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Systematic review of Indigenous cultural safety training interventions for healthcare professionals in Australia, Canada, New Zealand and the United States

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ABSTRACT

Objective To synthesise and appraise the design and impact of peer-reviewed evaluations of Indigenous cultural safety training programmes and workshops for healthcare workers in Australia, Canada, New Zealand and/or the United States.

Design Systematic review.

Data sources Ovid Medline, Embase, PsycINFO, CINAHL, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Bibliography of Indigenous Peoples in North America, Applied Social Sciences Index & Abstracts, ERIC (Education Resources Information Center), International Bibliography of the Social Sciences, ProQuest Dissertations & Theses Global, Sociological Abstracts, and Web of Science's Social Sciences Citation Index and Science Citation Index from 1 January 2006 to 12 May 2022.

Eligibility criteria Studies that evaluated the outcomes of educational interventions for selecting studies: designed to improve cultural safety, cultural competency and/or cultural awareness for non-Indigenous adult healthcare professionals in Canada, Australia, New Zealand or the United States.

Data extraction and synthesis Our team of Indigenous and allied scientists tailored existing data extraction and quality appraisal tools with input from Indigenous health service partners. We synthesised the results using an iterative narrative approach.

Results 2442 unique titles and abstracts met screening criteria. 13 full texts met full inclusion and quality appraisal criteria. Study designs, intervention characteristics and outcome measures were heterogeneous. Nine studies used mixed methods, two used qualitative methods and two used quantitative methods. Training participants included nurses, family practice residents, specialised practitioners and providers serving specific subpopulations. Theoretical frameworks and pedagogical approaches varied across programmes, which contained overlapping course content. Study outcomes were primarily learner oriented and focused on self-reported changes in knowledge, awareness, beliefs, attitudes and/or the confidence and skills to provide care for Indigenous peoples. The involvement of local Indigenous communities in the development, implementation and evaluation of the interventions was limited.

Conclusion There is limited evidence regarding the effectiveness of specific content and approaches to cultural safety training on improving non-Indigenous health professionals' knowledge of and skills to deliver quality, non-discriminatory care to Indigenous patients. Future research is needed that advances the methodological rigour of training evaluations, is focused on observed clinical outcomes, and is better aligned to local, regional,and/or national Indigenous priorities and needs.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ Our systematic review built on existing tailored Indigenous systematic review methodologies to implement a method aimed at optimising relevance for Indigenous peoples by ensuring that their expertise and knowledge was centred throughout the project.
⇒ Our systematic review applied data extraction and appraisal tools that were designed and implemented in partnership with Indigenous community partners.
⇒ The review is limited to Indigenous cultural safety programmes with evaluations that have been published in the peer-review and grey literature and as such, may not have captured the true breadth of existing Indigenous cultural safety training programmes and related evaluations.
⇒ The review is limited to interventions directed towards healthcare providers.

INTRODUCTION

Colonisation has long been recognised by Indigenous peoples from around the world as a cross-cutting and foundational determinant of Indigenous/non-Indigenous health disparities.[1] More recently, a series of apologies by world leaders has enhanced general societal awareness of anti-Indigenous colonial injustices, abuses and harms.[2–5] Simultaneously, a rapidly growing body of academic scholarship

clearly demonstrates ongoing, widespread and harmful anti-Indigenous colonial policies and practices that are rooted in racist ideologies of white supremacy.[6–12]

Common manifestations of persistent colonialism include the emergence of deeply rooted negative anti-Indigenous stereotyping and assumptions in microlevel social interactions, organisational design and social architecture.[10 13 14] In healthcare contexts, this includes: racist contamination of the healthcare provider–Indigenous patient interface; organisational level barriers to equitable Indigenous health services access and Indigenous/settler imbalances in the distribution of health and social resources.[10 13 15] Social media and linked public reporting have begun to expose the life-threatening severity of explicit attitudinal anti-Indigenous racism but there can be resistance to acknowledging the underlying challenges of ongoing implicit and system-level failures. For example, Joyce Echequan was able to record the anti-Indigenous racist disparagement she experienced from healthcare staff when seeking treatment for a life-threatening illness at the Lanaudiere hospital in Joliette, Quebec immediately prior to her death.[16] The behaviours of the individual providers were widely regarded as grossly unacceptable following media reporting. However, the Premier of Quebec refused to acknowledge the role of systemic racism in Joyce's death.[17]

Multiple studies have demonstrated that implicit race preference bias is common among healthcare providers,[18] even when they explicitly express antiracist values and attitudes.[19] Further, implicit race preference bias has been linked to differential application of clinical practice guidelines, with non-adherence disproportionately impacting socially excluded racialised and ethnic patient populations.[20]

Not surprisingly, given the broad scope and injurious impacts of anti-Indigenous racism, its interruption in healthcare contexts has emerged as a priority for Indigenous and allied policy-makers, practitioners and researchers. Of the Truth and Reconciliation Commission of Canada's seven Calls to Action in the domain of health, two address the need to provide 'cultural competency' training for healthcare providers.[21] These policy recommendations have been accompanied by a rapid growth of interventions designed to interrupt anti-Indigenous racism, primarily through educational interventions for healthcare providers and trainees.[22 23] On engagement with this literature,[22] it became apparent to our team that the approach, content and evaluations of existing cultural competency trainings vary widely. It was unclear which training approaches and strategies were most effective, especially with respect to improving disparities in clinical outcomes.

In order to address these knowledge gaps, we conducted a systematic literature review focused on the design and impacts of existing Indigenous cultural safety and competency training interventions. The primary aim of this review was to identify, appraise and synthesise the design and impacts of these educational interventions on non-Indigenous healthcare professionals' knowledge, attitudes and practices. The secondary aim was to investigate whether specific training approaches, strategies, formats or educational content were more successful, and if yes, for whom and in what ways. To help manage heterogeneity, we restricted this review to Indigenous-specific educational interventions in Australia, Canada, New Zealand and the United States. These globally affluent countries share both relatively well-resourced health and social service systems and a history of European colonisation that continues to negatively impact the health and well-being of First Peoples, including equitable access to these service systems.

METHODS

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 statement was used to guide our literature review and reporting.[24] Online supplemental figure 1 documents the process of article screening for inclusion in our analysis. Tables 1 and 2 summarise key aspects of the included studies: intervention content; participants; evaluation methods and study outcomes.

Search strategy

Consistent with the search methods outlined in the Cochrane Handbook for systematic reviews,[25] an Information Specialist (CZ) conducted database searches in Ovid Medline, Embase, PsycINFO, CINAHL, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Bibliography of Indigenous People in North America, Applied Social Sciences Index & Abstracts, ERIC (Education Resources Information Center), International Bibliography of the Social Sciences, ProQuest Dissertations & Theses Global, Sociological Abstracts, and Web of Science's Social Sciences Citation Index and Science Citation Index. Search strategies were adapted for each database and used a comprehensive combination of subject headings and keywords for the concepts of Indigenous peoples, cultural competence and health professionals' education. Databases were searched for English language records from 2006 to 12 May 2022 (based on the emergence of literature describing and evaluating Indigenous cultural safety interventions) and uploaded into Colandr.[26] The reference lists of seminal texts and review articles were then reviewed for additional records. An additional three articles were identified for study inclusion. For the detailed search strategies see online supplemental figure 2.

Study screening

Two independent reviewers screened all title and abstracts for full-text review using the following inclusion criteria:

1. Study specific to Indigenous contexts in what is now known as Australia, Canada, New Zealand and/or the United States.
2. Study describes educational interventions (workshops, training, coursework, community visits, etc) designed/

Table 1 Summary of interventions

Author(s)	Year	Country	Intervention	Content delivery	Setting	Core curriculum topics	Participants(s)
Barajas[37]	2021	United States	10 min online PowerPoint presentation and YouTube video	Online module(s)	Online	Cultural knowledge, spirituality and beliefs; professional practice issues; interpersonal communication skills	Emergency department healthcare providers and staff (n=6)
Barnabe *et al*[38]	2021	Canada	Phase I: half-day workshop and phase II: full day workshop (6 months later)	Online module(s); interactive group discussions, reflections and experiential exercises	Clinical	Determinants of Indigenous health; oppressive and racist policies, colonisation and white racial privilege; specific health focus	Rheumatologists (n=34)
Brewer *et al*[39]	2020	New Zealand	2 self-paced online modules	Online module(s); self-learning tools; personal reflections	Online	Family structures, kinship and responsibilities; cultural knowledge, spirituality and beliefs; past policies and practices; determinants of Indigenous health; health disparities; professional practice issues; oppressive and racist policies, colonisation and white racial privilege; interpersonal communication skills; specific health focus	Speech Language Therapists (n=11)
Chapman *et al*[40]	2014	Australia	3×2 hours workshops over 6 weeks	Didactic lecture; interactive group discussions, reflections and experiential exercises; personal reflections	Clinical	Cultural knowledge and ideology	Emergency Department: nursing, clinical and allied health staff (n=48)
Crowshoe *et al*[41]	2018	Canada	Full day (8 hours) workshop	Interactive group discussions, reflections and experiential exercises	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonisation and white racial privilege; interpersonal communication skills	Family physicians and allied health professionals (n=32)
Hinton *et al*[44]	2014	Australia	3 full-day workshops over 2 months	Didactic lecture; interactive group discussions, reflections and experiential exercises; self-learning tools	Clinical	Specific health focus	Clinical and Allied Health Staff (n=21)

Continued

Table 1 Continued

Author(s)	Year	Country	Intervention	Content delivery	Setting	Core curriculum topics	Participants(s)
Hulko *et al*[45]	2021	Canada	8–10 hours of online training over 8–10 weeks, and a full day Storytelling Session and Talking Circle with an Elder	Online module(s); story telling and talking circles; knowledge quiz; personal reflections	Online and classroom	Indigenous diversity; family structures, kinship and responsibilities; cultural knowledge, spirituality, and beliefs; past policies and practices; determinants of Indigenous health; health disparities; professional practice issues; oppressive and racist policies, colonisation and white racial privilege; specific health focus	Nurses (n=38)
Kerrigan *et al*[46]	2020	Australia	Full day (7 hours) workshop	Didactic lecture; interactive group discussions, reflections and experiential exercises	Clinical	Cultural knowledge, spirituality and beliefs; past policies and practices; professional practice issues; oppressive and racist policies, colonisation and white racial privilege; interpersonal communication skills	Hospital staff (n=621)
Kerrigan *et al*[47]	2022	Australia	7×18–20 min podcasts (1/week)	Online podcasts; diary entries	Online	Counterstories; interpersonal communication skills; social justice	Physicians (n=16)
Liaw *et al*[48]	2015	Australia	Half day workshop, case study toolkit and cultural mentors	Workshop; cultural mentor; self-learning tools	Clinical	Interpersonal communication skills; cultural respect	Clinical practice - solo physician/groups (n=10)
Liaw and Wade[49]	2019	Australia	Half day workshop, case study toolkit and cultural mentor	Workshop; cultural mentor; self-learning tools	Clinical	Interpersonal communication skills; cultural respect	General practice clinics (n=56); general practitioner physicians (n=334); practice managers (n=56); practice nurses (n=93)
Sauvé *et al*[51]	2022	Canada	Half-day in-person simulation workshop	Simulation training	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonisation and white racial privilege	Physicians (family medicine residents) (n=29)
Wheeler *et al*[52]	2021	Australia	1.5-hour online module and a full day in-person workshop (2–3 weeks later)	Online module(s); interactive group discussions, reflections and experiential exercises; personal reflections	Online and classroom	Health disparities; professional practice issues; interpersonal communication skills	Pharmacists (n=39)

Table 2 Summary of evaluation and outcomes

Citation	Study design	Method	Tool(s)	Reported outcome(s)
Barajas, 2021[37]	Mixed methods, quality improvement	Postsurvey	7 dichotomous (yes/no); 2 open-ended questions	Positive impact on insights, knowledge and anticipated behaviour change.
Barnabe *et al* 2021[38]	Mixed methods	Presurvey (1 week preintervention) and postsurvey (3 months postintervention). Satisfaction survey (1 week postintervention)	Social Cultural Confidence in Care Scale; free-text questions; Experience survey	Significant change in knowledge, skills, and approach to social and cultural factors. Intervention was reported as being relevant and meeting expectations.
Brewer *et al*, 2020[39]	Qualitative longitudinal	Postsurvey. Follow-up interview (6 months postintervention)	Course feedback; structured interviews	Major themes of 'putting it into practice' and 'keeping it at the forefront'.
Chapman *et al*, 2014[40]	Quantitative	Presurvey and postsurvey	Area human resources development/population health survey of participation in Aboriginal awareness training workshop	Some change of perceptions towards Aboriginal and Torres Strait Islander peoples. Small effect on familiarity. No effect on attitudes.
Crowshoe *et al*, 2018[41]	Mixed methods	Presurvey (1-week preintervention) and postsurvey (3 months postintervention). Participant observations. Intervention satisfaction survey	Onsite satisfaction evaluation; observations of participant engagement with content on day; online survey	Significant improvement in knowledge, skills, awareness, confidence and approach to patient care. Strong agreement that the workshop met objectives and expectations.
Hinton *et al*, 2014[44]	Mixed methods, action-oriented	File audit	2009 vs 2011 audit of inpatient files	Some improvements to the quality of recovery-oriented care, as shown through an increase in recording client social history, family issues and cultural factors.
Hulko *et al*, 2021[45]	Mixed methods, community-based	Presurveys and postsurveys, knowledge quizzes, and case study care planning. Talking circles.	Approaches to Dementia Questionnaire; Indigenous Cultural Competency Knowledge Quiz; care plans for 'Alice'; Talking Circle transcripts	Improvement in the knowledge, skills and values of the nurse participants. Storytelling sessions were reported as being effective at building capacity.
Kerrigan *et al*, 2020[46]	Mixed methods	Postsurvey	Likert-scale questions on Quality of Training; free-text questions	Provided good to excellent information provided on all topics. Participants wanted further and more specific cultural education opportunities.
Kerrigan *et al*, 2022[47]	Qualitative, participatory action	Qualitative journal entries. Postintervention interviews	Weekly reflections; feedback interviews	Raised the critical consciousness of participants leading to self-reported attitudinal and behaviour change.
Liaw *et al*, 2015[48]	Mixed methods, pragmatic	Presurveys and post-surveys and patient file audits (6 months postintervention). Postintervention interviews	Cultural Quotient questionnaire; file audit of health checks and clinical risk factors managed; follow-up interviews with staff, cultural mentors and patients	Clinical practices improved their readiness to provide culturally appropriate care. Individual clinic staff improved their cultural strategic thinking.
Liaw and Wade, 2019[49]	Mixed methods, cluster RCT	File audit. Presurvey and postsurvey (12 months postintervention)	Cultural Quotient questionnaire; audit of rates of healthcare claims and chronic disease risk factors.	No significant change in Indigenous health check rates or cultural quotient scores.

Continued

Table 2 Continued

Citation	Study design	Method	Tool(s)	Reported outcome(s)
Sauvé *et al*, 2022[51]	Quantitative	Presurvey and postsurvey	Abridged Scale of Ethnocultural Empathy	Significant increase in empathy, knowledge of Indigenous social determinants of health and motivation to engage with Indigenous patients in a culturally safe manner.
Wheeler *et al*, 2021[52]	Mixed methods	Presurvey and postsurvey. Training acceptability survey	Cultural Capability Measurement Tool; additional adapted questions; acceptability survey	Significant improvement in cultural capability, confidence, and skills. Significant change in motivation to improve health outcomes for Indigenous patients and reduce barriers. Acceptability of the intervention and perceived value-add to participant practice.

implemented to improve cultural safety, cultural competency and/or cultural awareness.

3. Educational intervention focused on a majority of non-Indigenous adult participants healthcare professionals who provide services (eg, health or social services) to Indigenous peoples.

Full texts were obtained for all studies that passed this title and abstract screening stage and in the event that there was not enough information in the abstract to determine inclusion according to these three criteria.

Three researchers collaborated on full-text screening and further eliminated articles that on full reading, did not meet the primary inclusion criteria and two secondary inclusion criteria: (1) detailed information about the educational intervention's design and implementation; (2) defined evaluation outcomes. As per our inclusion criteria, we excluded studies in which the majority of the learners were Indigenous and/or the focus of the intervention was at the organisational versus healthcare provider level. We additionally excluded train-the-trainer interventions in which the participants were not directly providing health services. Our two-phased screening protocol is available as online supplemental file 1.

Data abstraction and quality appraisal

Three researchers collaborated on data abstraction across the following categories: study methods (design, evaluation methods and tools, participants, sampling/recruitment), study population, sampling and recruitment methods, educational intervention design (pedagogy, content, modifications) and outcomes (individual and system level).

Two independent reviewers completed preliminary data abstraction and the lead author (B-JH) subsequently reviewed all abstractions and finalised tables 1–4. The lead and senior authors (B-JH and JS) independently appraised methodological quality using a tailored version of the Well Living House Quality Appraisal Tool (WLHQAT)[27–29] (online supplemental figure 3) and subsequently met to discuss and reach consensus on scores (table 3). WLHQAT includes three equally weighted assessment domains: local Indigenous community relevance of methods; rigour and validity; and strength of evidence and has a maximum total score of 12. Studies with a total score of <7 were not included in the full synthesis. The interdisciplinary nature of included studies added complexity to the quality appraisal, in that the research team, study design, concepts and priorities, data collection, and measures were wide-ranging.

Synthesis

We applied an iterative narrative approach to our synthesis.[30] This method was a good fit with the heterogeneity of study designs and outcomes and our secondary aim to understand which specific training approaches

Table 3 Well Living House quality appraisal scores

Citation	Scoring range 1–3/4–6/7–9/10–12
Barajas 2021[37]	7–9
Barnabe *et al*, 2021[38]	7–9
Brewer *et al*, 2020[39]	7–9
Chapman *et al*, 2014[40]	7–9
Crowshoe *et al*, 2018[41]	7–9
Delbridge *et al*, 2018[42]	4–6
Durey *et al*, 2017[43]	4–6
Hinton *et al*, 2014[44]	7–9
Hulko *et al*, 2021[45]	7–9
Kerrigan *et al*, 2020[46]	7–9
Kerrigan *et al*, 2022[47]	7–9
Liaw *et al*, 2015[48]	10–12
Liaw and Wade, 2019[49]	10–12
McMichael *et al*, 2019[50]	4–6
Sauvé *et al*, 2022[51]	7–9
Wheeler *et al*, 2021[52]	7–9

Table 4 Summary of Indigenous involvement in curriculum development, curriculum delivery and evaluation/research activities

Citation	Study design	Curriculum development	Curriculum delivery	Curriculum evaluation	Study analysis	Dissemination	Positionality
Barajas 2021[37]	Yes	Yes	None listed	Yes	Yes	Yes	Yes
Barnabe *et al*, 2021[38]	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brewer *et al*, 2020[39]	None listed	Yes	None listed	None listed	None listed	Yes	None listed
Chapman *et al*, 2014[40]	None listed	None listed	Yes	None listed	None listed	None listed	None listed
Crowshoe *et al*, 2018[41]	Yes	Yes	Yes	Yes	Yes	Yes	Limited
Hinton *et al*, 2014[44]	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Hulko *et al*, 2021[45]	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan *et al*, 2020[46]	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan *et al*, 2022[47]	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Liaw *et al*, 2015[48]	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Liaw and Wade, 2019[49]	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Sauvé *et al*, 2020[51]	Yes	Yes	Yes	None listed	None listed	None listed	None listed
Wheeler *et al*, 2021[52]	Yes	Yes	Yes	Yes	None listed	None listed	None listed

were impactful for whom and in what ways. In addition to our primary aim of identifying, summarising and assessing the design and outcomes of existing published evaluations of Indigenous cultural safety education programming for healthcare professionals, we were particularly interested in documenting underlying pedagogies, instructional strategies, formats, and content and how these might be related to programme success across participant groups and contexts. We were also interested in the involvement of Indigenous instructors and Indigenous communities and how this might have contributed to programme success.

The lead author led the synthesis of study design, participants, quality and outcomes, drawing on data abstraction and with regular input from the other authors. Refinement of secondary narratives regarding (1) the role of underlying pedagogies and (2) Indigenous instructor and community involvement was achieved through iterative discussion of independently identified themes among the authorship team followed by in-depth re-examination of the included studies by the first author.

Throughout the analysis, we applied a critical decolonising lens where we intentionally centred the distinct and diverse knowledges and strengths present in Indigenous communities' practices of health and well-being.[31–34] The authors sought to acknowledge and critique the systemic power dynamics that so often inform existing health programme evaluation models, particularly when applied to oppressed populations, including Indigenous peoples in what is now known as Australia, Canada, New Zealand and the United States. In so doing, we drew on the foundational Indigenous principles of relationships, reciprocity, responsibility, respect and relevance (known as the five R's),[35 36] and applied our decolonising approach to our consideration and analysis of the inclusion (or lack thereof) of Indigenous knowledges and practices in the evaluation of identified studies. Research that looks to learn about Indigenous experiences of health programmes and policies requires acknowledging the unique and distinct relations and interconnections held by Indigenous peoples that are so often decontextualised through the application of Western methodologies.[27] In keeping with our decolonising approach, it is important for us to self-locate the authorship team as comprised of two Indigenous women (JS and DS), one racialised settler ally (B-JH), and two non-racialised settler allies (SF and CZ).

Patient and public involvement

We did not involve patients or the public in the design, or conduct, or reporting, or dissemination plans of our research.

RESULTS

Literature search

The literature search strategy resulted in 2442 citations (following removal of any duplicates), from which 2250 were deemed ineligible based on title and abstract screening. A total of 192 articles were selected for full-text review from which 176 were excluded based on the primary inclusion criteria (n=147) or secondary inclusion criteria (n=29) (online supplemental figure 1). We were left with 16 unique studies that described and evaluated Indigenous cultural safety training for health professionals and were deemed eligible for full synthesis inclusion[37–52] (table 3).

Quality appraisal

Among the 16 studies that were included, three scored <7 on the WLHQAT[42 43 50] (table 3). These studies were excluded from the synthesis. Lower scores reflected a

combination of the following: limited, to no involvement of Indigenous community partners in the evaluation; inadequate sample size and/or lack of participant uptake and/or retention in the evaluation; and/or weak evaluation study design.[43 50] For instance, a low score could reflect that Indigenous scholars or community members were involved in the design and/or delivery of the training programme but not in the design and/or implementation of the evaluation. Another study did not triangulate their qualitative study results.[42]

Study and population characteristics

The 13 analysed studies were published between 2014 and 2022. The majority (n=7) were conducted in Australia.[40 44 46–49 52] A smaller number (n=4) took place in Canada.[38 41 45 51] Of the last two studies, one was conducted in the United States[37] and the other was conducted in New Zealand.[39]

Evaluation design varied widely. Nine of the studies applied mixed methods[37 38 41 44–46 48 49 52] including various combinations of surveys, open-ended questions, semi-structured interviews and talking circles. One of these was a randomised trial that incorporated a participatory action research approach, in which the research team cooperated with the communities, supporting institutions and participants.[49] Two studies were qualitative.[39 47] Another two were quantitative.[40 51] Eight studies incorporated preintervention/postintervention surveys.[38 40 41 45 48 49 51 52] Six of the studies incorporated some measure of longer-term impact as part of the evaluation with varied follow-up periods: across 3 years[44]; 12 months[49]; 6 months[39 48] and 3 months.[38 41] The remainder of the studies (n=7) collected postintervention data immediately following the intervention. One intervention was described and evaluated across multiple publications as part of a larger research programme.[48 49] Most (n=10) but not all of the studies, provided access to and/or a detailed description of their evaluation tools.[37–41 44 48 49 51 52] Of the 11 studies that used survey tools, 8 employed previously validated evaluation tools,[38 40 41 45 48 49 51 52] 2 of these, although validated, were adapted by the research team.[41 51]

Sample sizes varied widely, ranging from 6 to 621, and studies took place in various settings. The majority (n=8) occurred in clinical settings and the remainder were either online (n=3) or a mix of online and in a classroom (n=2). Three of the studies recruited specialised practitioners: rheumatologists,[38] pharmacists[52] and speech language therapists.[39] One study recruited only family medicine residents[51] whereas another focused on nurses.[45] Four of the studies delivered interventions tailored to providers serving a specific health service user population: arthritis,[38] psychiatric care and mental health[44]; residential care[45] and Māori adults with aphasia.[39]

Reported impacts of Indigenous cultural safety education or training

Study outcomes were almost exclusively learner-focused (n=10) and included learner self-reports regarding: quality of the learning experience; changes in knowledge or awareness; shifts in beliefs; attitudes regarding Indigenous peoples and their care experiences; and/or confidence and skill to care for Indigenous peoples.[37–41 45–47 51 52] (table 2) A subset of learner-focused studies (n=4) included measures of self-reported changes in practice.[38 39 45 47] These impacts were assessed using proxy measures of clinical behaviour including post-intervention interviews with learners,[39 47] or through the use of scenarios[38] or vignette-based care plans.[45] Although many of the studies reported significant changes in participants' attitudes, knowledge and awareness, these findings were tempered by limitations in study design and implementation, such as self-selection bias,[38–40 45–47 51 52] small sample size, low uptake and retention,[37–39 41 47 51 52] the lack of randomisation and/or controls (all, except for[49]) and potential social desirability response bias.[39] Conclusions regarding sustained impact over time, were limited by a paucity of studies (n=6) that included longitudinal measurements.[38 39 41 44 48 49]

Few studies reported on clinical outcomes, and most were based on self-assessments (n=4) as described above.[38 39 45 47] Three studies described externally assessed, patient-based practice outcomes through the use of file audits[44 48 49] and qualitative interviews with patients at the participating clinics.[48] Of note, the one study that included a randomised control and externally assessed, patient-based practice outcomes did not demonstrate any significant intervention impact.[49]

Terminology varied widely across the studies, a phenomenon that has already been described elsewhere by Curtis *et al*[53] as negatively impacting the quality of the evaluations and the ability to draw evidence-based comparisons. Some studies referred to cultural safety[37 39 45 47] while others used terms such as: cultural awareness,[46] cultural security,[44] cultural respect,[48 49] cultural competency,[39–41] cultural humility,[38] cross-cultural education and cultural capability,[52] and intercultural empathy.[51] A few studies relied on proxy measures to assess cultural safety. For example, Crowshoe *et al*[41] described an increase in learners' 'confidence' as a proxy for cultural safety. Kerrigan *et al*[46] focused on behaviour change and self-reported aspiration as indicative of positive clinical outcomes, and noted that although 'it was impossible to assess' whether their intervention shifted behaviour, they could 'surmise that health professionals aspire to transfer learning to the workplace'.[46 (p7)] Similarly, in a later paper, Kerrigan *et al*[47] suggested, based on postintervention interviews with learners, that '[D]octors changed behaviour in relation to building rapport with patients, asking patients questions, working with Aboriginal interpreters, gaining informed consent.'[(p13)] In conclusion they noted that there is 'still a need to assess if training improves patient experience and outcomes'[(p14)] to determine whether the intervention improved cultural safety.[47] A few authors reflected on the overall limitations of their findings, suggesting that they were not generalisable and/or that additional research is required.[37 45 46 51] Hulko *et al*[45] indicated that their

intervention and evaluation was based on Secwepemc ways of knowing and being and doing and as such could not be scaled up whereas Barajas[37] acknowledged the value of specificity and context and warned against developing and implementing training programmes through a pan-Indigenous approach.

Training approaches and methods

Theoretical frameworks and pedagogical approaches were manifold. Studies referenced transformative learning theories[38 47 51]; social-constructivist frameworks[44]; diffusion of innovation theory[37]; a public health framework[39] and Educating for Equity.[38 41] Liaw *et al*[48 49] describe a transtheoretical approach in which they harmonised cultural intelligence frameworks, developments in cultural respect, safety and competence and a review of successful Aboriginal programmes alongside consultation with Aboriginal communities and others. Others (n=4) designed their programme with cultural safety and decolonising philosophies at their core.[39 40 46 47] For example, Kerrigan *et al*[46] place the responsibility for change on the 'hegemonic individuals and institutions'.[46(p3)] Only one paper explicitly cited critical race theory[47] as a core component. A limited number (n=3) did not cite a conceptual theory or framework and instead reviewed cultural safety, competency and awareness in healthcare training and the possible benefits related to training programmes.[40 45 52] Lastly, some of the training programmes applied participatory action approaches or community-based approaches to the development and delivery of the training.[44 45 47–49]

Participation for all programmes was voluntary. Overall, there were similarities in course content across programmes. Training delivery modalities varied and included combinations of online modules, didactic lectures, interactive group discussions, workshops, simulations and reflections. (table 1) Only one was delivered as a series of online podcasts, an approach which was well received by learners.[47] Although some in-person trainings (n=3) were delivered by non-Indigenous instructors,[44 48 49] most (n=7) were codelivered/facilitated by a mix of Indigenous and non-Indigenous facilitators[38 41 45 51] or delivered only by Indigenous facilitator(s)/instructor(s) (table 4).[40 46 52] Some of the more innovative approaches incorporated story-telling and talking circles with elders[45]; podcasts developed and voiced by elders[47] and simulation training facilitated with Indigenous community members.[51] Liaw *et al*[48 49] delivered an integrative programme, Ways of Thinking, Ways of Doing, which in addition to a short workshop, participants were also provided with a case study reference toolkit and a cultural mentor.

With one exception,[49] all of the training programmes reported some level of impact, though only a few of the authors linked the observed impact to their training approaches and methods. Some directly attributed action-oriented[44 48 49] and community-based[37 45 51] approaches to the impact of the interventions. However, the same authors also noted that the participatory components to the learning materials were not incorporated consistently (eg, AIMhi care plans and engagement of Aboriginal Mental Health Workers[44] and cultural mentors[49]). Crowshoe *et al*[41] suggested that the impact of their training programme was related to 'interactive educational techniques and intentional facilitation strategies'[(p54)] including a combination of Indigenous and non-Indigenous facilitators. Notably, this study had a high drop-out rate with less than half of the registered learners completing the postsurvey.[41] Chapman *et al*,[40] who applied a multi-modal training delivered by an Indigenous trainer, described how the impact of their training programme was limited to significant changes in learners' perceptions whereas learners' attitudes remained unchanged. Kerrigan *et al*[47] claimed their online elder podcast changed both learner attitudes and behaviours among a small, convenience sample of 14 learners, based on the analysis of semistructured interviews postintervention.

Indigenous community understandings of measures of success

Indigenous cultural safety can only truly be assessed through the lens of Indigenous patients and communities who ultimately are the recipients of clinical care.[54] It follows that Indigenous patient and community understandings and measures of success are critical to assessing the impact of any Indigenous cultural safety training programme. However, the degree of involvement of local Indigenous peoples and communities in the development, implementation and evaluation of the educational interventions was limited overall and differed across the studies. Table 4 (Summary of Indigenous Involvement in Curriculum Development, Curriculum Delivery and Research Activities) provides a summary overview. Six out of the 13 peer-reviewed papers included statements describing the ethnic and/or Indigenous identity of the authors. Of these, half (n=3) covered the entire authorship[37 45 47] and the remainder (n=3) limited self-location to Indigenous coauthors.[38 41 46] For the most part, Indigenous individuals and/or community members contributed to the development and delivery of the curriculum, either as members of the research team or as local Indigenous community members engaged through participatory and partnered approaches.

Contributions by local Indigenous communities to study evaluations were far more limited, and rarely drew on healthcare delivery and/or patient experience. Some established partnerships with Indigenous run organisations[48 49] whereas others relied on survey tools that were developed in partnership with Indigenous advisors and communities,[40 52] however, these were not always locally informed. Others involved Indigenous elders in the evaluation process.[45 47] In these examples, the elders were involved in both the development and the evaluation of the curriculum. Lastly, only one evaluation focused on healthcare delivery and/or patient experience and included interviews with Indigenous patients and cultural mentors.[48]

DISCUSSION

The rapid growth of Indigenous cultural safety training for healthcare professionals is linked to a global movement to interrupt Indigenous/non-Indigenous health inequities, which are rooted in persistent colonial attitudes and systems, including anti-Indigenous stereotyping and racism.[15] The majority of the papers included here provide a rich description of Indigenous cultural safety training programme approaches, content and implementation. In contrast, analysis and synthesis of the accompanying evaluations of these same training programmes revealed clear and cross-cutting gaps in the demonstration of clinical-level and/or system-level impacts, even though these are commonly referenced as desired outcomes. The majority of evaluations were limited in focus to learner experiences and self-reported practice outcomes. For example, Kerrigan *et al*[47]; Brewer *et al*[39] and Barajas[37] all suggested, through their evaluations, that the training programmes resulted in changes in self-reported behaviour and as such, intention and practice. These outcomes, however, are subject to self-reporting response bias such as social desirability. While many of the studies were able to demonstrate some level of impact on knowledge and attitudes towards Indigenous peoples by learners, none of these studies were able to establish an observable impact with respect to a shift towards more culturally safe and clinical practice guideline adherent healthcare for Indigenous patients.

Evidence of shifts in knowledge and attitudes; but evidence base is limited

Self-reported shifts in knowledge and attitudes regarding Indigenous peoples did improve across most of the studies.[37–41 45–47 51 52] Although limited, two of the studies suggested that these shifts may be sustained over time.[38 39] However, when considering the stated impact of these studies, it is also important to take into account the many limitations inherent in the study design. Evaluation studies relied on voluntary self-selection. Sample sizes were generally small and those that were longitudinal showed significant baseline to postintervention lost to follow-up. Eight of the 13 evaluations involved pre–post assessments involving surveys and/or focus groups.[38 40 41 45 48 49 51 52] Only one of these included a control group.[49] In addition, only eight of the studies included validated quantitative surveys that employed scales.[38 40 41 45 48 49 51 52] As a result, the shifts in knowledge and attitudes can 'at best' be correlated with the described intervention and are limited by several biases arising from the dynamics of course evaluation and marking, participant optimism and in some instances, the lack of anonymity as well as voluntary and low response rates. For the most part, when the described impact was an observable increase in knowledge or shift in attitudes, studies also tended to focus on participant experience of the programme. These measures highlight how participants expressed gratitude regarding what they learnt and spoke to how this might have improved their confidence in working with Indigenous patients going forward. These shifts in confidence, although surely positive, cannot be interpreted as evidence of improved quality of care towards Indigenous patients in the healthcare system.

Very little evidence of patient-focused impacts and no measures of systems-level impact

Cultural safety by definition can only be determined and evaluated by the person receiving the care and their family,[54] yet only 3 of 13 studies included tools designed to evaluate patient experience: a subset of patient interviews postintervention[48] and pre/post file audits.[44 49] Interestingly, Liaw and Wade saw no impact, and concluded, that 'the lack of effect of the intervention may be attributable to study design limitations, complex and indirect relationship between the intervention and the outcome measures, or contextual factors that influenced the fidelity of the intervention at the Medicare Local/PHN level and its ability to achieve measurable changes in the target behaviours.'[49(p267)] None of the studies attempted to measure adherence to clinical practice guidelines, a critical outcome measure which is typically associated with provider training outcomes and could be evaluated through the use of standardised patients,[55–57] ideally unannounced, or through file audits of clinical care.[58 59] Kirkpatrick has argued that it is 'difficult, if not impossible to evaluate the impact of training on an organisation due to an inability to separate the variables which could be attributed to other factors'.[60(p59)] In this study, we focused on interventions implemented at the level of the healthcare provider, however, the approach does not limit the evaluation to individual level measures, as cultural safety training of healthcare providers can have organisational-level impacts. None of the studies evaluated systems-level changes that may have been associated with individual training. Understanding the networked effect of how training participants subsequently influence their colleagues will be important going forward. Hulko *et al*[45] noted that cultural safety research in general needs to advance tools that will measure these effects, and noted that organisational change will require institutional supports and policy changes that encourage healthcare professionals to implement culturally safe practices.

Impactful specific training approaches, strategies, formats or content

The application of purposeful, evidence-based, pedagogical theory and practices that advance prerequisite knowledge, self-awareness and skills is critical to the success of cultural safety training and education programmes. A number of the reviewed studies described how specific training approaches, formats or content may have contributed to impact, however, most of the authors were also careful to note the limitations of their outcomes and the need for further research to clarify whether and if so, how, approach and content of the training programme contributed to the outcomes. Some authors also described how variation between past and current evaluations of

Indigenous cultural safety, including conceptual frameworks, measurement tools and aims, resulted in an overall lack of consensus and limited the development of an evidence base.[39 46]

Hinton *et al*[44] spoke to the value of a participatory action-oriented study design that incorporated institutional leadership as change agents and clinical champions to encourage recruitment and uptake. This was further supported by Brewer *et al*[39] who observed low uptake and argued that incentives, particularly over the longer term, were not always effective and that to improve uptake, and consequently evaluation, training ought to be 'compulsory or obligatory' and recommended organisational commitment and team involvement. Implementing mandated training alongside appropriate evaluations using file audits, simulation and/or standardised patients will undoubtedly require training and evaluation protocols that address arising concerns of participant healthcare professionals.

The evidence was limited as to whether or not inclusion of Indigenous peoples and communities contributed to successful outcomes, although a number of the studies referenced various components, such as Indigenous vodcasts, guest speakers, cultural mentors and academic lecturers as key to the programmes they evaluated. Liaw *et al* concluded that the strength of their programme may have been resultant from the inclusion of cultural mentors who, when 'working with practice staff in their own environment, were effective translators of cultural respect theory and knowledge, as formalised in the toolkit and delivered by the workshop, into practice'.[48(p391)] Hinton *et al*[44] also made similar observations regarding cultural advisors, who were involved in the action-oriented programming and group sessions.

Strengths and limitations

We acknowledge that classic systematic review methods have been developed outside of Indigenous contexts, without explicit alignment to Indigenous worldviews, community requirements and methodologies. Our team of Indigenous and allied scientists and Indigenous health service leaders built on existing tailored Indigenous systematic review methodologies[27–29] to implement a method aimed at optimising relevance for Indigenous peoples through: (1) codesign, coleadership and coauthorship by leading Indigenous methods scholars and Indigenous cultural safety educators, ensuring that their expertise and knowledge was centred throughout the project; (2) direct involvement of a senior Indigenous scholar and methodologist (JS) in all stages of the review, analysis and synthesis and (3) application of a data extraction tool developed in consultation with Indigenous community partners: the Southern Ontario Aboriginal Health Access Centre (online supplemental file 2) and the WLHQAT, a quality appraisal tool that was designed at an Indigenous-led research centre in partnership with Indigenous community members.

The review is limited to Indigenous cultural safety programmes with evaluations that have been published in the peer-review and grey literature and as such, may not have captured the true breadth of existing Indigenous cultural safety training programmes and related evaluations. To optimise feasibility and study coherence, we did not include organisational level interventions as for this initial study. Instead, we limited our focus to interventions directed towards healthcare providers. We do recognise that it is likely that lasting system-level impacts will require interventions that are implemented and evaluated at both the individual and organisational levels and would like to highlight the need for additional research focused on advancing and evaluating system-level interventions. Lastly, the review was conducted over a lengthy period of time due to the required extensive and iterative consultation with community partners and Indigenous study team members in the development and implementation of the final screening protocol to ensure that we were centring Indigenous worldviews, experiences and community considerations.

CONCLUDING REMARKS

Overall, there is a paucity of evidence linking existing Indigenous cultural safety training interventions to enhancements in non-Indigenous healthcare professionals' knowledge, culturally safe engagement skills and clinical practice guideline adherence when caring for Indigenous patients. As researchers and practitioners in this field, we note that these gaps in rigorous patient outcome focused scholarship are rooted in systemic limitations in the resources available to organisations leading this work to carry out and disseminate comprehensive and cost-intensive evaluations. This systemic under-resourcing and the linked implementation of non-evidence-based interventions is problematic, inconsistent with the evidence standards required in other domains of clinical training, and is commonly associated with the same harmful anti-Indigenous, colonial policies and practices that training is designed to disrupt. Further research investment, with funds directed towards Indigenous-led agencies and organisations that are leading the work in this field, is required to advance training programme evaluation design, implementation, analysis and dissemination. These investments would ensure that both the training programmes and their evaluations meet the dual criteria of excellence in Indigenous health research: (a) methodological rigour and (b) alignment with and connection to local, regional and/or national Indigenous priorities and needs.

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Contributors JS and DS conceptualised the systematic review. JS made significant contributions to the interpretation of the data. CZ carried out the database literature searches. SF and B-JH screened titles and carried out data extraction. B-JH and JS carried out the initial analysis and interpretation of the data and together, generated consensus with SF regarding key themes. DS commented on high level key themes. B-JH, SF and JS drafted sections of the manuscript and DS commented on the manuscript in progress. JS and B-JH supervised the study and B-JH is the guarantor. All authors contributed to study design and interpretation of findings, and approved the final manuscript.

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Competing interests All authors have completed the ICMJE uniform disclosure form at qqq.icmje.org/disclosure-of-interest/. B-JH, SF and CZ declare no competing interests. JS has no significant competing interests. JS is a sibling of DS. JS and DS are both members of the Indigenous Cultural Safety Learning Series Advisory Circle in Canada, funded by San'yas and co-hosted by the Ontario Federation of Indigenous Friendship Centres. The Indigenous Cultural Safety Learning Series is a webinar series focused on Indigenous cultural safety. It is guided by an Advisory Circle of Indigenous leaders from across Canada. DS was employed by the Southwest Ontario Aboriginal Health Access Centre (SOAHAC) (one of the funding agencies), in the early stages of this review until March 2020. DS is currently employed by San'yas Indigenous Cultural Safety Learning Programs, Indigenous Health, Provincial Health Services Authority as of September 2020. They offer educational interventions and consultation services designed to uproot anti-Indigenous racism and promote cultural safety for Indigenous peoples. One of the interventions studied included an early version of one of the online training programmes offered by San'yas. It was referred to as Indigenous Cultural Competency (ICC) and was applied as part of a larger intervention in one of the articles included in the systematic review. This version was delivered prior to DS' employment with San'yas. The program is situated within a Provincial Health Services Authority (PHSA) in British Columbia, Canada and operated on a non-profit, cost recovery model through fees charged for the training and with oversight by PHSA Indigenous Health Leadership. All of DS' compensation is subject to PHSA policies and DS is not permitted to receive any compensation or payments outside of salary and benefits. DS' contributions were limited to the conceptual design of the study as well as high level commentary and feedback on high level thematic analyses and draft manuscripts. DS was blinded to the mention of ICC (now San'yas) training materials in any discussions related to higher level thematic analysis.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available on reasonable request. Most of the data generated or analysed as well as the WLHQAT applied during this study are publicly available. Additional data and/or materials are available on request from the corresponding author.

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Supplementary File 1 – Study Screening Protocol

Screening Protocol

Working Title: Wise practices – what we know about the design and implementation of Indigenous cultural safety training programs for service providers: a scoping review

Primary Research Question: What are the impacts of Indigenous cultural safety, competency or other educational interventions on non-Indigenous health and social service providers' knowledge, attitudes, and culturally safe practices

Secondary Research Questions: Are there specific training approaches, strategies, formats or content

Date: October 1, 2018

Screening software: colandr https://colandrapp.com/signin OR abstrackr http://abstrackr.cebm.brown.edu/

Level 1 Screening: Titles and Abstracts

	Yes	No	Unclear
Does the title/abstract indicate that the article is specific to Indigenous contexts in what is now known as Canada, the United States, Australia, or New Zealand?			
Does the title/abstract indicate that the article explores educational interventions (workshops, training, coursework, sessions, etc.) that are designed/implemented to improve cultural safety, cultural competency, etc.?			
Does the title/abstract indicate that the article focuses on education for adult learners who provide services (e.g. health services) to Indigenous peoples?			

- If all yes, include
- If all yes and some unclear, include
- If one no, exclude

Supplementary File 1 – Study Screening Protocol

Level 2 Screening: Full-Text

	Yes	**No**	**Unclear**
Is the article specific to Indigenous contexts in what is now known as Canada, the United States, Australia, or New Zealand?			
Does the article explore educational interventions (workshops, training, coursework, sessions, etc.) that are designed/implemented to improve cultural safety, cultural competency, etc.?			
Does the article focus on education for adult learners who provide services (e.g. health services) to Indigenous peoples?			
Does the article include a information about outcomes for the educational intervention (definition of outcome is broadly defined and can include, for example, microaggression scales, academic understanding, anti-racist measures etc.)?			

- If all yes, include
- If one no, exclude

Supplementary File 2

Data Extraction Form for Indigenous Cultural Safety Education for Healthcare Providers

Reviewer Name: Authors: Year: Title: Journal:		
Study Characteristics		*Page*
Type of publication (manuscript, report, etc.)		
Type of study (quantitative, qualitative, mixed methods)		
Study Design (RCT, quasi-experimental, qualitative)		
Location and time frame		
Aim of the study		
Population		*Page*
Discipline		
Sampling & recruitment method		
Inclusion and exclusion criteria		
Data sources (primary/secondary data)		
Notes:		
Cultural Safety		*Page*
Does the article apply a definition of cultural safety, competency or sensitivity that includes addressing/eliminating anti-Indigenous racism, bias and/or stereotyping? Is this applied to the intervention?		
Does the article apply an anti-racist focus in the design and/or implementation of cultural safety, competency, etc. interventions? Is it applied to the intervention?		

Supplementary File 2

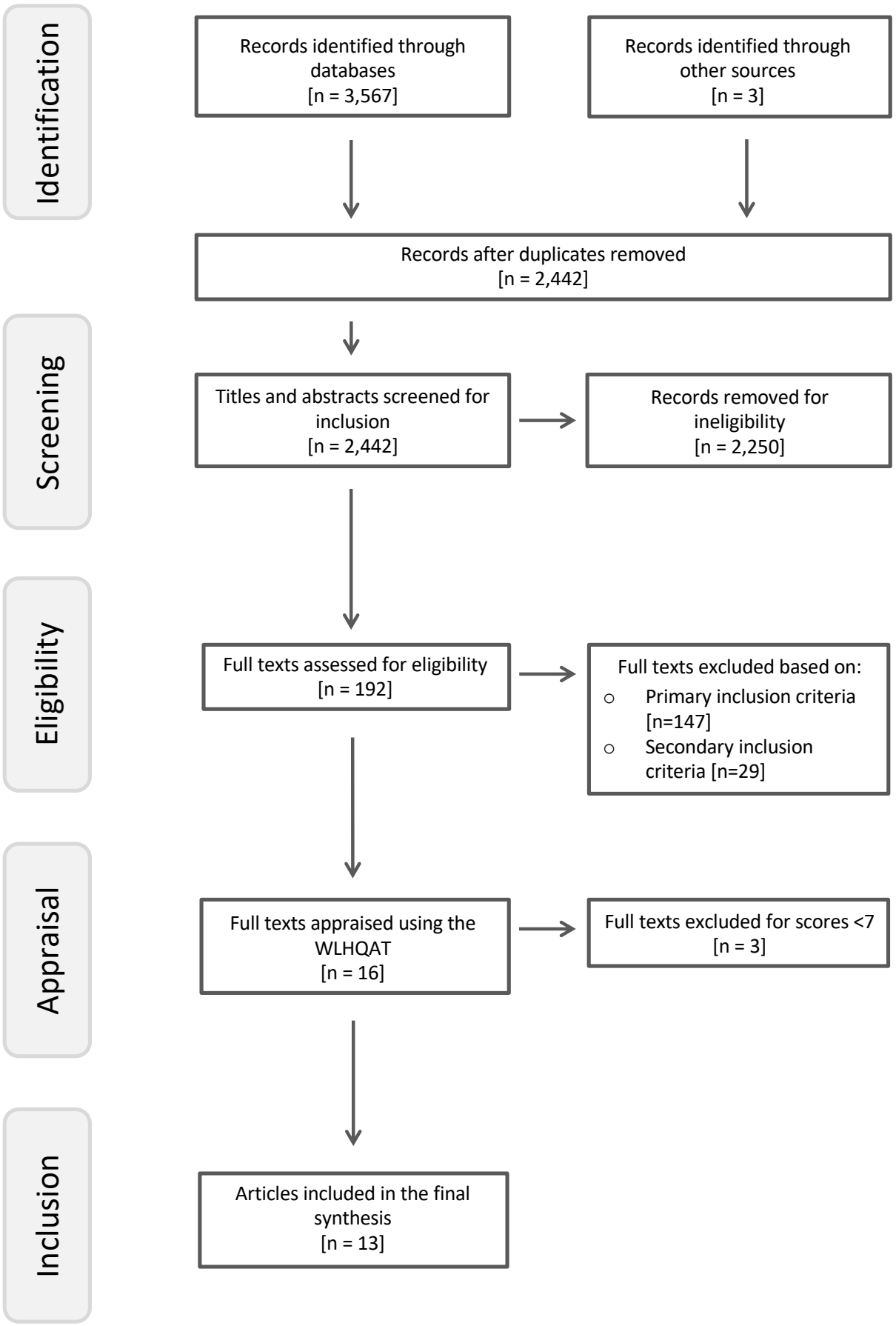
Notes:		
Intervention detail		*Page*
Type of intervention: psychological, psychosocial, educational and alternative interventions		
Cultural component to intervention		
Brief Name: name/phrase that describes intervention		
Why: describe rationale, goal, theory or elements essential to the intervention		
What - Materials: Describe any physical or informational materials used in the intervention, including those provided to participants or used in intervention delivery or in training of intervention providers. Provide information on where the materials can be accessed (e.g. online appendix, URL).		
Procedures: Describe each of the procedures, activities, and/or processes used in the intervention, including any enabling or support activities.		
Who: For each category of intervention provider (e.g. psychologist, nursing assistant), describe their expertise, background and any specific training given.		
How: Describe the modes of delivery (e.g. face-to-face or by some other mechanism, such as internet or telephone) of the intervention and whether it was provided individually or in a group.		
Where: Describe the type(s) of location(s) where the intervention occurred, including any necessary infrastructure or relevant features.		
When and How: Describe the number of times the intervention was delivered and		

Supplementary File 2

over what period of time including the number of sessions, their schedule, and their duration, intensity or dose.			
Tailoring: If the intervention was planned to be personalised, titrated or adapted, then describe what, why, when, and how.			
Modifications: If the intervention was modified during the course of the study, describe the changes (what, why, when, and how).			
How well: Planned: If intervention adherence or fidelity was assessed, describe how and by whom, and if any strategies were used to maintain or improve fidelity, describe them.			
Actual: If intervention adherence or fidelity was assessed, describe the extent to which the intervention was delivered as planned.			
Evaluation			*Page*
Type of study (RCT, case study, etc.)			
Brief methods overview			
Data collection tools/methods			
Outcome measure description (primary and secondary)			
Outcome specific to client level change (y/n)			
Outcome specific to clinician level change (y/n)			
Outcome specific to institutional level change (y/n)			
Notes:			
Results			
	individual	*institutional*	*other*
Cultural safety outcome			

Supplementary File 2

Other outcome			
Other Information			
Authors' conclusions			


Identification
Records identified through databases [n = 3,567]
Records identified through other sources [n = 3]
Records after duplicates removed [n = 2,442]
Screening
Titles and abstracts screened for inclusion [n = 2,442]
Records removed for ineligibility [n = 2,250]
Eligibility
Full texts assessed for eligibility [n = 192]
Full texts excluded based on:
Primary inclusion criteria [n=147]
Secondary inclusion criteria [n=29]
Appraisal
Full texts appraised using the WLHQAT [n = 16]
Full texts excluded for scores <7 [n = 3]
Inclusion
Articles included in the final synthesis [n = 13]

Supplementary Figure 2

Search Strategies:

Below are the full search strategies exactly as run on the fourth search update on May 12, 2022. Three previous searches were carried out using these strategies on September 18, 2018; July 30, 201; and March 9, 2021. The first search on September 18, 2018 was limited to articles published from 2006 and on.

Ovid MEDLINE: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE® Daily and Ovid MEDLINE® <1946-Present>

1 american native continental ancestry group/ or exp indians, north american/ or inuits/ or exp Indigenous Peoples/ 19761
2 Oceanic Ancestry Group/ 11661
3 United States Indian Health Service/ 596
4 Health Services, Indigenous/ 3819
5 (Aborigin* or Indigenous or Eskimo* or Inuit* or Inuk* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian* or Native American* or Maori* or Pacific Islander* or American Indian* or Amerindian* or Native Alaska* or Alaska Native* or Native Hawaiian* or Torres Strait Islander* or on-reserve or off-reserve or tribal or autochtone* or amerindien* or indigene*).mp. 79690
6 (indian or indians).ti,ab,kw. 82911
7 India/ 115065
8 6 not 7 55466
9 1 or 2 or 3 or 4 or 5 or 8 128874
10 Cultural Competency/ 6278
11 Culturally Competent Care/ 2028
12 Transcultural Nursing/ 3442
13 cultural diversity/ 12558
14 cultural* competenc*.tw,kf. 4480
15 cultural* safe*.tw,kf. 941
16 cultural awareness.tw,kf. 717
17 cultural* sensitiv*.tw,kf. 5526
18 cultural* secur*.tw,kf. 54
19 cultural humility.tw,kf. 407
20 cross-cultural.tw,kf. 15212
21 cultural* respect*.tw,kf. 115
22 anti-racis*.tw,kf. 349

23 antiracis*.tw,kf. 312
24 postcolonial*.tw,kf. 426
25 colonial*.tw,kf. 7112
26 or/10-25 50752
27 exp Health Personnel/581961
28 "Attitude of Health Personnel"/ 129471
29 "Internship and Residency"/ 57027
30 ((health* or medical or nurs* or hospital) adj2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*)).tw,kf. 363535
31 (doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counsel?or* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*).tw,kf. 1374101
32 or/27-31 1933424
33 Education/ 21493
34 curriculum/ 83087
35 competency-based education/ 4429
36 exp education, professional/ 321367
37 exp Inservice Training/ 29907
38 exp Teaching/ 91371
39 exp Teaching Materials/ 123098
40 exp Health Personnel/ed [Education] 63884
41 cultural competency/ed 961
42 Transcultural Nursing/ed [Education] 864
43 exp Culture/ed [Education] 1033
44 (training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar*).tw,kf. 1604662
45 (professional development or staff development).tw,kf. 13772
46 or/33-45 1870696
47 9 and 26 and 32 and 46 945
48 limit 47 to english language 934
49 limit 48 to ed=20210308-20220512 123
50 limit 48 to dt=20210308-20220512 111
51 limit 48 to ez=20210308-20220512 111
52 limit 48 to yr="2022 -Current" 50
53 49 or 50 or 51 or 52 157
54 remove duplicates from 53 155

Embase Classic+Embase <1947 to 2022 May 11>

1 indigenous people/ or alaska native/ or american indian/ or canadian aboriginal/ or first nation/ or indigenous australian/ 32329
2 exp amerind people/ or exp australian aborigine/ or exp eskimo-aleut people/ or exp na-dene people/ 7622
3 "maori (people)"/ or native hawaiian/ 2383
4 exp oceanic ancestry group/ 9022
5 indigenous health care/ 1176
6 (Aborigin* or Indigenous or Eskimo* or Inuit* or Inuk* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian* or Native American* or Maori* or Pacific Islander* or American Indian* or Amerindian* or Native Alaska* or Alaska Native* or Native Hawaiian* or Torres Strait Islander* or on-reserve or off-reserve or tribal or autochtone* or amerindien* or indigene*).ti,ab,kw. 93751
7 (indian or indians).ti,ab,kw. 114804
8 exp indian/ 40575
9 India/ 167974
10 8 or 9 201479
11 7 not 10 58826
12 (or/1-6) or 11 153454
13 cultural competence/ 7387
14 transcultural care/ 4825
15 cultural sensitivity/ 1261
16 cultural diversity/ 2692
17 cultural* competenc*.tw. 4546
18 cultural* safe*.tw. 1038
19 cultural awareness.tw. 839
20 cultural* sensitiv*.tw. 6598
21 cultural* secur*.tw. 71
22 cultural humility.tw. 426
23 cross-cultural.tw. 15606
24 cultural* respect*.tw. 137
25 anti-racis*.tw. 310
26 antiracis*.tw. 294
27 postcolonial*.tw. 375
28 colonial*.tw. 7139
29 or/13-28 45229
30 exp health care personnel/ 1856636

31 health personnel attitude/ 88298
32 ((health* or medical or nurs* or hospital) adj2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*)).tw. 478961
33 (doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counsel?or* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*).tw. 1881277
34 30 or 31 or 32 or 33 3109487
35 education/ or continuing education/ or course content/ or curriculum/ or curriculum development/ or education program/ or "outcome of education"/ 615015
36 in service training/ 16717
37 teaching/ 108269
38 (training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar*).tw. 2082644
39 (professional development or staff development).tw. 15840
40 35 or 36 or 37 or 38 or 39 2297974
41 12 and 29 and 34 and 40 930
42 limit 41 to embase 254
43 limit 42 to english language 253
44 limit 43 to dc=20210308-20220512 42

EBM Reviews - Cochrane Central Register of Controlled Trials <April 2022>
EBM Reviews - Cochrane Database of Systematic Reviews <2005 to May 11, 2022>

1 american native continental ancestry group/ or exp indians, north american/ or inuits/ or exp Indigenous Peoples/ 327
2 Oceanic Ancestry Group/ 7
3 United States Indian Health Service/ 4
4 Health Services, Indigenous/ 47
5 (Aborigin* or Indigenous or Eskimo* or Inuit* or Inuk* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian* or Native American* or Maori* or Pacific Islander* or American Indian* or Amerindian* or Native Alaska* or Alaska Native* or Native Hawaiian* or Torres Strait Islander* or on-reserve or off-reserve or tribal or autochtone* or amerindien* or indigene*).mp. 3033
6 (indian or indians).ti,ab,kw. 5091
7 India/ 2437
8 6 not 7 4449

9	1 or 2 or 3 or 4 or 5 or 8	6754
10	Cultural Competency/	190
11	Culturally Competent Care/	110
12	Transcultural Nursing/	14
13	cultural diversity/	79
14	cultural* competenc*.tw,kf.	100
15	cultural* safe*.tw,kf.	35
16	cultural awareness.tw,kf.	13
17	cultural* sensitiv*.tw,kf.	589
18	cultural* secur*.tw,kf.	8
19	cultural humility.tw,kf.	11
20	cross-cultural.tw,kf.	357
21	cultural* respect*.tw,kf.	8
22	anti-racis*.tw,kf.	9
23	antiracis*.tw,kf.	1
24	postcolonial*.tw,kf.	1
25	colonial*.tw,kf.	34
26	or/10-25	1413
27	exp Health Personnel/	10279
28	"Attitude of Health Personnel"/	2059
29	"Internship and Residency"/	1373
30	((health* or medical or nurs* or hospital) adj2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*)).tw,kf.	31086
31	(doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counsel?or* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*).tw,kf.	147680
32	or/27-31	169128
33	Education/	608
34	curriculum/	1584
35	competency-based education/	89
36	exp education, professional/	5404
37	exp Inservice Training/	835
38	exp Teaching/	4681
39	exp Teaching Materials/	4501
40	exp Health Personnel/ed [Education]	16
41	cultural competency/ed	0
42	Transcultural Nursing/ed [Education]	0

43 exp Culture/ed [Education] 1
44 (training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar*).tw,kf. 196173
45 (professional development or staff development).tw,kf. 475
46 or/33-45 200177
47 9 and 26 and 32 and 46 47
48 limit 47 to yr="2021 -Current" 6
49 remove duplicates from 48 6

APA PsycInfo <1806 to May Week 2 2022>

1 exp indigenous populations/ 15198
2 tribes/ 1259
3 (Aborigin* or Indigenous or Eskimo* or Inuit* or Inuk* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian* or Native American* or Maori* or Pacific Islander* or American Indian* or Amerindian* or Native Alaska* or Alaska Native* or Native Hawaiian* or Torres Strait Islander* or on-reserve or off-reserve or tribal or autochtone* or amerindien* or indigene*).tw. 31755
4 ((indian or indians) not india).tw. 15700
5 1 or 2 or 3 or 442412
6 cultural sensitivity/ 7916
7 cultural* competenc*.tw. 5610
8 cultural* safe*.tw. 369
9 cultural awareness.tw. 1291
10 cultural* sensitiv*.tw. 6987
11 cultural* secur*.tw. 29
12 cultural humility.tw. 482
13 cross-cultural.tw. 37152
14 cultural* respect*.tw. 101
15 anti-racis*.tw. 836
16 antiracis*.tw. 650
17 postcolonial*.tw. 2067
18 colonial*.tw. 6809
19 or/6-18 62234
20 exp health personnel attitudes/ 25839
21 medical residency/ 4825
22 ((health* or medical or nurs* or hospital) adj2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*)).tw. 122311

23 (doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counsel?or* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*).tw. 579592
24 20 or 21 or 22 or 23 654864
25 education/ 40342
26 curriculum/ or curriculum development/ 34802
27 exp continuing education/ or professional development/ 26018
28 educational programs/ or educational program evaluation/ or multicultural education/ 36396
29 personnel training/ or sensitivity training/ 11256
30 training/ or communication skills training/ or sensitivity training/ 27011
31 exp teaching/ 131059
32 (training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar*).tw. 1241080
33 (professional development or staff development).tw. 27110
34 or/25-33 1267277
35 5 and 19 and 24 and 34 599
36 limit 35 to (chapter or "column/opinion" or "comment/reply" or editorial or letter or review-book or review-media or review-software & other) 96
37 35 not 36 503
38 limit 37 to english language 484
39 limit 38 to up=20210308-20220512 41
40 remove duplicates from 39 41

CINAHL Search History

Interface - EBSCOhost Research Databases
Search Screen - Advanced Search
Database - CINAHL Complete

#	Query	Limiters/Expanders	Results
S31	S29 AND S30	Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	109
S30	EM 20210308-20220512	Expanders - Apply equivalent subjects	474,059

		Search modes - Boolean/Phrase	
S29	S22 OR S26	Limiters - English Language Expanders - Apply equivalent subjects Search modes - Boolean/Phrase	1,304
S28	S27	Search modes - Boolean/Phrase	1,173
S27	S22 OR S26	Limiters - Published Date: 20060101-20181231; English Language Search modes - Boolean/Phrase	709
S26	S6 AND S25	Search modes - Boolean/Phrase	95
S25	S23 OR S24	Search modes - Boolean/Phrase	1,087
S24	(MH "Cultural Safety/ED")	Search modes - Boolean/Phrase	38
S23	(MH "Cultural Competence/ED")	Search modes - Boolean/Phrase	1,049
S22	S6 AND S12 AND S17 AND S21	Search modes - Boolean/Phrase	1,144
S21	S18 OR S19 OR S20	Search modes - Boolean/Phrase	1,285,878
S20	(professional development or staff development)	Search modes - Boolean/Phrase	73,618
S19	(training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar*)	Search modes - Boolean/Phrase	1,144,026

S18	(MH "Education") OR (MH "Curriculum+") OR (MH "Education, Competency-Based") OR (MH "Teaching") OR (MH "Teaching Materials+") OR (MH "Teaching Methods+")	Search modes - Boolean/Phrase	293,141
S17	S13 OR S14 OR S15 OR S16	Search modes - Boolean/Phrase	1,524,544
S16	(doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counsel?or* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*)	Search modes - Boolean/Phrase	1,220,148
S15	((health* or medical or nurs* or hospital) N2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*))	Search modes - Boolean/Phrase	375,539
S14	(MH "Attitude of Health Personnel+")	Search modes - Boolean/Phrase	114,454
S13	(MH "Health Personnel+")	Search modes - Boolean/Phrase	627,401
S12	S7 OR S8 OR S9 OR S10 OR S11	Search modes - Boolean/Phrase	51,961
S11	cultural* competenc* or cultural* safe* or cultural awareness or cultural* sensitiv* or cultural* secur* or cultural humility or cross-cultural or cultural* respect* or anti-racis* or antiracis* or postcolonial* or colonial*	Search modes - Boolean/Phrase	31,303
S10	(MH "Cultural Diversity") OR (MH "Cultural Values")	Search modes - Boolean/Phrase	24,283
S9	(MH "Transcultural Care")	Search modes - Boolean/Phrase	3,296
S8	(MH "Cultural Safety")	Search modes - Boolean/Phrase	778

S7	(MH "Cultural Competence")	Search modes - Boolean/Phrase	11,142
S6	S1 OR S2 OR S5	Search modes - Boolean/Phrase	55,137
S5	S3 NOT S4	Search modes - Boolean/Phrase	12,493
S4	(MH "India")	Search modes - Boolean/Phrase	42,378
S3	TI ((indian or indians)) OR AB ((indian or indians))	Search modes - Boolean/Phrase	22,181
S2	(Aborigin* or Indigenous or Eskimo* or Inuit* or Inuk* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian* or Native American* or Maori* or Pacific Islander* or American Indian* or Amerindian* or Native Alaska* or Alaska Native* or Native Hawaiian* or Torres Strait Islander* or on-reserve or off-reserve or tribal or autochtone* or amerindien* or indigene*)	Search modes - Boolean/Phrase	47,753
S1	(MH "Indigenous Peoples+") OR (MH "Health Services, Indigenous") OR (MH "Indigenous Health")	Search modes - Boolean/Phrase	23,870

ProQuest Search Strategy

Search Strategy

Set#	Searched for	Databases	Results
S1	noft((Aborigin* OR Indigenous OR Eskimo* OR Inuit* OR Inuk* OR Metis OR First Nations OR First Nation OR 1st nation OR 1st nations OR "Native Canadian*" OR "Native American*" OR Maori* OR "Pacific Islander*" OR "American Indian*" OR Amerindian* OR "Native Alaska*" OR "Alaska Native*" OR "Native Hawaiian*" OR "Torres Strait Islander*" OR "on-reserve" OR "off-	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	7452

	reserve" OR tribal OR autochtone* OR amerindien* OR indigene*)) AND la.exact("English") AND pd(>20201231)		
S2	noft(("cultural* competenc*" OR "cultural* safe*" OR "cultural awareness" OR "cultural* sensitiv*" OR "cultural* secur*" OR "cultural humility" OR "cross-cultural" OR "cultural* respect*" OR "anti-racis*" OR antiracis* OR postcolonial* OR colonial*)) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	10129
S3	noft((health* OR medical OR nurs* OR hospital) NEAR/2 (personnel OR provider* OR professional* OR worker* OR staff OR specialist* OR employee*)) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	10349
S4	noft((((doctor* OR physician* OR practitioner* OR nurse* OR clinician* OR hospitalist* OR dentist* OR therapist* OR physiotherapist* OR ("occupational therapist" OR "occupational therapists") OR psychologist* OR psychiatrist* OR counsellor* OR ("social worker" OR "social workers") OR midwi* OR paramedic* OR "emergency medical technician*" OR pharmacist* OR dietician* OR "medic* resident*")))) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	31501
S5	noft(((training OR education* OR learn* OR teach* OR workshop* OR curricul* OR pedagog* OR seminar* OR "professional development" OR "staff development"))) AND la.exact("English") AND pd(>20201231)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	115033
S6	(S1 AND S2 AND (S3 OR S4) AND S5)	Applied Social Sciences Index & Abstracts (ASSIA), ERIC, International Bibliography of the Social Sciences (IBSS), ProQuest Dissertations & Theses Global, Sociological Abstracts	77

Bibliography of Indigenous Peoples in North America (EBSCOhost)
2 Results

((((health* or medical or nurs* or hospital) N2 (personnel or provider* or professional* or worker* or staff or specialist* or employee*))) OR ((doctor* or physician* or practitioner* or nurse* or clinician* or hospitalist* or dentist* or therapist* or physiotherapist* or occupational therapist* or psychologist* or psychiatrist* or counsel?or* or social worker* or midwi* or paramedic* or emergency medical technician* or pharmacist* or dietician* or medic* resident*)))
AND
(("cultural* competenc*" or "cultural* safe*" or "cultural awareness" or "cultural* sensitiv*" or "cultural* secur*" or "cultural humility" or "cross-cultural" or "cultural* respect*" or "anti-racis*" or antiracis*))
AND
((training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar* or "professional development" or "staff development"))

Limit to 2021-2022, English Language, Academic Journals

Web of Science
Science Citation Index Expanded (SCI-EXPANDED)
Social Sciences Citation Index (SSCI)
93 Results

((TS=("cultural* competenc*" or "cultural* safe*" or "cultural awareness" or "cultural* sensitiv*" or "cultural* secur*" or "cultural humility" or "cross-cultural" or "cultural* respect*" or "anti-racis*" or antiracis*) AND TS=(training or education* or learn* or teach* or workshop* or curricul* or pedagog* or seminar* or "professional development" or "staff development") AND TS=(Aborigin* or Indigenous or Eskimo* or Inuit* or Inuk* or Metis or First Nations or First Nation or 1st nation or 1st nations or Native Canadian* or Native American* or Maori* or Pacific Islander* or American Indian* or Amerindian* or Native Alaska* or Alaska Native* or Native Hawaiian* or Torres Strait Islander* or on-reserve or off-reserve or tribal or autochtone* or amerindien* or indigene*) AND TS=("health care" or healthcare or hospital* or medical or nurses or doctors)))
Timespan: 2021-03-08 to 2022-05-12 (Index Date)

Supplementary Figure 3

Well Living House Quality Appraisal Tool

Citation (Title, Author, Date) [INSERT FOR EACH STUDY]

Local Community Relevance of Method and Measures (Score out of 4)

Did the measures of success reflect local Indigenous community understandings of success?	Yes = 2 (look for: outcomes are derived from community members/ are the outcomes reflecting indigenous concepts evidence provided explicitly in the text where did evaluation take place, who collected evaluation data?) Partial = 1 (hints of including local community values/beliefs/knowledge systems in text and therefore assumption made by reviewers that evidence is present) No = 0 (nothing was said or author(s) indicated that success was not defined by the community)
Had methods and tools been tested and validated previously in a similar Indigenous context and reviewed for relevance by appropriate community members?	Yes = 2 (evidence is provided explicitly in text) Partial = 1 (hints of using a tool that has been used in Indigenous contexts and therefore assumption made by reviewers that evidence is present) No = 0 (nothing was said or author(s) said that the evaluation method/tool has not been used in Indigenous contexts)

Rigour and internal validity of the evaluation method (Score out of 4)

Do the quantitative or qualitative methods meet relevant rigour and internal validity?	Excellent = 4 Fair = 3 Barely Acceptable = 2 Poor = 1 Generally: Is the study design appropriate for evaluation research question(s)? Are the conclusions supported and justified by the results? Quantitative: Is the sample size described and justified? Are the instruments/tools already validated? Are threats to validity addressed (such as confounding factors)? Qualitative: Are the participants selected using appropriate strategies (such as purposive sample or until saturation is reached)? Is there clearly articulated theoretical approach/methodology/ data collection methods and analytic lens – do these fit together? Is there evidence of truthfulness of the findings?

Strength of the Evidence (score out of 4)

Is the evidence strong?	Excellent = 4 Fair = 3 Barely Acceptable = 2 Poor = 1 Quantitative: Does the evidence have adequate power and statistical significance? Is the response rate reasonable? Qualitative: Are there major and convincing themes from triangulation, and/or member checking?

Total Score: