

Nurses' Role in Culturally Sensitive Diabetes Care: A Scoping Review

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ABSTRACT

Culturally sensitive care is essential in diabetes management, as cultural beliefs, language, family roles, and religious practices strongly shape health behaviors and outcomes. Nurses, through their close contact with patients, are uniquely positioned to deliver such care, yet their contributions remain underexplored in previous reviews. This scoping review aimed to map nurse-led culturally sensitive interventions in diabetes care, describe adaptation strategies, synthesize reported outcomes, and identify knowledge gaps. Guided by Arksey and O'Malley's framework, enhanced by Levac et al., and aligned with PRISMA-ScR and the JBI Manual, a systematic search was conducted across PubMed, Scopus, CINAHL, ScienceDirect, ProQuest, and Google Scholar for English-language studies published between January 2015 and May 2025. Sixteen studies met the inclusion criteria. Nurse-led interventions included Diabetes Self-Management Education (DSME), family-centered programs, faith-based initiatives, mHealth follow-ups, and community-based culturally contextualized care. Strategies applied were language adaptation, religious and spiritual integration, dietary alignment with traditional foods, family and community engagement, and respect for local norms. Reported outcomes were consistently positive across behavioral, clinical, psychosocial, and knowledge domains. However, gaps persist, including underrepresentation of Southeast Asian and Indigenous populations, inconsistent measurement of psychosocial outcomes, minimal reporting on nurse training, and limited system-level integration. This review underscores the central role of nurses as cultural brokers in diabetes care and calls for embedding cultural competence in nursing education, clinical practice, and policy.

Keywords: Nurse-led intervention; Cultural sensitivity; Diabetes care; Transcultural nursing; Health disparities

INTRODUCTION

Diabetes mellitus remains one of the most urgent global health challenges, affecting an estimated 537 million adults worldwide as of 2021, with this number projected to rise to 643 million by 2030 and 783 million by 2045¹. Effective management of diabetes extends beyond pharmacological treatment; it requires sustained self-care behaviors, dietary regulation, psychosocial support, and continuous education². Nurses play a pivotal role in facilitating these efforts through patient-centered care, frequent contact, and ongoing education across community and clinical settings. However, the success of these interventions is significantly influenced by cultural beliefs, practices, and varying levels of health literacy³.

Cultural sensitivity in nursing has gained increasing recognition, particularly in the management of chronic diseases such as diabetes. Cultural factors—including health beliefs, dietary habits, family roles, and religious practices—shape how individuals perceive their illness, adhere to medication, interpret dietary recommendations, and engage in health-promoting behaviors⁴. A lack of culturally informed care can result in disengagement, reduced trust, and poorer health outcomes, while culturally tailored nursing care has been shown to improve patient engagement, satisfaction, and clinical outcomes, particularly among underserved populations^{5,6}. Evidence also demonstrates that culturally adapted diabetes education enhances glycemic control, self-efficacy, and overall quality of care⁷⁻⁹. Nurses, especially those working in community and primary care settings, are uniquely positioned to deliver such interventions by incorporating culturally appropriate strategies such as faith-based programs¹⁰, language-specific education¹¹, and dietary accommodations¹².

Although significant progress has been made, there remains a lack of consolidated evidence regarding the specific strategies nurses employ in delivering culturally sensitive diabetes care. Previous reviews on cultural competence in healthcare have largely focused on physician-led or multidisciplinary interventions, leaving nursing-specific contributions underexplored^{13,14}. Moreover, many studies are geographically limited, with underrepresentation of Southeast Asian contexts, and often fail to categorize intervention outcomes thematically. This gap hinders the development of nursing-specific practice guidelines and culturally informed policies that could strengthen the delivery of equitable diabetes care across diverse populations.

Cultural context plays a crucial role in shaping health behaviors in Southeast Asia, where collectivist family structures, religious observance, and traditional beliefs strongly influence diabetes self-care practices. Yet, nurse-led interventions addressing these cultural dimensions remain limited and inconsistently documented. This gap highlights the need to consolidate evidence on culturally sensitive nursing care for diabetes to strengthen nursing education, clinical practice, and health policy.

Therefore, this scoping review was undertaken to systematically map nurse-led culturally sensitive interventions in diabetes care, identify the cultural adaptation strategies employed, synthesize reported outcomes, and highlight remaining knowledge gaps. Specifically, the review aims to answer how nurses implement culturally sensitive interventions, what cultural strategies are incorporated into diabetes care, what types of outcomes are achieved, and what gaps persist in the literature. By consolidating this evidence, the review provides an essential foundation to inform nursing education, clinical practice, and health policy on culturally competent diabetes care.

METHODS

Design

A scoping review design was used, following the methodological framework by Arksey and O'Malley, enhanced by Levac et al, and aligned with the PRISMA-ScR checklist¹⁵ and the JBI Manual for Evidence Synthesis¹⁶. This approach enabled comprehensive mapping of evidence on nurse-led culturally sensitive diabetes care without requiring formal meta-analysis.

Eligibility criteria

This review examined literature published between January 2015 and May 2025 to capture the most recent decade of research. Only peer-reviewed articles written in English were included. Studies were eligible if they involved nurses or nurse-led interventions, addressed cultural sensitivity, competence, or adaptation, targeted individuals with diabetes mellitus, and reported empirical evidence (both primary research and evidence syntheses). Excluded were studies limited to physician-led or non-nursing interventions, those without cultural adaptation, those not involving people with diabetes, and opinion pieces, commentaries, or editorials lacking empirical evidence.

Search strategy

Two researchers conducted a literature search using six databases: PubMed, Scopus, CINAHL, ScienceDirect, ProQuest, and Google Scholar. Boolean operators and controlled vocabulary were applied to capture variations of the core concepts. The final search string included combinations of terms such as “nurse” OR “nursing” OR “nurse-led”, “cultural sensitivity” OR “cultural competence” OR “transcultural nursing”, “diabetes” OR “type 2 diabetes”, and related keywords for interventions and target populations. The search was adapted to the syntax of each database and limited to English-language articles published between January 2015 and May 2025. Titles and abstracts were screened independently by two reviewers, and reference lists of included articles were manually checked for additional eligible studies.

Study selection inc. PRISMA-ScR flow diagram

The initial search identified 874 records. After removing 123 duplicates, 751 records remained for screening. Following title and abstract review, 620 records were excluded. A total of 131 full-text articles were assessed for eligibility, of which 115 were excluded for reasons including: not nurse-led interventions ($n = 35$), no cultural sensitivity component ($n = 28$), population not diagnosed with diabetes mellitus ($n = 22$), not an empirical study ($n = 22$), and other reasons ($n = 8$). Finally, 16 studies were included in the synthesis. The PRISMA-ScR flow diagram (Figure 1) summarizes the selection process.

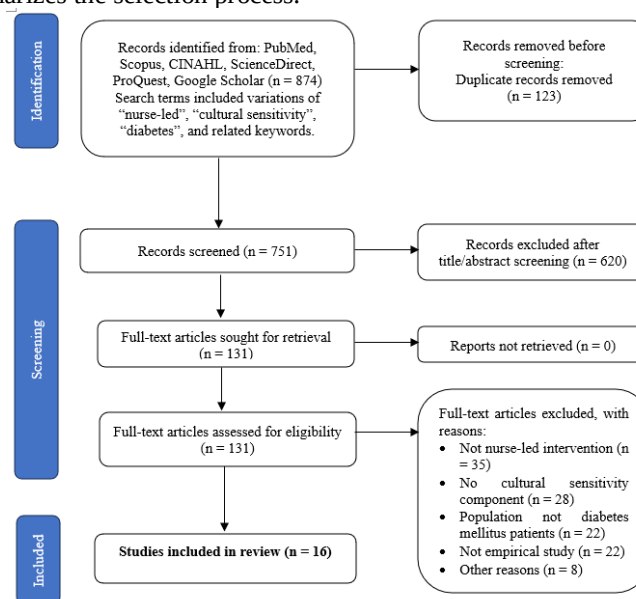


Figure 1. PRISMA-ScR Flow Diagram of Study Search Process

Evaluation of Quality of Article

In line with the Joanna Briggs Institute (JBI) guidance for scoping reviews, this review aimed to map available evidence rather than exclude studies based on methodological quality, yet a critical appraisal was conducted to assess methodological rigor and contextualize the findings. Two reviewers independently evaluated the included studies using the relevant JBI Critical Appraisal Checklists according to study design. Discrepancies were resolved through discussion or consultation with a third reviewer, and overall quality ratings were applied descriptively to highlight strengths, limitations, and potential biases, thereby informing the interpretation of results.

Data Extraction

Data extraction was conducted using a structured charting form developed iteratively by the review team, guided by Arksey and O'Malley's framework and refined by Levac. Extracted items included author(s) and year, country or region, study design and setting, population characteristics (e.g., type of diabetes, cultural background), type of nurse-led intervention, cultural sensitivity strategies (e.g., language adaptation, religious considerations, dietary customs, traditional beliefs), and reported outcomes (behavioral, clinical, psychosocial, knowledge). Two reviewers independently extracted data to ensure consistency, with discrepancies resolved by discussion or consultation with a third reviewer.

Thematic Analysis

Themes were developed inductively using Braun and Clarke's thematic analysis. Coding was conducted manually by two reviewers; NVivo software was not used, but consensus meetings ensured coding reliability. This process involved data familiarization, initial coding, organization of codes into categories, and abstraction into overarching themes. The thematic synthesis further informed the construction of a conceptual framework mapping the relationship between intervention types, cultural strategies, and patient outcomes.

RESULTS

Overall, the 16 included studies highlighted Diabetes Self-Management Education (DSME) as the most common intervention, followed by faith-based and mHealth programs. Most were conducted in the United States ($n = 7$), with limited studies from Asia ($n = 4$) and Africa ($n = 2$), and only a few multinationals in scope. The populations studied were diverse, including African American, Hispanic, African-Caribbean, Chinese, Ethiopian, Bangladeshi, and other minority groups.

This scoping review analyzed 16 studies published between 2016 and 2025, using various research designs including randomized controlled trials, quasi-experimental studies, qualitative research, systematic reviews, scoping reviews, and implementation studies. Most studies were conducted in the United States ($n = 7$), primarily targeting African American and Hispanic populations. Other studies were conducted in the United Kingdom ($n = 2$), China ($n = 2$), Ethiopia ($n = 2$), and Australia ($n = 1$). Two studies were multinational in scope.

Types of Nurse-Led Interventions in Culturally Sensitive Diabetes Care

The most common intervention was Diabetes Self-Management Education (DSME), delivered individually, in groups, or with family involvement. For instance, structured DSME in Mandarin improved HbA1c and self-care in China, while church-based DSME in the United States enhanced self-efficacy among African Americans¹⁷⁻²⁰. Family-inclusive DSME models actively engaged relatives, particularly in collectivist cultures^{21,22}. Other nurse-led approaches included group visit models that fostered peer support and cultural alignment, such as community-based programs for Bangladeshi and African American populations²³⁻²⁵; and faith-based DSME groups in religious centers^{18,26}. Telehealth and mHealth interventions were also reported, using mobile applications and phone follow-ups for Vietnamese and Chinese patients²⁷, and remote culturally adapted education in other contexts^{20,28}. In addition, community-based and faith-based programs emphasized engagement with spiritual leaders and local customs, such as faith-based lifestyle programs in churches^{24,26}. and contextualized DSME adapted to language, literacy, and cultural practices in Ethiopia^{17,29}. At the systems level, nurses contributed to health system and policy integration, coordinating equitable care pathways³⁰, and leading interprofessional programs to embed cultural sensitivity into service delivery^{19,31}.

Table 1 summarizes the characteristics of the 16 included studies, detailing author, country, design, target population, nurse-led intervention type, cultural strategies, and key outcomes.

Cultural Strategies Incorporated into Diabetes Care

Five main strategies were consistently applied across the 16 included studies. Language and communication adaptation was commonly used, for example through bilingual education and translated materials to improve accessibility^{20,28}. Religious and spiritual integration was also important, with interventions incorporating prayer, scripture, and faith-based messages in African American church programs^{18,24}. Dietary

customization tailored education to culturally familiar foods and cooking practices, particularly in Asian and African contexts^{19,29}. Family and community involvement further enhanced engagement, with programs actively involving relatives and community leaders to support self-care in collectivist cultures^{17,21,22}. Finally, respect for roles and norms, such as acknowledging family hierarchy or gender-specific responsibilities, helped ensure cultural acceptability of interventions^{21,25}.

Figure 2 (bubble chart) illustrates the intersection of intervention types and cultural strategies, mapping how each strategy aligned with behavioral, clinical, and psychosocial outcomes. The largest bubbles appear where family-inclusive DSME overlapped with language and community engagement, highlighting strong evidence for improved behavioral and knowledge outcomes.

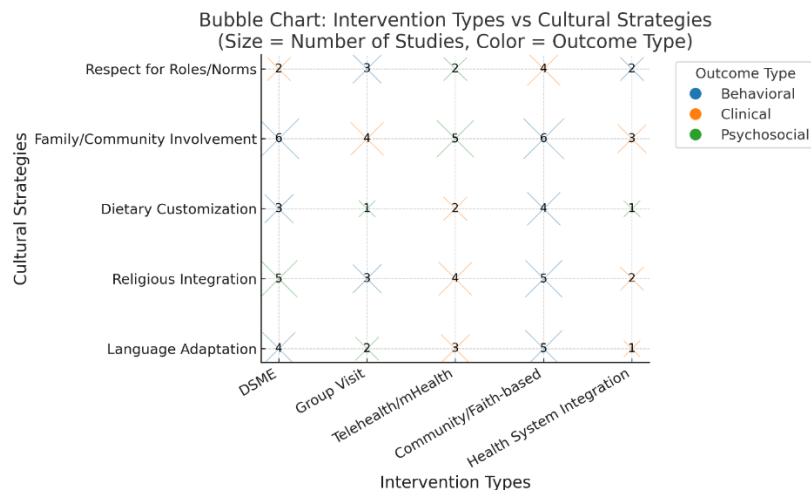


Figure 2. Bubble Chart of Intervention Types and Cultural Strategies in Culturally Sensitive Diabetes Care

Reported Outcomes of Culturally Sensitive Nurse-Led Interventions

Most of the 16 included studies reported positive outcomes, which can be grouped into four domains: behavioral, clinical, psychosocial, and knowledge outcomes. Together, these findings underscore the broad effectiveness of integrating cultural sensitivity into diabetes care.

- Behavioral Outcomes:** Nurse-led interventions significantly improved self-care behaviors, including diet, medication adherence, physical activity, and glucose monitoring. Family and peer support further enhanced foot care and reduced risky behaviors, while culturally aligned education boosted self-efficacy and confidence^{17,20,22,25,28,29}.
- Clinical Outcomes:** Notable improvements were seen in HbA1c, BMI, and blood pressure, particularly through structured DSME and mHealth interventions. In underserved or high-risk groups, nurse-led programs also reduced emergency visits and improved chronic disease control^{19,20,24,27,32}.
- Psychosocial Outcomes:** Faith-based and community-integrated interventions enhanced emotional resilience and spiritual comfort, reduced stigma and isolation, and fostered stronger social connectedness and family support^{18,22,29,33,34}.
- Knowledge Outcome:** Several studies reported substantial gains in patient knowledge regarding diet, glucose monitoring, medication use, and complication prevention, with notable improvements in culturally contextualized DSME, such as in Ethiopia^{19,21,28}.

Figure 3 provides a schematic linking intervention types, cultural strategies, and outcome domains, demonstrating how nurse-led culturally sensitive diabetes care simultaneously influences behavioral, clinical, psychosocial, and knowledge outcomes across different cultural contexts.

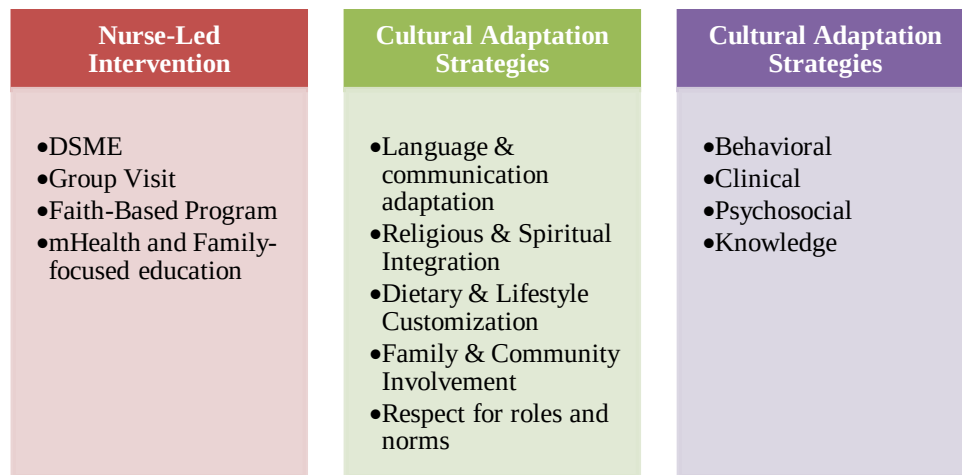


Figure 3. Conceptual Framework: Nurse-Led Interventions, Cultural Adaptation Strategies, and Patient-Level Outcomes

Table 1. Data Extraction of Included Studies on Culturally Sensitive Diabetes Care

No	Author(s) and Year	Country or Region	Study Design and Setting	Population Characteristics	Nurse-Led Intervention	Cultural Strategies	Key Outcomes	Notes
1	Goode, (2017)	USA	Pilot study in church setting	African Americans with T2DM	Diabetes Self-Management Education (DSME)	Faith-based, culturally adapted	↑ Self-efficacy, ↑ knowledge	Delivered post-service sessions
2	Sattin et al., (2016)	USA	Randomized Controlled Trial (RCT) in churches	African Americans at risk for T2DM	Lifestyle program (Faith-Based Adapted Steps – FBAS)	Religious framing, lay health advisors	↓ Weight, ↓ glucose	Effective in church settings
3	Weeks et al., (2024)	USA	Program implementation in churches	African Americans with T2DM	DSME in church setting	Biblical content, trusted environment	↑ Engagement	Emphasizes trust-building
4	Goff et al., (2020)	UK	Qualitative study	African-Caribbean adults with T2DM	DSME and support program	Language adaptation, culturally relevant food, family involvement	Identified cultural mismatch barriers	Highlights need for nurse cultural training
5	Abu & Llahana, (2025)	UK/Western countries	Systematic review	Ethnic minorities with T2DM	Mixed interventions (some nurse-led)	Trust, faith, stigma, food customs	Barriers and facilitators identified	Recommends flexible design
6	Choi et al., (2017)	Australia	Case study	Chinese adults with T2DM	DSME program	Language, dietary alignment, traditional health beliefs	↑ Understanding, ↑ engagement	Used narrative-based teaching
7	Tamiru et al., (2023)	Ethiopia	Quasi-experimental	Adults with T2DM	Monthly DSME sessions	Locally relevant content	↑ Knowledge, ↑ behavior	Applicable to low-resource settings
8	Garrido-Bueno et al., (2024)	Multiple countries	Systematic review	People with Type 1 DM	Health promotion programs	Emotional and psychosocial focus	↓ Glucose, ↑ well-being	Meta-analysis of multiple models
9	Deverts et al., (2025)	USA	Qualitative + observational	Hispanic adults with T2DM	DSME with family inclusion	Bilingual delivery, family-focused approach	↑ Support, ↑ engagement	Cultural focus on family roles
10	Tolentino et al., (2022)	USA	Scoping review	Asian Americans with T2DM	Mixed interventions	Dietary adaptation, religious considerations, family roles	Identified gaps and strengths	Underrepresentation noted

No	Author(s) and Year	Country or Region	Study Design and Setting	Population Characteristics	Nurse-Led Intervention	Cultural Strategies	Key Outcomes	Notes
11	Liu et al., (2019)	China	Randomized Controlled Trial (RCT)	Chinese adults with T2DM	Structured DSME	Mandarin language, culturally relevant food, family support	↓ HbA1c, ↑ self-care	Strong evidence for tailored education
12	Sharma et al., (2021)	Asia	Systematic review	Adults with T2DM in Asia	DSME in community settings	Religion, language, dietary adaptation	↑ Adherence, ↓ glucose	Recommends nurse empowerment
13	Underwood et al., (2025)	USA	Implementation study	Vulnerable populations	System-based DSME	Equity focus, structured approach	↑ Coordination, ↓ care gaps	Nurse-led systems approach
14	Chen et al., (2025)	China	Meta-analysis	Adults with T2DM	Telephone-based nurse follow-up	Not culturally tailored	↓ HbA1c	Cost-effective remote model
15	Joo & Liu, (2021)	Global	Qualitative review	Ethnic minorities with T2DM	Culturally tailored DSME	Faith, food, language adaptation	↑ Empowerment, ↑ adherence	Flexibility essential
16	Hailu et al., (2021)	Ethiopia	Controlled before–after community study	Adults with T2DM in Jimma	Locally contextualized DSME by trained nurses	Local language, context, literacy, and cultural tailoring	↑ Knowledge, ↑ self-efficacy, ↑ QoL, ↑ psychosocial health	6-month program with group education & follow-up

Thematic Synthesis

Beyond the descriptive mapping in Table 2, a thematic analysis was conducted to capture deeper patterns across the 16 included studies. Six overarching themes emerged, each comprising several subthemes that reflect the complexity of culturally adapted nursing interventions in diabetes care. Table 2 summarizes the alignment of intervention categories, cultural strategies, and outcome domains. It shows that DSME most often combined language adaptation and faith integration to improve behavioral and knowledge outcomes. Family-involved care emphasized respect for family roles and norms, influencing psychosocial and knowledge domains. Group education applied local language and religious content to strengthen behavioral and knowledge outcomes, while mobile and outreach care incorporated dietary customization and traditional beliefs, contributing to clinical, psychosocial, and knowledge improvements. Faith-based care focused on religious framing and trust-building, mainly enhancing psychosocial outcomes, whereas system-level DSME emphasized equity and access, with effects across clinical, behavioral, and knowledge outcomes.

Table 2. Summary of Thematic Findings from Included Studies

No.	Intervention Category	Cultural Strategies	Outcome Domains
1	DSME	Language adaptation, faith integration	Behavioral, Knowledge
2	Family-Involved Care	Respect for family roles & norms	Psychosocial, Knowledge
3	Group Education	Local language, religious content	Behavioral, Knowledge
4	Mobile/Outreach Care	Dietary customization, traditional belief integration	Clinical, Psychosocial, Knowledge
6	Faith-Based Care	Religious framing, trust-building	Behavioral, Psychosocial
7	System-Level DSME	Equity & access focus	Clinical, Behavioral, Knowledge

Table 3 further synthesizes these findings into six overarching themes: nurse leadership in culturally adapted education; faith and spirituality as anchors of intervention; cultural customization of diet, language, and lifestyle; enhancing psychosocial well-being through family and community engagement; system-level and structural barriers; and diversity of evidence and research gaps. Collectively, these themes highlight how nurses adapt diabetes care to cultural contexts, while also exposing structural and research challenges that must be addressed to ensure equitable care.

Table 3. Thematic Analysis of Nurse-Led Culturally Sensitive Diabetes Care Studies

No.	Theme	Subthemes	Studies
1	Nurse Leadership in Culturally Adapted Diabetes Education	Individual and group DSME; Family-inclusive education; mHealth/telehealth approaches	Liu et al., 2019; Hailu et al., 2021; Chen et al., 2025
2	Faith and Spirituality as Anchors of Intervention	Interventions in faith-based settings; Use of prayer/scripture; Involvement of spiritual leaders or framing	Goode, 2017; Weeks et al., 2024; Sattin et al., 2016
3	Cultural Customization of Diet, Language, and Lifestyle	Multilingual and bicultural materials; Traditional dietary guidance; Respect for beliefs and taboos	Choi et al., 2017; Liu et al., 2019; Sharma et al., 2021
4	Enhancing Psychosocial Well-being through Family and Community Engagement	Family-inclusive DSME; Peer support or group models; Addressing emotional and social health	Deverts et al., 2025; Hailu et al., 2021
5	System-Level and Structural Barriers to Implementation	Nurse training and education gaps; Policy and institutional limitations; Limited infrastructure for tailored care	Goff et al., 2020; Underwood et al., 2025
6	Diversity of Evidence and Research Gaps	Lack of longitudinal evidence; Underrepresentation of ethnic/cultural groups; Variable measurement outcomes	Abu & Llahana, 2025; Tolentino et al., 2022

Conceptual Framework

Building on these themes, a conceptual framework (Figure 3) illustrates the interconnections between nurse-led interventions, cultural adaptation strategies, and patient-level outcomes. The framework highlights the pivotal role

of nurses as cultural brokers, bridging clinical care with patients' beliefs, family structures, dietary practices, and spiritual values. By visually linking intervention types, cultural strategies, and outcomes, the model provides practical guidance for strengthening culturally competent diabetes care in nursing education, clinical practice, and health policy.

Gaps in the Literature

Although the findings highlight the benefits of culturally sensitive nurse-led diabetes interventions, several important gaps and limitations were identified. First, most studies had relatively short follow-up periods, often ≤ 6 months, which limits the evidence for long-term sustainability of outcomes. Large, multicenter trials—particularly in low- and middle-income countries—remain scarce, despite the clear need for culturally adapted interventions^{17,21,33}. Second, there was a marked underrepresentation of certain ethnic and cultural groups. The majority of studies focused on African American, Hispanic, Chinese, and South Asian populations, while Southeast Asians (e.g., Indonesian, Vietnamese), Indigenous communities, and multiethnic populations in countries such as Malaysia or Canada were rarely studied, thereby reducing the generalizability of findings²⁸. Third, only a few studies provided details on how nurses were trained in cultural competence, even though such training is critical for the success of culturally sensitive interventions. Structured programs, continuing education, and institutional support for cultural competence were often absent or insufficiently reported³⁵. Fourth, psychosocial and spiritual outcomes were inconsistently measured. While many studies described improvements in emotional well-being and spiritual comfort, few used validated tools to assess cultural identity, spirituality, or social connectedness. Instead, most relied on self-reported outcomes, limiting comparability across contexts^{18,34}. Finally, there was limited evidence on the integration of nurse-led culturally sensitive care into broader health systems or national policies. Barriers such as restricted nursing authority, lack of reimbursement mechanisms for culturally tailored services, and insufficient integration of cultural data into electronic health records were rarely examined in depth³⁰. Together, these gaps highlight the need for stronger research designs, broader representation of diverse populations, and greater system-level support to advance culturally competent nursing practice in diabetes care.

DISCUSSION

This scoping review demonstrates that nurses play diverse and essential roles in delivering culturally sensitive diabetes care. By adapting interventions to patients' linguistic, dietary, familial, and spiritual contexts, nurses were able to improve self-care behaviors, clinical indicators, psychosocial well-being, and knowledge outcomes. These findings are significant because they highlight nursing's unique contribution to reducing diabetes disparities, an area often overlooked in previous reviews^{13,19}. Earlier reviews of culturally adapted diabetes care have largely emphasized physician-led or multidisciplinary models. Joo and Liu¹³ and Sharma et al.¹⁹ found that culturally tailored programs improved glycemic outcomes, but did not isolate the specific contributions of nurses. In contrast, this review shows that nurses—through frequent contact and trust-building roles—are central in embedding cultural strategies directly into daily care^{18,22,29}. This distinction underlines the novelty of the current review, which systematically maps nursing-specific approaches.

The effectiveness of cultural interventions appears to operate through several mechanisms. First, trust and credibility were strengthened when nurses delivered care in familiar community or faith-based settings, which increased patient engagement and adherence^{18,26}. Second, reduced stigma and improved social support were achieved through family-inclusive models^{22,29}, helping patients feel less isolated and more empowered. Third, improved communication, achieved via bilingual education and culturally congruent teaching methods, enhanced patients' understanding and self-efficacy^{20,31}. These mechanisms explain why interventions often yielded not only clinical benefits but also psychosocial and behavioral improvements. A notable finding is that most studies were conducted in the United States, with very few from Southeast Asia. This imbalance likely reflects research capacity and funding priorities in high-income countries^{19,28}, but it limits the generalizability of findings to regions such as Indonesia, where cultural, linguistic, and health system contexts differ substantially. For example, collectivist values and strong religious practices in Indonesia suggest that family-centered DSME and faith-based framing may be especially relevant, but this has not yet been systematically studied^{17,29}.

For clinical practice, Indonesian nurses can integrate cultural assessments into routine care, use local language and metaphors in education, and collaborate with religious leaders to enhance acceptance of lifestyle changes. In education, nursing curricula should embed cultural competence training, including community immersion and reflective practice, to prepare graduates for diverse patient populations. At the policy level, integrating cultural competence indicators into accreditation standards, supporting nurse-led community programs, and ensuring reimbursement for culturally adapted services are crucial to institutionalizing these practices.

The strength of this review lies in its systematic synthesis of nurse-led, culturally adapted diabetes interventions across diverse populations. However, several limitations affect interpretation. The exclusion of non-

English studies introduces potential language bias, likely omitting relevant evidence from regions such as Indonesia and Latin America. Publication bias may also have inflated positive findings, since null or negative results are less likely to be published. Additionally, outcome measures varied widely across studies, particularly for psychosocial and spiritual domains, which relied heavily on self-report rather than validated instruments. These methodological limitations call for caution in interpreting the magnitude of effectiveness.

CONCLUSION

This scoping review confirms that nurse-led culturally sensitive interventions—such as DSME, mHealth, faith-based, and family-centered models—consistently improve behavioral, clinical, psychosocial, and knowledge outcomes, particularly among underserved groups. Yet, important gaps remain, including limited representation of Southeast Asian populations, inconsistent measurement of cultural and psychosocial outcomes, and insufficient focus on nurse training. Moving forward, nursing curricula should embed cultural competence through experiential learning and reflective practice; health systems must integrate cultural competence into accreditation standards and provide reimbursement for culturally adapted services; and research should prioritize multicenter and longitudinal studies in low-resource and multicultural settings. Embedding cultural sensitivity in nursing is both a professional priority and an ethical imperative to promote equity and trust in diabetes care.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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Author Contributions

AYu, AW, AG, YS and SD contributed to the conceptualization, methodology, data analysis, and interpretation. AYu, AW and AG prepared the initial draft of the manuscript. All authors participated in reviewing, editing, and approving the final version for publication.

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