demands. This study examined differences in CS use and task completion accuracy across time-based (TB) and event-based (EB) PM tasks. Based on differences in self-monitoring demands and ability to engage in cognitive offloading, it was hypothesized that participants would utilize better quality strategies for TB tasks than EB tasks, which would lead to superior accuracy in completing TB tasks.
Participants and Methods: Seventy community-dwelling older adults (M_{age} = 70.80, *SD* = 7.87) completed two testing sessions remotely from home via Zoom. Participants were presented two TB PM tasks (paying bill by due date, calling lab at specified time) and two EB PM tasks (presenting a packed bag to examiner upon a cue, initiating discussion about physical activity log upon cue). Participants were encouraged to use their typical CS to support task completion. Quality of CS (0-3 points per task step) and accuracy of task completion (0-4 points per task) were evaluated through lab-developed coding schemas. For each task, CS Quality scores were assigned based on how well strategies supported retrospective memory (RM) and PM task elements, and RM and PM Quality scores were summed to yield a Total Quality score. Because each task consisted of a different number of steps, CS Quality scores for each task were divided by their respective number of steps to yield measures of average quality. Paired-samples t-tests examined differences in average CS quality (Total, RM, and PM) and PM accuracy across TB and EB tasks.
Results: Participants' Total CS Quality was equivalent for TB tasks (*M* = 1.92, *SD* = 0.64) and EB tasks (*M* = 1.87, *SD* = 0.68), *t*(69) = 0.60, *p* = .55. Comparisons of subscores revealed that while participants used similar quality RM supports for TB tasks (*M* = 1.67, *SD* = 0.66) and EB tasks (*M* = 1.78, *SD* = 0.68), *t*(69) = 1.39, *p* = .17, participants utilized superior quality PM supports for TB tasks (*M* = 2.16, *SD* = 0.70) compared to EB tasks (*M* = 1.97, *SD* = 0.73), *t*(69) = 2.46, *p* = .02. Additionally, participants completed TB tasks with greater accuracy (*M* = 3.21, *SD* = 0.74) than EB tasks (*M* = 2.84, *SD* = 0.89), t(69) = 3.62, *p* < .001.
Conclusions: While participants exhibited similar quality CS for RM components across TB and EB tasks, they displayed superior quality CS for PM components of TB tasks. This difference in quality may have contributed to participants completing real-world TB PM tasks with greater accuracy than EB tasks. Results contrast with trends in lab-based PM tasks, in which participants usually complete EB tasks more accurately. Findings may have implications for interventions, such as an enhanced focus on teaching high-quality CS to support real-world EB tasks.

Categories: Cognitive Intervention/Rehabilitation
Keyword 1: everyday functioning
Keyword 2: memory: prospective
Keyword 3: aging (normal)
Correspondence: Brooke F. Beech, Washington State University, Department of Psychology, brooke.beech@wsu.edu

3 Olfactory Dysfunction as a Preclinical Biomarker of AD: Psychophysical Olfactory Performance Reflects Hippocampal Integrity in Non-Demented Older Adults

Abigail S Albertazzi[1], Conner Frank[2], Claire Murphy[1,2,3]
[1]San Diego State University, San Diego, CA, USA. [2]SDSU/UC San Diego Joint Doctoral Program in Clinical Psychology, San Diego, CA, USA. [3]University of California San Diego, La Jolla, CA, USA

Objective: One of the greatest challenges of the Alzheimer's disease (AD) epidemic is identifying the disease prior to substantial neurological compromise. The established biomarkers of AD, such as measures of cognitive impairment, hippocampal atrophy, and CSF measures of beta amyloid and tau, used in research and drug trials are less indicative of AD pathology in preclinical, non-demented, populations. Olfactory dysfunction, a well-established sensory impairment of AD found to correlate strongly with tau burden and hippocampal volume measures, has shown to be a promising preclinical biomarker for AD progression. Several studies have found either impaired odor identification or odor memory at baseline to predict 5-year follow-up cognitive decline and conversion from MCI to AD, but less is known about how olfactory performance reflects the integrity of associated brain regions such as the hippocampus. The present analysis aims to

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explore the value of psychophysical olfactory assessment as biomarker measure in preclinical AD studies and drug trials by investigating its relationships with structural measures of the hippocampus.
Participants and Methods: A sample consisted of non-demented older adults (age ≥75), recruited from the UCSD Alzheimer's Disease Research Center as part of a ongoing olfactory biomarker study. Participants completed the AD Assessment Scale-Cognitive Subscale-13 (ADAS-Cog-13), San Diego Odor Identification Test (SDOIT), tests of odor recognition memory (ORMem) and odor associative memory (OAM), and MRI derived hippocampal volumes and average hippocampal occupancy (Avg HOC). Left and right hippocampal volumes were adjusted for each participant's estimated intracranial volume. Bivariate correlations were calculated for ADAS-Cog-13 and SDOIT total scores, performance scores for odor recognition and odor associative memory tests, and the three hippocampal measures (bilateral volumes and average occupancy).
Results: ADAS-Cog-13 score did not show significant correlations with either hippocampal measure at the .05 level. SDOIT scores were significantly correlated with the measure of Avg HOC (p<.05). ORMem false positive responses were significantly correlated with Avg HOC (p<.01) and right hippocampal volume (p<.05). ORMem miss responses and OAM errors were both correlated with left (p<.05) and right (p<.01) hippocampal volumes.
Conclusions: These results demonstrate that psychophysical assessments of odor identification and odor memory can better reflect the integrity of the hippocampus in nondemented older adults, compared to the neuropsychological ADAS-Cog-13. This is congruent with olfactory dysfunction preceding cognitive-memory decline in AD cases and provides support for the utility of psychophysical olfactory assessment along with other established AD biomarkers in research and drug trials in preclinical populations.
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Categories: Dementia (Alzheimer's Disease)
Keyword 1: olfaction
Keyword 2: hippocampus
Keyword 3: dementia - Alzheimer's disease
Correspondence: Abigail S Albertazzi, San Diego State University, San Diego, CA USA, asalbertazzi@comcast.net

4 Association Between Plasma Neurofilament Light Chain (NfL) and Non-Verbal Abstract Reasoning in a Colombian Cohort with Autosomal Dominant Alzheimer's Disease

Alex Leonardo Badillo Cabrera[1], Paula A Aduen[1], Jairo E. Martinez[1], Ana Baena Pineda[2], Victoria Tirado[2], Paula Ospina[2], Francisco Lopera[2], Yakeel T Quiroz[1,2]
[1]Massachusetts General Hospital, Boston, Massachusetts, USA. [2]Grupo de Neurociencias, Universidad de Antioquia, Medellín, Colombia

Objective: Neurofilament light chain (NfL), a plasma-based biomarker for neurodegeneration, is a promising marker for early Alzheimer disease (AD) detection in individuals at increased risk. We previously reported that Presenilin1 (PSEN1) E280A carriers have increased levels of plasma NfL relative to non-carrier family members twenty years before the onset of clinical symptoms. Abstract reasoning is one of the first cognitive abilities to deteriorate in AD. Here, we examined whether levels of plasma NfL were associated with non-verbal abstract reasoning performance in non-demented PSEN1-E280A carriers and non-carriers.
Participants and Methods: A total of 798 members of the Colombian kindred with the PSEN1 E280A mutation (462 cognitively-unimpaired and 336 non-carriers; mean age= 34.02 (10.53), mean education= 8.23(4.60), 57% females and 43% males) were included in the study. Participants completed the Raven's Progressive Matrices (RPM), Mini Mental State Examination (MMSE), and underwent blood sampling. Plasma NfL concentrations were measured with a single molecule array (Simoa) method. Mann-Whitney U test and education-adjusted Spearman partial correlation were used to examine group differences and associations between abstract reasoning performance and NfL levels.
Results: Non-carriers were older (p<.001) and had higher levels of education than carriers

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