Alzheimer's diagnosis is given. However, it is known that cognitively healthy older individuals with lower amyloid/tau ratios (PAT) are more likely to develop Alzheimer's disease than those with higher amyloid/tau ratios (NAT). Therefore, we explored whether this ratio can be used in conjunction with neuropsychological tests to isolate cognitive predictors of Alzheimer's disease amongst cognitively healthy older adults. We were interested in potential group differences on the California Verbal Learning Test, Second Edition (CVLT-II) Long Delay Free Recall scores and Cued Recall scores. We hypothesized that: (a) individuals in the PAT group would have weaker CVLT-II Long Delay Free Recall scores than individuals in the NAT group; and (b) individuals in the PAT group would recall fewer words on the CVLT-II Long Delay Cued Recall trial than individuals in the NAT group.
Participants and Methods: There were 115 older individuals recruited via Huntington Medical Research Institutes and the University of Southern California who had their cerebral spinal fluid extracted to measure amyloid/tau ratios. They completed the California Verbal Learning Test-II as part of a larger neuropsychological battery and were determined to be cognitively healthy. The mean age of these participants was 74.5 years (*SD* = 8.3), and there were 36 who met the threshold for the amyloid/tau ratio associated with Alzheimer's disease (PAT) while the other 79 did not (NAT). A hierarchical linear regression tested the hypotheses, with two blocks used for the analyses. Block 1 for both analyses contained variables to control for the potential effects of various factors in performance on the Long Delay tasks. Block 2 consisted of the amyloid groups (NAT vs. PAT).
Results: After controlling for age, sex, education, body mass index, Montreal Cognitive Assessment scores, and depression, we found no significant difference between CVLT-II Long Delay Free Recall scores or Long Delay Cued Recall scores for the two groups.
Conclusions: While no significant difference was found on the long delay trials of the CVLT-II, it is important to note that it is unclear at what stage Alzheimer's related decline begins or can be detected using cognitive testing. Longitudinal studies would help to better understand if this lack of association holds true over time. Other aspects of the CVLT-II, such as intrusions and repetitions, would also help to better understand the different ways that symptoms of Alzheimer's disease can manifest early on.

Categories: Dementia (Alzheimer's Disease)
Keyword 1: aging disorders
Keyword 2: dementia - Alzheimer's disease
Keyword 3: assessment
Correspondence: Shant Rising, Fuller Graduate School of Psychology, shantrising@gmail.com

48 Psychometric properties of DCTclock™ with commonly used neuropsychological tests and their combined ability to predict Beta-Amyloid Positron Emission Tomography Status

Sheina Emrani, Jennifer Strenger, Zachary Kunicki, Alyssa De Vito, Stephen Salloway, Louisa Thompson
Department of Psychiatry & Human Behavior, Alpert Medical School, Brown University, Providence RI, USA, Providence, RI, USA

Objective: Sensitive and non-invasive methods of screening for early-stage Alzheimer's disease (AD) are urgently needed. The digital clock drawing test (DCTclock™) is an established and well-researched neuropsychological tool that can aid in early detection of dementia. Other simple, yet sensitive, neuropsychological measures able to detect early stages of AD include Trail Making Tests (TMT). We investigated the psychometric properties of DCTclock™ with TMT-A and TMT-B. We then sought to understand the degree to which neuropsychological tools (i.e., DCTclock™, TMT-A, and B) versus the Montreal Cognitive Assessment (MoCA) predict beta-amyloid (Aβ) positron emission tomography (PET) status (positive or negative) in cognitively normal individuals.
Participants and Methods: Participants included a sample of cognitively normal older adults (n= 59, M age = 69.2, F = 64%) recruited from the Butler Memory and Aging Program. The Linus Health DCTclock™ uses a digital pen to capture traditional clock drawing test performance and advanced analytics to evaluate the drawing process for indicators of cognitive difficulty. DCTclock™ may have overlapping cognitive properties with TMT measures, like

https://doi.org/10.1017/S1355617723003661 Published online by Cambridge University Press

efficiency, processing speed, and spatial reasoning. We compared latency measures (i.e., process efficiency, clock face speed, average latency, and processing speed) and spatial reasoning of the DCTclock™ to z-scores of TMT-A and TMT-B to detect any overlapping psychometric properties. Verbal fluency was included for discriminant validity. We then ran logistic regressions on a subset of the sample to compare neuropsychological tests (DCTclock™ total score [score that captures overall performance], TMT-A/B, and verbal fluency) to the MoCA, a commonly used cognitive screening tool, in determining PET status.
Results: Highly correlated (r > .7) DCTclock™ variables were excluded. We found statistically significant correlations between some DCTclock™ measures and TMT-A/B, like DCTclock™ drawing process efficiency and TMT-A and TMT-B (r= .45, p< .001, r=.29, p< .026, respectively), and DCTclock™ average latency and TMT-A and TMT-B (r=.3, p< .024, r= .26, p< .044, respectively). No statistically significant associations were found between any DCTclock™ measures and verbal fluency, or between DCTclock™ spatial reasoning and TMT-A/B. We then investigated the effect of these neuropsychological tests (DCTclock™ total score, TMT-A/B, verbal fluency) and age on the likelihood of PET positivity (subset of sample, total PET, n=31). The model was statistically significant ($\chi 2$ (5) = 15.35, p< .01). The model explained 53% (Nagelkerke R^2) of the variance in PET status and correctly classified 74.2% of cases. DCTclock™ was the only significant predictor (p< .02), after controlling for TMT-A, TMT-B, verbal fluency, and age. Comparatively, there was no effect of MoCA and age (total PET, n= 29) on the likelihood of PET positivity.
Conclusions: Overall, these results suggest psychometric convergence on elements of DCTclock™ and TMT-A/B, while there was no association in spatial operations between DCTclock™ and TMT measures. Further, when compared to the MoCA, DCTclock™ and these commonly used neuropsychological tests (verbal fluency and TMT-A/B) were better predictors of PET status, primarily driven by the DCTclock™. Digitized neuropsychological tools may provide additional metrics not captured by pen-and-paper tests that can detect AD-associated pathology.

Categories: Dementia (Alzheimer's Disease)
Keyword 1: reaction time
Keyword 2: dementia - Alzheimer's disease
Keyword 3: technology
Correspondence: Sheina Emrani, Dept. of Psychiatry & Human Behavior, Alpert Medical School, Brown University, Providence RI, USA, Sheina_emrani@brown.edu

49 Examining Associations Between Intelligence and Adaptive Functioning in Adults with Down Syndrome at Risk for Alzheimer's Disease

Sheliza Ali[1], Jordan Harp[1], Allison M. Caban-Holt[2], Brandon Dennis[3], Elizabeth Head[4], Jennifer Wells[1], Frederick Schmitt[1]
[1]University of Kentucky, Lexington, KY, USA. [2]Wake Forest University, Winston-Salem, USA. [3]Norton Healthcare, Louisville, USA. [4]University of California Irvine, Irvine, CA, USA

Objective: Individuals with Down syndrome (DS) experience intellectual disability, such that measures of cognitive and adaptive functioning are near the normative floor upon evaluation. Individuals with DS are also at increased risk for Alzheimer's disease (AD) beginning around age 40; and test performances and adaptive ratings at the normative floor make it difficult to detect change in cognition and functioning. This study first assessed the range of raw intelligence scores and raw adaptive functioning of individuals with DS at the normative floor. Next, we assessed whether those raw intelligence scores were predictive of raw adaptive functioning scores, and by association, whether they may be meaningful when assessing change in individuals with a lower baseline of cognitive functioning.
Participants and Methods: Participants were selected from a cohort of 117 adults with DS in a longitudinal study examining AD risk. Participants (n=96; M=40.9 years-old, SD=10.67; 57.3% female) were selected if they had both a completed measure of IQ (Kaufmann Brief Intelligence Test; KBIT2) and informant ratings of adaptive functioning (Vineland Adaptive Behavior Scales; VABS-II). Multiple regression was conducted predicting VABS-II total raw score using K-BIT2 total raw score, while controlling for age.
Results: A slight majority (57.3%) of the sample had a standardized IQ score of 40 with the majority (95.7%) having a standardized score at

https://doi.org/10.1017/S1355617723003661 Published online by Cambridge University Press