

# OPP: DEMENTIA & TECHNOLOGY

## A ten-year systematic review of gerontechnologies tested among community-dwelling older adults living with dementia and their family caregivers

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**Purpose** To systematically review the literature of gerontechnologies tested in community-dwelling older adults living with dementia and their family caregivers from 2012 to 2022. This information is crucial to help researchers, scientists, clinicians, and the industry to understand the advantages, limitations, and opportunities of their use among dyads of family caregivers and older adults with unimpaired cognition (Moreno et al., 2024a) and individuals with dementia (Moreno et al., 2024b). **Method** A systematic literature search was conducted in five different databases (CINAHL, Medline, PsycINFO, AgeLine, and Web of Science) and validated by two independent librarians with backgrounds in Psychology and Geriatrics. Using COVIDENCE software, two independent reviewers screened records available in English, French, and Spanish from 2012 to 2022. We included records addressing the use of technology-assisted home support simultaneously in community-dwelling older adults living with dementia and their family caregivers following a qualitative, quantitative, or mixed methods design. **Results and Discussion** There were 1563 references published between 2012 and 2022. After removing the duplicates, 877 titles and abstracts were screened and the full text of 132 studies was assessed for eligibility, with only 20 studies testing 17 different gerontechnologies for home support in community-dwelling older adults living with dementia and their family caregivers. The results of the independent assessment of the quality of the studies using the Mixed Methods Appraisal Tool (MMAT) indicated that most were relatively good studies in terms of quality standards with a mean MMAT score of 4.2 (SD = 0.6). Gerontechnologies with overlapping functionalities included: a) behavioral monitoring focusing on tracking the behavior of an individual at home, b) health monitoring to better manage the illness and motivate people with dementia to get more involved in their own wellbeing by increasing the feeling of being connected with healthcare providers, c) caregiver education about dementia and advice about daily care, d) communication technologies to facilitate interaction between community-dwelling older adults living with dementia and their family caregivers, e) tracking devices when wandering events occur or to easily locate the person living with dementia when they are out of their usual geographic boundaries, and e) reminders, emergency warnings, and solutions for social isolation and daily activities support using digital prompters or conversational agents. Based on the analysis of these 17 gerontechnologies tested to assist community-dwelling older adults living with dementia and their family caregivers to age in place, we provide recommendations. In clinical practice, we advocate for education and accessibility early in the disease process as families are looking for creative technological alternatives to alleviate their caregiving tasks and increase peace of mind. We also provide research recommendations, such as testing these technologies with specific severities of dementia throughout the disease process considering the clinical heterogeneity of dementia. In addition, we recommend that technological development for dementia must include personalization and technical support because needs change in the dementia continuum and technical problems can lead to abandonment. Finally, we provide recommendations for public policy to promote collaboration with specific partners in the community to anticipate and facilitate implementation, to develop clearer privacy policies to protect users' data and to avoid commercializing a technology without evidence of its efficacy. Taking into account these recommendations, we can foster the responsible and evidence-driven development of gerontechnologies for home support.

### References

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**Keywords:** gerontechnology, agetech, dementia, major neurocognitive disorder, older adults, aging in place, home support

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**Acknowledgement:** With financial assistance provided by the Natural Sciences and Engineering Research Council of Canada (NSERC) and Gouvernement du Québec (Ministère de l'Économie, de l'Innovation et de l'Énergie) in Quebec, Canada. Dr. Moreno is supported by an AGE-WELL-EPIC-AT Fellowship and the Réseau Québécois de Recherche sur le Vieillessement (RQRV), a Research Network financed by Fonds de recherche du Québec.