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Managing active and healthy aging with the use of caring service robots (MARIO)

Cheryl Kruschke
Regis University, USA

Background: Over 5 million Americans are currently living with Alzheimer's disease and other forms of dementia. It is estimated that 1 in 3 Americans die with a diagnosis of Alzheimer's disease or some other type of dementia. Europe has the highest prevalence of dementia in the world. The World Alzheimer report indicates by the year 2050 there will be 131 million individuals living with some form of dementia. Currently, the cost of care for individuals living with dementia worldwide exceeds \$800 billion dollars. Global action against dementia was convened by the World Health Organization in 2015. Six countries and ten organizations came together to develop a caring service robot called MARIO.

Purpose: This research was intended to build on current knowledge regarding the use of service robots as companions for individuals living with dementia. The use of MARIO to provide companionship to individuals living with dementia is intended to promote independence for those individuals for longer periods of time, reducing the need for placement in long term care facilities.

Research Questions: The Medical Research Council for the overall research project developed four questions related to this project. Questions includes: How can service robots be most effectively used to combat the perception of loneliness, increase resilience, and mitigate the effects and or severity of dementia? What attributes and functionalities should such robots have? Technically, how do we achieve, assess and deploy them? How can robots be used within the context of comprehensive geriatric assessment and to conduct Multidimensional Prognosis of end users through explicit and implicit data and observations? How can service robots best connect and create positive actions between older persons, their communities and caregivers?

Theoretical Framework: Phenomenological qualitative inquiry. Convenient purposeful sampling was used to develop participants and IRB approval through the National University of Ireland, Galway.

Methods: Consent forms completed at the time of each interview. Minimally-structured interview format was used. Interviews last between 15 minutes and 60 minutes depending on the participant. Interviews occurred off the nursing unit in an agreed upon location. Content analysis approach was used. Data organized into categories based on themes and patterns. Trustworthiness/Rigor of this evaluation was maintained through clarification of the information obtained during the interview process. Eight individuals were asked to be interviewed and seven agreed to the interview. Observations were also completed, and field notes used to record those observations.

Results: Overall, the staff found MARIO to be acceptable especially in this early phase of the research. Initially staff thought MARIO should be helping them, but they did find him acceptable as a companion. Residents responded to MARIO especially when he was playing music

ckruschk@regis.edu