

# A Process Evaluation of a Physical Activity Smartphone App for Older Adults With Mild Cognitive Impairment or Mild Dementia

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Sedentariness in older adults is linked to increased mortality risk (1) and is especially problematic in those with Alzheimer's disease and related dementias (ADRD). (2,3) Although use of mobile health apps is an increasingly popular means to target health behaviors like physical activity, few have been developed specifically for older adults with MCI/ADRD as end users or involve them in the development process despite the value-add of doing so. (4) Consequently, little is known about effective ways to engage people with MCI/ADRD in the app development process. An occupation-centric physical activity app, Moving Up-A, aims to improve physical activity patterns in older people with MCI/ADRD. A two-phased, iterative feasibility study was conducted to solicit feedback about the user experience. The present study reports the phase-one process feasibility of implementing and evaluating Moving Up-A (version 1) in older adults with MCI/ADRD. Fifteen older adults with mildly impaired cognition and their study partners were oriented to Moving Up-A and tested the app for two weeks. One-week check-in calls were made to provide additional support. A user experience interview was conducted following the two-week trial. The research team held regular meetings and kept detailed logs regarding protocol adherence and deviations, interactions with participants, and implementation experiences. Processes were evaluated through discussion of documented experiences and consensus among the research team regarding emergent themes of importance. Several process challenges, organized by theme, arose in phase-one feasibility testing. Recruitment/Enrollment: participant recruitment was slow, necessitating removal of key eligibility requirements and formation of new recruitment partnerships. Cognitive Load: participants demonstrated signs of cognitive overload during several study activities. Protocol modifications were necessary (e.g., decreasing visit length, improving interview structure organization) to enhance participation. Training & Support: client-centered approaches and geragogy best practices (e.g., step-by-step guidance when troubleshooting app errors) became crucial in overcoming regular challenges and stressors related to user training and support. Eliciting User Feedback: some participants had difficulty articulating meaningful feedback about the app, warranting revisions to interview techniques (e.g., balancing open-ended and concrete questions). Drawing on lessons learned from a process feasibility evaluation, we offer recommendations for good practices that may be useful to broader development efforts of mobile health technology for ADRD populations.

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