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ABOUT COVER

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AIMS AND SCOPE

The primary aim of *World Journal of Clinical Cases* (*WJCC*, *World J Clin Cases*) is to provide scholars and readers from various fields of clinical medicine with a platform to publish high-quality clinical research articles and communicate their research findings online.

WJCC mainly publishes articles reporting research results and findings obtained in the field of clinical medicine and covering a wide range of topics, including case control studies, retrospective cohort studies, retrospective studies, clinical trials studies, observational studies, prospective studies, randomized controlled trials, randomized clinical trials, systematic reviews, meta-analysis, and case reports.

INDEXING/ABSTRACTING

The *WJCC* is now indexed in Science Citation Index Expanded (also known as SciSearch®), Journal Citation Reports/Science Edition, Scopus, PubMed, and PubMed Central. The 2021 Edition of Journal Citation Reports® cites the 2020 impact factor (IF) for *WJCC* as 1.337; IF without journal self cites: 1.301; 5-year IF: 1.742; Journal Citation Indicator: 0.33; Ranking: 119 among 169 journals in medicine, general and internal; and Quartile category: Q3. The *WJCC*'s CiteScore for 2020 is 0.8 and Scopus CiteScore rank 2020: General Medicine is 493/793.

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SYSTEMATIC REVIEWS

What are the self-management experiences of the elderly with diabetes? A systematic review of qualitative research

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Abstract

BACKGROUND

The number of elderly individuals with diabetes is dramatically increasing. Diabetes is a long-term condition and a noncommunicable disease and requires intensive daily self-management. Understanding of self-management from the patients' perspectives is important to nurses, healthcare providers, and researchers and benefits people by improving their self-management skills.

AIM

To examine and synthesize qualitative studies that explore the experiences of elderly people in self-managing diabetes.

METHODS

Electronic databases were searched, including MEDLINE, CINAH, PsycINFO, PubMed, CNKI, and WANFADATA. Relevant research was identified by manually searching reference lists and gray literature. Only English and Chinese publications were included. The Critical Appraisal Skills Program was used to assess the quality of the research. The Confidence in the Evidence from Reviews of Qualitative research approach was used to assess the confidence of the findings.

RESULTS

A total of 10 qualitative studies were included, and content analysis was

Peer-review report's scientific quality classification
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Grade B (Very good): 0
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performed. Five themes were identified: The need for knowledge about diabetes care, support systems, functional decline, attitudes toward diabetes, and healthy lifestyle challenges.

CONCLUSION
This present review provides a deep and broad understanding of the experiences in the self-management of diabetes and can be valuable to nursing practice and provide recommendations for future research.

Key Words: The elderly; Self-management; Diabetes; Experience; Systematic review

Core Tip: In the establishment of strategies that enable the elderly to self-manage diabetes, the particularities of this group need to be addressed. The self-management experiences of the elderly refer to information, social support, physical, attitude, and lifestyle dimensions. To identify the facilitators and barriers of self-management, nurses, healthcare providers, and researchers can develop self-management and education programs for this population.

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INTRODUCTION

Diabetes is a common and long-term disease. The International Diabetes Federation[1] reported that 463 million people have diabetes worldwide. Diabetes is a serious threat to global and individual health. People with diabetes are at risk of developing many serious and life-threatening complications, which can reduce their quality of life, increase the need for medical care, and exacerbate the stress on families[1]. Owing to improvements in medicine, technologies, and healthcare delivery in recent years, the human life span has been extended dramatically[2] and the number of older adults is significantly increasing around the world. By 2050, the number of people who are 60 or older are expected to reach 2 billion[2]. Global aging has imposed a great burden to healthcare[3].

Aging is an important driver of diabetes prevalence because of increased life expectancy and progressively urban lifestyles, making type 2 diabetes a disease associated with old age[4-6]. Diabetes has no known cure and is considered one of this century's most serious health challenges[7]. Diabetes can cause short- and long-term complications, such as diabetic ketoacidosis, hypoglycemia, cardiovascular diseases, retinopathy, nephropathy, vascular nephropathy, foot complications, and diabetes-related complications of pregnancy[1], placing a heavy burden on social and health services and economies[8]. Owing to the aging process, the situation of complications in elderly people with diabetes can be complex. The American Diabetes Association[9] reported that elderly people with diabetes present higher rates of functional disability, premature death, coexisting illness, accelerated muscle loss, coronary heart disease, stroke, and hypertension than people without diabetes. A study showed that diabetes complications can be more complex to affect elderly individuals than other age groups, with increased functional disability and premature mortality[10]. To delay or prevent the development of diabetes-related complications, effective diabetes self-management and improvements in socio-psychological functions are needed[11], including medical care and personal care behaviors, such as healthy diet, suitable physical activity, self-monitoring of blood glucose levels, engagement with prescribed medication regimens, and self-foot checks[12]. Sub-optimal diabetes self-management can lead to long-term and detrimental multi-system complications such as vascular disorders and neuropathies, disabilities, diabetes-related distress, depression, and mortality[9].

Therefore, self-management and structured education is essential to patients with diabetes. Meanwhile, self-management is considered a greater challenge for elderly people with diabetes, and providing high-quality care to an increasing number of elderly people with diabetes is a significant challenge for health professionals[13]. Previous studies showed that self-efficacy, knowledge, social support, self-regulation, and outcome expectations can affect self-management in elderly people with diabetes [5,14], who are more likely to be affected by geriatric syndromes such as polypharmacy, falls, cognitive impairment, depression, and incontinence, than those without diabetes. This situation further complicates care of elderly people with diabetes[9]. Therefore, self-management can be an essential and challenging issue for elderly individuals with diabetes.

Elderly people with diabetes need special care[15] because they are more likely than younger people to have comorbid chronic conditions that are difficult to manage[16]. A large number of studies have been conducted on the self-management of diabetes, but few focused on the elderly individuals with diabetes. Understanding the experiences regarding the self-management of diabetes is essential. The purpose of the review is to explain the experiences of self-management among the elderly people with diabetes on the basis of current findings.

MATERIALS AND METHODS

This systematic review was registered in PROSPERO (Regd. No. CRD42020135516). The enhancing transparency in reporting the synthesis of qualitative research guidelines (ENTREQ) were used in guiding the current systematic review[17]. The Critical Appraisal Skills Program (CASP) was used in appraising the quality of the included publications[18]. The Confidence in the Evidence from Reviews of Qualitative research (CERQual) approach was used in assessing the confidence of the findings in this review[19]. It is a structured approach to appraisal that requires reviewer judgment and interpretation throughout the approach and was developed by the Cochrane Methods Group. CERQual consists of four components: Methodological limitations, relevance, coherence, and adequacy of the data. For each finding, the confidence was evaluated as high, moderate, low, or very low. The CASP was used in assessing the methodological limitations.

Search strategies

The main citation search involved several key health-related databases: MEDLINE, CINAH, PsycINFO, PubMed, CNKI, and WANFADATA. All of the databases were accessed on September 20, 2021. We included keyword and subject heading searches. Four search strings were included in the current interview: (Aged OR The elderly OR Geriatric OR Older adult OR Old age OR Senior OR Elderly) AND (Diabetes OR Diabetic) AND (Self-management OR Self-care OR Self-monitoring OR Self-regulation) AND (Qualitative research OR Qualitative study OR Focus group OR Field study OR Grounded theory OR Narrative OR Hermeneutic OR Phenomenological research OR Experience OR Interview). Reference chaining and hand searching for relevant empirical articles were conducted when electronic searches were completed. We searched for gray literature from Google, Google Scholar Electronic These Online Services, INVOLVE, Index to Theses, conference proceedings, and government sites. Owing to language restriction, only English and Chinese publications were included.

Inclusion criteria

All qualitative papers about the experiences and needs of elderly people with diabetes and their perspectives and attitudes toward self-management of diabetes were included. No limitation in the type of qualitative research was placed.

The participants had been diagnosed with diabetes, and the focus was on self-management or self-care in individuals aged over 60.

Exclusion criteria

The following papers were excluded: papers that were not qualitative methodologies, primary empirical papers that had not focused on the experience, perception, perspective and attitudes toward self-management of older people with diabetes, papers with secondary evidence (any type of review), papers where the participants do not have diabetes and finally papers not focusing on self-management or self-care in individuals aged over 60.

Study selection

The potential literature then underwent a two-stage screening. First, we screened the titles and abstracts of all the relevant articles. We discussed the results to resolve any disagreement. If disagreements persisted, the publications were included in the full-text review.

Second, the full texts of all the articles selected from the first stage were reviewed by two independent reviewers. Any discrepancy was discussed, and discrepancies that were not resolved by the two reviewers were resolved by a third reviewer. The selection process was summarized with the PRISMA flow chart below[20] (Figure 1).

RESULTS

A total of 10 qualitative studies met the inclusion criteria and were included in the current systematic review. Five were conducted in the United States, one each in China, Brazil, Korea, Singapore, and Australia. Nine of them were published in English, and one in Chinese. The included publications differed in stated focus and aims, but all of them investigated the experiences of elderly people with diabetes with regard to self-management. A total of 170 participants were included. The number of participants for each study ranged from 10 to 31. The target population in each included publication was the elderly, and the age range was 60–85 years. All the participants had been diagnosed with diabetes. For data collection, four studies used focus group interview, four used individual interviews, one used sociopoetics, and one used both focus group and individual interviews. A range of qualitative methods were used, including thematic analysis (n = 5), descriptive methods (n = 1), phenomenology analysis (n = 2), interpretive methods (n = 1), and content-based analysis (n = 1). A summary of the included studies is provided in Table 1.

Quality appraisal

In this systematic review, CASP was used in appraising the quality of the included publications. However, CASP cannot be used in scoring the studies. According to previous research[21], a scoring system was designed. When an answer for a certain item was YES, a score of 1 was given. When the answer was CAN'T TELL, a score of 0.5 was given. When the answer was NO, a score of 0 was given in Table 2.

Many methods are used in managing studies in a systematic review. Some articles may be excluded according to the quality of the research[21-23], or all studies may be included[24,25]. All included publications can be used, and the contributions of the final findings to the review are weighted[26]. In the present review, all papers were used in synthesizing the final findings and further assessing the impact of research quality.

Data extraction and synthesis

In the current systematic review, thematic analysis techniques were used in synthesizing included data and finding key concepts. The thematic analysis process was previously outlined[25]. Three steps were included.

Step 1: Coding the text: We coded the findings from the citations, translated codes and concepts between citations, and put the codes into a code-book line by line.

Step 2: Developing descriptive themes: We examined and analyzed the meaning of the codes and reorganized the codes into related categories.

Step 3: Generating analytical themes: We examined and compared the categories, found the differences and similarities, and merged similar categories into higher-level constructs and themes.

Findings

The main findings for this systematic review were synthesized according to the following themes: Need for knowledge about diabetes care, support system, functional decline, attitudes toward diabetes, and healthy lifestyle challenges.

Eight of the included studies mentioned the need for knowledge. With regard to the interventions, participants stated that the lack of understanding of diabetes self-management remained a major barrier[27]. Some participants had difficulty understanding diabetes care and gaining knowledge about it[28]. Consequently, the participants barely knew how to engage in diabetes self-management[29]. Some participants even unwittingly engaged in high-risk behaviors because of lack of knowledge and because they believed that they should choose their diabetes regimen

Table 1 Summary of studies and reported study results

Ref.	Purpose	Method	Study population/setting	Data collection	Data analysis	Major findings
Pamungkas *et al*[35], 2017, Brazil	Identify categories of self-care among older adults with diabetes, considering their physical, mental and spiritual dimensions	Qualitative	*n* = 13; Aged ≥ 60; With diabetes		Method	Difficulties of self-control while living with diabetes Self-care in living with diabetes and raising self-esteem; Optimism and perseverance in diabetes care; Living peacefully with diabetes; The burden of diabetes in life; Self-care always to live longer and better; Understanding the importance of coexistence with the family; Self-care with the body and the mind; Conscious carelessness; Living happily all of the time
Joo and Lee[32], 2016, United States	Explore barriers to and facilitators of diabetes Self-management among first-generation Korean–American elderly immigrants with type 2 diabetes	Qualitative	*n* = 18; Aged ≥ 65; 12 males; 11 females; Diagnosed with type 2 diabetes for at least a year	(1) Focus group interview; and (2) Individual interview	Content-based analysis	High cost of type 2 diabetes care; Language issues; Loss of self-control; Memory loss; Limited access to healthcare resources; Time; Seeking information; Family and peer support
Song *et al*[31], 2010, Korea	Identify barriers to and facilitators of self-management Adherence in Korean older adults with type 2 diabetes mellitus	Qualitative	*n* = 24; Aged ≥ 65; 10 males; 14 females; Had been diagnosed with diabetes 12.8 yr before	Focus group interview	Interpretive meth o	Aging-related physical and psychological changes Restrictions related to specific cultural factors; Lack of self-discipline; Poor understanding of self-management; Knowing the benefits of self-management and having a system to reinforce it; Being the master of oneself by reshaping historical life habits and family support
Li *et al*[27], 2013, Singapore	Describe, through qualitative methods, the experiences and ways of coping of older Singaporean Chinese women with type 2 diabetes	Qualitative	*n* = 10; Aged 60–69; 10 females diagnosed with type 2 diabetes	Semi-structured interviews	Thematic analysis	Living with diabetes; Coping with diabetes; Caring for self
Bustillos and Sharkey[36], 2020, United States	To study the experiences and challenges of type 2 diabetesSelf-management among homebound older adults who regularly receive home-delivered meals and services	Qualitative	*n* = 31; Aged ≥ 65; Eight males; 23 females; Diagnosed with type 2 diabetes	Semi-structured interviews	Thematic analysis	Perceived seriousness of diabetes relative to other health problems; Perceived self-management; Perceived barriers to self-management: Physical activity; Perceived barriers to self-management: Economic
Beverly *et al*[28], 2014, United States	Explore older adults' values and preferences regarding type 2 diabetes care	Qualitative	*n* = 25; Aged ≥ 60; 11 males; 14 females diagnosed with type 2 diabetes by a doctor at least 1 yr before the study	Focus groups interview	Thematic analysis	Respect and responsiveness to individual values and preferences can foster collaboration in physician–patient treatment relationship and help older adults feel confident that their treatment matches the values and preferences they deem important
George and Thomas[30], 2010, United States	Elucidate experiences and perceptions of individuals with diabetes with regard to self-management, as narrated by older people diagnosed with insulin-dependent diabetes living in a rural area	Qualitative	*n* = 10; Aged = 65–85; Diagnosed with type 2 diabetes	Unstructured interviews	Phenomenology analysis	Your body will let you know; I thought I was fine, but I wasn't; The only way out is to die; You just go on
Washington and Wang-Letzkus[37], 2009, United States	Identify risk factors related to lifestyle, attitudes, and health	Qualitative	*n* = 13; Aged ≥ 65; Seven males; Six females;	Focus group interview	Thematic analysis	Positive perceptions and optimistic attitudes will optimise diabetes self-care outcomes

	beliefs, and the influence to self-care practices of Chinese American immigrants		Diagnosed with type 2 diabetes at least one year before the study			
Carolan-Olah and Cassar[33], 2018	Experience of living with diabetes and factors that facilitated or inhibited access to diabetes services	Qualitative	*n* = 13; Eight males; Five females; Aged ≥ 60; Diagnosed with type 2 diabetes	Focus group interview		The value of health; The impact of diabetes; Making changes; Managing diabetes; Access to information and services
Tang *et al*[29], 2015, China	To understand the self-management ability of elderly people with diabetes in the rural areas of Ji'an	Qualitative	*n* = 13; Aged ≥ 60; 8 males; 5 females; Diagnosed with type 2 diabetes	Semi-structured interviews	Analysis	Lack of related knowledge of diabetes; Unable to change habits; Influence of family social support and health condition

without advice from healthcare professionals[30]. However, one study[31] reported that some participants received benefits when they understood the information; they were motivated to continue their self-management behaviors when they knew the benefits of self-management. They sought information initiatives[32] and were happier to learn more about diabetes care[33]. This theme shows high confidence according to the CERQual assessment and details are presented in Table 3 below.

Support system

Two sub-themes were related to support system: Support from the healthcare system and support from social care. Three studies mentioned support from healthcare[28,29,32]. Owing to limited healthcare conditions, participants faced difficulties when accessing healthcare resources, especially in rural areas[24,25,28]. An effective physician–patient relationship was emphasized. The participants were more willing to follow treatment recommendations when they had good relationships with healthcare providers[28].

Social support associated with diabetes includes diabetes group consultation, peer support, family and friends' support, and social groups[34]. Support from family was emphasized in the included studies[29,31,32,35]. Support from family is essential to elderly people with diabetes given that they suffer from memory loss and decreased physical activities. It is also a major facilitator of self-management for elderly people, especially when their family members participate in the self-management activities together with them, or help remind them about activities. For example, family members can provide reminders about eating a healthy diet, engaging in physical activity, and taking prescribed medications and also provide financial and emotional support; thus, the participants appreciated support from their families[31,32]. Another study mentioned that some participants felt helpless without the help of their families [29]. The study also mentioned that the elderly with diabetes require additional assistance in daily life, particularly in cooking, transportation, cleaning, and finances, because of their decline in physical health[29,32,36]. This theme shows moderate confidence according to the CERQual assessment and details are presented in Table 3 below.

Table 2 Critical appraisal skills program score and GRADE-confidence in the evidence from reviews of qualitative research relevance ratings

Ref.	1-Was there a clear statement of the aims of the research?	2-Is a qualitative methodology appropriate?	3-Was the research design appropriately addresses the aims of the research?	4-Was the recruitment strategy appropriate to the aims of the research?	5-Were data collected in a way that addresses the research issue?	6-Was the relationship between researcher and participants been considered?	7-Were ethical issues considered?	8-Was the data analysis sufficiently rigorous?	9-Was the statement of findings clear?	10-How valuable is the research?	Score	Relevance
Pamungkas *et al*[35], 2017	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Yes	Yes	Yes	8.5	I
Joo and Lee [32], 2016	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9	R
Song *et al*[31], 2010	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	9	R
Li *et al*[27], 2013	Yes	Yes	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	9.5	P
Bustillos and Sharkey[36], 2020	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	9	R
Beverly *et al* [28], 2014	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	7	P
George and Thomas[30], 2010	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9	R
Washington and Wang-Letzkus[37], 2009	Yes	Yes	Yes	Can't tell	Yes	No	No	No	Yes	Yes	6.5	P
Carolan-Olah and Cassar [33], 2018	Yes	Yes	Yes	Can't tell	Yes	Yes	Yes	Yes	Yes	Yes	9.5	P
Tang *et al*[29], 2015	Yes	Yes	Yes	Can't tell	Yes	No	No	Yes	Yes	Yes	7.5	R

GRADE-confidence in the evidence from reviews of qualitative research relevance component: I: Indirect relevance; P: Partial relevance; R: Relevant; U: Uncertain relevance.

Functional decline

Seven of ten papers mentioned functional decline[27,30-33,36,37], discussing aging-related symptoms, memory loss, joint pain, deterioration of vision, peripheral nerve damage, and weakness, which made self-management challenging for the participants.

Table 3 Confidence in review findings: GRADE-confidence in the evidence from reviews of qualitative research assessment

Summary of review findings	Studies contributing to the review findings	Methodological limitations	Relevance	Coherence	Adequacy	Assessment of confidence in the evidence	Explanation of CERQual assessment
Need for knowledge about diabetes care	Eight Studies[27,29-33,35,36]	Minor methodological limitations (six no concerns; two minor concerns).	Minor concerns (one indirect; two partial; five relevant)	Very minor concerns (data very consistent within and across studies)	No concerns (eight studies that offered rich datal)	High confidence	Finding graded as high because of the range of studies, richness of data, and relative consistency of the finding in relation to the review question
Support system	Eight studies[27-29,31-33,35,36]	Minor methodological limitations (six no concerns; two minor concerns)	Minor concerns (one indirect, three partial, four relevant)	Minor concerns (data very consistent within and across studies)	Minor concerns (Eight studies that together offered data to the two sub-themes)	Moderate confidence	Finding graded as high because of the range of studies, the richness of the data and the relative consistency of the finding in relation to the review question
Function decline	Seven studies[27,30-33,36,37]	Minor methodological limitations (six no concerns; one moderate concerns)	Minor concerns (three partial; four relevant)	Minor concerns (data consistent within and across studies)	Minor concerns (seven studies that offered moderately rich data)	Moderate confidence	This finding was graded as moderate confidence because of minor concerns regarding methodological limitations, relevance, coherence, and adequacy
Attitudes toward diabetes	Six Studies[27,30,31,35-37]	Minor methodological limitations (five no concerns; one with moderate concerns)	Moderate concerns (one indirect; two partial; three relevant)	Minor concerns (data consistent within and across studies)	Minor concerns (six studies that offered moderately rich data)	Moderate confidence	This finding was graded as moderate confidence because of moderate methodological limitations and minor concerns regarding relevance, coherence, and adequacy
Healthy lifestyle challenges	Ten studies[27-37]	Minor methodological limitations (seven with no concerns; two minor concerns; one with moderate concerns)	Minor concerns (one indirect; four partial; five relevant)	Minor concerns (data consistent within and across studies)	No concerns (eight studies that offered rich data)	High confidence	This finding was graded as moderate confidence because of moderate methodological limitations and minor concerns regarding relevance and coherence

CERQual: Confidence in the Evidence from Reviews of Qualitative research.

Owing to memory loss, the participants sometimes forgot to take their prescribed medicines, or were unable to remember whether or not they had taken their prescribed medicines. Some of the participants forgot to take their medicines when they were outdoors, and some forgot to take their medicines altogether. In some instance, they forgot to check their blood glucose levels[32].

Regular exercise is important to people with diabetes; however, owing to frailty, pain, physical limitations, and less self-discipline, participants lack exercise[27,31-33,36]. Moreover, trying to maintain physical activity can increase depressive symptoms because of the pain and difficulty associated with their declining health conditions [33]. Only one study indicated that the included participants were willing to participate in an exercise program[37]. This theme shows moderate confidence according to the CERQual assessment and details are presented in Table 3 below.

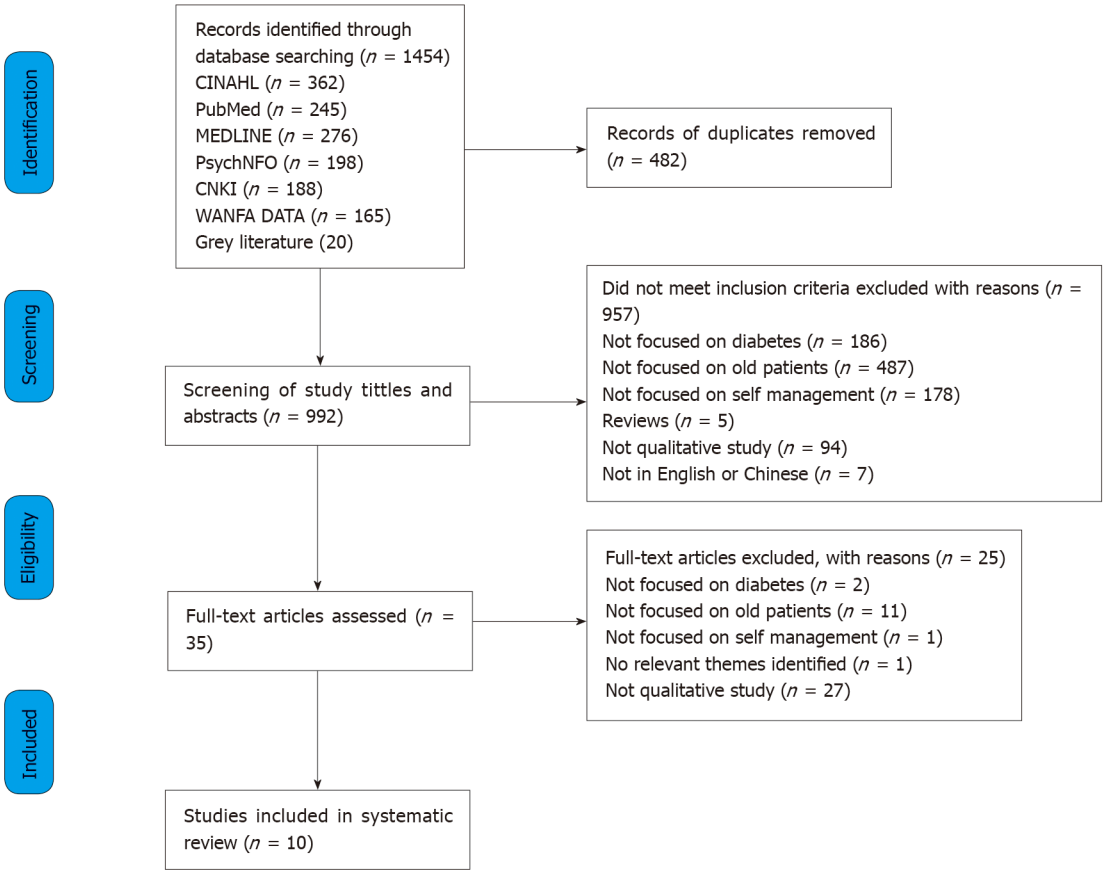

Figure 1 2009 PRISMA flow chart.

Attitudes toward diabetes

Six studies mentioned attitudes toward diabetes[27,30,31,35-37]. Some participants tried to stay happy, optimistic, and peaceful with diabetes. Positive emotions can benefit diabetes self-management[27,35,37]. However, some participants experienced somber thoughts, anxiety, and helplessness, which led to loss of hope and motivation. They knew the risk of diabetes-related complications caused by sub-optimally controlled diabetes. However, they lost control of their lives and their willingness to accept consequences[27,30]. This theme shows low confidence according to the CERQual assessment and details are presented in Table 3 below.

Healthy lifestyle challenges

All of the included studies mentioned healthy lifestyle challenges[27-37]. Some of the participants faced difficulties in making lifestyle changes in their daily lives. In particular, diet and weight control were emphasized. In eight studies, participants indicated that they experienced difficulties in following healthy eating patterns[27,29,31-37]. Their discipline was not high enough to restrict the amount of food they ate [32]. Dietary control is influenced by food cultures[36,37], but some traditional foods are not healthy choices as they contain high levels of saturated fats, sodium, carbohydrates, and sugars. Three of the included studies mentioned weight issues[31,32,35]. Participants faced difficulties in managing their weight issues, and some indicated that quality of life is important to lifestyle changes[28,30,37]. The participants preferred to maintain traditions, peace, and independence in their lives [28]. This theme shows high confidence according to the CERQual assessment and details are presented in Table 3 below.

DISCUSSION

Ten studies were included in the present review. Five themes related to the experience of self-management of elderly people with diabetes emerged.

First, the need for knowledge about diabetes was a common issue among the elderly with diabetes. Knowledge about diabetes has been considered one of the key determinants of engagement in diabetes self-management practices. Patients who have more knowledge about diabetes are more likely to comprehend their illness, and they are more willing to exhibit self-management behaviors, such as exercise, eating a healthy diet, and testing their blood glucose levels[38]. Another study mentioned that knowledge about diabetes affects the self-management practices of people living with diabetes[39]. The researchers emphasized the importance of diabetes knowledge in self-management practices. They found that patients with more knowledge about diabetes were more likely to control their glucose levels and were less likely to smoke. Researchers speculated that knowledge may be necessary before action is taken[40].

Elderly people with diabetes were more likely to experience cognitive impairment and memory decline when they have suboptimal understanding of diabetes self-management[41,42]. Elderly people with diabetes have difficulty in understanding information from reading resources, formal diabetes self-management education, or other resources; this issue often causes confusion and creates overwhelming feelings and frustration[43,44]. Providing ongoing self-management support to people with diabetes, particularly appropriate support for the elderly, is crucial[45,46].

Second, the support system was considered important. The participants indicated that support from the healthcare system and social care can influence their diabetes self-management. The participants preferred obtaining support from the healthcare system. A person-centered care team with trust-based relationships, shared decision making, and good healthcare provider–patient communication can improve treatment engagement and patient's satisfaction and ultimately lead to good overall outcome[9,46]. For people with diabetes, healthcare professionals and unpaid informal supporters, such as friends and families, play an essential role in supporting diabetes self-management[47].

Social support can be important to many elderly individuals. For people with diabetes, a high level of social support improves glycemic outcomes and clinical outcomes and reduces HBA1c levels[34,48] Social support, which includes diabetes group consultations, peer support, family and friends' support, and social groups, is associated with improved self-care behaviors and knowledge among people with diabetes[34].

Support from family members is a major facilitator of diabetes self-management[49,50]. However, negative forms of communication from family members, particularly nagging, criticizing, and arguing, are associated with worsening glycemic control and low engagement with diabetes self-management[51,52]. Involving family members in diabetes care can be harmful[53,54]. Family members may undermine or sabotage patients' self-care efforts by questioning the need for medication or by providing unhealthy foods[54]. Therefore, positive support from family is particularly important to self-management of elderly people with diabetes.

Third, the experience of functional decline was mentioned. All the participants were older than 60, which could lead to the physical influence on their diabetes self-management. Compared with young people with diabetes, old patients are at a higher risk of developing physical or cognitive dysfunction or multimorbidity[55]. Furthermore, old patients can face more challenges beyond traditional diabetes-related issues that overlap with the aging process because of age-related diseases. The elderly can experience cognitive dysfunction, which incorporates many domains, such as learning, memory, mental flexibility, executive function, and attention[56]. These behaviors are important when patients are required to do complex tasks, such as recognizing and treating hypoglycemia appropriately, predicting the impact of physical activity on blood glucose levels, and even matching their insulin level with the carbohydrate content of food[56].

Fourth, attitudes toward diabetes are important. Healthcare professionals have to recognize that long-term behaviors are difficult to change or adjust; therefore, healthcare professionals need to understand the factors that are associated with diabetes self-management behaviors[40]. Understanding patients' attitudes toward their problems requires knowledge about their attitudes that influence reactive behaviors[57].

For people with diabetes, attitudes can play an important role in their emotional responses and affect their efforts in the self-management of diabetes in daily life[40]. People with positive attitudes toward the self-management of diabetes are more likely to adjust their management behaviors and achieve a high level of healthcare; by contrast, people with negative attitudes can inhibit self-management behaviors[57,58]. For instance, attitudes significantly affect dietary choices, and people with a high level of positive attitude show increasing level of self-management in terms of healthy

eating. Positive attitudes also influence the frequency of blood glucose testing[40]. Therefore, creating a high level of positivity to self-manage diabetes is essential because it can lead to effective diabetes self-management and improve quality of life.

Fifth, healthy lifestyle challenges were mentioned. Diabetes has no cure, and it must be controlled with medications and a healthy lifestyle[59]. Healthy lifestyle behaviors include a healthy diet, physical activity, and weight control[60,61]. For people with all types of diabetes and of all ages, achieving an active, healthy lifestyle is an important part of diabetes management[62]. However, changing well-established habits may be difficult for some people with diabetes[63]. Elderly people may have much more difficulty in changing their established lifestyles[64].

Elderly people with diabetes need to have access to appropriate nutrition and physical activity engagement opportunities[65,66]. Appropriate nutrition behaviors are considered effective approaches for glycemic control[67]. An appropriate diet includes reducing energy intake, increasing fiber intake, lowering carbohydrate intake, eating regular meals, and reducing alcohol consumption[59]. For elderly people with diabetes, nutrition has been highlighted[68]. Muscle mass reduces with age, so elderly people often have reduced energy needs; however, micronutrient and protein needs remain the same, thereby increasing the risk of malnutrition[5]. Therefore, people with diabetes should take a food-based and individualized dietary approach[68].

Diabetes and increasing age are important independent predictors of loss of independence and disability[69-71]. As age increases, physical activity levels can decline, and such decline increases the risk of ill health, decreases physical function, and increases the risk of falls[72]. However, physical activity is a key strategy for preventing and managing diabetes[2]. Weight loss is important to people with diabetes and can reduce the risk of macro- and microvascular complications and remittent hyperglycemia[73,74].

Limitations

The current review has some limitations. First, it only included studies published in English and Chinese, and thus some relevant articles written in other languages might have been overlooked. Second, the first-hand patient experience was not examined. The authors of qualitative studies may have reported themes they deemed pivotal. Third, the included studies were limited to six countries and few ethnicities, and thus the generalizability of the findings to other countries or cultures is limited.

CONCLUSION

The present systematic review aims to improve our understanding of the experiences of elderly people with diabetes with regard to self-management. Nurses are in a prime position to provide support to the elderly with diabetes who are self-managing. The current review found that patients lack knowledge about diabetes. Ongoing support involving the assessment of the knowledge and understanding of diabetes self-management is necessary. We suggest that nurses assess patients' knowledge and provide diabetes education. Furthermore, the elderly have difficulty in changing well-established habits; therefore, nurses should assess their lifestyles and help them maintain a healthy lifestyle. Considering the unique challenges that may be encountered by elderly individuals, particularly age-related physical changes, cognitive impairment, memory loss, and functional decline is important, and strategies for diabetes self-management improvement should address individual and organizational levels, especially for the elderly with well-established habits. Patients' attitudes, support from the healthcare system, and social care can have a negative or positive influence on diabetes self-management. Innovative approaches for enabling patients to maintain independence while conducting effective self-management and receiving additional support from the healthcare system, family, and social care with diabetes regimens may be necessary. Nurses, healthcare providers, and researchers should consider adopting interventions when designing diabetes intervention programs for the elderly with diabetes on the basis of the following dimensions: Information, healthcare and social support, physical well-being, attitude, and lifestyle.

ARTICLE HIGHLIGHTS

Research background

Aging is an important driver of diabetes prevalence worldwide, and the number of elderly individuals with diabetes may reach over 252.8 million by 2035. Compared with other groups, the elderly presents the highest rate of diabetes-related complications. Hence, synthesizing qualitative evidence about experiences in self-management is critical to strategies for elderly individuals with diabetes.

Research motivation

Understanding the experiences, expectations, needs, and barriers associated with the self-management of diabetes is essential to the planning and implementation of effective interventions. Compared with young people, elderly people are more likely to develop complications, which are complex and difficult to manage. Many studies on the self-management of diabetes have been conducted, but few focused on the elderly. This review addressed this gap, aiming to examine the self-management experiences of elderly people with diabetes.

Research objectives

The current review aimed to (1) Explore the self-management experiences of elderly individuals with diabetes; (2) Provide recommendations for future nursing practice; and (3) Provide recommendations for future research.

Research methods

The framework of population, context, and outcome was used in developing the review question. We performed a comprehensive and systematic electronic literature search, using search terms relevant to the self-management experiences of elderly individuals with diabetes. The inclusion and exclusion criteria were based on population, context, outcome, design, and language. Ten studies were included after selection by two independent reviewers. Finally, thematic analysis techniques were used in synthesizing the included studies' data, and key concepts were identified from the included research.

Research results

Five common themes emerged: The need for knowledge about diabetes care, support systems, functional decline, attitudes toward diabetes, and healthy lifestyle challenges.

Research conclusions

The current review recommends that healthcare professionals should improve self-management intervention programs for elderly individuals with diabetes and provide person-centered care considering the following dimensions: Information, social support, physical condition, attitude, and lifestyle.

Research perspectives

The current review focuses on the experiences of the elderly. Further qualitative studies are needed to explore the experiences of families and healthcare providers given that they are essential to the elderly's self-management practice. This review highlights the need for high-quality research including different culture settings and ethnic minorities and considering multimorbidity.

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