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Review Paper
DOI: 10.47152/ns2025.18

CLOSING THE DIGITAL GAP: PROMOTING THE RIGHT TO HEALTH OF ELDERLY INDIVIDUALS IN LONG-TERM CARE SETTINGS

Access to health-related information is fundamental to the elderly's autonomy, well-being, and social inclusion. Article 19 of the Universal Declaration of Human Rights affirms the right to seek, receive, and impart information freely. In line with this, the Madrid International Plan of Action on Ageing (2002) stresses the importance of ensuring that elderly persons benefit from new technologies, including accessible and user-friendly digital tools. Similarly, the Council of the European Union, in 2020, emphasized the promotion of digital inclusion for the elderly, taking into account their diverse needs and living environments.

Despite increasing policy attention, many elderly individuals – particularly those in long-term care (LTC) settings – continue to face exclusion from digital resources. This exclusion stems from multiple barriers, including physical and cognitive impairments, socioeconomic disparities, limited digital literacy, and ageist attitudes. These challenges are further exacerbated by the poor usability of digital tools and underdeveloped telehealth infrastructures.

Bridging the digital divide is thus essential to safeguarding the right to health of older adults, especially those in LTC settings who are among the most vulnerable. This study aims to promote the right to health in LTC contexts by addressing the digital divide from both the users' and providers' perspectives. It seeks to answer two central questions:

1) *How does the digital divide affect the right to health of the elderly in long-term care settings?*
2) *What are effective practices to bridge this divide and uphold the right to health for the elderly?*

Keywords: *long-term care settings, digital divide, right to health. the elderly.*

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1. Introduction

The global population aged ≥ 60 years will increase significantly by 2050. This increase is a matter of numbers and population vulnerability (Chen 2023 according to Pirzada, P. *et al*.2022). The longitudinal data show that higher digital inclusion (e.g. internet use) significantly reduces depression and boosts cognitive scores in elders living alone (Yan, Y., Xing, H, 2025). And the persistent “digital divide” among the elderly correlates with worse self-rated health, a so-called “social determinant of health”, especially for socially vulnerable seniors (Yang, R., Gao, S., Jiang, Y, 2024). In sum, global evidence ties digital access and literacy directly to health and well-being in later life.

The elderly’s ability to access and use digital technologies is increasingly recognized as a key determinant of health. Digital inclusion: the capacity to seek, receive and share health information via technology, is enshrined in human rights frameworks (e.g. the right to information under UDHR Art. 19) and global ageing policy (e.g. the Madrid Plan on Ageing’s call for elderly access to new technologies). Currently, the digital exclusion among the elderly is a global problem. In Europe, over half of adults age 50+ remain offline (König, R., Seifert, A., Doh, M, 2018). A WHO/Europe review (2016–22) found that people with poor health, often the elderly, struggle most to access digital health tools (WHO, 2022). Socioeconomic patterns emerged: urban, highly-educated and wealthier groups use telehealth much more than older, rural, or minority seniors (WHO, 2022).

Moving into a LTC facility marks a major turning point in the lives of many elderly individuals. The distance from familiar surroundings and disruption of established routines often leads to difficulties in keeping in touch – both frequently and meaningfully – with family members, longtime acquaintances, and neighbours (Cannuscio, C., Block, J., Kawachi, I., 2003). These changes can contribute to emotional difficulties, including increased loneliness and symptoms of depression. Furthermore, declining physical health or cognitive issues may further limit their capacity to engage socially (White, H., *et. al*, 2003), ultimately diminishing their overall quality of life. Studies also show that in LTC settings, the digital exclusion exacerbates health inequities: those who lack devices or skills face “accessibility-related violations of the right to health” (Choolayil, A. C., Paranthaman, S., Kuttiatt, V. S., 2024).

This study aims to improve digital literacy and reduce the digital divide among the elderly, with the ultimate goal of promoting their right to health in LTC settings. It focuses on two main areas: first, analyzing how the digital divide creates barriers that limit the elderly's access to health services and information; and second, identifying practical strategies to achieve digital inclusion and improve the overall health and well-being of elderly individuals living in LTC settings.

To achieve these goals, this research will adopt a Qualitative Document Analysis (QDA) approach, applying the 4 core components of the right to health of the WHO as a framework for analysis (WHO, 2023). The relevant documents will be collected from academic databases such as PubMed, Scopus, Web of Science, and Google Scholar, covering publications from 2015 to 2025. The search will be conducted using keywords including "digital divide," "digital literacy," "older adults," "the elderly", "long-term care," "health equity," and "right to health." Any documents that are not relevant to the research topic will be excluded from the analysis.

2. The International Policy Frameworks and Right to Health for the Elderly

International policy frameworks broadly recognize health as a fundamental human right, with specific relevance to ageing populations. The United Nations (UN) enshrines this principle through instruments such as Article 12 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) (United Nations General Assembly, 1966), the Madrid International Plan of Action on Ageing (2002), and the 1991 UN Principles for Older Persons (United Nations General Assembly, 1991). These frameworks emphasize older persons' right to health, participation, and dignity. The UN Decade of Healthy Ageing (2021–2030) coordinated by the World Health Organisation (WHO), promotes integrated, people-centred care for the elderly (WHO, 2025). WHO's Global Strategy and Action Plan on Ageing and Health (2016) and Global Strategy on Digital Health 2020–2025 affirm the need for equitable access to digital technologies as part of the right to health at all ages. However, while these documents recognize that older people may face structural disadvantages in accessing technology, they generally treat digital inclusion as a secondary or cross-cutting issue rather than a central pillar of health rights. An exception is WHO's Western Pacific Regional Office, which explicitly promotes age-friendly digital innovation and highlights the importance of "bridging the digital divide" for older persons (WHO, 2021).

At the regional level, the European Union (EU) upholds the right to health and right to have LTC services in the European Pillar of Social Rights, represented in Principles 16 and 18 (European Commission, 2017), and encourages digital transformation in healthcare through its 2018 Communication on the digital transformation of health and care (European Commission 2018). Initiatives such as the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) have funded age-tech solutions (European Commission 2025), yet binding EU law addressing digital exclusion among older persons remains limited. The OECD contributes policy recommendations on ageing and digital access, noting that older adults are disproportionately affected by digital divides and need targeted support (OECD, 2020, p.29). Nevertheless, the OECD offer primarily advisory guidance and does not impose enforceable standards on member states regarding digital health equity for the elderly.

In summary, while these global and regional frameworks affirm the right to health and acknowledge population ageing, most fail to provide explicit, enforceable guarantees for digital inclusion among the elderly. Digital access, literacy, affordability, and usability – critical for realising health rights in the digital era – are often addressed as peripheral considerations within broader health or innovation strategies. Closing this policy gap requires repositioning digital inclusion as a core component of the right to health for the elderly, with targeted measures, inclusive design, and binding obligations. Without such steps, there is a risk that digital transformation in healthcare may deepen existing inequalities and leave the elderly behind.

3. The Impacts on the Right to Health of Digital Divide for the Elderly in the LTC Settings.

The digital divide has concrete implications for the health rights of the elderly. By definition, the right to health (including the WHO's conception) requires availability, accessibility, acceptability and quality of health services for all (WHO, 2023).

3.1 The Elderly Lack of Availability of Technology in LTC Settings

Availability refers to the need for a sufficient quantity of functioning health facilities, goods and services for all (WHO, 2023). In LTC environments, the overlap between social and digital exclusion becomes even more pronounced compared to other settings. Institutional limitations – such as restrictions on personal device usage or inadequate internet access – often worsen the sense of isolation experienced by residents (Cotten, S. R.,2020). the elderly in LTC settings, their ability to engage with these resources is largely contingent upon the availability and quality of infrastructure supporting remote healthcare, such as stable internet connections, appropriate ICT hardware and software, and the digital competencies of both residents and caregivers. Studies have shown that many LTC settings suffer from substantial ICT infrastructure gaps, which significantly hinder older adults' opportunities to interact with digital technologies (Moyle, W., et al, 2017; Powell K, et al., 2019). Many elderly people in LTC settings are physically frail, live with multiple chronic conditions, and lack experience with digital technologies. As a result, they face a compounded form of exclusion, both socially and digitally, particularly when their institutions fail to provide sufficient information and communication technologies (ICT) infrastructure or digital support (Caha, Dinka, Kristina Turkalj, 2023). In such contexts, the elderly who do not engage with technology are frequently perceived as outsiders, further deepening their marginalization (Seifert, A., Cotten, S. R., 2023). Moreover, caregivers often lack adequate digital skills and may be hesitant to integrate technological solutions into their routines (Konttila, J., et al., 2019; O'Sullivan, et al., 2018), especially in the area of telemedicine (Seifert, A., Batsis, J. A., Smith, A. C., 2020).

3.2. The Elderly Lack of Accessibility to Technology in LTC Settings

Accessibility requires that health facilities, goods, and services must be accessible to everyone (WHO, 2023). Accessibility remains a central issue in the digital transformation of healthcare services. Given that health is recognized as a fundamental human right, any barrier that impedes individuals from exercising this right necessitates action to promote equitable access. The digital divide poses a significant challenge in this regard, leading to a twofold infringement on the right to health: firstly, as healthcare becomes "industry-like" with online platforms, the lack of digital access becomes an accessibility barrier. Failing to include vulnerable groups in digital health creates an "intangible social division", a new determinant of health (Choolayil et al, 2024). For the elder LTC residents, this has meant reduced care access and poorer outcomes. For instance, while telemedicine "can be feasible and acceptable" for nursing home residents (even those with sensory loss) (Seifert, A., Batsis, J. A., Smith, A. C., 2020), many LTC patients simply have no way to use it. Thus, the elderly who cannot connect with virtual clinicians may miss routine follow-up or preventive care, a clear health disadvantage.

Economically, the cost of devices or broadband can put technology out of reach for low-income elderly people. For instance, Soederberg Miller et al. (2024) identify *"broadband availability, cost of broadband and devices"* as key barriers for older adults' use of digital health. Physical and cognitive impairments (vision, hearing, dexterity, dementia) commonly limit tech use. In LTC, many residents have multiple comorbidities and impairments, making even basic device use difficult without help (Seifert et al., 2020; Zhou et al., 2020). Cognitively, limited digital literacy is common: one study found ~30% of seniors felt unable to manage even basic telemedicine apps (Lam *et al*., 2020). Laukka et al. (2024) stress that digital services for the elderly must be *"accessible and available to older adults and adequately based on their needs"*, noting that many have poorer cognitive or physical function that affects usability. Moreover, informational accessibility (clear instructions, training in native language, etc.) is often lacking; older users frequently report confusion due to complex jargon or interfaces. In summary, even when technology is present in LTC, factors like affordability, disability accommodations, training and supportive environments are frequently inadequate, creating an *accessibility* gap for elderly care (Laukka *et al*, 2024).

Ageism, as a broader societal dynamic, significantly hinders internet access among the elderly populations (McDonough, C. C, 2016). It encompasses negative perceptions and attitudes toward ageing (North, M. S., Fiske, S. T. 2012), which manifest in both individual biases and systemic discrimination (Ayalon, L., Tesch-Römer, C., 2018). A key form of this is "other-directed ageism", the prejudiced actions and assumptions imposed by institutions and society, which often portray the elderly as disinterested in or incapable of using digital technologies. Such narratives not only influence how older individuals are treated but also shape their own self-image (Hajdú. J, 2023). Importantly, researchers stress that standard tech interventions often exclude the most vulnerable elderly (Fischer, B., Peine, A.,Östlund, B., 2020; Stilgoe, J., Lock, S. J., Wilsdon, J., 2014). And the digital health studies tend to treat "older adults as a homogeneous group," frequently *omitting* the oldest-old and those with cognitive impairment. This means many best-practice programs may not reach those in greatest need. (Miller L, et. al, 2024). Consequently, these stereotypes can foster feelings of anxiety or inadequacy regarding technology use, prompting many elderly people to perceive digital tools as overly complex or irrelevant, thereby reinforcing patterns of digital disengagement (Choi, E. Y., et al., 2020).

Psychological barriers also play an important role, which include low self-efficacy, technophobia or distrust, and ageism in service design. Studies report that many elderly people simply "opt not to use the internet" (Peek, S.et al, 2014) due to fear or belief that they can't learn. This is exacerbated by poor interface design: most apps and telemedicine platforms are not user-friendly for elders, reflecting a common "lack of awareness of potential benefits" and "absence of training" (Pennington, et al, 2016). In LTC institutions, organisational barriers also arise: facilities may lack Wi-Fi, devices, or staff trained to facilitate telehealth. Seifert et al. note that even if an LTC facility had internet, usage depends on infrastructure and staffing – absent these, "individual use of telemedicine may be prevented" (Seifert, A., Batsis, J. A., Smith, A. C., 2020).

3.3. The Elderly Lack of Acceptability to Technology in LTC Settings

Acceptability requires that healthcare services respect medical ethics, are culturally sensitive and gender-responsive, and meet the specific needs of diverse groups in line with international standards (WHO, 2023). Digital health in LTC often falls short. Many elderly people are uneasy about technology that feels impersonal or intrusive. Privacy and confidentiality are prime concerns: Pool et al. (2022) note that widespread telemonitoring and video recording provoke strong privacy worries among seniors, hindering telehealth adoption unless data protection practices (like informed consent and secure storage) are clearly in place. Bertolazzi et al. (2024) similarly observe that fears about surveillance can especially deter seniors from using devices like fall-detection sensors or patient portals. Cultural and ethical mismatches also arise: for example, if e-health systems ignore cultural norms (such as expecting family involvement in care) or fail to provide multi-language support, they lose acceptability among elderly users. Ageist or ableist attitudes, as mentioned before, whether explicit or built into design, can further undermine trust. In sum, without tailoring services to seniors' values, preferences and rights (such as autonomy and informed consent), digital health offerings in LTC may be rejected by the very people they aim to serve (Pool et al, 2022).

3.4. The Poor Quality of Health Services of LTC Digital Facilities

Quality in healthcare encompasses not only medically approved services but also essential health determinants like safe water and sanitation. As a core element of universal health coverage (UHC), quality care must be safe, effective, people-centred, timely, equitable, integrated, and efficient (WHO, 2023). The digital divide undermines these quality criteria in LTC. First, technical failures (glitches, poor connectivity or lack of integration between systems) can compromise safety and reliability. Second, if remote care does not allow adequate physical exams or follow-up, effectiveness suffers. Third, impersonal tech tools may violate the people-centredness: the elderly people often expect face-to-face interactions, and overly automated processes can feel dehumanising. In practice, experts agree that telehealth only improves quality when implemented thoughtfully. For example, Barbosa et al., (2021) and Wang et al. (2024) believed that telemedicine enhances the quality of healthcare and more efficient health care services when properly integrated in nursing homes. Likewise, recent reviews find that well-designed home-based digital care can improve patient satisfaction and independence among the elderly (Korpela, M., Holmström, P., 2019). Conversely, if LTC digital services are rolled out without adequate support (training, maintenance, continuity planning). In effect, the digital divide often leads to inequitable quality of care: tech-savvy or well-resourced elderly people get better service, while others experience delays or errors. For example, low-income elderly people often lack devices or broadband, and education and digital literacy are generally lower in older cohorts (Miller L, et. al, 2024). The COVID-19 pandemic highlighted this gap. For example, older LTC residents who could not use internet tools were cut off from remote care and social contact (Seifert, A., Batsis, J. A., Smith, A. C., 2020), while those with tech support fared better. Without such support, frail elders in LTC suffer compounded health and social harms (Miller L, et. al, 2024). Apart from that, the quality of online health information is often inconsistent, which contributes to a lower level of trust among the elderly toward electronic health resources (Lu, X., et al., 2018). This issue is multifaceted and not limited to elderly people, as individuals across various demographic groups similarly express skepticism about the reliability of digital health information (Zhou, H., Zheng, A, 2018).

4. Recommendations to Improve the Right to Health and Bridge the Digital Divide

Bridging the digital divide in LTC settings is essential to safeguarding the right to health for the elderly. As mentioned above, gaps in availability, accessibility, acceptability, and quality of digital health services disproportionately affect elderly populations worldwide. To address these challenges, a comprehensive and rights-based approach is needed, one that ensures digital inclusion, respects the elderly's autonomy and preferences, and enhances the delivery of person-centred care. The following evidence-based recommendations aim to guide policymakers, care providers, and stakeholders in building more inclusive, ethical, and effective digital health systems for ageing populations in both institutional and community-based LTC settings.

1. Bridge the International Policy Gap. As mentioned in the first part, most international and regional frameworks recognize the elderly's right to health and call for inclusive health systems, but they often treat digital inclusion as a secondary issue. Where mentioned, digital access is usually a "cross-cutting" consideration (e.g. in social protection or eGovernment policies) rather than a defined right. This leaves a policy gap: without specific language or targets, the elderly's digital health equity may be overlooked. Policymakers and advocates have noted this inconsistency, calling for age-inclusive digital policies (design standards, training programs, subsidies) that are currently not mandated by existing frameworks. Addressing this gap will be critical to ensure that the digital transformation of health truly reaches older populations.

2. Provide Training and Support. In practice, offer ongoing digital literacy programs in LTC, ideally through community or intergenerational initiatives. Studies show that pairing tech-savvy volunteers (or students) with older adults dramatically boosts confidence and skills (Miller et al., 2024). In-practice support (e.g. tech help desks, clear step-by-step guides) is also key: older users explicitly request "training, support, [and] instructions" for using health apps and portals (Laukka et al.,2024). Such measures empower the elderly to use available technology, enhancing both availability and accessibility. Across all efforts, addressing attitudinal barriers is key. Ageism in technology – the assumption that the elderly "cannot" learn, must be countered through staff training and positive messaging. The elderly's self-efficacy is a critical predictor of their online health engagement (Kamalpour et al., 2020). Programs that build confidence (starting with simple tasks and celebrating successes) help sustain usage. Similarly, ensuring there are always parallel non-digital options (phone helplines, in-person visits) for those who remain unable to use tech is essential – reflecting the EU's insistence on "maintaining non-digital services" in parallel (Council of the European Union 2020).

3. Engage Older Users in Design. Involve elderly residents in designing and evaluating digital services (Zhang, M., 2023). Co-design approaches – seeking feedback on interface layout, language simplicity, and cultural relevance to ensure higher acceptability,and incorporating cultural sensitivity and personalisation improves seniors' willingness to adopt eHealth (Galvez-Hernandez P, González-de Paz L, Muntaner C,2022).

4. Ensure Privacy and Ethical Safeguards. Build strong data protection into every digital intervention. Clear consent forms and robust security (encryption, limited data collection) help allay seniors' fears. Addressing privacy can dramatically increase trust: Pool et al. note that transparent privacy practices can improve acceptance of telehealth for older persons (Pool et al., 2022). Institutions should also train staff on ethical use of monitoring devices and respect patient dignity (e.g., no unauthorized video monitoring).

5. Ensure offline access for the elderly. As individuals age, their use of online platforms to access medical test results, renew prescriptions, or schedule healthcare appointments tends to decline, particularly from around the age of 60. However, possessing moderate to strong digital skills can help postpone this decline until approximately age 80. Still, even advanced digital proficiency is often insufficient to maintain high usage rates among the oldest age groups. To meet the diverse needs of the elderly, healthcare and social service providers must preserve offline options such as in-person and telephone services for those who remain unable to navigate online systems despite assistance (Heponiemi, T, *et al*., 2022).

5. Conclusion

Bridging the digital divide in LTC settings is essential for safeguarding the elderly's right to health. A growing body of research consistently demonstrates that lack of access to digital technologies and low levels of digital literacy contribute to poorer health and social outcomes for the elderly. Conversely, when seniors are supported in accessing and using digital tools, their well-being improves significantly. Ensuring digital inclusion is therefore not only a matter of social equity but also a critical factor in improving the quality, accessibility, and outcomes of care for the ageing population.

To address this challenge, a multi-faceted and rights-based approach is required. This includes bridge the gap of the policies, the removal of technical barriers, and the provision of ongoing training and support tailored to the needs and capabilities of the elderly. Equally important is the co-design of digital solutions with the elderly people themselves, ensuring that services are user-friendly, inclusive, and context-sensitive. Moreover, digitalisation in LTC must not replace human care but rather complement it, human oversight remains vital to preserving dignity, autonomy, and trust.

This strategy aligns with both European Union and global commitments to leave no one behind in the pursuit of health equity. As the Council of the EU has emphasized, digitalisation must be implemented in ways that facilitate, rather than hinder, the elderly's access to health and care services. With coordinated policy action, community-based innovation, and inclusive technology design, it is possible to narrow the digital gap and realise the right to health for elderly people in LTC settings.

In conclusion, bridging the digital divide is both a moral imperative and a practical necessity. By integrating digital technologies thoughtfully and inclusively into long-term care systems, we can expand the availability, accessibility, and acceptability of care. This, in turn, supports older individuals not only in maintaining their health, but also in preserving their social connectedness, independence, and dignity in later life.

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