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Review Article

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Diabetes self-management education in discharge planning and self-efficacy in adults with diabetes mellitus: a literature review

Mutiara Pertiwi[1], Yufitriana Amir[1], Widia Lestari[1]

[1] Program Studi Magister Keperawatan, Universitas Riau, Indonesia

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Abstract

Diabetes mellitus requires continuous self-management after hospital discharge, with self-efficacy playing a crucial role in maintaining treatment adherence and preventing complications. Diabetes Self-Management Education (DSME) integrated into discharge planning may strengthen patients' confidence and self-management abilities. This narrative literature review aimed to synthesize evidence on DSME, diabetes-related discharge planning, and self-efficacy among adults with diabetes mellitus. A structured literature search was conducted in PubMed, ScienceDirect, Wiley Online Library, and Google Scholar for studies published between 2022 and 2026. Of 212 records identified, 14 studies met the inclusion criteria, including four randomized controlled trials, one quasi-experimental study, eight systematic reviews or meta-analyses, and one scoping review. Findings were synthesized thematically. Structured, nurse-led, individualized, and theory-based DSME interventions, particularly those incorporating follow-up support, were associated with improved self-efficacy and diabetes self-management behaviors. Discharge planning commonly included patient education, medication management, blood glucose monitoring, psychological support, and follow-up care. However, evidence specifically evaluating DSME integrated into discharge planning remains limited, and no included primary intervention study directly examined its combined effect on self-efficacy. Although DSME and discharge planning are conceptually complementary, their combined effectiveness remains uncertain. Further hospital-based intervention studies are needed to evaluate DSME-integrated discharge planning and its effects on post-discharge self-efficacy.

INTRODUCTION

Diabetes mellitus (DM) is a chronic metabolic disease requiring continuous management to maintain glycemic control and prevent long-term complications. The global burden of diabetes continues to increase, with approximately 830 million people living with diabetes in 2022, predominantly in low- and middle-income countries [1] . This estimate is consistent with the findings of the NCD Risk Factor Collaboration (NCD-RisC), which reported approximately 828 million adults with diabetes worldwide in 2022 [2]. Beyond its substantial epidemiological burden, diabetes poses considerable challenges to continuity of care, particularly when

Corresponding author:
Yufitriana Amir
Email: amir@lecturer.unri.ac.id
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patients transition from hospital-based treatment to independent management at home. During this transition, responsibility for daily disease management increasingly shifts to patients and their families, who must perform complex and sustained self-care activities, including medication administration, dietary regulation, physical activity, blood glucose monitoring, and recognition of complications. Inadequate preparation for these responsibilities may undermine treatment continuity and increase the risk of unfavorable clinical outcomes. Accordingly, recommends individualized and structured discharge planning that incorporates diabetes self-management education, medication reconciliation, assessment of patients' self-management capabilities, and scheduled follow-up care. Diabetes self-management education and support are also recommended during transitions in care to facilitate informed decision-making, problem-solving, and sustained self-care behaviors [3]. However, successful transition from hospital to home depends not only on whether patients possess adequate diabetes-related knowledge or demonstrate readiness for discharge, but also on whether they believe they can effectively perform the required self-management activities in their everyday circumstances. Self-efficacy, defined as an individual's confidence in their ability to organize and execute behaviors necessary to achieve specific outcomes, represents a theoretically relevant determinant of diabetes self-management. Unlike knowledge, which concerns understanding what actions should be performed, or discharge readiness, which reflects preparedness for the transition, self-efficacy concerns patients' perceived capability to translate knowledge and intentions into sustained action, particularly when confronted with practical, psychological, or social barriers.

Empirical evidence supports this distinction, as self-efficacy has been associated with self-care behavior and quality of life among people with type 2 diabetes, while patient-centered care models identify self-efficacy as an important pathway influencing self-care practices [4]. Furthermore, evidence from a recent meta-analysis indicates that nurse-led self-management education can improve self-efficacy among patients with type 2 diabetes, supporting its relevance as a meaningful behavioral outcome of educational interventions [5]. Therefore, evaluating self-efficacy provides a more behaviorally focused approach to understanding whether patients are psychologically equipped to undertake diabetes self-management after hospitalization, rather than merely determining whether they have received information or are clinically ready to leave the hospital. Integrating structured Diabetes Self-Management Education (DSME) into discharge planning may provide an opportunity to strengthen patients' confidence in managing diabetes independently after discharge by facilitating the development of practical self-management skills, reinforcing problem-solving abilities, and supporting the application of treatment recommendations within home environments. Nevertheless, the effectiveness of integrating DSME into discharge planning specifically in improving self-efficacy among hospitalized patients with diabetes requires further investigation. Addressing this issue is important because self-efficacy may represent a proximal behavioral mechanism linking educational preparation during hospitalization with subsequent self-management practices. Accordingly, this study aims to examine the effect of Diabetes Self-Management Education integrated into discharge planning on self-efficacy among patients with diabetes mellitus.

Previous evidence demonstrates that Diabetes Self-Management Education (DSME) improves multiple dimensions of diabetes management, although its effects should be interpreted according to the

specific outcomes assessed. A systematic review and meta-analysis involving 44 studies and 11,838 participants across 21 low- and middle-income countries, demonstrated that DSME significantly improved glycemic control, diabetes self-management behaviors, cardiometabolic outcomes, and psychosocial well-being, supporting its broad effectiveness in improving diabetes management [6]. Similarly highlighted the contribution of individualized and multidisciplinary diabetes education to clinical outcomes and quality of life, indicating that educational interventions may extend their benefits beyond metabolic control to patients' broader well-being [7]. However, these findings primarily establish the general benefits of DSME rather than its specific effectiveness during hospital discharge transitions. Evidence specifically addressing self-efficacy provides a more direct justification for selecting this construct as the outcome of the present study. In a multicenter randomized controlled trial involving South Asian adults with type 2 diabetes, demonstrated that a nurse-led, patient-centered self-management intervention significantly improved self-efficacy and self-care behaviors, while producing a comparatively modest improvement in glycemic control [8].

These findings suggest that self-efficacy and self-care behaviors represent important behavioral mechanisms through which educational interventions may facilitate diabetes management rather than simply accompanying clinical improvements [8]. Supporting this evidence, Han et al reported in a systematic review and meta-analysis that nurse-led self-management interventions significantly improved self-management behaviors and self-efficacy among individuals with type 2 diabetes [9], while Sun et al found significant improvements in self-efficacy and longer-term glycemic control following nurse-led DSME, although substantial heterogeneity across included studies warrants cautious interpretation [5]. Collectively, these findings indicate that DSME can improve clinical outcomes, self-management behaviors, and psychosocial outcomes, while nurse-led interventions provide particularly relevant evidence for enhancing self-efficacy. Nevertheless, these benefits cannot be directly assumed to apply to discharge planning, because most existing evidence evaluates diabetes self-management interventions delivered in broader outpatient or community contexts rather than educational programs specifically integrated into the transition from hospital to home. Therefore, investigating DSME integrated into discharge planning is warranted to determine whether structured educational preparation during hospitalization can strengthen patients' self-efficacy for managing diabetes independently after discharge.

Despite the growing evidence supporting DSME, an important gap remains in understanding how diabetes education is integrated specifically into discharge planning and how this integration contributes to patients' self-efficacy during the transition from hospital to home. Existing reviews have primarily examined the effects of DSME on glycemic control, self-management behaviors, or broader psychosocial outcomes, while studies of nurse-led interventions have generally evaluated self-management outcomes without consistently focusing on the discharge-planning process. The distinction is important because discharge planning involves more than providing education before patients leave the hospital; it also requires individualized assessment, medication reconciliation, practical skills training, identification of potential barriers, patient and family involvement, and arrangements for continuing support after discharge. highlights these components as essential elements of a structured discharge process. Nevertheless, the available evidence shows variation in intervention content, delivery methods, outcome

measures, and follow-up periods, limiting comparisons across studies [3]. A scoping review by Han et al similarly identified differences in the design, implementation, and evaluation of diabetes discharge-planning interventions and highlighted the need for clearer intervention descriptions, more consistent outcome assessment, and longer-term follow-up. These limitations indicate the need to examine DSME not merely as an independent educational intervention but as a component of a coordinated hospital-to-home transition strategy, with particular attention to self-efficacy as a patient-centered outcome [9].

Accordingly, the contribution of the present review lies in a narrative synthesis that juxtaposes indirect evidence on Diabetes Self-Management Education (DSME) with findings from a scoping review addressing diabetes-related discharge planning. Rather than establishing the effectiveness of an integrated DSME–discharge planning intervention or demonstrating a causal relationship with self-efficacy, this review brings together complementary perspectives on how educational content, discharge preparation, and continuity of support may be relevant to patients' confidence in performing diabetes self-management activities after hospitalization. By examining these components collectively, the review provides a contextual understanding of their potential conceptual alignment and highlights the limitations and gaps in the existing evidence regarding their integration. This synthesis may inform nursing practice by identifying relevant considerations for discharge preparation and transitional self-management support, while providing directions for future empirical studies to investigate whether and how integrating DSME into discharge planning contributes to self-efficacy among patients with diabetes mellitus.

METHODS

Review Design

This article employed a narrative literature review supported by a structured literature search and transparent study selection process. The review aimed to synthesize recent evidence on Diabetes Self-Management Education (DSME), diabetes-related discharge planning, and transitional care, with particular attention to self-efficacy and diabetes self-management outcomes. The synthesis was narrative rather than quantitative; therefore, no meta-analysis or pooled effect estimate was undertaken.

Information Sources and Search Period

Literature searches were conducted in PubMed, ScienceDirect, Wiley Online Library, and Google Scholar. The search period was January 2022 to September 2026. The starting year was selected to prioritize contemporary evidence reflecting recent developments in diabetes education, self-management support, and transitional care practices.

Search Strategy

Search strategies combined terms related to diabetes, diabetes education, discharge planning, transitional care, and self-efficacy using Boolean operators AND and OR. Search terms included "diabetes mellitus," "type 2 diabetes," "diabetes self-management education," "DSME," "discharge planning," "transitional care," "hospital discharge," "self-efficacy," and "self-management." Searches were adapted to the syntax and search fields available in each database.

For Google Scholar, the search was conducted using combinations of the principal keywords. All retrieved records were screened without restricting the number of search results based on relevance ranking. The number of results

considered and the screening approach were documented to improve transparency.

Eligibility Criteria

Studies were considered eligible if they met the following criteria: (1) included adult patients with diabetes mellitus; (2) addressed DSME, structured diabetes education, diabetes-related discharge planning, or transitional care; (3) reported outcomes relevant to self-efficacy, self-management, discharge readiness, or glycemic control; (4) were published between January 2022 and September 2026; and (5) were published in English or Indonesian.

Studies were excluded if they focused exclusively on pediatric populations, were unrelated to diabetes education, self-management, discharge planning, or transitional care, or did not provide sufficient information relevant to the review objectives. DOI availability was not used as an independent eligibility criterion. Bibliographic information and DOI metadata were verified where available to ensure accurate identification and referencing.

Study Selection

Records retrieved from the databases were compiled and deduplicated before screening. Titles and abstracts were screened against the eligibility criteria, followed by full-text assessment of potentially relevant articles. The screening process was conducted by three reviewers: Mutiara Pertiwi (MP), Yufitriana Amir (YA), and Widia Lestari (AL). MP conducted the initial screening of titles and abstracts and identified potentially eligible studies. YA independently reviewed the titles and abstracts and assessed the full-text articles for eligibility. AL conducted an independent verification of study eligibility and assisted in resolving disagreements between MP and YA through discussion and consensus. Disagreements among the three reviewers (MP, YA, and AL) regarding study eligibility were resolved through discussion and consensus. Each reviewer presented their assessment based on the predefined inclusion and exclusion criteria, and a final decision was reached collectively to ensure consistency and transparency in the study selection process. Reasons for full-text exclusion were documented. The number of records identified, screened, excluded, and included was recorded in a screening log. The study selection process is presented in Figure 1.

Data Charting and Narrative Synthesis

Data were charted using a structured extraction table containing author and publication year, country or setting, study design, sample characteristics, intervention or educational focus, outcome measures, and principal findings. Findings were synthesized narratively by comparing the characteristics and contributions of studies addressing DSME, discharge planning, and transitional care. Particular attention was given to the conceptual relevance of educational content, discharge preparation, continuity of support, and self-efficacy. Because the included evidence differed in design, intervention characteristics, and outcome measurement, findings were not statistically pooled. The synthesis distinguished direct evidence concerning diabetes-related discharge planning from indirect evidence concerning DSME and self-management outcomes.

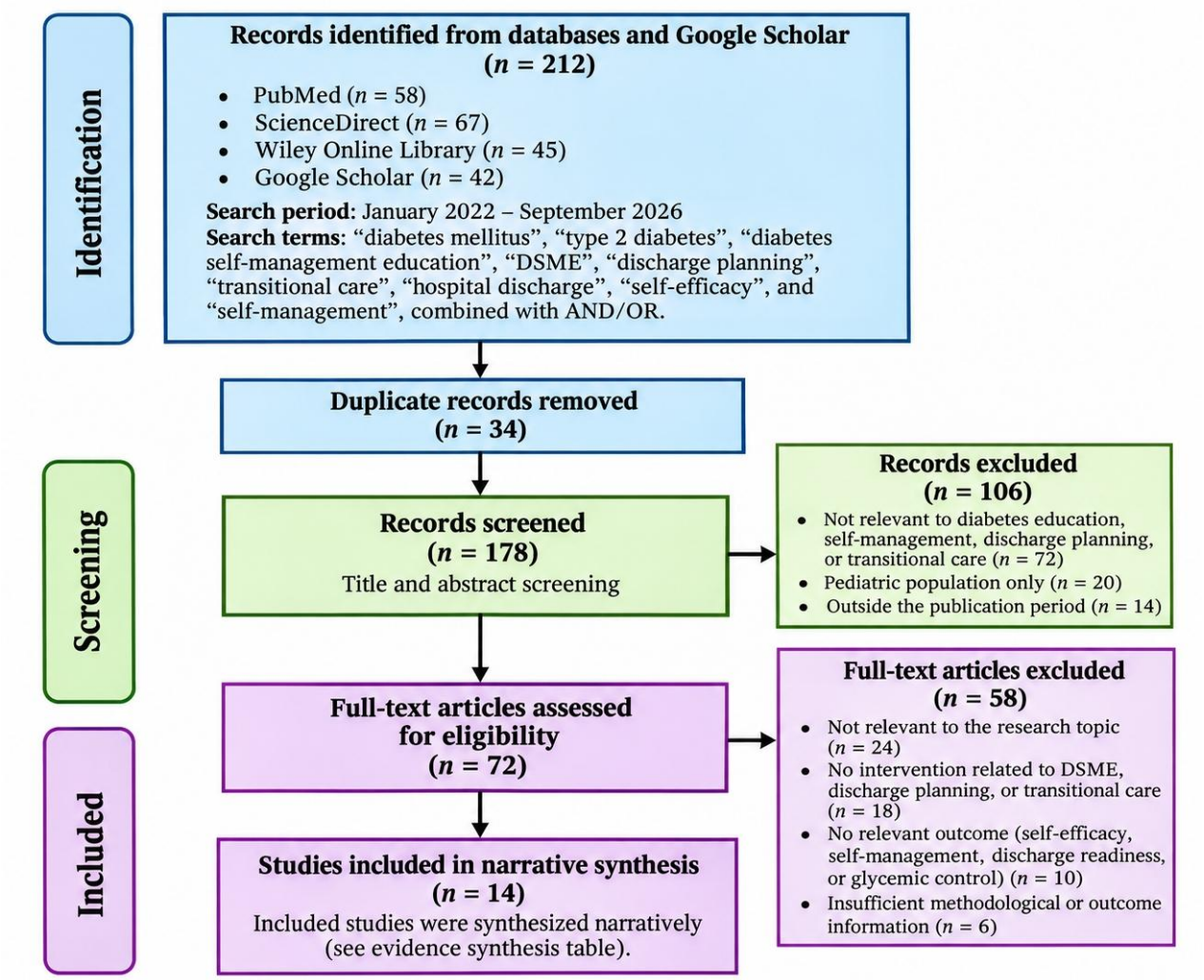


Figure 1.
PRISMA Flow Diagram of Study Selection

RESULTS

The 14 included sources comprised four randomized controlled trials (RCTs), one quasi-experimental study, eight systematic reviews or meta-analyses, and one scoping review (Table 1). These sources represent a combination of primary empirical studies and secondary evidence syntheses, rather than 14 independent patient-level datasets. Furthermore, the systematic reviews and meta-analyses may include overlapping primary trials; therefore, their findings were interpreted as complementary evidence rather than independent estimates of intervention effects. Only one source Han et al, a scoping review, specifically addressed diabetes-related discharge planning, whereas the remaining sources primarily examined DSME or self-management education delivered in outpatient, community, or digital settings, providing indirect evidence relevant to the hospital-to-home transition. Importantly, none of the included primary trials directly evaluated the integration of DSME into discharge planning with patient self-efficacy as a specific outcome. The findings were narratively organized into four themes: (1) structured DSME and self-efficacy; (2) nurse-led diabetes education; (3) discharge planning and continuity of care; and (4) digital and hybrid education with follow-up. These themes represent a conceptual synthesis of related evidence rather than evidence of an established causal relationship between integrated DSME–discharge planning and self-efficacy.

Table 1.
Characteristics and Main Findings of the Included Studies

Author, year	Aim/ population	Design / evidence type	Intervention & setting	Self-efficacy measure / time points	Comparator & follow-up	Principal findings	Evidence contribution & limitation
Yu et al. 2022 [10]	China; adults with diabetes (n=128)	RCT	Nurse-led structured education; 4 weeks, 8 sessions; HBM + Self-Efficacy Theory	Self-efficacy measured; instrument not specified in source table. Improved immediately and at 12 weeks.	Comparator not specified in source table; immediate post-intervention and 12-week assessment reported.	Self-efficacy improved; HbA1c and several self-management behaviors also improved.	Direct self-efficacy evidence; instrument and comparator details require verification from full text.
Lamptey et al. 2022[11]	LMICs; 9 studies (n=1,389)	Systematic review	Structured/culturally tailored DSME; settings not specified in source table	Self-efficacy: not specified as measured outcome in source table; HbA1c reported.	Comparators and follow-up vary across included studies; not specified in source table.	Structured, culturally tailored DSME associated with reduced HbA1c; programs heterogeneous.	Indirect DSME evidence; synthesis of multiple primary studies; heterogeneity.
Yıldırım Ayaz et al. 2022[12]	International; populations not specified in source table	Systematic review/ meta-analysis	Foot-care education; settings not specified	Self-efficacy reported as an outcome; instrument and time points not specified.	Comparators/follow-up not specified in source table; vary across included studies.	Improved knowledge, self-efficacy, and foot-care behavior.	Indirect evidence for general DSME/discharge; focused on foot-care education.
Okafor et al. 2023[13]	Nigeria; n=382	Quasi-experimental	Diabetes educational intervention; setting not specified; 6-month follow-up	Self-efficacy measured; instrument and assessment time points not specified in source table.	Comparator not specified in source table; 6-month follow-up reported.	Self-efficacy improved after education.	Direct self-efficacy evidence; non-randomized design; instrument/comparator details need full-text verification.
Alharbi et al. 2023[14]	GCC; 5 RCTs included	Systematic review	Diabetes education/self-management; settings vary	Self-efficacy reported across included RCTs; instruments/time points not specified in source table.	Comparators and follow-up vary across included RCTs.	All included RCTs reported positive self-efficacy effects.	Indirect synthesis evidence; possible overlap with other reviews; interventions/outcomes may vary.
Chowdhury et al. 2024[6]	LMICs; 44 studies (n=11,838); adults with T2DM	Systematic review/ meta-analysis	DSME; settings vary	Self-efficacy instrument/outcome not specified in source table; self-management behaviors and	Comparators/follow-up vary across included studies.	DSME reduced HbA1c (0.64% in RCTs) and improved cardiometabolic risk, self-management behaviors, and	Indirect DSME evidence; broad outcomes; potential overlap among

Author, year	Aim/ population	Design / evidence type	Intervention & setting	Self-efficacy measure / time points	Comparator & follow-up	Principal findings	Evidence contribution & limitation
				psychosocial well-being reported.		psychosocial well-being.	primary studies.
Kiçaj et al. 2024[7]	International; population details not specified in source table	Systematic review	DSME for early T2DM; delivery approaches varied	Self-efficacy: not specified in source table; self-management reported.	Comparators/follow-up vary across included studies.	Education improved self-management; delivery approaches varied.	Indirect DSME evidence; heterogeneity in delivery approaches.
Asmat et al. 2024[8]	Pakistan; multicenter RCT; n=583 analyzed	Multicenter RCT	Nurse-led, patient-centered self-management intervention; 8 weekly sessions	Self-efficacy measured; instrument not specified in source table. Effect size Cohen's d=1.84; exact assessment time points not specified.	Comparator not specified in source table; 8 weekly sessions reported.	Self-efficacy and self-care behaviors improved significantly; HbA1c improved modestly, with mediation by self-efficacy and self-care reported.	Direct self-efficacy evidence; instrument, comparator, and timing require full-text verification.
Kerr et al. 2024[15]	International; populations/sample not specified in source table	Systematic review/ meta-analysis	Digital self-management interventions; settings vary	Self-efficacy: not specified in source table; HbA1c reported.	Usual care comparator; follow-up varies across included studies.	HbA1c reduced by about 0.31% versus usual care; timely personalized professional coaching was common.	Indirect digital self-management evidence; not specific to discharge planning; possible review overlap.
Versluis et al. 2025[16]	International; 43 RCTs (n=9,328)	Systematic review/ meta-analysis	mHealth DSME/DSMS; settings vary	Patient-reported outcomes included but specific self-efficacy instrument/outcome not specified in source table; evidence limited.	Comparators/follow-up vary across 43 RCTs.	mHealth DSME/DSMS produced modest HbA1c reductions; evidence on patient-reported outcomes was limited.	Indirect digital DSME evidence; patient-reported evidence limited; possible overlap.
Sun et al. 2025[5]	International; 8 RCTs in HbA1c analysis	Meta-analysis	Nurse-led DSME, ≥3 sessions; settings not specified	Self-efficacy pooled; SMD=1.48 (95% CI 1.04–1.92); instruments/time points not specified in source table.	Comparators/follow-up vary across included RCTs; longer follow-up HbA1c improvement reported.	Self-efficacy improved; HbA1c improved at longer follow-up; heterogeneity remained.	Indirect synthesis of self-efficacy evidence; potential overlap with other reviews; heterogeneity.
Fatahi et al. 2025[17]	Iran; sample/population details not specified in	RCT	Peer-group versus mHealth healthy-	Diabetes self-efficacy evaluated; instrument and assessment time	Peer-group versus mHealth; follow-up not specified	Both delivery approaches were studied for effects on diabetes self-	Direct self-efficacy evidence; sample, instrument,

Author, year	Aim/ population	Design / evidence type	Intervention & setting	Self-efficacy measure / time points	Comparator & follow-up	Principal findings	Evidence contribution & limitation
	source table		lifestyle education	points not specified.	in source table.	efficacy; comparative result not specified in source table.	timing, and result need full-text verification.
Polat et al. 2026[18]	Türkiye; sample details not specified in source table	RCT	Nurse-led, self-efficacy-based hybrid diabetic-foot DSME	Foot-care self-efficacy measured; instrument not specified in source table; improvement over 8 weeks reported.	Comparator not specified in source table; 8-week period reported.	Diabetic-foot knowledge, foot-care behaviors, and foot-care self-efficacy improved significantly.	Direct self-efficacy evidence (foot-care-specific); instrument/comparator details need full-text verification.
Han et al. 2026[19]	International; 20 studies included	Scoping review	Hospital-to-home discharge planning	Self-efficacy as a measured outcome not specified in source table; education/self-management support described.	Comparators/follow-up vary across included studies; not specified in source table.	Education and self-management support were core components; assessment, lifestyle, medication/glucose management, psychological support, and follow-up were common.	Contextual/indirect discharge-planning evidence; scoping review, not a primary trial of DSME-discharge integration.

DISCUSSION

Discharge Planning as the Context for DSME

Effective discharge planning for patients with diabetes mellitus is an essential component of transitional care, facilitating continuity of treatment and preparing patients to manage their condition beyond the hospital setting. Rather than being limited to instructions provided immediately before discharge, discharge planning should be implemented as an individualized, patient-centered process that begins during hospitalization and extends into the post-discharge period. This is particularly important because diabetes management requires sustained engagement in medication adherence, blood glucose monitoring, dietary regulation, physical activity, recognition and management of hypoglycemia and hyperglycemia, and prevention of diabetes-related complications. Inadequate discharge preparation may leave patients insufficiently equipped to maintain these activities independently after returning home. Accordingly, the American Diabetes Association emphasizes individualized discharge planning based on patients' clinical conditions, capabilities, preferences, and care settings. In the present review, Han et al provided the only source specifically addressing diabetes-related discharge planning. Their scoping review identified education and self-management support as core discharge-planning components, including assessment of patient needs, lifestyle guidance, medication and glucose management, psychological support, and post-discharge follow-up. These findings

describe the components and organizational priorities of discharge planning but do not establish the effectiveness of an integrated DSME–discharge planning intervention on self-efficacy.

By contrast, evidence concerning the educational contribution of DSME was derived primarily from separate studies conducted in outpatient, community, or other non-discharge-specific settings. These sources reported improvements in self-efficacy, self-management behaviors, and, in some cases, glycemic outcomes following structured, nurse-led, or digitally delivered diabetes education [9]. Such findings provide indirect support for the relevance of educational preparation to patients' post-discharge self-management needs. Nevertheless, the educational interventions examined in these sources were not necessarily integrated into hospital discharge planning, and their findings cannot be directly interpreted as evidence of the effectiveness of DSME delivered within a discharge-planning pathway. Taken together, the evidence suggests a conceptual alignment between discharge-planning components identified by [19] and educational outcomes reported in separate DSME studies. This alignment may inform the development of nursing discharge practices that incorporate individualized education, practical self-management preparation, psychological support, and continuity of follow-up. However, whether integrating these components into discharge planning directly improves self-efficacy after hospitalization remains an empirical question requiring prospective evaluation.

DSME and Improvement of Self-Efficacy

Self-efficacy is a key outcome of Diabetes Self-Management Education (DSME), as patients with diabetes must consistently apply self-care practices independently after returning home. It reflects patients' confidence in their ability to manage daily activities, including medication adherence, blood glucose monitoring, dietary management, physical activity, and recognition of diabetes-related symptoms. Within discharge planning, strengthening self-efficacy is particularly important because patients need to translate the knowledge and skills acquired during hospitalization into practical actions at home. Demonstrated that a structured, nurse-led educational intervention significantly improved self-efficacy among patients with newly diagnosed type 2 diabetes, with benefits maintained at the 12-week follow-up. Guided by the Health Belief Model and Self-Efficacy Theory, the intervention addressed risk perception, perceived benefits and barriers, goal setting, and the development of self-management capabilities. These findings highlight that effective DSME should extend beyond providing information by actively building patients' confidence in managing their condition [10].

Further evidence supports the contribution of structured diabetes education to self-efficacy. Reported positive effects of diabetes self-management education on self-efficacy among people with type 2 diabetes in Gulf Cooperation Council countries [14]. Similarly, emphasized the value of educational interventions tailored to patients' needs and supported by practical disease-management strategies [7]. Likewise reported a large improvement in self-efficacy after a nurse-led, culturally tailored patient-centered intervention, and the effect of the intervention on HbA1c was mediated by gains in self-efficacy and self-care behaviors [8]. In addition, examined a nurse-led, self-efficacy-based hybrid educational program for diabetic foot self-management, reflecting the growing emphasis on combining knowledge development with practical skills and confidence-building strategies [18].

Taken together, these findings suggest that DSME integrated into discharge planning should address not only what patients need

to know but also how confidently they can apply that knowledge in everyday life. Practical demonstrations, return-demonstrations, individualized goal setting, problem-solving exercises, constructive feedback, and ongoing reinforcement can help patients develop the confidence needed for independent care. By bridging the gap between knowledge and action, this approach may support more consistent self-management and facilitate a safer, more effective transition from hospital care to home-based diabetes management.

Evidence from Systematic Reviews and Meta-Analyses

Reported that all five randomized controlled trials (RCTs) included in their review demonstrated positive effects of diabetes self-management education (DSME) on self-efficacy among individuals with type 2 diabetes mellitus. Although the interventions differed in educational content and delivery methods, they shared a common focus on helping patients develop the skills and confidence needed to manage their condition. These findings suggest that DSME should go beyond providing information and actively encourage practical skill development, confidence-building, and patient participation in disease management. This approach is particularly important during discharge planning, when patients must take greater responsibility for medication use, dietary management, blood glucose monitoring, physical activity, and recognition of diabetes-related symptoms after returning home[14].

Similarly, found that a structured diabetes education intervention was associated with improved self-efficacy among individuals with type 2 diabetes in southeastern Nigeria. The study involved 382 participants and assessed self-efficacy using the Stanford Chronic Disease Self-Efficacy Scale, with the intervention group followed for six months. Following the intervention, a significantly greater proportion of participants progressed from low to moderate or high self-efficacy across several self-management domains. The six-month follow-up provides useful insight into the potential persistence of these improvements beyond the immediate educational period. However, because the study used a quasi-experimental design, the findings should be interpreted cautiously when determining whether the observed changes resulted solely from the intervention [13].

Further quantitative evidence is provided whose meta-analysis reported a statistically significant improvement in self-efficacy following nurse-led DSME among adults with type 2 diabetes mellitus, with a pooled standardized mean difference (SMD) of 1.48 (95% CI: 1.04–1.92) [5]. However, this estimate should be interpreted cautiously because substantial heterogeneity was observed across the contributing studies (I^2 = 84.5%). The number of trials and participants specifically contributing to the self-efficacy analysis should be distinguished from those included in the HbA1c analysis, as they may not represent the same evidence base. Moreover, the large pooled effect does not necessarily indicate a uniform or predictable clinical benefit, particularly when studies differ in educational intensity, intervention duration, delivery formats, follow-up periods, and self-efficacy measurement instruments. Differences in measurement scales and intervention characteristics may contribute to variability in the pooled estimates, while the possibility of small-study effects should also be considered where appropriate. These findings therefore suggest that nurse-led DSME may support self-efficacy, but the magnitude of improvement should not be generalized directly to patients receiving inpatient discharge planning. Supporting evidence similarly indicates favorable effects of nurse-led self-management interventions on self-management behaviors and self-efficacy, although the applicability of these findings depends on intervention

characteristics and the clinical context. Collectively, these findings provide indirect support for incorporating structured educational and self-management components into discharge preparation, while highlighting the need for direct evaluation of their effectiveness in hospital-to-home transitions [9].

Overall, the available evidence indicates that improved self-efficacy is an important outcome of structured diabetes education. However, its effectiveness depends not only on whether education is provided but also on how it is designed, delivered, reinforced, and evaluated over time. Therefore, DSME integrated into discharge planning should include individualized education, practical skills training, goal setting, constructive feedback, reinforcement, and post-discharge follow-up. By combining these elements, patients may develop both the knowledge and confidence needed to translate discharge instructions into consistent self-management practices at home.

Characteristics of Potentially Effective DSME Interventions

Several common features appear to distinguish diabetes self-management education (DSME) interventions that achieve favorable patient outcomes. These include well-organized educational content, repeated learning sessions, interactive and patient-centered teaching methods, practical skills training, individualized guidance, goal setting, problem-solving activities, and ongoing follow-up. Together, these features reflect the principle that diabetes education should not be treated as a one-time activity but as a continuous process that helps patients develop the knowledge, skills, confidence, and practical abilities needed to manage their condition in daily life. The American Diabetes Association (ADA) recommends providing DSME and support at important stages of diabetes care, including at diagnosis, when treatment goals are not met, when complications or psychosocial concerns arise, and during transitions between care settings. Educational interventions should also reflect patients' individual needs, preferences, cultural backgrounds, and personal values [20].

The frequency and continuity of educational sessions may also contribute to intervention effectiveness. A meta-analysis of nurse-led DSME included randomized controlled trials involving interventions with at least three structured sessions. The programs commonly consisted of four to twelve sessions delivered over periods ranging from three months to 2.5 years. Some interventions also included telephone follow-up, home visits, or coordination with specialist services. These findings highlight the value of repeated education and reinforcement, particularly because diabetes self-management requires patients to practice, maintain, and adapt their behaviors over time [5].

Interactive learning is another important feature of effective DSME. Instead of relying solely on lectures or written materials, healthcare professionals can engage patients through discussions, demonstrations, return-demonstrations, problem-solving exercises, motivational techniques, and shared decision-making. The ADA also emphasizes strategies such as goal setting, action planning, self-monitoring, feedback, and social support to facilitate diabetes self-management. By actively involving patients in the learning process, these approaches help them identify personal challenges and develop realistic solutions that fit their everyday circumstances [20].

The educational content should cover the essential aspects of diabetes management, including dietary practices, physical activity, medication use and adherence, blood glucose monitoring, recognition and prevention of complications, foot care, problem-solving, and psychosocial coping. However, the content should be adapted to

each patient's clinical condition, health literacy, treatment regimen, cultural background, preferences, and ability to perform self-care. During discharge planning, education should focus particularly on the activities patients will need to carry out independently after returning home.

Individualized goal setting can further strengthen patients' self-efficacy. Patients may be encouraged to establish realistic and measurable goals, such as monitoring blood glucose as recommended, taking medications correctly, improving dietary habits, increasing physical activity, or performing appropriate foot care. During follow-up, healthcare professionals can review progress, provide constructive feedback, reinforce positive behaviors, and help patients overcome emerging barriers. This approach reflects the broader concept of diabetes self-management support, in which initial education is reinforced through continued behavioral, psychosocial, and clinical assistance.

Overall, effective DSME interventions appear to combine structured content, repeated learning opportunities, active patient participation, individualized goals, practical skills training, and ongoing follow-up. Nurse-led DSME is particularly relevant to discharge planning because nurses can assess learning needs, provide practical guidance, evaluate self-care skills, strengthen patients' confidence, involve family members when appropriate, and coordinate continuing care. Integrating these elements into discharge planning may help patients move beyond understanding diabetes to managing their condition more confidently and consistently after leaving the hospital.

The Role of Nurses

Nurses play a central role in diabetes self-management education (DSME) because their regular interactions with patients throughout hospitalization allow them to understand patients' needs and assess their readiness to return home. These interactions provide valuable opportunities to identify learning needs, evaluate patients' understanding of diabetes management, recognize potential barriers to self-care, and determine the support required after discharge. Consequently, nurses serve not only as educators but also as coordinators and facilitators who help patients transition from hospital-based care to independent diabetes management at home.

The nursing role in diabetes self-management education (DSME) involves assessing patients' educational needs, identifying physical, psychological, social, and environmental barriers, providing individualized education, demonstrating self-care techniques, evaluating patient understanding, establishing achievable goals, coordinating care with other healthcare professionals, and arranging follow-up support. In a scoping review of 20 studies on diabetes discharge planning, mapped several commonly reported intervention components, including patient assessment, diabetes education, lifestyle guidance, medication and blood glucose management, complication prevention, psychological support, and post-discharge follow-up. These findings provide a descriptive overview of how discharge planning services have been structured to support patients during the hospital-to-home transition. However, the scoping review did not establish the independent or combined effectiveness of these components in improving diabetes self-efficacy. Accordingly, the integration of structured DSME into discharge planning represents a conceptually relevant approach that warrants direct empirical evaluation, particularly regarding its potential contribution to patients' confidence in managing diabetes after hospital discharge [19].

Patient-centered communication is another essential aspect of nursing practice. Instead of assuming that patients have understood

the information provided, nurses can use interactive approaches, such as the teach-back method, which encourages patients to explain the information in their own words or demonstrate what they have learned. Demonstration and return-demonstration are particularly useful for practical self-care activities, including blood glucose monitoring, medication administration, insulin injection when required, foot care, and the recognition and management of hypoglycemia. These methods enable nurses to identify gaps in patients' knowledge or skills and provide additional guidance before discharge.

Beyond improving knowledge and practical skills, nurses can help strengthen patients' self-efficacy by supporting realistic goal setting, providing constructive feedback, and encouraging problem-solving. These strategies help patients develop confidence in their ability to manage diabetes independently, which is particularly important when they must maintain self-care practices without direct supervision after returning home.

Evidence supporting nurse-led DSME is provided, whose meta-analysis, discussed above, showed that nurse-led programs improved self-efficacy among patients with type 2 diabetes mellitus. The interventions generally involved multiple structured educational sessions, with some programs incorporating telephone follow-up, home visits, or coordination with specialist services [5].

Taken together, integrating nurse-led DSME into discharge planning offers a practical approach to improving patients' readiness, self-care skills, and confidence before returning home. The nursing role should extend beyond delivering educational information to include comprehensive assessment, verification of practical skills, individualized goal setting, care coordination, behavioral reinforcement, and continued post-discharge support. Through this integrated approach, nurses can help patients translate the knowledge gained during hospitalization into sustainable self-management practices and support continuity of diabetes care in the community.

Digitalization and Continuity of Care

Digital technology is increasingly incorporated into diabetes self-management education and support (DSME/S), particularly to facilitate continued guidance and access to health information after hospital discharge. In a systematic literature review and meta-analysis, compared digital interventions with usual care among adults with type 2 diabetes mellitus and reported a statistically significant reduction in laboratory-measured HbA1c (pooled mean difference [MD] −0.31 percentage points, 95% confidence interval [CI] −0.45 to −0.16; $p<0.001$) [15]. This estimate represents an absolute difference in HbA1c percentage points rather than a relative percentage reduction. Although the findings support the potential contribution of digital interventions to glycemic management, the clinical significance of the pooled effect should be interpreted cautiously in view of substantial between-study heterogeneity ($I^2=67.54\%$). The authors also identified timely and responsive personalized coaching by healthcare professionals as a common feature of effective digital interventions. These findings suggest that digital tools may be most appropriately used to complement professional healthcare support rather than replace direct interactions with healthcare providers.

Supporting evidence was reported, who analyzed 43 randomized controlled trials involving 9,328 participants. Their findings indicated that mobile health (mHealth) interventions delivering DSME, diabetes self-management support (DSMS), or a combination of both produced modest improvements in glycemic control. Reductions in HbA1c were observed across

the different intervention approaches, although evidence concerning patient-reported outcomes remained limited. The authors highlighted the potential of mHealth to make diabetes education and support more accessible and personalized, particularly when conventional face-to-face consultations do not provide sufficient opportunities for continuous self-management assistance [16].

In discharge planning, digital technology offers an opportunity to continue patient education beyond the hospital setting. Mobile applications, text messages, telehealth services, and other digital communication platforms can help reinforce educational materials, remind patients to take their medications, support blood glucose monitoring, facilitate communication with healthcare professionals, and encourage adherence to individualized self-management goals. These tools may also allow patients to communicate difficulties encountered at home and receive timely guidance or clarification. In this way, digital DSME can extend nurse-led discharge planning and strengthen the continuity of care after hospitalization.

Nevertheless, the benefits of digital interventions depend partly on patients' ability to access and use the available technology. Differences in digital health literacy, familiarity with mobile applications, access to smartphones, internet connectivity, financial resources, and personal preferences may influence how effectively patients engage with digital services. If these factors are overlooked, digital interventions may unintentionally create inequalities in access to post-discharge support. also identified considerable variation across mHealth interventions and limited evidence for several patient-reported outcomes, indicating that digital education should not automatically be regarded as equivalent to comprehensive face-to-face education [16]. Therefore, digital DSME should be tailored to patients' clinical needs, technological capabilities, preferences, and available resources. Patients who are comfortable using digital technology may benefit from mobile applications, medication reminders, remote monitoring, and telehealth consultations. In contrast, those with limited digital access or literacy may require direct education, telephone-based support, printed materials, or assistance from family caregivers. A hybrid approach that combines nurse-patient interaction with appropriate digital tools may offer a flexible way to maintain continuity of care after discharge. By reinforcing knowledge, encouraging self-management behaviors, and providing access to professional guidance, this approach may help patients maintain confidence in managing diabetes in their daily lives.

Implications for Nursing Practice in Indonesia

The findings of this narrative review may inform context-sensitive implications for nursing practice in Indonesia, although these recommendations have not been directly evaluated in Indonesian hospital settings. Based on the evidence on DSME and discharge-planning components, initiating patient education early during hospitalization, using structured and interactive approaches such as teach-back and return demonstration, and involving family caregivers may be considered potential strategies to support self-management after discharge. Educational content may also need to be adapted to patients' health literacy, language, cultural and religious practices, and dietary habits to enhance its relevance to individual circumstances. Continuity of care could potentially be supported through coordination with primary healthcare services and existing chronic disease management programs, as well as telephone or messaging follow-up where access and infrastructure permit. Furthermore, incorporating validated

diabetes self-efficacy instruments into discharge assessment may be explored to identify patients who require additional education or support. These proposed strategies should be interpreted as context-sensitive practice implications rather than established intervention effects. Their feasibility, acceptability, and effectiveness in Indonesian hospitals require further local implementation studies and empirical evaluation.

Limitations of This Review

This review has several limitations. First, it employed a narrative rather than a systematic review design, and no pooled effect estimate was calculated. Second, the publication period was restricted to 2022–2026, which may have introduced temporal selection bias by excluding relevant foundational or earlier studies. Although this timeframe was intended to prioritize contemporary evidence, it may have limited the comprehensiveness of the synthesis. DOI verification was initially used during the screening process; however, requiring a verifiable DOI as an eligibility criterion could have introduced additional selection bias by excluding relevant publications without DOI registration. Accordingly, DOI availability should be regarded as a bibliographic verification consideration rather than an independent eligibility requirement. Third, the review included limited evidence specifically addressing diabetes discharge planning, and conclusions regarding DSME integrated into discharge planning were therefore largely derived from indirect evidence from outpatient, community, and digital interventions. Fourth, the included sources varied considerably in intervention content, intensity, duration, self-efficacy instruments, and follow-up periods, limiting direct comparability. Finally, the language eligibility criteria may have restricted the representation of evidence from non-English-speaking populations. Consequently, the findings should be interpreted cautiously when applied to Indonesian healthcare settings, and further locally conducted research is needed to evaluate the feasibility and effectiveness of DSME-integrated discharge planning in Indonesia.

CONCLUSION

The integration of Diabetes Self-Management Education (DSME) into discharge planning represents a relevant approach to strengthening self-efficacy among patients with diabetes mellitus in performing self-care after hospital discharge. Evidence published between 2022 and 2026 indicates that structured education, particularly when nurse-led, theory-based, interactive, individualized, and supported by follow-up, is associated with improved self-efficacy and self-management behaviors. However, because most of this evidence comes from outpatient and community settings, its application to discharge planning remains largely inferential. Optimal discharge planning should include patient assessment, education, skills training, medication and glucose management, lifestyle counselling, complication prevention, psychological support, and follow-up care. However, the heterogeneity of interventions and measurement instruments indicates that a single model cannot be uniformly applied to all patients. The development of DSME-based discharge planning models in Indonesia should consider health literacy, cultural factors, family support, socioeconomic conditions, access to technology, and patients' clinical characteristics. Self-efficacy should therefore be considered as one of the important outcomes when evaluating discharge planning interventions based on DSME.

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