

24 Classification of Alzheimer Disease and Mild Cognitive Impairment Patient's Activities of Daily Living

Isabel D.C. Muñoz, Veronica Gutierrez, Jill Razani

California State University, Northridge, Northridge, CA, USA

Objective: Research has shown significant deficits in cognitive domains and a decline in activities of daily living (ADL) in patients with Alzheimer disease (AD). Patients with Mild Cognitive Impairment (MCI) also experience struggles with ADL; moreover, research documents that many MCI patients' symptoms gradually worsen such that their diagnosis eventually converts to AD. Different cognitive domains (i.e., memory, executive function, attention etc.) impact ADL performance. Commonly used instruments for assessing ADL are subjective measures filled by primary caregivers. Subjective measures are not able to assess actual ADL performance. Thus, performance-based tests, such as the Direct Assessment of Functional Status (DAFS), tests of ADLs are more informative. The purpose of this study is to analyze classification accuracy rates for AD and MCI patients with use of five ADL subscales and overall performance a performance-based ADL test.

Participants and Methods: As part of a larger study, 61 patients diagnosed with AD and 54 age- and education matched patients diagnosed with MCI were administered the DAFS. All patients were administered the Direct Assessment of Functional Status test. This test assesses orientation to time, communication skills, knowledge of transportation rules, financial abilities, and ability to shop for groceries, as well as basic daily skills such as grooming and eating skills. For the purpose of this study, grooming and eating abilities were not used in the analysis.

Results: Discriminant functional analysis was performed to assess the classification accuracy rates for AD and MCI patients using their ability to perform various types of ADL tasks on the DAFS. The analysis revealed total DAFS scores and all five subscales significantly classified AD and MCI patients performance (all p values < .01). While performance across the DAFS subscale scores accurately classified MCI at rates ranging from 67% - 90%, the rates of accurate classification was much lower for AD

patients (29.5% - 62.3%). Of the subscales, the DAFS Shopping task best discriminated and classified the performance of AD at 62% and MCI at 67%.

Conclusions: These results indicates that a performance-based ADL test can aid in classification of AD and MCI. The fact that the DAFS shopping subscale which requires learning and memory abilities had the best accuracy rates, is consistent with profound memory deficits found in AD patients. This study further highlights the importance of using observational-based measures to assess ADL in MCI and AD patients.

Categories: Dementia (Alzheimer's Disease)

Keyword 1: activities of daily living

Keyword 2: mild cognitive impairment

Keyword 3: dementia - Alzheimer's disease

Correspondence: Isabel D.C. Muñoz, California State University, Northridge
isabel.munoz.94@my.csun.edu

25 Update to: The Predictive Utility of Various Subjective Cognitive Complaints Using Item Level Data from the Everyday Cognition (ECog) Scales

Jaclyn M Fox¹, Michelle L Chan¹, Jagnoor Randhawa¹, Liam C Campbell¹, Alyssa M Weakley¹, Danielle J Harvey², Sarah Farias¹

¹University of California, Davis Department of Neurology, Sacramento, CA, USA. ²University of California, Davis Department of Public Health, Sacramento, CA, USA

Objective: Early identification of individuals at risk for dementia provides an opportunity for risk reduction strategies. Many older adults (30-60%) report specific subjective cognitive complaints, which has also been shown to increase risk for dementia. The purpose of this study is to identify whether there are particular types of complaints that are associated with future: 1) progression from a clinical diagnosis of normal to impairment (either Mild Cognitive impairment or dementia) and 2) longitudinal cognitive decline.

Participants and Methods: 415 cognitively normal older adults were monitored annually for an average of 5 years. Subjective cognitive complaints were measured using the Everyday Cognition Scales (ECog) across multiple

cognitive domains (memory, language, visuospatial abilities, planning, organization and divided attention). Cox proportional hazards models were used to assess associations between self-reported ECog items at baseline and progression to impairment. A total of 114 individuals progressed to impairment over an average of 4.9 years (SD=3.4 years, range=0.8-13.8). A subset of individuals (n=352) underwent repeat cognitive assessments for an average of 5.3 years. Mixed effects models with random intercepts and slopes were used to assess associations between baseline ECog items and change in episodic memory or executive function on the Spanish and English Neuropsychological Assessment Scales. Time in years since baseline, the ECog items, and the interaction were key terms of interest in the models. Separate models for both the progression analyses and mixed effects models were fit for each ECog item that included age at the baseline visit, gender, and years of education as covariates.

Results: More complaints on five of the eight memory items, three of the nine language items, one of the seven visuospatial items, two of the five planning items, and one of the six organization items were associated with progression to impairment (HR=1.25 to 1.59, ps=0.003 to 0.03). No items from the divided attention domain were significantly associated with progression to impairment.

In individuals reporting no difficulty on ECog items at the baseline visit there was no significant change over time in episodic memory (p>0.4). More complaints on seven of the eight memory items, two of the nine language items, and three of the seven visuospatial items were associated with more decline in episodic memory (ps=0.003 to 0.04). No items from the planning, organization, or divided attention domains were significantly associated with episodic memory decline.

Among those reporting no difficulty on ECog items at the baseline visit there was slight decline in executive function (ps=<0.001 to 0.06). More complaints on three of the eight memory items and three of the nine language items were associated with decline in executive function (ps=0.002 to 0.047). No items from the visuospatial, planning, organization, or divided attention domains were significantly associated with decline in executive function.

Conclusions: These findings suggest that, among cognitively normal older adults at baseline, specific complaints across several

cognitive domains are associated with progression to impairment. Complaints in the domains of memory and language are associated with decline in both episodic memory and executive function.

Categories: Dementia (Alzheimer's Disease)

Keyword 1: aging disorders

Keyword 2: cognitive functioning

Keyword 3: everyday functioning

Correspondence: Jaclyn M. Fox, University of California, Davis Department of Neurology, jmfox@ucdavis.edu

26 Religious Stress Coping, Memory, and Markers of Brain Pathology in Individuals with Autosomal Dominant Alzheimer's Disease from the Colombia-Boston Biomarker Study

Jairo E Martinez^{1,2}, Yamile Bocanegra³, Ana Baena³, Paula Aduen¹, Alice Cronin-Golomb², Francisco Lopera³, Yakeel T Quiroz¹

¹Department of Psychiatry, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA. ²Department of Psychological and Brain Sciences, Boston University, Boston, MA, USA. ³Grupo de Neurociencias, Universidad de Antioquia, Medellin, Colombia

Objective: High levels of stress may increase risk for Alzheimer's disease (AD) dementia. Religious coping practices to deal with stress (i.e., prayer, having faith, attending religious services) may reduce risk of dementia. Studying religious stress coping in cognitively unimpaired individuals with autosomal-dominant AD (ADAD), who will develop dementia later in life, may inform us about the role of religious coping in modifying the clinical trajectory from preclinical to clinical stages of the disease. We examined religious stress coping in cognitively unimpaired mutation carriers from the world's largest ADAD kindred and its relation to markers of brain pathology and memory.

Participants and Methods: 16 cognitively unimpaired Presenilin-1 E280A mutation carriers and 19 age and education-matched noncarrier family members from the Colombia-Boston (COLBOS) Biomarker Study were included. A subsample (n=26; 13 cognitively unimpaired carriers) underwent amyloid and tau PET