Dementia and Technology

Measuring the Impact of Social Robots in Dementia Care From the Perspectives of End-Users. S. E. Martin, K. A. Teng, J. M. Robillard**.** *Gerontechnology* 25(s)

Purpose Social robots are increasingly recognized for their potential to offer persons living with dementia (PLWD) comfort, companionship, entertainment, and sensory or cognitive stimulation. Recent advances in Artificial Intelligence have produced robot devices that are capable of engaging in personalized interactions, providing daily activity prompts, monitoring health conditions, or sending safety and fall alerts [1]. However, despite increasing popularity and commercial availability, our understanding of how social robots impact the quality of life for persons living with experience of dementia (PLWD) remains limited. More robust evidence is needed. Patient-reported outcome measures (PROMs) are validated questionnaires that capture first person perspectives on health and quality of life status. PROMs are valuable tools in person-centred healthcare as they can be to measure the impact of interventions or new treatments [2,3]. Following a step-wise method for PROM development [4] this study reports on the first of a three-phase project to co-create an evidence-based PROM for social robots in dementia care. **Method** We conducted ten co-creation workshops with 51 participants from the dementia community. Workshops were held virtually over Zoom (n=5) and in-person at long-term care facilities (n=5). PLWD, care partners, and healthcare providers shared their perspectives on how social robots could impact the experience of living with dementia. Workshops were audio recorded and transcripts analyzed using conceptual content analysis. An inductive-deductive approach of constant comparison was used to develop a coding guide for the transcripts which was iteratively refined by 2 researchers until an interrater reliability of over 85% was achieved. The final coding guide was applied to workshop transcripts to identify the presence and frequency of key social robot outcomes discussed by participants. All aspects of this project were informed by an older adult advisory, the Lived Experience Expert Group (LEEG), known as the League. The group comprises 8 adults aged 55 plus, with self-disclosed experience of dementia, either personally or in a caring capacity. In this present work League members provided feedback on study methods and materials, supported recruitment efforts, and co-facilitated workshops. **Results and Discussion** Forty-seven candidate items were identified across eight domains: 1) interactions, 2) mental and emotional wellness, 3) activities, 4) caregiver experiences, 5) health, 6) safety and security, 7) quality of life, and 8) independence. As one example, candidate items under the domain of health include measuring how a social robot may impact medication management, nutrition and hydration, physical activity and sleep among others. Participants also shared preferences for a short-form PROM that is quick to complete, uses plain language and is available in both paper and in digital formats. Results highlight the importance of a validated tool that measures user-centered perspectives and captures the most meaningful and salient outcomes of social robot use in dementia care. In the next phase [ongoing] we are using cognitive interviews and 'think-aloud' methodology to refine the items and evaluate clarity and comprehensiveness, before validating the PROM and testing its application in real world dementia care settings. Taken together, this project underscores the value of collaborating with PLWD as co-creators in health technology research. The final PROM will advance person-centred care by empowering users to make informed decisions and influence best practices and policies for the use of social robots in dementia care.

References

1. Dosso JA, Bandari E, Malhotra A, Guerra GK, Hoey J, Michaud F, et al. User perspectives on emotionally aligned social robots for older adults and persons living with dementia. J Rehabil Assist Technol Eng [Internet]. 2022 Jan 1 [cited 2022 Sept 1];9:20556683221108364. Available from: https://doi.org/10.1177/20556683221108364
2. Canadian Institute for Health Information (CIHI). Patient-reported outcome measures (PROMs) [Internet]. 2025 [cited 2025 Apr 11]. Available from: https://www.cihi.ca/en/patient-reported-outcome-measures-proms
3. Dawson J, Doll H, Fitzpatrick R, Jenkinson C, Carr AJ. The routine use of patient reported outcome measures in healthcare settings. BMJ [Internet]. 2010 Jan 18 [cited 2022 Sept 27];340:c186. Available from: https://www.bmj.com/content/340/bmj.c186
4. Rothrock N, Kaiser K, Cella D. Developing a Valid Patient-Reported Outcome Measure. Clin Pharmacol Ther [Internet]. 2011 Nov [cited 2022 Sept 6];90(5):737–42. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3753201/