
Article:
Busebaia, T.J.A. orcid.org/0000-0002-4812-0197, Thompson, J. orcid.org/0000-0001-9256-1208, Fairbrother, H. orcid.org/0000-0001-9347-8625 et al. (1 more author) (2023) The role of family in supporting adherence to diabetes self-care management practices: an umbrella review. Journal of Advanced Nursing, 79 (10). pp. 3652-3677. ISSN 0309-2402

https://doi.org/10.1111/jan.15689

Received: 12 October 2022 | Revised: 1 March 2023 | Accepted: 16 April 2023

DOI: 10.1111/jan.15689

JAN Leading Global Nursing Research WILEY

ORIGINAL RESEARCH:
EMPIRICAL RESEARCH - QUALITATIVE

The role of family in supporting adherence to diabetes self-care management practices: An umbrella review

Toqa Jameel Abbas Busebaia[1,2] | Jill Thompson[1] | Hannah Fairbrother[1] | Parveen Ali[1]

[1]School of Nursing & Midwifery, Faculty of Medicine, Dentistry and Health, The University of Sheffield, Sheffield, UK

[2]Nursing Department, College of Health and Sport Sciences, University of Bahrain, Zallaq, Bahrain

Correspondence
Toqa Jameel Abbas Busebaia, School of Nursing & Midwifery, Faculty of Medicine, Dentistry and Health, The University of Sheffield, Barber House, 3a Clarkehouse Road, Sheffield S10 2LA, South Yorkshire, UK.
Email: tjbusebaia1@sheffield.ac.uk

Abstract

Aims: Synthesize a review of reviews of the family's role in supporting adherence to diabetes self-care management practices (DSMP) for adults with type 2 diabetes (DM2).

Design: An umbrella review.

Data sources: Scopus, Web of Science including MEDLINE, CINAHL via EBSCO, PubMed and Science Direct were searched for systematic reviews from their year of establishment until June 2021.

Review methods: The review followed the Joanna Briggs Institute (JBI) guidelines for umbrella reviews. The JBI data extraction form for systematic reviews and research syntheses was used for data extraction. Methodological quality was assessed using the JBI Critical Appraisal Checklist for Systematic reviews and Research Syntheses.

Results: Nineteen reviews met the inclusion criteria. The key findings were summarized using a narrative and thematic analysis methods. Four main themes were identified: family interactions and diabetes self-management, family support as informal social support, factors affecting families' roles, and tailoring culturally sensitive family-based interventions.

Conclusion: There appears to be a consensus regarding the impact of family on adults' self-management of DM2. Additional research is needed to comprehend the role of the family in underrepresented populations and examine what constitutes a family and the diverse family functions in different groups.

Impact: Enhancing adherence to self-care management practices is crucial for the well-being of adults with DM2. Family support is a key to successful self-care management at home. However, understanding the unique needs of adults with DM2 and their families can help healthcare professionals plan appropriate support strategies and sustainable family-based interventions.

No Patient or public contribution: This review did not incorporate direct patients or public input as it summarizes evidence from previously published systematic reviews.

KEYWORDS
family support, nursing, self-care, type 2 diabetes, umbrella review

1 | INTRODUCTION

Type 2 diabetes (DM2) accounts for 90%–95% of diabetes cases worldwide (WHO, 2019). DM2 is a chronic metabolic disease associated with high blood glucose levels (Goyal et al., 2022) and involves micro- and macrovascular complications. Adults with DM2 are two to three times more likely to have heart attacks or cerebral strokes and are also at increased risk of foot ulcers, infections and limb amputations (WHO, 2021). DM2 is most prevalent in adults and is becoming more common among children, adolescents and younger adults (Goyal & Jialal, 2022). An estimated 537 million adults aged 20–79 years have diabetes, which is expected to rise to 643 million adults by 2030 and 783 million adults by 2045 (IDF, 2021). Health expenses for diabetes are expected to exceed $1.7 trillion, with $900 billion in high-income countries and $800 billion in low- and middle-income nations by 2030 (WHO, 2016).

As the prevalence of type 2 diabetes continues to rise, healthcare professionals and those in policymaking positions seek interventions to lower its morbidity, mortality, escalating treatment costs and complications (Caro-Bautista et al., 2020; DeFronzo, 2015). Many DM2 cases are caused by modifiable risk factors that can be mitigated via coordinated efforts of individuals, healthcare professionals and governments (Ismail et al., 2021). Nonetheless, supportive family and social networks are critical indicators for maintaining lifestyle adjustments (WHO, 2016). The declaration of St. Vincent highlighted the latter idea in 1989 and suggested that healthcare teams should work in partnership with adults with DM2 and their families or close networks (Felton & Hall, 2009; Holt, 2017). The notion was to build a partnership of equals; professionals provide knowledge regarding diabetes and its treatment, while adults with DM2 contribute expertise about their own life. So, adults with DM2 become active self-managers, and families become dynamic collaborators in support and care (Alkenizan, 2004; Cyrino et al., 2009; Funnell & Anderson, 2004).

With keen self-management, adults with DM2 can maintain their well-being and learn to cope with the complicated nature of diabetes (Shrivastava et al., 2013). The Association of Diabetes Care & Education Specialists—ADCES (2020) highlighted seven crucial diabetic self-care practices that can improve health outcomes. These include eating healthily, maintaining physical activity, regularly monitoring blood glucose levels, adhering to a medication regimen, maintaining good psychosocial health and adopting risk-reduction behaviours such as stopping smoking and taking related immunization. However, these activities can entail significant behavioural changes and require strict adherence to complicated regimens (Toljamo & Hentinen, 2001). Nevertheless, the support provided by the family, caregivers or spouses may be associated with greater adherence to self-management (Karimy et al., 2018; Xie et al., 2020). This article presents an umbrella review to summarize available empirical evidence related to the family's role in supporting diabetes self-care management practices (DSMP). This review is structured based on Joanna Briggs Institute (JBI) guidelines for umbrella review (Aromataris et al., 2020).

2 | BACKGROUND

Family dynamics and relationships play a critical role in self-management (Rintala et al., 2013; Rutledge et al., 2019). However, their influence might be viewed positively or negatively (Mayberry & Osborn, 2012, 2014). Scollan-Koliopoulos (2004) explained that many emotional reactions might arise when a family member is newly diagnosed with DM2 or when the disease's severity or the treatment intensity changes, leading to inadequate family functioning and self-care management (Scollan-Koliopoulos, 2004). Bennich et al. (2017) explained that the lives of adults with DM2 affected by diabetes and its complications and that families might be affected too; their relationships strengthened along the process, or psychological tension might dominate. Similarly, Haugstvedt et al. (2011) argued that dealing with diabetes daily can be challenging for families; it can cause distress, impose additional burdens or diminish the quality of life. Additionally, Rosland et al. (2008) discussed how adults with DM2 and their families might be impacted by the availability of resources in their neighbourhoods and communities and how the lack of these assets can impact self-management and family support.

Therefore, it has been argued that providing more support to family members and integrating them into the diabetes management process would improve health outcomes in not only the adults with DM2 but their families, too (Kovacs Burns et al., 2013). Various family-based interventions to aid adults with DM2 and their families in coping with the demands of the disease and its management, adopting a healthy lifestyle and thereby impacting glycaemic control and well-being have been initiated and deemed beneficial (Zhang et al., 2022).

Many systematic reviews addressed different aspects of the family's role in supporting adults with DM2 adherence to DSMP. Some reviews have examined the influence of family on adults with DM2 health outcomes, experiences and adherence to DSMP. At the same time, other reviews have looked at family-based interventions and their effectiveness. Some reviews have examined the social support system surrounding adults with DM2 and their families. Therefore, an umbrella review is necessary to summarize the existing knowledge around this issue and identify the knowledge gap and areas that need further research and intervention.

3 | THE REVIEW

3.1 | Aims

This study aims to summarize the findings of systematic reviews of the role of the family in supporting adherence to DSMP and answer the following questions:

1. What is known about the family's role in supporting adherence to DSMP from the perspective of adults with DM2 and their families?
2. What impact does the family have in supporting adherence to DSMP in terms of biological, behavioural and psychosocial outcomes?

3. What factors might affect the family's role in supporting adults with DM2?

The PEO format (Population, Exposure and Outcomes) guided the formation of search questions, as presented in Table 1.

3.2 | Design

An umbrella review is a review that compiles evidence from various reviews into a single informative report (Grant & Booth, 2009). It prioritizes systematic reviews or synthesis of evidence over primary studies (Sutton et al., 2019). Therefore, this design was regarded as appropriate due to the growing number of single studies on the family role in adult DSMP and the availability of multiple systematic reviews that have gathered evidence on various aspects of this topic. In addition, an umbrella review helps filter information overload and enhance access to targeted data and consequently can be a helpful decision-making tool for clinicians, policymakers and developers of clinical guidelines (Hunt et al., 2018). More specifically, it may help identify the current directions and future priorities of family-based care or interventions for DSMP in various settings and contexts (Smith et al., 2020). Joanna Briggs Institute (JBI) guidelines for umbrella review were followed to structure this study (Aromataris et al., 2020).

3.3 | Search methods

The included reviews focused on adults with DM2 and their families regarding adherence to all DSMP or at least one aspect of DSMP. They were conducted in primary healthcare settings like primary healthcare centres, diabetic clinics and adults with DM2 homes. They were reported as systematic reviews, meta-analyses, meta-ethnographies, meta-synthesis, integrative studies and umbrella reviews and published in English.

Reviews were excluded if they included individuals with solely type 1 diabetes, gestational diabetes and other types of diabetes than type 2 diabetes, involved only a different age group than adults, for example, children or adolescents. Reviews were also excluded if they were published in any language other than English or were non-systematic reviews.

Five electronic databases were searched for systematic reviews from their year of establishment till June 2021: Scopus, Web of Science including MEDLINE, CINAHL via EBSCO, PubMed and Science Direct. The keywords used to inform the search strategy were (family*) AND ('diabetes type 2' OR 'type 2 diabetes' OR 'DM2' OR 'dm2') AND ('self-care' or 'self-management'). Documents were refined by selecting document types as reviews or systematic reviews according to the available filtering options provided by the databases. Google Scholar and Open Grey were searched for theses, dissertations or reports from organizations or governments that might provide evidence of research synthesis. In addition, reference lists of eligible studies were searched for relevant systematic reviews (Figure 1). A library specialist supported the search strategy.

3.4 | Search outcomes

Four hundred and thirty-eight potentially relevant articles were retrieved. After removing duplicates, the titles and the abstracts of 360 articles were screened. Twenty-six articles met the inclusion criteria. The reference lists of those articles were searched and revealed five additional reviews. Thirty-one reviews were eligible for screening at the full text. Finally, 19 articles were eligible for inclusion in this review. Figure 1 shows a PRISMA 2020 flow diagram (Page et al., 2021) illustrating the process of selecting the reviews and the main reasons for excluding some of the review articles ($n = 12$).

3.5 | Quality appraisal

Reviews that met the inclusion criteria were assessed for methodological quality using the JBI Critical Appraisal Checklist for Systematic reviews and Research Syntheses (Aromataris et al., 2020; Table S1). The cut-off score was determined to be a sum of 7 and above, as only high-quality systematic reviews can be included in umbrella reviews (Aromataris et al., 2020). T.J. conducted the quality assessment. Upon completing the critical appraisal, all authors discussed the scores and the justifications for the allocated scores. All the eligible reviews met the cut-off score (7) for inclusion, and the average score was 8.8 (Table S2).

TABLE 1 PEO format that guided the formation of review questions.

What is known about the family's role in supporting adherence to DSMP from the perspective of adults with DM2 and their families?	
P-population	Adults with DM2 and their families
E-exposure	Family's role in supporting adherence to DSMP
O-outcomes	• Experiences and perceptions of the adults with DM2 of their family's role in DSMP • Family behaviours, support, involvement, etc. • Factors affecting family's role • DM2 family-based interventions

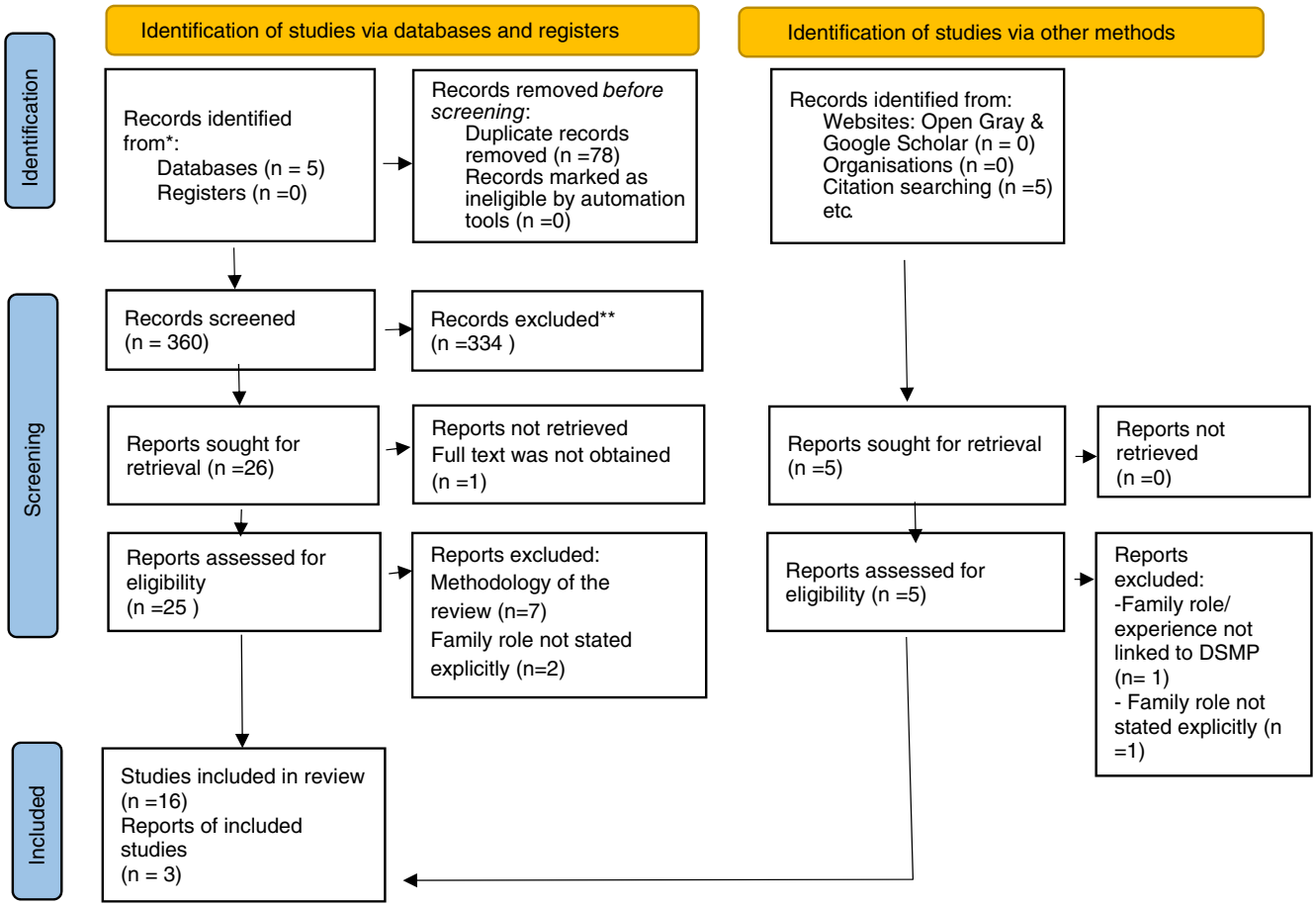

FIGURE 1 PRISMA 2020 flow diagram.

3.6 | Data extraction

The JBI data extraction form for systematic reviews and research syntheses was used (Aromataris et al., 2020). The authors added other items to the extraction template, such as how the family was defined and related definitions to the topic that the authors of the included reviews reported. These were thought to help understand the topic from different contexts and perspectives. Data extracted were shared and discussed among authors to minimize bias and errors (Table S3).

3.7 | Synthesis

Statistical pooling of the findings was not possible due to the heterogeneity of the included reviews and because umbrella reviews do not re-synthesize previously synthesized data (Aromataris et al., 2020; Smith et al., 2020). However, according to Aromataris et al. (2020), the presentation of the review's findings should follow logically from the argument and eventually address the questions raised. Therefore, the authors used the information extracted in Table 2 and Table S3 to answer the review questions. However, since there are no defined reporting criteria for the results of umbrella reviews, a narrative and thematic analysis approach was chosen to summarize the key findings (Kaldal et al., 2022). The narrative approach was used to report Sections 4.1–4.5 of the results: Characteristics of included studies, participants' characteristics, study Contexts, Definition of Family and Outcomes Assessed. The narrative approach was used to report these data because it is a useful method to summarize large quantities of data while maintaining the idiosyncratic features of the individual studies (Booth et al., 2016). Therefore, T.J. used Table 2 and Table S3 to compile descriptive data from the individual reviews for Sections 4.1–4.5. However, to summarize the findings from the included reviews (Section 4.6), the thematic analysis approach was rendered more appropriate because it aims to determine a spectrum of components necessary to comprehend a particular phenomenon which the authors believed will help answer the review questions (Booth et al., 2016). The process began by identifying the reviews' recurring findings/themes. Based on commonality, the major and important findings/themes were gathered and grouped. The authors discussed the emerging themes and how these feature family roles with DSMP. The authors then agreed on the final themes and subthemes presented in this article and thought to be comprehensive in helping readers understand the family roles.

4 | RESULTS

Nineteen reviews met the inclusion criteria. Table 2 summarizes the included reviews, with additional information supplied in Table S3.

TABLE 2 Details of the included reviews.

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
Bennich et al. (2017)	Qualitative systematic review	Eighty patients (55% have DM2), 64 spouses, 235 couples (one of them has DM2), Mean age = 49–64	Not mentioned	Family interactions/ behaviours with DM2 patients	2000–2016	*N* = 5	(4) USA (1) Greece	Family interactions are supportive and non-supportive and interactions were of: 1. Impact of practical actions 2. Impact of emotional involvement 3. 3. Impact of communication content
Vongmany et al. (2018)	Systematic review and meta-synthesis	Eight hundred and twenty-nine patients, Median = 23 (13, 30) participants per study, primarily women (63.5%), Mean age = 58.6 years	Not mentioned	Family interactions/ behaviours with DM2 patients	2000 and October 2016	*N* = 40	(21) USA (4) Australia (1) Hong Kong (1) Mexico (2) United Kingdom (1) Norway (1) Singapore (1) Korea (1) Singal (1) Thailand (1) Canada (1) South Africa (1) Germany (1) Iran (1) Pakistan (1) No identified origin	Family behaviours were: (1) Facilitators, (2) Barriers or (3) Equivocal behaviours. Seven sub-themes were identified within these themes, including: Four facilitator sub-themes: ('positive care partnerships', 'family watchfulness', 'families as extrinsic motivator' and 'independence from family'); two barrier sub-themes ('obstructive behaviours' and 'limited capacity for family support'); and one equivocal behaviours subtheme ('regular reminders and nagging'). Family behaviours described within the above sub-themes could be considered enabling, reinforcing and predisposing to diabetes self-management activities
Pamungkas et al. (2017)	Systematic review	Not mentioned	Primary care units and community setting	Type 2 diabetes family-based interventions	2008 and 2016	*N* = 23	(23) Western countries (1) Asian countries (countries' names not mentioned)	Results were reported in three dimensions: 1. DM Self-Management Education (DSME): a. type of the programme, b. content, c. teaching strategy, d. educational materials and e. follow-up 2. Integration of family support in the DSME Programme: (a) how families were included, (b) the role of the family in DSME and (c) the impact of family support integrated with DSME 3. Effectiveness of Family Support Integration on Diabetes Outcomes: (a) behavioural, (b) Psychosocial, (c) self-efficacy, (d) social support perceived and (e) clinical outcomes

(Continues)

TABLE 2 Continued

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
Rintala et al. (2013)	Systematic review	A total of 2587 persons with diabetes 1013 family members The sample size of the studies ranged from 10 to 568 Family members were mainly spouses or partners; mothers, daughters or sons were included: • The proportion of men and women was equal • Most of the participants with diabetes had DM2 • Mean duration of diabetes is 4–22 years • DM management was diet therapy to multiple insulin injections therapy	Not mentioned	Family interactions/ behaviours with DM2 patients	2000–2011	*N* = 35 articles (29 studies)	Half of the studies' participants represented many different ethnicities and cultures, for example, African Americans, Asian Americans, Korean Americans, Latinos and Japanese.	Many families' relational variables were associated with self-management practices: 1. Positive influence: Coherence and togetherness, better marital satisfaction, family structure and high motivation to exercise 2. Negative influence: family traditions, certain family world views and defective emotion management, ethnicity and cultural variables, negative marital relationship, nagging, arguing, critical comments, overprotection, food-related issues and Family members' moments of problems" Family Members' Experiences of Living with Diabetes: 1. Negative experiences manifested by: fears and distress, concerns not voiced, risks connected with diabetes, the uncertainty of future health and anxiety within the family 2. Positive experiences: living everyday life, finding a balance, accepting diabetes as a natural part of life, wanting to be involved in managing diabetes and providing encouragement and support and making helpful lifestyle changes
Torenholt et al. (2014)	Systematic review and meta-analysis	Nine hundred and nine patients • interventions numbers ranged from 10 to 83 • Two studies did not target a specific diabetes type, eight studies targeted individuals with type 2 diabetes, four were directed at individuals with poor glycaemic control, three studies specified insulin-dependent status and three studies used the duration of diabetes as an eligibility criterion	Not mentioned	Type 1 and Type 2 diabetes family-based interventions	Up to October 2012	*N* = 10	(6) USA (1) United Kingdom (1) Ireland (1) Taiwan (1) Chile	Results focused on: 1. The theoretical framework of the interventions: (a) Social Learning Theory, (b) Innovative Care for Chronic Conditions, (c). Self-Regulatory Model of Illness Behaviour, (d) Social Action Theory and (e) Interdependence Theory and Family Systems Theory 2. Content of the interventions: (a) durations, (b) type of intervention and (c) content 3. Definition of family and cultural considerations 4. Outcomes' measures: (a) biological, (b) behavioural/knowledge, (c) psychosocial and (d) family-specific

TABLE 2 Continued

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
Thirsk and Schick-Makaroff (2021)	Qualitative meta-synthesis	One hundred and seventy-seven patients, 31 family members or friends 20 clinicians or community health workers	Not mentioned	Type 2 diabetes family-based interventions	No date limits were set (2008–2019)	*N* = 6	(6) USA	1. An essential outcome for family diabetes interventions might be increasing supportive family interaction patterns and decreasing obstructive behaviours, which supports the primary outcome of improved self-care behaviours and haemoglobin A1c 2. Offering these family interventions may affect how healthcare providers are taught 3. Family interventions should be culturally safe and resource-appropriate, reflecting the challenges faced by families with lower socio-economic status
Kodama et al. (2019)	Systematic reviews and meta-analysis	A total of 1466 patients in the intervention group and 1415 patients in the control group Type 1 and type 2 diabetes patients were included Mean HbA1c ranged from 8.0% to 11.3% for trials targeted at type 1 DM and 6.7%–12.2% for trials targeted at type 2 DM. The mean age of type 1 diabetes was from 8.5 to 14.9 years The mean age of participants in trials targeted at type 2 DM patients was 50 and 60	Not mentioned	Type 1 and Type 2 diabetes family-based interventions	Till January 2017	*N* = 31	(18) USA (2) United Kingdom (2) Sweden (1) Canada (1) Mexico (1) Taiwan (1) Ireland (3) Australia (1) Iran (1) Thailand	1. The magnitude of the HbA1c reduction by involving family members in helping with the self-care activities of patients with DM was substantial 2. A minor HbA1c reduction in trials in which follow-up periods were ≥12 months compared with follow-up periods <12 months. As is commonly seen in many interventions, the effect of family-oriented programmes is possibly weakened over time
Subrata (2021)	Umbrella review	Not provided	Not mentioned	Self and family-based interventions	2000–2019	*N* = 78	Indonesia	1. Facilitators and barriers: personal or lifestyle, health status, resources, environment and healthcare system 2. Process: focusing on illness needs, activating resources and living with the condition 3. Proximal outcomes: behaviours, cognitions, symptom management and changes in biomarkers 4. Distal outcomes: health status, individual outcomes, family outcomes and healthcare

(Continues)

TABLE 2 Continued

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
Stopford et al. (2013)	Systematic review	Sample sizes ranged from 53 to 2572 participants. The mean age was 50.6–69.2 years All studies but one study included both male and female populations, and three studies did not report gender	Primary care, outpatient, community and tertiary units	Informal social support for type 2 diabetes adults, particularly from family members	1986–2012	*N* = 29	(16) USA (4) European countries (1) Lebanon (2) Malaysia (1) India (1) Brazil (2) Thailand (1)Taiwan (1)Japan	1. There was evidence of the beneficial effect of social support (family support and multidimensional assessments of social support) on glycaemic control 2. There was limited evidence that being married or living with a partner was associated with worse glycaemic control 3. There were gender differences in the association between social support and glycaemic control 4. Family support was independently associated with lower HbA1c 5. Family support was independently associated with higher HbA1c in females and lower HbA1c in males 6. Perceived spousal support to be independently associated with reduced HbA1c in male, but not female, patients
Strom and Egede (2012)	Systematic review	Sample sizes ranged from 12 to 3535 patients	Not mentioned	Informal social support for type 2 diabetes adults, particularly from family members	2000 and June 2012	*N* = 37	(37) USA	Results were reported based on the outcomes: 1. Social support and clinical outcomes: there was substantial evidence that higher levels of social support were associated with better clinical outcomes and behavioural adaptations 2. Social support and psychosocial outcomes: having higher levels of social support and experiencing fewer depressive and diabetes-related symptoms 3. Social support and behavioural modification: a positive association between social support and behavioural outcomes 4. Perceptions of social support: how social support is perceived often varies from actual social support received. This interpretation or receipt of support can differ based on numerous factors, including gender, race/ethnicity, culture or social environment

TABLE 2 Continued

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
Sohal et al. (2015)	Systematic review	A total of 1980 patients Bangladesh ($n=6$), Pakistan ($n=7$) and India ($n=9$) Most participants were women, and their ages ranged from 20 to 80 years	Hospitals, Diabetes Clinics, GP or Practice Nurses, Central Diabetes Register, health centres, group education programmes on diabetes and Local Community	Factors influencing diabetes management in South Asian patients with type 2 diabetes and family support	1 January 1990 to 1 February 2014	$N=20$	(8) England (3) Scotland (2) Norway (2) USA (5) India	1. Patient interactions with the healthcare system. (a) Language and communication discordance were significant barriers to receiving information and understanding information on diabetes management. (b) Physician as the authoritative source of diabetes knowledge and management. Facilitators; bicultural, bilingual interpreters, family support and health providers trusting authority figures. Barriers; lack of time with health providers, lack of empathy and reassurance by health providers, difficulty disclosing issues around management and non-compliance 2. Engaging in physical activity: Facilitators; needed to be enjoyable, social and culturally specific, gender-specific facilities. Barriers; misconceptions of physical activity (harmful), lack of motivation, fatalism and culturally inappropriate facilities 3. Adopting a Diabetic Diet: Facilitators; family support, specific information on traditional diet (portion, cooking method). Barriers; little specific information on dietary changes, misconceptions about a healthy diet, cultural events and socializing deter dietary adherence 4. Diabetes medication taking: Facilitators, none. Barriers; lack of understanding of the role of medications and medication-taking behaviours, concern for the long-term safety of medications, preference for phytotherapy and folk remedies

(Continues)

TABLE 2 Continued

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
van Dam et al. (2005)	Systematic review	Seven hundred and twelve patients The mean number of participants per study was 118.6 (ranging from 32 to 200) The mean age was 59.3 years (52.4–68) The mean duration of diabetes was 9.2 years (8.8–11), with one study giving no information on the duration of diabetes	Primary care and outpatient	Informal social support for type 2 diabetes adults, particularly from family members	1980–2003	*N* = 6	Not mentioned	Content: Social support intervention studies in patients with type 2 diabetes (DM2) Effects: (1) Involving spouses, peers and peer counsellors may positively affect certain patients. (2) There were no effects on diabetes control from family and friends' participation in diabetes education groups or social support groups for older male patients. (3) Adverse effects from more social support were found in men: they may respond negatively to spouse participation in their diabetes education group for weight loss Source: (1) Support from the spouse may positively affect obese women with type 2 diabetes, but not for men. (2) Participation of family and friends in diabetes education group sessions had no effects on diabetes control in women with type 2 diabetes. (3) Peer counselling is explored as a possible new way to support patients with initiating and sustaining lifestyle changes Gender: (1) Social support may have different effects for men and women with diabetes. (2) Support from the spouse may act positively on weight loss for women while participating without the spouse worked out better for men. (3) Participating in support groups improved diabetes knowledge and psychosocial functioning in older men, but not diabetes control. Types of Interventions: (a) interventions directed at a spouse, family, relatives and friends; and (b) interventions directed at peers and fellow patients

TABLE 2 Continued

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
Foss et al. (2016)	Qualitative meta-synthesis	Five hundred and ninety-two patients Gender was presented in four studies Participants were either patients newly diagnosed with DM2, with poor glycaemic control or diagnosed with DM2 Two studies had a mixture of type 1 and type 2 diabetes patients	Primary care setting	Informal social support for type 2 diabetes adults, particularly from family members	January 2004–January 2014	*N* = 29	8 European countries: (10 United Kingdom) (1) Denmark (1) Netherlands (4) Sweden (1) Norway (1) Switzerland (1) Germany (1) Belgium	1. First-order themes: self-management extends compliance and control and requires a mix of cognitive, practical and social skills 2. Second-order themes: the sense of agency and identity, minimal disruption to their everyday life, network not only affects but also constitutes their self-management, economic hardship, the problem of assigning patients' responsibility and structural influences of primary care 3. Third-order themes: described the interconnectedness between the patients and their network through micro- to macrolevels of systems of self-management and self-management support of type 2 diabetes Additional results: (a) Self-management has a gendered dimension. (b) The effect of a collectivistic versus an individualistic culture/Self-management actions and choices
Joo and Liu (2021)	Qualitative systematic review	Two hundred and one patients (Hispanic: 48%; Filipino American: 22%; African American: 16%; and Bangladeshi American: 14%) All participants of the seven studies were adults (approximate age range: 30–79 years) diagnosed with T2DM	Community	Individuals' experiences with DM2 interventions and the effect of family support	2009–2019	*N* = 7	(7) USA	Culturally Tailored Diabetes Interventions for type 2 patients varied in: settings, types of interventions, delivery characteristics, content delivered, duration and type of participants. Five themes emerged from the thematic synthesis of the studies: (1) Culturally appropriate healthy lifestyle behaviours, (2) Knowledge about diabetes care, (3) Emotional support, (4) Access to the healthcare system and (5) Family involvement

(Continues)

TABLE 2 Continued

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
Suglo and Evans (2020)	Qualitative systematic review	Four hundred and twenty-six patients Most participants were females ($n = 271$, 64%)	Homes or community settings and hospitals	Individuals' experiences regarding self-management and factors affecting self-care	The databases were searched from January 2000 to 31 December 2019.	$N = 16$	(5) South Africa (4) Ghana (2) Uganda (1) Senegal (1) Ethiopia (1) Zimbabwe (1) Kenya (1) Cameroon	1. Emotional reactions: ('fear and denial of the diagnosis and implications of living with diabetes' and 'persons with diabetes accepted their condition gradually') 2. Cultural beliefs on the causes and treatment of diabetes: ('cultural beliefs and perceptions on causes of diabetes and 'beliefs on using herbal and orthodox medicine to treat diabetes') 3. Social obligations, relationships and support for persons with diabetes, including 'support from family and significant others', 'social obligations of people with diabetes' and 'sexual function and relationships' 4. Self-management practices of persons with diabetes: (dietary management of diabetes, physical activity/exercise, managing diabetes with medications, monitoring of blood sugar levels and foot care) 5. Economic impacts of diabetes: (financial challenges and employment problems) 6. Healthcare system: health workers' attitudes and the nature of service delivery affected the self-management behaviours of persons with DM Barriers: negative emotional states of persons living with diabetes, patients combining herbal and biomedical medicines to treat diabetes, the poor financial situation of persons living with diabetes, patients' poor knowledge of diabetes as a lifelong chronic disease, unhelpful cultural and superstitious beliefs, social and family connectivity/or ties, busy clinics, long waiting time and hurried consultations, shortage of medications at diabetes clinics and costly diabetes medications

TABLE 2 Continued

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
Vanstone et al. (2017)	Qualitative meta-synthesis	A total of 3283 patients 203 family members 235 clinicians Ninety-two studies (76%) involved marginalized participants, and many included participants experiencing multiple types of marginalization. Type of marginalization identified: Minority ethnicity or culture 58 (48%) Immigrant 19 (16%) Non-immigrant 34 (28%) Both 5 (4%) Low socio-economic status 31 (26%) Female 15 (12%) Rural dwellers 12 (10%) Old age 21 (18%) Physical disability 2 (2%) Any type of social marginalization 92 (76%)	Not mentioned	Barriers to diet modification from the perspective of people with type 2 diabetes and family support	January 2002 to 1 April 2015	*N* = 120	13 (11%) Australia/ New Zealand 10 (8%) Canada 17 (14%) United Kingdom 10 (9%) Europe 68 (56%) United States 2 (2%) Multiple countries	Five inter-connected barriers to diet modification that are magnified by social marginalization: 1. Self-discipline 2. Emotions 3. Family and social support 4. The social significance of food 5. Knowledge and information
Scarton et al. (2014)	Integrated review	A total of 361 participants included: families or DM2 patients and their families In all the studies, most caregivers were non-employee women between 40 and 64 Three studies focused on specific ethnic groups: Latinos, American Indians and Caucasians. One author stated that most clients at the hospital from which participants were recruited were black, and two articles did not give information on the race	Speciality clinics or community settings	Family needs and concerns regarding caring for a person with DM2	1990 and 2013	*N* = 6	(6) USA	Family needs, and concerns were as follows: 1. Need for information related to type 2 diabetes 2. Dealing with the emotions and behaviours of the care recipient 3. Providing physical care 4. Providing instrumental care 5. Dealing with one's responses to caregiving

(Continues)

TABLE 2 Continued

Author /year	Methods	Participants (characteristics/ total number)	Setting	Phenomena of interest	Range (years) of included studies	The number of studies included	Country of origin of included studies	Results/Findings
Song et al. (2017)	Systematic review and meta-analysis	Sample sizes ranged from 16 to 1004 The mean participant age ranged from 14 to 74 years; two studies did not report the participants' mean age Twelve studies reported that diabetes duration ranged from 5.6 to 18.2 years, of the 28 studies	Acute care setting and community setting	Impact of social support on diabetes self-care	January 2005 to June 2015	28 studies	Not mentioned	1. Social support from family, friends and healthcare providers significantly correlates with diabetes self-care 2. When families are assessed as the primary source of support, the relationship between social support and diabetes self-care tends to be stronger than other sources 3. The self-care measures used by specific studies also moderated the observed relationship between social support and self-care. Specifically, the SDSCA was the most common measure used. Studies using the SDSCA reported high reliability and validity independent of language and culture. Notably, strong correlations between social support and self-care were observed among studies employing the SDSCA 4. Greater social support from the family and significant others was associated with better diabetes self-care among patients with T1DM and T2DM
Baig et al. (2015)	Systematic review	Family members or friends of different racial/ethnic minority populations in the USA: American Indian, African American, Latino and Asian, including Bangladeshi American and Korean American	Community health centres, other community sites, academic medical centres, churches and Veterans Administration hospitals	Evaluation of Family-based Interventions in the USA	January 1994 to October 2014	26 studies	(26) USA	1. Intervention details: group-based or one-to-one individualized counselling, used home visits and mobile communication technology led by healthcare providers 2. Outcomes measures': (a) patient clinical outcomes: HbA1c, blood pressure, BMI and cholesterol in lipid profile. (b) patient psychosocial outcomes: depression, quality of life, self-efficacy and diabetes distress. (c) patient diabetes self-management behaviours: knowledge and adherence 3. Healthcare utilization: decreased emergency use 4. Cost: reports of intervention cost 5. Patient outcomes by family involvement were reported in a few studies, mostly positively 6. Family participation and outcomes: Few studies reported actual outcomes for participating family members. Some studies reported qualitative findings that the intervention improved family members' ability to support their loved ones with diabetes regarding SMBG and helped family members improve their diets

4.1 | Characteristics of included studies

The reviews were published in peer-reviewed journals. Reviews were published between 2005 and 2021. The range of years for the included studies was from 1980 to 2019. The review designs were: integrative (Bennich et al., 2017; Vanstone et al., 2017), systematic and meta-synthesis (Kodama et al., 2019; Song et al., 2017; Torenholt et al., 2014; Vongmany et al., 2018), systematic (Pamungkas et al., 2017; Rintala et al., 2013; Sohal et al., 2015; Stopford et al., 2013; Strom & Egede, 2012; van Dam et al., 2005), qualitative meta-synthesis (Foss et al., 2016; Thirsk & Schick-Makaroff, 2021; Vanstone et al., 2017), umbrella (Subrata, 2021) and qualitative systematic (Joo & Liu, 2021; Suglo & Evans, 2020). The reviews encompassed different research methods: quantitative, qualitative, mixed methods, randomized control trials, quasi-experimental, pilot, cross-sectional, cohort, case–control, observational and interventional studies. One of the reviews adopted an umbrella design and included systematic and meta-analysis studies conducted in Indonesia (Subrata, 2021).

4.2 | Participants' characteristics

Most of the participants in the included reviews had type 2 diabetes. Few reviews had a mixed population of types 1 and 2 diabetes (Foss et al., 2016; Kodama et al., 2019; Torenholt et al., 2014). However, most of the studies included in these three reviews were for adults with DM2. Many reviews included family members as participants and adults with DM2 (Bennich et al., 2017; Rintala et al., 2013; Scarton et al., 2014; Thirsk & Schick-Makaroff, 2021; Vanstone et al., 2017). All adults with DM2 were over 18 years old. Additionally, nearly all studies had male and female participants, although a few reported that most were female (Scarton et al., 2014; Sohal et al., 2015; Suglo & Evans, 2020; Vongmany et al., 2018). Moreover, several reviews addressed the adults with DM2 and their families' ethnicity and its relation to adherence to DSMP. Examples are different ethnicities/minorities living in America (Joo & Liu, 2021; Rintala et al., 2013), South Asians (Sohal et al., 2015) and South Africans (Suglo & Evans, 2020). However, a few reviews did not provide details of the study's participants (Pamungkas et al., 2017; Subrata, 2021).

4.3 | Study contexts

The studies included in the reviews were conducted in many countries, with the majority conducted in the USA ($n = 123$). Noticeably, the reviews did not include studies from north Africa, the gulf and middle eastern countries, except two from Iran and one from Lebanon.

The reviews included studies conducted mainly in primary care units and community settings. Other studies were carried out in acute care settings (Song et al., 2017), outpatient clinics (van Dam et al., 2005), outpatient and tertiary settings (Stopford et al., 2013), homes and hospitals (Suglo & Evans, 2020), speciality clinics (Scarton et al., 2014), and hospitals, diabetes clinics, general practitioner or practice nurse offices, health centre, group education programme on diabetes and local community (Sohal et al., 2015).

4.4 | Definition of family

The definition of the family varied, although not all reviews articulated the meaning of family. Some provided a clear-cut definition, such as Bennich et al. (2017), who indicated that family members might not have to be married or be blood relatives; they could be neighbours or close friends. Instead, Vongmany et al. (2018) identified the family as everyone who was described as such by the adults with DM2. However, they did not include adults with DM2 experiences with friends, work colleagues or neighbours in their review that focused on family behaviours. Likewise, Kodama et al. (2019) excluded peer support intervention in their review regarding family-based interventions. Torenholt et al. (2014) considered nuclear family members, non-blood relatives, friends, neighbours and anyone who assisted with daily self-care routines, had a personal relationship with the diabetic individual and lived in the same household. In addition, Baig et al. (2015) identified the family as spouses, parents, children, partners, relatives and friends, whether residing in the adults with DM2 house or elsewhere. However, many reviews did not state who was considered as family members in their reviews.

4.5 | Outcomes assessed

The reviews assessed three outcomes of the family's role in supporting adherence to DSMP. Many articles focused on behavioural outcomes ($n = 15$), followed by improving the biological/clinical outcomes ($n = 7$), mainly HbA1c and enhancing psychosocial outcomes for the adults with DM2 ($n = 5$) and their families ($n = 2$). In addition, three reviews also measured diabetes knowledge (Table 3).

4.6 | Summary of the included research syntheses

Families seem to be essential in supporting their family members with DM2. However, multifactorial events influence families' roles. The summary describes the family's role in supporting adherence to DSMP and presents four overlapping themes (Figure 2). Table 4 displays the emerged themes and their definitions/descriptions.

4.6.1 | Theme 1: Family interactions and diabetes self-management

Interactions between family members are crucial in maintaining recommended lifestyle changes for adults with DM2 and augmenting their adherence to diabetes self-management (Bennich et al., 2017).

TABLE 3 Details of the outcomes retrieved.

What was measured:	Reviews/author(s)
Behavioural outcomes	
Adherence to DSMP (self-reports on self-care behaviours, for example, diet, physical activity, blood glucose monitoring, foot care and inspection, medication adherence, sleep and symptom management)	Bennich et al. (2017), Foss et al. (2016), Joo and Liu (2021), Pamungkas et al. (2017), Rintala et al. (2013), Sohal et al. (2015), Song et al. (2017), Strom and Egede (2012), Subrata (2021), Suglo and Evans (2020), Thirsk and Schick-Makaroff (2021), Torenholt et al. (2014), van Dam et al. (2005), Vanstone et al. (2017), Vongmany et al. (2018)
Biological/Clinical outcomes	
Biomarkers like HbA1c, blood glucose level, and lipid profile vital signs, mainly blood pressure. Body mass index Mortality rates	Kodama et al. (2019), Pamungkas et al. (2017), Stopford et al. (2013), Strom and Egede (2012), Subrata (2021), Torenholt et al. (2014); van Dam et al. (2005)
Psychosocial outcomes	
Individual outcomes: self-efficacy, emotional responses, perceived social support from family, stress, social activity, quality of life, attitude towards diabetes, depressive symptoms, psychological well-being, illness perception and satisfaction	Pamungkas et al. (2017), Strom and Egede (2012), Subrata (2021), Torenholt et al. (2014), van Dam et al. (2005)
Family outcomes: Family involvement, family support, family functioning, anxiety and depression of family caregivers and the burden of caring	Scarton et al. (2014), Torenholt et al. (2014)
Knowledge	
Knowledge about diabetes	Scarton et al. (2014); Torenholt et al. (2014); van Dam et al. (2005)

FIGURE 2 Themes and sub-themes related to family role in supporting adherence to DSMP.

Seven reviews explained these interactions and how these are expressed through different types of behaviours that might influence adults with DM2 adherence to DSMP (Bennich et al., 2017; Joo & Liu, 2021; Rintala et al., 2013; Sohal et al., 2015; Suglo & Evans, 2020; Vanstone et al., 2017; Vongmany et al., 2018). The later review defined family behaviours as any action the family takes which influences the adults with DM2's ability to self-manage their diabetes.

In addition, the reviews shed light on families' cultural beliefs, traditions and practices and how these shape family behaviours towards the needs of family members with DM2. The reviews included participants from different cultural backgrounds, mainly

TABLE 4 Definition/description of themes emerged.

No	Theme	Definition/description
1	Family interactions and diabetes self-management	The theme describes the nature of family interactions concerning supporting a family member with DM2 in adherence to DSMP. It classifies and defines three different family behaviours and supports them with examples. It also highlights how culture shaped these behaviours and how that affected the adult with DM2 adherence to DSMP. Family behaviours were found to be enabling, disabling and paradoxically perceived
2	Family support as informal social support	The theme retrieves that adults with DM2 may receive two kinds of support from their surroundings; formal (e.g. healthcare providers) and informal (e.g. family and friends). Family support can be identified as informal, part of everyday life and influence the performance of DSMP. The theme sheds light on family support and illustrates its impact on self-care and health outcomes. The theme also looks at the effect of family support in relation to gender, particularly in spousal-based interventions
3	Factors affecting families' role	The theme focuses on factors affecting family members of the adult with DM2's role in diabetes management. It also draws attention to their needs and concerns. Families' needs were educational, emotional, physical, instrumental and cultural.
4	Tailoring culturally sensitive family-based interventions	The theme elaborates on family-based interventions designed to meet the needs of adults with DM2 and their families in a culturally sensitive frame. The theme features how families were recruited, family members' roles during the interventions and the outcomes of involving adults with DM2 and their families in these interventions

South African (Suglo & Evans, 2020), South Asian (Sohal et al., 2015), minorities in the USA (Joo & Liu, 2021), ethnic minorities in some western countries (Vanstone et al., 2017) and different ethnicities (Rintala et al., 2013). The three subthemes below explain three different family behaviours and how they were practised or influenced by the culture of the adults with DM2 and their family members.

Family behaviours enabling diabetes self-management

These behaviours were reported in the reviews as being supportive, where the adults with DM2 were encouraged to adhere to the recommended DSMP and developed with their families a common goal to keep themselves physically and psychologically well (Bennich et al., 2017). Being actively engaged in daily activities with adults with DM2, mainly in areas concerning food and physical activity, like maintaining a healthy diet, cooking, grocery shopping, coordinating mealtime with medications schedule and exercising, were reported in most of the reviews. While being emotionally involved was equally stressed, such as showing understanding for each other's feelings, openly communicating their needs and being motivated for the change, which was found to influence adherence to DSMP positively.

Enabling behaviours were expressed differently in different cultures. In communities with low socio-economic status in South Africa, families helped their members with DM2 by supporting them financially to buy diabetic medication (Suglo & Evans, 2020). However, South Asians wanted their family members to translate healthcare providers' advice during visits which they thought helped to emphasize this advice at home. At the same time, adults with DM2 coming from different minority groups in the USA noticed that when they received dietary information from their healthcare providers, considering their cultural and linguistic backgrounds, they shared this information with their family members. Subsequently, their family members started to eat less in front of them and learnt to cook traditional food differently (Joo & Liu, 2021).

Family behaviours disabling diabetes self-management

These were also referred to as non-supportive or obstructive behaviours that constituted a significant barrier to managing diabetes efficiently and showed a limited capacity for family support or engagement (Vongmany et al., 2018). Lack of family coherence and togetherness, marital dissatisfaction and ineffective communication created barriers to adherence to DSMP (Bennich et al., 2017; Rintala et al., 2013; Vongmany et al., 2018). In addition, interference with adults with DM2 autonomy and allowing limited space for independence created interpersonal hurdles in the family, such as when the adult with DM2 had less control over meal planning and cooking (Vanstone et al., 2017).

However, disabling behaviours in different cultures seem to take different forms and outweigh supportive behaviours. For example, Pilipino participants in the USA valued socializing and enjoying themselves during gatherings over healthy choices and related that to the cultural identity and the social significance of food in Asian culture (Vanstone et al., 2017). South Africans' beliefs on the causes of DM2 influenced their treatment options and rendered herbal medicines, traditional healers and prayers over biomedical practices. Besides, communal eating practices, rituals and religious activities affected daily dietary management (Suglo & Evans, 2020). Correspondingly, Americans of Appalachian ancestry believed that ethnic food preferences, family food traditions and intergenerational dietary patterns made adherence to the suggested diet difficult (Rintala et al., 2013).

Moreover, it seems that traditional roles and cultural beliefs inherited by women and men in different cultures affected DM2 management. For instance, South Asian women used their standard cultural diet as a form of diabetes therapy, and men were concerned

TABLE 5 Examples of family behaviours mapped to the various types of support.

	Family Behaviours towards DSMP		
Type of support	**Enabling**	**Disabling**	**Paradoxically perceived**
Instrumental support	Assistance with; grocery shopping, cooking, driving, timing the meals according to insulin, preparing meals at home, medications, checking blood sugar levels and identifying symptoms Doing health-related tasks or activities together (visiting a clinician, exercising, cooking, etc.) Shared health needs or goals for adopting a healthier lifestyle	Buying or preparing non-healthy food, feeling obliged to eat unhealthy food prepared by the patient or spouse Partner refusing to share the burden with spouse, expecting patient to manage tasks alone rather than together Sabotaging diabetes-related diet Unhealthy family routines Cultural food-related issues like the use of unhealthy food and eating together	
Emotional support:	Motivate them to exercise and participate in future family events Thinking of other's needs and concerns Accept the need for independence and privacy Have a positive attitude towards diabetes A feeling of coherence and togetherness in the family and better marital satisfaction Having open communication, gentle conversations, consoling, listening and reminding	Nagging, criticizing, arguing, constant controlling reminders, poor communication, critical comments and overprotection Negative marital relationship Juggling self-management activities with family pressures and commitments Lack of family understanding or motivation to understand Limited capacity to provide family support Family worldviews include pessimistic life beliefs and defective emotion management (i.e. unresolved conflicts)	Nagging/providing threats for not self-managing Regular reminders—adherence prompts
Informational support:	Learning about diet plans, learning from other family member's diabetes experience	Refusing to accept the requirements and consequences of diabetes, perceive diabetes as unpredictable and burdensome	
Financial support:	Providing monetary support (e.g. buying healthy food, purchasing diabetes medications)	Unable to provide healthy food options	

about their partner's safety and security when exercising outside the home (Sohal et al., 2015). In addition, in Vanstone et al. (2017) review, families were more inclined to accommodate the demands of males with diabetes, but women with diabetes were more likely to alter their meal plans to meet family needs or preferences. Table S4-a and S4-b provide further examples of some cultural beliefs and practices affecting DSMP.

Family behaviours perceived paradoxically

Family behaviours perceived paradoxically or equivocally were perceived to be enabling or disabling to the adults with DM2 adherence to DSMP. Vongmany et al. (2018) considered family reminders such as attending appointments, taking medication or exercising as having the capacity to be helpful or harmful. Likewise, adults with DM2 in Bennich et al. (2017) review considered constant controlling reminders as disabling while being there and helping them remember some tasks as enabling, which means that reminders can carry different effects according to the adults with DM2 perceptions.

Table 5 provides more examples of families' enabling, disabling and paradoxically perceived family behaviours towards DSMP and how these behaviours can be mapped to the various types of support; instrumental, emotional, informational and financial, as reported in the reviews.

4.6.2 | Theme 2: Family support as informal social support

Five reviews discussed family support as part of the collective social support that adults with DM2 should receive (Foss et al., 2016; Song et al., 2017; Stopford et al., 2013; Strom & Egede, 2012; van Dam et al., 2005). Social support is a multidimensional experience of formal and informal relationships with others (Strom & Egede, 2012). Stopford et al. (2013) demonstrated that formal social support relates to the supportive role of the healthcare team, diabetic education programmes and other support groups. In contrast, informal social support is provided by social networks or family members. He described the latter as free, readily available and specific to the individual. Strom and Egede (2012) claimed that family support was indispensable when individuals began or maintained new health behaviours and were required to make informed health decisions. Hence, adults with DM2 should not be blamed or held solely accountable for managing DM2 because they operate within a social

network that might affect their self-management (Foss et al., 2016). Two prominent subthemes emerged regarding family support: the *effect of family support* and *gender differences*.

Effect of family support

Except for one, all the included reviews reported the positive effect of family support on adults with DM2 outcomes. van Dam et al. (2005) revealed that glycaemic control did not differ between the control group (adults with DM2 only) and the intervention group (spouse, family or friends alongside the adults with DM2), as the results for both groups were positive. However, the subsequent reviews published after van Dam et al. (2005) review yielded positive outcomes for family support. Stopford et al. (2013) reported that family support was independently related to reduced HbA1c levels. Strom and Egede (2012) stated that diet-related clinical outcomes (low-density lipoprotein, total cholesterol, triglycerides and HbA1c) improved when family members cooked the meals. They also noted that family support improved glucose monitoring, compliance with diet and exercise and self-care practices. Similarly, Song et al. (2017) observed that emotional and instrumental family support aided in meal preparation and continuous glucose monitoring and contributed to improvement in self-care. Finally, adults with DM2 in Foss et al. (2016) review felt that family support helped them manage everyday challenges.

Gender differences

There were differences between males and females seeking support, as men preferred to rely on their spouse, close family members or friends for help (Strom & Egede, 2012). In contrast, women relied on assistance from sources other than their families (Stopford et al., 2013). On the other hand, the effect of involving spouses in diabetes interventions was contradictory. van Dam et al. (2005) reported that women had good diabetes control outcomes in weight reduction programmes involving spousal participation, but the results were the opposite for men. A subsequent review discovered that spousal support contributed to women's elevated HbA1c levels and males' decreased levels (Stopford et al., 2013).

4.6.3 | Theme 3: Factors affecting families' role

Families' experiences with supporting DSMP, the factors that affected their support and their needs and concerns were reported in one review only by Scarton et al. (2014). Adults with DM2 in the review were of native American Indian origin. Scarton et al. (2014) found that families considered the caregiving role difficult and demanded support. They declared that multiple factors affected the family role.

Educational needs

Families wanted information regarding diabetes in general, warning signs of complications, managing diabetes, dietary restrictions, local services, expected resources, progression of diabetes, handling future crises and how to cope with caregiving responsibilities in the long run.

Emotional needs

Families were concerned about effectively handling the adult with DM2's complex behaviours, including feelings of uncertainty, depression, fear, anger, frustration or guilt of being burdensome to their families. When they lacked strategies to deal with these symptoms, adherence to DSMP was less likely.

Physical care needs

When adults with DM2 experienced fluctuation in blood glucose levels between high and low values, families greatly assisted them with meal preparation, exercise, medicine and blood glucose measurement. However, what complicated caregiving, particularly on reservations, was the inadequate living circumstances, such as a lack of heating, washing and drying appliances, and even sewer systems, all of which impacted the quality of physical care offered.

Instrumental care needs

Families provided transportation to medical visits. However, they had financial concerns about medical costs, purchasing nutritious foods and respite care. Additionally, they reported trouble concentrating at work because of their caring responsibilities. They worried about losing their jobs and felt overwhelmed due to using vacation days for caring tasks. Many believed they needed to work past retirement age to meet financial obligations. Additionally, they observed a nursing shortage in public health clinics. Thus, adults with DM2 families frequently needed to contact the tribe police for assistance or had to drive to off-reservation treatment centres when there was no available healthcare provider.

Cultural needs

Families reported compromising their well-being to care for the family members who had diabetes, struggling with social functioning and participating in few social activities because they felt too guilty to leave them. In their cultures, it was also customary to be part of a multigenerational family that prioritized the needs of the collective over the needs of the individual, making them feel as if their needs were disregarded.

4.6.4 | Theme 4: Tailoring culturally sensitive family-based interventions

Reviews included under this theme emphasized adopting culturally appropriate family-based interventions to meet the adult with DM2 and their family's needs (Baig et al., 2015; Kodama et al., 2019; Pamungkas et al., 2017; Subrata, 2021; Thirsk & Schick-Makaroff, 2021; Torenholt et al., 2014). Thirsk and Schick-Makaroff (2021) claimed that with the recognition of the influence of families on the adult with DM2 health behaviours, a shift

from individual to family interventions has occurred. Kodama et al. (2019) explained that family-based interventions consider family or household members and provide various means of support to improve the quality of diabetic care. In addition, Thirsk and Schick-Makaroff (2021) explained that family-based, culturally acceptable and resource-appropriate interventions might help recognize the difficulties faced by different families. Thus, if designed appropriately, they claimed those interventions might contribute to a sustainable change in adults with DM2 health habits and enhance family members' health and well-being. Therefore, the three subthemes below explain *how families were included*, *role of the family and the mechanism of the interventions* and *the effectiveness of the interventions*.

How families were included

The adults with DM2 and their families were recruited via two options; either as one group or only family members were included and counselled to support the adult with DM2. The reviews did not discuss any difference in the outcomes between the two recruitment methods.

Role of the family and the mechanisms of the interventions

Family roles during intervention programmes were not discussed clearly except in two reviews. Pamungkas et al. (2017) and Baig et al. (2015) clarified that families were asked to assist in easing stress and denial, optimizing environmental conditions, providing information, facilitating, accommodating, reminding, motivating and partnering with behaviour change and task completion. Generally, reviews discussed the nature of the interventions and how they were tailored culturally. The interventions were culturally adapted by addressing language, indigenous beliefs and ideas about sickness, and traditional eating, exercise and learning practices (Torenholt et al., 2014). The interventions were primarily educational (Baig et al., 2015; Kodama et al., 2019; Thirsk & Schick-Makaroff, 2021). Others provided emotional support (Pamungkas et al., 2017; Torenholt et al., 2014). Some others taught family members social skills such as communication, problem-solving, overcoming challenges and recognizing obstructive behaviours strategies (Pamungkas et al., 2017; Thirsk & Schick-Makaroff, 2021; Torenholt et al., 2014). In addition, some interventions focused on discussing the available social resources and activities that support adults with DM2 and their families (Baig et al., 2015; Subrata, 2021). The adults with DM2 and their families were followed up by face-to-face, telephone and computer-based follow-up strategies. The period to measure the intervention's effectiveness was reported to be varied between 3 weeks and 12 months (Kodama et al., 2019; Torenholt et al., 2014).

The effectiveness of the interventions

Torenholt et al. (2014) explained that 'the active involvement of a family member would improve social support, which, in turn, would increase self-management behaviour of the individual with diabetes, ultimately improving clinical and psychosocial outcomes' (p. 16). All the reviews affirmed that family-based interventions enhanced family support and thus improved the adults with DM2 and their families' outcomes. Improved behavioural, psychosocial, self-efficacy, perceived social support and clinical outcomes were reported by Pamungkas et al. (2017). Similarly, enhanced biological, behavioural, knowledge, psychosocial and family-specific measures were claimed in the review of Torenholt et al. (2014). Thirsk and Schick-Makaroff (2021) described improvement in diabetes management, diabetes management knowledge and the health of the family and the community. Kodama et al. (2019) observed a substantial reduction in adults with DM2 HbA1C. Lastly, Subrata (2021) explained that self and family interventions improved the adults with DM2 knowledge, attitude and practice of DSMP.

In summary, the review demonstrated that when the family interacted and engaged positively with the diabetes self-management process, they enabled adults with DM2 adherence to DSMP. Similarly, when the adults with DM2 and their families enrolled in culturally appropriate family-based interventions, it contributed to more understanding of the adults with DM2 needs and facilitated family behaviours that enabled adherence to DSMP. Conversely, when the family lacked an understanding of the adults of DM2 needs and concerns, this resulted in disabling family behaviours that obstructed adherence to DSMP. Still, factors within the family background, traditions and cultural practices might influence these behaviours. The latter highlighted an area of need for adults with DM2 and their families. Besides these cultural needs, other needs (i.e. educational, instrumental, emotional and physical care needs) are required to be met to aid families with their caregiving roles. However, family interventions involving spouses, how males and females respond to familial support and DSMP, family behaviours that are perceived paradoxically by the adults with DM2 and the difference in intervention outcomes when the adults with DM2 and their families are recruited together or separately are areas that require further exploration and warrant additional analysis. Table 6 uses visual indicators to show how the emerged themes and sub-themes affected family roles with DSMP.

5 | DISCUSSION

This thematic synthesis has emphasized the significance of family participation in diabetes self-management. It has highlighted the impact of the adult with DM2 cultural and family environment on diabetes self-care and stressed adapting culturally sensitive interventions. Based on the generated themes and the findings of this review, the following discussion points are thought to help improve the experiences of adults with DM2 and their families.

5.1 | Demand for cultural understanding of the family

Generally, the review revealed cultural variances in the definition of family and a lack of clear identification of who is considered a family

TABLE 6 Visual indicators showing the effect of the emerged themes about the family role on the adherence to DSMP.

Main themes	Sub-themes
1. Family Interactions and Diabetes Self-Management	Family behaviours enabling diabetes self-management
	Family behaviours disabling diabetes self-management
	Family behaviours perceived paradoxically
2. Family support as informal social support	Effect of family support
	Gender differences
3. Factors affecting families' role	Educational needs
	Emotional needs
	Physical care needs
	Instrumental care needs
	Cultural needs
4. Tailoring culturally sensitive family-based interventions	How families were included
	Role of the family and the mechanisms of the interventions
	The effectiveness of the interventions

Note: : the findings enabling adherence to DSMP; the findings disabling adherence to DSMP; the findings showed different responses in relation to adherence to DSMP.

member in most reviews. Torenholt et al. (2014) explained that a culturally appropriate definition is required because family patterns differ worldwide. Morgan (2011) discussed that families might encompass various situations, statuses and experiences beyond the traditional concept of family as parents and children, and families should not be viewed as fixed entities or typologies. Without a clear definition of the family, it will be difficult to fathom the meaning family members associate with family, the expected family functions, the nature of family dynamics and what cultural traditions, religious views or attitudes about diabetes and DSMP they hold. This information can help healthcare professionals to comprehend what enables or disables adults with DM2 adherence to DSMP in different populations.

In this review, DSMP was greatly affected by adults with DM2 and their families' cultural backgrounds. In addition, adults with DM2 in different cultures had unique perceptions of the extent of family involvement required, what family behaviours were helpful or unhelpful to them and what kind of support they required. Similarly, McConatha et al. (2019) investigated cultural factors affecting adherence to DSMP in middle eastern adults with DM2 immigrants and found that adults with DM2 benefited from family and surrounding community support. However, the adults with DM2 claimed that DM2 required many lifestyle changes that strained their relationships with their family members and friends and affected their cultural identity as a group because they saw that DM2 management, particularly diet, necessitated giving up foods that were a part of their cultural heritage and helped them feel connected to their homes and cultures of origin. Campos and Kim (2017) explained that culture influences the appearance of adaptive family and other intimate connections, how relationships function as a source of social integration and support and how relationship interactions affect health and well-being.

5.2 | Need to understand the role of gender

In general, numerous works have examined the gender variations in social support behaviours, focusing on how these behavioural patterns affect the recipient's health (Neff & Karney, 2005). They concluded that men and women differ in their ability to provide and receive support (Scholz et al., 2013). These discrepancies are sometimes related to traditional gender roles that conventionally place more responsibility on women to manage households, raise children and care for sick family members than on males, who are socialized to pursue careers in the workforce. Caregiving is therefore seen as a more particular extension of women's societal roles, as opposed to men, for whom it frequently denotes a newer or unfamiliar function (Allen et al., 1999). However, the past few decades have witnessed significant shifts in gender roles and family structures, while the traditional family is being supplanted by new family types in many cases (Fine-Davis, 2017). Hence, Bernstein (2020)'s more recent study suggests that it is vital to understand gender role identities and their related personality qualities, as they may significantly influence the development, maintenance and perception of social support relationships. More specifically, this would help better understand these relationships and their implications on well-being.

In relation to diabetes, Goins et al. (2022) advocated a deeper understanding of gender roles and social support in diabetes management, which can help create more effective intervention strategies and a better grasp of where to concentrate intervention efforts. Later, failure to emphasize how men and women differ in their abilities to provide support and respond to recipient stress without also addressing the context in which the support process occurs may lead to incorrect conclusions and a waste of intervention efforts (Neff & Karney, 2005).

In this review, social support provided for adults with DM2 differed by the gender of the family member and the traditional role of women and men in different cultures. Equally, in the Dimova et al. (2021) study that examined the influence of gender in diet management for adults with DM2 and their family members in Scotland, women were responsible for preparing the meals. They actively desired to manage their relatives with DM2 condition, recommending a specific diet plan and ensuring they adhered to it. On the other hand, men had lesser engagement but comprehended that their family members with DM2 must adopt dietary modifications and were eager to support them by adhering to the new diet regimen. Similar to this review, there were gender differences in seeking and responding to support. Females with DM2 in Dimova et al. (2021) study prioritized their family needs over their needs and relied on themselves to manage their dietary needs, whereas males with DM2

were more prone to rely on the support of their female relatives for diet management.

This review showed that the effect of family-based interventions when couples were recruited was unclear. Likewise, Wang et al. (2022) scoping review found insufficient evidence about the impact of spouse-based interventions on the physiological health or health-related behaviours of middle-aged spouses with DM2. They recommended using standardized measures of diabetic outcomes, conducting proper assessments of the implementation process, and adopting a dyadic approach to systematically examine these interventions' impact. On the other hand, Stopford et al. (2013) proposed employing qualitative research to comprehend the informal social support needs of adults with DM2, including that received from spouses and the implications of factors such as gender and cultural differences on glycaemic management.

5.3 | Need for social support and resources

Family roles in this review were affected by a lack of appropriate formal and informal support systems and a scarcity of resources. The findings of this review are similar to Thomas et al. (2017) study, which found that multifactorial events at personal, familial and social levels affected adults with DM2's experiences, including the challenge of adopting DSMP in everyday life, the struggle with limited resources including income, employment, healthcare resources, knowledge regarding DM2 and healthcare dynamics and the need for support from their families and faith communities. Hence, Vanstone et al. (2017) used socioecological theory to explain how one level of support can influence the next level and how these interweaved to influence adults with DM2 and their families' experiences. They advocated that adults with DM2 experiences must be viewed on personal, familial and societal levels. However, in low socio-economic groups, a lack of appropriate supplies and formal social support seemed to affect adherence to DSMP significantly. Yehualashet et al. (2021)'s review showed that poor glycaemic control in rural Ethiopians was due to a lack of access to glucometer apparatus and healthcare services in urban areas. Likewise, Gucciardi et al. (2019) found that conflicting priorities sometimes drive adults with DM2 to cut back on diabetes medications, supplies and healthful meals to pay housing bills in low socio-economic communities. Joo and Liu (2021) claimed that some of the adults with DM2 in their review were underinformed about resources available for them, and some others, due to language barriers or not knowing how to explain their symptoms to the healthcare team, had difficulty accessing the health services.

On the other hand, Bech et al. (2019) study showed that adults with DM2 wanted more engagement and personalized care from their healthcare provider for their diabetic management than from their families or friends due to dysfunctional or lacking relationships, pre-existing norms and a desire to avoid burdening others. Bech et al. (2019) claimed that it is crucial that health practitioners avoid applying a one-size-fits-all strategy and instead elicit views of support needs and potential sources of assistance from formal and informal groups. They also suggested that a patient-centred approach and utilizing peer support may be a helpful supplementary option for those with strained relationships with their families.

5.4 | Need for well-planned sustainable family-based interventions

This review found that culturally based family interventions effectively enhanced DSMP outcomes. However, the reviews that discussed these interventions claimed a lack of a clear plan to guarantee these programmes' long-term success (Vanstone et al., 2017). To improve the sustainability of these programmes, Pamungkas et al. (2017) suggested using appropriate follow-up methods to establish and adapt goals and action plans whenever required. In addition, Kodama et al. (2019) recommended strategically planning labour, time and expenditures before initiating any intervention. The latter two factors should be planned with the adults with DM2 and their family members. For example, adults with DM2 and their families in Joo and Liu (2021) review demanded more time to acclimate to the proposed dietary adjustments, while family members in Thirsk and Schick-Makaroff (2021) were concerned about financial difficulties if they missed work to attend the educational sessions.

Foss et al. (2016) explained that family-based interventions should consider taking a thoughtful assessment of the adults with DM2 and their families' various needs, including their health, educational, psychosocial and financial requirements. In addition, they should consider measuring family outcomes alongside adults with DM2 outcomes, as this review identified that adults with DM2 outcomes were primarily and more frequently measured. According to Torenholt et al. (2014), aspects of family functioning most likely related to the intervention's goals are often overlooked. In this review, participants were mainly adults with DM2; family members were recruited in a small number of reviews. Noticeably, factors affecting family roles and their needs and concerns were explored in one review. However, lacking enough data about the family member's point of view may contribute to a less understanding of diabetes experience as most DSMP occur in the home environment (Torenholt et al., 2014).

5.5 | Implications for practice and research

This umbrella review has underlined that families significantly influenced adults with DM2's adherence to DSMP. However, there were unmet needs for the adults and their families, which might affect their experiences with DM2 management. Hence, this implies that healthcare professionals and those in policymaking positions need to develop initiatives to accommodate the needs of this group. An assessment of adults with DM2 and their families should always proceed before implementing any interventions or treatment strategies. These interventions should tailor to the multidimensional needs of the adults with DM2 and their families and should be planned in a way that is not only

culturally appropriate but also resource-appropriate to guarantee its sustainability through regular audits with international guidelines for diabetes care and the adults with DM2 prognosis. In addition, allocating the appropriate resources for adults with DM2 and their families would require broader community participation and awareness.

This review revealed numerous gaps and prospective study areas. There is a need to investigate social support, particularly family support, and how diverse families with varying structures and dynamics assist in all facets of DSMP. Also, there is a need to explore family roles in underrepresented populations, such as people coming from North Africa, the gulf and middle eastern countries, as those groups may have different backgrounds and needs. Moreover, it is necessary to understand the factors that could influence DM2 management for adults with DM2 and their family members and what resources are available to them. Following that, an action research study that uses legitimate standard methodologies to create patient, family or couple-based interventions might be planned to address the needs of this group.

6 | LIMITATIONS

This umbrella review adopted a systematic approach that followed the JBI guidelines and covered many concepts related to the family role. However, this review was limited to the number of systematic reviews allocated by the databases searched, and there might be other relevant systematic reviews that were not included. Moreover, most reviews included heterogeneous qualitative, quantitative and mixed methods studies, thus failing to pool a statistical significance.

Another limitation of this review is that it included only systematic reviews published in English. There might be other related findings from articles or reviews published in other languages. Thus, this review might be limited in understanding cultural variation and its influence on DSMP and family support. In addition, although participants were from different countries, ethnicities, and social characteristics. The effect of cultural and socio-demographic factors was discussed generally. However, comparing studies with similar contexts would strengthen the evidence (Bennich et al., 2017; Vongmany et al., 2018). Future reviews can focus more on collecting and summarizing evidence related to particular cultures regardless of the publication language to broaden cross-cultural knowledge regarding diabetic management and family support.

7 | CONCLUSION

Diabetes mellitus continues to be one of the most serious chronic diseases globally, which requires complex management, including self-care. As DSMP occurs in the home environment, family support might create a suitable medium to embrace self-care practices.

This umbrella review reports findings from 19 systematic reviews to further understand what is known regarding the family's role in supporting DSMP. There seems to be a collective understanding of the influence of family on diabetic self-management. Still, many areas need further exploration and development.

AUTHOR CONTRIBUTIONS

This article is part of Toqa Jameel Abbas Busebaia's doctoral thesis work. She collaborated with her supervisors, Jill Thompson, Hannah Fairbrother and Parveen Ali, to develop the research methodology. Jill Thompson, Hannah Fairbrother and Parveen Ali supervised the reviews selection, data extraction, quality assessment and findings phases. While preparing this article, Toqa Jameel Abbas Busebaia wrote and edited the article; her supervisors gave feedback, directions and suggestions. All authors have agreed on the final version and meet at least one of the following criteria (recommended by the ICMJE, http://www.icmje.org/recommendations/):

1. substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
2. drafting the article or revising it critically for important intellectual content.

ACKNOWLEDGEMENTS

Special thanks to Anthea Tucker, the liaison librarian at the University of Sheffield's Faculty of Medicine, Dentistry and Health, for her direction and assistance during the database searching process.

FUNDING INFORMATION

The University of Bahrain awarded Toqa Jameel Abbas Busebaia a scholarship to pursue a doctorate in nursing at the University of Sheffield. This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

CONFLICT OF INTEREST STATEMENT

No conflict of interest has been declared by the author(s).

PEER REVIEW

The peer review history for this article is available at https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/jan.15689.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

NO PATIENT OR PUBLIC CONTRIBUTION

This review did not incorporate direct patients or public input as it summarizes evidence from previously published systematic reviews.

REPORTING METHOD

This review is structured based on Joanna Briggs Institute (JBI) guidelines for umbrella review (Aromataris et al., 2020).

ORCID

Toqa Jameel Abbas Busebaia https://orcid.org/0000-0002-4812-0197
Jill Thompson https://orcid.org/0000-0001-9256-1208
Hannah Fairbrother https://orcid.org/0000-0001-9347-8625
Parveen Ali https://orcid.org/0000-0002-7839-8130

TWITTER

Toqa Jameel Abbas Busebaia @busebaia
Parveen Ali @parveenazamali

REFERENCES

ADCES, A. o. D. C. E. S. (2020). ADCES7 self-care behaviors. Retrieved 3rd June from https://www.diabeteseducator.org/living-with-diabetes/aade7-self-care-behaviors

Alkenizan, A. (2004). Innovative care for chronic conditions: Building blocks for action World Health Organization (WHO). 2002, 112 pages [EnglishFrench, Spanish and Arabic in preparation]. *Annals of Saudi Medicine*, *24*(2), 148. https://doi.org/10.5144/0256-4947.2004.148

Allen, S. M., Goldscheider, F., & Ciambrone, D. A. (1999). Gender roles, marital intimacy, and nomination of spouse as primary caregiver. *Gerontologist*, *39*(2), 150–158. https://doi.org/10.1093/geront/39.2.150

Aromataris, E., Fernandez, R., Godfrey, C., Holly, C., Khalil, H., & Tungpunkom, P. (2020). Chapter 10: Umbrella reviews. In E. Aromataris, Z. Munn (Eds.), *JBI Manual for Evidence Synthesis*. JBI. https://doi.org/10.46658/JBIMES-20-11

Baig, A. A., Benitez, A., Quinn, M. T., & Burnet, D. L. (2015). Family interventions to improve diabetes outcomes for adults. *Annals New York Academy of Sciences*, *1353*(1), 89–112. https://doi.org/10.1111/nyas.12844

Bech, L. K., Borch Jacobsen, C., Mathiesen, A. S., & Thomsen, T. (2019). Preferring to manage by myself: A qualitative study of the perspectives of hardly reached people with type 2 diabetes on social support for diabetes management. *Journal of Clinical Nursing*, *28*(9–10), 1889–1898. https://doi.org/10.1111/jocn.14783

Bennich, B. B., Røder, M. E., Overgaard, D., Egerod, I., Munch, L., Knop, F. K., Vilsbøll, T., & Konradsen, H. (2017). Supportive and non-supportive interactions in families with a type 2 diabetes patient: An integrative review. *Diabetology and Metabolic Syndrome*, *9*(1), 57. https://doi.org/10.1186/s13098-017-0256-7

Bernstein, C. (2020). Biological sex, gender roles and social support IN South Africa: The influence of positive and negative sex roles on perceptions of social support. *Gender & Behaviour*, *18*(2), 15521–15533.

Booth, A., Sutton, A., & Papaioannou, D. (2016). *Systematic approaches to a successful literature review* (2nd edition. ed., p. 2016). SAGE.

Campos, B., & Kim, H. S. (2017). Incorporating the cultural diversity of family and close relationships into the study of health. *The American Psychologist*, *72*(6), 543–554. https://doi.org/10.1037/amp0000122

Caro-Bautista, J., Kaknani-Uttumchandani, S., García-Mayor, S., Villa-Estrada, F., Morilla-Herrera, J. C., León-Campos, Á., Gómez-González, A. J., & Morales-Asencio, J. M. (2020). Impact of self-care programmes in type 2 diabetes mellitus population in primary health care: Systematic review and meta-analysis. *Journal of Clinical Nursing*, *29*(9–10), 1457–1476. https://doi.org/10.1111/jocn.15186

Cyrino, A. P., Schraiber, L. B., & Teixeira, R. R. (2009). A Educação para o autocuidado no diabetes mellitus tipo 2: Da adesão ao empoderamento. *Interface (Botucatu, Brazil)*, *13*(30), 93–106. https://doi.org/10.1590/S1414-32832009000300009

DeFronzo, R. A. (2015). *International textbook of diabetes mellitus* (4th ed., p. 2015). Wiley Blackwell.

Dimova, E. D., Swanson, V., & Evans, J. M. M. (2021). Gender and diet management in type 2 diabetes. *Chronic Illness*, *17*(4), 362–376. https://doi.org/10.1177/1742395319873375

Felton, A.-M., & Hall, M. S. (2009). Diabetes—From St Vincent to Glasgow. Have we progressed in 20 years? *The British Journal of Diabetes & Vascular Disease*, *9*(4), 142–144. https://doi.org/10.1177/1474651409341318

Fine-Davis, M. (2017). *Changing gender roles and attitudes to family formation in Ireland* (p. 2017). Project Muse.

Foss, C., Knutsen, I., Kennedy, A., Todorova, E., Wensing, M., Lionis, C., Portillo, M. C., Serrano-Gil, M., Koetsenruijter, J., Mujika, A., & Rogers, A. (2016). Connectivity, contest and the ties of self-management support for type 2 diabetes: A meta-synthesis of qualitative literature. *Health & Social Care in the Community*, *24*(6), 672–686. https://doi.org/10.1111/hsc.12272

Funnell, M. M., & Anderson, R. M. (2004). Empowerment and self-Management of Diabetes. *Clinical Diabetes*, *22*(3), 123–127. https://doi.org/10.2337/diaclin.22.3.123

Goins, R. T., Grant, M. K., Conte, K. P., & Lefler, L. (2022). Social support and diabetes management among older American Indians. *Frontiers in Public Health*, *10*, 780851. https://doi.org/10.3389/fpubh.2022.780851

Goyal, R., & Jialal, I. (2022). *Diabetes mellitus type 2*. StatPearls. https://www.ncbi.nlm.nih.gov/books/NBK513253/

Goyal, R., Jialal, I., & Castano, M. (2022). *Diabetes mellitus type 2 (nursing)*. StatPearls. https://www.ncbi.nlm.nih.gov/books/NBK568737/

Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal*, *26*(2), 91–108. https://doi.org/10.1111/j.1471-1842.2009.00848.x

Gucciardi, E., Yang, A., Cohen-Olivenstein, K., Parmentier, B., Wegener, J., & Pais, V. (2019). Emerging practices supporting diabetes self-management among food insecure adults and families: A scoping review. *PLoS One*, *14*(11), e0223998. https://doi.org/10.1371/journal.pone.0223998

Haugstvedt, A., Wentzel-Larsen, T., Rokne, B., & Graue, M. (2011). Perceived family burden and emotional distress: similarities and differences between mothers and fathers of children with type 1 diabetes in a population-based study. *Pediatr Diabetes*, *12*(2), 107–114. https://doi.org/10.1111/j.1399-5448.2010.00661.x

Holt, R. I. G. (2017). *Textbook of diabetes* (5th ed., p. 2017). Wiley Blackwell.

Hunt, H., Pollock, A., Campbell, P., Estcourt, L., & Brunton, G. (2018). An introduction to overviews of reviews: Planning a relevant research question and objective for an overview. *Systematic Reviews*, *7*(1), 39. https://doi.org/10.1186/s13643-018-0695-8

IDF. (2021). *IDF Diabetes Atlas*. International Diabetes Federation. https://diabetesatlas.org/atlas/tenth-edition/

Ismail, L., Materwala, H., & Al Kaabi, J. (2021). Association of risk factors with type 2 diabetes: A systematic review. *Computational and Structural Biotechnology Journal*, *19*, 1759–1785. https://doi.org/10.1016/j.csbj.2021.03.003

Joo, J. Y., & Liu, M. F. (2021). Experience of culturally-tailored diabetes interventions for ethnic minorities: A qualitative systematic review. *Clinical Nursing Research*, *30*(3), 253–262. https://doi.org/10.1177/1054773819885952

Kaldal, M. H., Conroy, T., Feo, R., Gronkjaer, M., & Voldbjerg, S. L. (2022). Umbrella review: Newly graduated nurses' experiences of providing direct care in hospital settings. *Journal of Advanced Nursing*, 1–12. https://doi.org/10.1111/jan.15434

Karimy, M., Koohestani, H. R., & Araban, M. (2018). The association between attitude, self-efficacy, and social support and adherence to diabetes self-care behavior. *Diabetology and Metabolic Syndrome*, *10*(1), 86. https://doi.org/10.1186/s13098-018-0386-6

Kodama, S., Morikawa, S., Horikawa, C., Ishii, D., Fujihara, K., Yamamoto, M., Osawa, T., Kitazawa, M., Yamada, T., Kato, K., Tanaka, S., & Sone, H. (2019). Effect of family-oriented diabetes programs on glycemic control: A meta-analysis. *Family Practice*, *36*(4), 387–394. https://doi.org/10.1093/fampra/cmy112

Kovacs Burns, K., Nicolucci, A., Holt, R. I. G., Willaing, I., Hermanns, N., Kalra, S., Wens, J., Pouwer, F., Skovlund, S. E., & Peyrot, M. (2013). Diabetes Attitudes, Wishes and Needs second study (DAWN2™): Cross-national benchmarking indicators for family members living with people with diabetes. *Diabet. Med*, *30*(7), 778–788. https://doi.org/10.1111/dme.12239

Mayberry, L. S., & Osborn, C. Y. (2012). Family support, medication adherence, and glycemic control among adults with type 2 diabetes. *Diabetes Care*, *35*(6), 1239–1245. https://doi.org/10.2337/dc11-2103

Mayberry, L. S., & Osborn, C. Y. (2014). Family involvement is helpful and harmful to patients' self-care and glycemic control. *Patient Education and Counseling*, *97*(3), 418–425. https://doi.org/10.1016/j.pec.2014.09.011

McConatha, J. T., Kumar, V. K., Raymond, E., & Akwarandu, A. (2019). Cultural dimensions of diabetes management: A qualitative study of middle eastern immigrants in the U.S. *Journal of Cross-Cultural Gerontology*, *35*(1), 85–98. https://doi.org/10.1007/s10823-019-09383-7

Morgan, D. H. J. (2011). *Rethinking family practices*. Palgrave Macmillan.

Neff, L. A., & Karney, B. R. (2005). Gender differences in social support: A question of skill or responsiveness? *Journal of Personality and Social Psychology*, *88*(1), 79–90. https://doi.org/10.1037/0022-3514.88.1.79

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., … Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, *372*, n71. https://doi.org/10.1136/bmj.n71

Pamungkas, R. A., Chamroonsawasdi, K., & Vatanasomboon, P. (2017). A systematic review: Family support integrated with diabetes self-management among uncontrolled type II diabetes mellitus patients. *Behavioral Sciences*, *7*(3), 62. https://doi.org/10.3390/bs7030062

Rintala, T. M., Jaatinen, P., Paavilainen, E., & Astedt-Kurki, P. (2013). Interrelation between adult persons with diabetes and their family: A systematic review of the literature. *Journal of Family Nursing*, *19*(1), 3–28. https://doi.org/10.1177/1074840712471899

Rosland, A.-M., Kieffer, E., Israel, B., Cofield, M., Palmisano, G., Sinco, B., Spencer, M., & Heisler, M. (2008). When is social support important? The Association of Family Support and Professional Support with specific diabetes self-management behaviors. *Journal of General Internal Medicine*, *23*(12), 1992–1999. https://doi.org/10.1007/s11606-008-0814-7

Rutledge, P. M., Montgomery, A. J., Lott, S. M., McGee, Z. M., & Burns, D. M. (2019). The relationship between family support, self-care, and health outcomes in selected African-American females with type 2 diabetes. *Journal of National Black Nurses' Association*, *30*(2), 1–9.

Scarton, L. J., Bakas, T., Miller, W. R., Poe, G. D., & Huber, L. L. (2014). Needs and concerns of family caregivers of persons with type 2 diabetes: An integrated review of cross-cultural literature with implications for the American Indian population. *The Diabetes Educator*, *40*(4), 444–452. https://doi.org/10.1177/0145721714529831

Scholz, U., Ochsner, S., Hornung, R., & Knoll, N. (2013). Does social support really help to eat a low-fat diet? Main effects and gender differences of received social support within the health action process approach. *Applied Psychology: Health and Well-Being*, *5*(2), 270–290. https://doi.org/10.1111/aphw.12010

Scollan-Koliopoulos, M. (2004). Consideration for legacies about diabetes and self-care for the family with a multigenerational occurrence of type 2 diabetes. *Nursing & Health Sciences*, *6*(3), 223–227. https://doi.org/10.1111/j.1442-2018.2004.00196.x

Shrivastava, S. R., Shrivastava, P. S., & Ramasamy, J. (2013). Role of self-care in management of diabetes mellitus. *Journal of Diabetes and Metabolic Disorders*, *12*(1), 14. https://doi.org/10.1186/2251-6581-12-14

Smith, J., Ali, P., Birks, Y., Curtis, P., Fairbrother, H., Kirk, S., Saltiel, D., Thompson, J., & Swallow, V. (2020). Umbrella review of family-focused care interventions supporting families where a family member has a long-term condition. *Journal of Advanced Nursing*, *76*(8), 1911–1923. https://doi.org/10.1111/jan.14367

Sohal, T., Sohal, P., King-Shier, K. M., & Khan, N. A. (2015). Barriers and facilitators for type-2 diabetes management in South Asians: A systematic review. *PLoS One*, *10*(9), e0136202. https://doi.org/10.1371/journal.pone.0136202

Song, Y., Nam, S., Park, S., Shin, I.-S., & Ku, B. J. (2017). The impact of social support on self-care of patients with diabetes: What is the effect of diabetes type? Systematic review and meta-analysis. *Diabetes Educ*, *43*(4), 396–412. https://doi.org/10.1177/0145721717712457

Stopford, R., Winkley, K., & Ismail, K. (2013). Social support and glycemic control in type 2 diabetes: A systematic review of observational studies. *Patient Education and Counseling*, *93*(3), 549–558. https://doi.org/10.1016/j.pec.2013.08.016

Strom, J. L., & Egede, L. E. (2012). The impact of social support on outcomes in adult patients with type 2 diabetes: A systematic review. *Current Diabetes Reports*, *12*(6), 769–781. https://doi.org/10.1007/s11892-012-0317-0

Subrata, S. A. (2021). The nursing outlook of the self- and family management support programs among Indonesian with diabetes: An umbrella review. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews*, *15*(1), 109–119. https://doi.org/10.1016/j.dsx.2020.12.018

Suglo, J. N., & Evans, C. (2020). Factors influencing self-management in relation to type 2 diabetes in Africa: A qualitative systematic review. *PLoS One*, *15*(10), e0240938. https://doi.org/10.1371/journal.pone.0240938

Sutton, A., Clowes, M., Preston, L., & Booth, A. (2019). Meeting the review family: Exploring review types and associated information retrieval requirements.

Thirsk, L. M., & Schick-Makaroff, K. (2021). Family interventions for adults living with type 2 diabetes mellitus: A qualitative meta-synthesis. *Patient Education and Counseling*, *104*, 2890–2899. https://doi.org/10.1016/j.pec.2021.04.037

Thomas, A., Ashcraft Alyce, S., Owen Donna, C., & Conway-Phillips, R. (2017). Making it all work. *Global Qualitative Nursing Research*, *4*, 1–13. https://doi.org/10.1177/2333393617691860

Toljamo, M., & Hentinen, M. (2001). Adherence to self-care and social support. *Journal of Clinical Nursing*, *10*(5), 618–627. https://doi.org/10.1046/j.1365-2702.2001.00520.x

Torenholt, R., Schwennesen, N., & Willaing, I. (2014). Lost in translation-the role of family in interventions among adults with diabetes: A systematic review [article]. *Diabetic Medicine*, *31*(1), 15–23. https://doi.org/10.1111/dme.12290

van Dam, H. A., van der Horst, F. G., Knoops, L., Ryckman, R. M., Crebolder, H. F. J. M., & van den Borne, B. H. W. (2005). Social support in diabetes: A systematic review of controlled intervention studies. *Patient Education and Counseling*, *59*(1), 1–12. https://doi.org/10.1016/j.pec.2004.11.001

Vanstone, M., Rewegan, A., Brundisini, F., Giacomini, M., Kandasamy, S., & DeJean, D. (2017). Diet modification challenges faced by marginalised and nonmarginalised adults with type 2 diabetes: A systematic review and qualitative meta-synthesis. *Chronic Illness*, *13*(3), 217–235. https://doi.org/10.1177/1742395316675024

Vongmany, J., Luckett, T., Lam, L., & Phillips, J. L. (2018). Family behaviours that have an impact on the self-management activities of adults living with type 2 diabetes: A systematic review and meta-synthesis [review]. *Diabetic Medicine*, *35*(2), 184–194. https://doi.org/10.1111/dme.13547

Wang, C., Wu, M., Yang, Y.-J., & Liao, J. (2022). Effect and quality of couple-based interventions of middle-aged and older adults with type 2 diabetes mellitus: A scoping review. *Family Practice*, *39*(1), 183–189. https://doi.org/10.1093/fampra/cmab093

WHO. (2016). Global report on diabetes. https://www.who.int/publications/i/item/9789241565257

WHO. (2019). In W. H. Organization (Ed.), *Classification of diabetes mellitus 2019*. World Health Organization.

WHO. (2021). *Diabetes*. World Health Organization. Retrieved 1 June from https://www.who.int/news-room/fact-sheets/detail/diabetes

Xie, Z., Liu, K., Or, C., Chen, J., Yan, M., & Wang, H. (2020). An examination of the socio-demographic correlates of patient adherence to self-management behaviors and the mediating roles of health attitudes and self-efficacy among patients with coexisting type 2 diabetes and hypertension. *BMC Public Health*, *20*(1), 1227. https://doi.org/10.1186/s12889-020-09274-4

Yehualashet, F. A., Tegegne, E. T., Ayele, A. D., & Takele, W. W. (2021). Do adult patients with diabetes mellitus living in rural part of Ethiopia and having poor social support have disproportionately poor self-care practice? A systematic review and meta-analysis. *Primary Care Diabetes*, *15*(4), 642–652. https://doi.org/10.1016/j.pcd.2021.02.010

Zhang, H., Zhang, Q., Luo, D., Cai, X., Li, R., Zhang, Y., Lu, Y., Liu, J., Gu, J., & Li, M. (2022). The effect of family-based intervention for adults with diabetes on HbA1c and other health-related outcomes: Systematic review and meta-analysis. *Journal of Clinical Nursing*, *31*(11–12), 1488–1501. https://doi.org/10.1111/jocn.16082

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Busebaia, T. J. A., Thompson, J., Fairbrother, H., & Ali, P. (2023). The role of family in supporting adherence to diabetes self-care management practices: An umbrella review. *Journal of Advanced Nursing*, *00*, 1–26. https://doi.org/10.1111/jan.15689