

Utilization of Telehealth and Mobile Health in Supporting Healthy Aging in the Elderly: Literature Review

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ABSTRACT

The increasing elderly population has led to a growing need for effective, accessible, and sustainable healthcare services. Telehealth and mobile health (mHealth) are emerging as part of the digital transformation of healthcare services to support healthy aging in the elderly. This study aims to examine the use of telehealth and mobile health in supporting healthy aging in the elderly. The study used a literature review method by searching articles through the PubMed, Scopus, ScienceDirect, and JMIR Publications databases. Articles were selected based on topic suitability, full-text availability, and research focus related to the use of telehealth and mobile health in the elderly. A total of 8 primary studies that met the inclusion criteria were analyzed in this study. The review results indicate that telehealth and mobile health can improve access to healthcare services, self-management, physical activity, continuity of care, and the involvement of the elderly in self-managing their health. However, the implementation of digital health technology in the elderly still faces obstacles such as low digital literacy, limited internet access, and difficulties in using the technology. Overall, telehealth and mobile health have great potential to support healthy aging through more effective, flexible, and sustainable healthcare services.

Keywords: Digital Health, Healthy Aging, Mobile Health, Older Adults, Telehealth

INTRODUCTION

The elderly population continues to grow globally in line with rising life expectancy and advances in healthcare services. The World Health Organization (WHO) reports that by 2030, one in six people worldwide will be aged 60 years or older, and the elderly population is projected to increase from 1 billion in 2020 to 1.4 billion in 2030. Furthermore, the elderly population is projected to reach 2.1 billion by 2050 (World Health Organization, 2022). This increase in the elderly population leads to an increased prevalence of chronic diseases, decreased physical function, limited mobility, and a growing need for sustainable, long-term healthcare. The elderly are a group that requires effective, accessible healthcare services that can support an optimal quality of life.

The development of digital technology has brought about significant changes in the healthcare system, including in elderly care. The use of telehealth and mobile health (mHealth) is growing rapidly as part of digital health to improve access, efficiency, and continuity of healthcare services. Telehealth enables remote healthcare delivery through digital communication technology, while mobile health utilizes mobile devices, health apps, wearable devices, and digital monitoring technology to support self-management of health.

The use of telehealth for the elderly is known to provide various benefits in healthcare. Tan et al. (2025) reported that the use of telehealth services can improve access to healthcare and help the elderly obtain healthcare services more flexibly without having to visit a healthcare facility in person. Telehealth also helps reduce geographic barriers and mobility limitations often experienced by the elderly population. Furthermore, telehealth services contribute to continuity of care through easier communication between healthcare professionals and elderly patients.

In addition to telehealth, the use of self-management technology and wearable devices also has a positive impact on the health of the elderly. Garcia Reyes et al. (2023) explained that the use of wearable technology helps seniors monitor their health independently, increases their involvement in health management, and facilitates real-time health monitoring. The use of digital technology supports increased health awareness and helps seniors become more active in maintaining their health.

Mobile health applications also have the potential to increase physical activity and healthy lifestyle behaviors in older adults. Mehra et al. (2019) demonstrated that the use of tablet-based applications can increase older adults' engagement in physical activity and improve adherence to home-based exercise programs. The use of digital health applications can increase older adults' motivation to stay active and maintain functional abilities in daily life.

In addition to these benefits, digital technology use among older adults is also influenced by acceptance and trust in digital health services. Ho et al. (2022) reported that older adults demonstrate a relatively high level of acceptance of tele-exercise and digital health technology when the technology is easy to understand and meets their needs. Meanwhile, Niu et al. (2024) stated that trust in telemedicine influences interest in and continued use of digital health services among older adults.

Despite its numerous benefits, implementing telehealth and mobile health for older adults still faces several challenges. Low digital literacy, limited internet access, difficulties using technology, and concerns about data security and privacy are barriers to the utilization of digital health services among the elderly population. Not all older adults have the same technological adaptability, necessitating the development of simpler, safer, and more senior-friendly digital health technologies.

Various studies on telehealth and mobile health in older adults have been conducted, but the results still show variations in the types of digital interventions, levels of technology acceptance, and resulting health outcomes. Furthermore, research specifically addressing the use of telehealth and mobile health to support healthy aging in older adults is still limited and has yielded mixed results. Therefore, this literature review was conducted to examine the use of telehealth and mobile health in supporting healthy aging in older adults, including the types

of digital interventions, the resulting health benefits, and the barriers to implementing digital health technologies in the elderly population.

METHODS

This study used a literature review method to examine various studies related to the use of telehealth and mobile health to support healthy aging in the elderly. A systematic literature search was conducted through several reputable international databases, namely PubMed, Scopus, ScienceDirect, and JMIR Publications, to obtain articles relevant to the research topic.

The article search process was conducted using a combination of the keywords "telehealth," "telemedicine," "mobile health," "mHealth," "digital health," "older adults," "elderly," "healthy aging," "quality of life," and "self-management" with the help of the Boolean operators "AND" and "OR." The search strategies used included:

("telehealth" OR "telemedicine" OR "mobile health" OR "mHealth") AND ("older adults" OR elderly OR aging) AND ("healthy aging" OR "quality of life" OR "self-management").

The search was limited to English-language publications, full-text studies, human studies, and articles published within the last five years. Furthermore, the search focused on articles with primary study designs such as randomized controlled trials, cross-sectional studies, qualitative studies, usability studies, and observational studies.

Inclusion criteria in this study included articles that discussed the use of telehealth or mobile health in the elderly, used a primary research design, were available in full text, and discussed health outcomes related to healthy aging such as increasing access to health services, self-management, physical activity, quality of life, elderly involvement in health management, and the use of digital health technology.

Meanwhile, articles in the form of systematic reviews, meta-analyses, editorials, commentaries, conference abstracts, and articles irrelevant to the research focus were excluded from the review process. The articles obtained were then selected based on the suitability of the title, abstract, and content to the research objectives.

Based on the literature search results, several articles were obtained, which were then screened according to inclusion and exclusion criteria. After the screening process, eight primary studies were identified that met the requirements for analysis in this literature review.

Data from articles meeting the criteria were extracted, including author name, year of publication, country of study, study design, sample size, type of digital intervention, and reported health outcomes. The research findings were then analyzed narratively to identify the types of telehealth and mobile health interventions, their resulting health benefits, and barriers to implementing digital health technology in older adults.

The results of the research synthesis are presented in the form of a study characteristics table and descriptive narrative to facilitate the identification of research findings patterns related to the use of telehealth and mobile health in supporting healthy aging in the elderly.

RESULT

A literature search through the PubMed, Scopus, ScienceDirect, and JMIR Publications databases yielded several articles discussing the use of telehealth and mobile health in older adults. Article selection was based on the suitability of the title, abstract, content, and inclusion and exclusion criteria. After screening, eight primary studies were identified that met the criteria for analysis in this literature review.

The studies analyzed came from various countries, including the Netherlands, Australia, Malaysia, Hong Kong, China, Canada, Brazil, and the United States. The research designs used included usability studies, qualitative interview studies, cross-sectional studies, randomized clinical trials, and qualitative studies. All articles discussed the use of digital health technology in older adults, including telehealth, telemedicine, mobile health applications, wearable devices, tele-exercise, and health self-management technology.

Table 1. Study Characteristics

Author	Country	Design	Sample	Intervention	Outcome
(Mehra et al., 2019)	Netherlands	Usability Study	15 older adults	Tablet-based exercise application	Increased exercise adherence and usability of home-based exercise support
(Paola et al., 2023)	Australia	Qualitative Interview Study	22 older adults	Health management technology and wearable devices	Improved self-monitoring and digital engagement
(Tan et al., 2025)	Malaysia	Cross-Sectional Survey Study	119 older adults	Telehealth services adoption	Increased telehealth adoption among older adults
(Ho et al., 2022)	Hong Kong	Cross-Sectional Study	102 older adults	Digital technology and tele-exercise program	Increased acceptability of tele-exercise and digital health technology among older adults
(Nive et al., 2024)	China	Cross-Sectional Study	402 older adults	Telemedicine utilization and trust	Improved acceptance and trust toward telemedicine services among older adults
(Khanassov et al., 2024)	Canada	Qualitative Study	29 older adults	Telemedicine primary care	Improved continuity of care and healthcare accessibility among older adults

Author	Country	Design	Sample	Intervention	Outcome
(Crystine et al., 2025)	Brazil	Randomized Clinical Trial	40 older adults	Teleassistance intervention	Improved health parameters and daily care management among older adults
(Fleischer et al., 2025)	United States	Qualitative Study	24 older adults	Telehealth utilization perceptions	Identified factors influencing telehealth acceptance and use among older adults

A literature review shows that telehealth and mobile health offer various benefits in supporting healthy aging in older adults. The use of telehealth services helps improve access to healthcare and makes it easier for older adults to obtain care without having to visit a healthcare facility in person. Furthermore, telehealth also helps reduce geographic barriers and mobility limitations often experienced by the elderly population.

Several studies have shown that the use of wearable devices and self-management technology helps older adults monitor their health independently and increases their involvement in health management. Digital technology also helps older adults access health information more easily and improves communication with healthcare providers. Furthermore, the use of mobile health applications and tele-exercise programs has been reported to increase physical activity, adherence to health training programs, and motivation in older adults to maintain a healthy lifestyle.

Other research shows that acceptance and trust in telemedicine services influence the successful implementation of digital health technology among older adults. Seniors with higher levels of trust in digital health technology are more likely to accept and use telehealth services on a sustained basis.

Despite the numerous positive benefits, several barriers to implementing telehealth and mobile health for older adults have been identified. These barriers include low digital literacy, difficulty using technology, limited internet access, and concerns about data security and the privacy of digital health information. Furthermore, not all older adults have the same technological adaptability, necessitating the development of simpler, safer, and more senior-friendly digital health services.

Overall, the results of the literature review indicate that telehealth and mobile health have great potential in supporting healthy aging in the elderly by increasing access to health services, strengthening self-management, increasing physical activity, improving continuity of care, and involving the elderly in self-managing their health.

Study quality assessments were conducted using the Joanna Briggs Institute (JBI) Critical Appraisal Tools, tailored to each study's design. The appraisal instruments used included the JBI Critical Appraisal Checklist for Qualitative Research, the JBI Critical Appraisal Checklist for Analytical Cross-Sectional Studies, the JBI Critical Appraisal Checklist for Randomized Controlled Trials, and the JBI Critical Appraisal Checklist for Quasi-Experimental Studies.

The appraisal results showed that all analyzed articles had good methodological quality.

Most studies had clear research objectives, appropriate data collection methods, systematic data analysis, and outcomes relevant to the research objectives. Randomized controlled trial articles demonstrated excellent methodological quality due to their clear randomization process and structured outcome measurements.

Despite this, several studies still have limitations, particularly the relatively small sample sizes and the predominance of cross-sectional and qualitative study designs, resulting in a moderate level of evidence. Overall, however, all articles were deemed suitable for use in this literature review due to their adequate methodological quality and relevance to the research topic of utilizing telehealth and mobile health to support healthy aging in older adults.

Table 2. Study Quality Appraisal

Author	Design	Appraisal Instrument	Appraisal Results	Study Quality
(Mehra et al., 2019)	Usability Study	JBICritical Appraisal Checklist for Quasi-Experimental Studies	The research objectives were clear, the interventions were well explained, the outcomes were relevant, but the sample size was relatively small.	Good
(Garcia Reyes et al., 2023)	Qualitative Interview Study	JBICritical Appraisal Checklist for Qualitative Research	Qualitative methods are appropriate, data analysis is clear, interpretation of results is relevant to the research objectives	Good
(Tan et al., 2025)	Cross-Sectional Study	JBICritical Appraisal Checklist for Analytical Cross-Sectional Studies	Inclusion criteria are clear, variable measurements are appropriate, statistical analysis is adequate.	Good
(Ho et al., 2022)	Cross-Sectional Study	JBICritical Appraisal Checklist for Analytical Cross-Sectional Studies	Systematic data collection, outcomes according to research objectives, adequate analysis	Good
(Nive et al., 2024)	Cross-Sectional Study	JBICritical Appraisal Checklist for Analytical Cross-Sectional Studies	Measurement validity is good, statistical analysis is appropriate, outcome is relevant	Good
(Khanassov et al., 2024)	Qualitative Study	JBICritical Appraisal Checklist for Qualitative Research	The research approach is appropriate, the data is analyzed systematically, the results support the research	Good

Author	Design	Appraisal Instrument	Appraisal Results	Study Quality
(Crystine et al., 2025)	Randomized Controlled Trial	JBICritical Appraisal Checklist for Randomized Controlled Trials	objectives. Randomization is explained, interventions are clear, outcomes are well measured.	Very good
(Fleischer et al., 2025)	Qualitative Study	JBICritical Appraisal Checklist for Qualitative Research	Thematic analysis is clear, data credibility is good, interpretation of results is appropriate	Good

DISCUSSION

The literature review shows that telehealth and mobile health play a crucial role in supporting healthy aging in the elderly by improving access to healthcare services, strengthening self-management, increasing physical activity, and engaging them in independent health management. The use of digital health technology provides opportunities for older adults to obtain more flexible, accessible, and sustainable healthcare services, particularly for those with limited mobility and geographic barriers to accessing healthcare facilities.

The use of telehealth for the elderly is known to improve access to healthcare services and continuity of care. Tan et al. (2025) reported that the use of telehealth services helps the elderly obtain healthcare more easily without having to visit a healthcare facility in person. This finding is supported by Khanassov et al. (2024), who showed that telemedicine in primary healthcare helps improve healthcare accessibility and supports more effective communication between healthcare professionals and elderly patients. This is crucial because the elderly population often experiences limited mobility, chronic illnesses, and dependence on family support for accessing healthcare.

In addition to telehealth, the use of wearable devices and self-management technology has also had a positive impact on increasing the involvement of older adults in health management. Paola et al. (2023) explained that wearable technology helps older adults monitor their health independently, including monitoring physical activity and daily health conditions. The use of digital technology supports increased health awareness and helps older adults be more active in maintaining their health. Self-management technology also enables healthcare workers to monitor the health of older adults more continuously and preventively.

Mobile health applications and tele-exercise programs have the potential to increase physical activity and maintain functional abilities in older adults. Mehra et al. (2019) demonstrated that the use of tablet-based applications can improve adherence to home-based physical exercise programs in older adults. Similar findings were reported by Ho et al. (2022), who stated that older adults demonstrate a high level of acceptance of tele-exercise programs

and digital health technologies if the technology is easy to understand and meets their needs. Regular physical activity is an important factor in maintaining quality of life and healthy aging in the elderly population.

The literature review also shows that the success of telehealth and mobile health implementation is influenced by the level of acceptance and trust of older adults in digital health technology. Niu et al. (2024) explained that trust in telemedicine influences the interest and continued use of digital health services in older adults. Elderly individuals with positive perceptions of the safety and benefits of digital health technology tend to be more receptive to telehealth services. Fleischer et al. (2025) also found that technology use experience, perceived ease of use, and support from healthcare professionals influence the acceptance of telehealth services in the elderly population.

However, the implementation of telehealth and mobile health for older adults still faces various challenges. The main barriers identified in this study were low digital literacy and difficulty using technology among older adults. Some older adults still experience difficulties using digital health applications, wearable devices, and internet-based health services. This situation can impact the effectiveness of digital health technology implementation, particularly among older adults with low education levels and limited technology experience.

Furthermore, limited internet access and technological infrastructure also pose challenges to the utilization of digital health services for older adults. Not all older adults have access to digital devices and adequate internet connections, especially in areas with limited technological infrastructure. Another barrier identified is concerns about data security and the privacy of digital health information. Older adults often lack confidence in the security of digital technology in healthcare, necessitating a secure, simple, and elderly-friendly digital health service system.

The findings of this literature review indicate that telehealth and mobile health have significant potential to support the transformation of healthcare services for the elderly. Developing senior-friendly digital healthcare services can be a strategy to improve the quality of life, independence, and functional abilities of older adults. Furthermore, the integration of digital technology into healthcare services also has the potential to support more effective and sustainable home care and community-based care.

This study has several limitations. The variety of research designs and types of digital interventions resulted in heterogeneity in the results. Furthermore, most studies used cross-sectional and qualitative designs, resulting in a moderate level of evidence. Furthermore, this study used only English-language articles and specific databases, so there may be other relevant studies that have not yet been identified. Nevertheless, this literature review provides an overview of the use of telehealth and mobile health in supporting healthy aging in the elderly and can serve as a basis for further research related to the development of digital health services for the elderly population.

CONCLUSION

The use of telehealth and mobile health has significant potential to support healthy aging in the elderly by improving access to healthcare services, strengthening self-management, increasing physical activity, and engaging seniors in independent health

management. The use of digital health technologies such as telehealth services, mobile health applications, wearable devices, telemedicine, and tele-exercise helps seniors obtain more flexible, accessible, and sustainable healthcare services.

A literature review shows that telehealth can help improve continuity of care and make it easier for seniors to access healthcare services without having to visit a healthcare facility in person. Furthermore, the use of wearable technology and mobile health applications also supports self-monitoring of health, increased physical activity, improved adherence to health programs, and increased senior involvement in maintaining their health.

However, the implementation of telehealth and mobile health for older adults still faces various challenges, such as low digital literacy, limited internet access, difficulties in using technology, and concerns about data security and the privacy of digital health information. Therefore, the development of simpler, safer, easier-to-use, and older-friendly digital health services is needed to increase the effectiveness of digital health technology utilization among the elderly population.

Overall, telehealth and mobile health can be a strategy to support the transformation of healthcare services for the elderly and improve the quality of life in the older population. The results of this literature review are expected to serve as a reference for healthcare professionals, healthcare institutions, and policymakers in developing more effective, inclusive, and sustainable digital healthcare services to support healthy aging in the elderly.

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