or below 60. Additionally, 85.3% of the sample had a standard VABS-II score at or below 60. Within the normative floor for the KBIT2 (IQ=40), there was a normal distribution and substantial range of both KBIT2 raw scores (M = 31.19, SD = 13.19, range: 2 to 41) and VABS-II raw scores (M = 406.33, SD = 84.91, range: 198 to 569). Using the full sample, age significantly predicted raw VABS-II scores (β = -.283, p = .008). When KBIT2 raw scores were included in the model, age was no longer an independently significant predictor. KBIT2 raw scores significantly predicted raw VABS-II scores (β = .689, p < .001). Age alone accounted for 8.0% of variance in VABS-II raw scores and KBIT2 raw scores accounted for 43.8% additional variance in VABS-II raw scores. This relationship was maintained when the sample was reduced to individuals at the normative floor (n = 51) where KBIT2 raw scores accounted for 23.7% of the variance in raw VABS-II scores (β = .549, p < .001).
Conclusions: The results indicate that meaningful variability exists among raw intelligence test performances that may be masked by scores at the normative floor. Further, the variability in raw intelligence scores is associated with variability in adaptive functioning, such that lower intelligence scores are associated with lower ratings of adaptive functioning. Considering this relationship would be masked by a reduction of range due to norming, these findings indicate that raw test performances and adaptive functioning ratings may have value when monitoring change in adults with DS at risk for AD.

Categories: Dementia (Alzheimer's Disease)
Keyword 1: dementia - Alzheimer's disease
Keyword 2: adaptive functioning
Keyword 3: cognitive functioning
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50 Self-Reported Everyday Cognition Scale Memory, Attention, and Spatial Navigation Subsections Demonstrated Significant, but Limited, Diagnostic Accuracy in Identifying Preclinical Alzheimer Disease

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Objective: Preclinical Alzheimer disease (AD) has been associated with subtle deficits in memory, attention, and spatial navigation (Allison et al., 2019; Aschenbrenner et al., 2015; Hedden et al., 2013). There is a need for a widely distributable screening measure for detecting preclinical AD. The goal of this study was to examine whether self- and informant-reported change in the relevant cognitive domains, measured by the Everyday Cognition Scale (ECog; Farias et al., 2008), could represent robust clinical tools sensitive to preclinical AD.
Participants and Methods: Clinically normal adults aged 56-93 (n=371) and their informants (n=366) completed memory, divided attention, and visuospatial abilities (which assesses spatial navigation) subsections of the ECog. Reliability and validity of these subsections were examined using Cronbach's alpha and confirmatory factor analyses (CFA). The hypothesized CFA assumed a three-factor structure with each subsection representing a separate latent construct. Receiver operating characteristics (ROC) and area under the curve (AUC) analyses were used to determine the diagnostic accuracy of the ECog subsections in detecting preclinical AD, either defined by cerebrospinal fluid (CSF) $ptau_{181}/A\beta_{42}$ ratio >0.0198 or hippocampal volume in the bottom tertial of the sample. Hierarchical linear regression was used to examine whether ECog subsections predicted continuous AD biomarker burden when controlling for depressive symptomatology, which has been previously associated with subjective cognition (Zlatar et al., 2018). Lastly, we compared the diagnostic accuracy of ECog subsections and neuropsychological composites assessing the same or similar cognitive domains (memory, executive function, and visuospatial ability) in identifying preclinical AD.
Results: All self- and informant-reported subsections demonstrated appropriate reliability (α range=.71-.89). The three-factor CFA models were an adequate fit to the data and were significantly better than one-factor models (self-report $\chi2(3)=129.511$, p<.001; informant-report $\chi2(3)=145.347$, p<.001), suggesting that the subsections measured distinct constructs. Self-reported memory (AUC=.582, p=.007) and attention (AUC=.564, p=.036) were significant

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predictors of preclinical AD defined by CSF $ptau_{181}/A\beta_{42}$ ratio. Self-reported spatial navigation (AUC=.592, p=.022) was a significant predictor of preclinical AD defined by hippocampal volume. Additionally, self-reported attention was a significant predictor of the CSF $ptau_{181}/A\beta_{42}$ ratio (p<.001) and self-reported memory was a significant predictor of hippocampal volume (p=.024) when controlling for depressive symptoms. Informant-reports were not significant predictors of preclinical AD (all ps>.074).
There was a nonsignificant trend for the objectively measured executive function AUC to be higher than for self-reported attention in detecting preclinical AD defined by CSF $ptau_{181}/A\beta_{42}$ ratio and was significantly higher than self-reported attention in detecting preclinical AD defined by hippocampal volume (p=.084 and p<.001, respectively). For memory and spatial navigation/visuospatial domains, the AUCs for self-reported and objective measures did not differ in detecting preclinical AD defined by either CSF $ptau_{181}/A\beta_{42}$ ratio or hippocampal volume (ps>.129).
Conclusions: Although the self-reported subsections produced significant AUCs, these were not high enough to indicate clinical utility based on existing recommendations (all AUCs<.60; Mandrekar, 2010). Nonetheless, there was evidence that self-reported cognitive change has promise as a screening tool for preclinical AD but there is a need to develop questionnaires with greater sensitivity to subtle cognitive change associated with preclinical AD.

Categories: Dementia (Alzheimer's Disease)
Keyword 1: dementia - Alzheimer's disease
Keyword 2: cognitive screening
Keyword 3: self-report
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51 Pupillary Responses During Verbal Fluency Tasks as a Biomarker of Risk for Alzheimer's Disease

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Objective: We examined the use of pupillometry as an early risk marker of Alzheimer's disease (AD). Pupil dilation during a cognitive task has been shown to be an index of cognitive effort and may provide a marker of early change in cognition even before performance begins to decline. Individuals who require more effort to successfully perform a task may be closer to decline. We previously found greater compensatory effort to perform the digit span task in individuals with amnestic mild cognitive impairment (aMCI) who may be at greater risk for AD than individuals with non-amnestic MCI (naMCI). Task evoked pupil dilation is linked to increased norepinephrine output from the locus coeruleus (LC), a structure affected early in the AD pathological process. In this study, we measured pupil dilation during verbal fluency tasks in participants with aMCI or naMCI, and cognitively normal (CN) individuals. Based on our findings using the digit span task, we hypothesized that participants with aMCI would show greater compensatory cognitive effort than the other two groups.
Participants and Methods: This study included 101 older adults without dementia recruited from the UC San Diego Shiley-Marcos Alzheimer's Disease Research Center and San Diego community (mean [SD] age = 74.7 [5.8]; education = 16.6 [2.5]; N=58 female; N=92 White); 62 CN, 20 aMCI and 19 naMCI participants. Pupillary responses (change relative to baseline at the start of each trial) were recorded at 30 Hz using a Tobii X2-30 (Tobii, Stockholm, Sweden) during semantic (animals, fruits, vegetables) and phonemic (letters F, A, S) fluency tasks. Participants generated as many words as possible in a category (semantic) or starting with a given letter (phonemic) in 60 seconds.
Results: Repeated measures ANOVA (3 groups X 2 fluency conditions) with age, education and sex as covariates showed a significant main effect of group ($F(2,95)=3.64$, p=.03), but no group X condition interaction (F<1). Pairwise comparisons showed significantly greater fluency task-evoked dilation for aMCI relative to CN (p=.015) and naMCI (p=.019) participants. When controlling for performance (total letter or category words produced), pupil dilation (cognitive effort) remained significantly greater in

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