evaluation evaluating cognitive domains of attention, memory, speed of information processing, language, executive functioning, and mood. Afterwards, all participants wore a watch that measured actigraphy and light data (Philips Actiwatch Spectrum Pro actigraphy monitor) for 8 weeks to evaluate their sleep habits. Pearson and Spearman partial correlations were used to evaluate relationships between objective sleep parameters and baseline cognitive function test scores.

Results: Aberrations of sleep length, sleep fragmentation, and daytime activity measures significantly correlated with cognitive performance on memory, language, visuospatial skills, and speed of processing tests ($p = <0.05$). Greater variability of awakenings at nighttime associated with better scores on memory tests but worse scores on language tests. Longer sleep times associated with worse language scores, while greater variability in daily activity correlated with poorer scores on visuospatial skills tests and speed of processing tests.

Conclusions: This study establishes a framework for obtaining longitudinal sleep data in conjunction with serial cognitive function testing, encouraging further exploration into how sleep metrics affect specific domains of cognitive function. Findings suggest that having a less consistent sleep routine correlates with poorer cognitive function across multiple domains. The authors recommend broader analysis of actigraphy and cognitive function testing as objective measures of sleep and cognition in research and clinical practice.

Categories: Dementia (Alzheimer's Disease)
Keyword 1: cognitive functioning
Keyword 2: sleep
Keyword 3: dementia - Alzheimer's disease
Correspondence: Krikor Bornazyan, University of Iowa Carver College of Medicine, krikor-bornazyan@uiowa.edu

---

36 Lexical Frequency and Semantic Fluency Performances in Cognitively Normal APOEε4 Carriers

Lauren Latham[1], Bonnie Sachs[1,2], James R Bateman[2], Mary Jo Cleveland[1], Samantha Rogers[1], Benjamin Williams[1,2], Mia Yang[1], Suzanne Craft[1]

[1]Section on Gerontology and Geriatric Medicine, Department of Internal Medicine, Wake Forest School of Medicine, Winston Salem, NC, USA. [2]Department of Neurology, Wake Forest School of Medicine, Winston Salem, NC, USA

Objective: There is a pressing need for sensitive, non-invasive indicators of cognitive impairment in those at risk for Alzheimer's disease (AD). One group at an increased risk for AD is APOEε4 carriers. One study found that cognitively normal APOEε4 carriers are less likely to produce low frequency (i.e., less common) words on semantic fluency tasks relative to non-carriers, but this finding has not yet been replicated. This study aims to replicate these findings within the Wake Forest ADRC clinical core population, and examine whether these findings extend to additional semantic fluency tasks.

Participants and Methods: This sample includes 221 APOEε4 non-carriers (165 females, 56 males; 190 White, 28 Black/African American, 3 Asian; Mage = 69.55) and 79 APOEε4 carriers (59 females, 20 males; 58 White, 20 Black/African American, 1 Asian; Mage = 65.52) who had been adjudicated as cognitively normal at baseline. Semantic fluency data for both the animal task and vegetable task was scored for total number of items as well as mean lexical frequency (attained via the SUBTLEXus database). Demographic variables and additional cognitive variables (MMSE, MoCA, AMNART scores) were also included from the participants' baseline visit.

Results: APOEε4 carriers and non-carriers did not differ on years of education, AMNART scores, or gender (ps > 0.05). APOEε4 carriers were slightly younger and included more Black/African American participants (ps < 0.05). Stepwise linear regression was used to determine the variance in total fluency score and mean lexical frequency accounted for by APOEε4 status after including relevant demographic variables (age, sex, race, years of education, and AMNART score). As expected, demographic variables accounted for significant variance in total fluency score ($p < 0.0001$). Age accounted for significant variance in total fluency score for both the animal task ($\beta = -0.32$, $p <0.0001$) and the vegetable task ($\beta = -0.29$, $p < 0.0001$), but interestingly, not the lexical frequency of words produced. After accounting for demographic variables, APOEε4 status did not account for additional variance in lexical

frequency for either fluency task (ps > 0.05). Interestingly, APOEε4 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 ($R2 = 0.25$, $F(6, 292) = 16.11$, $p < 0.0001$) in total words than demographic variables alone ($R2 = 0.23$, $F(5, 293) = 17.75$, $p < 0.0001$).

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 APOEε4, we did not replicate existing work demonstrating differences in lexical frequency and semantic fluency tasks for ε4 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
Correspondence: Lauren Latham, Section on Gerontology and Geriatric Medicine, Department of Internal Medicine, Wake Forest School of Medicine, llatham@wakehealth.edu

---

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

<u>Lyda M Arévalo González</u>[1,2], Jairo E Martinez[1,2], Paula Aduen[1], Joshua Fox-Fuller[1,2], Ana Baena[3], Clara Vila-Castelar[1], Francisco Lopera[3], Yakeel T Quiroz[1,2,3]
[1]Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA. [2]Boston University, Boston, MA, USA. [3]Universidad de Antioquia, Antioquia, Colombia

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±6.11; mean education=11.45±4.34) and 15 cognitively unimpaired PSEN1E280A mutation carriers from the Colombia-Boston (COLBOS) Biomarker Study (mean age=35.67±5.50), mean education=10.60±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±0.18, non-carriers mean score=0.987±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 (rs=0.61, $p=0.02$), Delayed Object Placement (rs=0.76, $p=0.001$), and Delayed Room Recognition (rs=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