

belongings are kept?" ($\beta=-0.8$, $p=0.028$) related to a lower likelihood of depression. **Conclusions:** Certain SCD questions may be more sensitive to confounding by depression, such as items related to recognizing familiar people and remembering an object's name or location. This information may help refine the assessment and specificity of SCD. Funding: K12-HD043483 (KAG), NIRG-13-283276 (KAG), K24-AG046373 (ALJ), IIRG-08-88733 (ALJ), R01-AG034962 (ALJ), R01-HL111516, UL1-TR000445 (Vanderbilt Institute for Clinical & Translational Science); Vanderbilt Memory & Alzheimer's Center.

P3-191 NEUROCOGNITIVE DEFICITS AND EFFECTS OF COGNITIVE RESERVE IN MCI PATIENTS

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Background: Over the past years different concepts to operationalize mild cognitive impairment (MCI) were developed. While some of the concepts such as age-associated cognitive decline (AACD, Levy, 1994) consider deficits in any important neuropsychological domain, Winblad and colleagues (2004) differentiated 4 MCI subtypes. However, the delineation of the pure amnesic from the amnesic multiple domains subtype remained difficult. In the present study we investigated the frequency and the clinical characteristics of these subtypes in a large sample of MCI patients recruited in an outpatient memory clinic. Cognitive reserve was operationalized by years of school education and occupation. **Methods:** Neuropsychological performance was examined in healthy controls, MCI and early Alzheimer's disease (AD) (N = 253) on a complemented CERAD-NP test battery. Data from the MCI patients (n=156) were analyzed for underlying subdimensions by using a factor analysis. Subsequently, factor scores and sociodemographic variables were compared between MCI subgroups, controls and AD patients. **Results:** Within the MCI group, 29 patients were assigned to the amnesic, 120 to the amnesic multiple domains, but just 7 the non-amnesic subtypes. The latter were skipped from further analysis. 83.3 % of the amnesic multiple domain patients showed executive deficits, only 42.5 % deficits in naming or 40 % in visuospatial praxia. While age, sex and MMSE scores did not differ between the amnesic and the amnesic multiple domains subtypes, the former showed a tendency to a higher cognitive reserve as operationalized by years of school education and occupation. **Conclusions:** Our ongoing study indicates that the vast majority of MCI patients in this typical memory clinic population fulfill the criteria of the amnesic multiple domains subtype. The "pure" amnesic subtype was relatively rare and only some MCI patients were "non-amnesic". Preservation of cognitive flexibility in the "pure amnesic" patients may refer

to a higher cognitive reserve. This hypothesis conforms to recent results from a population based longitudinal study which revealed a positive effect of cognitive reserve on executive functions rather than declarative memory.

P3-192 PRIMARY CARE-RELEVANT PREDICTORS OF DEMENTIA STATUS IN THE AGING, DEMOGRAPHICS AND MEMORY STUDY

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Background: The diagnostic accuracy of brief cognitive assessments used in primary care to screen for dementia is unacceptably low, resulting in missed diagnoses, unnecessary referrals and variable confidence in the process amongst physicians. Many clinically relevant patient characteristics are consistently linked with the probability of dementia, and our objective was to investigate which patient characteristics combined with a brief cognitive assessment would improve the diagnostic accuracy of the assessment. **Methods:** We analyzed participants from the US Aging, Demographics and Memory Study (ADAMS) who had completed the Mini-Mental State Examination (MMSE; N=685) and the Memory Impairment Screen (MIS; N=605). A series of logistic regression analyses incorporating a wide range of predictors, including socio-demographics, health, lifestyle and informant ratings, were compared using likelihood ratio tests. Backwards-stepwise selection procedures identified an optimal set of variable combinations for clinical application, and the predictive value added

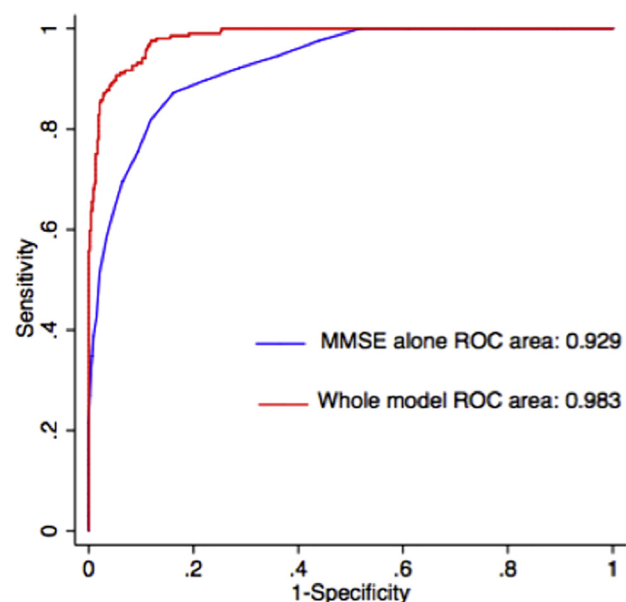


Figure 1. Substantial improvement in dementia identification when weighed patient characteristics are used in addition to brief cognitive assessment.

by informant-reported information was assessed in comparison to self-report only. Discrimination accuracy of the full models, and the original MMSE and MIS assessments was calculated using Receiver Operating Characteristic (ROC) curve analysis, and the area under the curves (AUC) was compared. Finally, the models were calibrated using the Hosmer-Lemeshow goodness-of-fit test. **Results:** MMSE scores alone (applying the conventional threshold of <24) produce 22% dementia misclassification with sensitivity of 92.16% and specificity of 71.31%. MMSE results combined with patient characteristics (e.g. age, gender, stroke history, informant memory ratings) offer a significant improvement in accuracy (AUC = 0.929 to 0.983, $p < 0.001$, see Figure 1). A threshold of $\geq 50\%$ predicted probability of dementia applied to the new model reduces misclassification to 6% with sensitivity of 87.68% and specificity of 96.26%. A similar outcome is achieved with the MIS, with a significant improvement in AUC from 0.912 to 0.968, $p < 0.001$, and in the case of both cognitive assessments, the inclusion of informant-reported information provides significantly greater accuracy than self-reported information alone. **Conclusions:** These results demonstrate that incorporating patient characteristics can improve the diagnostic accuracy of brief cognitive assessment. Furthermore, development of a composite screening tool for clinical use taking account of these characteristics could markedly improve the identification of dementia in primary care.

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STABILITY OF AMNESTIC MILD COGNITIVE IMPAIRMENT: CANTAB PAIRED ASSOCIATE LEARNING AS A PREDICTOR OF A CONSISTENT DIAGNOSIS

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Background: The initial clinical diagnosis of mild cognitive impairment (MCI) can be unstable, with the degree of cognitive impairment rapidly worsening in some people, and apparently resolving in others. This study used a computerised measure of paired associate learning (Cantab PAL) to predict stable versus transient MCI from baseline cognitive scores. **Methods:** Participants were recruited from a longitudinal study of neuropsychological function in community-residing adults with suspected MCI. Inclusion criteria were: (i) presence of a subjective cognitive complaints (ii) preserved general cognition; (iii) independent daily functioning. From initial recruitment ($n = 286$), 200 participants were classified as either amnesic MCI (a-MCI: impairments including one or more visual or verbal memory tasks), non-amnesic MCI (na-MCI: impairments in one or more non-memory task) or unimpaired (no cognitive scores < 10 th percentile relative to normative sample). At 10 month follow-up ($n = 122$), a number of MCI cases had resolved. The final analysis includes 21 unimpaired controls, 43 with na-MCI, 17 with a-MCI, 21 with resolved a-MCI and 43 with resolved na-MCI. Participants underwent Cantab PAL testing

as part of their neuropsychological testing at baseline and 10 months. **Results:** At both baseline and follow-up, PAL performance was significantly worse in a-MCI patients compared to all other groups, which were not significantly different from each other. This included participants initially diagnosed with an initial diagnosis of a-MCI which then resolved. There was a significant interaction between group (a-MCI vs others) and time, indicating that the rate of decline in the a-MCI group was greater than other groups. Logistic regression showed that both PAL impairment at baseline and change in PAL scores predicted a-MCI group membership, even controlling for age, education and gender. **Conclusions:** The Cantab PAL task is a sensitive and specific indicator of amnesic MCI. Patients who perform badly on this test at baseline are a stable group with a clinically-relevant impairment that worsens steadily over time.

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AN ECOLOGICALLY VALID MEASURE OF INSTRUMENTAL ACTIVITIES OF DAILY LIVING FOR PRECLINICAL ALZHEIMER'S DISEASE

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Background: The preclinical stage of Alzheimer's disease (AD) is characterized by abnormal neocortical beta-amyloid ($A\beta$) aggregation in the absence of impairment in cognitive function or instrumental activities of daily living (IADLs). When followed over time, these individuals show persistent and significant decline in memory. However, the assessment of IADLs in this preclinical population has been more challenging, because marked changes in IADLs are only evident when frank cognitive impairment is present, and current questionnaires of IADLs have been unable to detect the subtle changes in this very early disease stage. As the ability to navigate complex public transportation and to manage finances are important measures of IADLs, we designed an ecologically-valid measure of IADLs in preclinical AD. **Methods:** Cognitively normal older adults ($n = 63$, $M_{age} = 62.7$) underwent ¹⁸F-florbetapir PET imaging at baseline. PET standardized uptake value (SUV) data were summed and normalized to the whole cerebellum SUV, resulting in a region-to-cerebellum ratio termed SUV ratio (SUVr). All participants were presented with a large colour map of the Tokyo subway system, and were asked to provide the *most efficient* route from Ebisu to Narita airport. They were also asked to perform a simple foreign currency conversion, allowing them to pay for this hypothetical subway ride. **Results:** There was a moderate, but non-significant, positive relationship between SUVr and time to find the most efficient route, $r = 0.364$, $d = 0.782$, $p = .057$. When participants were classified as $A\beta+$ or $A\beta-$ according to standardized criteria (SUVr > 1.1), significantly more individuals in the $A\beta-$ group (66%) compared to the $A\beta+$ group (25%) were able to successfully convert the amount it would take in US dollars to purchase a train ticket in Japanese Yen, $\chi^2 = 4.44$, $p < .05$. **Conclusions:** These results suggest that individuals with higher $A\beta$ burden take longer to efficiently plan a route on a