

symptoms and changes in fluency performance over five years were different in female ($n = 289$) as compared to male ($n = 233$) participants. Sensitivity analyses excluding participants with prevalent or incident mild cognitive impairment (MCI) ($n = 141$), excluding participants with incident dementia ($n = 28$), and excluding participants with prevalent or incident MCI or incident dementia ($n = 169$) were run. All analyses were adjusted for age, years of education, estimated premorbid functioning, and health comorbidities.

Results: Depression was minimal across participants ($M = 4.72$, $SD \pm 3.96$). A subset of participants ($n = 44$) reported “possible depression,” namely levels suggestive of subclinical depression, according to clinical cut-offs. The “possible depression” group included 31 females (10.73% of females) and 13 males (5.58% of males), and the “no depression” group included 258 females (89.27% of females) and 220 males (94.42% of males). Baseline levels of depressive symptoms suggestive of subclinical depression were associated with worse decline in category fluency performance during longitudinal follow-up in females (estimate = -0.16 , $p = .002$) but not males (estimate = -0.03 , $p = .658$). Results remained the same when excluding prevalent and incident MCI cases (estimate = -0.19 , $p = .005$), excluding incident dementia cases (estimate = -0.12 , $p = .017$), and excluding prevalent and incident MCI and incident dementia cases (estimate = -0.20 , $p = .004$). Letter fluency performance did not decline over time and was not influenced by levels of depressive symptoms in females (estimate = -0.03 , $p = .502$) or males (estimate = 0.05 , $p = .452$).

Conclusions: Baseline presence of depressive symptoms suggestive of subclinical depression was associated with worse decline in category fluency performance during longitudinal follow-up in female but not male participants. Letter fluency performance did not decline and was not impacted by levels of depressive symptoms. Results remained significant when accounting for covariates and potential confounders. The present study elucidated the combined influence of gender and depressive symptoms on change in fluency performance in older adults and can aid in identifying individuals who may be at a greater risk of cognitive decline.

Categories: Aging

Keyword 1: aging (normal)

Keyword 2: depression

Keyword 3: fluency

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7 P-Tau and Education as Moderators of the Relation between APOE4 and Memory Performance in Older Adults with Varying Cognitive Status

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Objective: White matter microstructure (WMM) potentially mediates the relation between APOE4 and memory performance. This study’s purpose was to understand whether p-tau effects this mediation model and whether education level differentially impacts the relations between these genetic and biological biomarkers’ influence on memory.

Participants and Methods: Participants included 161 older adults ($M=74$ years, 40.4% female, 92% White, 74 e4 non-carriers, 87 e4 carriers) with subjective and objective cognitive impairment from the Alzheimer’s Disease Neuroimaging Initiative (ADNI). A composite memory score created by ADNI was used as the outcome variable. Mean fractional anisotropy (FA) and radial diffusivity (RD) values of white matter tracts within regions of interest (i.e., fornix (FX), hippocampal cingulum (CGH)) were individually used as the measures of WMM. A moderated mediation was run to examine whether p-tau was a moderator of the mediation between APOE4, white matter microstructure, and memory. An exploratory dual moderated mediation analysis examined education as a moderator of the moderated mediation. Indirect effects were tested using bootstrapping procedures.

Results: In the FA moderated mediation model, APOE4 was significantly related to FA of the fornix and memory performance. FA of the CGH and FX were also related to memory performance. With FA of the fornix as the

mediator, the conditional indirect effect was not significant (95% CI[-.0009, .0070]). There was a trend suggesting at low (95% CI[-.2421, -.0140]) and average (95% CI[-.1658, -.0083]) levels of p-tau, FA of the fornix was a significant mediator but was non-significant at high levels of p-tau (95% CI [-.1322, .0341]). The RD moderated mediation model was non-significant. The FA and RD exploratory dual moderated mediation models were non-significant. However, the APOE4 x p-tau interaction with FA of the fornix as the mediator suggested a trend. At low levels of p-tau, increased education was related to a significant moderated mediation.

Conclusions: Results suggest that FA of the fornix is a significant mediator between the relation of APOE4 and memory, and this may be dependent upon p-tau levels. When p-tau burden load was high, the path by which APOE4 impacts memory performance was not through white matter microstructure degradation. Additionally, the potential buffering effects of education may be most robust at lower levels of p-tau burden.

Categories: Aging

Keyword 1: apolipoprotein E

Keyword 2: brain structure

Keyword 3: aging disorders

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8 A Feasibility Study of a Virtually-Delivered Ecologically-Oriented Neurorehabilitation of Memory (EON-MEM) Protocol in Older Adults

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Objective: The prevalence of memory complaints in older adults is between 25 and 50%, with poor memory associated with decreased quality of life and declines in daily functioning. Memory training programs are a method for training older adults on strategies and skills to improve memory performance. We conducted a feasibility study of a virtually-delivered adaptation of an Ecologically-Oriented Neurorehabilitation of Memory (EON-Mem) in

improving memory for healthy older adults. The primary purposes of this study included: (1) determine the feasibility of conducting EON-Mem virtually with older adults, (2) determine whether a randomized control trial using EON-Mem in older adults is of value, and (3) determine whether electronic delivery of memory training programs with ecological validity is beneficial for older adults.

Participants and Methods: Twenty-five older adults 55 years of age and older were recruited for participation in a memory training program. All testing and intervention sessions were completed virtually through the Zoom platform. Measures of emotional functioning (Hospital Anxiety and Demographics Scale, health-related quality of life (Short Form-36) and cognitive functioning (Ecological Memory Simulations and Repeatable Battery for Neuropsychological Status; RBANS) were administered before and following the intervention. Participants attended one virtual treatment session per week, with sessions ranging between 60-90 minutes, for a total of six weeks. Between treatment sessions, participants were asked to complete daily homework assignments that allowed them to apply strategies to real-world situations. A priori, feasibility was set at an 80% completion rate and variables that influenced completion are reported.

Results: To address questions regarding feasibility (e.g., adherence, attrition, etc.), we calculated descriptive statistics (i.e., count statistics, means, standard deviations, and range) on sample information. Of the 25 participants enrolled in the study, 21 participants completed all steps of the study (84% completion rate) showing the delivery format is feasible. The average age of our sample was 61.7 (SD = 5.9) years and average years of education was 17.06 (SD=2.36). Excluding those who dropped, average completion was 72.76 days (SD=18.65, range=47-124). Across all six weeks, homework completion averaged 66.4% (33/49). There were varying effects of the EON-Mem for the EMS memory outcomes with the greatest proportion showing reliable improvement on the ability to recall names (10 participants [42%]). Regarding the RBANS, the greatest proportion of participants showed reliable improvement on the Story Memory task (i.e., four participants [17%]), but only two (9%) showing reliable change on the total Memory Index score.

Conclusions: Overall, a virtual administration of EON-Mem in older adults was feasible.