Risk Factors in Type 2 Diabetes Self-Care Management: A Qualitative Study

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Abstract

This qualitative study investigates the risk factors for diabetes self-care management among patients with type 2 diabetes. The study delves into the risk factors that hinder individuals from effectively managing their self-care for diabetes. It also investigates the psychosocial protective factors at the individual, family, and organizational levels associated with improved diabetes self-care management. In-depth interviews were carried out on a sample of 18 adults with type 2 diabetes (9 men, 9 women), aged 40-60 years to gain valuable insights into the experiences of individuals living with type 2 diabetes. Thematic analysis of the interview data reveals several risk factors that had a negative impact on self-care management of type 2 diabetes. The risk factors include risky personal factors, lack of self-regulation, positive emotion as an obstacle, negative emotion as a barrier, challenges in the family, obstacles from the social environment, work-related hurdles, physical difficulties, challenges during travel, and limitations of structural support. Understanding the interplay of risk factors in type 2 diabetes self-care is crucial for tailoring effective treatments and support programs.

Keywords: Type 2 diabetes, self-care management, risk factors

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Diabetes is a persistent health condition associated with one's lifestyle, characterized by either insufficient insulin production by the pancreas or the body's inability to utilize insulin effectively. This results in elevated blood sugar levels, a condition known as hyperglycemia (World Health Organization [WHO], 2023). Extended periods of hyperglycemia can potentially damage the heart, nerves, eyes, and kidneys (WHO, 2023). Type 2 diabetes is a common metabolic condition characterized by insulin resistance and elevated blood sugar levels. Typically, it arises in adulthood and is closely linked to factors such as obesity, lack of physical activity, and unhealthy dietary habits (Colberg et al., 2016). It constitutes approximately 90% of diabetes cases on a global scale (International Diabetes Federation [IDF], 2023). Effectively managing type 2 diabetes entails implementing lifestyle modifications (including dietary adjustments, physical activity, and weight management), utilizing medication or insulin when necessary, and maintaining consistent monitoring to prevent complications and achieve successful management (Galavíz et al., 2015).

Globally, diabetes affects 537 million individuals between the ages of 20 and 79, with a higher prevalence in low- and middle-income countries (National Diabetes Statistics Report, 2020). The anticipated increase is projected to reach 643 million by 2030 and 783 million by 2045 (IDF, 2021). Elevated blood sugar levels lead to 3.4 million deaths worldwide (WHO, 2023). India is home to 77 million individuals, which accounts for 17% of the world's diabetes cases, earning it the designation of the "diabetes capital" (IDF, 2022). India currently has an approximate total of 80 million people living with diabetes, and this number is expected to increase to 135 million by the year 2045 (WHO, 2021).

Self-care refers to the capacity of individuals, families, and communities to advance their well-being, ward off illnesses, sustain good health and handle situations of illness and disability, whether with or without the assistance of a healthcare professional (WHO Regional Office for South-East Asia, 2009). In the context of diabetes, self-care is described as an ongoing developmental journey involving acquiring knowledge and awareness. This process enables individuals to adapt and thrive in the face of the intricate challenges of diabetes within their social environment (Thorne & Paterson, 2001). Poor dietary choices and lack of physical activity stand as the primary culprits behind diabetes. Failing to adhere to a rigorous dietary regimen, exercise routine, and prescribed medications are key factors contributing to complications among individuals with Type 2 Diabetes (Gæde et al., 2008). The risk factors for type 2 diabetes include biomedical risk factors such as impaired glucose tolerance, hypertension, dyslipidemia, overweight, and abdominal obesity, as well as behavioral risk factors like an unhealthy diet, insufficient physical activity, and smoking

(Diabetes: Australian Facts, Diabetes Risk Factors, 2023). A family history of diabetes, being overweight or obese, being older than 45, and having type 2 diabetes are all risk factors for development (National Institute of Diabetes and Digestive and Kidney Diseases, 2017).

Our research was designed to identify the risk factors that hinder individuals from effectively managing their self-care for diabetes.

Method

Study Procedure and Participants

The current study employed a semi-structured interview schedule comprising twelve questions to ascertain the risk factors affecting individuals with type 2 diabetes. These questions were designed to elucidate the obstacles for people in effectively managing their self-care routines for type 2 diabetes.

A snowball sampling method was employed to select 18 individuals from a mid-sized city in Kerala. Participants were chosen based on specific inclusion criteria, including having received a diagnosis of type 2 diabetes at least six months prior and not having any concurrent chronic illnesses or mental health issues. The sample consisted of an equal number of male and female participants aged 40 to 60 years (mean age = 51; standard deviation = 3.59).

Before commencing the semi-structured interviews, the participants were informed about how their privacy will be protected, and about the confidentiality of the data and their right to decline from participation, and their right to withdraw from the study at any point of time during the data collection. A written informed consent was obtained from the participants. The interviews were conducted in Malayalam to ensure the participants' convenience. The interview durations ranged from 11 to 22 minutes, with an average duration of 14.50 minutes and a standard deviation of 2.7. The interviews were audio recorded, later transcribed, and translated into English.

Data Analysis

Inductive thematic analysis (Clarke & Braun, 2016) was used to identify resources associated with self-care management in individuals with type 2 diabetes from the transcriptions. This analysis aimed to identify the personal resources relevant to managing type 2 diabetes self-care.

Results

Table 1

Themes Identified Across the Interview Summaries of Challenges to Diabetic Self-Care Management Among Type 2 Diabetic Patients

Themes	Subthemes	Codes
Risky personal factors	Challenges in diet management	Initially, adhering to the diabetic diet was challenging, causing fatigue
		Losing control over favourite food posed difficulties in maintaining a diet and practicing effective self-care management for diabetes
	Lack of motivation	Medication and check-up reluctance
		Was fed up with medication, diet, and exercise
	Challenging personal beliefs	Exercise and diabetes do not have any relationship
		Believed regular doctor visits were unnecessary with proper self-management
		Ignored diet during festivals, thinking it would not impact diabetic level
		Inconsistent medication affected kidneys and vision
		Excessive medication led to fatigue, reducing physical activity
		Concerns about medication's potential negative effects on kidneys and heart led to hesitation in taking many medications
	Challenges to exercising regularly	Busy work schedules prevented regular exercise
		Leg and joint pain posed challenges for physical activities
		Fatigue after daily work hindered exercise
		Limited time post-household chores prevented regular exercise
		Early morning household responsibilities left no time for exercise
		Avoiding exercise worsened diabetic complications, impacting self-care significantly
		Sad or stressful situations hindered regular exercise

		After the lockdown, morning walking ceased due to a busy schedule and waning motivation
		Breathing issues due to COVID-19 made walking and exercising difficult
		Low blood flow to the leg weakened it, making exercise challenging
		Challenges due to COVID-19 and extreme weather conditions hindered regular exercise
		Stopped exercising and faced difficulties in daily activities after mother's death
	Missing regular doctor consultations	Avoiding doctor visits care due to lengthy clinic wait times and time constraints
		Irregular attendance at doctor's appointments, often only when diabetic levels felt elevated
Lack of self-regulation	Lack of self-control	Neglected dietary restrictions during family events, festivals, gatherings, friend tours, and business parties
		Avoiding foreign chocolates proved challenging due to their strong temptation
		Difficulty controlling food intake when visiting family in my native place
		Struggled with modifying and consistently sticking to dietary changes
		Consumed sugary foods during festivals like Onam for social acceptance
		Increased diabetes due to lack of proper treatment led to taking medicines twice a day
		Difficulty in resisting certain foods that were prone to increasing diabetes levels
	Substance abuse	Engaged in occasional smoking and alcohol/tobacco use
		Lack of control over alcohol consumption during visits to the native family
		Struggling to limit alcohol intake even when wanting to follow diabetic care

		Consistently using alcohol and marijuana
		Excessive alcohol consumption at parties negatively affects my ability to manage diabetic self-care
	Struggles with food cravings and dietary restrictions	Losing control over favourite food
		Struggle between traditional cravings and diabetic-friendly choices stems from differences in nutrition, portions, emotions, and social norms
		Preference for rice and aversion to wheat posed challenges in adhering to a diabetic diet
		Struggled to change dietary habits, tackling unhealthy snacks, and cutting high-calorie drinks
		Overeating due to consuming leftovers at home to prevent food wastage
		Difficulty in resisting sugary food
		Felt sad seeing others enjoy favourite foods, tempted to choose unhealthy options
Positive emotion as an obstacle	Happiness as an obstacle	Forgot medicine during happy moments
		In joyful moments, struggled with overeating and excessive alcohol consumption
		In moments of extreme joy, neglected diabetes
Negative emotions as a barrier	Hopelessness	Experienced hopelessness due to persistent high blood sugar despite all efforts to control it, leading to medication avoidance
	Stress	Stress over minor issues resulted in neglecting diabetes care, including skipping meals and medication
		Stress led to exhaustion, dizziness, increased thirst, and unhealthy eating habits
		After a stressful period, experiencing symptoms like gastritis made it more challenging to stick to a specific diet
		Stress worsened diabetic complications, requiring significant time for recovery

		High stress and sensitivity led to forgetting medication and inconsistent adherence to doctor's advice
	Worry	Consistent medication adherence is crucial in managing diabetes to prevent complications
	Sadness	Saddened by others enjoying favourite foods leading to temptations to make unhealthy choices
Challenges during traveling	Inability to take medications when traveling	Medicine portability was challenging during travel
		Travel challenges: forgetting or running out of medication, difficulty buying replacements, resulting in skipped doses.
	Difficulty to related to check-ups	Had to carry a glucometer while traveling to monitor blood sugar level
		Managing regular check-ups and practicing self-care could be challenging during travel
Challenges in the family	Involvement of significant other	Husband is not clear about medication
		Family members' favourite foods tempted the patient
	Challenges from children	Children advised stopping prescribed medication without consulting professionals
		Children refused grains and wheat, making meal preparation challenging
Obstacles from the social environment	Social gathering-related challenges.	Discussing diabetes socially is challenging due to stigma, advice fears, sensitivity, privacy, and emotional impact
		Social discussions about other diabetic patients increased anxiety and confusion in diabetes self-care
		Difficulty refusing sweets offered in social situations
	Others are insensitive to diabetic problems	Relatives advised medicine before sweets
		People trivialized diabetic issues, insisting on consuming everything at gatherings

		People offered unprofessional and potentially harmful advice on nutrition and medication
		Concerns raised about improper wound care potentially leading to amputation
		Despite full awareness of their diabetic condition, some insist on and pressure patients to consume sweets
		Friends encourage a small amount of alcohol intake
	Challenges of solitary living	Difficulty and anxiety when alone hinder adherence to medication and diet due to a lack of emotional support
		Doing household chores without help resulted in heightened fatigue and dizziness
		Observing the active support from children of others with diabetes accentuates loneliness following the loss of a partner
		Loneliness intensified diabetic challenges, hampering self-care motivation, fostering unhealthy coping, and amplifying stress, anxiety, and depression due to the lack of emotional support
		Sadness due to lack of family complicates diabetes management
		Loneliness hampers motivation for self-care
		The loss of a spouse and absence of children make cooking alone challenging, affecting portion control and diminishing inspiration to prepare diabetic-friendly meals
Work-related hurdles	Challenges related to work schedule	Doing chores alone leads to exhaustion, hindering physical exercise and promoting an unhealthy die
		Busy work schedule makes it challenging to have timely meals, affecting medication schedule
		Managing work challenges, coupled with boredom and fatigue from prolonged sitting, makes timely meals harder to prioritize

		Frequent disruptions like fieldwork and client meetings often led to the neglect or postponement of regular lunch times
		Breakfast remained punctual, but work demands made it challenging to adhere to scheduled lunch and dinner times
		Had timely breakfast but struggled with on-time lunch and dinner due to work commitments
		As a salesperson, continuous work without breaks left me exhausted, challenging proper diabetes care at and after work
		Heavy workload hindered adherence to the diet plan, resulting in symptoms like dizziness, shivering, fatigue, sweating, and related issues
		Busy work schedule occasionally delayed mealtimes, but efforts were made to control food intake
	Work-related emotional hurdles	Contract work induced stress, affecting the consistency of daily physical exercise
		Diabetic complications heightened disinterest in daily activities
		Business-related stress disrupted daily eating and exercise routines
	Barriers to maintaining people with diabetes in a new country	Abroad, high costs hinder adherence to nutritional supplements and gym memberships
		During years of working abroad, inadequate regular diabetic check-ups and insufficient attention to diabetes treatment were prevalent
		Busy work schedule abroad left no time for cooking and exercising
		Working abroad led to an improper diet with increased consumption of junk food
Physical difficulties	Comorbidity-related challenges	Other health issues such as leg, back, and joint pain emerged, complicating diabetic management
		Managing medications for high blood pressure and cholesterol, along with lifestyle changes, negatively impacts diabetic self-care

	Post-heart surgery, managing diabetes and cardiac care became challenging, with elevated sugar levels
	Managing diabetes became complex, requiring consultations with cardiologists, endocrinologists, and primary care doctors due to heart complications
	Post-Covid-19, respiratory issues escalated, hindering engagement in physical activities
	Other medical issues often take precedence, pushing diabetic care to a secondary priority
	Other health issues impact both overall health and diabetes levels Increased tension leads to simultaneous elevation in both blood pressure and diabetic levels
Increased health-related difficulty	Constant fatigue and weakness hinder motivation for planning meals and participating in regular physical activity
	Decreased night time sleep led to daytime fatigue
	Daytime sleepiness significantly affected work and daily routines
	Shivering, discomfort, shoulder aches, and stomach burning make exercises and activities challenging
	Decreased blood supply caused leg pain, elevating the risk of amputation
	Maintaining exercise is tough with varying blood sugar, heightened fatigue, and disrupted sleep
	Any cut in the toes hinders walking, causing concern about potential complications and delayed healing
Negative side effects of medication	Fatigue following the first medication dose impacted daily functioning, challenging medical adherence
	Diabetic self-care is hampered by medications inducing trembling and dizziness

		Avoided medication for diabetes due to uncomfortable side effects
		Skipping medicine and meals led to dizziness
		Fatigue increased due to numerous medications, impacting daily tasks and routine physical activities
Limitations of structural support	Poor doctor-patient communication	Insufficient information provided by the doctor regarding the diabetic condition and its care
		Doctors' and healthcare professionals' rude behavior heightened diabetic concerns
		Over booked appointments for doctors resulted in minimal time spent by doctors with patients

Discussion

Understanding the elements that pose risks and challenges to self-care practices is crucial for individuals diagnosed with type 2 diabetes. These risk factors significantly affect patients' ability to manage their health effectively, adhere to treatment plans, and make necessary lifestyle adjustments to improve their quality of life. Examining these variables offers valuable insights into the potential hurdles and difficulties that individuals with type 2 diabetes may face in their self-care journey.

Ten key themes on protective factors were identified from the thematic analysis of the interview data: (i) risky personal factors, (ii) lack of self-regulation, (iii) positive emotion as an obstacle, (iv) negative emotions as a barrier, (v) challenges in the family (vi) obstacles from the social environment, (vii) work-related hurdles, (viii) physical difficulties, (ix) challenges during traveling, and (x) limitations of structural support.

Risky Personal Factors

One of the themes that emerged from the analysis is risky personal factors, which comprised five subthemes: challenges in diet management, lack of motivation, challenging personal beliefs, challenges to exercising regularly, and missing regular doctor consultations. Effectively managing type 2 diabetes involves adhering to meal plans, promptly adjusting food, and avoiding excessive snacking (Delahanty & Halford, 1993). Motivation for type 2 diabetes management arises from a desire for a healthy life, longevity, complication avoidance, and diabetes control. Peers, family, and doctors were the sources of motivation (Kadariya & Aro, 2018). Lack of motivation is recognized as risks and barriers, often tied to

a limited understanding of self-management importance, noted by medical professionals (Adhikari et al., 2021; Julien et al., 2009). One participant described,

> *" I have diabetes, and it is incurable; therefore, I am not motivated to take action to manage it. So, I just do not want to take medication or check my glucose levels every day. It has become inconvenient to follow a proper diet and regularly exercise."* (Rajan, M, 52yrs)

Consistent physical activity is essential for significant health benefits and plays a crucial role in preventing type 2 diabetes (Knowler et al., 2002; Schellenberg et al., 2013; Tuomilehto et al., 2001). The absence of regular physical activity poses a challenge for managing type 2 diabetes (Delahanty et al., 2009; Colberg et al., 2016; Advika et al., 2017). Similarly, more frequent occurrences of missed appointments were linked to markedly worse glycemic control in individuals with type 2 diabetes (Karter et al., 2004).

Lack of Self-Regulation

One of the themes that surfaced from the analysis of interviews in this study is a lack of self-regulation, which comprises three subthemes: lack of self-control, substance abuse, and challenges with food cravings and dietary restrictions. To maintain appropriate metabolic control and prevent long-term problems, type 2 diabetes requires self-regulation behaviors that involve pursuing a variety of objectives related to food, exercise, and medication (Oftedal et al., 2010). Most patients prefer traditional Ghanaian foods rich in sugars, sodium, and fat but low in protein and fiber, deviating from dietary guidelines. Many admit to struggling with self-control in food choices, posing a risk for type 2 diabetes (Chlebowy et al., 2010; Hushie, 2019; Joo & Lee, 2016). One participant narrates,

> *"At parties, I frequently overindulge in alcohol, which is beginning to affect my capacity to adequately manage my diabetes negatively. I have trouble keeping my alcohol consumption under control when I go to see my relatives. My ability to practice moderation and choose healthy options becomes a challenge."* (Sajeev, M, 48yrs)

The act of consuming alcohol demonstrated a notable decline in the commitment to adhering to prescribed self-care behaviors. This decrease in commitment not only hindered the adoption of recommended practices but also presented an elevated risk for individuals managing type 2 diabetes (Kh et al., 2000; Shai et al., 2007). Many participants identified diet management as a major self-care challenge, citing difficulty maintaining a healthy diet as the primary obstacle. Specifically, they found adhering to diabetes-related dietary

recommendations challenging during events like weddings and social gatherings (Bukhsh et al., 2020; Broadbent et al., 2011).

Positive Emotion is an Obstacle

One of the themes that emerged from the analysis is positive emotion as an obstacle and is comprised of one subtheme, happiness as an obstacle. Participants noted instances of forgetting medication during celebrations, where a lack of control over food and increased alcohol consumption was observed. Balancing positive emotions with diabetes self-care is crucial, as happiness can sometimes lead to neglecting necessary routines. Striking a balance between enjoying life and practicing disciplined self-care is vital for individuals with type 2 diabetes, emphasizing the need to recognize and address challenges associated with positive emotions and health management. One subject remarked:

"In happy situations, I always lose control over food and also consume more alcohol than usual." (Serif, M, 49yrs)

For individuals with type 2 diabetes, regulating their behaviors when they are in positive mood is a challenge. Festive occasions and celebrations may lead to forgetting medications or making poor dietary choices, impacting blood sugar control. Binge drinking during joyous events can further worsen diabetes management. Balancing diabetes self-care routines with experiencing happiness is essential for effective treatment. While past studies may not have explicitly supported happiness as a risk factor for diabetic self-care management, it remains crucial to address this factor.

Negative Emotions as a Barrier

One of the themes that emerged from the interview data is negative emotions as a barrier, which comprises four subthemes: hopelessness, stress, worry, and sadness. Negative feelings can lead to emotional eating, neglect of self-care, and a lack of motivation for healthy habits. Understanding and addressing the impact of negative emotions is critical for improving diabetes self-care outcomes (Coccaro et al., 2020). Effective diabetic self-care necessitates prioritizing stress management. The well-established understanding is that stress detrimentally impacts an individual's ability to uphold diabetes self-care routines and control blood sugar levels (Adu et al., 2019). Additionally, stress was identified as a deterrent to physical activity (Sridhar et al., 2007; Abraham et al., 2015). One of the responses that makes this apparent is:

"Stressful conditions impact my diabetes self-care. When stressed, I experience exhaustion, dizziness, dry mouth, increased thirst, and minor blood sugar fluctuations. This has always resulted in unhealthy eating habits like skipping meals

or overeating. Additionally, stress affects my medication adherence and motivation to follow my doctor's advice." (Shahul, M, 54yrs)

Previous studies shows that certain patients struggled with adopting the new routine of daily diabetes medication, expressing worry and concern about the chronic nature of diabetes and the lifelong requirement for medication intake (Brundisini et al., 2015; Mogre et al., 2019). Effectively managing type 2 diabetes can be hindered by negative emotions. Emotional aspects, including stress and low mood states, can disrupt the adherence to self-care routines and medication plans. It is essential to acknowledge and manage these emotional hurdles to improve the overall outcomes of diabetes care.

Challenges During Traveling

One of the themes that emerged from the analysis is challenges during traveling, and it is comprised of two subthemes, namely, inability to take medications when traveling and difficulty related to check-ups. Traveling pose challenges like necessitating carrying medications wherever one travels, which is complicated when acquiring replacements abroad is difficult. Advancements in travel preparation and medical supply accessibility have now eased these challenges, making medication management on the go more convenient (Lin et al., 2019). One subject remarked:

"*I am forced to carry a glucometer while traveling because my blood sugar levels can unexpectedly increase, leading to fatigue. Checking my glucose levels regularly is essential to managing my diabetes effectively. By monitoring my blood sugar levels, I can make informed decisions about my medication, diet, and physical activity."*

(Shahul, M, 54yrs)

Travel can disrupt diabetes self-care, affecting meal adherence, exercise, medication compliance, and blood glucose monitoring. Challenges in managing diabetes during travel involve impacts on diet, activity, sleep, climate, and stress (Rajkumar, 2022). When traveling with diabetes, planning, packing the right things, monitoring blood sugar levels, remaining hydrated, and making thoughtful meal selections is important.

Challenges in the Family

A person with diabetes needs support, understanding, and a supportive environment, all of which are best provided by their family. One of the themes that emerged from the analysis is challenges in the family, and it is comprised of two subthemes, namely, involvement of significant other and challenges from children. Family issues, including lack of support, communication problems, and conflicting priorities of family members, can hinder the self-care management of type 2 diabetes. Recognizing and addressing these

challenges is crucial for fostering a supportive environment that enhances overall well-being in diabetes management (Whittemore et al., 2019). Studies have shown that individuals who received more spouse support had better glycemic control and medication adherence than those who received less assistance (Martire et al., 2013). Men with significant support from their wives were more likely to eat a balanced diet and exercise often, which improved diabetes management results (Lewis et al., 2006). One subject remarked:

> *"When my husband and I go out, he tends to order and indulge in fried or deep-fried foods, which makes me crave them. I find it challenging to resist the temptation when I see him enjoying those dishes. As a result, I often find myself opting for unhealthy food choices."* (Snehalatha, F, 49yrs)

Children's involvement and support for parents or family members with diabetes contribute to overall well-being and effective diabetes management. They provide moral support, reduce stress, and inspire active strategies for diabetes care. Children play a crucial role by encouraging healthy choices in meal preparation (Edwards et al., 2014), monitoring sugar intake, offering medication reminders, and supporting regular glucose monitoring (Weinstock et al., 2020; Whittemore et al., 2010).

Obstacles From the Social Environment

One of the themes that emerged from the analysis is obstacles from the social environment, which is comprised of three subthemes: social gathering-related challenges., others are insensitive to diabetic problems, and challenges of solitary living. Social events posed significant obstacles due to excessive temptations and limited healthier food options. Family members occasionally hindered diabetes management, insisting on their regular meals instead of accommodating the dietary needs of the diabetic patient (Hushie, 2019). Insufficient social support is linked to a heightened risk of type 2 diabetes (Gallant, 2003), and higher levels of social support are associated with improved diabetes self-management (Kaplan & Hartwell, 1987). One of the responses that makes this apparent is:

> *"I often struggle to say 'no' when someone offers me a sweet in a social situation. It becomes a real challenge for my diabetic self-care. I do not want to offend or feel left out, but I know that indulging in those sugary treats can negatively impact my health."* (Suraja, F, 52yrs)

Living alone was found to be independently associated with an elevated risk of type 2 diabetes compared to those who lived with others. One-person households, particularly those with male individuals, younger age, lower income, and metabolically healthy status, may face a higher risk of developing type 2 diabetes compared to their counterparts in multi-member

households (Nam et al., 2021; Fu et al., 2022). Diabetic patients living alone may find it easier to disregard or forget crucial components of their diabetes treatment if no one is available to remind them of medication regimens, food planning, or exercise routines (Meisinger et al., 2009; Sakai et al., 2020).

Work-Related Challenges

One of the themes that emerged from the analysis is work-related challenges, and is comprised of three subthemes: challenges related to work schedule, work-related emotional hurdles, and barriers to maintaining people with diabetes in a new country. Work-related stress and limited breaks hinder proper diabetes care. Effective time management, prioritizing self-care, and seeking support are crucial for overcoming these challenges. Adapting diabetes routines, such as adjusting medication schedules and diets, is often necessary, especially for those working non-traditional hours (Ruston et al., 2013; Jung et al., 2019; Almeida et al., 2011). One subject remarked:

> *"As a salesperson, I face challenges in taking breaks and finding time to relax, which leads to exhaustion and difficulties in following proper diabetes care practice at work and afterward. Regular disruptions in lunch times due to fieldwork and client meetings often result in skipped or postponed meals."* (Sijeesh, M, 42yrs)

Stress originating from work was identified as an obstacle to achieving optimal blood sugar levels (Vedantam et al., 2022). Their helpful and caring attitude created a healthy workplace for good diabetes treatment. This is in line with the previous study report that the environment that encourages self-care practices is generated by co-workers who demonstrate empathy, support, and meaningful assistance (Carlsson et al., 2019; Sui et al., 2016). A supportive work environment, including understanding bosses, flexible schedules, and helpful colleagues, fosters optimal self-care and treatment adherence in individuals with diabetes. Access to diabetes-friendly resources, wellness programs, financial support, and tailored assistance enhances overall well-being, significantly improving the quality of life for those with type 2 diabetes.

Physical Difficulties

One of the themes that emerged from the interviews is physical difficulties, which are comprised of three subthemes, namely, comorbidity-related challenges, increased health-related difficulty, and negative side effects of medication. The interaction between diabetes and other medical conditions may make it difficult to stick to dietary restrictions and follow physical activity guidelines, making it difficult to control diabetes (Pantalone et al., 2015; Hussain & Chowdhury, 2019). Managing diabetic self-care is challenging due to reduced leg

blood flow, toe injuries causing discomfort, and delayed recovery (Iglay et al., 2016). Prior studies revealed a greater probability of insufficient self-care in patients with comorbidities (Adhikari & Santosh, 2021), such as obesity and cardiovascular disease (Davis et al., 2006; Malik et al., 2013). One of the responses that makes this apparent is:

"I find it challenging to manage my type 2 diabetes alongside other health conditions. I have experienced respiratory issues after Covid-19, and it has made physical activity more challenging for me." (Shahul, M, 54yrs)

Diabetes self-care is significantly hindered by medication side effects such as exhaustion and drowsiness. These side effects interfere with daily activities, affecting overall well-being and making effective diabetes control challenging. Medication-induced fatigue can impede daily tasks and physical activity, negatively impacting a person's well-being and ability to maintain a diabetes self-care routine (Nathan et al., 2008). The findings of the present study also indicate that negative side effects of medication and how heightened health-related difficulties impede diabetes self-care routines, such not being able to engage in physical activity. This aligns with the findings of previous studies.

Limitations of Structural Support

One of the themes that emerged from the analysis of interviews with participants in the present study is the limitations of structural support, and it included one subtheme: poor doctor-patient communication. Enhancing doctor-patient communication in type 2 diabetes is vital. Patients encounter obstacles like insufficient information, rudeness, and limited physician contact. Clear, empathetic communication and improved scheduling empower patients to actively engage in their diabetes care. Poor communication in linked to inadequate self-care, treatment non-adherence, and limited patient awareness (Kokanović & Manderson, 2007). A response that was received was:

"Doctors generally do not provide me with enough information on my diabetes condition and how to take care of it. It makes me feel unsure of myself and my next course of action for my diabetes." (Sainaba, F, 52yrs)

Structural barriers hinder type 2 diabetes self-care. Inadequate healthcare access, lack of education, financial constraints, and inequities limit proper management. Policy changes, improved access to resources, enhanced education, and targeted treatments are crucial to strengthening support networks and enhancing diabetes self-care for individuals with type 2 diabetes (Abdulhadi et al., 2007; Macdonald et al., 2013). Patients in the interviews also emphasized the significance of privacy during consultations, noting interruptions such as knocks on doors and disturbances from other individuals.

This study was approached with an open mind, acknowledging the diverse aspects of self-care.

In exploring risk factors in Type 2 diabetes self-care management, a nuanced understanding of the challenges individuals face stems from a deep connection to the human experience. Witnessing the impact of diabetes on people and their struggles in managing diabetes has fueled a profound commitment to this research. Previous engagement in health psychology research providedvaluable insights and provided directions to the researcher. Assumptions and beliefs about diabetes, rooted in empathy and genuine concern, guided the research questions, and helped immensely in recognizing the multifaceted nature of self-care management of diabetes that is influenced by socioeconomic factors, cultural characteristics, and psychological dimensions.

While offering rich insights, this study also has inherent limitations. This study exclusively adopted a qualitative approach, delving into the subjective experiences of diabetic patients. A mixed method approach could provide better insights. Further, the study was restricted to patient sample. The inclusion of perspectives from primary caregivers and medical experts could enhance the study's depth, providing a more holistic understanding of diabetes self-care management. It is crucial to note that the study's findings may be context-specific, influenced by the cultural and demographic characteristics of the participants. As a result, caution is warranted when applying these results to diverse cultural or socioeconomic contexts. Additionally, the study's focus on a specific demographic or geographic location may impact the generalizability of the findings to a broader population.

Future studies must explore the long-term impact of identified risk and protective factors on diabetes self-care, assessing their evolution and influence on sustained behavior change and health outcomes. Exploring additional protective variables like coping mechanisms, cultural influences, and psychological traits is crucial. Researchers and healthcare practitioners should design personalized strategies considering individual risk profiles, resilience variables, and obstacles to self-care. Adapting educational programs, using technology for remote monitoring, implementing behavioral interventions, and ensuring ongoing access to healthcare support are key to optimizing health outcomes in diabetic patients. Assessing the long-term effects of these treatments is vital in healthcare. Healthcare practitioners, informed by a deepened awareness of risk and resilience factors, can create evidence-based, individualized plans to enhance health outcomes and the quality of life for those with type 2 diabetes.

Conclusion

The qualitative study on risk factors in type 2 diabetes self-care management highlights multifaceted challenges. It underscores how personal risks, self-regulation deficiencies, and emotional dynamics impact diabetes self-care. The barriers posed by family factors, social and work environments, and physical limitations significantly impede effective self-care. Further, the study also identifies the structural constraints hindering comprehensive support for diabetes management. Understanding these diverse themes is essential for devising holistic interventions that address not only individual obstacles but also the broader environmental and structural limitations, fostering more effective self-care strategies for those with type 2 diabetes.

Future studies should explore the enduring impacts of identified risk variables on diabetes self-care, examining how these factors evolve and affect sustained behavioral changes and health outcomes. Identifying more protective variables, such as coping mechanisms and cultural influences, is crucial for a comprehensive understanding. This insight can shape personalized treatments and strategies, incorporating tailored approaches, remote monitoring, behavioral interventions, and healthcare support networks. Evaluating the long-term effectiveness of these methods is critical for steering clinical best practices and enhancing individuals' self-care in Type 2 diabetes.

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