I Background

- Dementia requires a decline from a previous level of functioning
- Complex IADL are sensitive to cognitive decline in early-stage dementia and may therefore be important in screening for and diagnosing early dementia
- Past studies have a broad range of no or moderate associations to strong associations between level of IADL functioning and dementia. Other studies have suggested that diagnostic value of IADLs is limited to specific IADL activities.
- Comparison difficult due to different item selections, participants and measurement instruments. Also most were cross-sectional studies
- One longitudinal study showed predictive value of IADL disability 10 years prior to onset of dementia
- A memory clinic setting might be a useful setting and clinically significant because problems with IADLs are often the first complaints of individuals and their caregivers

II Hypothesis of the study

To investigate whether problems in instrumental activities of daily living (IADL) can add to conventionally used clinical measurement in helping predict a diagnosis of dementia at 1- and 2-year follow-up

III Methods review

• Subjects
  - Participants selected from the Development of Screening guidelines and diagnostic Criteria for Predementia Alzheimer’s disease (DESCRIPA) study (a multicenter study of the European Alzheimer’s Disease Consortium with the aim of developing clinical criteria for the diagnosis of Alzheimer’s disease at the predementia stage.
  - Participants included if 55y or older and a new referral for evaluation of cognitive complaints
  - Multicenter prospective cohort study
  - 20 memory clinics in Europe from 1/2003 - 6/2005
  - Exclusion: previous diagnosis of dementia, any somatic, psychiatric or neurological disorder that may have caused cognitive impairment

• Interventions
  - All participants underwent a dementia assessment including clinical history, medical and neurological examination, functional evaluation, lab tests, rating scales for depression and neuropsychiatric symptoms, MMSE, neuroimaging and neuropsychological test battery.
  - Sample includes all participants who completed baseline assessment, including IADL assessment, and 1- and 2-year follow up. (see figure 1)

• Measurement Instruments

  - IADL - variability between study centers using informant based sales which include using Lawton IADL scale, Blessed DRS, Alzheimer’s Disease Cooperative study ADL scale, Bristol Scale, Bayer ADL scale. Item content overlap were pooled into IADL scales. Orientation and memory were excluded.
- Cognitive examination - MMSE, memory, depression

- Statistics
  - Item response theory used to model the dimensional structure of IADLs and also using the two-parameter logistic model
  - Reliability of summed items was calculated using a nonlinear structural equation modeling (SEM) method for ordered categorical items

IV Results

- 531 participants. At 1-year, 13% developed dementia and were generally older, had lower MMSE scores, and more memory impairment (table 1). At 2-year, 481 participants seen, where 20.8% developed dementia
- 9 pooled IADL items were selected: shopping, telephone use, housekeeping, transport, finances, medication, food and drink preparation, laundry and handling money
- Table 2. Majority of patients without problems in IADLs. Rate of conversion to dementia after 1 year with ≥1 IADL is 15.9% vs 9.8% who had none. For 2 year it is 24.4% vs 16.7%.
- Figure 2 - final model with path coefficients

V Authors conclusions

- IADL disability contributes to predicting dementia at 1- and 2- year follow-up in addition to MMSE and memory
- Strong study because of sample size and prospective design
- Use of SEM

VI Reviewers Critique

- Multicenter - differences in diagnostic process despite identical main diagnostic tools
- Difference in latency of people visiting memory centers in different places, but disease progression is similar
- Age and MMSE score differed between individuals who completed follow-up and those who did not
- Pooled IADL items not completely comparable across questionnaires. Also large amount of missing items on many scales. IADLs were meant originally for evaluation over time and not for diagnostic purposes. No breakdown of which IADL was associated most with conversion to dementia

VII Summary

- IADLs useful for predicting dementia and can be a useful addition to other used clinical measurements for predicting dementia