A review of available translated cognitive assessment tools to assess older people from culturally and linguistically diverse (CALD) backgrounds

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Translating Dementia Research Into Practice
In Australia there is a growing number of:

- older people (ageing population)
- older people who will develop dementia
- older people who are from a CALD background

This is a global trend
Cognitive assessments

• developed in a particular culture at a particular time
• many commonly used tools have been developed in Western countries
• these tools are influenced by the language and culture in which they are designed

This can lead to a misdiagnosis of people from a CALD background
Cultural adaptation

Includes:
• translation by a bilingual professional
• back translation
• expert review
• field testing to check comprehension

When translating and reviewing each item - need to pay attention to the (Chiu & Lam, 2007):
• linguistic aspects
• conceptual validity
• cultural relevance
Examples

- **“No ifs, ands or buts”** (MMSE) - not easily translated into other languages; in translation it may lose its “articulatory complexity”, and the term may be unfamiliar to many CALD groups;
- **Orientation to time and place** - requires familiarity with Western calendars and address styles;
- **Spelling WORLD backwards and counting back by 7s** (MMSE) - may be less relevant to some cultural groups;
- Some literal translations may have different meanings (eg in Italian ‘memorise’ is often translated to mean ‘learn’);
- There are differences in the number of syllables in words, eg in Spanish counting (backwards) mostly involves double syllables, whereas in Vietnamese they are single syllables;
- **“Close your eyes”** (MMSE) can imply death in the Chinese culture.

(Sansoni et al, 2007; Rowland et al, 2007; Steis & Schrauf, 2009)
Cultural adaption

For performance results to be meaningfully interpreted you require:

• normative data

• validity data – discriminating characteristics of the tool are recalibrated in local populations based on population studies

Tests need to be “harmonised” to the local context and local norms (Chui & Lam, 2007).
Project aim

- Identify studies that used cognitive assessment tools translated into languages relevant to major CALD groups in Australia, Canada, the UK and the USA.
- Report on their transcultural and psychometric properties
- Highlight gaps in the research
- Website???
Method

A literature review of studies:

• Translated dementia assessment tools

• Assessment of older people from CALD backgrounds living in English speaking countries, including studies using multicultural samples and interpreters

• Studies in non-Western Countries (county of origin)

• **Databases**: MEDLINE, CINAL PLUS (EBSCO), PubMed, Web of Life, Scopus and PsychInfo.
<table>
<thead>
<tr>
<th>Tools</th>
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<tr>
<td>MMSE - Mini-Mental State Examination (Folstein, Folstein, &amp; McHugh, 1975)</td>
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<td>ADAS-Cog - Alzheimer's Disease Assessment Scale – Cognitive (Rosen, Mohs, &amp; Davis, 1984)</td>
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<td>3MS- Modified Mini Mental Status Exam (Teng &amp; Chui, 1987)</td>
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<td>CASI -Cognitive Abilities Screening Instrument (Teng et al., 1994)</td>
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<td>SPMSQ - Short Portable Mental Status Questionnaire (Pfeiffer, 1975)</td>
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<td>CDT - Clock Drawing Test (Sunderland et al., 1989)</td>
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<td>CCSE - Cognitive Capacity Screening Examination (Jacobs, Bernhard, Delgado, &amp; Strain, 1977)</td>
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<td>GPCOG - General Practitioner Assessment of Cognition (Brodaty et al., 2002)</td>
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<td>RUDAS - Rowland Universal Dementia Assessment Scale (Storey, Rowland, Conforti, &amp; Dickson, 2004)</td>
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<td>MIS - Memory Impairment Screen (Buschke et al., 1999)</td>
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<td>Mini-Cog – Mini Cog (Borson, Scanlan, Brush, Vitaliano, &amp; Dokmak, 2000)</td>
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<td>AMTS - Abbreviated Mental Test Score (Hodkinson, 1972)</td>
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<td>MDS-Cog - Minimum Data Set-Cognition Scale (Morris et al., 1994)</td>
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<td>BCRS - Brief Cognitive Rating Scale (Reisberg &amp; Ferris, 1988)</td>
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<td>PAS-Cog - Psychogeriatric Assessment Scales – Cognition (Jorm et al., 1995)</td>
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<td>MDRS - Mattis Dementia Rating Scale (Mattis, 1976)</td>
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<td>ACE - Addenbrooke’s Cognitive Examination (Mathuranath, Nestor, Berrios, Rakowicz, &amp; Hodges, 2000)</td>
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<td>MOCA - Montreal Cognitive Assessment Scale (Nasreddine et al., 2005)</td>
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<td>CAMCOG - Cambridge Cognitive Examination - original version: (Roth et al., 1986); revised version: (Roth, Huppert, Mountjoy, &amp; Tym, 1999)</td>
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<td>IQ-CODE - Informant Questionnaire on Cognitive Decline in the Elderly (Jorm &amp; Jacomb, 1989)</td>
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Language – Sources

**Australia** - 2006 Census – Australian Bureau of Statistics using the AusStats online search


**USA** - American Community Survey 2008 - compiled by the Migration Information Service;

**Canada** - 2006 Census searched via the Statistics Canada website www.statcan.gc.ca;

**United Kingdom** - 2001 Census from the UK Office for National Statistics - compiled by the Census Customer Service.
Top 10 Languages
Common across Australia, Canada, UK, US:

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Inclusion criteria

• English abstract written in last 15 years;
• involved a tool translated (in a Western country or country of origin), or
• a multicultural sample in an English speaking country using an interpreter;
• qualitative or quantitative data on the psychometric and/or transcultural properties of the tool was reported; and
• not specific to a clinical group (eg stroke patients).
Method

Used an evaluation criteria based on the DOMS Project:

- Translation and cultural adaptation process
- Reliability
- Validity
- Responsiveness
- Other factors impacting on performance
- Normative and clinical reference data

Psychometric properties
Results

- 167 articles/abstracts were identified
- 25 articles/abstracts were not relevant
- 142 relevant articles included:
  - 34 abstracts
  - 108 full articles
- no articles/abstracts about the CCSE or the BCRS tools
Abstracts

**Note:** if an article/abstract included more than one language or tool it was included in the tally for all languages and tools.

- No abstracts in the Ukraine, Greek or Indian languages
- None involving a multicultural sample in a Western country
- Spanish (n=22) and Chinese (n=8) languages had the most abstracts; all other languages had between 2-4 abstracts
Full English Articles

Of the 108 articles:

• 73 looked at one tool of interest

• 35 articles included another tool/s of interest and provided comparative data

• MMSE was the most commonly used comparative tool
Location

• 38 articles were of studies conducted in a Western country
  – 9 included multicultural samples (5 Australian; 4 US)
  – 23 involved a specific language group (4 UK and the Indian language; 14 US and the Spanish language; 5 Canadian and the French language)
  – 6 provided comparisons between participants in different countries (e.g., Greeks in Australia and in Greece; participants in 8 different countries)

• 70 were conducted in the country of origin
Language and tool - summary

- No full articles in the Ukraine or Polish language
- Chinese (37) and Spanish (30) were the languages with the most number of articles
- MMSE (63) was the tool most commonly investigated (as the main or comparative tool), followed by the CDT, ADAS-Cog and IQCODE (11-15)
Translation and cultural modification

- 48 articles used an existing translated tool
- 40 referred to translating
- 25 included back translation
- 29 referred to modifications
- 14 referred to pilot testing (very small samples)
- 12 referred to bilingual administration or use of interpreters.
Examples of modifications

- "No ifs, ands or buts" (MMSE) changed to:
  - "neither this nor that" in Hindi
  - "trying to get blood from a stone" in Punjabi
  - "44 stone lions" ("marah, merah, murah") in Malay

- Naming fingers (ADAS-Cog) changed to:
  - "eyes, nose, ears, mouth and hair" in Indian languages - because there are no names for specific fingers
Findings

- 46 provided reliability data
- 77 provided validity data (66 provided some discriminant validity data)
- 70 reported the influence of another factor on test performance (most commonly age and education)
- 17 provided responsiveness data (e.g., ceiling or floor effects or change over time)
- 11 provided normative data and 30 provided some clinical reference data
- In each language group, very few tools had at least one article in all six criteria domains
Summary and gaps

- No full articles related to the Ukraine or Polish language; no articles/abstracts related to the CCSE or the BCRS.
- Only 38 articles were conducted in a Western country (or included a comparison group in a Western country).
- Are item modifications made equivalent to the original English item or relevant to similar CALD groups residing in Western countries?
- Only 6 were conducted in Australia, mostly related to the RUDAS.
Take home message

There is a need for:

- culturally appropriate cognitive assessment tools
- tools to be adequately validated in Australia (cut off scores are calibrated to the Australian setting)
- normative data for the common tools used in Australia
- The RUDAS, is a tool developed in the Australian setting to be “culturally fair”, has no copyright limitations, and warrants further investigation

Future research is needed