carriers in cognitively normal older adults and that female *APOE* ε4 carriers are at greater risk of AD compared to male carriers. Recent advancements in estimating biological age using DNA methylation markers may enhance understanding of the associations between sex and *APOE* ε4 on cognitive aging. Thus, the current study aimed to investigate whether associations between *APOE* ε4 status and memory vary according to rates of biological aging, using a DNA methylation age biomarker, in older men and women without dementia.
Participants and Methods: Cross-sectional data were obtained from 1771 older adults enrolled in the 2016 wave of the Health and Retirement Study (Mean $_{age}$ = 75, SD = 7; 57% female; 76% non-Hispanic white). The standardized residual from regressing chronological age on the epigenetic clock "DNAGrimAge" was used as a measure of the aging rate. A series of ANCOVAs with Bonferroni corrected post hoc pairwise tests, adjusting for education, white blood cell count, chronological age, and depressive symptoms were used to test the main and interaction effects of *APOE* ε4 status (non-carriers = 0; carriers = 1) and aging rates, defined as 1 standard deviation below (i.e., slow rate), or above (i.e., fast rate) sex-specific mean rate (i.e., average) of aging, on a standardized composite measure of verbal memory. Alpha was set at .05 and all raw scores were converted to z-score metric prior to analyses.
Results: *APOE* ε4 female carriers with slow rates of aging (n = 34) had significantly better memory performances compared to *APOE* ε4 female carriers with fast rates of aging (n = 41), mean difference = .61, p = .006, and average rates of aging (n = 170), mean difference = .44, p = .017. There was no effect of aging rate on memory in the female non-carriers and there were no significant differences in memory performances based on rates of aging in either male *APOE* ε4 carriers or non-carriers.
Conclusions: Although the presence of the *APOE* ε4 has previously been shown to represent a stronger risk of AD for women compared to men, results from the current study suggest that slower rates of aging in this high-risk group may confer protection against clinical symptoms (i.e., memory impairment). Conversely, faster than average aging in female *APOE* ε4 carriers may represent a group at greater risk of memory impairment due to AD. However, longitudinal studies with larger sample sizes are needed to evaluate the risk of dementia/memory impairment based on rates of aging in female *APOE* ε4 carriers.

Categories: Aging
Keyword 1: apolipoprotein E
Keyword 2: aging (normal)
Keyword 3: memory: normal
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11 Contributions of Cardiovascular Burden, Peripheral Inflammation, and Brain Integrity on Digital Clock Drawing Performance in Non-Demented Older Adults

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Objective: Higher cardiovascular burden and peripheral inflammation are associated with small vessel vascular disease, a predominantly dysexecutive cognitive profile, and a higher likelihood of conversion to vascular dementia. The digital clock drawing test, a digitized version of a standard neuropsychological tool, is useful in identifying cognitive dysfunction related to vascular etiology. However, little is known about the specific cognitive implications of vascular risk, peripheral inflammation, and varying levels of overall brain integrity. The current study aimed to examine the role of cardiovascular burden, peripheral inflammation, and brain integrity on digitally acquired clock drawing latency and graphomotor metrics in non-demented older adults.
Participants and Methods: The final prospectively recruited IRB-consented participant sample included 184 non-demented older adults (age: 69±6 years, education: 16±3 years, 46% female, 94% white) who completed digital clock drawing, vascular assessment, blood draw, and brain MRI. Digital clock drawing variables of interest included: total completion time (TCT), pre-first hand latency (PFHL), digit

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misplacement, hour hand distance from center, and clock face area (CFA). Cardiovascular burden was calculated using the revised version of the Framingham Stroke Risk Profile (FSRP-10). Peripheral inflammation was operationalized using interleukin (IL)-6, IL-8, IL-10, tumor necrosis factor alpha (TNF-a), and high sensitivity C-reactive protein (hsCRP). The brain integrity composite was comprised of bilateral entorhinal cortex volume, bilateral ventricular volume, and whole brain leukoaraiosis.
Results: Over and above age and cognitive reserve, hierarchical regressions showed FSRP-10, inflammatory markers, and brain integrity explained an additional 13.3% of the variance in command TCT ($p < 0.001$), with FSRP-10 ($p = 0.001$), IL-10 ($p = 0.019$), and hsCRP ($p = 0.019$) as the main predictors in the model. FSRP-10, inflammatory markers, and brain integrity explained an additional 11.7% of the variance in command digit misplacement ($p = 0.009$), with findings largely driven by FSRP-10 ($p < 0.001$).
Conclusions: Overall, in non-demented older adults, subtle behavioral nuances seen in digital clock drawing metrics (i.e., total completion time and digit misplacement) are partly explained by cardiovascular burden, peripheral inflammation, and brain integrity over and above age and cognitive reserve. These nuanced behaviors on digitally acquired clock drawing may associate with an emergent disease process or overall vulnerability.
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Categories: Aging
Keyword 1: aging (normal)
Keyword 2: cardiovascular disease
Keyword 3: neuropsychological assessment
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12 Purpose in Life, Loneliness, and Subjective Cognitive Decline in an Ethnically Diverse US Sample

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Objective: Subjective cognitive decline (SCD), the self-reported experience of worsening cognitive abilities (Jessen et al., 2014), is associated with increased risk of developing Alzheimer's disease and Mild Cognitive Impairment. Modifiable factors such as purpose in life (PiL), the experience of living a meaningful life where one's life goals are attainable or being achieved (Boyle et al., 2009), and loneliness, an individual's perceived social isolation (Luhmann & Hawkley, 2016), are known to be associated with SCD. These relationships are understudied among ethnically diverse groups. Using an online survey, we examined associations between PiL, loneliness and SCD in older ethnically diverse individuals living in the US.
Participants and Methods: 870 older adults (126 Latino, 74 Black, 33 Asian, and 637 White; average age=67.0 [7.6]) completed an online survey including the Life Purpose Questionnaire, the Gierveld Loneliness Scale, and the Everyday Cognition scale (ECog), which measures subjective cognitive concerns in memory, language, executive function, and divided attention. Chi-square tests and analyses of variance were conducted to assess group differences in SCD and demographic/lifestyle predictors. Multiple regressions and correlations were conducted to assess the relationships between ethnicity and PiL with SCD, and the moderating effect of race/ethnicity. Multiple regressions and correlations were conducted to identify sociodemographic and lifestyle predictors of SCD in each study group.
Results: White participants were older ($p < .001$), and White and Asian groups had higher levels of education ($p = .009$) compared to Latinos. The White group had a higher proportion of female ($p = .016$) and middle-income ($p = .019$) respondents. Black participants had higher PiL ($p = .035$) and lower loneliness ($p = .047$) compared to White participants; there were no group differences in ECog ratings ($p = .143$).

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