Review

Implementation Strategies for Digital Nursing Technologies in Home Care: Scoping Review

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Abstract

Background: Digital nursing technologies (DNTs) have the potential to improve the quality and continuity of home care by supporting nurses, care recipients, and informal caregivers. Despite growing research on DNTs, the home care setting remains underrepresented, particularly regarding implementation strategies using an established implementation science framework. Therefore, this scoping review systematically maps implementation strategies for DNTs in home care using the Expert Recommendations for Implementing Change (ERIC) framework.

Objective: We aimed to identify and map ERIC implementation strategies proposed or used for DNTs in home care. Additionally, we aimed to derive operationalized practical recommendations for decision-makers and implementation practitioners in nursing services.

Methods: We conducted a scoping review with a systematic literature search in MEDLINE via PubMed, CINAHL via EBSCO, and Scopus via Elsevier in March 2025, with an updated search in July 2026. Guided by the PCC (Population, Concept, and Context) framework, we included primary studies and study protocols that addressed the implementation of a DNT in home care and were published between 2015 and 2026. We excluded studies from other health care settings, technologies not related to nursing, concept papers, and reviews. Data charting was conducted in MAXQDA 24 (VERBI Software) using deductive content analysis. We applied and operationalized the 73 ERIC implementation strategies to define our deductive category system.

Results: A total of 22 articles with 18 distinct DNTs were included in this review. Most of them are implementation studies conducted in Europe and published in 2022. Most DNTs focused on home care using sensor-based monitoring and telehealth solutions for people with dementia, chronic conditions, or palliative care needs. Additional DNTs included mobile apps for symptom monitoring, decision-support systems, communication platforms, and a robotic medication management system. Deductive analysis based on the ERIC framework identified 48 of 73 implementation strategies across the included DNTs. The most frequently reported ERIC strategies were: conduct educational meetings (n=14), promote adaptability (n=14), conduct ongoing training (n=9), and train-the-trainer (n=9). The identified ERIC implementation strategies showed high heterogeneity across the included DNTs.

Conclusions: These frequently reported ERIC implementation strategies may function as a multifaceted implementation strategy. However, they need to be empirically evaluated regarding their feasibility, appropriateness, and effectiveness for the implementation of DNTs in home care. In addition, researchers should ensure transparent reporting of implementation strategies by explicitly operationalizing them and applying established frameworks, such as the ERIC framework, to facilitate comparability across studies. Finally, practical guidance derived from ERIC implementation strategies should be specified

in greater detail, including information on how, when, and for what duration individual implementation strategies should be applied.

Trial Registration: OSF Registries osf.io/dsrh8; https://osf.io/dsrh8/overview

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Introduction

Home care is defined as nursing care provided by a nursing service in care recipients' homes. It is well established that demographic changes and rising care needs trigger a cascade of adverse consequences for care recipients if early detection and prevention of changes in their health status are not prioritized [1]. These consequences include, for example, a higher incidence of acute events like falls or heart failure due to missed medication intake, which in turn leads to hospitalization and increased care.

It is considered that digital nursing technologies (DNTs) in home care can mitigate this cascade of adverse consequences [2,3]. Based on the definition provided by Krick et al [4], DNTs are technologies that directly support nurses in coordinating and providing care by facilitating nursing processes, assessment, nursing interventions, communication, and documentation through digital means. In home care, DNT may additionally support care recipients in maintaining independence, self-determination, and self-management, as well as assist informal caregivers in coordinating and providing informal care. Examples include monitoring technologies, wearables, telenursing systems, robotic and digital care assistants. Furthermore, DNT can be used for professional education and training of nurses as well as within academic nursing education [5].

Numerous DNTs have been developed and examined across various studies [5,6]. For example, Schlicht et al [6] conducted an umbrella review to provide an overview of investigated digital technologies. The authors reported 213 studies, most of which examined information and communication technologies (n=118), followed by telecare technologies (n=43) and robotics (n=38). They also reveal that only a small number of reviews (n=14) focus on home care settings [6]. Krick et al [5] reached a similar conclusion. In their scoping review mapping the research landscape of DNT across nursing settings, only 48 of the 175 included studies focused on DNTs used in home care provided by nursing services. These findings indicate that home care remains an underrepresented research setting in the field of DNTs [5].

However, to harness the full potential of DNTs in home care, a structured and carefully planned approach for integrating them into nursing practice is essential [7]. An evidence-based instrument to facilitate the adoption and implementation of DNTs in home care is implementation strategies, which are defined as methods to foster the adoption, implementation, and sustainability of a particular innovation [8].

Previous evidence syntheses on DNTs have primarily focused on implementation determinants, such as barriers and facilitators that influence adoption and implementation [9,10].

For example, Walzer et al [9] conducted an umbrella review to identify barriers and facilitators in various nursing settings on the implementation of DNTs. In the included 65 articles, they identified 52 influencing factors with the Nonadoption, Abandonment, Scale-up, Spread, and Sustainability (NASSS) framework [11]. Based on the identified facilitators and barriers, they drew conclusions and derived practical implications for practice. Likewise, Oudbier et al [10] synthesized evidence on barriers and facilitators related to the implementation of specific DNTs, like remote monitoring, consultation, and care platforms across various health care settings from the perspective of different health care professionals. Thereby, they did not apply any framework from implementation science. However, they also infer several practical implications, referred to as implementation strategies, from their results [10].

Although existing reviews provide important insights into barriers and facilitators of DNT implementation, they offer limited evidence on practical implementation recommendations for home care. Furthermore, it remains unclear whether these recommendations constitute implementation strategies and are transferable to the home care context. As a result, knowledge about which implementation strategies are currently proposed or used in home care remains limited.

Therefore, an established implementation science framework is needed to systematically map implementation strategies proposed or used for DNTs in home care. The Expert Recommendations for Implementing Change (ERIC) framework provides a standardized, evidence-based taxonomy comprising 73 discrete implementation strategies organized into 9 thematic clusters [12,13]. The framework enables researchers to operationalize implementation strategies according to the specific implementation context, target population, and type of innovation [13]. Furthermore, its precisely defined strategies facilitate the standardized description and comparison of implementation approaches [8]. Applying the ERIC framework can also help identify which implementation strategies have been frequently investigated and which remain underexplored.

From an implementation science perspective, such an overview of implementation strategies proposed or used for DNTs in home care would enable researchers to conduct rigorous investigations of their effectiveness.

From an implementation practitioner's perspective, it would support the planning and facilitation of adoption

and sustained use by providing actionable implementation strategies.

Therefore, the aim of this review is to identify implementation strategies proposed or used in home care for DNTs using the ERIC framework.

Consequently, we formulated the following research question:

Which implementation strategies are proposed or used for the implementation of digital nursing technologies in home care?

Methods

Study Design

We applied the scoping review approach by Peters et al [14] based on the Joanna Briggs Institute (JBI) methodology to investigate the research questions. Since the existing literature on the current topic is heterogeneous, we aim to systematically map the existing evidence on implementation strategies proposed and used for DNTs in home care for science and practice by applying the ERIC framework [13]. We therefore applied the 73 discrete implementation strategies to develop a reliable deductive coding system. This approach enabled the standardized classification of proposed and used implementation strategies for DNTs in home care [8]. By applying the ERIC taxonomy [13], we were able to identify and categorize specific implementation strategies reported in the studies included in our scoping review. In addition, the detailed definitions and guidance provided by Powell et al [13] facilitated the operationalization of each strategy according to the respective implementation context, target population, and intervention type.

To ensure transparent and comprehensive reporting of the methodological procedures and study findings, we followed the PRISMA-ScR (Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews) guideline [15] (Checklist 1).

Further, we preregistered our scoping review protocol on April 4, 2025, in the Open Science Framework (OSF) [16].

Inclusion and Exclusion Criteria

To operationalize the research question and define our inclusion and exclusion criteria, we applied the PCC (Population, Concept, and Context) framework [14].

According to this framework, nurses and care recipients were identified as the primary target population of this review. DNTs were considered the first concept of interest if they had been developed to support nursing processes, nursing interventions, or the monitoring of nursing-related phenomena. Eligible DNTs were required to involve nurses and could additionally include care recipients, family members, informal caregivers, and other health care professionals, such as physicians.

Articles were excluded if they did not explicitly focus on DNTs proposed, implemented, or used by nurses in home care settings, or if they were specifically designed to support informal caregiving without describing a role for nurses. Studies conducted in settings other than home care, such as rehabilitation clinics, outpatient clinics, or ambulatory care centers, were also excluded.

The second concept of interest comprised implementation strategies that were either proposed or actually used to adopt, implement, and sustain DNTs in home care settings (Context).

Furthermore, we included study protocols and primary research articles that described the proposed application of implementation strategies or their actual use in the implementation of a DNT. Eligible articles were published in English or German between 2015 and 2026. Conference abstracts, conceptual papers, and nonpeer-reviewed publications were excluded.

Notably, during the initial stage of the literature screening process, review articles were included for backward citation searching of their reference lists. Following this process, the reviews were excluded and were therefore not included in the data extraction.

For further information on predefined inclusion criteria, see Table 1.

Table 1. Predefined inclusion criteria.

Component	Inclusion criteria
Population	• Nurses and older, frail care recipients, as well as, where applicable, their family members and informal caregivers. Additional stakeholders could include other health care professionals, such as physicians and physical therapists.
First concept of interest	• DNTs[a] that support nursing care processes, including assessment, monitoring, providing nursing interventions, communication, documentation, care coordination, and care recipients' self-management.
Second concept of interest	• Any kind of description of a planned or completed implementation of DNTs in home care by providing information about proposed or used implementation strategies.
Context	• Home care in which care is provided by a nursing service in the care recipient´s home.
Evidence sources	• Any kind of article that reports on planned implementation/evaluation or completed implementation/evaluation of DNT in home care. The articles have to provide information about proposed or used implementation strategies. Study types included: study protocols, implementation/evaluation studies, feasibility studies, qualitative studies, and observational studies.

Component	Inclusion criteria
Other	• Languages: German and English • Year: from 2015 to 2026 • Type of article: peer-reviewed articles published in scientific journals

[a]DNT: digital nursing technology.

Information Sources and Search Strategy

We applied a sensitive search strategy to identify all potentially relevant articles addressing the research question. To this end, we conducted a systematic literature search in 3 databases that were appropriate for the scope of this review: MEDLINE via PubMed, CINAHL via EBSCO, and Scopus via Elsevier. First, 1 researcher (DKS) conducted an initial search of the 3 databases to identify relevant synonyms based on the PCC framework and the inclusion criteria [14]. After developing the search strategy for MEDLINE via PubMed, a second researcher (MD) independently verified it using the Peer Review of Electronic Search Strategies (PRESS) guideline [17]. Subsequently, DKS adapted the search strategy for CINAHL and Scopus according to the specific requirements of each database. Multimedia Appendix 1 presents the final electronic search string applied in the 3 databases, PubMed via MEDLINE, including all filters used in accordance with the eligibility criteria described in Table 1. The systematic literature search was conducted in March 2025 across all 3 databases, with an updated search performed in July 2026. In addition, we screened the reference lists of included reviews through backward citation searching to identify potentially relevant studies. We also conducted forward citation searching in Google Scholar to capture additional eligible articles [18]. To ensure transparent and comprehensible documentation of the systematic literature search and supplementary search methods, we used the web-based RefHunter tool [19]. A complete description of the procedure, including all developed and final search strings is in Multimedia Appendix 2.

Selection of Sources of Evidence

The identified articles were imported into CITAVI (version 6.19; Lumivero, formerly Swiss Academic Software) and subsequently uploaded to the online screening tool Rayyan (Rayyan Systems Inc) [20]. Using Rayyan, all duplicate articles were identified and removed.

The first step of the screening process involved training MD on the screening procedures and eligibility criteria (Table 1). During this training phase, agreements were reached regarding the labeling of excluded articles, the identification of relevant review articles, and the procedure for handling uncertainties.

In the second step, 2 reviewers (DKS and MD) independently conducted the title and abstract screening using the blind mode in Rayyan. Articles for which eligibility–based on the predefined inclusion criteria (Table 1)—could not be determined were labeled as "maybe."

In the third step, all articles labeled as "maybe" were discussed by DKS and MD and reassessed based on the inclusion and exclusion criteria as well as the scope of the review. As all uncertainties were resolved through discussion, consultation with a third independent reviewer (RK) was not required.

The fourth step consisted of conducting the full-text screening using the same procedure. To illustrate the article selection process, including the reasons for article exclusion, we used the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram proposed by Page et al [21]. Because an updated literature search was conducted, the PRISMA flow diagram was revised accordingly, and the version specifically designed for updated systematic literature searches was applied

Data Charting Process

All included articles were imported into MAXQDA (Version 24) for data extraction, which was conducted in 2 stages. First, general study characteristics were extracted by 1 researcher (DKS) using a predefined data extraction template (Table 2). These data included, for example, the target population of the respective DNTs, the particular DNT itself, and involved interest holders.

Table 2. Predefined data items that were extracted from the included articles.

Data item	Content
General information	• Author (complete name) • Publication date (month/year) • Country • Context (eg, nursing service and home care) • Study design • Study aim
Participants	• The target population of the digital technology (eg, nursing staff or care recipients, including their medical/nursing characteristics, like people with symptoms of dementia) • Interest holder in the implementation process of digital nursing technologies
Intervention	• Digital nursing technology applied in home care

Primarily, DKS performed the data extraction in MAXQDA in 2 iterations. Data on general study characteristics and DNTs are reported in the Results section and Multimedia Appendix 3.

Second, we performed a deductive content analysis [22] using the 73 discrete implementation strategies from the ERIC framework [13] as a priori categories. To adapt and operationalize these categories for the implementation context and target population of DNTs, we followed the methodological approach proposed by Kuckartz and Rädiker [22]. Specifically, all implementation strategies were defined according to established procedures for category development and category description to ensure a consistent and transparent coding process.

An example of a complete category definition and description for the implementation strategy “Intervene with care recipients and consumers to enhance uptake and adherence” *is* provided in Table 3.

Table 3. An example illustrating the development of the deductive categories, which were operationalized according to the implementation strategies defined by Powell et al [13].

Label of the category	Intervene with care recipients and users to enhance uptake and adherence
Description of the content	Development of methods to strengthen stakeholder engagement, facilitate feedback for problem-solving, and promote adherence and uptake.
Application of the category	For example, maintaining regular communication with stakeholders to gather insights on effectively integrating a telehomecare program and thereby improving adherence.
Example for application	"As such, continued dialogue and knowledge exchange among and between stakeholders surrounding how to best integrate the Telehomecare program across local and regional contexts needs to occur (Hunting et al [23])

The entire category system is in Multimedia Appendix 4.

One researcher (DKS) was primarily responsible for developing the deductive coding system in MAXQDA 24. To ensure a consistent understanding and clear differentiation among the individual deductive categories, a second researcher (MD) independently reviewed and validated the coding framework. Following revisions made by DKS, the finalized coding system was applied in the first round of deductive content analysis of the included studies.

After DKS completed the initial coding process, MD independently reviewed the coding of 4 randomly selected articles [24-27]. The 4 independently reviewed articles served as calibration cases to assess the consistent application of the deductive coding framework and to identify potential ambiguities in category interpretation.

The coding results were subsequently discussed by DKS and MD, and any ambiguities or discrepancies were resolved through consensus. The entire process was documented in a project logbook within MAXQDA 24 (VERBI Software GmbH, Berlin, Germany). Consultation with a third reviewer (RK) had been planned in the event that disagreements could not be resolved through discussion; however, this was not necessary.

Subsequently, DKS conducted a second round of the data analysis to further enhance the rigor and consistency of the coding process. In addition, preliminary findings were presented at a national conference on health services research to obtain external feedback and to support the validation of the results [28]. The feedback received was documented in the project logbook and subsequently discussed among DKS, MD, and RK.

To synthesize and present the findings of this scoping review, we developed a structured data presentation template (our published scoping review protocol [16]). This template includes all identified implementation strategies from the ERIC framework [13], organized according to the thematic clusters proposed by Waltz et al [12] The implementation strategies are presented in relation to the respective DNT with which they were associated. Furthermore, the main text highlights and describes the most frequently identified and reported implementation strategies within each thematic cluster.

Ethical Considerations

Ethical approval was not necessary based on the literature review approach.

Results

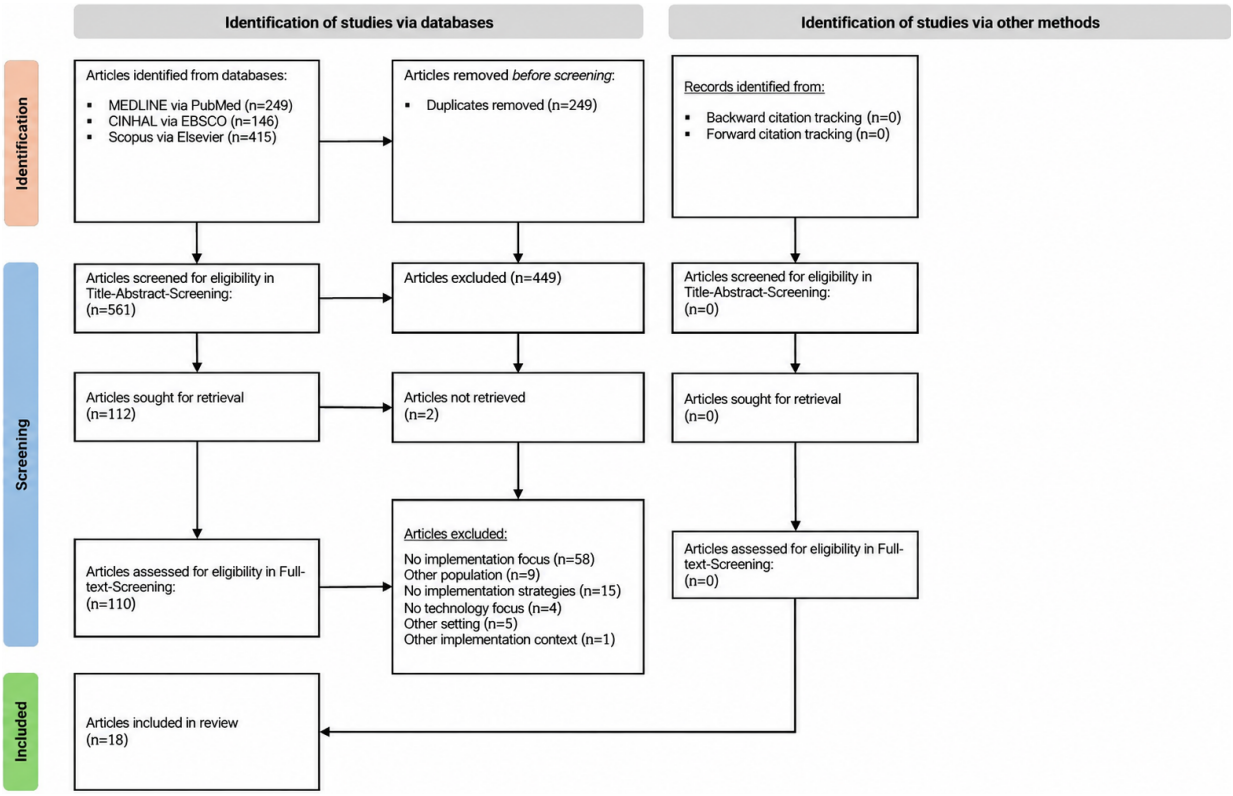
Overview

The systematic literature search yielded 561 records (including review articles) after duplicate removal. During the title and abstract screening, 449 records were excluded. In addition, 2 full-text articles could not be retrieved. Consequently, 112 articles were assessed for eligibility through full-text screening.

Based on the predefined exclusion criteria, 110 articles were excluded, primarily because they lacked a focus on implementation strategies or were conducted in settings other than home care. During the full-text screening stage, the included review articles were used for backward citation searching of their reference lists.

Ultimately, 18 articles [23-27,29-41] met the eligibility criteria and were included in the data extraction process. Neither backward nor forward citation searching identified any additional eligible articles during the initial review process (Figure 1).

Figure 1. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram of the article selection process, Page et al [21].



With the updated systematic literature search conducted in July 2026, 4 additional eligible articles [42-45] were included in the data charting process.

Study Characteristics

Our systematic literature search identified 22 articles from 18 studies. Three of the 18 studies are study protocols [24,29,30], each linked to a single study, whereas one does not present results yet [24].

Most of the primary studies and study protocols focused on implementation studies (n=9) [23,25,26,31-35,42-44], addressing barriers and facilitators to implementation, strategies to overcome barriers, and stakeholder engagement. Five studies reported feasibility findings, including acceptability and usability of DNTs [27,36-39]. One article presented feasibility results within a randomized controlled trial (RCT), and 2 reported RCT outcomes on DNT effectiveness [40,45].

Most articles were published in 2022 (n=7) [25,32,33,38,39,42,43], 2025 (n=4) [40,44-46], 2024 (n=3) [26,31,35], and 2023 (n=4) [24,33,34,42,43] with publication activity increasing since the onset of the COVID-19 pandemic in 2021. In addition, most of the studies were conducted in Europe (n=9) [24,25,31,37,39,41,42,44], such as in Sweden, Norway, the Netherlands, and Switzerland, followed by the USA (n=4) [31,39,41]. A small number of scientific investigations were performed in Canada (n=2) [23,30], Taiwan (n=2) [26,35], and Australia (n=1) [33]. Detailed study characteristics are presented in the General Information section in Multimedia Appendix 3.

Digital Nursing Technology Overview

Across the 22 included articles, 18 distinct DNTs [23,25-27,29-36,38,39,41,42,44,45] were identified. The DNTs differed substantially in terms of functionality, purpose, technological maturity, and terminology. For descriptive purposes, the 18 DNTs were clustered into thematic categories based on the components reported by the respective study authors.

Remote Home Care DNT

We identified 10 DNTs that can be classified as remote home care technologies. Four of these technologies specifically target people with dementia and their relatives by providing condition-specific support, such as the smart vest with integrated sensors [35] and the FamTechCare intervention [27,29]. FamTechCare is a telehealth video-monitoring system that enables informal caregivers to record challenging situations in the home environment and receive expert feedback from specialized nurses [27,29]. Similarly, the customized care platform stores physiological and behavioral data from people with dementia, enabling home care nurses to remotely review and monitor these data [34].

Wrede et al [25] describe an unobtrusive monitoring (UM) system that continuously tracks comparable parameters using wearable devices and cameras.

Another remote home care DNT, the Behavioral and Environmental Sensing and Intervention for Cancer (BESI-C) system, focuses on the remote monitoring of physiologi-

cal parameters and pain-related activities among individuals experiencing cancer-related pain [38].

A similar approach for palliative home care is described by Oelschlägel et al [31,37], who report the use of medical devices, such as blood pressure monitors and pulse oximeters, combined with communication options including telephone calls and digital messaging. The Telehomecare program further incorporates self-management support for individuals with chronic obstructive pulmonary disease (COPD) and heart failure (HF) [23].

A further DNT is designed for care recipients with chronic wounds receiving care at home. Based on the principles of telenursing, it provides education, guidance, and professional support through remote home visits [46].

Finally, 3 DNTs are not tailored to a specific health condition but are intended for older adults (≥65 years) living at home and receiving formal care. These DNTs include sensor-based monitoring systems [30,40], social alarms [41], and home-integrated warning systems [35]. All are designed to detect unusual activities and trigger alerts when necessary. In contrast to the automated monitoring systems, social alarms require care recipients to actively request assistance by pressing a button on a wearable device, such as a necklace or wristband [41].

App-Based DNTs

Two of the 18 DNTs can be classified as app-based technological innovations, each targeting a different group. The Digital RELIEF App (version 3.7; uCarenet Technologies Inc) is designed for palliative care patients, enabling daily symptom reporting [39]. In contrast, the CareHeroes App provides structured information, links to services, and emotional and decision-making support for informal caregivers of individuals with Alzheimer disease [36].

Decision Support DNTs

Three of the 18 DNTs [23,25-27,29-36,38,39,41,42,44,45] were classified as decision-support technologies. One of these was designed to support informal and formal caregivers, as well as other care staff, in making care-related decisions for people with dementia [33]. The other was developed as a remote care assist (RCA) system to facilitate the delivery of care by nursing staff in home care settings [44].

Communication-Focused DNTs

One of the identified DNTs is TalkingMats, an interactive communication tool designed to facilitate communication and engagement among older care recipients [24]. Another identified DNT was the Generation Connect platform (Generation Connect, Inc), which enables formal and informal caregivers of people with dementia to connect with one another and access an integrated app providing evidence-based information [32]. A further communication-focused DNT, Viva, is a digital platform designed to support older adults in maintaining an independent and self-determined lifestyle by providing resources for self-management, health monitoring, and personalized technical assistance [45].

Robotic DNTs

Among the identified 18 DNTs [23,25-27,29-36,38,39,41,42,44,45], a robotic device for medication management was designed for use in home care settings. The technology supported care recipients in adhering to their medication regimens by promoting timely and accurate medication intake [42,43].

Implementation Strategies

Overview

We present the proposed and used implementation strategies identified through the deductive content analysis based on the ERIC framework [13,32], operationalized for home care setting and the DNT according to the thematic clusters proposed by Waltz et al [12,40].

Within each thematic cluster, we describe the most frequently identified and reported ERIC implementation strategies.

In addition, Table 4 provides an overview of the implementation strategies identified for each DNT. Furthermore, the frequency with which each implementation strategy was identified across all included DNTs was calculated. This overview highlights which ERIC implementation strategy was most frequently proposed or applied to support the implementation of DNTs in home care settings.

Table 4. Identified implementation strategies for the respective digital nursing technology.

Implementation strategy [13] and thematic cluster [12]	DNT[a]																		Σ
	Telehome care program [23]	The CareHeroes App [36]	Social alarm [41]	FamTechCare intervention [27,29]	Technology-enabled RPM[b] [30,40]	RHC[c] [31,37]	BESI-C[d] [38]	UM[e] technologies [25]	Digital RELIEF App [39]	Generation Connect platform [32]	"Enabling Choices" Tool [33]	Telemonitoring technology [34]	Talking Mats [24]	iHBMC-program [26]	STA[f] home nursing care program [35]	"Viva"[45]	MS HoloLens 2 [44]	Robot for medication management [42,43]	
Change infrastructure																			
Start a dissemination organization	✓																		1
Change service sites		✓			✓		✓		✓		✓								6
Change physical structure and equipment			✓				✓		✓						✓				5
Change record system												✓		✓	✓				3
Use financial strategies																			
Alter incentive/ allowance structures					✓		✓			✓									4
Access new funding								✓		✓				✓					3
Engage care recipients, formal and informal caregivers																			
Use mass media									✓										1
Prepare care recipients to be active participants				✓	✓				✓		✓	✓			✓				6
Intervene with care recipients to enhance uptake and adherence	✓					✓	✓					✓			✓	✓			6
Involve care recipients and their relatives	✓						✓	✓	✓	✓	✓	✓							7
Support home care team																			

Implementation strategy [13] and thematic cluster [12]	DNT[a]																		Σ
	Telehome care program [23]	The CareHeroes App [36]	Social alarm [41]	FamTechCare intervention [27,29]	Technology-enabled RPM[b] [30,40]	RHC[c] [31,37]	BESI-C[d] [38]	UM[e] technologies [25]	Digital RELIEF App [39]	Generation Connect platform [32]	"Enabling Choices" Tool [33]	Telemonitoring technology [34]	Talking Mats [24]	iHBMC-program [26]	STA[f] home nursing care program [35]	"Viva"[45]	MS HoloLens 2 [44]	Robot for medication management [42,43]	
Create new teams														✓					1
Develop resource sharing agreements					✓			✓											2
Remind care recipients, formal and informal caregivers	✓	✓												✓	✓				4
Train and educate stakeholders																			
Create a learning collaborative	✓					✓				✓									3
Conduct educational outreach visits					✓	✓												✓	3
Conduct educational meetings	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓			✓	✓	✓	✓	14
Use train-the-trainer strategies	✓			✓		✓	✓	✓		✓			✓				✓	✓	9
Distribute educational materials		✓		✓			✓	✓		✓								✓	6
Develop educational materials			✓							✓	✓		✓						4
Provide ongoing consultation						✓	✓	✓	✓						✓				5
Conduct ongoing training				✓		✓		✓		✓		✓		✓	✓	✓		✓	9
Develop stakeholder interrelationships																			

Implementation strategy [13] and thematic cluster [12]	DNT[a]																		Σ
	Telehome care program [23]	The CareHeroes App [36]	Social alarm [41]	FamTechCare intervention [27,29]	Technology-enabled RPM[b] [30,40]	RHC[c] [31,37]	BESI-C[d] [38]	UM[e] technologies [25]	Digital RELIEF App [39]	Generation Connect platform [32]	"Enabling Choices" Tool [33]	Telemonitoring technology [34]	Talking Mats [24]	iHBMC-program [26]	STA[f] home nursing care program [35]	"Viva"[45]	MS HoloLens 2 [44]	Robot for medication management [42,43]	
Promote network weaving	✓		✓	✓	✓	✓	✓	✓				✓							8
Develop academic partnerships	✓	✓								✓	✓	✓							5
Involve executive boards								✓											1
Use advisory boards and workgroups											✓								1
Capture and share local knowledge						✓													1
Conduct local consensus discussions												✓							1
Identify early adopters						✓						✓							2
Obtain formal commitments								✓	✓										2
Build a coalition							✓	✓				✓		✓					4
Inform local opinion leaders	✓		✓							✓	✓								4
Organize implementation team meetings												✓							1
Identify and prepare leaders who foster the	✓				✓				✓		✓	✓						✓	6

Implementation strategy [13] and thematic cluster [12]	DNT[a]																		Σ
	Telehome care program [23]	The CareHeroes App [36]	Social alarm [41]	FamTechCare intervention [27,29]	Technology-enabled RPM[b] [30,40]	RHC[c] [31,37]	BESI-C[d] [38]	UM[e] technologies [25]	Digital RELIEF App [39]	Generation Connect platform [32]	"Enabling Choices" Tool [33]	Telemonitoring technology [34]	Talking Mats [24]	iHBMC-program [26]	STA[f] home nursing care program [35]	"Viva"[45]	MS HoloLens 2 [44]	Robot for medication management [42,43]	
implementation effort																			
Adapt and tailor to context																			
Use data experts		✓										✓		✓	✓				4
Promote adaptability	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓			✓	14
Tailor implementation strategies	✓		✓	✓			✓								✓				5
Provide interactive assistance																			
Centralize technical assistance					✓	✓	✓					✓		✓					5
Provide local technical assistance	✓				✓		✓	✓							✓		✓	✓	7
Use evaluative and iterative strategies																			
Conduct cycle small tests of change				✓				✓									✓		3
Obtain and use feedback from care recipients and their relatives	✓	✓			✓	✓			✓		✓	✓					✓		8
Stage implementation scale up														✓					1
Conduct local need assessment											✓			✓					2
Develop a formal implementation blueprint			✓			v	✓		✓		✓	✓							6

Implementation strategy [13] and thematic cluster [12]	DNT[a]																		Σ
	Telehome care program [23]	The CareHeroes App [36]	Social alarm [41]	FamTechCare intervention [27,29]	Technology-enabled RPM[b] [30,40]	RHC[c] [31,37]	BESI-C[d] [38]	UM[e] technologies [25]	Digital RELIEF App [39]	Generation Connect platform [32]	"Enabling Choices" Tool [33]	Telemonitoring technology [34]	Talking Mats [24]	iHBMC-program [26]	STA[f] home nursing care program [35]	"Viva"[45]	MS HoloLens 2 [44]	Robot for medication management [42,43]	
Develop and organize quality monitoring systems	✓						✓			✓			✓		✓				5
Develop and apply tools for quality monitoring							✓					✓	✓						3
Purposefully reexamine the implementation	✓					✓	✓		✓	✓									5
Audit and provide feedback	✓			✓		✓				✓					✓				5
Assess for readiness and identify barriers and facilitators			✓	✓		✓	✓				✓	✓			✓				7

[a]DNT: digital nursing technology.
[b]RPM: remote patient monitoring.
[c]RHC: remote home care.
[d]BESI-C: Behavioral and Environmental Sensing and Intervention for Cancer.
[e]UM: unobtrusive monitoring.
[f]STA: smart technology-assisted.

(page number not for citation purposes)

Across the 18 included DNTs, the deductive content analysis identified 48 of the 73 ERIC implementation strategies [13,40].

Change Infrastructure

We identified 4 of the 8 ERIC implementation strategies within this thematic cluster.

The 2 most frequently identified strategies were (1) change service sites, which was identified for 6 DNTs [25,30,31,33,37,39,40], and (2) change physical structure and equipment, which was reported for 6 DNTs [25,26,31,34,37,39].

The strategy change service sites was identified in studies where the context, setting, or mode in which a technology was delivered required adaptation. For example, Lin et al [35] evaluated modifications to the implementation and use of a smart vest to ensure its suitability within the intended care setting.

Furthermore, the implementation of DNT often required adaptations to the physical infrastructure and technical equipment needed to support their use. Accordingly, the strategy change physical structure and equipment included the implementation of the social alarm [41] and the unobtrusive monitoring system described by Wrede and colleagues [25].

Use Financial Strategies

Out of the 9 financial implementation strategies in the ERIC framework, 2 were identified in the included DNTs: (1) alter incentive/allowance structures and (2) access new funding. Access new funding was reported when additional financial resources were required to support the implementation of a DNT. For example, project consortium partners covered the costs of hardware components, such as the medical devices required for technology-enabled remote patient monitoring (RPM) [30,40].

In contrast, the strategy to alter incentive/allowance structures was reflected in the use of existing funding mechanisms and financial support programs. For instance, the implementation of the Generation Connect platform relied on available governmental funding opportunities to support its adoption and use [32].

Engage Care Recipients and Formal and Informal Caregivers

All 4 implementation strategies within this cluster were identified in the included DNTs. The strategy Prepare care recipients to be active participants was identified in 6 DNTs [27,29,30,33-35,39,40]. This strategy involved preparing and motivating care recipients prior to the adoption and use of a DNT to encourage active participation in needs assessment, feedback provision, and the communication of concerns. Examples are the FamTechCare intervention [27,29] and the Digital RELIEF App [39].

Similarly, the strategy involve care recipients, formal and informal caregivers was identified for several DNTs [25,31-34,38,39]. This strategy was reflected in efforts to engage care recipients and their relatives before implementation began, thereby ensuring that their needs and preferences were considered during the implementation process. Examples included the telemonitoring technology described by Liljeros and Arkkukangas [34] and the Enabling Choices Tool developed by Meyer et al [33].

During the implementation process itself, the strategy Intervene with care recipients to enhance uptake and adherence was identified for 6 DNTs [23,31,34,35,37,38,45]. This strategy included obtaining feedback on the use and acceptability of DNTs and addressing barriers to continued use. For example, it was applied in the Telehomecare program described by Hunting et al [23] and in the implementation of the smart vest evaluated by Lin et al [35].

Support Home Care Team

Within this cluster, 3 of the 5 ERIC implementation strategies were identified: (1) create new teams [26], (2) develop resource-sharing agreements [25,30,40], and (3) remind care recipients, formal and informal caregivers [23,26,35,36].

The most frequently identified strategy within this cluster was reminding care recipients and formal and informal caregivers, which was reported for 4 DNTs [23,26,35,36]. This strategy involved reminding care recipients, formal caregivers, and informal caregivers to perform specific actions related to the use of a DNT. Examples included reminders to wear the smart vest with integrated sensors [35] and to update and actively use the CareHeroes App [34].

Train and Educate Stakeholders

The most frequently identified implementation strategy within this cluster was to conduct educational meetings (N=14) [23,25,29,31-36,38,39,41,42,44,45]. Educational meetings were conducted with relevant stakeholders involved in the implementation of DNT, including nurses, technicians, clinicians, and care recipients. For example, during the implementation of the BESI-C system, stakeholders met with care recipients in their homes before the technology was adopted and used [38]. These meetings served not only to install the technology but also to provide education and information regarding its operation and intended use.

Educational efforts frequently extended beyond the initial implementation phase through the strategy of conducting ongoing training, which was identified for 9 DNTs [25,26,29,31,32,34,35,37,42,43,45]. This strategy involved providing continued support and training to ensure the effective and sustained use of DNTs. For instance, Gilson et al [32] reported that follow-up sessions were necessary during the implementation of the Generation Connect platform to ensure proper functionality and to provide additional educational support when required. Finally, the strategy train-the-trainer was identified for 9 DNTs [23-25,27,29,31,32,37,38,42-44]; for example, during the implementation of a remote home care intervention evaluated by Oelschlägel et al [31,37], nurses and other health care professionals received training that enabled them to subsequently educate and support care recipients in the use of the technology.

Develop Stakeholder Interrelationships

Out of the 17 implementation strategies included in this cluster, 12 were identified for the included DNTs. The most frequently identified strategy was promote network weaving (n=8) [23,25,27,29-31,34,37,38,40,41]. This strategy involved fostering collaboration and communication among stakeholders involved in the implementation process. For example, during the implementation of technology-enabled remote monitoring systems [30,40], close collaboration with technical staff was necessary to address technical issues that arose in care recipients' homes.

Another frequently identified strategy was to identify and prepare champions, which was reported for 6 DNTs [23,30,33,34,39,40,42,43]. This strategy involved engaging individuals who actively supported and promoted implementation efforts within their home care nursing service. For instance, nurses served as champions during the implementation of the Digital RELIEF App by providing guidance and support when care recipients encountered uncertainties or technical difficulties [39].

In addition, the strategy of developing academic partnerships was identified for 5 DNTs [23,32-34,36]. Unlike promoting network weaving, this strategy involved establishing formal partnerships with universities and research institutions to facilitate collaborative training, provide methodological expertise, and support the implementation process.

For example, during the implementation of telemonitoring technology [34], researchers acted as project leaders and contributed to monitoring and evaluating the implementation process.

Adapt and Tailor the DNT, and the Strategies to the Respective Implementation Context

We identified promote adaptability as the most frequently applied implementation strategy within this cluster (n=14) [23-27,29-31,33,34,36-43]. This strategy involved modifying a DNT or its implementation process to better align with the needs and circumstances of the intended users and care setting. For example, the Digital RELIEF App [39] was evaluated in a feasibility study, in which family caregivers indicated that the technology would be more practical if it were available in formats beyond a web-based app. Based on this feedback, adaptations to the design and delivery of the DNT were considered necessary to improve its fit within the home care setting.

This finding was closely related to the second most frequently identified strategy within this cluster, tailor implementation strategies (n=5) [23,27,35,38,41]. This strategy involved adapting implementation approaches to address the specific needs, preferences, and contextual factors of stakeholders involved in the implementation process.

Provide Interactive Assistance

Within this cluster, we identified 2 of the 4 ERIC implementation strategies: (1) centralize technical assistance (n=5) [26,31,34,37,38,40] and (2) provide local technical assistance (n=7) [23,25,35,38,40,42-44].

The strategy of centralizing technical assistance was identified when responsibility for technical support was assigned to a centralized source. For example, in the implementation of technology-enabled remote patient monitoring, a designated technician managed technical requests, resolved system-related issues, and provided technical solutions [40].

In contrast, the strategy to provide local technical assistance involved providing access to local technical support, often through an IT department within the home care organization, to assist users in resolving technical issues that arose during the implementation and use of the DNT. For example, nurses received reliable support from the internal IT department during the implementation of the robotic medication management system [42,43].

Use Evaluative and Iterative Strategies

We identified obtaining and using feedback from care recipients and their relatives as one of the most frequently reported implementation strategies, appearing for 8 DNTs [23,30,31,33,34,36,37,39,40,44]. This strategy involved systematically collecting and using feedback from care recipients and their relatives to inform the implementation and refinement of DNT. For example, Donelle et al [30,40] administered a survey based on validated instruments to assess outcomes such as satisfaction with passive remote monitoring among care recipients and their relatives, as well as their perceived sense of safety.

Closely related to this strategy was assessing for readiness and identifying barriers and facilitators, which was also identified for 7 DNTs [27,29,31,33-35,37,38,41]. This strategy was proposed or used to explore factors that could support or hinder the adoption and implementation of DNT. For instance, Lin et al [35] conducted interviews to assess participants' concerns, motivations, and needs before implementation and continued these assessments during technology use to obtain feedback and identify opportunities for improvement.

Discussion

Heterogenity of Identified Implementation Strategies

Our scoping review identified the implementation strategies proposed and used to implement DNTs in home care. For each of the 18 included DNTs [23,25-27,29-36,38,39,41,42,44,45], implementation strategies were extracted and analyzed from the corresponding articles. However, when considering all included DNTs collectively, the identified implementation strategies appeared highly heterogeneous.

This heterogeneity may be explained by 3 factors: first, the diversity of examined DNT across the included articles; second, the wide range of study designs represented in those

studies; and third, the home care settings as implementation context itself.

Regarding the DNT diversity, Krick et al [5] attempted to categorize DNT in their scoping review on the acceptance, effectiveness, and efficiency of DNT for formal and informal caregivers across different care settings. They proposed several broad technological categories, including information and communication technologies and robotic systems. However, the authors concluded that establishing clear conceptual boundaries between DNT categories remains challenging due to the considerable diversity and ongoing evolution of DNT. Consistent with these findings, we were unable to identify clear patterns linking specific implementation strategies to distinct categories or types of DNT.

We therefore strongly recommend that future research prioritize the development and refinement of robust and widely accepted classifications of DNT. Such categorization would not only improve comparability across studies but would also support decision-makers and implementation practitioners in navigating the rapidly expanding market of DNT and selecting appropriate ones for specific care contexts.

The heterogeneity of identified implementation strategies may also be explained by differences in study design and research objectives. Notably, relatively few studies applied theories, models, or frameworks (TMFs) from implementation science to address implementation-related research questions [47]. The majority of included studies were classified as implementation studies because they either explicitly used the term implementation or applied implementation science TMFs. Not all of these studies used a specific TMF to guide implementation planning or evaluation. Several studies described the adoption and implementation of a DNT only descriptively. Furthermore, we included effectiveness studies, feasibility studies, and qualitative investigations that retrospectively explored interest holders' experiences with implementing and using DNT, such as robotic medication management systems [42,43]. Consequently, the aims and methodological focus of the included studies varied considerably. This variation likely influenced both the level of detail reported and the transparency of implementation procedures. As a result, it is reasonable to assume that the implementation strategies identified for individual DNT may be incomplete.

Future studies should therefore ensure transparent and detailed reporting of implementation processes, regardless of study design or primary research objective. Such reporting is essential for understanding, reproducibility, and knowledge transfer. Previous research has demonstrated that insufficient implementation quality and low implementation fidelity may not only reduce intervention effectiveness but can also negatively affect important implementation outcomes, including adoption, acceptability, feasibility, and sustainability [48,49].

The third explanation for the inability to provide a comprehensive overview of DNT categories and their associated implementation strategies for decision-makers and implementation practitioners lies in the unique implementation context of home care. Home care is widely recognized as a highly dynamic and individualized setting. As emphasized in implementation science frameworks, contextual factors play a critical role in influencing the adoption and sustained use of innovations [50]. Across the studies included in our review, home care was consistently characterized as a highly individualized environment, as DNTs are implemented and used within the private living spaces of care recipients [51]. Consequently, addressing barriers to the acceptance and use of DNTs may be considerably more challenging than in more structured health care settings, such as hospitals [51].

This observation is supported by Walzer et al [9], who conducted an umbrella review of barriers and facilitators influencing the implementation of DNT using the NASSS framework [11]. Although the authors did not differentiate between implementation contexts, which is a factor known to be critical for implementation success [45], they explicitly acknowledged this limitation. Moreover, based on comparisons with previous research, they suggested that many of the identified barriers may also be relevant across different health care professions and care settings [9]. Prominent barriers included resource constraints, inadequate infrastructure, incompatibility with existing workflows and organizational processes, as well as challenges related to leadership and communication [9].

Frequently Identified Implementation Strategies Across DNTs

Across the included 18 DNTs, the identified implementation strategies varied considerably. However, several implementation strategies were repeatedly identified across these 18 DNTs. This observation prompted us to consider the potential reasons for their frequent occurrence and their implications for the implementation of DNT in home care. To operationalize this process, we established a threshold requiring an implementation strategy to be identified in at least 50% of the DNTs (minimum n=9). Applying this criterion resulted in the identification of 4 frequently occurring implementation strategies: conduct educational meetings (n=14), promote adaptability (n=14), conduct ongoing training (n=9), and train-the-trainer (n=9).

One possible explanation for the frequent occurrence of these strategies is that they may play a particularly important role in facilitating successful implementation and may positively influence implementation outcomes such as acceptability, adoption, feasibility, and sustainability. According to Proctor et al [52], implementation outcomes are intended to evaluate the success or failure of implementation efforts based on the perspectives and experiences of relevant interest holders.

To better understand the potential significance of these frequently identified implementation strategies, our findings can be compared with those reported by Ashcraft et al [53], who conducted a systematic review examining the use, effectiveness, and combinations of ERIC implementation strategies across health and human service settings. In addition to assessing which ERIC strategies were most

commonly tested, the authors investigated how implementation strategies were combined into multifaceted implementation approaches and evaluated their effects using outcomes derived from the RE-AIM (Reach, Effectiveness, Adoption, Implementation, and Maintenance) framework [54]. The review included 129 studies, approximately half of which (50%) were conducted in outpatient settings. Across these studies, the most frequently assessed RE-AIM outcomes were effectiveness (n=82) and implementation (n=73). Notably, conducting educational meetings, which was among the most frequently identified strategies in our review, was also the most frequently evaluated ERIC strategy in the review by Ashcraft et al [53] (n=68). Overall, the authors reported comparatively strong evidence supporting its effectiveness across several RE-AIM outcomes.

The other implementation strategies frequently identified in our review were also examined by Ashcraft et al [53], although less extensively. Promoting adaptability was evaluated in 36 studies, conducting ongoing training in 29 studies, and train-the-trainer in 8 studies. Importantly, these strategies were most often implemented as part of a multifaceted implementation strategy rather than as a single strategy. Consequently, the evidence base for their individual effectiveness remains comparatively limited [53].

Regarding the implementation strategies most frequently identified in our scoping review, these findings suggest that each strategy may function either as a stand-alone implementation strategy for the implementation of DNT in home care or as part of a multifaceted implementation strategy. However, it is important to emphasize that these repeatedly identified implementation strategies have neither been empirically validated nor claimed to represent a comprehensive set of strategies.

As discussed previously, the implementation strategies identified in this review were highly heterogeneous for several reasons, including differences in study design, implementation context, DNT type, and stage of implementation. Ashcraft et al [53] examined the role of ERIC implementation strategies across different phases of the implementation process. With their findings, we can suggest that conducting educational meetings, train-the-trainer, and promoting adaptability are particularly relevant during the preparation phase prior to implementation. In contrast, conducting ongoing training appears to play a more important role during active implementation by supporting the continued adoption and sustained use of a DNT.

At present, the proposed multifaceted implementation strategy may serve as a useful starting point for future implementation research examining its effectiveness in supporting the implementation of DNT in home care. In addition, it may provide decision-makers and implementation practitioners with practical guidance for facilitating the implementation of specific DNT within their nursing services.

Nevertheless, a common criticism of the ERIC implementation strategies is that they lack sufficient specificity and operationalization [8], which may also explain the frequent occurrence of certain implementation strategies in our scoping review. Conversely, less frequently occurring implementation strategies may simply be underreported.

To address the limitation of poorly operationalized and consequently underreported implementation strategies, Proctor et al [8] recommend specifying implementation strategies in greater detail to generate more actionable recommendations for decision-makers, implementation practitioners, and implementation researchers. Such specification is particularly important given the generally low quality of implementation strategy reporting in the included articles. Drawing on these recommendations and their application within the context of our scoping review, we propose the identified multifaceted implementation strategy as actionable guidance for decision-makers and implementation practitioners seeking to support specific implementation efforts.

Based on the findings of this study, several practical recommendations can be derived for decision-makers and implementation practitioners involved in the implementation of DNT in home care. The terminology used was adopted from the ERIC framework to ensure consistency with comparable applications [13].

First, implementation practitioners within the respective nursing service should organize structured educational meetings tailored to the needs and existing knowledge of different interest holder groups. These meetings should be conducted during the preparation phase prior to DNT adoption and should provide interest holders with information about the technology's intended purpose, key considerations for its safe and effective use, and their respective roles and responsibilities throughout the implementation process.

In addition, implementation practitioners should promote adaptability during the preparation phase by identifying which components of the DNT can be tailored to local circumstances, such as staffing structures, care processes, available resources, digital competencies, and the characteristics of the care recipient population. At the same time, the core components of the technology and implementation process should be clearly defined and preserved to ensure implementation fidelity.

Furthermore, implementation practitioners should plan and establish ongoing training opportunities for different stakeholder groups and end users of the targeted DNT. This planning should take place during the preparation phase, while training activities should be offered continuously throughout the implementation process. Ideally, these training opportunities should support the long-term development, retention, and application of the knowledge and skills required for effective technology use.

Finally, implementation practitioners should receive initial training from the DNT provider during the preparation phase prior to implementation to ensure that the technology is used appropriately and effectively. Through a train-the-trainer approach, implementation practitioners can subsequently deliver training and support to other interest holder groups and end users throughout the implementation process, thereby

facilitating the sustainable adoption and integration of the DNT within the nursing service.

Despite these practical recommendations, it is important to note that this multifaceted implementation strategy has neither been empirically evaluated for its effectiveness nor tested in real-world implementation settings.

Limitations

We acknowledge several methodological limitations that should be considered when interpreting these findings.

First, we conducted our systematic search across 3 carefully selected databases and supplemented it with additional search techniques, including backward and forward citation searching [19]. Although we developed the study protocol rigorously and preregistered it on OSF, it remains possible that some relevant publications were not identified.

Second, limited resources precluded independent and parallel data extraction across all researchers. However, several mitigation measures were used to enhance the rigor and trustworthiness of the review process. As described in the Methods section, one researcher (DKS) conducted the data extraction and developed the deductive coding framework, while a second researcher (MD) cross-checked these outputs. In addition, as specified in the study protocol [16], MD independently analyzed a predefined subset of studies. Preliminary findings were also presented at the German Congress for Health Services Research, organized by the German Network for Health Services Research, and were subsequently discussed with an independent researcher (RK) to enhance the credibility of the findings.

Third, we did not conduct a critical appraisal of the included studies. This decision was consistent with the aim of the review, which was to identify and map implementation strategies for DNT in home care rather than to evaluate their effectiveness. However, this methodological decision has important implications for the interpretation of our findings. In particular, the frequency with which individual implementation strategies were identified should not be interpreted as evidence of their feasibility, appropriateness, or effectiveness. Rather, these frequencies reflect how often implementation strategies were reported for the respective DNT. Future systematic reviews focusing on the effectiveness of implementation strategies for DNT in home care should therefore incorporate a formal critical appraisal of included studies.

Several limitations related to the findings themselves should also be considered. Our predefined inclusion and exclusion criteria regarding context, population, and concept may limit the transferability of the findings to other settings and target populations, even in the same home care setting. Furthermore, the considerations discussed earlier regarding the applicability of multifaceted implementation strategies across different types of DNT should be taken into account.

In addition, many DNTs are commercially developed and marketed. As a result, the available evidence may be biased toward DNT that have undergone scientific evaluation and have subsequently been reported in peer-reviewed publications. Differences in study design across the included studies should also be considered when interpreting the identified implementation strategies for specific DNT, particularly with regard to the developmental stage and level of implementation maturity of each technology.

Despite these limitations, this review provides valuable insights into the implementation strategies proposed and used to support the adoption and use of DNT in home care settings. Furthermore, it identifies a potential multifaceted implementation strategy that may serve as a useful starting point for future implementation efforts and research in home care.

Conclusions

By providing a comprehensive overview of researched DNT in home care and the implementation strategies proposed and used to support their adoption, we generated insights that confirm the complexity and challenges associated with implementing DNT in home care. However, systematic implementation requires time, a resource that is often scarce in home care settings for nursing staff, care recipients, and their relatives, particularly in the context of an aging population.

The findings of this study contribute to both implementation science and practice. They highlight important directions for future research, particularly regarding the application of explicitly operationalized and well-specified implementation strategies to support the implementation of specific DNT in home care and to improve the transparency of implementation strategy reporting. Based on their frequency of reporting across the included studies, we identified several commonly occurring implementation strategies and synthesized them into a multifaceted implementation strategy. Future research should focus on empirically evaluating the feasibility, appropriateness, and effectiveness of this strategy and the single implementation strategies within this bundle in real-world settings.

Furthermore, our findings allow us to derive practical recommendations for decision-makers and implementation practitioners in home care based on the frequently reported implementation strategies. Finally, given the increasing availability and market penetration of DNT, further research is needed to develop meaningful classification systems for these technologies and to better understand how they can be integrated into routine practice. Such evidence would enable decision-makers and implementation practitioners to align specific categories of technologies with potentially effective implementation strategies, thereby supporting their efficient adoption, sustained use, and long-term integration into home care.

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Generative AI Use

Additionally, we used GPT-5 (Copilot/Microsoft), which is strongly recommended by the information technology department at Hannover Medical School, exclusively for linguistic proofreading of the manuscript. We instructed the AI using the prompt: “Check the entire manuscript for grammar and academic American English writing style.”

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Authors’ Contributions

Conceptualization: DKS (lead), DH (supporting), MD (supporting)
Data curation: DKS (lead), MD (supporting)
Formal analysis: DKS (lead), MD (supporting)
Investigation: DKS (lead), MD (supporting), RK (supporting)
Methodology: DKS (lead), DH (equal), MD (equal)
Supervision: DH (equal), VA (equal)
Validation: MD (lead), RK (equal), DH (equal)
Visualization: DKS
Writing – original draft: DKS
Writing – review & editing: DH (lead), MD (equal), RK (equal), RSO (equal), VA (equal)

Conflicts of Interest

None declared.

Multimedia Appendix 1

Final search strings used in the 3 databases, including search filters.
[DOCX File (Microsoft Word File), 24 KB-Multimedia Appendix 1]

Multimedia Appendix 2

Research protocol including search strings.
[PDF File (Adobe File), 1108 KB-Multimedia Appendix 2]

Multimedia Appendix 3

Study characteristics and general information of included papers.
[DOCX File (Microsoft Word File), 48 KB-Multimedia Appendix 3]

Multimedia Appendix 4

Codesystem.
[DOCX File (Microsoft Word File), 25 KB-Multimedia Appendix 4]

Checklist 1

PRISMA-ScR checklist.
[PDF File (Adobe File), 116 KB-Checklist 1]

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Abbreviations

BESI-C: Behavioral and Environmental Sensing and Intervention for Cancer
COPD: chronic obstructive pulmonary disease
DNT: digital nursing technology
ERIC: Expert Recommendations for Implementing Change
HF: heart failure
JBI: Joanna Briggs Institute
NASSS: Nonadoption, Abandonment, Scale-up, Spread and Sustainability
OSF: Open Science Framework
PCC: Population, Concept, and Context
PRESS: Peer Review of Electronic Search Strategies
PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PRISMA-ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews
RCA: remote care assist
RCT: randomized controlled trial
RE-AIM: Reach, Effectiveness, Adoption, Implementation, and Maintenance
RPM: remote patient monitoring
TMF: theories, models and frameworks
UM: unobtrusive monitoring

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