



The prevalence of modifiable risk factors for dementia in older adults in Northern Tanzania. The Akili Mali (Brain Wealth) study (P4-176)

Charles Nye^{1,2}, Aloyce Kisoli³, Grace Saria Anderson⁴, Amour Mkubila³, Malwina Niechcial⁵, Maximillian Munishi⁴,

Akili Mali Community Advisory Board, Damas A. Mlaki⁶, Judith Boshe³, Ssenku Safic⁷, Hannah Humble⁵, Connor Healy⁵, Sunkanmi Folorunsho⁸,

Lachlan Fotheringham⁹, Raj Kalaria⁵, Louise Robinson⁵, Richard Walker^{5,10}, Bernard Mbwele^{11,12}, Stella-Maria Paddick^{3,13}



Introduction

Dementia prevalence in East sub-Saharan Africa (SSA) is predicted to increase by 375% by 2050¹. The Lancet Commission estimates that approximately 45% of dementia cases worldwide could be prevented by modification of 14 risk factors²; however, data from SSA is limited.

We aimed to estimate the prevalence and sociodemographic variation of these 14 risk factors, together with community prioritised factors, in older adults in Northern Tanzania to inform future prevention studies.



The location of the Hai district in Northern Tanzania

Table 1: Demographic Information	
Characteristic	Mean $\pm$ SD [Range]
Participants, n	1045
Age, years	70.1 $\pm$ 7 [60 - 114]
Female sex, n (%)	623 (59.6%)
Tribe	Chagga 85.6% Maasai 11.1% Other 3.3%
Highest Occupation	Farming 78.9% Business 5.2% Teaching 1.4%

Methods

All adults aged ≥ 60 years residing in three rural villages stratified by altitude and socioeconomic status were invited to take part in this cross-sectional study. Home visits were offered. The assessment was co-designed with a community advisory board and delivered by local trained researchers.

Collected by questionnaire (self-reported):

- Demographics including educational attainment
- Medical history and current medication
- Smoking and alcohol use (AUDIT-C tool)
- Geriatric Depression Scale (GDS-15)
- Questions on housing situation, childhood food insecurity, and social isolation.

Physical measurements:

- Height, weight, body mass index and blood pressure
- Visual acuity – both near and distance using Open-C Logmar chart
- Pure tone audiometry - at 1000 Hz in best ear using ‘Hearing Test’ smartphone app.

A subset of participants:

- Additional questions of physical activity and loneliness.
- Wore Axivity wrist actigraphs for 7 days

Blood tests for low-density lipoprotein, glycated haemoglobin (HbA1c) and haemoglobin are currently undergoing analysis.

Cognitive function was assessed using the Identification and Intervention for Dementia in Elderly Africans (IDEA) screen.

Analysis was performed in R. A preliminary LASSO analysis was performed to model which risk factors were most strongly associated with cognitive outcomes (IDEA score) whilst controlling for age and sex.

Table 2: Lancet 14 Modifiable Risk Factors	n*	Percentage (95% CI)
Low education level (< 7 years)	1045	58.4% (55.4 - 62.4%)
Self-reported history of Head injury	1019	9.6% (8.0 - 11.6%)
Self-reported Diabetes	1017	3.2% (2.3 - 4.5%)
Depression (GDS $\geq$ 8)	1016	35.2% (32.4–38.2%)
Hearing Loss		
Threshold > 20dB in best ear	865	47.5% (44.2 - 50.8%)
Moderate or worse impairment (WHO grades ³ >40dB)	865	5.3% (4.0–7.0%)
Visual Impairment		
Moderate or worse impairment (Distance – WHO grade ⁴)	982	30.1% (27.4–33.1%)
Moderate or worse (Near)	981	93.2% (91.4–94.6%)
Obesity – BMI (WHO Interpretation)	950	9.1% (6.9-11.9%)
Hypertension at assessment (WHO)	1016	71.3% (68.4–74.0%);
Alcohol		
Unhealthy use now (AUDIT-C +ve)	1010	26.0% (23.5-28.8%)
Previous heavy alcohol use	1001	20.0% (17.6-22.6%)
Smoking history	886	14.4% (12.3–16.9%)
Social isolation		
“I have someone to rely on now” – Disagree or Strongly disagree	1014	14.4% (12.4-16.7%)
Living alone	1016	13.0% (11.1-15.2%)
Loneliness $\geq 6/10$	383	16.7% (13.3–20.8%)
Physical Inactivity		
≥ 5 h waking inactivity	151	15.2% (10.4-21.8%)
No moderate or vigorous exercise	384	82.6% (78.4-86.0%)
Air Quality		
Cooking indoors with solid fuel	1002	76.4% (73.7 – 79.0)

Results

1045 participants were assessed, 7.5% were seen at home. See Table 1 for Demographics.

Educational attainment was low (Mean 4.1 years).

Hypertension was highly prevalent at assessment, moderate to severe in 24.7%, untreated in 63.0% and undiagnosed in 49%. Self-reported diabetes rates were low.

Obesity and being overweight (21.6%) were less prevalent than global averages⁵. 14.5% of participants were underweight.

Moderate or worse visual impairment was widespread. Near vision appeared more affected. 9.4% had glasses, less than 40% wore them.

Screen positive depression was common (Median = 6). The median loneliness score was 1/10.

Locally relevant factors: 2.1% self-reported HIV. Indoor use of solid fuels was high, 16.8% reported childhood food insecurity and 13.6% chewed tobacco.

The LASSO analysis suggested **Depression** (strongest), head injury, hypertension, indoor solid fuel, visual impairment and childhood food insecurity were associated with worse cognitive outcomes.

Education, Higher BMI and HIV +ve status were associated with better cognitive outcomes.

Conclusions

Older adults in rural northern Tanzania have a specific prevalence of the Lancet risk factors, characterised by low levels of education, high rates of untreated hypertension and indoor solid fuel use.

Depressive symptoms are prevalent and most strongly associated with worse cognitive factors in the LASSO analysis.

The analysis suggests there may be a distinct risk factor profile in East SSA compared to those in the global north, for example the impact of body weight. As these factors have effects over the life course, associations are limited from a cross-sectional study.

Further work is needed to evaluate the longitudinal impact of these factors and their relative contribution to the burden of disease to guide dementia prevention strategies in SSA.



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