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Psychosocial interventions for diabetes distress in culturally diverse populations: a systematic scoping review

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ABSTRACT

Objectives Diabetes distress, arising from the relentless demands of diabetes management, is notably higher in culturally diverse groups. Psychosocial interventions may reduce diabetes distress through cultural tailoring that addresses beliefs and language barriers. This scoping review aimed to map the availability, key features and impact of psychosocial interventions addressing diabetes distress in culturally diverse groups.

Design This scoping review followed the Arksey and O'Malley framework.

Data sources Five databases (PubMed, PsycINFO, Cochrane Library, CINAHL and Web of Science) were searched for peer-reviewed publications (2013–2024).

Eligibility criteria The included studies involved participants from culturally diverse groups who were diagnosed with diabetes and engaged in psychosocial interventions. Our search did not restrict diabetes type, but all included studies enrolled adults with type 2 diabetes. Studies in English, with no restrictions on study design and geographical location were included. The review excluded studies focusing on caregivers of patients with diabetes, healthcare providers, Native and Indigenous groups, and lifestyle interventions focused on physiological outcomes.

Data extraction and synthesis Study characteristics, participant demographics, intervention features and outcomes (including participant satisfaction and attrition) were extracted and synthesised thematically by intervention type. Findings are presented narratively.

Results The review included 13 studies. All psychosocial interventions included diabetes education alongside psychosocial strategies, with most being short-term (four months or less) and delivered in person. Small to moderate reductions in diabetes distress were observed in all but three studies. Empowerment-based interventions produced short-term reductions; longer interventions showed more gradual change. These interventions also improved knowledge of diabetes management, self-efficacy, self-management behaviours and social support. In contrast, peer-led interventions showed limited effectiveness in improving psychosocial outcomes. Mixed evidence was found for the value of family-based interventions.

Conclusion This review recommends the integration of psychosocial interventions into healthcare plans and highlights several gaps in the evidence base, including limited cultural adaptations beyond linguistic modifications, and a limited focus on South Asian and Middle Eastern populations. Future research should consider multi-site RCTs, longitudinal designs and refinement of intervention designs to improve accessibility, cultural relevance, and sustainability over time.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ This scoping review followed the Arksey and O'Malley framework.
⇒ The review used a comprehensive and systematic search across five databases.
⇒ No restrictions were placed on research design and/or diabetes type.
⇒ Consistent with scoping review standards, a formal quality appraisal was not conducted.
⇒ This review excluded unpublished data and grey literature.

Diabetes mellitus, characterised by impaired blood glucose regulation, is one of the fastest growing global health threats.[1] The International Diabetes Federation estimated that 537 million adults aged 20–79 years were living with diabetes in 2021, representing approximately 10% of the global adult population.[2] While diabetes is a global challenge, its burden is not evenly distributed. Culturally diverse groups face disproportionately higher prevalence rates, with African Americans (12.5%), Hispanic (10.3%) and Asians (9.2%) exhibiting markedly higher rates than people of European descent (8.5%).[3] The risk is particularly high for low-income and middle-income populations.[4] This review focuses on culturally diverse groups who experience health disparities as ethnic minorities, including immigrants and refugees. The unequal distribution of disease prevalence and risk disproportionately burdens culturally diverse communities, who often face systemic disadvantages such as inadequate

healthcare access, resource constraints and cultural barriers—including language differences and traditional health beliefs—that hinder early diagnosis and effective management.[5] In addition to these challenges, genetic predisposition places some migrant groups, such as South Asians, at increased risk. Despite these heightened vulnerabilities, persistent barriers—such as limited access to specialised healthcare—further worsen their prognosis and elevate the risk of complications and mortality.[6 7]

Although diabetes care has traditionally centred on biomedical interventions and lifestyle modifications, these approaches alone do not fully address the complex challenges of living with diabetes. Adapting to diabetes presents challenges stemming from the ongoing demands of self-management, managing comorbidities and navigating patient–provider relationships.[8–10] These challenges, while universal, can be further compounded for individuals within culturally diverse groups. This contributes to 'diabetes distress', a distinct psychosocial condition. This condition requires a comprehensive treatment approach that considers the physical and emotional aspects of diabetes, including feelings of frustration, anger, anxiety and depression. Left unaddressed, diabetes distress can have serious consequences. Specifically, diabetes distress is uniquely associated with decreased self-care and higher haemoglobin A1c (HbA1c) levels.[11] Notably illustrating its specificity, interventions that reduce depression have not improved self-care or HbA1c.[12] Besides depression, chronic stress and difficulties in self-management independently contribute to distress,[9] underscoring the need for targeted interventions.

Despite consistent evidence highlighting the importance of addressing diabetes distress,[13 14] how this condition is experienced and managed by culturally diverse populations, who face a higher risk of complications and additional healthcare barriers,[15] remains understudied. Ethnic minorities, including culturally diverse groups, experience greater diabetes distress compared with people of European descent,[16] particularly regarding distress associated with diabetes management regimens and interactions with healthcare providers.[17] Cross-sectional data from the Dutch Diabetes Pearl cohort revealed that while 5.8% of people of European descent reported diabetes distress, the prevalence was notably higher in other ethnic groups—ranging from 9.6% among Asians to 31.7% among Hindustani-Surinamese.[18] These differences persisted even after accounting for glycaemic control, diabetes complications and care setting.[18] Ultimately, these findings highlight how cultural beliefs about mental health, language obstacles, limited resources and mistrust of healthcare systems not only impede effective healthcare delivery for culturally diverse populations but also significantly intensify the challenges of managing diabetes distress.[19] Furthermore, the burden of stigma and discrimination faced by culturally diverse groups can significantly exacerbate diabetes distress, further hindering effective management and contributing to worsened diabetes outcomes, including increased mortality.[10 20] In summary, these multifaceted challenges faced by culturally diverse populations, including barriers to accessing mental health care,[21] along with stigma[22] and discrimination,[23] underscore the critical need for culturally tailored interventions that address diabetes distress within the broader sociocultural context in which it is experienced.

Diabetes distress is treatable,[24] but without intervention, it can become chronic and substantially affect physical and psychological well-being.[25] Reviews highlight the potential for psychosocial interventions to address the emotional, social and cognitive factors that influence well-being, extending beyond biological factors.[26 27] Several interventions have demonstrated small to moderate effects in reducing diabetes distress, with more intensive approaches yielding larger reductions.[26 27] Evidence from randomised controlled trials (RCTs)[28 29] has shown large reductions in diabetes distress along with improvements in self-management, quality of life and emotion regulation. While promising, these studies have largely involved mixed samples predominantly involving individuals of European descent. Given the heightened risk of diabetes distress in culturally diverse populations and their underrepresentation in existing research, it is essential to investigate the availability, impact and cultural relevance of psychosocial interventions designed to address diabetes distress and improve overall well-being in these communities. Therefore, this scoping review aims to: (1) describe intervention features and cultural adaptations; (2) assess feasibility and acceptability; (3) evaluate effects on psychosocial outcomes, including diabetes distress; and (4) recommend approaches for inclusive diabetes care.

METHODS

Hybrid methodological approach

This review used a hybrid approach,[30] integrating a comprehensive search with standardised data extraction. It followed Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews guidelines[31] and the Arksey and O'Malley[32] framework. The protocol is registered on the Open Science Framework (https://osf.io/xr7ws). Intervention components and delivery features are described using the UK Medical Research Council guidance for complex interventions, treating each intervention as a configuration of components within context and noting elements open to cultural or linguistic adaptation.[33 34]

Locating relevant studies

We conducted a systematic search with a research librarian using predefined terms. Searches ran from June 2024 to July 2024 and were replicated in November 2024 across PubMed, PsycINFO, Cochrane Library, CINAHL and Web of Science. We used controlled vocabulary (thesaurus terms), truncation and Boolean operators. We also did citation tracking and screened database 'similar articles'. All search results were managed in Zotero. The

online supplemental file contains the database-specific search strings.

Selection of sources of evidence

We removed duplicates, then screened records in two stages and disagreements were resolved by consensus. The first author screened all titles/abstracts and full texts. Studies were evaluated against the eligibility criteria. A random 15% was independently screened by co-authors to enhance accuracy and minimise bias.

Eligibility criteria

Eligibility criteria were applied at full-text screening.

Studies were included if they reported primary research evidence on:

- Participants diagnosed with diabetes.
- Individuals from culturally diverse groups who are ethnic minorities in their country of residence, including immigrants and refugees).
- Participants of psychosocial interventions targeting psychosocial outcomes (examples: distress, depression or anxiety symptoms, and quality of life).

Non-original research studies, such as reviews or protocols, as well as grey literature or non-empirical work such as conference abstracts, editorials, commentaries, book chapters and theses, were excluded. Studies were also excluded if they focused on:

- Caregivers of individuals with diabetes.
- Healthcare providers.
- Participants from Native or Indigenous groups.
- Lifestyle interventions that primarily targeted physiological outcomes (eg, diet and exercise training) or diabetes prevention interventions.

No restrictions were placed on study design or diabetes type. We included studies published in English between 2013 and 2024 with no geographical restrictions.

Data extraction

We used a standardised form to extract study characteristics (author, year and location), participant demographics, intervention details, outcomes and key findings. A second reviewer checked a random 15% for accuracy. Disagreements were resolved by consensus.

Evidence synthesis

We conducted a narrative synthesis using thematic grouping by intervention type that aligns with the aim of the review to map key components and cultural adaptations, which are best compared within coherent intervention types than by study design or duration. Meta-analysis was not feasible; grouping by design or effect size would have been misleading. Outcomes are summarised by psychosocial domain, with diabetes distress discussed within each intervention type. We also noted adaptation depth, feasibility and acceptability.

Patient and public involvement

Patients and the public were not involved in the design, conduct or reporting of this research.

RESULTS

Selection of records

We identified 5023 records through database and manual searching. After removing duplicates, 2699 records were screened by title/abstract. Of these, 150 records underwent full-text screening, resulting in 13 studies eligible for inclusion (figure 1). An additional 137 did not meet eligibility criteria and were excluded.

Demographic and methodological characteristics of included studies

All studies were conducted in the USA and enrolled adults with type 2 diabetes. Of the included studies, eight (61.5%) were RCTs,[35–42] one (7.7%) was a randomised parallel design,[43] one (7.7%) was a secondary analysis of an RCT[44] and three (23.1%) were quasi-experimental.[45–47] Sample sizes varied widely, ranging from 6[47] to 222 participants.[44] Studies included a variety of culturally diverse groups, including Hispanic or Latino participants (n=5; 38.5%)[39 40 42 44 46], African Americans (n=5; 38.5%)[35 38 41 43 47], Chinese immigrants or Chinese Americans (n=2; 15.4%),[36 45] and Mexican Americans (n=1; 7.7%)[37]. The average participant age ranged from 48.9 years to 64.45 years, and higher proportions of females were typically recruited (59% to 87.5% of samples). Of the seven studies reporting diabetes duration, four (57.1%) included participants with less than 10 years since diagnosis and three (42.9%) with 10 years or more; six studies did not report duration. Nearly half of the studies (n=6; 46.2%)[35 36 39 41 42 44] did not report average diabetes duration of participants, limiting comparisons across studies.

Intervention types

Interventions were grouped according to their predominant therapeutic approach and included empowerment-based intervention (n=5; 38.5%)[35 39–41 44], peer-led intervention (n=3; 23.1%)[38 46 47], family-based intervention (n=2; 15.4%)[36 37], behavioural coaching (n=1; 7.7%)[45], multimodal with cognitive behavioural therapy (CBT) and motivational interviewing (MI; n=1; 7.7%)[43], and stress management (n=1; 7.7%)[42]. All interventions included diabetes management education, which for the purposes of this review, is defined as the provision of structured information about diabetes pathophysiology, self-management techniques (including blood glucose monitoring, medication adherence and lifestyle modifications), and daily diabetes self-care.

Intervention facilitators

The type of the interventions, including their facilitators, duration and delivery mode, is summarised in table 1. The online supplemental file contains a description of intervention components. Most interventions were led by healthcare teams, which included community health workers (CHWs; n=6; 46.1%)[36 38–40 42 44], diabetes educators/care specialists (n=3; 23.1%)[35 41 46], nurses (n=1; 7.7%)[37] and others (n=3; 23.1%)[43 45 47]. Facilitator training ranged from specialised training in CBT, behavioural

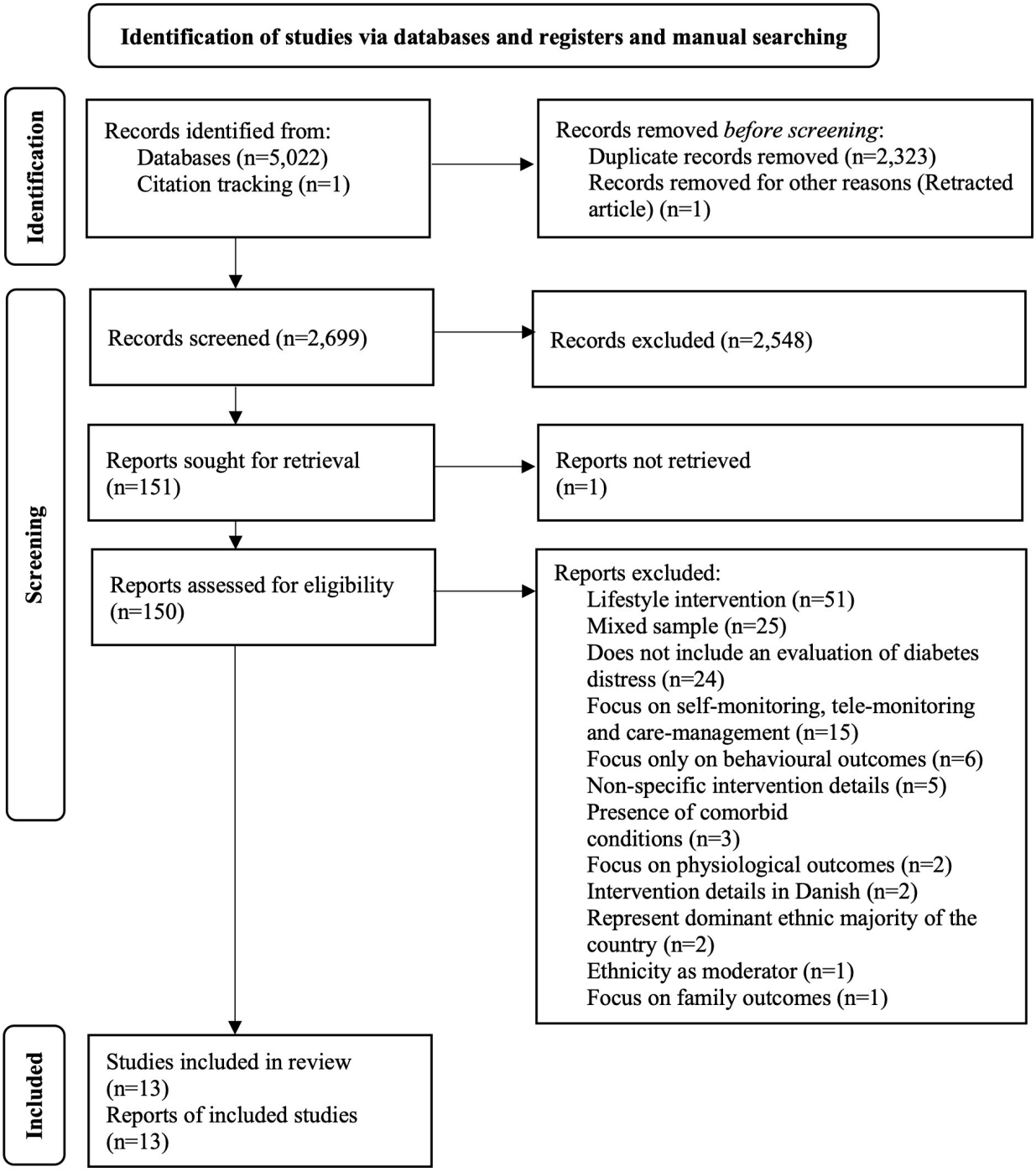

Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram.

methods or empowerment-based facilitation (n=7; 53.8%)[35 39–41 43–45] to training in intervention delivery or communication (n=4; 30.8%)[38 42 46 47]. Training information was not reported in two studies (15.4%)[36 37].

Reported intervention outcomes

Table 2 summarises changes in diabetes distress alongside cultural adaptations, attrition rates and participant satisfaction to facilitate clearer comparisons. Other outcomes of the psychosocial interventions are presented in the online supplemental file 1.

Empowerment-based interventions

These interventions involved empowerment-based facilitation and strategies to improve motivation, problem-solving and social support. These studies were group-based, and all but one[37] were delivered in person. Intervention duration varied between 3 months[37] and 18 months.[39 40]

Small reductions in diabetes distress in both intervention and active control groups at 3 months and 6 months, respectively, were documented in two studies.[40 41] The proportions of participants reporting moderate distress

Table 1 Types and features of psychosocial interventions for culturally diverse groups with diabetes

Article reference	Type of intervention	Sample size	Facilitator	Duration	Delivery mode
Chesla *et al*	Behavioural coaching	n=145	Social workers, health educators or counsellors	1.5 months (6 weeks)	In-person and group
Cornely *et al*	Multimodal with CBT with MI	n=20	Licensed psychologist and a trained facilitator	3 months	Group based. Separate in-person and web-based formats
Ewen *et al*	Empowerment-based intervention	n=25; Intervention (n=12) and Control (n=13)	Certified diabetes care and education specialists and peer leaders	3 months	Online group with telephone support if relevant
Fallas *et al*	Peer-led intervention	n=38	Certified diabetes educator, health coach and peer leaders	4 months	In-person, group, with text messaging
Hawkins *et al*	Empowerment-based intervention	n=222	CHWs	6 months	In-person, group, with home visits and phone calls
Hu *et al*	Family-based intervention	Intervention group (n=11) and Control group (n=12)	CHWs	3 months	Videos and phone calls
McEwen *et al*	Family-based intervention	n=157; Intervention dyads (n=83) and Control dyads (n=74)	Nurse (CDE) and Promotora	3 months	In-person, group, with home visits and telephone calls
Presley *et al*	Peer-led intervention	n=120; Intervention (n=70) and Control (n=50)	CHWs	9 months	In-person (individual and group), with telephone calls, and an mHealth app
Shiyanbola *et al*	Peer-led intervention	n=9; Buddies (n=6) and Ambassadors (n=3)	Ambassadors/peer leaders	6 months	Virtual, group-based using web-based meeting platform and phone calls
Spencer *et al*	Empowerment-based intervention	n=222; Intervention (CHW+PL (n= 60); CHW only (n=89)) and Control (n=73)	CHWs and peer leaders	18 months	In-person and group, and home visits and phone calls
Tang *et al*	Empowerment-based intervention	n=116; PL (n=60) and CHW (n=56)	CHWs and peer leaders	18 months	In-person, group, home visits and calls
Tang *et al*	Empowerment-based intervention	n=106; Intervention (n=54) and Control (n=52)	CDE and peer leaders	15 months	In-person, group, and calls
Wagner *et al*	Stress management	Intervention (n=61) and Control (n=46)	CHW	2–2.5 months	In-person and group

Columns correspond to key elements in the complex intervention reporting, including type of intervention, facilitator, duration and delivery mode, aligned with the MRC Complex Intervention Guidance (Craig *et al* and Skivington *et al*)
CBT, cognitive behavioural therapy; CDE, certified diabetes educator; CHW, community health worker; PL, Peer leader.

were reduced at 6 months, and sustained at 12 months and 18 months in the control group, whereas these reductions only emerged at 18 months in the peer-led intervention group.[40] In contrast, only the CHW-led intervention group showed intervention effects at 18 months in comparison to the peer-led intervention group.[39] These findings indicate possible gradual effects in long-term interventions and highlight the value of expert support. Moderate reductions following a 6-month intervention[44] indicate that longer-term interventions are more advantageous over short-term interventions for distress relief. Intervention attendance emerged as a significant predictor of diabetes distress.[37 41 44]

Empowerment-based interventions show promise for improving multiple psychosocial outcomes. Evidence from an RCT[37] highlights that diet and blood glucose monitoring improved compared with an education-only control group. Short-term improvements have also been observed in self-efficacy and diabetes management knowledge.[44] Evidence of long-term improvements in diabetes management knowledge has been found in intervention group participants compared with enhanced usual

Table 2 Cultural adaptations, attrition, satisfaction and diabetes distress outcomes

Article reference	Type of intervention	Culturally adapted/relevant practices	Attrition	Satisfaction	Reduction in diabetes distress	Duration
Chesla *et al*	Behavioural coaching	Bilingual facilitators. Restructuring and adaptations for intervention for Asian Americans, including use of collective problem solving, cultural communication strategies and cultural idioms and stories	Low	High	Yes	Short-term
Cornely *et al*	Multimodal with CBT/MI	Intervention developed with an African American clinical psychologist and sociocultural considerations relevant to culturally diverse group were addressed	Low	High	Yes, in all participants. Emotional burden reduced in in-person, group; and regimen distress reduced in web-based group	Short-term
Ewen *et al*	Empowerment-based intervention	Use of culturally specific and literacy-appropriate intervention materials	Low	Not reported	No	
Fallas *et al*	Peer-led intervention	Bilingual facilitators	Low	Not reported	Yes	Short-term
Hawkins *et al*	Empowerment-based intervention	Bilingual facilitators	Low	Not reported	Yes	Short-term
Hu *et al*	Family-based intervention	Selection of delivery platform (WeChat) frequently used by the culturally diverse group	Low	High	No	
McEwen *et al*	Family-based intervention	Bilingual facilitators	High	Not reported	Yes, compared with waitlist control	Short-term
Presley *et al*	Peer-led intervention	None reported	Low	Not reported	Yes, larger reductions compared with enhanced usual care (DSME) control	Short-term
Shiyanbola *et al*	Peer-led intervention	Facilitators share the same ethnicity as participants; intervention addresses culturally influenced beliefs about diabetes and medicines	Low	High	No	
Spencer *et al*	Empowerment-based intervention	Bilingual facilitators	High	Not reported	Yes, in both intervention groups compared with enhanced usual care (class on interpreting clinical results) control	Long-term for the CHW-only intervention group
Tang *et al*	Empowerment-based intervention	Bilingual facilitators	High	Not reported	Yes, in both intervention and control (CHW-led support) groups	Short-term
Tang *et al*	Empowerment-based intervention	None reported	High	Not reported	Yes, in both intervention and control (DSME) groups	Short-term
Wagner *et al*	Stress management	Bilingual facilitators. Culturally tailored relaxation exercises and use of culturally relevant stories or objectives	High	Not reported	No	

CBT, cognitive behavioural therapy; CHW, community health worker; DSME, Diabetes Self-Management Education; MI, motivational interviewing.

care control participants at 12 months.[39] Improvements in social support have been found,[39 40] despite mixed evidence about the duration of effects (between 6 and 12 months). In contrast, another RCT[41] did not find significant differences in improvements between intervention and educational control groups. Taken with delayed depression effects at 18 months,[39] these findings suggest effects may be gradual in longer-term interventions.

Peer-led interventions

These interventions leverage shared experiences with diabetes to provide support for self-management behaviours and to navigate self-management challenges. The duration of the studies varied from 4 months to 9 months, and all studies but one[47] were delivered in person. The only study delivered virtually involved a web-based meeting platform and phone calls. Two

studies[38 46] found small to medium short-term improvements in diabetes distress. Reductions were seen in both intervention and the enhanced usual care control groups despite the intervention group experiencing larger reductions in one RCT.[38] However, the intervention group had higher distress at baseline; therefore, the findings may partly reflect regression to the mean rather than a true intervention effect. By contrast, no significant improvements were found in a study that used a pre-assessment screening tool to measure distress.[47] While significant improvements in self-efficacy were observed following a 4-month intervention,[46] in two other studies, improvements were either non-significant[47] or did not differ from control groups.[38] No improvements were seen in depression,[38 47] medication adherence,[47] quality of life[38] and empowerment.[47] No differences were found in social support between intervention and control groups.[38] Altogether, these findings highlight the potentially lower impact of peer-led interventions.

Family-based interventions

Two family-based interventions, delivered over 3 months, involved the shared strategy of promoting family support, especially for goal achievement. While one study deployed in-person group delivery with home visits,[37] another used an online delivery platform.[36]

While one RCT reported immediate moderate reductions in distress in the intervention group compared with the waitlist-control at 3 months,[37] another RCT found no significant differences between intervention and waitlist-control groups.[36] Despite immediate improvements in both groups, the distress levels in the control group continued to decrease 6 months post intervention, while the distress levels in the intervention group increased.[37] Altogether, the findings indicate that improvements are usually short-term.

The evidence on improvements in psychosocial outcomes is mixed. Compared with a control group, short-term improvements were observed in total self-management behaviours but not exercise behaviours.[37] Contrastingly, no significant differences were observed between intervention and control groups in another study.[36] However, this may have been due to small samples limiting statistical power. While short-term improvements were seen in self-efficacy compared with control in one study,[37] no group differences were observed in another.[36] These findings highlight limited effectiveness of family-based interventions.

Behavioural coaching

One study used behavioural intervention involving strategies such as problem-solving, conflict management and stress management.[45] This intervention was conducted over 6 weeks using an in-person, group-based delivery. Small reductions in diabetes distress were observed 1–2 weeks post-intervention. However, the clinically significant levels of distress at baseline, the absence of a control condition, and the potential for more distressed participants to drop out over the course of the 4-month delay prevent definitive conclusions about intervention effectiveness. Short-term improvements were observed in quality of life, self-efficacy, diabetes management knowledge and family support.

Multimodal with cognitive behavioral therapy and motivational interviewing

One study included an intervention that involved MI alongside CBT.[43] The 3-month intervention involved group-based delivery, with separate in-person and online groups. Reductions were observed in distress immediately after the intervention in all participants, with small reductions in the online group compared with medium reductions in the in-person group. Nevertheless, the absence of a control group makes it difficult to draw conclusions about the intervention effects. No significant improvements were observed in self-efficacy, stress and depression in both in-person and online groups. However, improvements in quality of life were seen in the in-person group.

Stress management intervention

This intervention involved relaxation exercises such as progressive muscle relaxation and body scans alongside thought restructuring and identifying sources of support.[42] The intervention was 8–10 weeks, group-based and conducted in person. No reductions were observed in diabetes distress over time. However, a small but significant dose–response effect was observed with greater attendance for intervention sessions, indicating the need for more sessions with additional support to reduce diabetes distress. High attrition was reported, with only 18% completing all eight sessions. While diabetes self-care did not improve, depression and anxiety improved compared with control.

Cultural adaptations

Cultural adaptations along with feasibility metrics (attrition and satisfaction) and changes in diabetes distress are summarised in table 2. Most studies (n=8; 61.5%)[37 39 40 42 44–47] used bilingual facilitators or facilitators who shared the ethnic background of participants. Two studies (15.4%) did not disclose any cultural adaptations.[38 41] Four studies (30.8%) reported deeper adaptations, including collective problem-solving and culture-specific communication strategies,[45] sociocultural tailoring with a psychologist sharing the ethnic background of participants,[43] guided discussions on culture-specific beliefs about diabetes and medications,[47] and use of a delivery platform popular within the group.[36] Although outcomes were mixed, these interventions had low attrition and high satisfaction.

Engagement and adherence

Engagement and adherence patterns underscore the challenges of implementing psychosocial interventions among culturally diverse groups. Participant satisfaction was high in the studies that assessed it (n=4; 30.8%)[36 43 45 47], but most did not assess satisfaction (n=9;

69.2%)[35 37–42 44 46]. Attrition was high (≥30%) in five studies (38.5%)[37 39–42] and low in eight (61.5%)[35 36 38 43–47]. Common reasons were personal or logistical, such as transport barriers. Engagement was higher in earlier sessions[35 46] and short-term interventions were associated with higher satisfaction and lower attrition, suggesting that brief, focused interventions may better maintain participant engagement. Virtual interventions[35 36 47] were associated with low attrition and high satisfaction, suggesting promise for maintaining engagement, though outcomes were mixed. Beyond delivery format, engagement patterns revealed that the facilitator training level, depth of cultural tailoring and a group-based delivery format were key determinants in participation and reductions in diabetes distress.[43 45]

DISCUSSION

This review highlights a diverse range of psychosocial interventions addressing diabetes distress among culturally diverse populations. Educational interventions dominated the field, mostly empowerment-based. These interventions focus on empowering patients through motivation and problem-solving to improve well-being. However, the limited use of other approaches such as CBT and MI suggests untapped opportunities to support well-being among this population. Consistent positive outcomes in terms of diabetes distress, engagement and satisfaction reported in the included studies that involved specialised facilitator training highlight the importance of training beyond delivery. The absence of studies that include South Asian participants confirms their underrepresentation highlighted in previous reviews.[48] The studies identified in this review were all from the USA, highlighting a research bias that overlooks health disparities in culturally diverse populations worldwide. Without inclusive, globally representative research, interventions risk overlooking the unique sociocultural and systemic barriers faced by these populations. Developing interventions that address a broader range of minorities and healthcare contexts improves accessibility to healthcare and promotes health equity.

Interventions targeting diabetes distress varied in structure, duration and cultural tailoring. Most were short-term (≤4 months), while fewer were of longer duration (6–18 months). Short-term interventions appear to produce quicker effects; longer interventions showed more gradual change. The findings highlight the importance of facilitator expertise, especially in managing complex needs and challenges that emerge over time. Cultural adaptations ranged from surface-level modifications (translations and bilingual facilitators) to comprehensive approaches that incorporated cultural values, communication idioms and culturally preferred delivery platforms. This variation in adaptation depth appeared to influence intervention effectiveness, with deeper cultural tailoring consistently associated with higher participant satisfaction, lower attrition and greater distress reduction, in contrast to the mixed outcomes associated with translation-only adaptations. This suggests that the level of cultural adaptation represents a critical and underexplored moderator of intervention success. Therefore, future research can systematically measure adaptation fidelity as a key variable, ensuring interventions move beyond surface-level adaptations to align better with participant values.

Engagement and adherence patterns underscore the challenges of implementing psychosocial interventions among culturally diverse populations. Engagement was often higher during the early phases of interventions, with notable drop-offs over time, especially in programmes of longer duration. Short-term interventions were associated with higher satisfaction and lower attrition, suggesting that brief, focused interventions may better maintain participant commitment. Some studies used virtual delivery to address barriers to in-person attendance.[35 47] Therefore, future research would benefit from exploring the use of hybrid delivery models to sustain engagement.

Empowerment-based interventions showed promise in improving psychosocial outcomes among people with diabetes. Small to medium reductions in diabetes distress were observed along with improvements in self-efficacy, self-management behaviours, social support and diabetes management knowledge. Evidence for family-based interventions was mixed, with no clear effects on family support or diabetes knowledge. This may stem from a gap in understanding the psychosocial experience of individuals with diabetes, that peers may be better equipped to provide.[47] Consistent with prior research,[49] peer-led interventions were found to have limited effectiveness. Despite their advantage in low-resource settings and potential to enhance engagement, greater expertise among facilitators may be more useful in supporting participants with chronic conditions. Although improvements in diabetes distress were reported following MI interventions, results were mixed for other outcomes. The absence of reduction in diabetes distress following a stress-management intervention also emphasises the difference between diabetes distress and general stress. Together, these findings indicate the need for specialised interventions facilitated by trained experts to target diabetes distress.

The findings highlight critical areas for improvement in psychosocial interventions for culturally diverse populations. Cultural tailoring of interventions should go beyond linguistic adaptations to incorporate cultural values, beliefs and delivery methods that resonate with participants. Additionally, specialised facilitator training, including cultural competency training,[50] should be considered for interventions targeting culturally diverse groups. While shorter interventions may accommodate the logistical constraints faced by participants, addressing the gaps in long-term support will be crucial for improving diabetes care outcomes in diverse communities.

To provide evidence-based care for culturally diverse groups, robust research methods are needed to strengthen the evidence base. Addressing methodological limitations such as small samples, baseline imbalances in psychosocial

variables and absence of long-term follow-up is critical in future studies. Comprehensive assessments using reliable measures such as the Diabetes Distress Scale[10] or the Problem Areas In Diabetes scale[51] are recommended to evaluate clinically significant changes in place of brief tools developed for initial screenings. The generalisability of findings is limited because all included studies were conducted in the USA, where healthcare systems may differ from other regions like Europe and Australia due to variability in access to care, patient engagement and equity.[52] In universal systems like Australia and much of Europe, adoption of interventions depends on funding, scope of practice, referral systems and availability of interpreter or multicultural health services. In low-income and middle-income countries, online programmes could have more dropouts due to limited facilities or affordable Internet connections. Overall, empowerment programmes can be used in most places, but facilitator, duration and delivery mode are to be determined based on local resources. Additionally, future research designs should ensure diverse representation through multi-site RCTs, larger sample sizes with sufficient power to detect meaningful effects and longitudinal observation to establish the stability of effects. Finally, future research can investigate the mechanisms by which facilitator expertise and cultural adaptations contribute to improved outcomes. This will strengthen empirical support for training guidelines and intervention refinements to better address the needs of culturally diverse groups.

This review has limitations. We limited inclusion to peer-reviewed studies, excluding unpublished data and grey literature that might have captured smaller, exploratory studies. Moreover, high heterogeneity across the included studies in terms of research designs, sample sizes and analysis techniques indicate the need for careful interpretation of findings considering the methodological limitations emphasised in the review. Although we did not conduct a formal quality appraisal, the evidence base comprised eight small RCTs, one randomised parallel pilot, one secondary analysis, and three quasi-experimental studies, typically with short follow-up and incomplete reporting of diabetes duration; this constrains the certainty and generalisability of observed effects.

Conclusion

This review highlights the promise of culturally adapted empowerment-based interventions for improving diabetes distress in culturally diverse groups. Considering their demonstrated effectiveness in improving psychosocial outcomes, efforts need to be made to integrate psychosocial interventions into healthcare plans beyond traditional biomedical care for culturally diverse groups.

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