

“Social robots would be great for confidence, orientation, feeling in control”: Measuring the Impact of Social Robots in Dementia Care

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Background

Social Robots (SRs) demonstrate potential to reshape dementia care and improve quality of life for persons living with dementia (PLWD).

Despite their increasing popularity in age-related contexts, gaps remain in our understanding of how robots make a difference. No standardized tool for measuring their impact exists.

Here we report on the first of a three-phase project to co-create an evidence-based, patient-reported outcome measure (PROM) to capture the impact of SRs in dementia care.



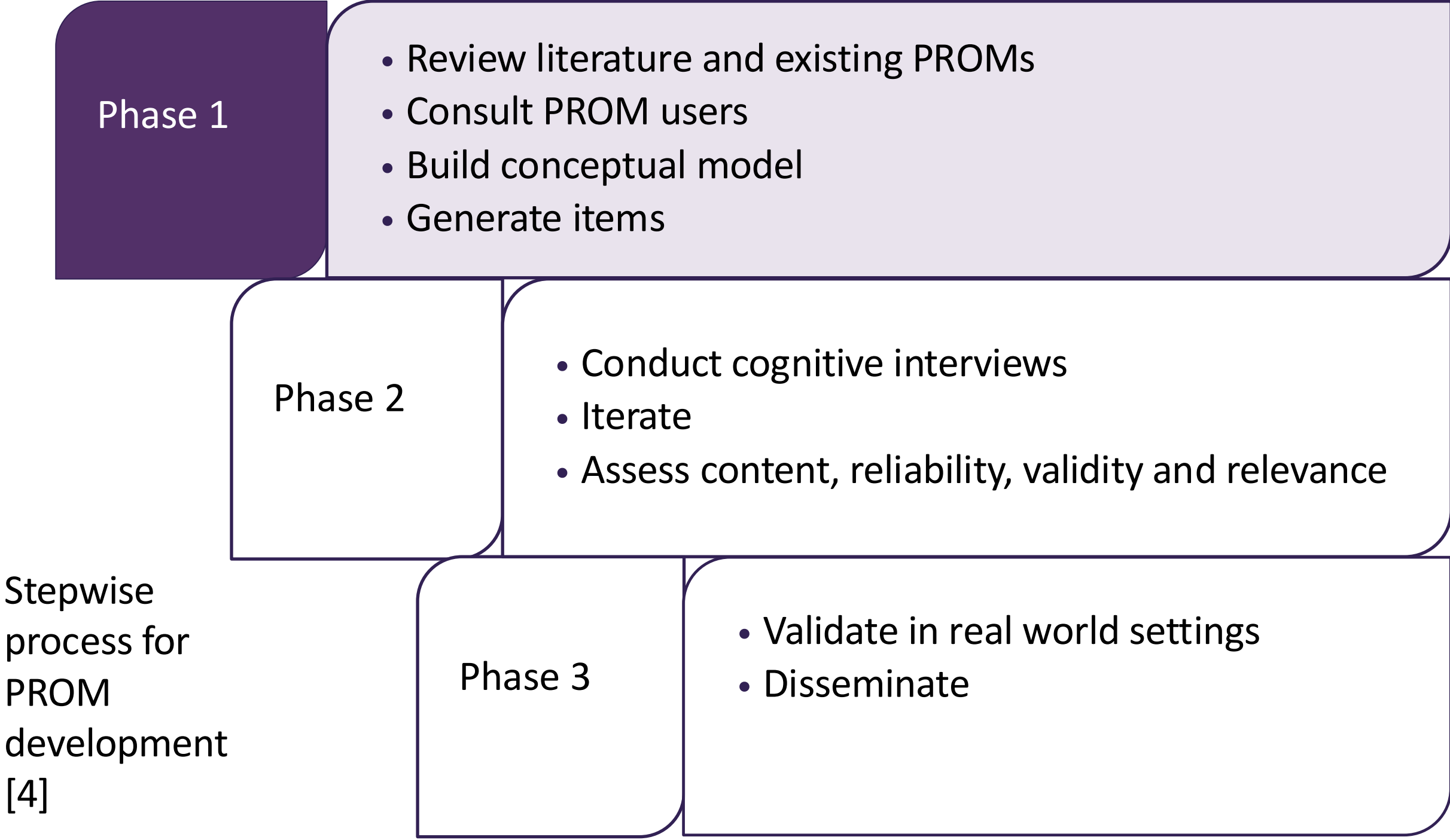
- Interact with user(s).
- Move, act and respond on their own.
- Sense the environment and detect people or objects.
- Occupy a physical space, i.e., embodied technology you can see, touch and hear.

SRs can offer; comfort, companionship, entertainment, sensory and cognitive stimulation. Artificially Intelligent SRs can offer personalised interactions, prompt users about daily activities, link to sensors to monitor health, and send safety alerts to family members or caregivers [1].

Patient-reported outcome measures (PROMs) are validated questionnaires patients fill out to share information about health and quality of life. They capture patients’ perspectives and can be used before and after treatment to measure its impact.

PROMs are valuable tools in person-centred healthcare [2, 3].

Methods



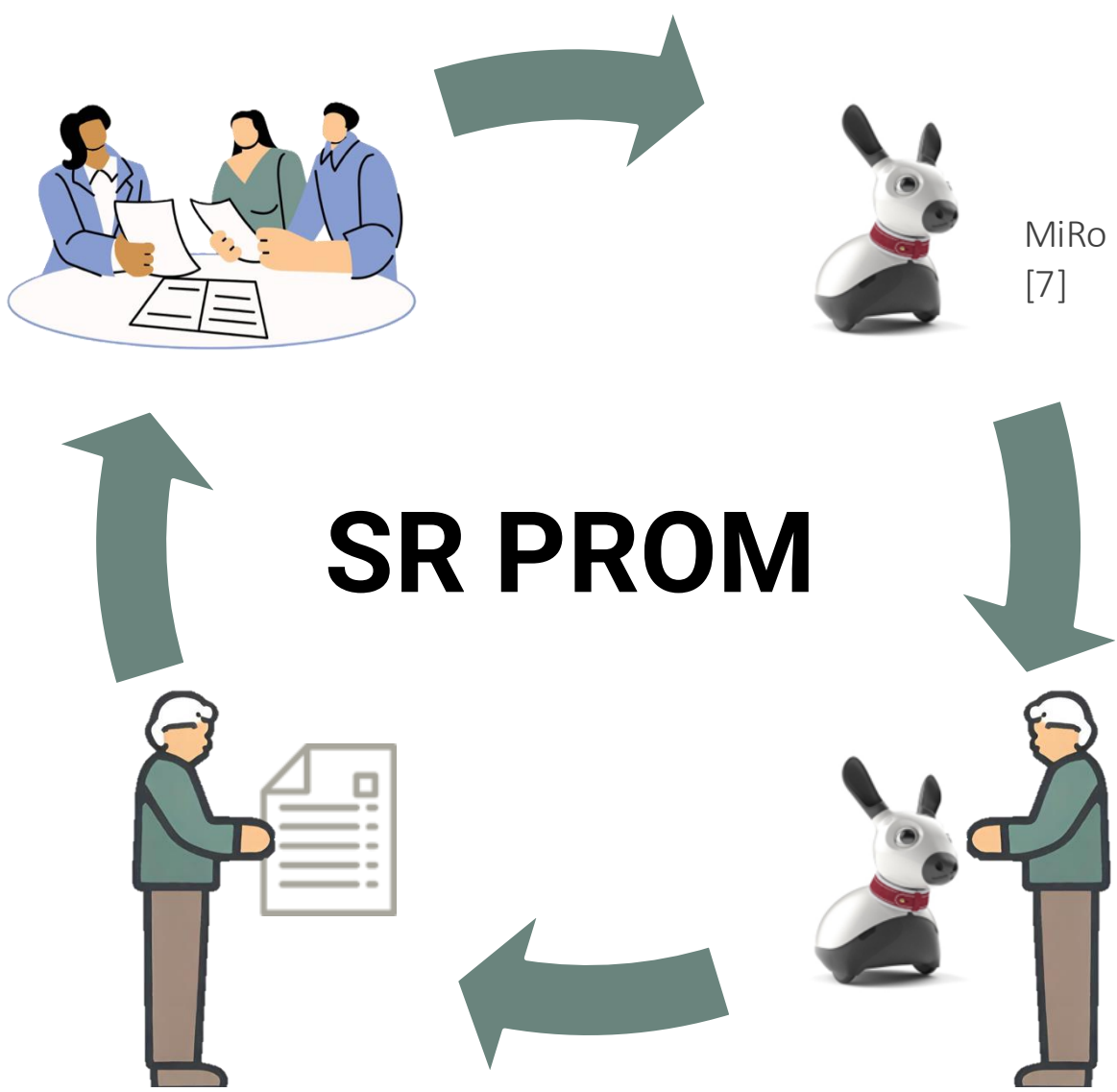
Phase 1 Co-creation Workshops

- 5 In-person at long-term care facilities
- 5 Online

- 51 Participants
- 4 People living with experience of dementia
- 23 Care partners (CP)
- 24 Healthcare professionals (HCP)

Audio recorded and fully transcribed

Analysis of transcripts by content analysis and constant comparison, using NVIVO Version 14, to identify key SR outcomes discussed by workshop participants.



The SR PROM will advance person-centred care, empower users to make informed decisions about why and how they use SRs, and influence practice and policy for SR implementation in dementia care.

Results

What outcomes should the Social Robot PROM capture?

- Interactions
- Mental and emotional wellness
- Activities
- Caregiver experiences
- Health
- Safety and security
- Quality of life
- Independence

8 themes and 47 subthemes were identified as important outcomes to include in a tool that measures the impact of SRs in dementia care.

Themes provide the foundation for the initial PROM, representing the domains and item bank.

“if a SR would wake you every morning saying, “Hi, it’s Tuesday, that’s day program today, and it’s raining,”... that would be great for confidence, orientation, feeling in control.” (CP11)

“[SR] could help unload some of that burden, just so that we could have a bit of a downtime, and then we go do it again” (CP24).

“I can only see it positively impacting people. It’s company and you can have conversations with it” (PLWD02”



How should the Social Robot PROM be administered?

Participants shared preferences for a short-form PROM that uses plain language, is available in both paper and in digital formats and flexible to accommodate a variety of user needs and abilities.

Conclusion

Results highlight the need for a validated tool that captures user-centered perspectives and measures salient outcomes of SRs in dementia care. 2 PROMs have been drafted; 1 for PLWD and a proxy measure that will include the experiences of care providers.

Phase 2 - We are carrying out cognitive interviews using ‘think-aloud’ methodology to refine the draft measures before testing for validity and responsiveness in real world dementia care settings.

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The League older adult advisory group informed this project. The group comprises 8 adults aged 55+ with self-disclosed experience of dementia, either personally, or in a caring capacity. League members are involved in all NEST lab studies on SRs for older adults. In this study, members provided feedback on study methods and materials, supported recruitment efforts, and co-facilitate workshops.

Co-creating an Outcome Measure for Social Robots in Dementia Care (COMFORT) UBC Behavioural Research Ethics Board Approval: H23-00093

References:

[1] Dosso et al., (2022) [2] Canadian Institute for Health Information (n.d) [3] Dawson et al., (2010) [4] Rothrock et al., (2011) [5] Shibata (2011) [6] Ageless Innovation (2024) [7] Consequential Robotics (2019)

Acknowledgements:

We thank our workshop participants and connections in long-term care facilities for their contributions. We extended gratitude to members of our older adult advisory group, the League, for their ongoing collaboration in this research.