

frequency for either fluency task ($p > 0.05$). Interestingly, APOE ϵ 4 status was a significant predictor of total words for the vegetable semantic fluency task only ($\beta = 0.13$, $p = 0.01$), resulting in a model that accounted for more variance ($R^2 = 0.25$, $F(6, 292) = 16.11$, $p < 0.0001$) in total words than demographic variables alone ($R^2 = 0.23$, $F(5, 293) = 17.75$, $p < 0.0001$).

Conclusions: Unsurprisingly, we found that age, AMNART, and education were significant predictors of total word fluency. One unexpected finding was that age did not predict the lexical frequency - that is - regardless of age, participants tended to retrieve words of the same lexical frequency, which stands in contrast to the notion that retrieval efficiency of infrequent words declines with age. With regard to APOE ϵ 4, we did not replicate existing work demonstrating differences in lexical frequency and semantic fluency tasks for ϵ 4 carriers and non-carriers; possibly due to differences in the demographic characteristics of the sample.

Categories: Dementia (Alzheimer's Disease)

Keyword 1: dementia - Alzheimer's disease

Keyword 2: fluency

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37 The MAPP Room Memory Task: Examining Contextual Memory Using a Novel Computerized Task in Cognitively-Unimpaired Individuals with Autosomal Dominant Alzheimer's Disease from the Colombia-Boston Biomarker Study

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Objective: Contextual memory, which refers to the ability to remember spatial or temporal circumstances related to an event, is affected early in Alzheimer's Disease (AD).

Computerized cognitive tasks have been suggested to be an ecological way to assess memory, but there are few studies that utilize these tools. Studying contextual memory via a computerized task in a Colombian kindred with autosomal dominant AD due to the Presenilin-1 (PSEN1) E280A mutation and a well-characterized disease progression may help us understand contextual memory changes in the preclinical AD stage. In this study we investigated whether a novel computerized task examining contextual memory can help identify those at increased risk for dementia.

Participants and Methods: A group of 31 non-carriers (mean age=38.97 \pm 6.11; mean education=11.45 \pm 4.34) and 15 cognitively unimpaired PSEN1E280A mutation carriers from the Colombia-Boston (COLBOS) Biomarker Study (mean age=35.67 \pm 5.50), mean education=10.60 \pm 3.83) performed the "MAPP Room Memory Task" on a computer. As part of this task, participants are asked to remember ten rooms and the specific location of a few objects for later recall. During the immediate recall phase, participants are asked to recognize the objects presented in each room (Immediate Object Recognition) and their location (Immediate Object Placement). During the subsequent delay phase of the task, participants are asked to select the correct room in which an object was first presented (Delayed Room Recognition) and place the objects previously seen in each room (Delayed Object Placement). We conducted Mann Whitney U tests to analyze differences between groups and Spearman Rho correlations to examine associations among the Room Memory Task performance, age, education, and Mini Mental State Examination (MMSE).

Results: There were no differences in age or education between carriers and non-carriers ($p > 0.05$, for both). Carriers had worse Delayed Room Recognition than non-carriers (Carriers mean score=0.893 \pm 0.18, non-carriers mean score=0.987 \pm 0.05; $U=168.0$, $p=0.02$), while there were no differences in the other task conditions (all $p > 0.05$). In carriers, education was positively associated with Immediate Object Placement ($r_s=0.61$, $p=0.02$), Delayed Object Placement ($r_s=0.76$, $p=0.001$), and Delayed Room Recognition ($r_s=0.68$, $p=0.006$). There were no significant associations between Room Memory Task conditions and age or MMSE scores in carriers. Further, no significant associations were observed between Room

Memory Task performance, and age, education or MMSE scores in non-carriers.

Conclusions: Our preliminary findings show that the MAPP Room Memory Task, in particular the Delayed Room Recognition condition, may be helpful to discriminate those at increased risk of dementia. Future studies with larger samples using the Room Memory Task and AD-related biomarkers are needed to examine whether this task can be sensitive to early preclinical changes associated with AD and can potentially help track disease progression in those at risk.

Categories: Dementia (Alzheimer's Disease)

Keyword 1: dementia - Alzheimer's disease

Keyword 2: computerized neuropsychological testing

Keyword 3: assessment

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38 Vulnerability to Semantic and Phonemic Interference in Normal Aging and Amnesic Mild Cognitive Impairment (aMCI)

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Objective: Studies on vulnerability to interference have shown promise in distinguishing between normal and pathological aging, such as the early stage of Alzheimer's disease (AD) or amnesic Mild Cognitive Impairment (aMCI). However, these studies did not include a non-semantic condition essential in distinguishing between what is attributable specifically to semantic memory impairments and more generalized vulnerability to interference. The present study aimed to determine whether the increased vulnerability to

semantic interference previously observed in individuals at increased risk of AD (aMCI) is specifically associated with the semantic nature of the material, or if it also affects other types of material, suggesting more generalized executive and inhibitory impairment.

Participants and Methods: Seventy-two participants (N = 72) divided into two groups (33 aMCI and 39 NC) matched for age and education were included in the study. They underwent a comprehensive neuropsychological examination, and took the adapted French version of the LASSI-L (semantic interference test), as well as a homologous experimental phonemic test, the TIP-A. Independent sample t-tests, mixed ANOVA and ANCOVA on memory and vulnerability to interference scores with the Group (NC, aMCI) as between-group factor and the Type of material (semantic, phonemic) as within-subject factor were conducted to compare memory and interference in both contexts for both groups.

Results: For all memory scores, results revealed a significant main effect of group (NC > aMCI), a significant main effect of the type of material (semantic > phonemic) and a significant Group x Type interaction (disproportionately poorer performance in a semantic context for aMCI compared to NC). Word recognition was equivalent in both contexts for aMCI, whereas NC were better in a semantic context. aMCI also committed more phonemic false recognition errors, were disproportionately more vulnerable to retroactive semantic interference and showed a disproportionately higher percentage of intrusion errors associated with proactive semantic interference than NC.

Conclusions: To our knowledge, this is the first study to meticulously compare aMCI and elderly control vulnerability to inter-list interference and its impact on memory processes in two very similarly designed conditions using different types of material (semantic vs. phonemic). Indeed, many studies on interference focused solely on intra-list buildup of interference or on semantic material. Taken together, our results suggest that aMCI patients present generalized difficulties in source memory and inhibition, but that their inability to benefit normally from the depth of processing of semantic material results in even more semantic intrusion errors during proactive interference. This superficial semantic processing also significantly impacts the ability of aMCI to show good recall after being exposed to an interference list and the passage of time, resulting in a greater vulnerability to semantic