

IADLs best distinguish between MCI and normal cognition.

Participants and Methods: Participants were 65 years or older, independently community-dwelling, and had at least one daily medication and home internet access. Clinical assessments were performed at baseline. Electronic pillboxes (MedTracker) and computer software (Worktime) measured daily medication and computer habits using the Oregon Center for Aging and Technology (ORCATECH) platform. The Survey for Memory, Attention, and Reaction Time (SMART; Trail A, Trail B, and Stroop Tests) is a self-administered digital cognitive assessment that was deployed monthly. IADL data was aggregated for each participant at baseline (first 90 days) in each domain and various features developed for each. The receiver operating characteristic area under the curve (ROC-AUC) was calculated for each feature.

Results: Traditional IADL Questionnaires.

At baseline, 103 participants (normal $n = 59$, $M_{age} = 73.6 \pm 5.5$; MCI $n = 44$, $M_{age} = 76.0 \pm 6.1$) completed three functional questionnaires (Functional Activities Questionnaire; Measurement of Everyday Cognition (ECog), both self-report and informant). The Informant ECog demonstrated the highest AUC (72% AUC, $p = <.001$).

Remotely monitored in-home IADLs and self-administered brief online cognitive test performance.

Eighty-four had medication data (normal $n = 48$, $M_{age} = 73.2 \pm 5.4$; MCI $n = 36$, $M_{age} = 75.6 \pm 6.9$). Four features related to pillbox-use frequency (73% AUC) and four features related to pillbox-use time (62% AUC) were developed. The discrepancy between self-reported frequency of use versus actual use was the most discriminating (67% AUC, $p = .03$).

Sixty-six had computer data (normal $n = 38$, $M_{age} = 73.6 \pm 6.1$; MCI $n = 28$, $M_{age} = 76.6 \pm 6.8$). Average usage time showed 64% AUC ($p = .048$) and usage variability showed 60% AUC ($p = .18$).

One hundred and two completed the SMART (normal $n = 59$, $M_{age} = 73.6 \pm 5.5$; MCI $n = 43$, $M_{age} = 75.9 \pm 6.2$). Eleven features related to survey completion time demonstrated 80% AUC in discriminating cognition. Eleven features related to the number of clicks during the survey demonstrated 70% AUC. Lastly, seven mouse movement features demonstrated 71% AUC.

Conclusions: Pillbox use frequency combined features and self-administered brief online

cognitive test combined features (e.g., completion times, mouse cursor movements) have acceptable to excellent ability to discriminate between normal cognition and MCI and are relatively comparable to informant rated IADL questionnaires. General computer usage habits demonstrated lower discriminatory ability. Our approach has applied implications for detecting and tracking older adults' declining cognition and function in real world contexts.

Categories: MCI (Mild Cognitive Impairment)

Keyword 1: activities of daily living

Keyword 2: mild cognitive impairment

Keyword 3: everyday functioning

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79 Brief Subjective Memory Screener Predicts Memory Dysfunction

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Objective: Alzheimer's disease (AD) is expected to affect over 7 million older Americans by 2025. Development of fast and inexpensive screening measures for routine screening is critical for identifying those suffering from the earliest stages of AD including Mild Cognitive Impairment (MCI) and Subjective Cognitive Decline (SCD). Here we assess the validity and utility of a brief, 5-item SCD screener and its associations with neuropsychological performance as compared to an existing objective cognitive screener, the Mini Mental Status Exam (MMSE).

Participants and Methods: Development: A brief, 5-item SCD questionnaire was developed based on a more extensive 20-item version previously validated (Chapman et al. 2021). Participants: 27 cognitively diverse (MCI and cognitively normal) community dwelling older adults were recruited for this study. Mean age: 71.9 ± 7 . Inclusion criteria include memory concerns. Exclusion criteria include no previous diagnoses of neurodegenerative diseases and/or major stroke. Administration: Participants

completed a brief, 5-item SCD screener along with cognitive testing including the MMSE and a clinically validated list-learning test, the Selective Reminding Test (SRT). **Statistical Methods:** Spearman 2-tailed correlations were conducted to assess the relationship between the two screening measures, and their relationships to the SRT. Outcome measures on the SRT included total recall (max: 72) and delayed recall (max: 12). All cognitive measures were demographically adjusted with normative data. **Results:** The mean total for the SCD screener was 2.1 ± 1.1 , and the mean MMSE score was 29.2 ± 1.2 . The SCD screener was associated with MMSE scores ($r = -.39$, $p = .043$), SRT Total Recall ($r = -.43$, $p = .024$) and Delayed Recall ($r = -.42$, $p = .031$) measures. MMSE scores did not associate with either SRT outcome ($p > .05$). **Conclusions:** Results support the utility and validity of a brief subjective cognitive decline screener for identifying those who may be experiencing memory dysfunction. The brief SCD screener outperformed the MMSE, an existing and widely used objective screening measure. Associations between the SCD screener and SRT outcomes support the validity and utility of the brief screener and recapitulate previous findings with the more extensive version of the SCD questionnaire (Chapman et al. 2021). Ongoing research is focusing on the utility of the screener in frontline clinical settings and translation of the screener into Spanish.

Categories: MCI (Mild Cognitive Impairment)

Keyword 1: aging disorders

Keyword 2: mild cognitive impairment

Keyword 3: memory complaints

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80 The Association between Periodontal Disease and Self-Reported Cognitive and Functional Decline at Age 60 in a Large, Multicultural Cohort Study

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Objective: We assess the association between self-reported history of periodontal disease diagnosis with self-reported cognitive and functional decline at age ~60. We also investigate (1) the roles of social background, demographic characteristics, education, and adolescent test scores in confounding that association and (2) the role of cardiovascular disease in mediating that association.

Participants and Methods: We use data from a nationally representative sample of 13,525 people who participated in the 2021 wave of the High School & Beyond (HSB) cohort study. HSB began in 1980 with a nationally-representative sample of American 10th and 12th grade students; these students have been followed up on six occasions since 1980, yielding extraordinary and prospectively-collected life course data on all key measures for a large, multicultural sample.

In 2021, HSB sample members were evaluated with neuropsychological tests that evaluated list learning and memory, semantic and letter fluency, and working memory. They were also asked to self-report memory and functional decline using the AD8, using a cutoff of 2 or more items for significant concerns. Mild Cognitive Impairment will be identified using an algorithm validated in a similar sample of middle aged participants.

Sample members were also asked in 2021 whether a medical professional had ever diagnosed them with periodontal disease; those responding affirmatively were then asked the years in which they started and stopped having periodontal disease.

Measures of social and economic background; demographic characteristics; and educational contexts, opportunities, and attainments were measured prospectively—and in great detail—in the surveys administered in the 1980s. Critically, almost all sample members completed a series of cognitive tasks during adolescence, allowing us to address a key set of confounders in the relationship between periodontal disease and MCI. Markers of cardiovascular disease were measured in both 2013 and 2021.

We estimate logistic regression models predicting significant cognitive and functional concerns as a function of periodontal disease history; we also estimate models that account for confounders, including social background,