produced by the National Geographic Channel. Cognitive training was completed using the Posit Science Brain HQ training program, which included 8 cognitive training paradigms targeting attention/processing speed and working memory. All participants also completed demographic questionnaires, cognitive testing, and an fMRI 2-back task at baseline and at 12-weeks following cognitive training.
**Results:** Repeated measures analysis of covariance (ANCOVA), adjusted for training adherence, transcranial direct current stimulation (tDCS) condition, age, sex, years of education, and Wechsler Test of Adult Reading (WTAR) raw score, revealed a significant 2-back by training group interaction ($F[1,40]=6.201$, $p=.017$, $\eta^2=.134$). Examination of simple main effects revealed baseline differences in 2-back performance ($F[1,40]=.568$, $p=.455$, $\eta^2=.014$). After controlling for baseline performance, training group differences in 2-back performance was no longer statistically significant ($F[1,40]=1.382$, $p=.247$, $\eta^2=.034$).
**Conclusions:** After adjusting for baseline performance differences, there were no significant training group differences in 2-back performance, suggesting that the randomization was not sufficient to ensure adequate distribution of participants across groups. Results may indicate that cognitive training alone is not sufficient for significant improvement in working memory performance on a near transfer task. Additional improvement may occur with the next phase of this clinical trial, such that tDCS augments the effects of cognitive training and results in enhanced compensatory scaffolding even within this high performing cohort. Limitations of the study include a highly educated sample with higher literacy levels and the small sample size was not powered for transfer effects analysis. Future analyses will include evaluation of the combined intervention effects of a cognitive training and tDCS on n-back performance in a larger sample of older adults without dementia.

**Categories:** Aging
**Keyword 1:** working memory
**Keyword 2:** aging (normal)
**Keyword 3:** neurocognition
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## 54 The Relationship between Error-Monitoring and Measures of Real-World Awareness and Everyday Function

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**Objective:** Aging older adults and individuals with mild cognitive impairment (MCI) experience changes in ability to self-monitor errors. Difficulties with accurate self-monitoring of errors can negatively impact everyday functioning. Without proper error recognition, individuals will continue to make mistakes and not implement compensatory strategies to prevent future errors. A modified Sustained Attention to Response Task (SART; Robertson et al., 1997) has previously been used to assess self-monitoring by the number of errors individuals were able to recognize. The current study sought to examine the relationship of this laboratory-based error-awareness task with everyday functional abilities as assessed by informants and with real-world error-monitoring. We hypothesized that self-monitoring would be significantly related to real-world error-monitoring and everyday functional abilities.
**Participants and Methods:** 135 community-dwelling participants (110 healthy older adults (HOA) and 25 individuals with MCI) were included from a larger parent study (mean age = 67.73, SD = 8.89). A modified SART was used to measure error-monitoring and create a self-monitoring variable by dividing accurately recognized errors by the total number of errors. Participants also completed simple and complex everyday tasks of daily living (e.g., making lemonade, cooking oatmeal, cleaning, filling medication pillbox) in a university campus apartment. Examiners coded both number of errors committed and self-corrections that were made during task completion. To examine real world error awareness, total self-correct errors were divided by the total number of errors. Knowledgeable informants (KI) completed the Everyday Cognition (ECog) scale, where they rated the participant on domains of memory, language, spatial abilities, planning, organization, and divided attention, to capture changes in everyday function. Pearson correlations were used to examine the

https://doi.org/10.1017/S1355617723004903 Published online by Cambridge University Press

relationship between SART self-monitoring and real-world error-monitoring, and changes in everyday functions as rated by their informants.
**Results:** As self-monitoring scores on the SART increased, so too did real-world error awareness scores, r(133) = .18, p = .04. Higher self-monitoring scores on the SART were also significantly positively associated with functional performance abilities on the Ecog total (r(96) = -.24, p = .02). Further, higher self-monitoring on the SART was related to better functional performance within the Ecog domains of everyday memory (r(96) = -.23, p = .02), everyday language (r(96) = -.24, p = .02), everyday spatial abilities (r(96) = -.23, p = .02), and everyday planning (r(96) = -.21, p = .04). SART self-monitoring was not significantly related to everyday organization or divided attention domains.
**Conclusions:** The findings revealed that better error-monitoring performance on a laboratory-based task was related to better error-monitoring when completing real-world activities, and less overall impairment in everyday function as reported by informants. Results support the ecological validity of the SART error-monitoring score and suggest that error-monitoring performance on the modified SART may have important clinical implications in predicting real-world error-monitoring and everyday function. Future research should consider how SART error-monitoring may predict everyday functioning, over and above other clinical measures.

**Categories:** Aging
**Keyword 1:** self-monitoring
**Keyword 2:** ecological validity
**Keyword 3:** everyday functioning
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## 55 Remote Cognitive Screening in Primary Care via a Mobile App: A Formative Usability Evaluation of MyCog Mobile

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**Objective:** In the context of primary care, cognitive screenings are brief, non-diagnostic tests that clinicians can administer in order to provide appropriate referrals to neuropsychologists. Annual cognitive screening for adults over age 65 ("older adults") can help monitor cognitive functioning over time and ensure more patients with cognitive impairments receive neuropsychological assessment and care earlier. Unfortunately, time constraints and lack of training present major barriers to cognitive screening in primary care, and less than half of cognitive impairment cases are identified in these settings. A remote cognitive screening mobile app has the potential to save primary care clinics time, particularly for the majority of older adults who are cognitively healthy. Moreover, a screening app well-validated for remote clinical use can replace the inadequate or nonexistent screening practices currently employed by many primary care clinics. In order to achieve their potential, remote smartphone-enabled cognitive screening paradigms must be acceptable and feasible for both patients and clinical end users. With this goal in mind, we describe the collaborative, human-centered design process and proposed implementation of MyCog Mobile (MCM), a self-administered cognitive screening app based on well-validated NIH Toolbox measures.
**Participants and Methods:** We conducted foundational interviews with primary care clinicians (N=5) and clinic administrators (N=3) and created user journey maps of their existing and proposed cognitive screening workflows. We then conducted individual semi-structured interviews with healthy older adults (N=5) as well as participated in a community stakeholder panel of older adults and caregivers (N=11). Based on the data collected, we developed high-fidelity prototypes of the MCM app which we iteratively tested and refined with the older adult interview participants. Older adults rated the usability of the prototypes on the Simplified System Usability Scale (S-SUS) and After Scenario Questionnaire (ASQ).
**Results:** Clinicians and administrators were eager to use a well-validated remote screening app if it saved them time in their workflows and were fully integrated into their EHR. Clinicians prioritized easily interpretable score reports tied to automated best practice guidelines. Findings from interviews and user journey mapping further informed the details of the proposed implementation and core functionality of MCM. Older adult participants were motivated to complete a remote cognitive screener to ensure they were cognitively healthy, save time during

https://doi.org/10.1017/S1355617723004903 Published online by Cambridge University Press