

(TLast). Reported enjoyment was moderate to high for both groups at baseline and increased over time. Likelihood to play Concentration and Brick Drop again trended lower among non-players at T1 ( $p=.061$  and  $.054$ ), but not at TLast. Further, change in likelihood to play mCAPP from T1 to TLast was positive among non-players, with change for Concentration significantly higher for non-players than for players ( $p=.037$ ).

**Conclusions:** Participants were willing and able to complete at-home cognitive testing and most completed more than the assigned sessions. While participants who do not play games on their own mobile device were slower on some tasks at baseline, these differences dissipated with further play at-home. Usability and enjoyment of mCAPP games were high regardless of mobile game-playing status, and non-players demonstrated increased willingness to play mCAPP games again at the end of participation compared to baseline. This pilot study shows preliminary feasibility and adoptability of mobile app-based assessment regardless of prior experience with mobile games.

**Categories:** Teleneuropsychology/ Technology

**Keyword 1:** computerized neuropsychological testing

**Keyword 2:** cognitive functioning

**Keyword 3:** neuropsychological assessment

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## 90 Feasibility of Repeated Remote Memory Assessment with Mobile Devices to Detect Subtle Cognitive Decline in Older Adults

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**Objective:** Frequent and remote cognitive assessment may improve sensitivity to subtle cognitive decline associated with preclinical Alzheimer's disease (AD). The objective of this study was to evaluate the feasibility and acceptability of repeated remote memory assessment in late middle-aged and older adults.

**Participants and Methods:** We recruited participants from a longitudinal aging cohort to complete three medial temporal lobe-based memory paradigms (Object-In-Room Recall [ORR], Mnemonic Discrimination for Objects and Scenes [MDT-OS], Complex Scene Recognition [CSR]) using the neotiv application at repeated intervals over one year. We conducted initial telephone calls to perform screening, consent, and download instructions. Participants were assigned 24 remote sessions on a smartphone or tablet and were alerted via push notification when an assignment was ready to complete. Participants were randomly assigned to: (1) complete memory tests every other week or (2) complete memory tests for multiple days within one week every other month. Each remote session lasts approximately 10 minutes and includes one memory paradigm and brief usability/acceptability questionnaires followed by a delayed retrieval session 90 minutes later. Feasibility metrics examined included participation, retention, compliance, and usability/acceptability.

**Results:** Of 150 participants recruited, 113 consented and were enrolled into the study (participation rate = 75%). Current retention rate is 75%, with 85/113 currently active ( $n=73$ ) or completed ( $n=12$ ). Of the 85 active or completed participants, the mean age is 68.7 (range = 48-82), 64% are women, 70% used a smartphone (30% tablet), 84 are cognitively unimpaired and 1 has mild cognitive impairment. The primary threat to retention was participants consenting into the study but never registering in the app or completing their first scheduled assignment. After enrollment, 130 telephone calls were made by study staff to facilitate registration into the app or to remind participants to complete tasks. 74-80% of participants completed delayed retrieval tasks within 30 minutes of push notification, but average retrieval time was 125-137 minutes post-learning trials. Regarding

acceptability/usability, 94% agreed the application was easy to use, 56% enjoyed completing the mobile memory tests (36% felt neutral), 40% prefer remote mobile memory tests to standard in-person paper and pencil tests, and 50% understood the test instructions. 87% felt the frequency of tests assigned was “just right” (13% “too often”) and 90% felt the test length was “just right” (7% too short, 3% too long). Participants who completed all 24 sessions to date (n=12) all endorsed being “satisfied” or “very satisfied” with the platform and visit schedule, as well as recommended continued use of this type of cognitive testing. **Conclusions:** Remote memory assessment using smartphones and tablets is feasible and acceptable for cognitively unimpaired late middle-aged and older adults. Follow-up by study staff was needed to ensure adequate retention. Comprehension of instructions and compliance with completing delayed retrieval tasks within the expected timeframe was lower than expected. These feedback will be incorporated into an updated version of the app to improve compliance and retention. Longitudinal data collection is ongoing and results will be updated with a larger sample. Results will be compared across frequency schedule groups.

**Categories:** Teleneuropsychology/ Technology

**Keyword 1:** computerized neuropsychological testing

**Keyword 2:** dementia - Alzheimer's disease

**Keyword 3:** technology

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## 91 Remote Smartphone-Based Assessment Predicts Standard Neuropsychological Test Performance and Cerebral Amyloid Status in Cognitively Normal Older Adults

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**Objective:** Routine cognitive screening in the elderly may facilitate earlier diagnosis of neurodegenerative diseases and access to care and resources for patients and families. However, despite growing rates of Alzheimer's and related disorders (ADRD), the availability and implementation of cognitive screening for older adults in the US remains quite limited. Remote cognitive assessment via smartphone app may reduce several barriers to more widespread screening. We examined the validity of a remote app-based cognitive screening protocol in healthy older adults by examining remote task convergence with standard-person assessments and cerebral amyloid (A $\beta$ ) status as an AD biomarker.

**Participants and Methods:** Participants (N =117) were cognitively unimpaired adults aged 60-80 years (67.5% female, 88% White, 75% education  $\geq$  16 years). A portion had A $\beta$  PET imaging results available from prior research participation [(A $\beta$  positive (A $\beta$ +) n =26, and A $\beta$  negative (A $\beta$ -) n = 44]. A modified Telephone Interview for Cognitive Status (TICSm) cutoff score of  $\geq$ 34 was used to establish unimpaired cognition. Participants completed 8 consecutive assessment days using Mobile Monitoring of Cognitive Change (M2C2), a smartphone app-based testing platform developed as part of the National Institute of Aging's Mobile Toolbox initiative. Brief (i.e., 3-4 minute) M2C2 sessions were assigned daily within morning, afternoon, and evening time windows. Tasks included measures of visual working memory (WM), processing speed (PS), and episodic memory (EM) (see Thompson et al., 2022). Participants then completed a battery of standard neuropsychological assessments in-person at a follow-up visit.

**Results:** Participants completed 22.6 (SD = 2.6) out of 24 assigned sessions (3 sessions x 8 days) on average. Performance on all M2C2 tasks decreased significantly with age. Women performed significantly better on WM and EM tasks relative to men. There were no detectable significant differences in performance by race or education. Shorter mean reaction time on M2C2 PS trials predicted faster Trails A and B completion ( $\beta$  = .26,  $p$  < .01, 95% CI [3.8, 23.3] and  $\beta$  = .20,  $p$  < .05, 95% CI [.23, 6.8], respectively). Greater mean M2C2 WM