against developing naMCI. Finally, regarding Aim 3, exploratory correlations revealed many positive associations between levels of openness to experience and performance on neuropsychological tests. Few associations were found for the other FFM personality traits. **Conclusions:** Results from this study suggest that premorbid personality traits may play a predictive role in the risk for or protection against specific predementia syndromes. Thus, FFM personality traits may be useful in improving predictions of who is at greatest risk for developing specific predementia syndromes. These personality measures could be used (in addition to other established risk factors for cognitive decline) to enrich clinical trials by targeting individuals who are at greatest risk for developing specific forms of cognitive decline. Such measures may also be useful in diagnostic prediction models for predementia syndromes. These results should be replicated in future studies with larger sample sizes and younger participants.

Categories: MCI (Mild Cognitive Impairment)
Keyword 1: mild cognitive impairment
Keyword 2: personality
Keyword 3: neuropsychological assessment
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91 Agent Orange Exposure and Mild Cognitive Impairment in U.S. Vietnam Era Veterans

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Objective: US forces used Agent Orange (AO) during the Vietnam War and continued to store/test it at other locations after the war. AO is a powerful herbicide including dioxin, a highly toxic ingredient classified as a human carcinogen. The National Academies of Sciences, Engineering, and Medicine periodically review the literature on the health effects of AO exposure (AOE) and concluded in 2018 that there is sufficient evidence linking AO with a wide range of adverse health outcomes, including neurologic disorders (e.g., Parkinson's disease). The VA has a list of medical disorders considered presumptive conditions related to AOE. More recently, AOE has been linked to a nearly double risk compared to those without AOE for receiving a dementia diagnosis. To our knowledge, no one has investigated the association of AOE to mild cognitive impairment (MCI), a condition thought to precede dementia.
Participants and Methods: We examined men in three waves of the Vietnam Era Twin Study of Aging (VETSA). In wave 3, participants self-reported yes/no to the question of whether they ever had prolonged or serious AOE. MCI was diagnosed by the Jak-Bondi approach. Impairment was defined as 2+ tests within a cognitive domain that were more than 1.5 standard deviations below normative means after adjusting for premorbid cognitive ability. In mixed effects models, we tested the effect of AOE on MCI status. Models were adjusted for age, ethnicity, and non-independence within twin pairs.
Results: In wave 3, 12.6% (230) of 1167 participants reported AOE. Those with AOE data had mean ages of 51.1 (wave 1), 56.0 (wave 2), and 61.4 (wave 3). Those with data on both AOE and MCI numbered 861 (wave 1), 900 (wave 2), 1121 (wave 3), and 766 had AOE and MCI at all waves. AOE was significantly related to wave 2 MCI ($p < .001$), but not to waves 1 and 3 MCI. AOE was significantly associated with the number of time points at which someone met criteria for MCI ($p = .011$). Analyses were conducted on six cognitive domains used to diagnose MCI, using available participants per wave. At all 3 waves, AOE was significantly associated with lower scores in processing speed ($p = .003$, $p = .004$, $p = .005$, respectively), working memory ($p < .001$, $p = .002$, $p = .008$) and nearly significant at all waves for executive dysfunction ($p < .001$, $p < .001$, $p = .050$). There were two other significant associations [wave 2 memory ($p = .038$), wave 3 fluency ($p = .024$)]. The semantic fluency cognitive domain was unrelated to AOE in all waves.
Conclusions: AOE was consistently associated with lower processing speed, working memory, and executive dysfunction in males ages 51-61. It was also associated with the number of

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time points at which one met criteria for MCI in that age range, and with MCI in the mid-fifties. Findings support the idea of a risk for greater cognitive decline in those exposed to AO earlier in their lives, and with a risk for developing MCI.

Categories: MCI (Mild Cognitive Impairment)
Keyword 1: mild cognitive impairment
Keyword 2: neurotoxicity
Keyword 3: cognitive functioning
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92 Biber Figure Learning Test Outperforms Other Cognitive Measures in Predicting Subjective Cognitive Decline

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Objective: Subjective Cognitive Decline (SCD), the perception of deteriorating cognition in the absence of apparent impairment on objective testing, has gained momentum in recent literature as a risk marker for AD. Traditional neuropsychological assessments, while typically inclusive of a word list learning task, often do not include a comparable figure learning task. Growing evidence suggests that nonverbal assessments may be particularly sensitive to the earliest cognitive changes associated with Alzheimer's disease. The Biber Figure Learning Test (BFLT), a visuospatial analogue to verbal list learning tasks, has been shown to associate with brain-based biomarkers of Alzheimer's disease (AD; hippocampal volume, amyloid load). This study investigates the utility of the BFLT in capturing SCD above and beyond other cognitive measures sensitive to AD progression.

Participants and Methods: 50 community-dwelling, cognitively normal individuals (78% White, 16% Black, 6% Other; 92% Non-Hispanic; 64% Female; Education M=17.1, SD=2.1; Age M=72.7, SD=6.2) participated in a study of SCD. All participants performed >-1.5 SD on clinical neuropsychological testing including a word list learning task. SCD was assessed using a 20-item scale querying individuals' perception of difficulty across a range of memory and non-memory abilities in relation to others of the same age. Participants completed the BFLT, Loewenstein-Acevedo Scales of Semantic Interference and Learning (LASSI-L), Short-Term Memory Binding (STMB), and Face-Name Associative Memory Exam (FNAME), previously established as being sensitive to pre-clinical AD, were examined as predictors of SCD. A multiple regression adjusted for demographics (age, gender, education) was used to investigate the extent to which BFLT Trial 1 (T1) predicted SCD above and beyond these other cognitive measures sensitive to AD progression. Trial 1 of the BFLT was used based on a separate abstract examining which BFLT score was most highly associated with SCD (Kann et al., pending acceptance).
Results: Adjusting for demographics, the present model accounts for 42% of the variance in SCD, while Biber T1 alone accounts for 20% and is the only significant individual predictor of SCD (β=-0.55, p=0.004). In contrast, other variables in the model independently accounted for less than 1% to 4% each (age β=-0.23, p=0.15; gender β=-0.15, p=0.34; education β=0.06, p=0.66; LASSI-L β=-0.11, p=0.55; STMB β=-0.03, p=0.85; FNAME β=-0.10, p=0.64).
Conclusions: The present study demonstrates the usefulness of the first learning trial of the BFLT as an independent predictor of SCD above and beyond other verbal and nonverbal measures sensitive to AD pathology. It also highlights the value of including even one trial of figure learning (< 5 minutes) in both clinical and research assessments seeking to capture cognitive changes which may be the earliest indicators of a neurodegenerative process. Ongoing longitudinal research is examining the predictive utility of the BFLT for future cognitive decline and transition to Mild Cognitive Impairment. Further research should explore the association between Biber T1, specifically, and neuropathological biomarkers of AD to further establish its utility as a portent of AD.

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