

OLDER ADULTS' CHALLENGES WITH DIGITAL TECHNOLOGIES IN HEALTH AND SOCIAL CARE – A SCOPING REVIEW

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Abstract

Digitalization of healthcare is recognized as a key strategy for improving accessibility and efficiency. However, older adults with frailty, disabilities and complex needs tend to use technology less frequently and often face difficulties when interacting with digital services. To enable targeted educational initiatives for healthcare providers, it is important to take the experiences of frail older adults into account. Therefore, the aim of this study is to map existing research on experiences of frail older adult's challenges in accessing and using digital health services.

A scoping review was conducted following the framework developed by Arksey and O'Malley. A systematic search was performed in the databases PubMed, CINAHL, Scopus, and Web of Science. In total, 12 empirical studies published between 2015 up to 2025, focusing on challenges related to digital health services, were included and analysed.

The included studies encompassed a variety of digital health services. The review identified nine key domains of challenges that frail older adults face when using digital health services: Access to technology, Digital literacy and awareness, Usability and design, Health, cognition, and functionality, Language and communication, Financial factors, Confidence and security, Attitudes and emotions, and Digital support.

To support frail older adults in accessing and using digital health care services, healthcare providers require both theoretical and practical knowledge of digital technologies, as well as strategies for effectively assisting older adults with digital technology. Targeted education and training are therefore essential to enhance healthcare providers' capacity to support frail older adults in the digital health landscape.

Keywords: Challenges, digital literacy, older adults, scoping review.

1 INTRODUCTION

Longer life expectancy has led to a growing older population in Europe [1]. Aging spans a continuum from robustness to frailty, resulting in varied physical and mental capacity among individuals of the same age [2]. Frailty increases with age, from 11% among those aged 50–59 to 51% among those 90 and older [3]. Comorbidities and unhealthy lifestyles accelerate aging, and the number of frail older adults is expected to rise in Western societies [4, 5].

Frailty describes the complex interplay between aging, disability, and multimorbidity, and reflects reduced resilience to stressors [6]. It is linked to poorer outcomes, including functional decline, dependency, isolation, increased healthcare use, and mortality [6, 7]. Although deterioration is common, individual trajectories vary. Recommended care is person-centred and includes nutrition, physical activity, and social support in addition to disease-specific treatments [7].

To maintain effective healthcare systems amid demographic shifts, countries face significant challenges. Digitalization is widely recognized as a key strategy, with a global aim to improve health for all by accelerating the adoption of suitable digital solutions [8]. Digital healthcare offers benefits, such as more efficient resource use and includes a wide range of services. It has also shifted the healthcare provider's

role toward a more consultative and supportive function, encouraging patient involvement in decision-making [9]. For patients, digital technologies enhance access to care, enable self-management, and support personalized treatment through tools such as remote monitoring, thereby promoting equitable care regardless of location. However, this shift also places greater responsibility on individuals. Those lacking access or digital skills, risk exclusion and today a digital divide is evident among older adults [10].

Equity in healthcare means enabling individuals to reach their full health potential [11]. To empower people in healthcare, disease prevention, and health promotion, both digital and health literacy are crucial. Health literacy includes understanding health information and the ability to make informed decisions [12]. Health related aspects, such as frailty and multimorbidity are associated with low health literacy [13] and older adults often face greater challenges with digital services [9]. Despite increased digital adoption post-COVID-19, those with disabilities or complex needs still struggle with digital services [11]. Studies show that frail individuals use digital tools less than non-frail peers, despite potential advantages [14]. Addressing this requires support from digitally literate healthcare providers and efforts to strengthen patients' digital competence [15].

To ensure that digital solutions truly promote health and participation for all, healthcare must be able to provide tailored support. In order to design customized educational interventions, a deeper understanding of the challenges these individuals themselves describe is needed. Therefore, the aim of this study is to map existing research on experiences of frail older adult's challenges in accessing and using digital health services.

2 METHODOLOGY

To limit subjectivity, the review process followed the methodological framework of Arksey & O'Malley [16], including five major steps: 1. Identifying the research question, 2. Identifying relevant studies, 3. Selecting the studies, 4. Charting the data, and 5. Collating, summarizing, and reporting the results.

★ Search strategy

A systematic literature search was performed in four electronic databases, PubMed (including MEDLINE and PubMed Central), CINAHL, Scopus and Web of Science, which are considered to encompass interdisciplinary research in health care. An initial search in PubMed was used to identify relevant terms and synonyms, followed by preliminary searches to refine the strategy. The final search string was then adapted for use in all databases. The structured search, including all identified keywords and index terms, was conducted in August 2025.

The systematic search used the following Boolean search string: (Frail* OR multimorbidity OR comorbidity OR multi-disease* OR patient* complex needs OR senior* OR older adult* OR elderly) AND (Digital challenge* OR digital divide OR technology gap OR tech struggle* OR digital aversion OR digital barrier* OR digital competence OR digital tools accessibility OR digital exclusion) AND (digital* OR e-health OR m-health OR tele-health OR health informatics OR health information OR digital communication OR remote care OR telemedicine) AND (Experience* OR perception* OR perspective*)

★ Eligibility criteria

Inclusion criteria were empirical scientific articles published in English from 2015 to August 2025, focusing on frail patients' perspective of challenges with digital health services. It was required that the study had undergone a scientific peer-review process prior to publication. Studies not explicitly using the term 'frail' were assessed for inclusion if participants were characterized by multi-morbidity or disability, ensuring focus remained on the experiences of frail older adults.

★ Selection Process

All identified articles were exported to the data management system Rayyan Screening Tool [17]. Duplicates were excluded during the initial stage of the screening process, and the remaining articles were carefully reviewed at combined title and abstract level by one author [KÅ]. In the next step, the articles were assessed at full-text level, and finally, the inclusion list was discussed between all authors, until consensus was reached.

A total of 7199 records were identified through database searches. After removal of duplicates 6223 articles were eligible for screening. Noteworthy, for the completion of this conference paper, only one third of records (2,223 of 6,223; 36%) were screened at this stage. A full-text screening of 30 articles was then performed, resulting in 12 articles that finally were included in the analysis [18-29].

✦ Analysis

A data extraction form was developed using tables in Microsoft Word. The data extraction was initially carried out by one author [KÅ], while two other authors [MK and AS] verified the accuracy of the extraction. All authors reviewed the final manuscript. Data was collected on study characteristics, as well as findings that contributed to answering the study's aim regarding frail older adults' experienced challenges accessing and using digital health services. The structured data extraction offered a clear overview of the material, facilitating comparison, validation, and the drawing of conclusions. Following Arksey and O'Malley's framework, the findings are presented in a narrative synthesis [16].

3 RESULTS

These results represent preliminary findings, as only part of the structured search has been analysed.

✦ Study Characteristics

The geographical distribution of the included studies varied, with studies conducted in seven different countries. The United Kingdom was the most common ($n = 3/12$, 25%), followed by the United States, Denmark, and Malaysia, each represented by two studies. Most studies were published in 2024 ($n = 3/12$, 25%), and only two were published before the COVID-19 pandemic. Most studies used a qualitative approach, employing individual and/or focus group interviews. One study used a quantitative approach, conducting surveys.

In the included studies, the sample size ranged from 11 to 244. The participants' mean age was not specified in all studies, but there was a clear focus on older adults (≥ 60 years), and both genders were represented. Although only three studies conducted a frailty assessment, all described participants with complex healthcare needs, including multimorbidity, disabilities, and cognitive impairment. The participants represented different contexts, including community-dwelling, senior living facilities, hospital care, and municipal health services.

The included studies encompassed a variety of digital health services. Most commonly they explored the participants' experiences with the use of information and communication technology (ICT) in general ($n=6/12$, 50%), followed by evaluations of participation in various multi-component programs involving apps and online sessions ($n=3/12$, 25%), video-conferencing ($n=2/12$, 17%) and wearable trackers or mobile devices ($n=1/12$, 8%).

✦ Experienced challenges

The analysed articles contributed information about frail older adults' challenges with digital health services, which can be summarized across nine distinct domains, as follows:

The domain "Access to Technology" encompasses perceived barriers related to limited access to technological devices, such as computers, smartphones, and tablets, as well as the absence of a functioning internet connection or poor connectivity.

The domain "Digital literacy and awareness" reflects older adults' experiences of low digital competence and difficulties using ICT systems, which sometimes led them to avoid digital technology despite having access. It also covers perceptions of having limited awareness of available digital tools and how to use them.

The domain "Usability and design" encompasses older adults' challenges with complex ICT-functions, such as strong e-identification and virtual waiting rooms, as well as practical issues like batteries and charging cables that must be adapted to the specific device. There were also challenges when technology could not be adjusted to meet their individual needs, such as image size, language settings, and other accessibility features.

The domain "Health, Cognition and Functionality" includes perceived challenges in managing digital technology due to impaired health, such as memory loss, reduced vision, and arthritis in the fingers, which limits the ability to handle login processes (e.g., passwords) and small icons and touchscreens. There were also experiences of feeling too fatigued to participate in digital meetings, where greater effort is required from the participant.

The domain "Language and communication" encompasses patients experienced challenges in understanding terminology used in digital healthcare contexts, as well as linguistic difficulties such as the predominance of English-language content and the perceived complexity of changing language settings, even when such options are available.

The domain “Financial factors” includes participants reporting that financial circumstances can sometimes be perceived as a challenge, as mobile phones, tablets, and various wearable devices are expensive to purchase. Additionally, subscriptions and internet costs may be considered a significant expense, especially when living on a low pension.

The domain “Confidence and security” includes perceptions that participants felt uncertain about their own ability to manage the technology. They experienced challenges in assessing online trustworthiness, which could lead to making mistakes or being deceived through, for example, phishing attacks or online scams, which may result in negative consequences.

The domain “Attitudes and emotions” reflects participants’ experiences of feeling that digital technology did not suit them. Concerns were also raised about digitalization replacing face-to-face interactions, leading to fears of losing personal contact with healthcare providers. Additionally, participants felt that the digitalization process was moving too fast, creating anxiety about being left behind or excluded.

The domain “Digital support” reflects participants’ difficulties in managing ICT independently and highlights the need for support from family members and healthcare providers. Support was needed for tasks such as installing new technology, performing updates, and navigating digital meetings. Participants also expressed a need for guidance on available systems and functions.

4 CONCLUSIONS

This review shows that older adults with frailty and complex health conditions face multiple challenges in accessing and using digital health services. Access to devices such as smartphones or tablets, together with a reliable internet connection, is essential. Beyond access, usability requires technologies designed with user-friendly interfaces and adaptable functionality.

In addition, healthcare providers need both theoretical and practical knowledge of digital technologies, as well as strategies to effectively support older adults in enhancing self-care through digital health services. Targeted education for healthcare professionals is therefore needed to strengthen their capacity to integrate digital technologies into practice for older populations.

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