Contemporary Nurse

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rcnj20

Measuring effectiveness of cultural safety education in First Peoples health in university and health service settings

Roianne West, Jessica E. Armao, Debra K. Creedy, Vicki Saunders & Fiona Rowe Minnis

To cite this article: Roianne West, Jessica E. Armao, Debra K. Creedy, Vicki Saunders & Fiona Rowe Minnis (2021) Measuring effectiveness of cultural safety education in First Peoples health in university and health service settings, Contemporary Nurse, 57:5, 356-369, DOI: 10.1080/10376178.2022.2025876

To link to this article: https://doi.org/10.1080/10376178.2022.2025876

Published online: 20 Jan 2022.

Contemporary Nurse, 2021
Vol. 57, No. 5, 356–369, https://doi.org/10.1080/10376178.2022.2025876

Measuring effectiveness of cultural safety education in First Peoples health in university and health service settings

Roianne West [a*], Jessica E. Armao [a], Debra K. Creedy [b], Vicki Saunders [c] and Fiona Rowe Minnis [d]

[a]*School of Nursing and Midwifery, Griffith University, Gold Coast Campus, Gold Coast, Australia;* [b]*School of Nursing and Midwifery, Griffith University, Logan Campus, Brisbane, Australia;* [c]*School of Health, Medical and Applied Sciences, Central Queensland University, Gunggari, Cairns, Australia;* [d]*Congress of Aboriginal and Torres Stcrrait Islander Nurses and Midwives (CATSINaM), Level 1, 15 Lancaster Place, Majura Park, 2609 | PO Box 656, Fyshwick ACT 2609, Australia*

(*Received 8 March 2021; accepted 1 January 2022*)

Background: Cultural Safety is a mandatory training requirement for the 16 regulated health practitioners in Australia. Tools measuring outcomes need to be appropriate for different education and training contexts.
Aim: To test refinements to the 25 item Cultural Capability Measurement Tool (CCMT).
Methods: Framed by decolonising and relational ways of knowing, being, and doing in the tool development process. New items of the CCMT were generated through engagement with key knowledge holders. New items were piloted with expert reviewers and modified accordingly to produce a 41-item scale. Two online surveys conducted with 875 students and then 276 health professionals were collected for analysis. Exploratory factor analysis and a parallel analysis were conducted.
Results: The newly named Ganngaleh nga Yagaleh (GY) tool contained 28 items loaded on 3 factors accounting for 47.95% of variance. Factor 1 (Commitment to Culturally Safe Practice; $\alpha = .89$) comprised 12 items, Factor 2 (Understanding of History and Power; $\alpha = .86$) contained 9 items, and Factor 3 (Attitudes, Values, and Beliefs; $\alpha = .52$) contained 7. Total scale reliability was good ($\alpha = .87$).
Impact statement and conclusion: The GY Scale can be used in education and practice settings. Challenges remain about how educational providers and health services approach cultural safety as a life-long learning journey, and how education and clinical practice embed cultural safety standards. Future directions for use of the GY tool include expanding it for use in other contexts and more explicit separation of what is emerging as a separate scale the 'Keeping Culture Strong' scale which evaluates the unique learning experiences of First Peoples.

Keywords: evaluation; cultural safety; cultural capability measurement tool; First Peoples health; indigenous research; exploratory factor analysis; students

Acknowledgements

To write this paper we acknowledge our shared commitment to the vision of the First Nations of Australia for patient safety in Australia's health care system. In acknowledging this, we recognise the sovereignty of First Peoples as traditional custodians of Countries in which we live and

*Corresponding author. Email: ceo@catsinam.org.au

work and pay our respects to our continuing connections to culture, community, land, waters, and sky and to all our Elders past and present. *The term "First Peoples" is used to be respectful and inclusive of all Indigenous Peoples whose countries and nations have been and still are impacted by colonisation. The First Peoples of Australia represent over 500 Aboriginal and Torres Strait Islander nations who have never ceded sovereignty. In this paper, we use the term First Peoples to specifically refer to peoples from the First Nations of Australia.*

Introduction

> Patient safety includes the inextricably linked elements of clinical and cultural safety, and this link (in Australia) must be defined by Aboriginal and Torres Strait Islander Peoples. (Australian Health Practitioner Regulation Authority (Ahpra), 2019)

In 2020 the Australian Health Practitioner Registration Authority (Ahpra) launched the *Aboriginal and Torres Strait Islander Health and Cultural Safety Strategy* highlighting the need to address racism within the health care system. During the same year, the International Year of the Nurse and Midwife, over 100 leaders in Australian nursing and midwifery issued a call to action to address racism in the professions (Geia et al., 2020). In Australia, First Peoples nurses and midwives have made significant contributions to upholding professional and programme accreditation standards and ongoing Australian health care reform (CATSINaM, 2017; Goold et al., 2002; Milligan et al., 2021; Nursing and Midwifery Board of Australia and CATSINaM, 2018).

As distinct professional groups within healthcare, First Peoples nurses and midwives have made contributions to cultural capability, cultural awareness and cultural safety education, training and research innovations. They are also actively engaged in embedding the histories of Australia's First Peoples in nursing and midwifery education and continuing professional training (Downing & Kowal, 2011; Goold, 2006; Goold & Liddle, 2015; Sherwood et al., 2021; West, 2012).

Lack of clarity about what the terms cultural safety, cultural capability and cultural awareness means in policy implementation (Ahpra, 2020a; Curtis et al., 2019; Lock, 2018) is part of what this research explores. From First Peoples perspectives these terms have emerged to respond to the need to address individual and institutional racism within the Australian health care system. In this paper the Ahpra definition of cultural safety frames the research:

> Cultural safety is determined by Aboriginal and Torres Strait Islander individuals, families and communities. Culturally safe practice is the ongoing critical reflection of health practitioner knowledge, skills, attitudes, practising behaviours and power differentials in delivering safe, accessible and responsive healthcare free of racism. (Ahpra, 2020a)

Ganngaleh nga Yagaleh (GY) are Yugembeh words gifted to the research team and mean education and training. They were gifted by the Yugembeh traditional custodians from the Gold Coast (Queensland) where the GY emerged and was further developed. The GY tool has been adapted, from the Cultural Capability Measurement Tool (CCMT) originally developed in 2017 (West et al., 2017). The CCMT was developed in accordance with the 5 graduate cultural capabilities identified in the federally endorsed Aboriginal and Torres Strait Islander Health Curriculum Framework (ATSIHCF). Since then, there has been an increased focus in health practitioner education and curriculum towards cultural safety and the tool has been refined within this context. The CCMT assesses the effectiveness of First Peoples Health courses aligned with the ATSIHCF in nursing and midwifery and other health professional programmes in higher education. The ATSIHCF is a framework developed to support health education providers

to attain consistency in the development and implementation of First Peoples health curricula (Department of Health, 2014).

To test refinements of the CCMT and support the expansion of its use in different education and training contexts, this paper outlines the development of the Ganngaleh nga Yagaleh (GY) tool. The new items added to the tool measure understanding of cultural safety and culturally safe practices, while remaining aligned to ATSIHCF and retaining the ability to assess training effectiveness against the five capabilities in the ATSIHCF. Framed by decolonising and relational ways of knowing, being, and doing (Martin, 2003; Sherwood, 2010; Sherwood & Edwards, 2006) the voices of First Peoples were privileged in the tool development process. Decolonising approaches to research are characterised by the following features:

- Illustrates power differentials;
- Emphasises the ongoing maintenance of colonisation through institutions;
- Examines hegemonic practice and oppressive policy;
- Provides vital context of the issue or circumstance being investigated;
- Deconstructs and revealing practices used to problematise Australia's First Peoples in the past and currently;
- Recognises, respects and uses First Peoples ways of knowing, being and doing for; and
- Provides balancing stories and affirms that First Peoples are the holders of expert knowledge about their lives and experiences within and outside of the health practice system. This knowledge, which draws on and represents the particular and critical framing of experiences, stands alongside and adds to the knowing and knowledge of other key stakeholders from government, non-government and community-controlled organisations.

To transform interpersonal and institutional racism and to inform nursing and midwifery praxis, innovations in education, training and research need to be inclusive of First Peoples ways of knowing, doing, and being (Geia et al., 2020). These innovations are also needed to address the impact of the cultural background of nurses and midwives on outcomes from health care (Desouza, 2008; Ramsden, 2002). Such innovations are essential to respond to increasing evidence of differential health outcomes and quality of care for the First Peoples of Australia (Marrie, 2017; Marrie & Bourke, 2020). Current indicators show little evidence of improvement in health outcomes across First Peoples in Australia (Australian Government, 2020). While there has been commitment from Queensland and South Australia to address institutional racism and assessment of organisational readiness (Marrie, 2017; Petric, 2019), there is little available evidence to support organisations embedding cultural safety curricula, education and training to identify what works. Publicly available evidence suggests a need to review how cultural safety is captured in health care quality monitoring systems (AIHW, 2019; AIHW, 2020; Australian Commission on Safety and Quality in Health Care, 2018).

There are well recognised tensions and challenges in collecting such evidence, as outlined by the Australian Productivity Commission (Australian Productivity Commission, 2019). Two prominent sources of tension being: (1) the broad definitions and confusion in use of terminology, even though the recent definitions by Ahpra have introduced some clarity; and (2) lack of transparency about theoretical assumptions in the measurement of education and training innovations designed to promote cultural safety (Lock, 2018). Given the complex cross-cultural spaces being navigated, there is a need for evidence to reflect the varying needs of learners, academics in universities and trainers in health services. There are few validated tools to measure the impact of mandatory First Peoples health and cultural safety curricula, education and training on health students and health professionals. Understanding how health professional education and training affects change for students, practitioners and patients is important. In this paper we describe

the limitations, rationale and approach to refinement and further validation of the Cultural Capability Measurement Tool (CCMT).

Method

Limitations of the CCMT

The CCMT was developed to measure the impact and effectiveness of cultural capability education (West et al., 2017; West et al., 2018a, 2018b; West et al., 2019), where that education is aligned with the ATSIHCF (Department of Health, 2014). The 25-item scale was validated for use primarily with undergraduate midwifery and nursing students, with items presented on a 5-point Likert-type response format (1 = strongly disagree, 5 = strongly agree), with higher total scores indicating a higher level of cultural capability. Although led by a First Nations Senior Academic the development was not framed by decolonising pedagogies and principles, nor were relational ways of knowing, being, and doing privileged. It has also criticised for its atheoretical and apolitical stance (Lock, 2018).

The CCMT consists of five factors: 1 – Respect (10 items, $\alpha = .83$, e.g. Reflecting on my own cultural values and beliefs will help me become culturally aware); 2 – Communication (five items, $\alpha = .75$, e.g. I feel comfortable working with First Peoples); 3 – Safety and Quality (five items, $\alpha = .73$, e.g. Comprehensive primary health care services are fundamental to improving First Peoples health); 4 – Reflection (three items, $\alpha = .62$, e.g. All First Peoples are treated equally by health professionals [reverse-worded item]); and 5 – Advocacy (two items, $\alpha = .36$, e.g. I intend to work for changes in First Peoples health). While the overall scale is reliable ($\alpha = .86$), factors 4 and 5 were not reliable, with only three and two items, respectively, indicating potential lack of coverage. The scale also contained significant cross-loading of items across factors, indicating that differentiation between factors was lacking.

Approach to item refinement and new item generation

The approach taken to enhance and refine the CCMT was framed by decolonising pedagogies and principles. As such, First Peoples voices and ways of knowing, being, and doing are privileged in this approach as are their interpretations of cultural safety (Cochran et al., 2008; Ormiston, 2010; Sherwood, 2010; Sherwood & Edwards, 2006). A key goal of cultural safety education and training is context or place-situated 'ethical relationality' (Donald, 2009; Kerr & Adamov Ferguson, 2021). What this means is that First Peoples philosophies, ethics and ways of knowing centre how understandings of different perspectives and knowledge systems are constituted by different colonial histories (Williams et al., 2018).

Theoretically significant in our work is the need to decolonise our approach (Sherwood, 2010; Sherwood & Mohamed, 2020). Our approach highlighted how critical and transformative learning experiences deepen shared connections, create awareness of shared human experiences beyond different cultural histories and stories, and enhance and improve the quality and safety standards of education, training and health care.

Our intent was to strengthen the psychometric properties of the CCMT, while also enlarging use of the scale outside the narrow context of cultural capability of students in the university sector. Existing CCMT items (items 1–25) had minor variations to remove ambiguous wording, alongside new items (items 26–41); the latter were generated through engagement with knowledge holders, feedback from First Peoples participants when completing the CCMT, and were written in-line with the theoretical frameworks of affective learning (Krathwohl, 2002) and cultural safety (Ahpra, 2019; Ramsden, 2002) and evaluating the process of truth-telling in education and training.

The revised CCMT items and new items were piloted with First Peoples and other expert reviewers and modified accordingly before data collection as a 41-item scale.

Design and setting

Two cross-sectional studies were undertaken. Participants needed to be of an age to give their own consent, be enrolled as a health professional student in a university programme (for students) or be a registered health professional working in the selected hospital and health service. Participants who had previously participated in any development or validation of the previously developed CCMT were excluded via matching of unique participant codes.

Student participants undertaking a self-paced pre-professional placement cultural capability training module, delivered online were invited to complete the survey before and after the module. Employed health professional participants were recruited from a major metropolitan hospital and health service while undertaking cultural capability training. They were also invited to complete the survey before and after training. In both contexts, training was mandatory, however participation in the research was voluntary. Human Research Ethics approval was obtained from the ethics committees of both Griffith University (reference: PBH 40-10-2012 HREC) and the participating hospital (GCHHS reference: HREC/2019/QGC/45171).

Data were collected in two waves, from November 2019 – January 2020, and January 2020 – March 2020. Participants within the first wave comprised the sample for exploratory factor analysis (EFA) and data from participants from the latter wave were included in the parallel analysis. The target sample size was set at 800, for two samples of 400, in order to allow a parallel analysis. These numbers would allow 10 participants for every item to be validated. Of the 4500 students completing the training, 2291 elected to also complete the survey, with 875 completed surveys. Of the 371 health professionals completing the training, 287 elected to participate in the study, with 276 completed surveys. Only completed surveys were included in the analyses.

Instrument overview

The survey consisted of a demographic section, and the 41 test items. The demographic section contained items on age, sex, descent (e.g. English, Chinese, etc.), whether a participant identified as First Peoples, primary residential location (e.g. major city, rural, remote, etc.), and their health discipline. Student participants could indicate if they were enrolled domestically or internationally, and health professional participants were asked to indicate their educational attainment and time they had worked in their current health professional role. This section was followed by the test items, presented in an identical format to the original CCMT, and intended to be scored in the same way (West et al., 2017).

Reverse-worded items were used to reduce response bias. Questions were presented in smaller blocks on screen to reduce participant fatigue, and the survey was kept short to prevent participant burden. Random ordering of question blocks and items was implemented to minimise order effects.

Results

Participants

The final sample size comprised 1151 participants, who completed both pre and post surveys. The sample for exploratory factor analysis (EFA) was $n = 483$, and the parallel analysis $n = 668$. Characteristics of participants are presented in Tables 1 and 2.

Exploratory factor analysis

Principle components analysis was used, with no set number of factors, in order to identify poor-performing items and the number of factors. It was expected that factors would interrelate and so varimax rotation was allowed, with Kaiser Normalization and five iterations. Regarding

Table 1. Participant characteristics with percentages, $N = 1151$.

Demographic		EFA sample $N = 483$	Parallel sample $N = 668$
Participant type	Undergraduate student	434 (89.9)	441(66.02)
	Health practitioner	49 (10.1)	227 (33.98)
Age (*M, SD*)		28.51 (10.9)	29.09 (10.4)
Sex	Male	80 (16.6)	59 (8.8)
	Female	375 (77.6)	441 (66.0)
Descent	English	90 (18.6)	98 (14.7)
	Irish	13 (2.7)	20 (3.0)
	Italian	11 (2.3)	5 (0.7)
	German	9 (1.9)	7 (.1.0)
	Chinese	17 (3.5)	15 (2.2)
	Scottish	18 (3.7)	10 (1.5)
	Australian	158 (32.7)	223 (33.4)
	N/A	167 (34.6)	290 (43.4)
Identification as First Peoples	Aboriginal	9 (1.9)	18 (2.7)
	Aboriginal and Torres Strait Islander	2 (0.4)	6 (0.9)
	Non-Indigenous	444 (91.9)	475 (71.1)
	N/A	28 (5.8)	169 (25.3)
Main living location	Major city	270 (55.9)	253 (37.9)
	Inner regional	124 (25.7)	148 (22.2)
	Outer regional	42 (8.7)	64 (9.6)
	Remote	11 (2.3)	28 (4.2)
	Very remote	0 (0.0)	1 (0.1)
	N/A	36 (7.5)	174 (26.0)
Student type	Domestic	348 (72)	282 (42.2)
	International	42 (8.7)	40 (6.0)
Education of health professionals (excludes students' current enrolment)	Certificate	2 (.4)	0 (0.0)
	Diploma	0 (0.0)	1 (0.1)
	Degree	5 (1.0)	2 (0.3)
	Postgraduate diploma	3 (0.6)	2 (1.3)
	Master's degree	3 (0.6)	0 (0.0)
	PhD	3 (0.6)	0 (0.0)
Time working in current hospital	Less than 1 year	29 (6.0)	127 (19.0)
	1–3 years	12 (2.5)	30 (4.5)
	4–6 years	3 (0.6)	7 (1.0)
	7–10 years	2 (0.4)	3 (0.4)
	Over 10 years	2 (0.4)	8 (1.2)

Table 2. Participant disciplines, with percentages, $N = 726$.

Programme	EFA sample, $N = 400$	Parallel sample, $N = 326$
Nursing	124 (31.0)	205 (62.9)
Dentistry	23 (5.8)	12 (3.7)
Biomedicine, medicine, paramedicine	56 (14.0)	8 (2.5)
Child and families studies	5 (1.3)	2 (0.6)
Exercise physiology and physiotherapy	16 (4.0)	16 (4.9)
Education	13 (3.3)	1 (0.3)
Human services and social work	33 (8.3)	20 (6.1)
Criminology	4 (1.0)	1 (0.3)
Midwifery	28 (7.0)	5 (1.5)
Nutrition and dietetics	25 (6.3)	6 (1.8)
Occupational therapy and rehabilitation	8 (2.0)	8 (2.5)
Pharmacy	12 (3.0)	12 (3.7)
Psychology, counselling, and mental health	20 (5.0)	12 (3.7)
Health service management or practice	9 (2.3)	9 (2.8)
Public health	3 (0.8)	4 (1.2)
Speech pathology	20 (5.0)	4 (1.2)
First Peoples community practice	1 (0.3)	1 (0.3)

factorability, interrelations show all items correlate with at least one other item. Sampling was determined to be adequate (KMO = 0.94), and Bartlett's test of sphericity indicated factor analysis would be appropriate (χ^2 (406) 5727.35, $p < .001$). All communalities were over .3.

The number of factors was determined via examination of eigenvalues, the scree plot, and theoretical linkages between items in each factor. A cut-off of .5 was used to determine which item loaded onto which factor. Three factors were decided upon for the final solution, explaining 49.93% of variance. Factor loadings and factors, communality for each item, can be seen in Table 3. The properties of the final solution and interrelations between factors can be seen in Tables 4 and 5, respectively.

Items that cross-loaded or failed to load, items that loaded on factors that conflict semantically with the other items in the scale, items identified as redundant ($r > .6$), and poorly performing or confusing items were marked for potential removal. Items 1, 4, 7, 8, 12, 15, 21, 22, 27, 28, 29, 38 were removed prior to subsequent analysis. Some items performed poorly but were retained for further analysis (e.g. item 11). Item 36 was flagged for possible removal, as it improved the reliability of Factor 3 to >.7.

Parallel analysis

As above, assumption-testing indicated factor analysis as appropriate: all items correlated with at least one other item, KMO = 0.93, Bartlett's test of sphericity returned (χ^2 (378) 5038.76, $p < .001$), and all communalities were over .3. The same process in regards to setting the number of factors, rotation, and determining the final number of factors in the solution were employed in this analysis as the first.

The final solution contained 3 factors, explaining 47.95% of variance. Table 6 contains the factors, loadings, and communalities. Table 7 contains the properties of the final solution, and Table 8 shows intercorrelations between factors.

The same process for removing items was followed here as in the previous analysis. Only item 32 was removed. Some items performed poorly but were retained for further analysis:

Table 3. Factor loadings and communalities, exploratory factor analysis, $N = 461$.

	Factor 1	Factor 2	Factor 3	Communality
Item 2	0.19	**0.79**	0.09	0.66
Item 3	0.18	**0.63**	0.28	0.51
Item 5	**0.67**	0.27	−0.01	0.52
Item 6	−0.08	0.08	**0.73**	0.55
Item 9	**0.62**	0.31	0.04	0.48
Item 10	**0.70**	0.16	0.04	0.51
Item 11	0.04	**0.48**	0.46	0.44
Item 13	**0.73**	0.14	0.00	0.56
Item 14	**0.67**	0.25	0.06	0.51
Item 16	**0.56**	0.19	−0.09	0.35
Item 17	**0.61**	0.09	0.02	0.38
Item 18	−0.07	0.02	**0.80**	0.65
Item 19	−0.13	−0.15	**0.59**	0.38
Item 20	−0.18	0.04	**0.76**	0.61
Item 23	**0.65**	0.14	−0.03	0.44
Item 24	**0.68**	0.34	−0.03	0.59
Item 25	0.15	0.13	**0.58**	0.38
Item 26	**0.61**	0.34	0.01	0.49
Item 30	**0.75**	0.07	−0.06	0.57
Item 31	**0.74**	0.22	0.05	0.60
Item 32	**0.69**	0.24	−0.05	0.53
Item 33	0.38	**0.54**	0.19	0.47
Item 34	0.26	**0.64**	0.15	0.50
Item 35	0.24	**0.70**	−0.02	0.55
Item 36	0.18	0.23	**0.51**	0.35
Item 37	**0.51**	0.37	−0.21	0.44
Item 39	0.37	**0.60**	0.04	0.50
Item 40	**0.51**	0.48	−0.21	0.53
Item 41	0.32	**0.56**	−0.07	0.42

items 11 and 36 fell below the .5 cut-off (.49 and .48, respectively); item 36 was again flagged, however removal would only improve Factor 3's reliability to .64.

The exploratory factor and parallel analyses resulted in a 28-item, 3-factor structure that was stable across both samples. After parallel analysis, items 2, 3, 5, 6, 9, 10, 11, 13, 14, 16, 17, 18,

Table 4. Properties of final solution, exploratory factor analysis, $N = 461$.

	Factor 1	Factor 2	Factor 3	Total GY
Number of items	15	8	6	29
Mean	4.27	3.76	3.91	3.89
Std. error	.02	.03	.03	.02
Median	4.29	3.75	3.17	3.86
SD	0.48	0.58	0.66	0.04
Std. skew	−11.84	−2.84	−0.56	−6.88
Cronbach's alpha	.91	.84	.61	.87
Rotated loading	7.04	4.25	3.19	–
Variance explained (%)	24.27	14.65	11.00	–
Av. inter-item correlation	.63	.57	.36	.46

Table 5. Intercorrelations of factors, exploratory factor analysis, $N = 461$.

	Total	Factor 1	Factor 2	Factor 3
Total	–			
Factor 1	.92**	–		
Factor 2	.74**	.63**	–	
Factor 3	.40**	.16*	−.13*	–

*$p < .01$, **$p < .001$.

19, 20, 23, 24, 25, 26, 30, 31, 33, 34, 35, 36, 37, 39, 40, and 41 were retained. The factors were labelled: Factor 1 – Commitment to Culturally Safe Practice (e.g. *I accept that there is still much for me learn about Aboriginal and Torres Strait Islander Peoples*); Factor 2 – Understanding of History and Power (e.g. *I have an understanding of how Australia's colonial history impacts on my practice as a health professional*); Factor 3 – Attitudes, Values, and Beliefs (e.g. *There may be few exceptions, but in general First Peoples are all the same* [reverse-worded item]).

Discussion

Culturally safe healthcare practice requires a commitment to ongoing learning and unlearning, critical reflection and evaluation, which in turn requires the development of skills and

Table 6. Factor loadings and communalities, parallel analysis, $N = 467$.

	Factor 1	Factor 2	Factor 3	Communality
Item 2	0.21	**0.72**	0.04	0.56
Item 3	0.23	**0.52**	0.27	0.40
Item 5	**0.54**	0.36	0.01	0.42
Item 6	−0.15	0.11	**0.72**	0.55
Item 9	**0.60**	0.29	−0.03	0.44
Item 10	**0.65**	0.28	0.01	0.50
Item 11	0.27	0.20	**0.48**	0.35
Item 13	**0.62**	0.24	−0.02	0.43
Item 14	**0.63**	0.22	0.10	0.46
Item 16	**0.54**	0.30	−0.13	0.40
Item 17	**0.64**	0.20	−0.16	0.48
Item 18	−0.09	−0.03	**0.76**	0.59
Item 19	−0.30	−0.10	**0.54**	0.40
Item 20	−0.14	−0.03	**0.77**	0.61
Item 23	**0.70**	0.22	−0.10	0.55
Item 24	**0.57**	0.48	0.01	0.56
Item 25	0.05	0.00	**0.61**	0.37
Item 26	**0.54**	0.46	0.01	0.50
Item 30	**0.60**	0.06	−0.03	0.36
Item 31	**0.71**	0.22	0.05	0.55
Item 33	0.34	**0.65**	0.09	0.55
Item 34	0.27	**0.56**	0.27	0.46
Item 35	0.24	**0.66**	0.03	0.50
Item 36	0.35	0.07	**0.48**	0.36
Item 37	0.19	**0.64**	−0.20	0.49
Item 39	0.18	**0.72**	0.03	0.55
Item 40	0.27	**0.66**	−0.26	0.57
Item 41	0.22	**0.64**	0.07	0.47

Table 7. Properties of final solution, parallel analysis, $N = 467$.

	Factor 1	Factor 2	Factor 3	Total GY
Number of items	12	9	7	28
Mean	4.35	3.90	3.24	3.93
Std. error	.02	.02	.02	.02
Median	4.33	3.89	3.23	3.89
SD	0.42	0.54	0.54	0.38
Std. skew	−1.85	−1.78	1.79	−0.29
Cronbach's alpha	.89	.86	.52	.87
Rotated loading	5.41	4.88	3.14	–
Variance explained (%)	19.30	17.42	11.23	–
Av. inter-item correlation	.60	.60	.26	.46

knowledge, and changes in attitudes and behaviours. The impact of education and training in culturally safe practice is best measured through longer-term multi-level research approaches, of which the revised CCMT, now appropriately re-named the Ganngaleh nga Yagaleh (GY) tool presented here, constitutes only one small part.

The CCMT was originally developed to measure the effectiveness of cultural capability education in 2014 (West et al., 2017), where that education is aligned with the ATSIHCF and was developed and framed within the context of tertiary education. The GY scale evolved and emerged from applying the CCMT into contexts external to tertiary education with health professional participants undertaking education and training in health service contexts. The new items added to the tool measure understanding of cultural safety while still remaining aligned to ATSIHCF and retaining the ability to evaluate education against the five capabilities. Additionally, the GY was developed following decolonising pedagogies and principles that privilege First Peoples ways of knowing, being, and doing. As such, the GY has evolved into a meaningful scale, although, as identified, further testing and refinement is required.

After exploratory factor analysis and parallel analysis, a three-factor structure was returned for the GY, explaining 47.95% of total variance. These factors, Factor 1 – Commitment to Culturally Safe Practice (12 items), Factor 2 – Understanding of History and Power (9 items), and Factor 3 – Attitudes, Values, and Beliefs (7 items), yielded reliability coefficients of .89, .87, and .52, respectively, with a total scale reliability of .87; aside from Factor 3, these indicate acceptable reliability. From the analyses conducted, a stable factor structure emerged with improvement in regards to reliability of Factor 3. Only two items changed factor loadings between analyses, onto factors where their inclusion is more consistent with theoretical linkages within the new Factor. For example, item 37, *I recognise my own privileges and unequal advantages*, moved from Factor 1 to 2. The loadings for the final solution were all high, allowing for a cut-off of .5 to be used, and no cross-loading was present, indicating a clear factor structure.

Table 8. Intercorrelations of factors, parallel analysis, $N = 467$.

	Total	Factor 1	Factor 2	Factor 3
Total	–			
Factor 1	.89*	–		
Factor 2	.83*	.69*	–	
Factor 3	.56*	.29*	.14*	–

*$p < .001$.

Factors 1 and 2 were particularly strong, both correlating highly with total scores, but not so high in their intercorrelation with each other as to indicate redundancy.

In ongoing research using the GY, we seek to further differentiate these factors, with items flagged in the current, ongoing phase of validation as requiring re-writing or deletion. This is aimed at collecting evidence around construct validity. Unfortunately, the way in which data were collected in the present study resulted in a health professional sample that was too small to be used on its own, and so needed to be combined with the student sample. Future research will explore the possibility of some factors being present exclusively among health professionals, students, or even healthcare professionals in different healthcare contexts, such as community health workers. It should also be noted most participating students were of a nursing background, and so more work is needed in determining if the tool is generalisable across disciplines.

The value of the GY scale lies in creating evidence to support dialogue around embedding indicators for change in mandatory cultural safety curriculum, education and training for health professionals and students. Data from the GY tool is therefore not designed nor recommended for use in isolation, but rather as a vehicle to be interpreted within context and embedded into systems for ongoing monitoring of cultural safety in First Peoples Health and Cultural Safety education and training alongside other strategies designed to promote discussion and deeper learning, and meaningful change.

Limitations

There are strengths and limitations associated with this study. The recruitment of 2 large and diverse samples gives confidence to our findings. Given the nature of cultural safety, socially desirability responding was expected. In order to reduce participant burden and decrease the likelihood that already busy participants would not complete the survey, a socially desirability response scale was not included, however anonymity was stressed to study participants. While we established face and content validity, work is currently underway to establish construct validity; work is currently underway with this new GY scale to measure: social desirability scale, attitudes to First Peoples in Australia, and symbolic racism.

There was a high attrition rate in the student cohort with 1416 students (61.8%) commencing but not completing both pre- and post-innovation surveys. This could be attributed to the voluntary and anonymous nature of the survey, participant fatigue, lack of interest in the topic, or discomfort over subject matter. Future research could attempt to follow-up non-completing participants to better understand view towards this topic. This is also why our results suggest the GY tool is therefore not designed nor recommended for use in isolation, but rather as a vehicle to promote broader collaboration within health professional education.

Conclusion

In refining how the effectiveness of embedding mandatory First Peoples health and cultural safety education and training is assessed, the GY tool responds to the need to go beyond assessing cultural capabilities. It also reflects and responds to the more rigorous approaches being developed in policies, registration standards, codes and guidelines for registered health practitioners and students (Ahpra, 2020a) and in mandatory reporting of significant departures from accepted professional standards (Ahpra, 2020b).

Collaborative research, led by First Peoples and framed by decolonising and relational ways of knowing, being, and doing, can promote best practice in education and training that addresses cultural safety and the health inequities of First Peoples. The GY tool enables the ongoing

monitoring of the effectiveness of education and training innovations aligned with the ATSIHCF (Department of Health, 2014).

Acknowledgements

We gratefully acknowledge the collaboration with the First Peoples Health Unit (FPHU), the School of Nursing and Midwifery and the Health Institute for the Development of Education and Scholarship at Griffith University. This work has been led by the FPHU with support from Griffith University Health Group and Griffith Teaching and Learning.

We also acknowledge the Kombumerri, Yugarubul, Jagera and Turrbul peoples, traditional custodians of the unceded lands on which Griffith University campuses are situated and pay our respects to their ancestors and Elders past, present and emerging.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Roianne West http://orcid.org/0000-0003-0583-658X
Jessica E. Armao http://orcid.org/0000-0003-1596-7823
Debra K. Creedy http://orcid.org/0000-0002-3046-4143
Vicki Saunders http://orcid.org/0000-0002-3122-7430
Fiona Rowe Minnis http://orcid.org/0000-0002-4920-5184

References

Australian Commission on Safety and Quality in Health Care. (2018). National Safety and Quality Health Service Standards user guide. https://www.safetyandquality.gov.au/media_releases/launch-of-national-safety-and-quality-health-service-standards-user-guide-for-aboriginal-and-torres-strait-islander-health-at-coag-meeting

Australian Government. (2020). Australian Government Closing the Gap Report 2020. Retrieved 11 Feb, 2021. https://ctgreport.niaa.gov.au/

Australian Health Practitioner Regulation Agency (Ahpra). (2020a). Aboriginal and Torres Strait Islander Health Strategy. https://www.ahpra.gov.au/About-AHPRA/Aboriginal-and-Torres-Strait-Islander-Health-Strategy.aspx

Australian Health Practitioner Regulation Agency (Ahpra). (2020b). Guidelines: Mandatory notifications about registered health practitioners March 2020. https://www.medicalboard.gov.au/News/2020-02-07-revised-guidelines-mandatory-notifications.aspx

Australian Health Practitioner Regulation Authority (Ahpra). (2019). Aboriginal and Torres Strait Islander Health Strategy – Statement of Intent. https://www.ahpra.gov.au/About-AHPRA/Aboriginaland-Torres-Strait-Islander-Health-Strategy/Statement-of-intent.aspx

Australian Institute for Health and Welfare (AIHW). (2019). Cultural safety in health care for Indigenous Australians: Monitoring framework. https://www.aihw.gov.au/getmedia/153ec5b7-35fd-4348-9166-b13d458befa0/Cultural-safety-in-health-care-for-Indigenous-Australians-monitoring-framework.pdf.aspx?inline = true

Australian Institute of Health and Welfare. (2020). Aboriginal and Torres Strait Islander Health Performance Framework. Commonwealth of Australia. https://indigenoushpf.gov.au/

Australian Productivity Commission. (2019). *Indigenous evaluation strategy: Issues paper*. Productivity Commission.

CATSINaM. (2017). Position Statement: Embedding Cultural Safety across Australian Nursing and Midwifery. https://www.catsinam.org.au/static/uploads/files/embedding-cultural-safety-accross-australian-nursing-and-midwifery-may-2017-wfca.pdf

Cochran, P. A., Marshall, C. A., Garcia-Downing, C., Kendall, E., Cook, D., McCubbin, L., & Gover, R. M. S. (2008). Indigenous ways of knowing: Implications for participatory research and community. *American Journal of Public Health*, *98*(1), 22–27. https://doi.org/10.2105/AJPH.2006.093641

Curtis, E., Jones, R., Tipene-Leach, D., Walker, C., Loring, B., Paine, S. J., & Reid, P. (2019). Why cultural safety rather than cultural competency is required to achieve health equity: A literature review and recommended definition. *International Journal for Equity in Health*, *18*(1), 1–17. https://doi.org/10.1186/s12939-019-1082-3

Department of Health. (2014). Aboriginal and Torres Strait Islander Health Curriculum Framework. Commonwealth of Australia. https://www1.health.gov.au/internet/main/publishing.nsf/Content/aboriginal-torres-strait-islander-health-curriculum-framework

Desouza, R. (2008). Wellness for all: The possibilities of cultural safety and cultural competence. *New Zealand Journal of Research in Nursing*, *13*. https://doi.org/10.1177/1744987108088637

Donald, D. (2009). Forts, curriculum, and Indigenous Métissage: Imagining decolonization of Aboriginal-Canadian relations in educational contexts. *First Nations Perspectives*, *2*(1), 1–24. https://mfnerc.org/resources/fnp/volume-2-2009

Downing, R., & Kowal, E. (2011). Putting Indigenous cultural training into nursing practice. *Contemporary Nurse*, *37*(1), 10–20. https://doi.org/10.5172/conu.2011.37.1.010

Geia, L, Baird, K., Bail, K, Barclay, L., Bennett, J, Best, O., Birks, M, Blackley, L., Blackman, R, Bonner, A., Bryant AO, R, Buzzacott, C., Campbell, S, Catling, C., Chamberlain, C, Cox, L., Cross, W, Cruickshank, M., Cummins, A, … Wynne, R.. (2020). A unified call to action from Australian nursing and midwifery leaders: Ensuring that Black lives matter. *Contemporary Nurse*, *56*(*4*), 297–308. http://dx.doi.org/10.1080/10376178.2020.1809107

Goold, S. (2006). 'Gettin em n keepin em': Indigenous issues in nursing education. *Australian Aboriginal Studies*(2), 57–61.

Goold, S., & Liddle, K. (2015). *In our own right: Black Australian nurses' stories*. Routledge.

Goold, S., Turale, S., Miller, M., & Usher, K. (2002). 'Gettin em n keepin em'. Report of the Indigenous Nursing Education Working Group. *Canberra: Commonwealth of Australia*.

Kerr, J., & Adamov Ferguson, K. (2021). Ethical relationality and Indigenous storywork principles as methodology: Addressing settler-colonial divides in inner-city educational research. *Qualitative Inquiry*, *27*(6), 706–715. https://doi.org/10.1177/1077800420971864

Krathwohl, D. R. (2002). A revision of Bloom's taxonomy: An overview. *Theory Into Practice*, *41*(4), 212–218. https://doi.org/10.1207/s15430421tip4104_2

Lock, M. J. (2018). Australian Healthcare Governance and the Cultural Safety and Security of Australia's First Peoples: An Annual Critique. No.1: Focussing on Knowledge Governance. Committix Pty Ltd, Newcastle. https://apo.org.au/node/210996, doi:10.13140/RG.2.2.26818.63688

Marrie, A. (2017). Addressing institutional barriers to health equity for Aboriginal and Torres Strait Islander people in Queensland's public hospitals and health services: Report to Commissioner Kevin Cocks AM, Anti-Discrimination Commission Queensland. *Gordonvale: Bukal Consultancy Services*.

Marrie, A., & Bourke, C. (2020). Institutional racism matrix audit of South Australia's ten local health networks. Report to the Health Performance Council, South Australia.

Martin, K. (2003). Ways of knowing, being and doing: A theoretical framework and methods for Indigenous and Indigenist re-search. *Journal of Australian Studies*, *27*(76), 203–214. https://doi.org/10.1080/14443050309387838

Milligan, E., West, R., Saunders, V., Bialocerkowski, A., Creedy, D., Rowe Minnis, F., Syron, M., Hall, K., & Vervootz, S. (2021). Achieving cultural safety for Australia's First People: A review of Ahpra registered codes of conduct and codes of ethics. *Australian Health Review*, *45*(4), 398–406. https://doi.org/10.1071/AH20215

Nursing and Midwifery Board of Australia (NMBA) and CATSINaM. (2018). NMBA and CATSINaM joint statement on culturally safe care. https://www.nursingmidwiferyboard.gov.au/Codes-Guidelines-Statements/Position-Statements/joint-statement-on-culturally-safe-care

Ormiston, N. T. (2010). Re-conceptualizing research: An Indigenous perspective. *First Peoples Child & Family Review*, *5*(1), 50–56. https://doi.org/10.7202/1069061ar

Petric, S. (2019). 'Bridging two worlds?': Towards cultural safety within schools of nursing in Australian universities (Master of Philosophy (School of Nursing)). University of Notre Dame Australia. https://researchonline.nd.edu.au/theses/222

Ramsden, I. (2002). *Cultural safety and nursing education in Aotearoa and Te Waipounamu* (Doctoral dissertation, Victoria University of Wellington).

Sherwood, J. (2010). *Do no harm: Decolonising Aboriginal Health research*. University of New South Wales.

Sherwood, J., & Edwards, T. (2006). Decolonisation: A critical step for improving Aboriginal health. *Contemporary Nurse*, *22*(2), 178–190. https://doi.org/10.5172/conu.2006.22.2.178

Sherwood, J., & Mohamed, J. (2020). Racism a social determinant of Indigenous Health: Yarning about cultural safety and cultural competence strategies to improve Indigenous health. In Jack Frawley, Gabrielle Russell, & Juanita Sherwood (Eds.), *Cultural competence and the Higher Education sector* (pp. 159–174). Springer.

Sherwood, J., West, R., Geia, L., Drummond, A., Power, T., Stuart, L., & Deravin, L. (2021). 'Taking our blindfolds off': Acknowledging the vision of First Nations peoples for nursing and midwifery. *AJAN-The Australian Journal of Advanced Nursing*, *38*(1), 2–5. https://doi.org/10.37464/2020.381.413

West, R. (2012). *Indigenous Australian participation in pre-registration tertiary nursing courses: An Indigenous mixed methods study*. Doctoral dissertation, James Cook University, Townsville. https://researchonline.jcu.edu.au/25859/

West, R., Mills, K., Rowland, D., & Creedy, D. K. (2018a). Validation of the First Peoples Cultural Capability Measurement Tool with undergraduate health students: A descriptive cohort study. *Nurse Education Today*, *64*, 166–171. Retrieved 15 October 2018. http://www.sciencedirect.com/science/article/pii/S0260691718300947. https://doi.org/10.1016/j.nedt.2018.02.022

West, R., Mills, K., Rowland, D., & Creedy, D. K. (2018b). Validation of the First Peoples Cultural Capability Measurement Tool with undergraduate health students. *Nurse Education Today*, *64*, 166–171. https://doi.org/10.1016/j.nedt.2018.02.022

West, R., Mills, K., Rowland, D., & Creedy, D. K. (2019). Impact of a discrete First Peoples health course on students' experience and development of cultural capabilities. *Higher Education Research & Development*, *38*(5), 1090–1104. https://doi.org/10.1080/07294360.2019.1603202

West, R., Wrigley, S., Mills, K., Taylor, K., Rowland, D., & Creedy, D. K. (2017). Development of a First Peoples-led cultural capability measurement tool: A pilot study with midwifery students. *Women and Birth*, *30*(3), 236–244. http://www.sciencedirect.com/science/article/pii/S1871519217300094. https://doi.org/10.1016/j.wombi.2017.01.004

Williams, L., Bunda, T., Claxton, N., & MacKinnon, I. (2018). A global de-colonial praxis of sustainability – undoing epistemic violences between Indigenous peoples and those no longer indigenous to place. *The Australian Journal of Indigenous Education*, *47*(1), 41–53. https://doi.org/10.1017/jie.2017.25