Received: 1 March 2023 | Revised: 13 November 2023 | Accepted: 9 February 2024

DOI: 10.1111/ajag.13300

Australasian Journal on Ageing WILEY

RESEARCH ARTICLE

Validation of the Kimberley Cognitive Assessment (KICA-Cog) for Torres Strait Islander Peoples

Sarah G. Russell[1,2,3] | **Rachel Quigley**[1,2,3] | **Fintan Thompson**[3] | **Betty Sagigi**[4] | **Gavin Miller**[2] | **Dina LoGiudice**[5] | **Kate Smith**[6] | **Leon Flicker**[7] | **Nancy A. Pachana**[8] | **Sarah Kordick**[9] | **Edward Strivens**[1,2,3]

[1]College of Medicine and Dentistry, James Cook University, Cairns, Queensland, Australia

[2]Queensland Health, Cairns and Hinterland Hospital and Health Service, Cairns, Queensland, Australia

[3]Australian Institute of Tropical Health and Medicine, James Cook University, Cairns, Queensland, Australia

[4]Queensland Health, Torres and Cape Hospital and Health Service, Thursday Island, Queensland, Australia

[5]Faculty of Medicine, Dentistry, and Health Sciences, Royal Melbourne Hospital, University of Melbourne, Melbourne, Victoria, Australia

[6]Centre for Aboriginal Medical and Dental Health, School of Medicine, University of Western Australia, Perth, Western Australia, Australia

[7]Western Australian Centre for Health & Ageing, University of Western Australia, Perth, Western Australia, Australia

[8]School of Psychology, University of Queensland, Brisbane, Queensland, Australia

[9]Faculty of Business, Justice & Behavioural Science, Charles Sturt University, Wagga Wagga, New South Wales, Australia

Correspondence
Sarah G. Russell, Healthy Ageing Research Team, JCU Nguma-bada campus, Building E1.003A, PO Box 6811, Cairns, QLD 4870, Australia.
Email: sarah.russell6@jcu.edu.au

Present address
Sarah Kordick, Adelaide Psychological Services, Glenelg, South Australia, Australia.

Funding information
National Health and Medical Research Council

Abstract

Objectives: The aim of this study was to validate the Kimberley Indigenous Cognitive Assessment—Cognitive Component (KICA-Cog) adapted for dementia screening in Torres Strait Islander Peoples.

Methods: Data were obtained from a broader dementia prevalence study completed in the Torres Strait and Northern Peninsula Area between 2015 and 2018. Modifications were made to items from the original KICA-Cog to ensure they were culturally appropriate for the Torres Strait. All participants completed a KICA-Cog and had a comprehensive dementia assessment with a geriatrician experienced in cross-cultural assessment.

Results: A total of 255 Torres Strait residents aged 45 years and over completed a KICA-Cog and underwent geriatric assessment. The adapted KICA-Cog showed good validity for dementia diagnosis with a cut point of 33/34 associated with a sensitivity of 81% and specificity of 92% with an area under the ROC curve of 0.91.

Conclusions: The KICA-Cog, when modified for the Torres Strait, is a valid cognitive screening tool for dementia. Caution is required when interpreting test scores, as the adapted KICA-Cog had slightly lower sensitivity (ability to detect people with dementia) than the original KICA-Cog. As with all short cognitive

tests, individuals with a low KICA-Cog scores should undergo further medical investigations before a dementia diagnosis is considered.

KEYWORDS

cognitive assessment screening instrument, culturally competent health care, dementia, indigenous peoples

1 | INTRODUCTION

Rates of dementia in Australian Aboriginal and Torres Strait Islander Peoples are some of the highest in the world.[1–3] Until recently, the accurate identification and diagnosis of dementia in Aboriginal and Torres Strait Islander communities has been hampered by a lack of culturally appropriate, validated assessment tools. To address this gap, the Kimberley Indigenous Cognitive Assessment (KICA) was developed and validated to screen for cognitive impairment in older Aboriginal Peoples living in remote regions of Australia.[4] The KICA collects information on clinical (medical, social, smoking history, alcohol history and mood/anxiety), cognitive and functional status and includes a section where collateral information can be collected from someone who knows the person well (KICA-Carer).[5]

The cognitive component of the KICA, the KICA-Cog, comprises 16 questions assessing a range of cognitive functions including orientation, memory, language, praxis and executive function. Scores range from 0 to 39, with lower scores representing greater cognitive impairment, and a cut-off score of 33 or below used to identify people who require further assessment for possible dementia. The test uses simple English wording to facilitate translation into different Aboriginal languages; tasks were selected to minimise the influence of education; and items for memory testing included more appropriate pictures (e.g., Aboriginal People, crocodile) and familiar objects (matches, comb and cup).[4] Within the Kimberley validation sample, 40% had no formal schooling, and education was not significantly associated with test scores.[6] The KICA-Cog demonstrated good inter-rater reliability, internal consistency (Cronbach's $\alpha = .91$) and validity (sensitivity 93% and specificity 95%) for the diagnosis of dementia using a cut-point score of 33/34 (case/non-case).[6] From the overall 16 questions, five correctly classified 97% of people with dementia versus no dementia: orientation to week, registration, recall, copying alternating designs and free recall.[6]

The KICA-Cog has subsequently been modified for use in regional and urban Aboriginal communities, using a picture of a guitar instead of the boomerang and other musical instruments as distracter items for the sample recognition trial, and adaptations to the wording of the animal category and orientation items.[7] The KICA-Cog has also been adapted and validated for First Nations Peoples internationally[8–11]; validated for telehealth[12]; and a shortened version, the KICA screen, has been validated in Aboriginal and Torres Strait Islander communities in Far North Queensland.[13]

Policy Impact

This study showed that with culturally appropriate modifications, the Torres Strait version of the KICA-Cog is a valid dementia screening tool.

Practice Impact

Clinicians and health workers can use the modified version of the KICA-Cog with confidence when working in the Torres Strait region.

The Torres Strait Islands are located to the north of Australia between the tip of Cape York and Papua New Guinea. There are 18 island and five mainland communities within the Torres Strait and Northern Peninsula Area. Whilst the majority of people identify as being of Torres Strait Islander descent, there is a small percentage of Aboriginal People also living in the region.[14] Community feedback during the initial validation of the KICA screen in Far North Queensland indicated that picture items depicting Aboriginal items such as boomerang, clapping sticks and tomahawk, were not appropriate for Aboriginal and Torres Strait Islander Peoples residing in the region.

In response to this feedback, potential changes in the KICA-cog were discussed with Torres Strait-based Indigenous Health Workers and community members during the team's regular clinical visits to the region. Consensus was that minor modifications to the pictures needed to be made such as replacing the boomerang, clapping sticks and tomahawk, with representative Torres Strait cultural items including a Torres Strait Islander drum, spear and headdress. As well, the Aboriginal People were redrawn as Torres Strait Islander People, and the turtle, bird and emu were redrawn as a green turtle, Torres Strait pigeon and cassowary, respectively (Figure 1).

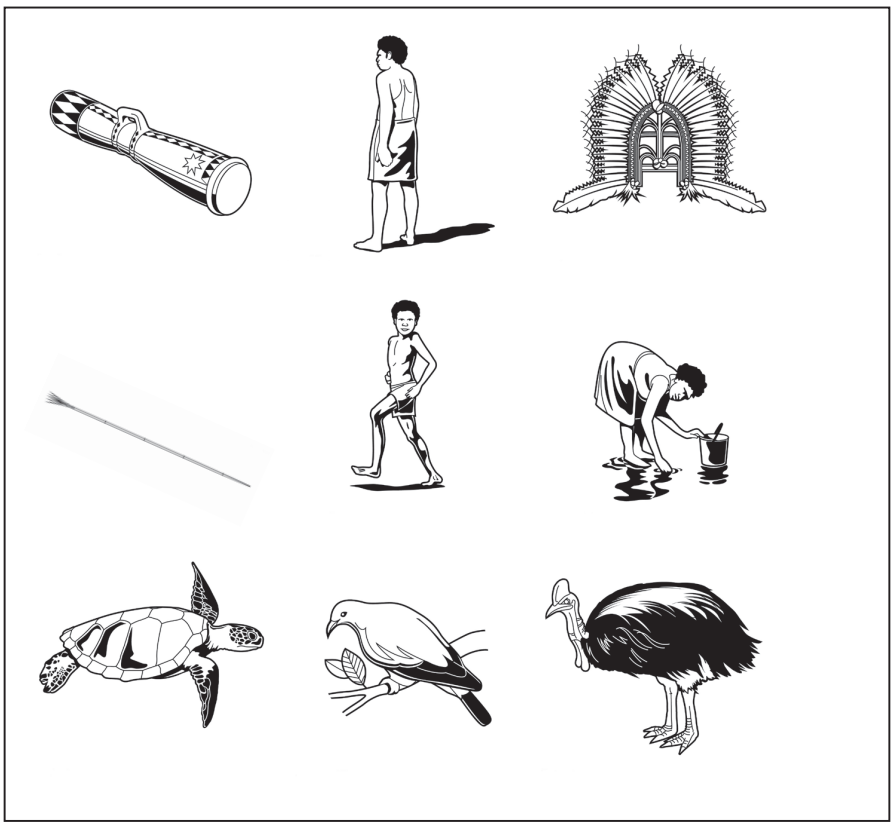

FIGURE 1 Revised stimulus pictures for the Torres KICA-Cog.

Further consensus was that minor modifications were required to some of the wording within the broader KICA tool (e.g., *food* was changed to *kaikai*). The revised tool, including the adapted KICA-Cog, was well-accepted when administered to 20 participants in a pilot study on Hammond Island in the Torres Strait.[15]

The aim of this study was to validate the adapted KICA-Cog for use in the Torres Strait using the modified content, as part of a wider study examining the prevalence of dementia in in the region.

1.1 | Positioning the research and community involvement

This research was conducted by the Healthy Ageing Research Team (HART), who are a team of Aboriginal and Torres Strait Islander, and non-Indigenous, clinicians and researchers based in Cairns and the Torres Strait. The two team members based in the Torres Strait work as Indigenous Health Workers in addition to their research role. Other HART clinicians have been providing geriatric outreach clinical services to the Torres Strait for over 20 years. During this time, the team developed a close working relationship with local Torres Strait health workers including the Post-Acute, Rehabilitation and Aged Care Service (PARAC) on Thursday Island, with whom the team have collaborated on all research projects. The team also worked closely with the manager of the Aged Care Assessment Team (ACAT) for the Torres Strait, who became a founding member of HART. This close collaboration facilitated a response to address the community concerns raised about high rates of memory problems and problems of ageing seen in the region. After discussing these community concerns with local councils, and health and aged care services, HART and PARAC co-designed a dementia prevalence study for the Torres Strait and Northern Peninsula Area. As part of this study, the aim was to pilot and then validate the adapted KICA-cog, as part of the prevalence study outcomes. The broader prevalence study included ongoing community engagement with HART providing community education sessions and health worker training on memory and ageing topics; attending local community events; as well as disseminating information via talkback radio and other local media during field trips. HART established a Knowledge Circle, which functions as the Indigenous Reference Group and oversees all of HART's ongoing research activities in the region. The Knowledge Circle includes Aboriginal and Torres Strait Islander academics, community members, aged care workers and health-care staff who have expressed

an interest in working with the research team on addressing health issues of adults in their communities. Members are remunerated for their time. The role of the Knowledge Circle is to provide expertise, guidance and advice to ensure the research project methods and outcomes are culturally appropriate, take account of specific local issues and are undertaken in ways that promote capacity building, particularly in local communities. This study came under the auspices of the Knowledge Circle.

1.2 | Ethical considerations

The study was co-designed and conducted in partnership with the Post-Acute, Rehabilitation and Aged Care Service on Thursday Island. Ethics approval was obtained from Queensland Health (HREC/13/QCH/129-878) and James Cook University (H5495) Human Research Ethics Committees.

2 | METHODS

Data collected were obtained from a broader study of dementia prevalence completed in the Torres Strait and Northern Peninsula Area (2015–2018). Participants underwent a health assessment comprising the KICA administered by members of the research team supported by an Indigenous Health Worker, who was available to translate questions into Torres Strait Creole for participants, if required. Participants were also assessed by a geriatrician experienced in cross-cultural assessment during the same session, with approximately half of the sample having a geriatric assessment followed by a KICA assessment and half having a KICA assessment followed by a geriatric assessment. Geriatricians provided dementia diagnoses based on a comprehensive geriatric assessment. As the aim was to validate the KICA-Cog, geriatricians were not given participants KICA-Cog scores as part of their assessment but used other assessment tools such as the Mini Mental State Examination, verbal fluency, and shopping list recall, if appropriate. De-identified data from the geriatric assessments were reviewed by a panel comprising geriatricians and an older person psychiatrist to obtain consensus diagnoses. Participants were diagnosed using criteria from the Diagnostic and Statistical Manual for Mental Disorders, 4th Edition (DSM IV-TR)[16] to allow for comparison with the previous Kimberley study.[3] Full methodology and prevalence data are reported elsewhere.[2]

2.1 | Participants

Adults aged 45 years and over of Aboriginal and Torres Strait Islander descent living in the Torres Strait and Northern Peninsula Area were eligible to participate in the study. There were no other inclusion or exclusion criteria, as the aim of the wider dementia prevalence study was to include as many residents as possible. Participants were recruited by health centre staff, who approached clients and members of the wider community and provided them with written information about the study and then invited them to participate in the study. Wider recruitment strategies using snowballing techniques included placing information flyers on community notice boards and in council newsletters and promoting the study through local social media platforms and in the local paper. Residents of the local nursing home were also invited to participate and were assessed at the facility. Verbal and written consent was obtained from all participants, with additional consent obtained from next of kin for participants with impaired capacity to consent.

2.2 | Data analysis

Analyses were undertaken using the Stata statistical software version 15 (StataCorp. 2017. College Station, TX). KICA-Cog scores were not normally distributed, so between-group comparisons were made using medians (Mdn) and tested using Spearman's Rho, and Kruskal–Wallis tests. Similarly, quantile regression with the Stata command 'qreg' was used to adjust for covariates when adapted KICA-Cog scores were examined by demographic variables (e.g., education). The area under the receiver operating characteristic (ROC) curve was used to examine the ability of the adapted KICA-Cog at discriminating dementia from no dementia, and to identify potential cut-offs for case/non-case. Measures of diagnostic accuracy, including sensitivity, specificity, positive predictive values and negative predictive values, were used to compare different adapted KICA-Cog cut-offs. Logistic regression analysis was used to identify which adapted KICA-Cog items had the strongest association with dementia unadjusted, adjusted for age and adjusted for age and education. Discriminant function analyses were used to identify which minimum number of adapted KICA-Cog items correctly classified the greatest number of participants. The purpose of these analyses was to understand which individual items on KICA-cog were most/least useful for identifying dementia in this population, which would potentially inform

how the KICA-cog is used clinically, and any future adaptations of the tool. Discriminant function analyses were used in the original KICA-Cog validation study, so this analysis approach was also repeated here for comparability. Ten adapted KICA-Cog items that were significant in logistic regression analyses were selected for Discriminant function analyses. Items were progressively removed due to small cell sizes or low standardised canonical discriminant function coefficients. This process was continued until a minimum number of items that had the highest leave-one-out classification (%) was identified.

3 | RESULTS

3.1 | Participants

A total of 255 Torres Strait residents aged 45 years and over completed the adapted KICA-Cog and underwent geriatric assessment. Within the sample, 88% were of Torres Strait Islander descent, 4% were of Aboriginal descent and 8% were of Aboriginal and Torres Strait Islander descent. The mean age of the sample was 64.7 (SD = 10.6, range 45–93), and 35% were male. All participants had some formal education (32% with primary school only), and over 99% spoke English as a primary or secondary language. Within the sample, 31 (12%) were diagnosed with dementia according to DSM IV-TR criteria.[16] A further 53 (21%) participants were diagnosed with cognitive impairment no dementia (CIND), where there was evidence of cognitive decline but minimal functional impact.[17]

3.2 | Demographic influences on KICA-Cog scores

3.2.1 | All participants

The distribution of the adapted KICA-Cog scores was negatively skewed ($n = 255$, $M = 35.6$, SD = 4.2, Mdn = 37, range = 0–39). Median scores were negatively associated with age ($p < .001$) but not sex ($p = .56$). Higher levels of education were positively associated with KICA-scores ($p < .001$). The median score for participants with post-school education (Mdn = 37.5) was higher than those who completed grades 11–12 (Mdn = 37), grades 8–10 (Mdn = 36) or had a primary school (Mdn = 36) education. This trend, however, was not significant after adjusting for age in a quantile regression ($p > .05$). Similar non-associations were found when education was examined as dichotomous variables (e.g., primary school only vs. rest, or postschool only vs. rest) (results not tabled).

TABLE 1 Adapted KICA-Cog scores by diagnosis for 255 Torres Strait Islander and Aboriginal participants, who participated in the dementia prevalence survey (2015–2018).

	Cognitive status		
	Normal $n = 171$	CIND $n = 53$	Dementia $n = 31$
Mean (SD)	37.1 (1.7)	34.8 (2.4)	28.4 (7.7)
Median	37	35	30
Range	29–39	28–39	0–37

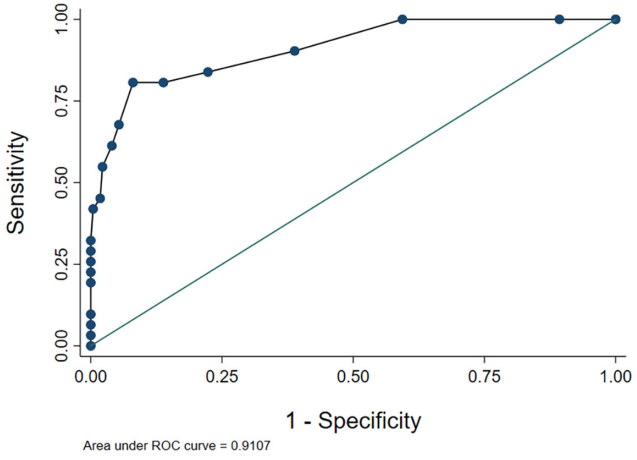

FIGURE 2 Receiver operating characteristic curve for the KICA-Cog at differentiating between dementia ($n = 31$) and no dementia ($n = 224$) among 255 Torres Strait Islander and Aboriginal participants, who participated in the dementia prevalence survey (2015–2018).

3.2.2 | By cognitive status

Median adapted KICA-Cog scores differed significantly between all cognitive groups (Kruskal–Wallis $X^2 = 94.5$, $p < .001$) (Table 1). This remained significant after adjusting for age and years of formal education in a quantile regression (results not shown).

3.2.3 | Diagnostic validation

The validity of the adapted KICA-Cog was investigated for 255 participants by comparing their total scores with the corresponding consensus diagnoses of no dementia (CIND $n = 53$ or cognitively normal $n = 171$) or dementia ($n = 31$). Figure 2 shows the area under the ROC curve for the adapted KICA-Cog at differentiating dementia from no dementia = 0.91. In these analyses, the adapted KICA-Cog cut-off score with the highest performance in terms of differentiating the two groups was 33/34 (case/non-case) (Table S1). Two alternative cut-offs, 32/33 and 34/35, also

TABLE 2 Test diagnostics of adapted KICA-Cog, with cut-offs at 32/33, 33/34 and 34/35 (case/non-case) at differentiating a diagnosis of dementia ($n = 31$) from no dementia ($n = 224$) on a comprehensive geriatric assessment, for 255 Torres Strait Islander and Aboriginal participants, who participated in the dementia prevalence survey (2015–2018).

KICA-Cog cut-off (case/non-case)	Panel diagnosis of dementia			Test diagnostics			
	No	Yes	Total	Sensitivity %	Specificity %	PPV %	NPV %
KICA-Cog (32/33)							
No	212	10	222	68 *(21/31)*	95 *(212/224)*	64 *(21/33)*	96 *(212/222)*
Yes	12	21	33				
Total	224	31	255				
KICA-Cog (33/34)							
No	206	6	212	81 *(25/31)*	92 *(206/224)*	58 *(25/43)*	97 *(206/212)*
Yes	18	25	43				
Total	224	31	255				
KICA-Cog (34/35)							
No	193	6	199	81 *(25/31)*	86 *(193/224)*	45 *(25/56)*	97 *(193/199)*
Yes	31	25	56				
Total	224	31	255				

Abbreviations: NPV, negative predictive value; PPV, positive predictive value.

had relatively high discrimination compared to lower and higher cut-off points.

Table 2 shows the test diagnostics of the adapted KICA-Cog for the 33/34 cut-off. The sensitivity (SE) was 81%, the specificity (SP) was 92% and the Positive and Negative Predictive Values were 58% (PPV) and 97% (NPV), respectively. The lower alternative cut-off (32/33, case/non-case) had a lower SE (68%) and higher SP (95%). The higher alternative cut-off (34/35, case/non-case) had a comparable SE (81%) and a lower SP (86%). The adapted KICA-Cog cut-offs of 36/37 and 37/38 had high sensitivity (90% and 100%, respectively); however, the specificity was quite low (61% and 41%, respectively) (Table S1).

3.2.4 | Individual items

The distribution of participant responses on individual adapted KICA-Cog items is provided in Table S2. Unadjusted and adjusted logistic regression analyses showed that incorrect responses to orientation to week (Q1), registration of three items (Q6), free recall of three items (Q10), free recall of five pictures (Q13) and recognition of these pictures (Q14) had the strongest association with a diagnosis of dementia (Table S3). Discriminant function analysis (Table S4) showed that these five items correctly classified 68% of participants with dementia vs. no dementia.

4 | DISCUSSION

The adapted KICA-Cog, when modified for the Torres Strait, was found to be a valid tool in detecting people with decreased cognitive performance and having a high probability of dementia. There was a high level of discrimination for identifying dementia, with an area under the curve of 0.91. The ideal cut-off score in terms of balancing sensitivity and specificity was 33/34 (case/non-case), which was the same as for Aboriginal communities in the Kimberley.[6] The adapted KICA-Cog showed lower sensitivity and comparable specificity (81% and 92%, respectively) at this cut-off when compared to the study in the Kimberley (93% and 95%, respectively). Higher adapted KICA-Cog cut-offs (e.g., ≤36) improved sensitivity but at the expense of specificity.

These results suggest that the adapted KICA-Cog at the cut-off of ≤33 would correctly differentiate most people with and without dementia, although some people with possible dementia may be missed. However, scores always need to be interpreted carefully, as this is only a short cognitive screening test and is not diagnostic. In some instances, it may be appropriate to refer someone who has obtained a cut-off score of 33 or above, for further medical investigation, particularly if informants express concerns about cognitive performance. Participants with more education had higher scores in our study, although this trend was not significant after adjusting for age. Our results are similar to the Kimberley study, despite demographic differences between the two samples (e.g., all Torres Strait participants had some formal education, compared to only 60% in the Kimberley study). More education is cognitively protective[18] and reliably associated with better performance on cognitive screening tools.[19] Therefore, a person with higher education who is reporting a change in cognition and/or there has been functional decline, and scores 33

or above on the adapted KICA-Cog would be an example where further investigation may be required. This highlights the importance of considering broader information collected by the KICA tool, including information from an informant (e.g., KICA-Carer information) when interpreting KICA-Cog scores.

Five items that were the most effective in discriminating between participants with and without dementia were similar to those in the Kimberley study and included orientation, registration and recall of objects, and picture recall and recognition. However, as these items only correctly discriminated 68% of participants, compared to 97% in the Kimberley study, it is recommended that the total score is used when screening people rather than relying on individual items.

This study responded to community concerns about the need for an appropriate cognitive assessment tool for Torres Strait Islander Peoples. As such, this study continues the international body of work underway in developing dementia screening tools that are appropriate for the specific First Nations communities in which they are used.[8–11] Mainstream cognitive assessments are recognised as not being culturally fair,[11] which increases the risk that First Nations Peoples may be misdiagnosed with subsequent implications for treatment, management, and access to services.

4.1 | Knowledge dissemination

Results of the statistical analysis were discussed with Torres Strait Island team members, the PARAC team, and the Knowledge Circle for review with explanations of how the cut-off score was established and implications for clinical practice. Following this, the new tool was promoted amongst the primary health-care centres in the Torres Strait and Northern Peninsula Area. HART provided training and education on the KICA tool as part of their rolling community engagement strategy. The new tools have also been uploaded onto the KICA website for wider dissemination. The KICA is freely available for use by health professionals and health workers, accompanied by an online training package, at https://www.aboriginalageingwellresearch.com/.

5 | CONCLUSIONS

Following culturally appropriate modifications, the adapted KICA-Cog was found to be a valid assessment tool for detecting individuals with a high probability of dementia. Scores may be influenced by age and education, and as with all short cognitive tests, individuals with low scores should undergo further medical investigations before a dementia diagnosis is made.

ACKNOWLEDGEMENTS

The authors wish to thank the residents of the Torres Strait who participated in this study and the staff at the primary health centres, and our research partner, the Post-Acute, Rehabilitation and Aged Care Service on Thursday Island, without whom the study would never have been completed. The team also wish to thank the members of the Key Stakeholder Working Group for their guidance and expertise throughout the study. Open access publishing facilitated by James Cook University, as part of the Wiley - James Cook University agreement via the Council of Australian University Librarians.

CONFLICT OF INTEREST STATEMENT

Professor Leon Flicker is an Editorial Board Member of Australasian Journal on Ageing. All other authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Sarah G. Russell https://orcid.org/0000-0003-2845-5990
Rachel Quigley https://orcid.org/0000-0002-9943-9384
Fintan Thompson https://orcid.org/0000-0002-0798-2671
Dina LoGiudice https://orcid.org/0000-0002-0391-3898
Kate Smith https://orcid.org/0000-0003-4077-1996
Leon Flicker https://orcid.org/0000-0002-3650-0475
Nancy A. Pachana https://orcid.org/0000-0002-8927-4205
Edward Strivens https://orcid.org/0000-0002-7260-508X

REFERENCES

1. Radford K, Mack HA, Draper B, et al. Prevalence of dementia in urban and regional aboriginal Australians. *Alzheimers Dement*. 2015;11:271-279.
2. Russell SG, Quigley R, Thompson F, et al. Prevalence of dementia in the Torres Strait. *Australas J Ageing*. 2021;40:e125-e132.
3. Smith K, Flicker L, Lautenschlager NT, et al. High prevalence of dementia and cognitive impairment in indigenous Australians. *Neurology*. 2008;71:1470-1473.
4. LoGiudice D, Smith K, Thomas J, et al. Kimberley indigenous cognitive assessment tool (KICA): development of a cognitive assessment tool for older indigenous Australians. *Int Psychogeriatr*. 2006;18:269-280.

5. Smith K, Flicker L, Atkinson D, et al. The KICA Carer: informant information to enhance the Kimberley indigenous cognitive assessment. *Int Psychogeriatr*. 2016;28:101-107.
6. Smith K, Flicker L, Dwyer A, et al. Assessing cognitive impairment in indigenous Australians: Re-evaluation of the Kimberley indigenous cognitive assessment in Western Australia and the Northern Territory. *Aust Psychol*. 2009;44:54-61.
7. Jackson Pulver L, Broe T, Grayson D, et al. *Dementia screening for urban Aboriginal Australians: the modified Kimberley Indigenous Cognitive Assessment (mKICA)*. Dementia Collaborative Research Centres; 2012.
8. Ebrahimi A, Poorbafrani M, Omranifard V, Samandari S, Noori F. Preparing a Persian version of Kimberley indigenous cognitive assessment for assessing the cognitive problems of illiterate geriatric patients. *Adv Biomed Res*. 2015;4:7.
9. Jacklin K, Pitawanakwat K, Blind M, et al. Developing the Canadian indigenous cognitive assessment for use with indigenous older Anishinaabe adults in Ontario, Canada. *Innov Aging*. 2020;4:igaa038.
10. Souza-Talarico JN, Carvalho AP, Nitrini R, Ferretti-Rebustini REL, LoGiudice D, MD Brucki S. The validation of the adapted Kimberley indigenous cognitive assessment in a Brazilian indigenous community of older adults from Amazonas. *Alzheimers Dement*. 2020;16:e040109.
11. Walker JD, O'Connell ME, Pitawanakwat K, et al. Canadian indigenous cognitive assessment (CICA): inter-rater reliability and criterion validity in Anishinaabe communities on Manitoulin Island, Canada. *Alzheimers Dement (Amst)*. 2021;13:e12213.
12. Russell S, Quigley R, Strivens E, et al. Validation of the Kimberley indigenous cognitive assessment short form (KICA-screen) for telehealth. *J Telemed Telecare*. 2019;27(1):54-58. Doi: 10.1177/1357633X19860309
13. LoGiudice D, Strivens E, Smith K, et al. The KICA screen: the psychometric properties of a shortened version of the KICA (Kimberley indigenous cognitive assessment). *Australas J Ageing*. 2011;30:215-219.
14. Australian Bureau of Statistics. *Census Quickstats*. Vol 2021. ABS; 2021.
15. Russell S, Strivens E, LoGiudice D, Smith K, Helmes E, Flicker L. Ageing on Hammond Island: is there cause for concern in the Torres Strait? *Aust J Rural Health*. 2016;24:342-343.
16. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., Text Revision). American Psychiatric Association; 2000.
17. Petersen RC, Lopez O, Armstrong MJ, et al. Practice guideline update summary: mild cognitive impairment: report of the guideline development, dissemination, and implementation Subcommittee of the American Academy of Neurology. *Neurology*. 2018;90:126-135.
18. Alzheimer's Association. Alzheimer's disease facts and figures. *Alzheimers Dement*. 2022;2022(18):700-789.
19. Marcopulos BA, McLain CA, Giuliano AJ. Cognitive impairment or inadequate norms? A study of healthy, rural, older adults with limited education. *Clin Neuropsychol*. 1997;11:111-131.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Russell SG, Quigley R, Thompson F, et al. Validation of the Kimberley Cognitive Assessment (KICA-Cog) for Torres Strait Islander Peoples. *Australas J Ageing*. 2024;43:545-552. doi:10.1111/ajag.13300