

Development of a pilot scale to assess Instrumental Activities of Daily Living in rural sub-Saharan Africa

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The IDEA study

Identification, and Interventions for Dementia in Elderly Africans

A three year programme for dementia



Grand Challenges Canada™
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Northumbria Healthcare



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Instrumental Activities of Daily Living (IADLs)

- Measure of functional status.
- Basic activities of daily living (ADL) refer to ability to self-care.
- Instrumental activities of daily living IADL are more complex activities , allowing the person to function independently in the community.
- IADL assessment is important in dementia diagnosis – functional impairment is required to make the diagnosis.

Instrumental Activities of Daily Living (IADL)

Instructions: Circle the scoring point for the statement that most closely corresponds to the patient's current functional ability for each task. The examiner should complete the scale based on information about the patient from the patient him-/herself, informants (such as the patient's family member or other caregiver), and recent records.

<u>A. Ability to use telephone</u>	Score	<u>E. Laundry</u>	Score
1. Operates telephone on own initiative; looks up and dials numbers, etc.	1	1. Does personal laundry completely	1
2. Dials a few well-known numbers	1	2. Launders small items; rinses stockings, etc.	1
3. Answers telephone but does not dial	1	3. All laundry must be done by others	0
4. Does not use telephone at all	0		
<u>B. Shopping</u>		<u>F. Mode of transportation</u>	
1. Takes care of all shopping needs independently	1	1. Travels independently on public transportation or drives own car	1
2. Shops independently for small purchases	0	2. Arranges own travel via taxi, but does not otherwise use public transportation	1
3. Needs to be accompanied on any shopping trip	0	3. Travels on public transportation when assisted or accompanied by another	1
4. Completely unable to shop	0	4. Travel limited to taxi or automobile with assistance of another	0
		5. Does not travel at all	0
<u>C. Food preparation</u>		<u>G. Responsibility for own medications</u>	
1. Plans, prepares, and serves adequate meals independently	1	1. Is responsible for taking medication in correct dosages at correct time	1
2. Prepares adequate meals if supplied with ingredients	0	2. Takes responsibility if medication is prepared in advance in separate dosages	0
3. Heats and serves prepared meals, or prepares meals but does not maintain adequate diet	0	3. Is not capable of dispensing own medication	0
4. Needs to have meals prepared and served	0		
<u>D. Housekeeping</u>		<u>H. Ability to handle finances</u>	
1. Maintains house alone or with occasional assistance (e.g., "heavy work domestic help")	1	1. Manages financial matters independently (budgets, writes checks, pays rent and bills, goes to bank), collects and keeps track of income	1
2. Performs light daily tasks such as dishwashing, bed making	1	2. Manages day-to-day purchases, but needs help with banking, major purchases, etc.	1
3. Performs light daily tasks but cannot maintain acceptable level of cleanliness	1	3. Incapable of handling money	0
4. Needs help with all home maintenance tasks	1		
5. Does not participate in any housekeeping tasks	0		

(Lawton & Brody, 1969)

Scoring: The patient receives a score of 1 for each item labeled A – H if his or her competence is rated at some minimal level or higher. Add the total points circled for A – H. The total score may range from 0 – 8. A lower score indicates a higher level of dependence.

Sources:

- Cromwell DA, Eagar K, Poulos RG. The performance of instrumental activities of daily living scale in screening for cognitive impairment in elderly community residents. *J Clin Epidemiol.* 2003;56(2):131-137.
- Lawton MP. The functional assessment of elderly people. *J Am Geriatr Soc.* 1971;19(6):465-481.
- Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist.* 1969;9(3):179-186.
- Polisher Research Institute. Instrumental Activities of Daily Living Scale (IADL). Available at: <http://www.abramsoncenter.org/PRI/documents/IADL.pdf>. Accessed February 15, 2005.

Importance of IADLs

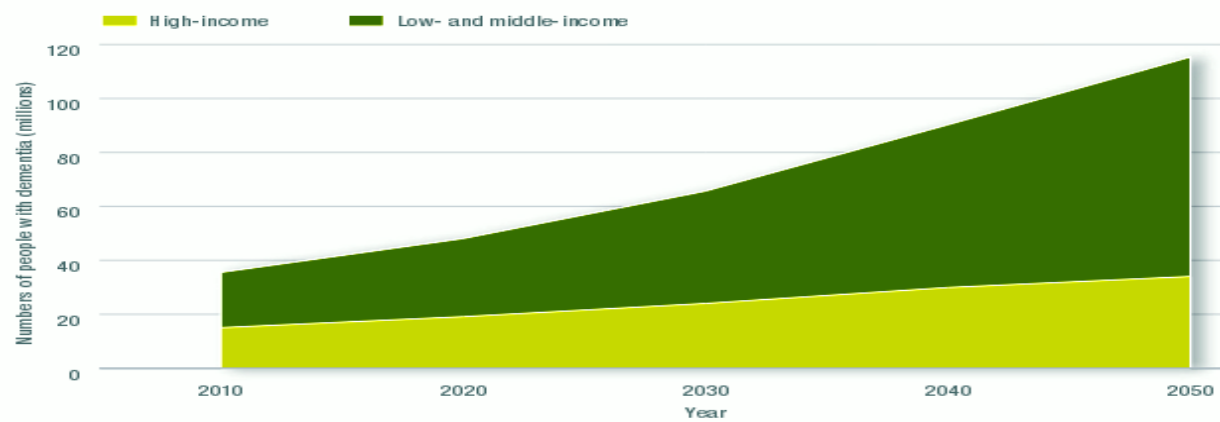
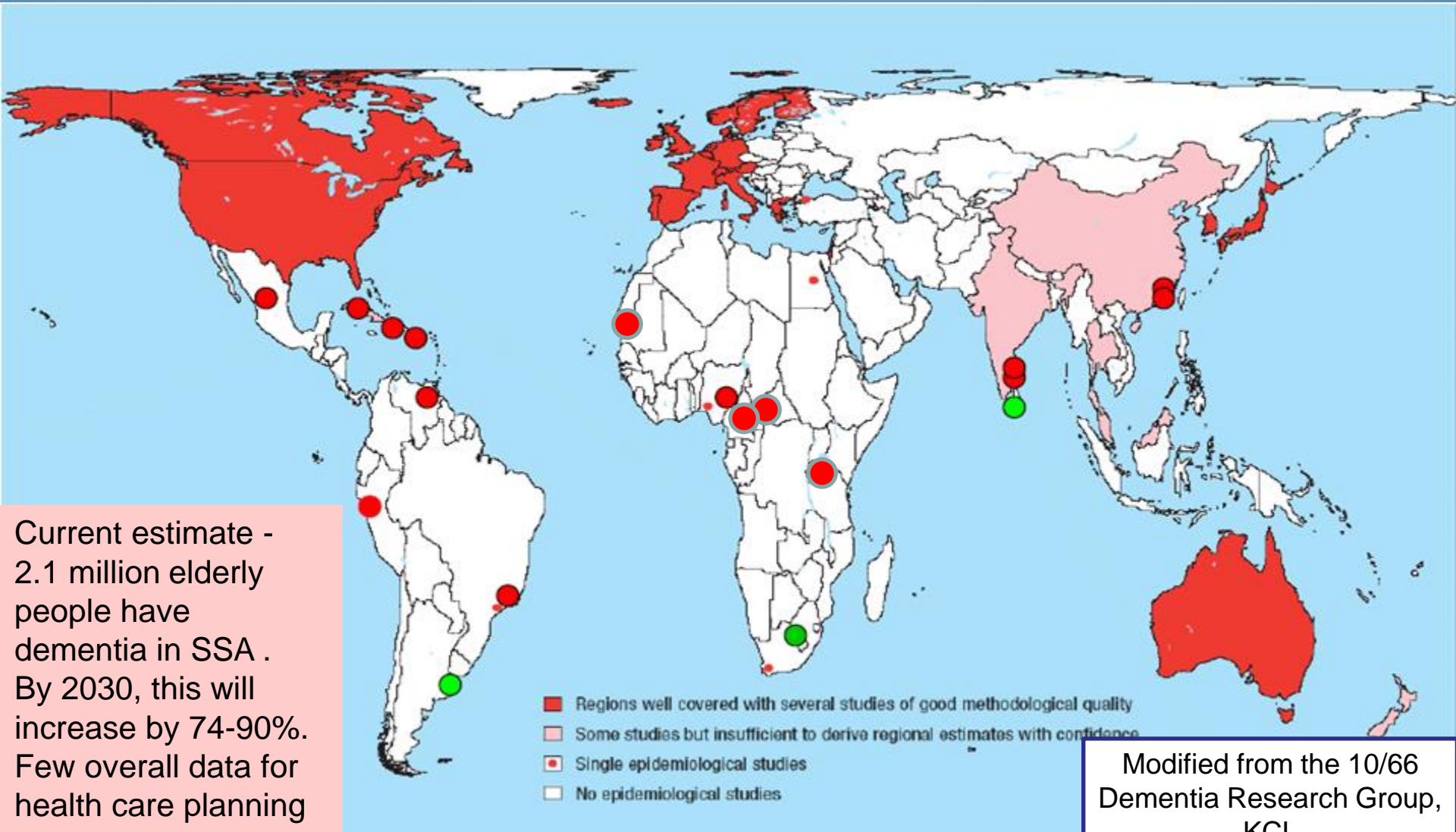


FIG 2.3 Growth in numbers of people with dementia in high-income and low- and middle-income countries

- Assessment of functional impairment in the elderly can be difficult in sub-Saharan Africa – existing scales are designed for developed country settings.
- Can lead to difficulty in dementia diagnosis – unable to demonstrate functional impairment – especially in traditional societies.
- Problem for individual patients and for prevalence estimates – health care planning.

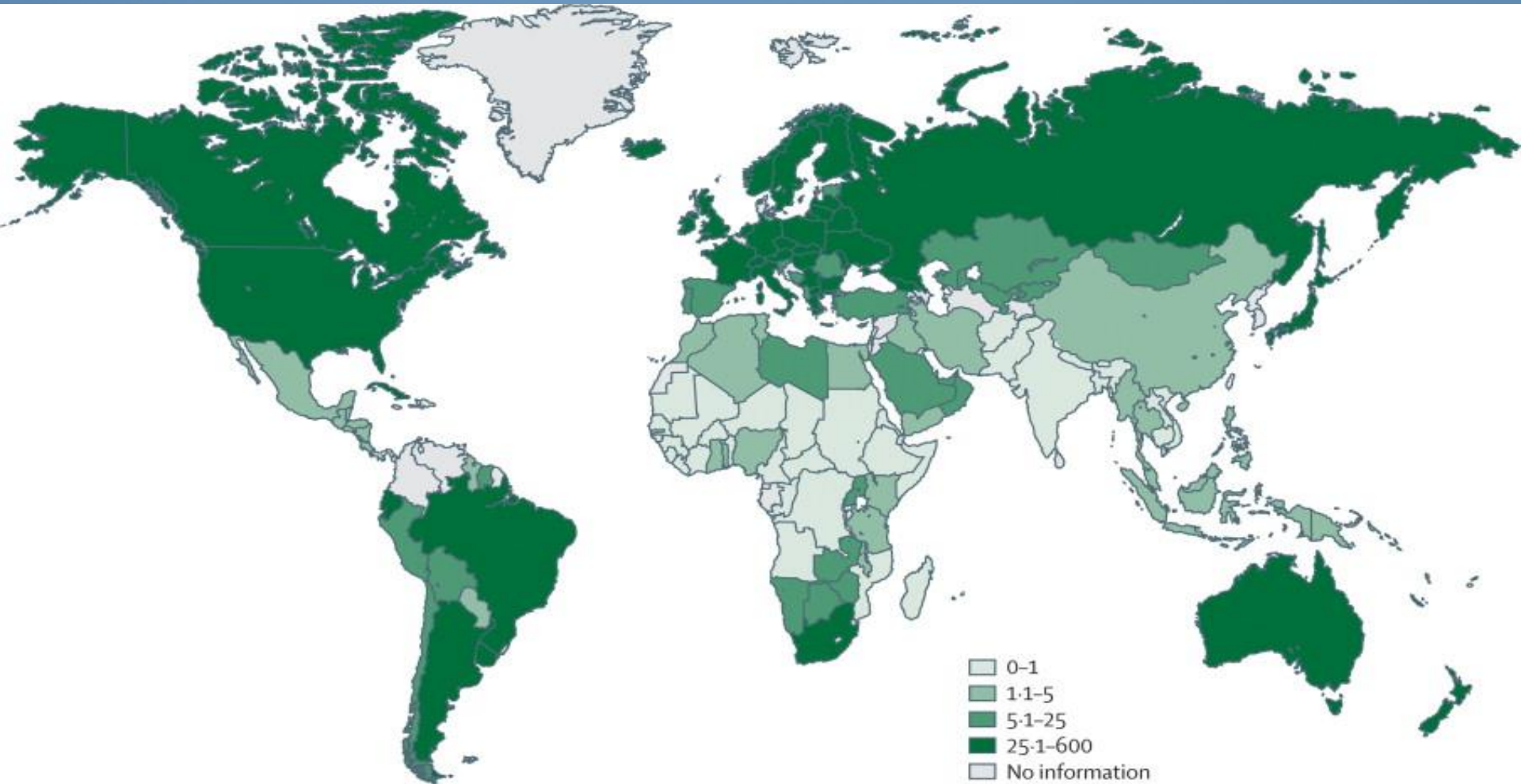
Why study dementia in sub-Saharan Africa?



Current estimate - 2.1 million elderly people have dementia in SSA . By 2030, this will increase by 74-90%. Few overall data for health care planning

Modified from the 10/66 Dementia Research Group, KCL

Human resources for mental health (psychiatrists, psychologists, nurses, and social workers) per 100 000 population



Shekhar Saxena , Graham Thornicroft , Martin Knapp , Harvey Whiteford

Resources for mental health: scarcity, inequity, and inefficiency

[http://dx.doi.org/10.1016/S0140-6736\(07\)61239-2](http://dx.doi.org/10.1016/S0140-6736(07)61239-2)

The Lancet, Volume 370, Issue 9590, 2007, 878 - 889

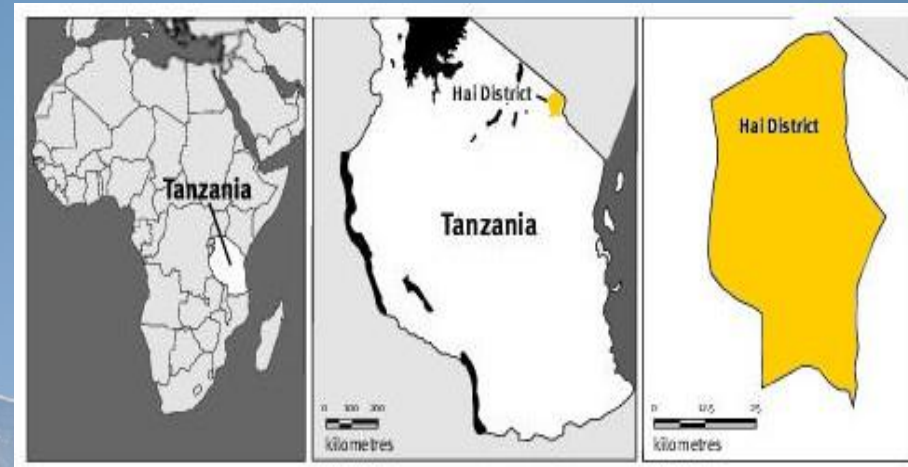
AIM

To develop a culturally appropriate and valid assessment of IADL to assist in identification of dementia in resource-poor settings.



Hai demographic surveillance site, Northern Tanzania.

- 2009 population 161,119
- Majority are subsistence farmers, some families grow cash crops (coffee or tomatoes).
- High level of illiteracy in elderly.
- Little migration – most elderly were born in Hai.
- Most elderly people live with extended family.
- Main language Swahili – some elders only speak tribal language.



Method

- Pilot assessment of IADL was devised at a workshop for health workers in the Hai district.
- Over 50 health workers contributed to a list of culturally appropriate activities for older persons in their community.
- A twelve item scale was compiled after discussion with all present.



Pilot IADL Scale

- 1. **Wanatoa Historia**/They give histories of the family, their life, past events.
- 2. **Wana suluhisha**/They settle conflicts.
- 3. **Wanasaidia shughuli ndogo ndogo**/They assist in small works in the home.
- 4. **Wanatoa ushauri**/They give advice.
- 5. **Wanadumisha na kufundisha mila/unyago**/They teach the traditions of society.
- 6. **Ni walinzi wa nyumbani**/They watch over the house when others are out.
- 7. **Wanatumiza wajukuu**/they look after the grandchildren
- 8. **Wanatoa ushawishi**/Persuasion, or changing people's ideas for the better.
- 9. **Wanasaidia katika maswala mazito kama sherehe**/They preside over feasts and ceremonies
- 10. **Wanapangia watu majukumu**/Delegation of responsibilities to others.
- 11. **Wanasimamia haki**/They fight for justice within the family and the community. They ensure fairness.

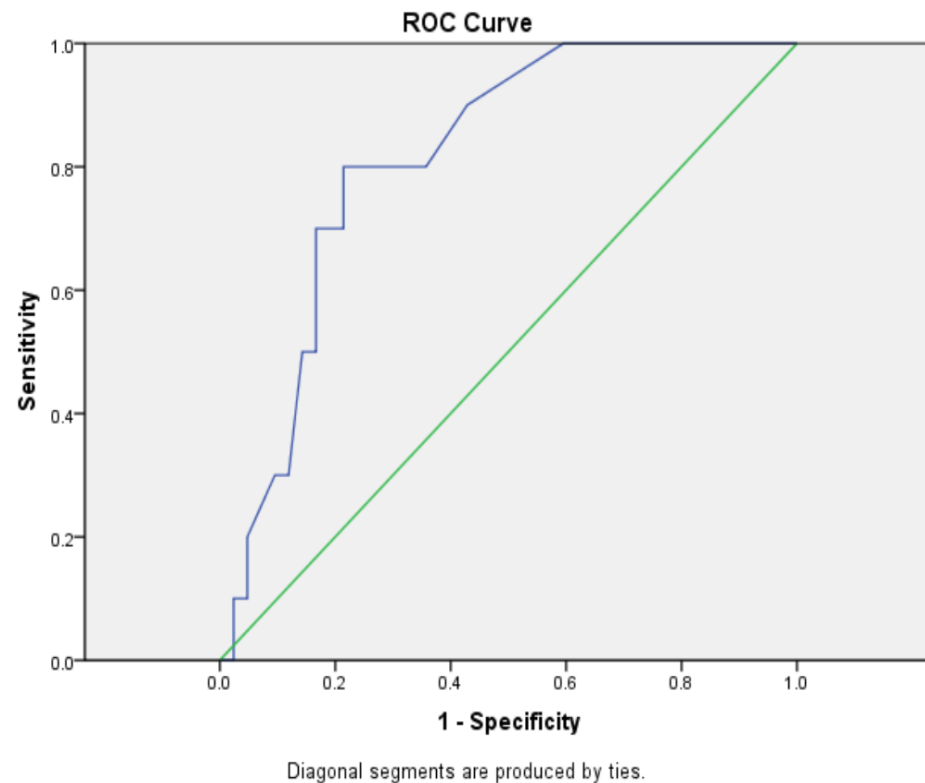
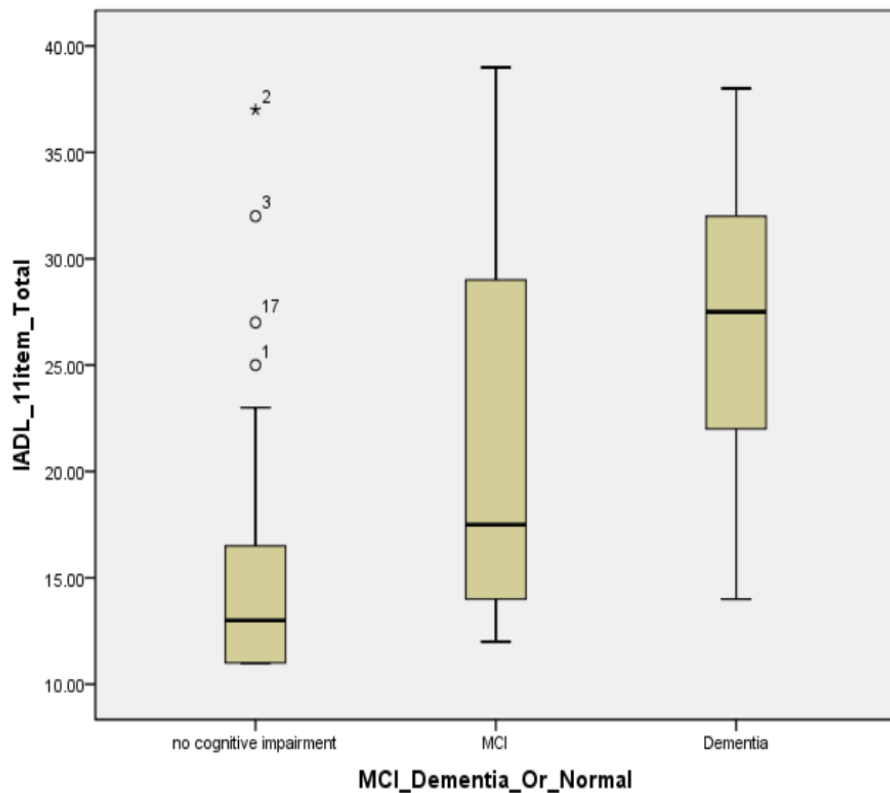


Pilot Validation of IADL Scale

- Piloted in 61 patients
- 37 had normal cognition, 14 mild cognitive impairment (MCI), 10 dementia.
- Performance on this scale was validated against DSM-IV dementia diagnosis made by a research doctor



IADL scale performance, (normal cognition, MCI and dementia)



Results

- Cronbach's α for the IADL scale 0.904.
- Total score ≥ 16 , sensitivity 80.0% and specificity 62.5% for dementia.
- AUROC curve 0.808 (95% CI 0.679 to 0.936) with dementia as predicting variable
- Total score ≥ 15 , sensitivity 91.7% and specificity 53.6% for combined MCI/dementia.
- AUROC curve of 0.805.

Conclusions

Initial pilot data suggest that this scale may be a valid and culturally appropriate assessment of IADL in rural SSA.



Further validation needed - in a larger sample and as an addition to cognitive screening.



Further Validation Community Dementia Screening Programme, Hai Tanzania



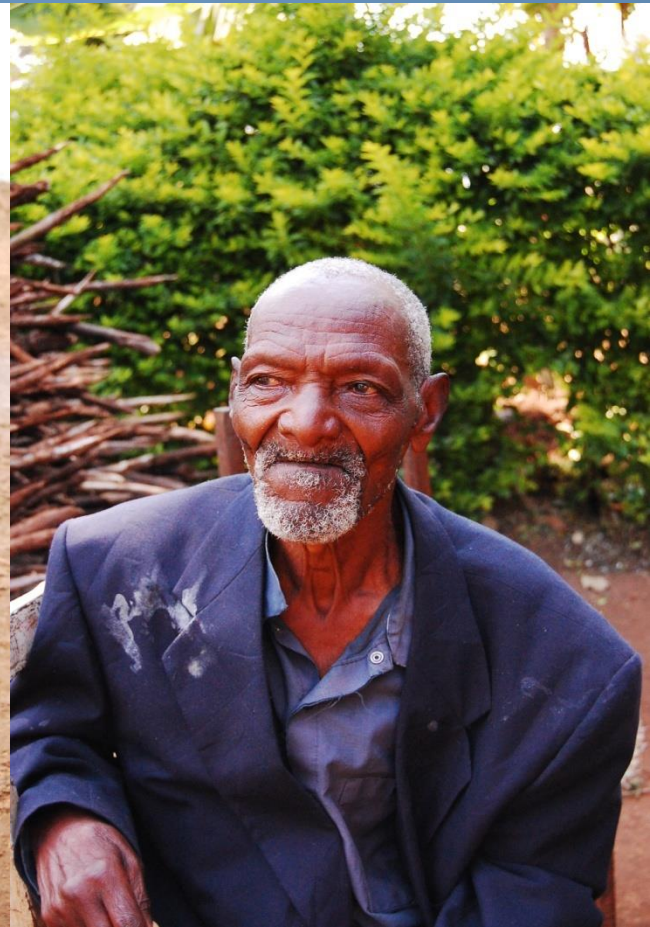
AIM

- To further validate the Tanzanian IADL scale in a larger community sample.
- To validate its use alongside the six item cognitive screen (SIDSA) in screening for dementia and assisting healthcare workers in identifying dementia.
- To be validated against formal dementia diagnosis using DSM criteria.
- To compare the Tanzanian IADL scale with the Lawton IADL scale used in Europe and the USA.

Validation of IADL scale as part of dementia screening

- Introduced as part of health workers training on dementia.
- Used during screening programme for dementia.
- 472 participants attending dementia screening included.
- All participants asked to bring a relative /carer.
- Healthcare worker completing the IADL scale unaware of the 6 item screen score or formal diagnosis.
- Village health workers/enumerators trained to complete the tool.
- Completed during home visits if necessary.
- Data collection completed May 2014.

Thank You



Acknowledgements

- Dr. Stella-Maria Paddick
- Dr. Catherine Dotchin
- Dr. W. Keith Gray
- Mr. Aloyce Kisoli
- Dr. J. Kisima
- Mr J. Masawe
- Mr. Ali Mhina
- Mr. Ades Mushi
- Dr. Declare Mushi
- Dr Akin Adebisi
- Prof. Adesola Ogunniyi
- Prof. Richard Walker

