. Nevertheless, support must remain respectful and collaborative because excessive control or criticism may undermine autonomy and create resistance.

The importance of supportive relationships with healthcare professionals was also evident. Participants valued clear communication, continuity, empathy, and practical advice that could be adapted to their daily circumstances. This finding supports patient-centered models of diabetes education that prioritize individual experiences, preferences, and social realities rather than relying exclusively on standardized instructions. Samadi et al. (2020) emphasized the value of nurse-led multidisciplinary care, while Laursen et al. (2023) demonstrated that continuity and familiarity in care relationships strengthen engagement. Othman et al. (2022) similarly recommended incorporating patient perspectives into culturally competent diabetes education. Together, these findings suggest that healthcare providers should move beyond information delivery and actively help patients translate clinical recommendations into realistic daily practices.

The study has several implications for practice. Diabetes services should integrate psychosocial screening, culturally appropriate education, family involvement, and continuity of care into routine management. Nurse-led and multidisciplinary approaches may be especially effective because they can address medical, behavioral, emotional, and social needs simultaneously (Abu-Saad et al., 2021; Samadi et al., 2020). Strengths-based interventions may also help patients recognize existing resources, coping capacities, and successful behavioral strategies rather than focusing only on nonadherence.

The findings must be interpreted in light of the limitations of qualitative phenomenological research. The study provides depth and contextual understanding but does not estimate the prevalence of particular emotional responses or establish causal relationships between support and clinical outcomes. The context-specific sample may also limit direct transferability to other populations. Nevertheless, the study contributes detailed evidence regarding how adults in an Indonesian urban setting experience long-term lifestyle maintenance.

Future research should include larger multisite studies across rural and urban Indonesian populations, longitudinal phenomenological designs, and greater representation of socioeconomically disadvantaged and culturally diverse groups. Comparative research across low- and middle-income countries could clarify which adaptive processes are broadly shared and which require local modification. There is also a need to translate phenomenological findings into culturally tailored, family-centered interventions and evaluate their feasibility, effectiveness, cost, and long-term influence on both psychosocial and biomedical outcomes (Sarker et al., 2020; George et al., 2022). Such work would connect lived-experience evidence more directly with diabetes policy and clinical practice.

CONCLUSION

This study demonstrates that maintaining healthy lifestyle behaviors among adults with Type 2 diabetes mellitus is a continuous, multidimensional, and context-dependent process. Participants' experiences extended beyond compliance with dietary, exercise, medication, and blood glucose monitoring recommendations. Their self-management journeys involved emotional disruption following diagnosis, gradual acceptance, reorganization of everyday routines, negotiation with

family and social expectations, and the development of new meanings related to health, responsibility, and quality of life.

The findings show that diagnosis frequently generated shock, fear, sadness, anxiety, and concern about complications, disability, financial burden, and dependence on others. Over time, many participants developed coping strategies that enabled them to adapt to the demands of diabetes. Acceptance was supported by increased knowledge, practical experience, hope, spirituality, and the desire to remain independent and continue fulfilling family responsibilities. Healthy behaviors became more sustainable when they were integrated into familiar routines rather than treated as temporary or externally imposed obligations.

Lifestyle maintenance was nevertheless constrained by occupational demands, financial limitations, cultural food practices, environmental conditions, psychological fatigue, and competing family responsibilities. These findings indicate that difficulties in diabetes self-management should not be interpreted simply as a lack of motivation or personal discipline. Patients' capacity to sustain healthy behaviors is strongly shaped by their social, cultural, economic, and healthcare environments.

Family members and healthcare professionals played essential roles in supporting long-term adaptation. Family assistance with food preparation, medication reminders, clinic attendance, and emotional encouragement strengthened participants' self-management efforts. Likewise, respectful communication, continuity of care, and practical guidance from healthcare providers increased confidence and helped participants translate clinical recommendations into realistic daily practices. However, support was most effective when it remained collaborative and preserved patients' autonomy.

The principal contribution of this study lies in its phenomenological explanation of healthy lifestyle maintenance as a lived process of emotional adaptation, behavioral transformation, social negotiation, and personal meaning-making. By focusing on adults with T2DM in an Indonesian urban context, the study adds culturally relevant evidence to the literature on chronic disease self-management. It highlights that successful diabetes care requires more than biomedical treatment and standardized health education.

The findings have important implications for nursing practice, diabetes education, and public health services. Diabetes management programs should incorporate early psychosocial assessment, culturally responsive education, family involvement, continuity of care, and individualized strategies that account for patients' work, financial circumstances, household routines, and personal beliefs. Nurse-led and multidisciplinary approaches may be particularly valuable because they can address biomedical, emotional, behavioral, and social needs simultaneously.

Future research should examine adaptation over longer periods through longitudinal qualitative designs and include participants from diverse rural, urban, socioeconomic, gender, and cultural backgrounds. Multisite studies are needed to determine which experiences are widely shared and which are specific to local settings. Further research should also translate phenomenological insights into culturally tailored, family-centered interventions and evaluate their feasibility,

effectiveness, and long-term effects on psychological well-being, self-management behavior, glycemic outcomes, and diabetes-related complications.

Overall, living well with T2DM involves the gradual reconstruction of everyday life. Sustainable self-management emerges when healthy behaviors become personally meaningful, socially supported, culturally appropriate, and realistically integrated into patients' daily circumstances.

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