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Family-Based Digital Storytelling to Support Daily Diabetic Foot Self-Care: A Narrative Review

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A B S T R A C T

Introduction: Diabetic foot complications require sustained self-care behaviours and effective educational strategies within community and family nursing contexts. **Objective**: This review aimed to synthesise evidence on family-based digital storytelling as a nursing education strategy to support daily diabetic foot self-care. **Method**: A narrative review was conducted using searches of PubMed, ScienceDirect, and Google Scholar. Relevant peer-reviewed articles published between 2020 and 2025 were analysed using narrative thematic synthesis guided by nursing theoretical perspectives. **Result**:Ten studies were included. Five themes emerged: family co-regulation of behaviour, narrative meaning-making, emotional activation, procedural guidance for daily practice, and behavioural continuity through habit formation. Family involvement and narrative learning consistently supported sustained self-care behaviours. **Discussion**: Family-based digital storytelling supports behavioural continuity by integrating emotional engagement, relational support, and practical learning, making it a relevant educational approach for community-based diabetic foot care.

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1. INTRODUCTION

Diabetes mellitus remains one of the most prevalent chronic health conditions worldwide and poses a significant challenge not only in clinical care but also in nursing education. Globally, the epidemiological burden of its complications has escalated, with recent multi-country analyses indicating that the global prevalence of diabetic foot ulcers (DFU) among individuals with diabetes currently ranges between 5.5% and 6.3%, while the lifetime incidence tracks as high as 19% to 34% (Aljohary et al., 2025; Hashempour et al., 2024). This escalating prevalence translates into an immense economic strain, with modern cost-modelling estimates showing that DFU management accounts for nearly one-third of all direct diabetes-related healthcare expenditures globally, driven primarily by prolonged wound treatments and frequent hospital readmissions (Chitca et al., 2025). Furthermore, up to 20% of active DFUs ultimately progress to lower-extremity amputations, resulting in severe clinical outcomes and a five-year mortality rate exceeding 50% (Bodhare et al., 2025; Hashempour et al., 2024). Among its complications, diabetic foot problems—particularly diabetic foot ulcers (DFU)—represent a complex issue that requires nurses to possess strong educational competencies in promoting sustained self-care behaviours. Among its complications, diabetic foot problems—particularly diabetic foot ulcers (DFU)—represent a complex issue that requires nurses to possess strong educational competencies in promoting sustained self-care behaviours.

DFU is associated with chronic wounds, infection, recurrent hospitalisation, and an increased risk of lower-limb amputation, leading to long-term physical, psychological, and social consequences for patients and families (Chitca et al., 2025; Hashempour et al., 2024). Due to their prolonged management and high resource demands, DFUs are widely recognized as high-cost complications that place a substantial burden on health systems and family caregivers (Aljohary et al., 2025; Bodhare et al., 2025). These conditions underscore the need to enhance nursing education strategies that equip nurses to effectively support community-based prevention and self-care.

From an educational perspective, diabetic foot management is fundamentally a learning-dependent practice domain. Effective prevention relies on patients' ability to acquire, internalise, and sustain daily self-care behaviours such as routine foot inspection, hygiene practices, pressure reduction, early symptom recognition, and appropriate follow-up actions. In community health and family nursing contexts, nurses function not only as care providers but also as educators who facilitate learning processes that enable patients and families to translate clinical knowledge into everyday routines (Lopes et al., 2024). However, evidence consistently shows that conventional educational approaches—such as lectures, written leaflets, and one-way counselling—are often insufficient to support long-term behavioural adherence. This limitation reflects an ongoing challenge in nursing education: where behavioural change cannot be achieved through a linear path of knowledge acquisition alone. Grounded in established behavioral change frameworks, such as the Health Belief Model (HBM), Transtheoretical Model (TTM), and Social Cognitive Theory (SCT), sustained adherence is deeply multi-dimensional. These theories underscore that long-term habit formation is actively shaped by complex configurations of perceived severity, emotional engagement, experiential self-efficacy, and social-relational reinforcement over time (Sezgunsay et al., 2025; Zhou et al., 2025).

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Recent developments in nursing and health education research increasingly emphasise that self-care learning in chronic illness is relational rather than individualistic. Qualitative studies demonstrate that patients are more likely to sustain daily self-care practices when learning is supported by emotional encouragement, shared responsibility, and active involvement of family members (Allen, 2025; Barone Cortés, 2025; Mills et al., 2025). Within family and community nursing education, the family is therefore recognised as a key learning partner that reinforces behavioural continuity at home. Nevertheless, the question of how family involvement should be pedagogically structured within nursing education remains open, and approaches vary widely across educational and practice settings.

In parallel, advances in nursing informatics and educational technology have introduced innovative pedagogical approaches aimed at enhancing experiential learning. Digital storytelling—defined as narrative-based video learning that integrates lived experience, emotional expression, visualisation, and reflection—has emerged as a promising educational strategy in nursing education (Kisa & Kisa, 2025; Zainuddin et al., 2020). By presenting clinical knowledge through narratives, digital storytelling allows learners to contextualise information, develop empathy, and engage in reflective meaning-making. For patients managing type 2 diabetes, this narrative methodology is uniquely suitable for overcoming the psychological and practical barriers of daily self-care. Clinically, long-term diabetes management often induces "diabetes distress" and emotional burnout, causing patients to ignore traditional didactic education. Digital storytelling breaks through this resistance by operationalizing the affective-motivational pathway; watching peers share lived experiences reduces stigma, triggers adaptive fear and hope, and helps patients internalize that severe complications could happen to themselves. Practically, diabetic foot prevention requires precise, multi-step procedural skills (such as safe nail trimming, mirror-based inspection, and micro-injury tracking) that cannot be mastered through text alone. Digital stories resolve this by embedding concrete visual modeling within relatable everyday contexts, turning abstract clinical jargon into memorable, actionable habits (Chen & Wu, 2023) (Zhou et al., 2025). While several studies have demonstrated the potential of digital storytelling to improve engagement and learning outcomes, debate remains regarding its capacity to sustain behavioural change when applied in isolation, without structured social or family reinforcement.

Although family-based education (Allen, 2025) and digital storytelling (Kisa & Kisa, 2025) have both been explored within nursing and health education literature, these approaches have largely been examined as separate strategies. To date, there has been limited synthesis that explicitly integrates digital storytelling with family involvement as a coherent educational framework to support diabetic foot self-care in community settings. Crucially, existing systematic and narrative reviews on diabetic foot management have focused almost exclusively on technological functionalities (e.g., mobile app reminders and telehealth tracking) or individual patient adherence metrics, completely overlooking how narrative immersion intersects with relational family systems. No previous review has synthesized the dual operational mechanisms of affective digital engagement paired with family co-regulation loops.

To address this distinct void, this review offers a critical contribution to nursing research by synthesizing empirical evidence through a multidimensional lens, culminating in a newly proposed, newly developed conceptual framework. This framework explicitly maps how digital

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media modeling can be integrated with family accountability structures, grounded in Nursing Science core disciplines (Orem's Self-Care, Watson's Caring Science, and the Sense of Safety Framework). Consequently, this study provides a highly actionable pedagogical pathway, which is particularly relevant for preparing community, family, and holistic nurses to facilitate technology-enhanced, family-centered learning in contemporary nursing practice.

Evidence from nursing education and allied health fields suggests that narrative-based educational interventions can enhance learners' self-efficacy and motivation by activating emotional engagement and reflective learning processes. For example, digital storytelling interventions have been shown to improve self-management confidence in non-diabetic chronic care contexts, indicating that narrative learning may function as an affective–motivational catalyst transferable across nursing education domains (Zainuddin et al., 2020). However, the educational potential of family-based digital storytelling for diabetic foot care has not been comprehensively examined.

Therefore, this narrative review aims to synthesise and critically examine contemporary evidence on family-based digital storytelling as an educational strategy in nursing education to enhance daily self-care competencies in community-based diabetic foot care. This review positions family-based digital storytelling not merely as a digital tool, but as a caring–relational pedagogical pathway that integrates emotional meaning, family co-regulation, and behavioural learning. By situating this approach within the domains of nursing education, community health nursing, family nursing, and nursing informatics, this review seeks to contribute to the development of innovative, family-centred educational strategies in nursing education and practice.

2. METHODS

Narrative Review Approach

This study employed a narrative review approach to enable interpretive integration of evidence across heterogeneous study designs. To ensure methodological rigor and transparent reporting of this narrative format, our layout integrates the SANRA (Scale for the Quality Assessment of Narrative Review Articles) framework and the SWiM (Synthesis Without Meta-analysis) guidelines**.** Narrative reviews are particularly appropriate for synthesising behavioural processes, experiential learning, and meaning-making mechanisms rather than focusing on statistical effect sizes alone (Basheer, 2022; Ferrari, 2015). This approach is especially relevant given that digital storytelling functions simultaneously as an educational intervention and an analytic unit, where narratives themselves convey behavioural meaning.

The review aimed to examine how family-based digital storytelling influences motivation, relational support, and behavioural continuity in daily diabetic foot self-care within community contexts. To enhance transparency and methodological rigour, key stages of the PRISMA framework—identification, screening, eligibility assessment, and inclusion—were applied. Meta-analysis was not conducted due to substantial heterogeneity in study designs, intervention formats, outcome measures, and analytical approaches. This high level of heterogeneity was systematically managed during the synthesis stage by employing the thematic framework proposed by Popay et al. (2006). Rather than aggregating disparate quantitative effect sizes, data were categorized into conceptual matrices based on intervention mechanisms, allowing for the translation of qualitative narratives and quantitative percentages into unified thematic domains (Popay et al., 2006).

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Eligibility Criteria

Studies were selected based on predefined inclusion and exclusion criteria to ensure conceptual relevance and coherence with the review objectives.

Inclusion Criteria

1) Peer-reviewed journal articles published between 2020 and 2025
2) Articles written in English
3) Studies addressing at least one of the following elements: a) digital storytelling or narrative-based education, b) family involvement or family-mediated support, c) diabetes education, or d) community-based diabetic foot self-care
4) Studies reporting behavioural, psychosocial, educational, or self-care–related outcomes relevant to diabetic foot prevention
5) Qualitative, quantitative, and mixed-methods designs, provided they contributed conceptually to understanding behavioural mechanisms or self-care practices

Exclusion Criteria

1) Non-scholarly publications (editorials, letters, commentaries, conference abstracts, or grey literature)
2) Studies focusing exclusively on surgical or pharmacological management without an educational or behavioural component
3) Studies lacking a narrative-based element or family participation
4) Studies conducted exclusively in hospital-based settings, as this review focused on community-based contexts

Quality Appraisa

To ensure the methodological integrity of the included literature, a rigorous quality appraisal process was conducted independently by two reviewers using the modified Critical Appraisal Skills Programme (CASP) checklists (Casp, 2018). Specific CASP tools were matched to each study design (e.g., the CASP Qualitative Checklist for narrative and qualitative studies, and CASP Cohort or RCT tools for quantitative designs). Each study was evaluated across key domains, including methodological appropriateness, data collection rigour, and conceptual relevance to nursing education. Discrepancies in quality scoring between the reviewers were resolved through collaborative consensus. In alignment with narrative synthesis methodology, the quality appraisal scores were utilized to contextualize the evidentiary weight and robustness of the findings during data interpretation, rather than serving as an arbitrary threshold for study exclusion (Popay et al., 2006; Thomas & Harden, 2008).

Information Sources

Literature searches were conducted using the following electronic databases: PubMed, ScienceDirect, and Google Scholar. To systematically control for the inherent broadness, inflation, and potential search bias associated with Google Scholar, the search within this database was strictly confined to the first 10 pages (the top 100 records) sorted by relevance, as relevance and

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academic rigor drop significantly beyond this threshold (Haddaway et al., 2015). Furthermore, records retrieved from Google Scholar were subjected to strict relevance screening and cross-matching against established peer-reviewed indexing databases; all patents, citations without accessible full-texts, non-scholarly gray literature, and predatory publications were automatically excluded during the initial triage phase to ensure data integrity.

To ensure comprehensive coverage of contemporary literature, searches were performed in two sequential phases:
Phase 1: January 2024–February 2025
Phase 2 (update searc): February 2025–December 2025

Additional sources included manual screening of reference lists from eligible articles, citation chaining, and targeted key-author searching to identify potentially relevant studies that may not have been consistently indexed in electronic databases

Searching Strategy

A building-blocks search strategy using Boolean operators was applied across all databases. The core search string was: (“digital storytelling” OR “narrative-based education”) AND (“family-based” OR “family support”) AND (“diabetic foot” OR “diabetic foot ulcer”) AND (“self-care” OR “health education”). Database-specific filters were applied where available, including publication year limits (2020–2025) and English language restrictions. No restrictions were placed on study design to capture a broad range of educational and behavioural evidence. To systematically manage the high methodological and clinical heterogeneity resulting from this inclusive approach, a Narrative Thematic Synthesis guided by Popay et al. (2006) was utilized during the data synthesis stage. Heterogeneous data were managed by grouping studies into distinct conceptual matrices based on their primary operational mechanisms (e.g., individual behavioral adaptation versus relational family systems) (Popay et al., 2006). Statistical outcomes from quantitative designs and qualitative textual findings were iteratively translated into standardized conceptual codes, allowing for an integrative narrative synthesis that explains the overarching educational mechanisms without forcing incompatible statistical pooling.

Article Screening

All retrieved records were exported to a reference management database. Initial screening of titles and abstracts was conducted by the primary reviewer to assess relevance against the eligibility criteria. Articles deemed potentially relevant underwent full-text review to confirm eligibility.

Screening followed a two-stage process:

1) Title and abstract screening
2) Full-text eligibility assessment

Ten full-text articles met all inclusion criteria and were included in the final synthesis. The study identification, screening, and selection process is illustrated using a PRISMA 2020 flow diagram (Figure 1).

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Data Extraction and Critical Appraisal

Data extraction was performed using a structured template capturing: author(s), year of publication, study setting, population, narrative or educational focus, family involvement, and key behavioural findings related to diabetic foot self-care.

Critical appraisal was conducted to assess methodological appropriateness, conceptual clarity, credibility, and relevance to nursing education and practice. A modified Critical Appraisal Skills Programme (CASP) judgement matrix was used for this purpose. Quality appraisal informed interpretation of findings rather than serving as criteria for study exclusion, consistent with narrative review methodology.

Data Syntheis

Data were analysed using narrative thematic synthesis (Basheer, 2022; Popay et al., 2006).

Full-text articles were read iteratively, meaning units related to behavioural learning and self-care practices were coded, and similar codes were clustered into conceptual categories. These categories were subsequently synthesised into overarching thematic domains.

Narrative integration was employed to interpret behavioural mechanisms, relational processes, and educational implications rather than aggregating effect sizes (Mastrokostas et al., 2025). This process resulted in the identification of five major thematic domains describing how family-based digital storytelling supports behavioural continuity in community-based diabetic foot self-care.

3. RESULT

Study Identification and Selection

The literature search identified 117 records across PubMed, ScienceDirect, and Google Scholar. After removing 19 duplicates, 98 articles were screened by title and abstract. Of these, 65 articles were excluded due to a lack of relevance to narrative-based approaches, family involvement, or self-care contexts. A total of 33 full-text articles were assessed for eligibility, and 23 articles were excluded because they did not meet the inclusion criteria (non-narrative, non-family-based, or purely clinical). Ultimately, 10 studies met all inclusion criteria and were included in the narrative synthesis (Figure 1)

The final selection of 10 articles represents a highly focused and rigorous yield, which is directly attributed to the strict intersectional criteria of this review. As detailed in the PRISMA flow diagram (Figure 1), the exclusion of the 23 full-text papers was strictly driven by their lack of multi-concept intersectionality: 9 studies were excluded because they were not family-based, focusing instead on individual-centric care; 7 studies were excluded because they were not narrative-based, relying on conventional pedagogical frameworks; and 7 studies were excluded because they were purely clinical, focusing on surgical or pharmacological outcomes without behavioral components. Because this review strictly required the co-presence of both digital storytelling mechanisms AND active family co-regulation structures within community-based diabetic foot self-care, a significant portion of contemporary literature was disqualified, leaving 10 highly granular, methodologically appropriate papers for final synthesis.

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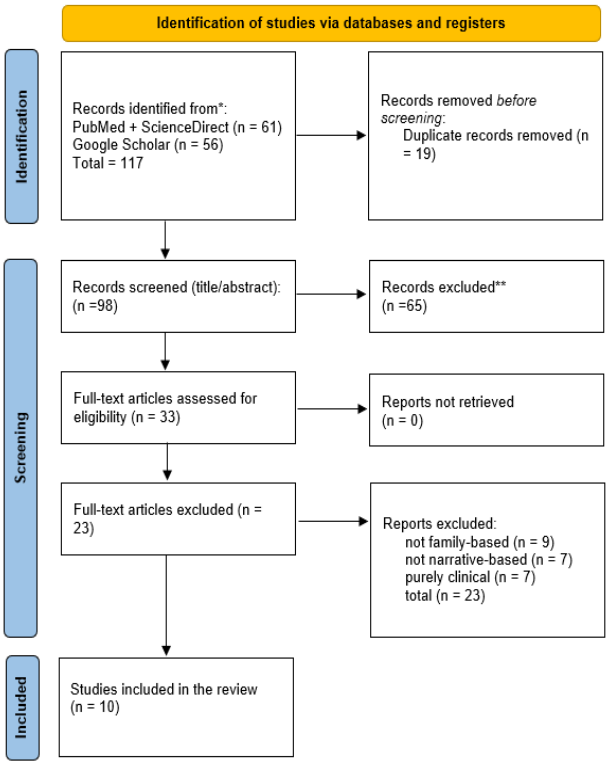

Figure 1. PRISMA Flow Diagram for Study Identification and Selection in the Narrative Review

Characteristics of Included Studies

The main characteristics of the included studies are summarised in Table 1. The studies varied in setting, population, and educational focus, but all highlighted behavioural outcomes related to diabetic foot self-care.

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Table 1. Characteristics of Included Studies on Family-Based Digital Storytelling and Diabetic Foot Self-Care

Descriptive Statistics of Main Variables

No	Author (Year)	Setting	Population	Narrative / Educational Focus	Key Behavioural Finding
1	Ju et al., 2024	Clinic/ Telehealth (USA)	Adults with T2DM	Narrative exploration of foot-care experiences	Emotional triggers and family involvement influenced adherence
2	Yoon et al. (2025)	Community centre (Singapore)	T2DM patients + family	AI storytelling with family module	Family engagement improved discipline and awareness
3	Chen & Wu (2023)	Community (Taiwan)	Older adults with T2DM	Digital foot self-management (self-efficacy based)	Increased self-efficacy and foot-care practices
4	Zamani et al, 2025	Community (DFU)	Adults with diabetic foot ulcers	Psychosocial meaning of foot-care narratives	Relational reinforcement supported behavioural continuity
5	Obilior et al (2023)	Online social media	People with diabetes	Co-designed narrative peer-support module	Narrative peer support increased engagement
6	Simonsen et al (2024)	Clinic (Denmark)	Adults with DFU	Cognitive–narrative literacy profiling	Literacy profiles shaped behavioural styles
7	Zhou eta al (2025)	Mobile application	Community T2DM	Personalised AI narrative education	Improved readiness for self-care behaviour
8	Alsalamah (2025)	Community (Saudi Arabia)	647 adults with diabetes	KAP-based education with narrative elements	Preventive knowledge strongly predicted practice
9	Footing et al (2020)	Multi-country	DFU patients & HCPs	Digital narratives on barriers and facilitators	Effectiveness depended on literacy and context
10	Power et al (2024)	Multi-country	Adults with diabetes	Psychosocial narrative synthesis	Psychological determinants influenced adherence

Thematic Syntheis

To systematically integrate findings across the 10 included studies, a three-stage thematic synthesis was conducted following the methodological framework established by (Thomas & Harden, 2008). In the first stage, two reviewers independently performed line-by-line coding of the primary qualitative findings, verbatim quotes, and quantitative descriptive summaries extracted from the papers. In the second stage, these initial codes were compared, iteratively clustered, and organized into hierarchical sub-themes based on conceptual similarities regarding narrative pedagogy and family-mediated support. In the final stage, these descriptive groupings were translated into higher-order analytical themes through investigative team consensus, directly aligning the extracted data with the review's core objectives.

Consequently, this systematic process generated five overarching themes describing how family-based digital storytelling supports behavioural continuity in community-based diabetic foot self-care. The themes, sub-themes, and supporting studies are presented in Table 2.

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Table 2. Thematic Synthesis of Family-Based Digital Storytelling in Diabetic Foot Self-Care

Theme	Sub-theme	Description	Supporting Studies
Family as co-regulator	Reminders & shared monitoring	Family supports routine and accountability	Ju 2024; Yoon 2025; Alsalamah 2025
Narrative meaning-making	Linking risk to lived experience	Stories internalise the "why" of prevention	Ju 2024; Pouwer 2024
Emotional activation	Fear & hope as motivators	Emotional resonance triggers action	Zamani 2025; Obilor 2023
Procedural modelling	How and when to act	Stories demonstrate daily implementation	Chen & Wu 2023; Zhou 2025; Foong 2020
Behavioural continuity	Habit consolidation	Repetition within family context sustains habits	Yoon 2025; Alsalamah 2025; Simonsen 2024

Description of Themes

Five overarching themes emerged, illustrating how family-based digital storytelling supports behavioural continuity in community-based diabetic foot self-care.

Theme 1: Family as a Co-Regulator of Daily Foot-Care

Behaviour Family members actively supported daily foot-care routines through reminders, monitoring, and shared responsibility, reducing reliance on fluctuating individual motivation.

"My wife mainly is the one checking my feet…" (Ju et al., 2024)

Theme 2: Narrative Meaning-Making as Interpretive Learning

Storytelling enabled patients and families to internalise *why* preventive behaviours matter by linking clinical risk to lived experiences.

"When I saw someone talking about how a small crack became an infection, it made me realise this could happen to me too." (Ju et al., 2024)

Theme 3: Emotional Activation as a Motivational Trigger Narratives elicited emotional responses such as realistic fear of complications and hope for prevention, which stimulated behavioural initiation and maintenance.

"I didn't realise how serious it could get… I don't want that to happen to me." (Zamani et al., 2025)

Theme 4: Translating Clinical Guidance into Daily Practice

Digital storytelling supported procedural modelling, helping patients understand how and when foot-care behaviours should be performed in everyday life.

"After watching the steps, I knew exactly how to do it at home." (Chen & Wu, 2023)

Theme 5: Behavioural Continuity and Habit Consolidation

Sustained foot-care behaviour was reinforced through family-based relational contexts, facilitating long-term habit formation.

"My husband reminds me every night — it becomes like brushing my teeth." (Alsalamah, 2025)

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Summary of Findings

Overall, the findings indicate that family-based digital storytelling operates through emotional, interpretive, and relational pathways to strengthen behavioural continuity and support consistent daily foot self-care in community settings.

4. DISCUSSION

This narrative review highlights that effective community-based diabetic foot prevention is not primarily determined by the amount of information delivered, but by how nursing education and care interventions enable patients and families to translate clinical advice into consistent daily self-care routines. Preventive behaviours such as daily foot inspection, hygiene, pressure reduction, early symptom recognition, and timely follow-up are inherently routine-dependent. Therefore, nursing strategies that strengthen behavioural continuity within the home and community context are essential to reducing diabetic foot ulcer risk and its long-term consequences.

Within this context, family-based digital storytelling emerges as a nursing-relevant educational strategy. Digital storytelling aligns with core principles of nursing education by supporting empathy, meaning-making, and reflective learning. When stories are shared and interpreted together with family members, they create a supportive learning environment that enhances self-efficacy, motivation, and readiness for action—key determinants of sustained self-care in community settings (Deng et al., 2024). The reviewed literature demonstrates that digital health interventions in diabetes care produce mixed outcomes. While mobile health applications offer accessibility and scalability, their effectiveness is highly dependent on engagement quality, health literacy, and the presence of supportive interpersonal systems. Interventions that rely solely on information delivery often fail to produce sustained behaviour change (Corsica et al., 2025). From a nursing perspective, this finding underscores the limitation of content-focused education and highlights the need for pedagogically grounded approaches that integrate affective, relational, and contextual dimensions of learning.

However, the practical implementation of digital storytelling as a nursing intervention within community contexts faces several critical barriers that must be acknowledged. First, technological structural inequities, such as unstable internet connectivity in rural areas and the lack of device ownership, significantly limit the reach of digital health education (Hoseini, 2024). Second, digital literacy disparities present a substantial hurdle, particularly among older adults with type 2 diabetes who frequently experience cognitive or physical challenges in navigating digital media (Zhang, 2023). Furthermore, individual and relational resistance can impede intervention adherence; patients experiencing severe diabetes distress or burnout may reject narrative-based education as an additional emotional burden (Fisher et al., 2024). Similarly, deeply entrenched dysfunctional family dynamics or low family readiness can trigger resistance, transforming a well-intended co-regulation strategy into a source of interpersonal conflict. Therefore, nurses must ensure that digital storytelling materials are culturally tailored, low-tech, and paired with face-to-face community nursing support to mitigate these digital and behavioral gaps.

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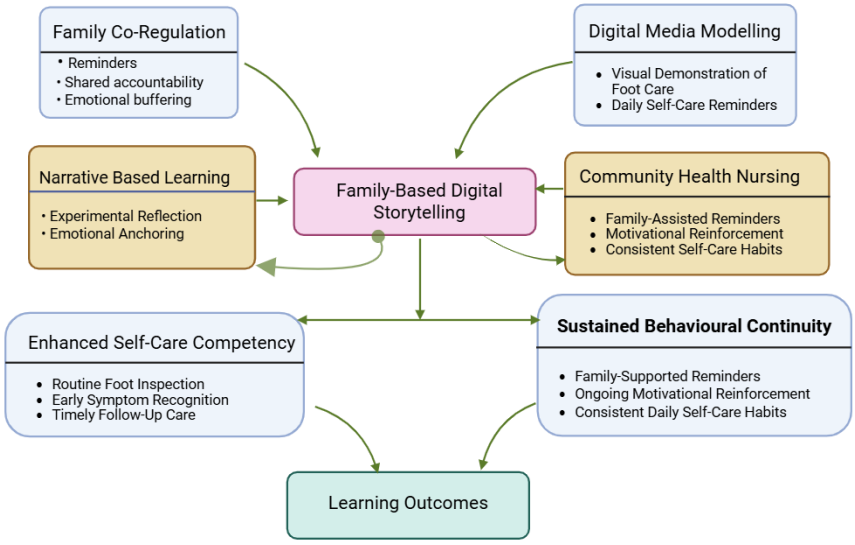

Figure 1. Conceptual model of family-based digital storytelling to enhance daily self-care in community-based diabetic foot care.

As illustrated in Figure 1, family-based digital storytelling functions as an integrative nursing mechanism that links narrative meaning-making, family co-regulation, and digital media modelling to strengthen self-care agency. These mechanisms operate through interconnected pathways—progressing from emotional engagement and shared understanding to practical implementation and, ultimately, behavioural continuity.

Emotional Engagement and Meaning Making

Exposure to digital storytelling serves as an initial trigger for increased attention and emotional engagement. Narrative-based messages help patients connect preventive information to everyday experiences, making health messages feel more relevant. Unlike traditional didactic education, storytelling helps patients recognise that health risks may also apply to themselves. Evidence from nursing education research indicates that digital storytelling enhances learning engagement, empathy, and reflective thinking (Deng et al., 2024). However, its impact depends on cultural appropriateness and digital literacy. For this reason, narrative-based digital education is more effective when embedded within family- and community-based nursing interventions (Kisa & Kisa, 2025).

Family Co-regulation and Shared Accountability

The second component positions the family as a co-regulator of daily self-care behaviours by providing reminders, practical assistance, and emotional support. This reflects recent developments in digital health that integrate family-based modules to support everyday adherence rather than relying solely on individual responsibility. Evidence from AI-enabled family support modules demonstrates that shared reminders make adherence cues feel more concrete and collaborative (Yoon et al., 2025). Furthermore, sustained self-care behaviours depend on enabling conditions rather than knowledge alone (Sezgunsay et al., 2025). Family involvement operationalises these conditions by embedding encouragement and shared accountability into everyday home routines.

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Procedural Modelling and Contextual Cues

Digital storytelling embeds procedural modelling—demonstrating concrete steps of foot care—and contextual cues that anchor behaviours to familiar daily moments. Many patients struggle due to uncertainty about *how* and *when* to implement recommended practices. Visually engaging digital approaches enhance retention and reflective processing among learners (Dodson & Thompson-Hairston, 2025). This underscores the importance of narrative-based strategies that support patients' practical understanding, moving beyond technical instruction toward sustained daily practice (Kleib et al., 2024).

Behavioural Continuity and Habit Consolidation

The final component emphasises behavioural continuity, whereby repeated daily actions gradually become habitual. The model proposes that continuity is strongest when narrative meaning (motivation) and family co-regulation (support) operate together. This aligns with broader literature showing that sustained effects are likely when digital interventions incorporate interactive features for ongoing engagement (Corsica et al., 2025). Effective diabetic foot prevention requires maintenance mechanisms to ensure that daily foot-care practices consolidate into durable habits (Edgren et al., 2025).

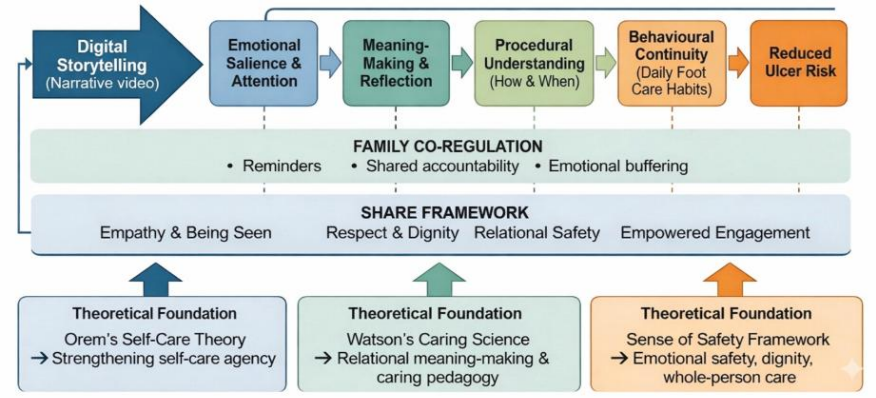

Figure 2. Theoretical Grounding of the Family-Based Digital Storytelling Conceptual Model in Nursing Science

Theoretical Integration

As illustrated in Figure 2, the proposed model integrates Orem's Self-Care Deficit Nursing Theory and Watson's Caring Science to support sustained daily foot self-care.

Orem's Self-Care Deficit Nursing Theory targets self-care agency—the capacity to initiate and sustain health-maintaining actions. The model strengthens self-care agency through narrative-based learning (enhancing self-efficacy) and family co-regulation (providing compensatory support). Recent interventions consistently demonstrate that supportive–educative systems improve self-care outcomes by aligning demands with individual capabilities (Eriyani et al., 2025; Olorunfemi et al., 2025).

Watson's Caring Science provides the relational foundation explaining *why* behaviour is sustained. Caring is positioned not merely as a skill, but as a meaning-centred learning process

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(Horton-Deutsch & Watson, 2025). Family participation amplifies this by creating a shared interpretive environment that supports reflection and dignifies the patient's experience. This relational context transforms preventive foot care from an individual burden into a shared caring commitment (Esquivel-Garzón et al., 2025).

The model is conceptually grounded in the SHARE framework, which operationalises humanistic nursing values—empathy, dignity, and relational safety. This aligns with the *Sense of Safety Theoretical Framework* and recent work on dignity-conserving care (Grassi et al., 2024; Lynch et al., 2025) . Taken together, Orem's theory explains how self-care capability is strengthened, while Watson's Caring Science and the SHARE framework explain how emotional meaning and relational safety sustain behaviour over time.

5. CONCLUSION

This narrative review confirms that family-based digital storytelling is a highly effective, pedagogical nursing approach to promoting sustained behavioral continuity in community-based diabetic foot self-care. Rather than merely delivering clinical facts, this strategy successfully converts information into daily habits by activating emotional resonance, utilizing families as operational co-regulators, and modeling concrete, real-world self-care procedures.

These findings carry immediate implications for nursing education, signaling a need to integrate family-centered digital pedagogy into community health, family nursing, and nursing informatics curricula. By training future nurses to design and facilitate narrative-based digital interventions, healthcare systems can improve patient engagement and outcomes.

Future research should move beyond conceptual synthesis toward longitudinal, empirical evaluation—specifically through randomized controlled trials—to investigate the direct clinical efficacy, digital access adaptations, and long-term sustainability of family-mediated storytelling tools across diverse community settings.

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