Evaluating a mobile application to support persons living with dementia at risk of going missing and their care partners

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Purpose With the increasing prevalence of dementia, missing incidents among persons living with dementia are rising. Consequences include injuries, death, caregiver burden, and high search and rescue costs (Bantry White & Montgomery, 2015). Yet, the ability to move around in one's community helps individuals maintain social, physical, and civic activities, necessary for a good quality of life. Information and communication technologies (ICTs) can support mobility and independence of people with cognitive impairment while providing peace of mind to care partners (Liu et al., 2017). ICTs that support wayfinding and community safety typically use global positioning system (GPS). As smart phones have become ubiquitous, mobile applications focused on supporting persons living with dementia in the community and their care partners are emerging. One such mobile app is GuardIO - Family Care, a Health Canada-licensed mobile app. This caregiving tool allows care partners to remotely assess the immediate whereabouts and mobility behaviours of at-risk family members who have cognitive impairment. It captures the mobility behaviour at the time of walking or driving and sends real-time safety alerts to individuals in the care circle. The goals of this project are to: (1) examine the acceptance and usability of GuardIO; and (2) understand mobility patterns of persons living with dementia. Mobility patterns while older adults are in community, may serve as an effective and accurate digital biomarker for identifying preclinical cognitive impartment in this population (Bayat et al., 2022). **Method** This study uses a mixed-method pre- and post-test design involving 40 dyads of persons living with dementia and their care partners. Thirty percent of the participants are from an Indigenous community in Canada. Participants use the GuardIO app for one month. They assess the acceptance and usability using a questionnaire based on the Unified Theory of Acceptance and Use of Technology. The questionnaire responses are analyzed using a partial least square regression model. Machine learning-driven analytics characterize the mobility patterns of participants with dementia and without dementia. A focus group with 20 dyads elicits user experiences, satisfaction and challenges, and barriers associated with using GuardIO. **Results and Discussion** Data collection is underway. Preliminary usability findings will be presented including the usefulness, ease of use, and acceptability of the GuardIO app from the perspectives of persons living with dementia and care partners. We will also describe the performance metrics (i.e., accuracy, specificity) of classification models based on mobility pattern biomarkers to distinguish older adults with dementia from their care partners without dementia. This project provides insight into the use of a mobile app to enable persons with dementia and care partners to manage the risk of going missing. Data collected through the app can be used to identify changes in mobility which may inform decisions about personalized care and supports.

References

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