

Information and Communication Technology-Based Interventions to Support Caregivers of Older Adults Living at Home

Summary | Abbreviated Health Technology Assessment (HTA)



Purpose

- To identify information and communication technology-based interventions (web-based and mobile) that support caregivers¹ of older adults living at home.
- To describe their effects on caregivers, care recipients, clinical teams, and the organization of care and services.

Context and Mandate

Increased life expectancy has been accompanied by an increasing number of older adults experiencing loss of autonomy. This demographic transition has led to greater demand for home care services and intensified workforce requirements within a system already affected by persistent staffing shortages.

In accordance with the Quebec Government Action Plan for Caregivers 2021–2026 – “Reconnaître pour mieux soutenir”, the Home Support and Intermediate Resources services of the Directorate of Support for the Autonomy of Older Adults (SAOA) at the CIUSSS² Centre-Sud-de-l’Île-de-Montréal (CCSMTL) mandated the Health Technology and Intervention Assessment Unit (HTAU) of the CCSMTL, in collaboration with its counterpart at the CIUSSS de la Capitale-Nationale, to undertake this abbreviated HTA. This mandate aims to identify and assess technological solutions that could strengthen support for caregivers of older adults living at home.

What Is an abbreviated HTA?

An abbreviated health technology assessment is a comprehensive review of the scientific literature conducted in accordance with the methodological standards of a systematic review. Its purpose is to synthesize available evidence and identify key findings. These findings, however, should not be interpreted as clinical or organizational practice recommendations.

Method

A structured literature search was conducted in four bibliographic databases (MEDLINE, All EBM Reviews, Embase, and CINAHL) and supplemented by a targeted review of grey literature from relevant websites. Study selection was performed using predefined eligibility criteria. All identified records were independently and blindly screened and assessed by the two primary authors.

A total of 76 publications were included in this abbreviated HTA. Data extraction and methodological quality assessment were conducted using standardized tools by the two primary authors.

Findings for each outcome were graded based on the robustness and consistency of results, as well as their transferability to the Quebec care context. On this basis, an overall level of evidence (high, moderate, low, or insufficient) was assigned to the observed effects of the interventions.

¹ The term « caregiver » designates an unpaid individual—most often a family member, friend, or neighbor—who provides care, assistance, and support to a person living with a chronic illness, disability, or functional limitation.

² CIUSSS : Integrated University Health and Social Services Centre

Overview of Identified Interventions

The systematic literature review identified **65 interventions**, characterized by the following features:

- Approximately half of the interventions pursued a dual objective, aiming both to support caregivers in their role and to improve their well-being. The remaining interventions focused exclusively on one of these objectives.
- Nearly half of the interventions had a duration of six to twelve weeks.
- In 85% of cases, interventions targeted caregivers of older adults with a specific condition, most commonly Alzheimer's disease and related dementias (ADRD).
- Asynchronous communication modalities (e.g., text-based content and prerecorded videos) were used most frequently, often in combination with synchronous modalities (e.g., teleconferencing and webinars), which were rarely implemented as standalone approaches.
- The delivery of content relied predominantly on web-based platforms (texts, videos, teleconferences, and webinars), with mobile applications serving as a secondary modality.
- Text-based materials (web content, slides) and multimedia formats (video, audio) were the most commonly used content types.
- Peer exchange spaces (forums, with or without professional facilitation) were included in approximately half of the interventions, whereas email-based communication was used less frequently.



Effects of Digital Support Interventions

Among the 65 identified interventions, 56 were evaluated to assess their effects on caregivers, care recipients, or professionals. None of the included studies examined the impact of these interventions on service organization.

Effects on Caregivers

With a High level of evidence¹, the findings show:

Improvements in caregivers' knowledge, health, and psychological well-being.

These interventions were characterized by:

- The use of diverse multimedia formats to deliver online training sessions illustrated with practical, real-life examples, educational videos, and visual presentations. Content addressed the management of behavioral symptoms, skills for assisting with basic activities, care recipient safety, and caregiver well-being;
- The provision of ongoing professional support, enabling caregivers to contact a professional as needed, alongside moderated peer discussion and exchange spaces facilitated by experienced practitioners.

Improvements in caregiving skills, mastery, and capacity to manage care-related challenges.

These interventions were characterized by:

- A focus on strengthening caregivers' knowledge, skills, and sense of mastery by enhancing their understanding of care recipients' needs and providing tailored training and guidance;
- Training delivered through multimedia presentations (prerecorded videos or live teleconferencing), complemented by at-home practical exercises.

- ✔ **Improved perceived usefulness of the interventions, without significant changes in caregivers' intention to institutionalize care recipients.**

These interventions were characterized by:

- The use of asynchronous communication tools to deliver tailored textual, multimedia, or interactive support aimed at helping caregivers manage care and navigate challenges;
- Opportunities for interaction among caregivers and with healthcare professionals through secure social communities, peer networks, and call centers.



With a moderate level of evidence², the findings show:

- ✔ **Improvements in caregivers' self-efficacy and confidence.**

These interventions were characterized by:

- Content encouraging caregivers to actively manage their lives and identify solutions to their specific needs, with an emphasis on role management (e.g., balancing activities of daily living) and emotional needs (e.g., coping with fear and uncertainty about the future);
- Instructional content promoting adaptive attitudes and problem-solving skills, reinforced through professional motivational coaching.

- ✔ **Improvements in attitudes, coping capacity, communication, and caregiver-care recipient relationships.**

These interventions were characterized by:

- Mindfulness and self-compassion-based approaches aimed at enhancing caregivers' understanding and empathy by fostering deeper insight into the limitations, thoughts, and emotions of the individuals they care for;
- Guidance on how to seek support from others and access available resources.

- ✔ **Reductions in depressive symptoms, anxiety, and stress, along with improved perceptions of both positive and negative aspects of caregiving.**

These interventions were characterized by:

- The use of both synchronous and asynchronous communication methods, combined with multimedia and textual supports, to deliver content focused on emotional regulation skills that help manage caregiving roles, negative emotions, and mental burden;
- The application of psychoeducation, behavioral activation, cognitive restructuring, relaxation techniques, and communication skills training.

- ✔ **Reduction in caregiver burden and significant improvements in quality of life.**

These interventions were characterized by:

- The delivery of digital informational sessions through multimedia presentations combined with professionally facilitated peer discussion platforms;
- Psychoeducational content designed to reduce isolation and distress, strengthen caregivers' skills and autonomy, and improve time management by facilitating access to resources and promoting active life management.

With a low level of evidence³:

- ✔ Limited evidence suggests that interventions may be associated with reduced fatigue and loneliness, as well as significant improvements in sleep quality and perceived social support among caregivers.

Effects on Care Recipients

With a moderate level of evidence², interventions may lead to the following effects:

- ✔ **Improvements in care recipients' functional level and ability to perform activities of daily living (ADLs) and instrumental activities of daily living (IADLs).**

These interventions were characterized by:

- The use of both synchronous and asynchronous communication methods to provide peer communication opportunities (e.g., forums) for sharing knowledge and experiences, as well as access to resource persons (professionals) for tailored assessments and guidance;
- Caregiver-centered counseling support addressing physical, emotional, social needs, and the existing support network.

- ✔ **Reduction in behavioral and psychological symptoms of dementia (BPSD).**

These interventions were characterized by:

- Access to personalized learning pathways through educational content covering multiple topics, including BPSD management, training to enhance caregiving skills for basic activities, safety management, and care recipient well-being;
- Support for caregivers in detecting early signs of distress or agitation and identifying the most disruptive behaviors, to develop a personalized change plan to better manage triggers, behaviors, and consequences.

With a low level of evidence³:

- ✔ Limited evidence suggests that interventions may be associated with improvements in care recipients' health and quality of life.

Effects on Professionals

- ✔ Available data are insufficient to assess the effects of interventions on professionals.

Notes

¹ It is unlikely that the observed effects of interventions will be substantially altered by future research findings.

² It is reasonably likely that the observed effects of interventions may be substantially influenced by future research findings.

³ It is very likely that the observed effects of interventions will be substantially influenced by future research findings.

Conclusion

- Information and communication technology-based interventions demonstrate strong potential to support caregivers of older adults living at home, leading to improved caregiver well-being and older adults' quality of life. However, their effectiveness depends largely on appropriate implementation strategies that are responsive to contextual, human, and regional realities. To optimize the impact and ensure sustainability, it is essential to actively involve caregivers in the design and evaluation of these tools, reduce inequalities in access, and strengthen integration with existing support resources.
- This abbreviated HTA offers a rigorous and critical synthesis of technological interventions by examining their effects on caregivers, older adults, and healthcare professionals. It aims to provide clinicians, decision-makers, and researchers with an up-to-date and structured overview of current evidence, while highlighting the role and added value of these tools in home care settings.



Caution Potential Limits to Generalizability

- Interventions were predominantly evaluated among caregivers of older adults living at home with Alzheimer's disease and related dementias.
- In several included studies, caregivers demonstrated adequate computer literacy and had access to a computer or a mobile device, as well as a reliable internet connection.
- Considerable heterogeneity was observed in interventions showing beneficial effects, participant characteristics, caregiver-care recipient relationships, caregiver burden and experience, and levels of care recipient dependency.
- Medium- and long-term outcomes were not assessed.
- Several methodological limitations may have influenced the robustness and quality of the findings.

Project Team

Authors

- **Akram Djouini**, Scientific Advisor, HTAU, Direction de l'enseignement universitaire et de la recherche (DEUR), CIUSSS Centre-Sud-de-l'Île-de-Montréal (CCSMTL)
- **Pascale Piedboeuf**, Scientific Professional, HTAU, Direction de l'enseignement et des affaires universitaires (DEAU), CIUSSS de la Capitale-Nationale

Literature Search

- **Christian Lachance**, Librarian, Library Services – Geriatrics and Gerontology Library, DEUR, CCSMTL
- **Frédéric Roy**, Librarian, DEAU, CIUSSS de la Capitale-Nationale

Requestor

Nicolas Rioux, Assistant Director, Home Support and Intermediate Resources (HS and IR), Directorate of Support for the Autonomy of Older Adults (SAOA), CCSMTL

This summary of the report *Information and Communication Technology-Based Interventions to Support Caregivers of Older Adults Living at Home* is a production of the HTAU of the CCSMTL and the HTAU of the CIUSSS de la Capitale-Nationale.



[HTAU – CIUSSS Centre-Sud-de-l'Île-de-Montréal](#)

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uetmi.ccsmtl@sss.gouv.qc.ca