

CULTURE-BASED DIABETES SELF-MANAGEMENT AND ITS IMPACT ON THE QUALITY OF LIFE OF PATIENTS WITH TYPE II DIABETES MELLITUS: A LITERATURE REVIEW

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ABSTRACT

Background: Type II diabetes mellitus (Type II DM) is a chronic disease with a high prevalence that is increasing globally, including in Indonesia. Local cultural factors, such as a high-carbohydrate diet, the use of traditional medicine, and socio-cultural values, have a major influence on the effectiveness of diabetes self-management.

Objective: This article aims to systematically review studies related to culture-based Diabetes Self-Management Education (DSME) approaches and their impact on the quality of life of people with Type II DM.

Methods: A literature review was conducted of 19 articles published from 2015-2023 retrieved from PubMed, Scopus, and Google Scholar databases. Included studies included quantitative, qualitative, and mixed designs, focusing on variables such as knowledge, self-efficacy, self-care behaviors, and patient quality of life.

Results: A review of 19 studies showed that culture-based DSME approaches consistently improved knowledge, self-care behaviors, blood glucose control, and quality of life of people with Type II DM. These studies confirmed that cultural adaptations in education, including family involvement and understanding local values, such as traditional diets and medicinal practices, play an important role in intervention effectiveness. Although some studies showed implementation challenges, contextualized DSME was generally found to be more effective than standard approaches.

Conclusion: The local culture-based DSME model has great potential to improve self-management and quality of life of patients with Type II DM. Further development and validation of local wisdom-based contextual models are needed to support the effectiveness of interventions in multicultural communities.

Keywords: Type II diabetes, self-management, culture, quality of life, DSME

INTRODUCTION

Type II Diabetes Mellitus (Type II DM) has become one of the increasing global health problems, both in developed and developing countries, including Indonesia. The epidemiological transition in Indonesia is characterized by a shift in the causes of mortality and morbidity from infectious diseases to chronic diseases, including type II diabetes, which is largely related to changes in people's lifestyles (Rahmi Awaliyah, 2021). The disease is now a significant health problem, with prevalence continuing to increase along with changes in diet, lifestyle, and other environmental factors (Neny Setiawaty Ningsih et al., 2023).

In Indonesia, diabetes mellitus is the third leading cause of death after heart disease and stroke, with approximately 6.7% of deaths caused by the disease (ADA, 2022). Based on data from the Indonesian Ministry of Health (2018), Indonesia recorded more than 10 million people with DM in 2019, and is expected to continue to increase in the coming years. In addition, Indonesia also ranks third in Southeast Asia in terms of diabetes prevalence (Boyd R & Buser, 2021). This situation is further exacerbated by the high consumption of high-carbohydrate foods and low levels of physical activity, especially among people of certain cultures, such as the Bugis, who have a diet high in

carbohydrates and fat (Agustin et al., 2022). Cultural traditions such as "pangadereng" that lead to overconsumption also play a role in increasing the risk of obesity and diabetes (Fadli & Uly, 2023).

Type II diabetes is characterized by impaired insulin sensitivity and/or impaired insulin secretion, which clinically occurs when the body is no longer able to produce enough insulin to compensate for increased insulin resistance (Galicja, 2020). This disease not only threatens physical health, but can also affect the quality of life of patients, causing various serious complications, such as heart disease, stroke, kidney failure, and limb amputation (Decroli, 2019). These complications often occur if DM management is not done properly, so good self-management is very important to prevent this (Hushie, 2019).

A major problem in diabetes mellitus management lies in patient care behaviors that are influenced by their knowledge, beliefs and culture. In Bugis communities, self-care is often hampered by reliance on herbal remedies and lack of adequate medical knowledge about diabetes (Salma et al., 2021). Nonetheless, increased knowledge about diabetes can greatly assist in the control of blood glucose levels (Jufri et al., 2022). A culture-based approach to diabetes management, which accommodates local cultural values, can improve the effectiveness of education and care (Satrianegara et al., 2021; Anderson et al., 2013). Bugis culture with the concepts of "Siatutui" and "Sipakainge" that support social interaction and family involvement can strengthen patients' commitment to maintaining their health (Satrianegara et al., 2021).

On the other hand, diabetes self-management education (DSME) has been shown to be effective in helping patients make informed decisions regarding their diet, physical activity and medications (Hildebrand et al., 2020). However, so far there have not been many studies that specifically explore the effectiveness of the Bugis local culture-based diabetes self-management education (DSME) model in improving the quality of life of Type 2 Diabetes Mellitus (T2DM) patients. In fact, local wisdom such as the value of *siri' na pacce*, kinship systems, and communication patterns within the family have great potential in shaping health behaviors and improving patient adherence to diabetes therapy regimens. The integration of these cultural values in self-management education is believed to strengthen patients' intrinsic motivation in managing the disease sustainably.

This study aims to compile a comprehensive literature review on culture-based DSME approaches and their impact on the quality of life of people with T2DM. The review includes cross-cultural studies from African, Asian, and ethnic diaspora communities in the United States, with a focus on cultural perceptions of diabetes, self-management practices (diet, medication, physical activity), and culturally tailored educational interventions.

METHODS

This study used a literature review approach to explore and analyze studies that have been conducted on Type II diabetes self-management in different cultural contexts. As part of this approach, the research focused on studies that examined the influence of culture on diabetes self-management practices, as well as the impact of culture-based educational interventions on diabetes management in various populations, including in the United States, Egypt, Kenya, Indonesia, and Iraq.

Selection Criteria Studies included in this review are those published in the period between 2015 to 2023, which explore the influence of culture on diabetes self-management, either through ethnographic studies, systematic reviews, clinical studies, or community-based research. Only studies with relevant designs, such as quantitative, qualitative, or mixed studies, will be included. In addition, only studies that measure diabetes self-management-related variables, such as diabetes knowledge, self-care behaviors, and social, economic, and psychological factors that influence diabetes management, will be analyzed.

The Data Selection and Collection process begins with a literature search using relevant databases such as PubMed, Scopus, and Google Scholar. Articles that met the inclusion criteria were selected based on title, abstract, and methodology summary. Once relevant articles were found, further analysis was conducted to assess the methodological quality and relevance of the findings relating to diabetes self-management in a cultural context.

Analysis Data from the selected studies will be analyzed using a thematic approach. The main focus of the analysis is to identify common themes related to cultural factors that influence diabetes self-management, such as cultural beliefs, traditional medicine practices, and dietary and self-care challenges. An assessment will also be made of the effectiveness of the culture-based educational interventions implemented in each study, with attention to their impact on diabetes management, such as glycemic control, decreased psychological stress, and improved patient quality of life.

RESULT

The results of the analysis of the 19 articles reviewed provide deeper insights into the role of culture in the management of type II diabetes and recommendations on how culture-based interventions can be developed to improve the effectiveness of diabetes self-management education programs in various communities, particularly in Indonesia and countries with similar challenges.

Table 1 Related Research on the Influence of Culture and Education in Type II Diabetes Self-Management

No.	Author/Place/Year	Title	Subject	Design	Measured variable	Study Outcome
1	Abdulrehman et al., Los Angeles, USA, 2016	Exploring Cultural Influences of Self-Management of Diabetes in Coastal Kenya: An Ethnography	30 men & women with type II DM from a Swahili community in Kenya	Ethnography	Knowledge, self-care practices, economy, culture	Limited understanding, low foot care practices, barriers to accessing treatment, strong cultural influences
2	Sari et al., Netherlands, 2022	The cultural beliefs and practices of diabetes self-management in Javanese diabetic patients: An ethnographic study	Type II DM patients of Javanese culture	Ethnography	Beliefs, traditional medicine, diet, stress coping	Javanese culture influences DM management, common misperceptions, traditional medicine use
3	Gonzalez-Zacarias et al., Columbus, USA, 2016	Impact of Demographic, Socioeconomic, and Psychological Factors on Glycemic Self-Management in Adults with T2DM	Adults with type II DM	Literature review	Demographic, socio-economic, psychological factors, HbA1c, management behavior	Significant association with glycemic control
4	Hegazi et al., Egypt, 2015	Epidemiology of and Risk Factors for Type II Diabetes in Egypt	Egypt's adult population aged 20-79 years	Review	DM prevalence, risk factors, culture	Significant increase in prevalence, risk: obesity, inactivity, HCV
5	Li-Geng et al., USA, 2020	Cultural Influences on Dietary Self-Management of Type II	East Asian Americans with type II DM	Mixed-method systematic review	Food beliefs	Cultural beliefs influence adoption of a healthy diet
6	Hailu et al., Ethiopia, 2019	DSME - Effect on Knowledge, Self-Care Behavior, and Self-Efficacy Among T2DM in Ethiopia	220 patients (116 intervention, 104 control)	Pre-post 2 groups	Knowledge, self-care behavior, self-efficacy	Significant improvement in knowledge & behavior; efficacy not significant
7	McElfish et al., USA, 2019	DSME Exposure and HbA1c among Marshallese Participants	Marshallese individuals with type II DM	RCT, 221 participants	DSME exposure (family vs standard)	DSME ≥ 10 hours decreases HbA1c significantly
8	Azam et al., USA, 2018	Cultural and Social Challenges of DSME Through Physicians' Voices	16 multi-specialty doctors	Exploratory in-depth interview	Referral patterns, cultural understanding, shared decisions	Referrals vary, doctors understand patient culture
9	Yeary et al., USA, 2017	Cultural Adaptation of DSME for Marshallese	Marshallese community in Arkansas	CBPR	DSME awareness & behavior, acceptance & effectiveness	Culturally appropriate DSME reduces health inequalities
10	Mikhael et al., Iraq, 2023	Cost-Effectiveness of Culturally Developed DSME in Iraq	Type II DM patients in Iraq	RCT	Cost, glycemic control, quality of life, adherence	DSME is cost effective, improves glycemic & metabolic outcomes
11	Pena-Purcell et al., USA, 2019	Impact of DSME on Psychological Distress in African Americans and Hispanics/Latinos	African-American & Hispanic/Latino DM Patients	Pre-post test (week 1 & 7)	Demographics, self-care, efficacy, knowledge, psychological stress	DSME improves psychological health & DM management

No.	Author/Place/Year	Title	Subject	Design	Measured variable	Study Outcome
12	Nurfadhila et al., Indonesia, 2023	Culture-Based Health Education on People with DM: A Scoping Review	Adults with type II DM	Scoping review	HbA1c, glucose, lipids, blood pressure, education strategy	Culture & family-based interventions are effective for management
13	Nooseisai et al., Thailand, 2021	Effects of DSME on Blood Glucose, Stress, QoL in Women with T2DM	77 women with type II DM in 2 health centers	Quasi-experimental	Blood glucose, stress, quality of life	DSME lowers glucose & stress, improves quality of life
14	Azam et al., USA, 2018	Cultural and Social Challenges of DSME Through Physicians' Voices	16 multi-specialty doctors	Exploratory, in-depth interviews	DSME referral, cultural understanding	Cultural education is important, doctors understand patient needs
15	Mustapa et al., Malaysia, 2022	Effects of patient education on the quality of life of patients with type 2 diabetes mellitus: A scoping	Patients with type 2 diabetes (T2DM), a total of 2,909 patients	Scoping review	Patient education methods, intervention characteristics, QoL measures	Self-management education with additional support and monitoring significantly improves QoL
16	Demla et al., UK, 2021	Instruments measuring the quality of life among people living with type II diabetes mellitus in India: a systematic review protocol	Type II DM patients (n=2,909, intervention and control groups)	Scoping review	Education methods, QoL measures, adverse events	Some studies showed significant differences in QoL between groups, others were not significant
17	Ernawati et al., Indonesia, 2021	Effectiveness of diabetes self-management education (DSME) in type 2 diabetes mellitus (T2DM) patients: Systematic literature review	Patients with type 2 diabetes	Systematic literature review	Knowledge, self-care behavior, lifestyle, blood glucose, HbA1c	DSME is effective in improving lifestyle, self-care, and clinical conditions
18	Maesa et al., Indonesia, 2024	Effect of Self-Management Education on Quality of Life	Type 2 diabetes patients	Quasi-experimental (nonrandomized pre-post)	Self-management education, quality of life (DQOL), fasting blood sugar	Significant improvement in quality of life and GDP (p = 0.000)
19	Alsayed Hassan et al., Switzerland, 2022	Diabetes Self-Management and Health-Related Quality of Life among Primary Care Patients with Diabetes in Qatar: A Cross-Sectional Study	Type II DM patients in Qatar primary health centers (n=105)	Cross-sectional study	Demographics, DSM practice (DSMQ), HRQOL (SF-12)	Poor DSM practice in 48.6%, poor HRQOL in 50.5%, association of good DSM with better QoL

DISCUSSION

The results of this literature review show that educational intervention models such as Diabetes Self-Management Education (DSME) are developed with a cultural approach. A number of studies have shown that the success of DSME in improving knowledge, self-efficacy, and glycemic control is highly dependent on the cultural fit between the intervention materials and the values of the target community. Family involvement, traditional leaders, and cultural understanding of traditional food and medicine are important factors that influence intervention outcomes. Diabetes self-management cannot be separated from the cultural context in which the patient is located. In the Swahili community in Kenya, for example, there is limited understanding of diabetes care, especially in foot care practices and limited access to treatment. Local culture has been shown to greatly influence how patients perceive and manage their disease (Abdulrehman et al., 2016). Similar findings were also seen in type 2 diabetes patients from Javanese culture, where beliefs in traditional medicine and perceptions of certain diets shaped self-management practices that differed from medical standards (Sari et al., 2022). When demographic, socioeconomic and psychological dimensions

are taken into account, as discussed by Gonzalez-Zacarias et al. (2016), it appears that these factors correlate with an individual's ability to control blood glucose levels. This suggests the need for a holistic and contextualized approach to diabetes management. In a broader context, the dramatically increasing prevalence of diabetes in Egypt is also attributed to the role of culture, obesity, and sedentary lifestyle (Hegazi et al., 2015), underscoring the need for behavior change-based interventions that are in line with local cultural norms.

Cultural beliefs related to food also pose a challenge to the adoption of a healthy diet. East Asian-Americans, for example, face barriers in adapting their traditional foods to medically recommended diabetes dietary principles (Li-Geng et al., 2020). On the other hand, the perspective of medical personnel is also important. Physicians in the United States recognize that understanding a patient's culture can influence the effectiveness of referrals and shared clinical decision-making (Azam et al., 2018). Educational interventions based on DSME (Diabetes Self-Management Education) have shown promising results. In Ethiopia, DSME training improved self-care knowledge and behavior although it was not significant in improving patients' self-efficacy (Hailu et al., 2019). A possible explanation is that it takes time and psychosocial approaches to shape an individual's belief in his or her ability to manage the disease. In contrast to the Marshallese community, exposure to DSME for more than 10 hours was able to significantly reduce HbA1c levels, especially when the program involved family members (McElfish et al., 2019).

Cultural adaptation in DSME is key to the program's effectiveness. In the context of Marshallese communities, culturally tailored programs have been shown to reduce health inequalities (Yeary et al., 2017). This finding was reinforced by Mikhael et al. (2023) who showed that culturally developed DSME in Iraq was not only clinically effective, but also cost-effective. Psychological aspects are equally important. DSME interventions among African-American and Hispanic/Latino patients can reduce psychological stress and improve overall diabetes management (Pena-Purcell et al., 2019). Similarly, a scoping review by Nurfadhila et al. (2023), which emphasized that cultural and family-based educational interventions can have a positive impact on clinical indicators such as HbA1c and blood pressure.

In Thailand, DSME training successfully reduced blood glucose levels and stress, and improved the quality of life of women with type 2 diabetes (Nooseisai et al., 2021). These effects demonstrate the importance of emotional and social support in intervention design. This support is also reinforced by Mustapa et al. (2022), who stated that patient education combined with regular monitoring can significantly improve quality of life. However, findings from Demla et al. (2021) showed that the effect of improving quality of life was not always consistent across studies, possibly due to differences in methodology or duration of intervention. The systematic study from Ernawati et al. (2021) confirmed that DSME was able to improve healthy lifestyle, self-care behavior, and clinical parameters. These results are in line with the research of Maesa et al. (2024) who noted a significant improvement in quality of life and a decrease in fasting blood sugar levels after the implementation of self-management education.

Nevertheless, challenges remain. A cross-sectional study in Qatar revealed that almost half of patients had low DSM practices and quality of life (Alsayed Hassan et al., 2022). These findings reinforce the importance of developing more integrated DSME strategies, focusing on understanding local culture as well as the active role of patients and families. Overall, studies show that successful diabetes self-management is strongly influenced by cultural understanding, family support, and targeted educational approaches. Interventions that are contextually designed and responsive to cultural values have been shown to be more effective in improving diabetes patients' knowledge, self-care behaviors, and quality of life. Therefore, the involvement of health workers who have cultural competence and holistic approaches needs to be strengthened in the modern health care system.

CONCLUSIONS

Effective diabetes self-management depends on cultural understanding, family support, and locally tailored educational approaches. Studies show that interventions that consider cultural factors, such as beliefs in traditional medicine and diet, are more successful in improving patients' knowledge, self-care behaviors, and quality of life. Emotional and social support, especially from family, also plays a role in reducing health inequalities and improving clinical outcomes. The development of culturally-based self-management programs with competent health professionals is essential for optimal outcomes in diabetes management.

Conflic Interest: None

Finance: None

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