

Effectiveness of Communication-Based Interventions on Self-Management in Older Adults with Type 2 Diabetes Mellitus: A Systematic Review

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Abstract

Background: Type 2 diabetes mellitus (T2DM) is a common chronic condition among older adults, often accompanied by multimorbidity and cognitive decline, which can hinder effective self-management. Communication-based interventions, including face-to-face, digital, and telecommunication approaches, have been used to support self-care behaviors, but evidence on their effectiveness in older adults remains limited. This study aimed to evaluate the effect of communication-based interventions on self-management in older adults with T2DM.

Methods: A targeted search was conducted in PubMed, Scopus, and ScienceDirect for randomized controlled trials (RCTs) published between 2021 and 2026 that evaluated the effects of communication-based interventions on self-management in older adults with T2DM. Study quality was assessed using the Joanna Briggs Institute Critical Appraisal Checklist for RCTs.

Results: Ten studies involving participants from various countries were included, with sample sizes ranging from 36 to 742. Communication interventions included face-to-face education, digital communication, and telecommunication. These interventions improved self-management behaviors, with approaches combining regular communication, personalized feedback, and behavioral support showing the highest effectiveness.

Conclusion: Communication-based interventions effectively enhance self-management in older adults with T2DM. These findings support the development of targeted programs that promote sustained self-care and improve patient health outcomes in this high-risk population.

Keywords: Communication Intervention; Self-Management; Older Adults; Type 2 Diabetes Mellitus.

1.0 Introduction

Diabetes mellitus (DM) is a chronic metabolic disorder characterized by hyperglycemia resulting from impaired insulin secretion, insulin action, or both (Abdulsalam *et al.*, 2025). This condition contributes to a wide range of significant microvascular and macrovascular complications, including retinopathy, nephropathy, neuropathy, as well as an increased risk of morbidity and mortality (Patel *et al.*, 2024). Diabetes mellitus has become a major global public health challenge, particularly in low- and middle-income countries (Gregg & Shaw, 2017). The World Health Organization (WHO) reports that the number of individuals living with diabetes

continues to rise substantially, with global prevalence nearly doubling over the past few decades. Without effective interventions, this number is projected to increase further in the coming years.

Type 2 diabetes mellitus (T2DM) is the most common form of diabetes and has shown a marked increase among older adults (Liu *et al.*, 2021). Advancing age is associated with a higher risk of chronic diseases, including T2DM. Older adults with T2DM often face complex challenges, such as declining physical function, multimorbidity, cognitive impairment, and limited health literacy, all of which may hinder their ability to perform optimal self-management (Abdulsalam *et al.*, 2025).

Self-management is a key component in diabetes care, encompassing medication adherence, blood glucose monitoring, dietary regulation, physical activity, and stress management (Cheng *et al.*, 2025). Given that most aspects of diabetes care are carried out independently by patients, continuous support is essential to ensure effective disease management. However, conventional educational approaches are often insufficient in sustaining long-term behavioral changes, particularly among older populations.

In recent years, communication-based interventions have emerged as a promising approach to support diabetes self-management (Cheng *et al.*, 2025). These interventions include a wide range of strategies, delivered through both digital and non-digital platforms. Continuous communication enables the provision of information, behavioral reinforcement, and emotional support needed by patients in their daily lives (Kerr *et al.*, 2024). Several studies have shown that communication-based interventions can improve medication adherence, physical activity, and glycemic control, while also enhancing quality of life and reducing diabetes-related distress (Xue *et al.*, 2025). However, existing evidence remains inconsistent, largely due to heterogeneity in intervention types, delivery methods, and outcome measures (Kerr *et al.*, 2024). To date, there is still a lack of comprehensive synthesis specifically examining the effectiveness of various communication-based interventions, both digital and non-digital, among older adults with T2DM.

Therefore, this systematic review aims to evaluate the effectiveness of communication-based interventions in improving self-management among older adults with T2DM. The findings are expected to provide deeper insights into effective communication strategies and serve as a foundation for developing interventions that are better tailored to the needs of the older population.

2.0 Methods

2.1 Search Strategy

The search parameters for article selection are shown in Table 1. The inclusion and exclusion criteria for this study were defined as follows:

- (i) Older adults diagnosed with type 2 diabetes mellitus (T2DM);
- (ii) Studies focusing on T2DM self-management that utilize communication-based interventions, either digital or non-digital;
- (iii) Studies employing a randomized controlled trial (RCT) design, as this review aims to evaluate intervention effectiveness;
- (iv) Articles published in English;
- (v) Studies that do not meet the above criteria were excluded from the review.

Table 1.
Search parameters for article selection

Construct	Search Key Terms
Communication-based interventions	(communication OR counseling OR education OR "health education" OR "patient education" OR "telephone follow-up" OR telehealth OR telemedicine OR "phone call" OR SMS OR "text messaging" OR "short message service" OR reminder* OR coaching OR support*)
Self-management	("self-management" OR "self care" OR self-care OR "disease management" OR "treatment adherence" OR compliance OR "self monitoring" OR "behavior change")
Older adults (elderly)	(elderly OR "older adult*" OR aged OR aging OR geriatric* OR senior*)
Disease specificity	(diabetes OR "diabetes mellitus" OR T2DM OR "type 2 diabetes")
Study design	("randomized controlled trial" OR RCT OR "clinical trial")
Language	English
Period	2022–2026

2.2 Inclusion Criteria

The review objective and search strategy were guided by the Patient, Intervention, Comparison, Outcome, and Study design (PICOS) framework. Patient/Population: Older adults diagnosed with type 2 diabetes mellitus (T2DM). Intervention: Communication-based interventions, defined in this review as structured and interactive approaches delivered through various methods, including face-to-face education, counseling, telephone follow-up, short message service (SMS), mobile applications, or other digital platforms. These interventions aim to enhance patients' knowledge, motivation, and self-management behaviors. Comparison: Control groups were used as comparators, including usual care, routine diabetes management, non-interactive education, or printed educational materials. Outcome: The primary outcome was improvement in diabetes self-management behaviors. Secondary outcomes included glycemic control (e.g., HbA1c), medication adherence, quality of life, and diabetes-related distress. Study Design: Randomized controlled trials (RCTs) and non-randomized experimental studies (e.g., quasi-experimental designs).

This study was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement. A comprehensive literature search was performed across several electronic databases, including Scopus, ScienceDirect, and PubMed.

2.3 Data Extraction

Data were independently extracted from all included studies using a standardized data extraction form. The extracted information included author names, year of publication, country, study design, sample characteristics, type of intervention, and main outcomes related to self-management, quality of life and patient communication. Any discrepancies in the data extraction process were resolved through discussion among the authors.

2.4 Quality Appraisal of the Studies

The methodological quality of the included studies was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tools. All scores were converted to a 15-point scale, with scores ≥ 12 categorized as high quality, 8.5–11.9 as moderate quality, and < 8.5 as low quality.

Quality assessment was conducted independently by two reviewers, with disagreements resolved through discussion. A third reviewer performed a double-check to ensure reliability. All studies that met the inclusion criteria were retained in the review, as the purpose of the quality appraisal was to identify the strengths and limitations of the evidence, thereby facilitating a comprehensive synthesis of the effects of communication-based interventions on diabetes self-management.

3.0 Results

In the initial search stage, a total of 569 articles were identified across the selected databases. After removing 27 duplicates, 542 articles remained and were screened based on their titles and abstracts for eligibility. Of these, 530 articles were excluded for not meeting the inclusion criteria. Subsequently, full-text screening was conducted on the remaining 12 articles. Among them, 10 studies met the inclusion criteria and were included in the final review. Figure 1 shows the process of identification, screening, eligibility assessment, and inclusion of studies in accordance with the PRISMA 2020 guidelines. A total of 569 articles were identified through database searching (PubMed, ScienceDirect, and Scopus).

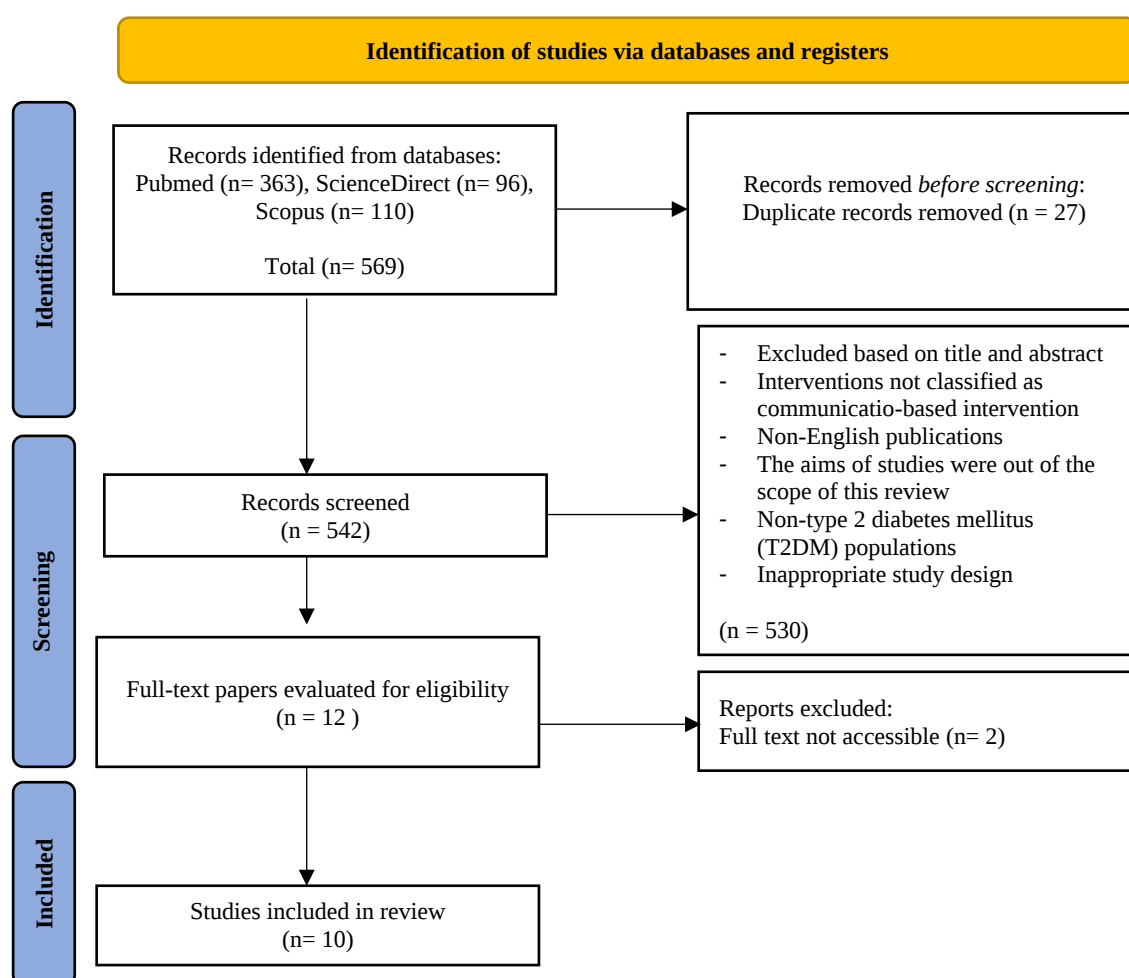


Figure 1. Shows the process of article identification and selection using the PRISMA flow diagram.

After duplicate removal, title and abstract screening was conducted, followed by full-text assessment. Ten studies met the inclusion criteria and were included in this systematic review. As shown in Table 2, a total of 10 studies were included in this review, conducted across various countries with diverse populations of patients with diabetes mellitus (DM), including Malawi, South Africa, China, Thailand, Denmark, Turkey, Germany, the United States, Pakistan, Spain, and Ghana.

Table 2
Summary of study characteristics

Country	Number of Studies	Study Design(s)	Range of Sample Size	Number of DM Types
Malawi & South Africa	1	Qualitative process evaluation (alongside RCT)	Not specified	Type 2 DM
China	1	Pilot Randomized Controlled Trial	36	Type 2 DM
Thailand	1	Randomized Controlled Trial	72	Type 2 DM
Denmark	1	Randomized Clinical Trial (pragmatic, parallel-group)	224	Type 2 DM
Türkiye	1	Randomized Controlled Trial (parallel-group, single-blind)	70	Type 2 DM
Germany	1	Randomized Controlled Trial (multicenter, 2-arm, unblinded)	149	Type 2 DM
USA	1	Randomized Controlled Trial (2-arm, parallel-group)	600	Type 1 & Type 2 DM
Pakistan	1	Multicenter Randomized Controlled Trial (parallel, 2-arm)	612	Type 2 DM
Spain	1	Pragmatic Randomized Clinical Trial (phase 3, parallel, 2-arm)	742	Type 2 DM
Ghana	1	Randomized Controlled Trial (single-blind, parallel 2-arm)	98	Type 2 DM

Most studies targeted patients with type 2 diabetes, with only one study involving both type 1 and type 2 diabetes. The majority of the studies were parallel-group randomized controlled trials (RCTs), conducted either in single-center or multicenter settings, with some adopting pragmatic approaches to reflect real-world conditions. Sample sizes varied considerably, ranging from 36 participants in a pilot RCT conducted in China to 742 participants in a pragmatic RCT conducted in Spain. The results of quality appraisal of the studies are shown in Table 3.

Table 3
Results of Quality Appraisal of The Studies

Study (Author, Year)	1	2	3	4-6	7	8	9	10-11	12	13	Total Score /13
Liu <i>et al.</i> , 2021	Y	U	Y	U	Y	Y	U	U	U	U	6
Abdulsalam <i>et al.</i> , 2025	Y	U	Y	Y	U	Y	Y	U	U	Y	7
Mathiesen <i>et al.</i> , 2021	Y	Y	Y	Y	Y	U	Y	U	Y	Y	8
Kılınç İşleyen <i>et al.</i> , 2025	Y	Y	Y	Y	Y	Y	Y	U	Y	Y	10
Leksell <i>et al.</i> , 2023	Y	U	Y	Y	U	U	Y	U	Y	Y	7
Bretschneider <i>et al.</i> , 2025	Y	Y	Y	Y	Y	Y	Y	U	Y	Y	10
Patel <i>et al.</i> , 2024	Y	Y	Y	Y	Y	U	Y	U	Y	Y	9
Asmat <i>et al.</i> , 2024	Y	Y	Y	Y	Y	Y	Y	U	Y	Y	11
Zamanillo-Campos <i>et al.</i> , 2025	Y	Y	Y	Y	Y	U	Y	U	Y	Y	9
Asante <i>et al.</i> , 2025	Y	Y	Y	Y	Y	U	Y	U	Y	Y	9

Y = Yes, N = No, U = Unclear

The quality of the randomized controlled trials (RCTs) included in this review was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for randomized controlled trials. Of the 10 studies, most demonstrated adequate randomization and appropriate trial design (domains 1 and 12). The total scores ranged from 6 to 11 out of 13, with large multicenter studies (Bretschneider *et al.*, 2025; Patel *et al.*, 2024) tending to achieve higher scores, reflecting stronger methodological quality. Table 4 shows the features of the included studies. Overall, although the methodological quality of the RCTs varied, most studies provided sufficient information to indicate moderate to high internal validity.

Table 4
Features of the included studies

Authors	Year	Research Design	Study Participants	Communication Interventions	Control Group	Type
Leon <i>et al.</i> ,	2021	Qualitative process evaluation (alongside RCT)	Adults to older adults with T2DM (aged 38–72 years)	SMS (short message service) reminders for medication and lifestyle education, 1–4 messages per week for 12 months	Usual care + limited SMS (≤ 1 /month)	Digital communication (SMS-based)
Liu <i>et al.</i> ,	2021	Pilot Randomized Controlled Trial	Older couples with T2DM (n=18 couples)	Couple-Based Collaborative Management Model (CCMM): group education, behavioral change training, couple-based collaborative communication, and weekly telephone follow-up (booster calls for 2 months)	Patient-only usual care (no partner involvement; only patients received basic intervention)	Interpersonal and telecommunication (family-based & telephone follow-up)
Abdulsalam <i>et al.</i> ,	2025	Randomized Controlled Trial	Adults to older adults with T2DM (n=72; 36 intervention, 36 control; aged 35–69 years)	Health Literacy–Diabetes Self-Management Education (HL-DSME): interactive education (3 sessions), enhanced patient–provider communication, health media literacy, self-practice, and supervised follow-up	Usual care (routine care without additional HL-DSME program)	Interpersonal + educational (health literacy & self-management-based)
Mathiesen <i>et al.</i> ,	2021	Randomized Clinical Trial (protocol;	Adults to older adults with T2DM (n=224)	Guided Self-Determination (GSD): individual sessions (3–5 sessions) using reflective communication,	Attention control: sessions (3–5) with trained	Interpersonal and telecommunication (autonomy-

		pragmatic, parallel-group)		shared decision-making, and autonomy support; delivered face-to-face, via video conference, or telephone by trained facilitators	healthcare professionals (same duration), without specific GSD approach	support & patient-centered communication)
Kılınç <i>et al.</i> , 2025	Randomized Controlled Trial (parallel-group, single-blind)	Older adults with T2DM (n=70; intervention=36, control=34; mean age 55.2 years)		Telenursing based on motivational interviewing (MI): 8 telephone sessions over 3 months (45–60 minutes/session) using OARS techniques (open questions, affirmation, reflective listening, summarizing), focusing on motivation, self-efficacy, and self-management	Usual care from healthcare providers without additional MI intervention	Telecommunication (motivational interviewing & patient-centered communication)
Bretschneider <i>et al.</i> , 2025	Randomized Controlled Trial (multicenter, 2-arm, unblinded)	Adults to older adults with T2DM (n=149; ≥18 years; majority male 61%)		Vitadio mHealth application: digital education, automated motivational messages, app-based communication (feedback, goal setting, peer support group, and health monitoring), with technical support; used for 6 months alongside standard care	Standard care only (no digital health application or additional communication intervention)	Telecommunication (mHealth, digital self-management & patient engagement communication)
Patel <i>et al.</i> , 2024	Randomized Controlled Trial (2-arm, parallel-group)	Adults to older adults with T2DM (n=600; aged 18–75 years)		CareAvenue (e-health intervention): interactive website with 8 short educational videos (~3 minutes) on social needs (medication costs, food insecurity, etc.), combined with ongoing communication via SMS and weekly IVR calls to support self-management and resource utilization	Usual care + access to Guest Assistance Program (GAP) information (self-initiated); no active digital intervention	Telecommunication (e-health, automated messaging, and behavioral support communication)
Asmat <i>et al.</i> , 2024	Multicenter Randomized Controlled Trial (parallel, 2-arm)	Adults with T2DM (n=612; ≥18 years; diagnosis ≥6 months)		Patient-Centered Self-Management Intervention (PACE-SMI): 8 weekly sessions (60–90 minutes) including individual education, counseling, behavioral training, patient-centered and motivational communication, home visits, booster sessions, and follow-up via telephone and SMS reminders	Usual care: routine check-ups, physician consultations, brief education (verbal/pamphlet) without structured intervention	Interpersonal and telecommunication (patient-centered communication, counseling & behavioral support)
Zamanillo-campos <i>et al.</i> , 2025	Pragmatic Randomized Clinical Trial (phase 3, parallel 2-arm, 12-month)	Adults to older adults with T2DM (n=742; ≥18 years; mean age 65 ± 10 years)		DiabeText mHealth intervention: 167 personalized SMS messages over 12 months (progressive frequency), including diet, physical activity, medication adherence, and self-management education; integrated with electronic health records (EHR) and reminders for lab results and visits	Usual care: routine primary care without SMS or additional digital intervention	Telecommunication (mHealth, SMS-based patient-centered communication)

Asante <i>et al.</i> , 2025	Randomized Controlled Trial (single-blind, parallel 2-arm)	Older adults with T2DM (n=98; mean age 58–59 years)	Nurse-Led Mobile Phone Intervention (NMPI): initial educational workshop followed by telephone follow-up for 3 months (~17 calls; twice weekly then weekly), including education, counseling, goal setting, and behavior-based supportive communication (translational model)	Usual care: routine diabetes clinic care without additional telephone follow-up	Interpersonal + telecommunication (nurse-led counseling & telephone follow-up)
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A total of 10 studies were included in this review, most of which targeted Type 2 diabetes mellitus (T2DM), with only one study including both Type 1 and Type 2 diabetes. The included studies were conducted in diverse countries, including Malawi, South Africa, China, Thailand, Denmark, Türkiye, Germany, the USA, Pakistan, Spain, and Ghana, and sample sizes ranged from 36 participants in a pilot RCT in China to 742 participants in a pragmatic RCT in Spain.

3.1 Effect of Communication Interventions on Self-Management in Type 2 Diabetes Mellitus (T2DM)

Most studies reported that communication-based interventions delivered through structured interpersonal communication, telecommunication, digital platforms, or a combination of these methods had a positive effect on self-management behaviors in patients with T2DM. The primary outcomes observed included improved medication adherence, where the use of SMS reminders or telephone follow-up was shown to enhance adherence to prescribed treatments (Asante *et al.*, 2025; Leon *et al.*, 2021; Zamanillo-campos *et al.*, 2025). In addition, interventions involving motivational interviewing through telenursing or patient-centered counseling were found to improve self-efficacy and motivation, enabling patients to feel more confident in managing their condition and achieving their health goals (Kılınç *et al.*, 2025). Furthermore, communication-based interventions contributed to improved lifestyle management. Health literacy programs, couple-based collaborative models, and the Guided Self-Determination (GSD) approach were associated with better adherence to dietary recommendations, physical activity, and other lifestyle modifications (Abdulsalam *et al.*, 2025; Liu *et al.*, 2021; Mathiesen *et al.*, 2021). Moreover, the use of technologies such as mHealth applications and virtual clinics facilitated increased digital engagement and remote monitoring, including blood glucose tracking and goal setting (Bretschneider *et al.*, 2025; Leksell *et al.*, 2023; Patel *et al.*, 2024). Overall, interventions that integrated regular communication, personalized feedback, and behavioral support consistently demonstrated improvements in self-management outcomes among patients with T2DM.

3.2 Types of Communication Interventions Used for Self-Management in Older Adults with T2DM

Based on the included studies, communication-based interventions were classified into three main categories. First, interpersonal communication and face-to-face education included both group and individual sessions focusing on patient-centered communication, shared decision-making, and strengthening self-management skills. These interventions encompassed health literacy programs, the Guided Self-Determination (GSD) approach, and couple-based collaborative care models (Abdulsalam *et al.*, 2025; Liu *et al.*, 2021; Mathiesen *et al.*, 2021). Second, digital communication (SMS- or mHealth-based) included the use of SMS reminders for medication adherence, lifestyle education, and follow-up of laboratory results (Leon *et al.*, 2021). In addition, mobile applications provided automated feedback, peer support, and goal-

tracking features (Bretschneider *et al.*, 2025). Virtual clinics delivered via smartphone applications also enabled real-time communication through chat or video consultations with healthcare providers (Leksell *et al.*, 2023).

Third, telecommunication-based interpersonal communication included follow-up and counseling via telephone. These interventions typically involved structured calls led by nurses to provide education, support goal setting, and deliver behavioral support (Asante *et al.*, 2025). Motivational interviewing via telenursing was also used to enhance self-efficacy and promote behavior change (Kılınç *et al.*, 2025). In addition, weekly booster calls or remote coaching were implemented to reinforce adherence to lifestyle and treatment regimens (Liu *et al.*, 2021; Mathiesen *et al.*, 2021).

Overall, digital and telecommunication-based interventions were the most commonly used, as they allowed continuous monitoring and personalized support. Meanwhile, interpersonal interventions combined with digital follow-up were found to strengthen patient knowledge, motivation, and engagement in self-care behaviors. Therefore, multimodal interventions integrating education, behavioral support, and continuous communication consistently demonstrated improved self-management outcomes in patients with T2DM.

4.0 Discussion

This systematic review demonstrates that communication-based interventions play a significant role in improving self-management among older adults with type 2 diabetes mellitus (T2DM). Across the included studies, communication approaches, whether delivered through face-to-face interactions, digital technologies, or telecommunication, were consistently associated with improvements in various aspects of self-care behaviors, including medication adherence, dietary management, physical activity, and blood glucose monitoring. These findings highlight that effective diabetes management in older adults depends not only on knowledge enhancement but also on the quality of communication that facilitates sustained behavioral change.

Communication functions as a complex therapeutic mechanism that extends beyond information delivery to include relationship building, motivation enhancement, and strengthening patients' confidence in managing their condition (Iroegbu *et al.*, 2025). Several studies in this review indicated that interventions such as motivational interviewing and patient-centered counseling significantly improve self-efficacy, which in turn enhances patient engagement in self-management activities (Kılınç *et al.*, 2025). These findings are consistent with Social Cognitive Theory, which identifies self-efficacy as a key determinant of health behavior change (Egele *et al.*, 2025). As confidence in one's abilities increases, patients become more capable of sustaining healthy behaviors over time (Clara *et al.*, 2021).

In addition, communication-based interventions demonstrate effectiveness through continuous behavioral reinforcement. Technologies such as SMS, mobile applications, and telephone follow-up provide consistent reinforcement in the form of reminders, feedback, and monitoring. Studies by Bretschneider *et al.* (2025) suggest that structured and routine communication supports habit formation, which is essential in chronic disease management. This is particularly relevant for older adults, who often experience cognitive decline and therefore require external support to maintain adherence to treatment regimens (Kerr *et al.*, 2024).

The findings also highlight the importance of social support as an integral component of communication-based interventions. Partner involvement not only improves adherence but also strengthens emotional support and accountability in disease management (Liu *et al.*, 2021). This indicates that effective communication is not limited to interactions between healthcare

providers and patients, but also extends to broader social relationships that contribute to successful self-management (Thuy & Dinh, 2023).

One of the most important findings of this review is that multimodal interventions integrating interpersonal communication with digital or telecommunication support appear to be more effective than single-component approaches. Interventions such as Guided Self-Determination (GSD) and Patient-Centered Self-Management Intervention (PACE-SMI) not only provide education but also integrate behavioral coaching, goal setting, and continuous follow-up (Mathiesen *et al.*, 2021). This suggests that intervention success depends not merely on the medium used, but on how effectively communication facilitates comprehensive, sustained, and patient-centered behavior change (Mahmud *et al.*, 2026).

The dominance of digital-based interventions in the included studies also reflects a paradigm shift in chronic disease management toward the use of health technologies. Interventions such as mHealth applications, SMS-based education, and e-health platforms have been shown to enhance patient engagement, facilitate remote monitoring, and provide real-time feedback (Bretschneider *et al.*, 2025; Patel *et al.*, 2024). However, the effectiveness of digital interventions among older adults remains influenced by several challenges, including limited digital literacy, access to technology, and cognitive decline (Bretschneider *et al.*, 2025; Patel *et al.*, 2024). These findings emphasize the importance of integrating technology with human support. Technology should complement, rather than replace, clinical interactions (Morton *et al.*, 2017).

These findings have important implications for nursing practice and community-based chronic disease management. Nurses play a strategic role in implementing communication-based interventions through education, counseling, and technology-supported follow-up (Mehralian *et al.*, 2023). Nurse-led interventions, such as telephone follow-up and motivational interviewing, have been shown to improve patient outcomes (Asante *et al.*, 2025). This underscores that therapeutic communication competence is a core skill that must be strengthened in modern nursing practice, particularly in response to the increasing prevalence of chronic diseases among older populations.

Nevertheless, several limitations should be considered when interpreting these findings. Variability in intervention design, duration, and outcome measures resulted in substantial heterogeneity, making it difficult to identify the most effective intervention components. In addition, some studies presented methodological limitations, particularly related to lack of blinding and unclear allocation concealment, which may introduce bias. Therefore, although the overall evidence shows a positive trend, the strength of evidence remains at a moderate level.

Furthermore, this review identifies several important research gaps. First, there is a limited number of studies specifically targeting older adults, as most research includes broader adult populations. Second, the lack of long-term evaluation limits understanding of the sustainability of intervention effects. Third, cost-effectiveness is rarely assessed, despite its importance for health policy implementation. These gaps highlight the need for future research with more rigorous designs and standardized approaches.

Overall, this systematic review confirms that communication-based interventions are effective strategies for improving self-management among older adults with T2DM. The highest effectiveness is achieved through multimodal, personalized, and continuous approaches that integrate interpersonal communication with digital support. Such approaches not only improve self-care behaviors but also strengthen patients' roles as active agents in managing their condition, ultimately contributing to improved quality of life and overall health outcomes.

Conclusion

This systematic review demonstrates that communication-based interventions play an important role in improving self-management among older adults with type 2 diabetes mellitus (T2DM). Interventions delivered through interpersonal communication, telecommunication, and digital platforms consistently show positive impacts on key self-management behaviors, including medication adherence, lifestyle modification, and glycemic monitoring. These findings suggest that the effectiveness of interventions is determined not only by the mode of delivery, but also by the extent to which communication is continuous, personalized, and supportive of behavior change. Interventions that integrate interpersonal interaction with digital or telecommunication support appear to provide the most optimal benefits. Communication-based interventions represent a promising strategy that can be widely developed to enhance self-management and health outcomes in older adults with T2DM. Although these results are encouraging, variations in intervention design and outcome measurements, as well as methodological limitations in some studies, indicate that the overall strength of evidence remains moderate. Future research should focus on long-term effectiveness, cost-efficiency, and the development of more tailored interventions specifically designed for the older adult population.

Conflict of Interest

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

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