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Systematic review of Indigenous Cultural Safety training interventions for health care professionals

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ABSTRACT

Objective: To synthesize and appraise the design and impact of peer-reviewed and published evaluations of Indigenous cultural safety training programs and workshops for health care workers in what is now known as Australia, Canada, New Zealand, and/or the United States of America.

Design: Systematic Review

Data Sources: Ovid Medline, Embase, PsycINFO, CINAHL, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, Bibliography of Indigenous People in North American, 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 January 1, 2006 to May 12, 2022.

Eligibility Criteria: Included studies that evaluated the outcomes of educational interventions designed to improve cultural safety, cultural competency, and/or cultural awareness for non-Indigenous adult health care professionals. Interventions must have taken place in

what is now known as Canada, Australia, New Zealand, or the United States of America.

Review Methods: In consultation with our partners at the Southwest Ontario Aboriginal Health Access Centre, a data extraction tool was developed to abstract information on the studies' methods, population, sampling and recruitment, educational intervention design, and outcomes. The Well Living House Critical Appraisal Tool was then used independently by two authors to appraise the rigor, internal validity, strength of evidence, and involvement of Indigenous communities in each study. An iterative narrative approach was used to synthesize our results.

Results: 2,442 unique titles and abstracts were identified and screened for inclusion. Of these, 13 met the inclusion criteria and passed the quality appraisal threshold. Study designs, intervention characteristics, and outcome measures were heterogenous. Most studies (n=9) used mixed methods, two used qualitative methods, and two used quantitative methods with sample sizes ranging from 6 to 621. Training participants included nurses, family practice residents, specialized practitioners (e.g., speech pathologists) and providers serving specific health service user populations (e.g., psychiatric care). Course content was similar across programs.

Theoretical frameworks and pedagogical approaches varied. Study outcomes were almost entirely learner-focused (n=10), and commonly examined 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 overall.

Conclusions: There is minimal evidence regarding the effectiveness of specific content and approaches to cultural safety training on improving non-Indigenous health professionals' knowledge and skills in caring for Indigenous patients. Future research is needed that advances the methodological rigour of training evaluations and is better aligned to local, regional, and/or national Indigenous priorities and needs.

SYSTEMATIC REVIEW REGISTRATION Not Applicable

WHAT IS ALREADY KNOWN ON THIS TOPIC The approach, content, and evaluations of existing cultural competency trainings vary widely. It is unclear which training approaches and strategies are most effective, especially with respect to improving disparities in clinical outcomes.

WHAT THIS STUDY ADDS Evaluations of cultural competency trainings demonstrated impact on knowledge and attitudes towards Indigenous peoples by learners. However, 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 health care for Indigenous patients.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Our systematic review was designed and co-led by Indigenous scholars and Indigenous cultural safety education leaders.
- Our systematic review utilized a quality appraisal tool designed by an Indigenous-led research centre in partnership with Indigenous community members.
- The review is limited to ICS programs with evaluations that have been published in the peer reviewed literature and as such, may not have captured the true breadth of existing Indigenous cultural safety training programs and related evaluations.

INTRODUCTION

Colonization has long been recognized 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 micro level social interactions, organizational design, and social architecture. In healthcare contexts, this includes: racist contamination of the healthcare provider-Indigenous patient interface; organizational level barriers to equitable Indigenous health services access; and Indigenous/settler imbalances in the distribution of health and social resources. 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. (13) 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.(14)

Multiple studies have demonstrated that implicit race preference bias is common among health care providers,(15) even when they explicitly express anti-racist values and attitudes.(16) Further, implicit race preference bias has been linked to differential application of clinical practice guidelines, with non-adherence disproportionately impacting socially excluded racialized and ethnic patient populations.(17)

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 policymakers, 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.(18) 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. Upon engagement with this literature,(19) 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 synthesize the design and impacts of these educational interventions on non-Indigenous health care 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 history of European colonization that continues to negatively impact the health and wellbeing of First Peoples, including equitable access to these service systems.

METHODS

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 statement was used to guide our literature review and reporting.(20) Supplementary Figure 1 documents the process of article screening for inclusion in our analysis. Tables

1 and 2 summarize key aspects of the included studies: intervention content; participants; evaluation methods; and study outcomes.

Table 1. Summary of Interventions

Author(s)	Year	Country	Intervention	Content Delivery	Setting	Core Curriculum Topics	Participants
Barajas J.	2021	USA	10 minute 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 C., et al.	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, colonization and white racial privilege; specific health focus	Rheumatologists (n=34)
Brewer K., McCann C., & Harwood M.	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, colonization and white racial privilege; interpersonal communication skills; specific health focus	Speech Language Therapists (n=11)
Chapman R., Martin C., & Smith T.	2014	Australia	3 x 2hour 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 L., et al.	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, colonization and white racial privilege; interpersonal communication skills	Family physicians and Allied Health Professionals (n=32)

Hinton R., et al.	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)
Hulko W., et al.	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, colonization and white racial privilege; specific health focus	Nurses (n=38)
Kerrigan V., et al.	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, colonization and white racial privilege; interpersonal communication skills	Hospital staff (n=621)
Kerrigan V., et al.	2022	Australia	7 x 18-20min podcasts (1/week)	Online podcasts; diary entries	Online	Counterstories; interpersonal communication skills; social justice	Physicians (n=16)
Liaw S-T., et al.	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 S-T., et al.	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 A., Cappelletti A., & Murji L.	2022	Canada	Half-day in-person simulation workshop	Simulation training	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonization and white racial privilege	Physicians (Family Medicine Residents) (n=29)
Wheeler A., et al.	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 J. 2021.	Mixed methods, quality improvement	Post-survey	7 dichotomous (yes/no); 2 open-ended questions	Positive impact on insights, knowledge, and anticipated behaviour change.
Barnabe C., et al. 2021.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). Satisfaction survey (1 week post-intervention)	Social Cultural Confidence in Care Scale (SCCCS); 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 K., McCann C., & Harwood M. 2020.	Qualitative longitudinal	Post-survey. Follow-up interview (6 months post-intervention)	Course feedback; structured interviews	Major themes of "putting it into practice" and "keeping it at the forefront."
Chapman R., Martin C., & Smith T. 2014.	Quantitative	Pre- and post-survey	Area human resources development/population health survey of participation in Aboriginal awareness training workshop	Some change of perceptions towards ATSI people. Small effect on familiarity. No effect on attitudes.
Crowshoe L., et al. 2018.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). 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 R., et al. 2014.	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 W., et al. 2021.	Mixed methods, community-based	Pre- and post -surveys, 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 V., et al. 2020.	Mixed methods	Post-survey	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 V., et al. 2022.	Qualitative, participatory action	Qualitative journal entries. Post-intervention interviews	Weekly reflections; feedback interviews	Raised the critical consciousness of participants leading to self-reported attitudinal and behaviour change.
Liaw S-T., et al. 2015.	Mixed methods, pragmatic	Pre- and post-surveys and patient file audits (6 months post-intervention). Post-intervention 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 S-T., et al. 2019.	Mixed methods, cluster RCT	File audit. Pre- and post-survey (12 months post-intervention)	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.
Sauvé A., Cappelletti A., & Murji L. 2022.	Quantitative	Pre- and post-survey	abridged Scale of Ethnocultural Empathy (aSEE)	Significant increase in empathy, knowledge of Indigenous SDOH, and motivation to engage with Indigenous patients in a culturally safe manner.
Wheeler A., et al. 2021.	Mixed methods	Pre- and post-survey. Training acceptability survey	Cultural Capability Measurement Tool (CCMT); 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.

Search strategy

Consistent with the search methods outlined in the Cochrane Handbook for systematic reviews,(21) 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 people, cultural competence and health professionals' education. Databases were searched for English language records from 2006 to May 12, 2022 and uploaded into Colandr.(22) The reference lists of seminal texts and review articles were then reviewed for additional records. An additional 3 articles were identified for study inclusion. For the detailed search strategies see Supplementary 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 of America;

(2) Study describes educational interventions (workshops, training, coursework, community visits, etc.) designed/implemented to improve cultural safety, cultural competency, and/or cultural awareness;

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

In the event that there was not enough information in the abstract to determine inclusion according to these 3 criteria, or the independent reviewers did not agree on inclusion, the full text was retrieved for review and joint decision making.

Three researchers collaborated on full-text screening and further eliminated articles that did not meet the primary screening criteria and two additional secondary screening criteria. These additional screening criteria required that the article contain: (i) detailed information about the educational intervention's design and implementation; (ii) 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 organizational versus health care provider level. We additionally excluded train-the-trainer interventions in which the participants were not directly providing health services.

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 (BJH) subsequently reviewed all abstractions and finalized Tables 1-3. The lead and senior authors (BJH, JS) independently appraised methodological quality using a tailored version of the Well Living House quality appraisal tool (WLHQAT) (23–25) (Supplementary Figure 3) and subsequently met to discuss and reach consensus on scores. WLHQAT includes three equally weighted assessment domains: local Indigenous community relevance of methods; rigor 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.

Table 3: Summary of Indigenous Inclusion

Citation	Study Design	Curriculum Development	Curriculum Delivery	Curriculum Evaluation	Study Analysis	Dissemination	Positionality
Barajas J. 2021.	Yes	Yes	None listed	Yes	Yes	Yes	Yes
Barnabe C., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brewer K., McCann C., & Harwood M. 2020.	None listed	Yes	None listed	None listed	None listed	Yes	None listed
Chapman R., Martin C., & Smith T. 2014.	None listed	None listed	Yes	None listed	None listed	None listed	None listed
Crowshoe L., et al., 2018.	Yes	Yes	Yes	Yes	Yes	Yes	Limited
Hinton R., et al. 2014.	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Hulko W., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2020.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2022.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Liaw S-T., et al. 2015.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Liaw S-T., et al. 2019.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Sauvé A., Cappelletti A., & Murji L. 2022.	Yes	Yes	Yes	None listed	None listed	None listed	None listed
Wheeler A., et al. 2021.	Yes	Yes	Yes	Yes	None listed	None listed	None listed

Synthesis

We applied an iterative narrative approach to our synthesis.(26) This method was a good fit with the heterogeneity of study designs and outcomes and our secondary aim to understand which specific training approaches were impactful for whom and in what ways. In addition to our primary aim of identifying, summarizing, and assessing the design and outcomes of existing published evaluations of Indigenous cultural safety education programming for health care professionals, we were particularly interested in documenting underlying pedagogies, instructional strategies, formats, and content and how these might be related to program 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 program 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 (i) the role of underlying pedagogies and (ii) 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 decolonizing lens where we intentionally centered the distinct and diverse knowledges and strengths present in Indigenous

communities' practices of health and wellbeing. (27–30) The authors sought to acknowledge and critique the systemic power dynamics that so often inform existing health program 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 applied foundational Indigenous principles, the 5 R's: relationships, reciprocity, responsibility, respect, and, relevance,(31,32) all of which are critical to the formation of space in which to consider and critique the inclusion (or lack thereof) of Indigenous knowledges and practices in evaluation. Research that looks to learn about Indigenous experiences of health programs and policies requires acknowledging the unique and distinct relations and interconnections held by Indigenous peoples that are so often decontextualized through the application of Western methodologies.(23) In keeping with this approach, it is important for us to self-locate the authorship team as comprised of two Indigenous women (JS, DS), one racialized settler ally (BJH), and two non-racialized settler allies (SF, CZ).

RESULTS

Literature search

The literature search strategy resulted in 2,442 citations (following removal of any duplicates), from which 2,250 were deemed ineligible based on title and abstract screening. 192 articles were selected for full text review from which 176 were excluded

based on: the primary inclusion criteria (1-3) and the secondary inclusion criteria (i) (n=147); or secondary inclusion criteria (ii) (n=29). (Supplementary 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.(33–48)

Quality Appraisal

Among the 16 studies that were included, 3 scored <7 on the WLHQAT.(38,39,46) 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.(39,46) For instance, a low score could reflect that Indigenous scholars or community members were involved in the design and/or delivery of the training program but not in the design and/or implementation of the evaluation. Another study did not triangulate their qualitative study results.(38)

Study and population characteristics

The 13 analyzed studies were published between 2014 – 2022. The majority (n=7) were conducted in Australia.(36,40,42–45,48) A smaller number (n=4) took place in Canada.(34,37,41,47) Of the last two studies, one (n=1) was conducted in the United States (US)(33) and the other (n=1) was conducted in New Zealand (n=1).(35)

Evaluation design varied widely. Nine of the studies (n = 9) applied mixed methods (33,34,37,40–42,44,45,48) including various combinations of surveys, open ended questions, semi-structured interviews, and talking circles. One of these was a randomized trial that incorporated a participatory action research approach, in which the research team cooperated with the communities, supporting institutions and participants.(45) Two (n=2) studies were qualitative. (35,43) Another two (n=2) were quantitative.(36,47) Eight studies (n=8) incorporated pre/post intervention surveys.(34,36,37,41,44,45,47,48) Six of the studies (n=6) incorporated some measure of longer-term impact as part of the evaluation with varied follow-up periods: across 3 years (40); 12 months (45); 6 months (35,44); and 3 months.(34,37) The remainder of the studies (n=7) collected post intervention data immediately following the intervention. One intervention was described and evaluated across multiple publications as part of a larger research program.(44,45) Most (n=10) but not all of the studies, provided access to- and/or a detailed description of their evaluation tools.(33–37,40,44,45,47,48) Of the eleven studies that used survey tools, eight employed previously validated evaluation tools, (34,36,37,41,44,45,47,48) two of these, although validated, were adapted by the research team.(37,47)

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 (n=3)

recruited specialized practitioners: rheumatologists (34), pharmacists (48), and speech language therapists (35). One study recruited only family medicine residents (47) whereas another focussed on nurses .(41) Four of the studies (n=4) delivered interventions tailored to providers serving a specific health service user population: arthritis (34), psychiatric care and mental health (40); residential care (41), and Māori adults with aphasia .(35)

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.(33–37,41–43,47,48) (Table 2) A subset of learner focused studies (n=4) included measures of self-reported changes in practice.(34,35,41,43) These impacts were assessed using proxy measures of clinical behaviour including post-intervention interviews with learners (35,43), or through the use of scenarios(34) or vignette-based care plans.(41). 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,(34–36,41–43,47,48) small sample size, low uptake and retention,(33–35,37,43,47,48) the lack of randomization and/or controls (all, except for(45)) and potential social desirability response bias.(35) Conclusions regarding

sustained impact over time, were limited by a paucity of studies (n=6) that included longitudinal measurements.(34,35,37,40,44,45)

Few studies reported on clinical outcomes, and most were based on self-assessments (n=4) as described above.(34,35,41,43) Three studies described externally-assessed, patient-based practice outcomes through the use of file audits (40,44,45) and qualitative interviews with patients at the participating clinics.(44) Of note, the one study that included a randomized control and externally assessed, patient-based practice outcomes did not demonstrate any significant intervention impact.(45)

Terminology varied widely across the studies, a phenomenon that has already been described elsewhere by Curtis et al (49) as negatively impacting the quality of the evaluations and the ability to draw evidence-based comparisons. Some studies referred to cultural safety(33,35,41,43) while others used terms such as: cultural awareness,(42) cultural security,(40) cultural respect, (44,45) cultural competency(35–37), cultural humility,(34) cross-cultural education and cultural capability, (48) and intercultural empathy.(47) A few studies relied upon proxy measures to assess cultural safety. For example, Crowshoe et al(37) described an increase in learners' "confidence" as a proxy for cultural safety. Kerrigan et al(42) 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."(42)p7) Similarly, in a later paper, Kerrigan and colleagues (43) suggested, based upon post intervention 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.(43) A few authors reflected on the overall limitations of their findings, suggesting that they were not generalizable and/or that additional research is required. (33,41,42,47) Hulko and colleagues(41) indicated that their intervention and evaluation was based upon Secwepemc ways of knowing and being and doing and as such could not be scaled up whereas Barajas(33) acknowledged the value of specificity and context and warned against developing and implementing training programs through a pan-Indigenous approach.

Training approaches and methods

Theoretical frameworks and pedagogical approaches were manifold. Studies referenced transformative learning theories(34,43,47); social-constructivist frameworks (40); diffusion of innovation theory (33); a public health framework (35); and, Educating for Equity (E4E) (34,37). Liaw et al(44,45) describe a trans-theoretical approach in which they harmonised cultural intelligence frameworks, developments in cultural respect, safety and competence and a review of successful Aboriginal programs alongside

consultation with Aboriginal communities and others. Others (n=4) designed their program with cultural safety and decolonizing philosophies at their core.(35,36,42,43) For example, Kerrigan et al(42) place the responsibility for change on the "hegemonic individuals and institutions."(42) p3) Only one paper explicitly cited critical race theory (43) 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 health care training and the possible benefits related to training programs.(36,41,48) Lastly, some of the training programs applied participatory action approaches or community-based approaches to the development and delivery of the training.(40,41,43–45)

Participation for all programs was voluntary. Overall, there were similarities in course content across programs. 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 (n=1), an approach which was well-received by learners.(43) Although some in-person trainings (n=3) were delivered by non-Indigenous instructors,(40,44,45) most (n=7) were co-delivered/facilitated by a mix of Indigenous and non-Indigenous facilitators (34,37,41,47) or delivered only by Indigenous facilitator(s)/instructor(s) (Table 3).(36,42,48) Some of the more innovative approaches incorporated story-telling and talking circles with Elders (41); podcasts developed and voiced by Elders (43); and, simulation training facilitated with Indigenous community members.(47) Liaw et al(44,45)

delivered an integrative program, 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,(45) all of the training programs 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 (40,44,45) and community-based(33,41,47) 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 (e.g. AIMhi care plans and engagement of Aboriginal Mental Health Workers (40) and cultural mentors(45)). Crowshoe et al(37) suggested that the impact of their training program 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 post-survey.(37) Chapman and colleagues,(36) who applied a multi-modal training delivered by an Indigenous trainer, described how the impact of their training program was limited to significant changes in learners' perceptions whereas learners' attitudes remained unchanged. Kerrigan and colleagues'(43) claimed their online Elder podcast changed both learner attitudes and behaviours among a small, convenience sample of 14 learners, based on the analysis of semi-structured interviews post-intervention.

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.(50) It follows that Indigenous patient and community understandings and measures of success are critical to assessing the impact of any Indigenous cultural safety training program. However, the degree of involvement of local Indigenous people and communities in the development, implementation, and evaluation of the educational interventions was limited overall and differed across the studies. Table 3 (Indigenous Inclusion) provides a summary overview. Six out of the thirteen peer reviewed papers included statements describing the ethnic and/or Indigenous identity of the authors. Of these, half (n=3) covered the entire authorship(33,41,43) and the remainder (n=3) limited self-location to Indigenous co-authors.(34,37,42) 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 upon health care delivery and/or patient experience. Some established partnerships with Indigenous run organizations(44,45) whereas others relied upon survey tools that were developed in partnership with Indigenous advisors and

communities,(36,48) however, these were not always locally informed. Others involved Indigenous Elders in the evaluation process.(41,43) In these examples, the Elders were involved in both the development and the evaluation of the curriculum. Lastly, only one evaluation focused on health care delivery and/or patient experience and included interviews with Indigenous patients and cultural mentors. (44)

DISCUSSION

The rapid growth of Indigenous cultural safety training for health care 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. (51)The majority of the papers included here provide a rich description of Indigenous cultural safety training program approaches, content, and implementation. In contrast, analysis and synthesis of the accompanying evaluations of these same training programs revealed clear and cross-cutting gaps in the demonstration of clinical 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 and colleagues(43); Brewer and colleagues (35) and Barajas (33) all suggested, through their evaluations, that the training programs 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 health care 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.(33–37,41–43,47,48) Although limited, two of the studies suggested that these shifts may be sustained over time.(34,35) 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 upon voluntary self-selection. Sample sizes were generally small and those that were longitudinal showed significant baseline to post-intervention loss to follow-up. Eight of the thirteen evaluations involved pre-post assessments involving surveys and/or focus groups.(34,36,37,41,44,45,47,48) Only one of these included a control group.(45) In addition, only 8 of the studies included validated quantitative surveys that employed scales.(34,36,37,41,44,45,47,48) 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 program. 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 health care 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,(50) yet only three of thirteen studies included tools designed to evaluate patient experience: a subset of patient interviews post intervention(44) and pre/post file audits.(40,45) Interestingly, Liaw and colleagues 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."((45) p267) None of the studies attempted to measure adherence to clinical practice guidelines, which could be evaluated through standardized patients(53–55) or audits of clinical care.(56,57) Kirkpatrick has argued that it is “difficult, if not impossible to evaluate the impact of training on an organization due to an inability to separate the

variables which could be attributed to other factors." ((52) p59) In this study, we focused on interventions implemented at the level of the health care provider, however, the approach does not limit the evaluation to individual level measures, as cultural safety training of health care providers can have organizational-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 and colleagues(41) noted that cultural safety research in general needs to advance tools that will measure these effects, and noted that organizational change will require institutional supports and policy changes that encourage health care 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 pre-requisite knowledge, self-awareness and skills is critical to the success of cultural safety training and education programs. 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 program 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.(35,42)

Hinton et al(40) 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.(35) 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 organizational commitment and team involvement. Implementing mandated training alongside appropriate evaluations using file audits, simulation and/or standardized patients will undoubtedly require training and evaluation protocols that address arising concerns of participant health care professionals.

The evidence was limited as to whether or not inclusion of Indigenous people 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 programs they evaluated. Liaw and colleagues concluded that the strength of their program 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 formalized in the toolkit and delivered by the workshop, into practice."((44) p391) Hinton

and colleagues(40) also made similar observations regarding cultural advisors, who were involved in the action oriented programming and group sessions.

CONCLUDING REMARKS

Overall, there is a paucity of evidence linking existing Indigenous cultural safety training interventions to enhancements in non-Indigenous health care 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 organizations 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 organizations that are leading the work in this field, is required to advance training program evaluation design, implementation, analysis and dissemination to ensure that both the training programs and their evaluations meets 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.

REFERENCE LIST

1. Commission on Social Determinants of Health (CSDH). Social Determinants and Indigenous Health: The International Experience and Its Policy Implications. Adelaide: International Symposium on the Social Determinants of Indigenous Health. 2007 Apr [cited 2023 Jan 6]. 40 p. Available from: https://nativehealthdatabase.net/node/17216

2. Stephanovich O. Pope Francis apologizes to Indigenous delegates for “deplorable” abuses at residential schools. CBC News [Internet]. 2022 Apr 1 [cited 2023 Jan 6]. Available from: https://www.cbc.ca/news/politics/pope-francis-responds-indigenous-delegations-final-meeting-1.6404344

3. Yardely J, Neuman W. In Bolivia, Pope Francis Apologizes for Church’s ‘Grave Sins’. New York Times [Internet]. 2015 Jul 9 [cited 2023 Jan 6]. Available from: https://www.nytimes.com/2015/07/10/world/americas/pope-francis-bolivia-catholic-church-apology.html

4. Parliament of Australia. Prime Minister Kevin Rudd, MP—Apology to Australia’s indigenous peoples [television broadcast]. 2008.

5. Spencer G. Queen Signs Historic Maori Land Settlement. AP News. 1995 Nov 2 [cited 2023 Jan 6]. Available from: https://apnews.com/article/808c85d946ad2a26c29813a2403e808e

6. Jackson M. In the end "The hope of decolonization". In: McKinley E, Tuhiwai Smith L, editors. Handbook of Indigenous education. Singapore: Springer; 2019. P. 101-10.

7. Wolfe P. Settler colonialism and the elimination of the native. J Genocide Res. 2006 Dec; 8(4): 387–409.

8. Reid P, Cormack D, Paine SJ. Colonial histories, racism and health—The experience of Māori and Indigenous peoples. Public Health. 2019 Jul; 172: 119–24.

9. Zuberi T. Thicker than blood. How Racial Statistics Lie. Minnesota (USA): University of Minnesota Press; 2013.

10. National Collaborating Centre for Indigenous Health. Reading C. Social Determinants of Health: Understanding Racism. [Internet] Vancouver (CA): NCCIH; 2020 [updated 2020 Sep 08; cited 2023 Jan 6]. Available from: https://www.nccih.ca/495/Understanding_racism.nccih?id=103.

11. Paine S, Cormack D, Reid P, Harris R, Robson B. Kaupapa Māori-informed approaches to support data rights and self-determination. In: Walter M, Kukutai T,

Carroll S, Rodriguez-Lonebear D, editors. Indigenous Data Sovereignty and Policy. Oxfordshire (GB): Routledge; 2020. P. 187-203

12. Youé C. Settler colonialism or colonies with settlers? Can J Afr Stud Rev Can Études Afr. 2018; 52(1): 69–85.

13. Nerestant A. Racism, prejudice contributed to Joyce Echaquan's death in hospital, Quebec coroner's inquiry concludes. CBC News [Internet]. 2021 Oct 01 [cited 2023 Jan 6]. Available from: https://www.cbc.ca/news/canada/montreal/joyce-echaquan-systemic-racism-quebec-government-1.6196038

14. CBC News. Atikamekw community "shocked" by François Legault comments on Joyce Echaquan's death. CBC News [Internet]. 2022 Sep 17 [cited 2023 Jan 6]. Available from: https://www.cbc.ca/news/canada/montreal/atikamekw-shocked-legault-joyce-echaquan-comment-1.6586853

15. Hall WJ, Chapman MV, Lee KM, Merino YM, Thomas TW, Payne BK, et al. Implicit Racial/Ethnic Bias Among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review. Am J Public Health. 2015 Dec; 105(12): e60–76.

16. FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. BMC Med Ethics. 2017 Mar; 18(1): 19.

17. Green AR, Carney DR, Pallin DJ, Ngo LH, Raymond KL, Iezzoni LI, et al. Implicit Bias among Physicians and its Prediction of Thrombolysis Decisions for Black and White Patients. J Gen Intern Med. 2007 Sep; 22(9): 1231–8.

18. The Truth Reconciliation Commission of Canada. Honouring the Truth, Reconciling for the future: summary of the final report of the Truth and Reconciliation Commission of Canada. 2015

19. Churchill M, Parent-Bergeron M, Smylie J, Fridkin A, Smylie D, Firestone M. Evidence Brief: Wise Practices for Indigenous-specific Cultural Safety Training Programs [Internet]. Toronto: Well Living House Action Research Centre for Indigenous Infant, Child, and Family Health and Wellbeing; 2017 Aug [cited 2022 Jan 06]. 21 p. Available from: http://www.welllivinghouse.com/wp-content/uploads/2019/05/2017-Wise-Practices-in-Indigenous-Specific-Cultural-Safety-Training-Programs.pdf

20. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ (Online). 2021 Mar; 372: n71.

21. Lefebvre C, Glanville J, Briscoe S, Littlewood A, Marshall C, Metzendorf M, et al. Searching for and selecting studies. In: Cochrane Handbook for Systematic Reviews of Interventions. Chichester, UK: John Wiley & Sons, Ltd; 2019. p. 67–107

22. Harrison H, Griffin SJ, Kuhn I, Usher-Smith JA. Software tools to support title and abstract screening for systematic reviews in healthcare: an evaluation. BMC Med Res Methodol. 2020 Jan; 20(1): 7.

23. Maddox R, Blais G, Mashford-Pringle A, Monchalin R, Firestone M, Ziegler C, et al. Reviewing Health Service and Program Evaluations in Indigenous Contexts: A Systematic Review. Am J Eval. 2021; 42(3): 332–53.

24. Morton Ninomiya ME, Atkinson D, Brascoupé S, Firestone M, Robinson N, Reading J, et al. Effective knowledge translation approaches and practices in Indigenous health research: a systematic review protocol. Syst Rev. 2017 Feb; 6(1): 34.

25. Smylie J, Kirst M, McShane K, Firestone M, Wolfe S, O'Campo P. Understanding the role of Indigenous community participation in Indigenous prenatal and infant-toddler health promotion programs in Canada: A realist review. Soc Sci Med. 2016 Feb; 150: 128–43.

26. Popay J, Roberts H, Sowden A, Petticrew M, Arai L, Rodgers M, et al. Guidance on the conduct of narrative synthesis in systematic reviews. A product from the ESRC methods programme Version. 2006 Apr; 1(1): b92.

27. Smylie J, Kaplan-Myrth N, McShane K, Métis Nation of Ontario-Ottawa Council Pikwakanagan First Nation Tungasuvvingat Inuit Family Resource Centre. Indigenous knowledge translation: baseline findings in a qualitative study of the

pathways of health knowledge in three indigenous communities in Canada. Health Promot Pract. 2009 Jul; 10(3): 436–46.

28. Smylie J. Knowledge translation and Indigenous knowledge. A decolonizing perspective. In: Banister EM, Leadbeater BJ, Marshall A, editors. Knowledge Translation in community-based research and social policy contexts. Toronto: University of Toronto Press; 2011. p. 181–208.

29. Smylie J, Olding M, Ziegler C. Sharing What We Know about Living a Good Life: Indigenous Approaches to Knowledge Translation. J Can Health Libr Assoc. 2014; 35: 16–23.

30. Allan B, Smylie J. All our relations: Indigenous Women's Health in Canada. In: Varcoe C, Hankivsky O, Morrow MH, editors. Women's health in Canada: challenges of intersectionality. Toronto, CA: University of Toronto Press; 2022. p.116-117

31. Kirkness VJ and Barnhardt R. First Nations and higher education: the four R's - respect, relevance, reciprocity, responsibility. Journal of American Education. 1991; 30(3): 1-15.

32. Restoule JP. The five r's of Indigenous research: Relationship, respect, relevance, responsibility, and reciprocity. Workshop presented at: Wise Practices II: Canadian

Aboriginal AIDS Network Research and Capacity Building Conference; 2008 Nov 26; Toronto.

33. Barajas JJ. Cultural Sensitivity for Healthcare Provides on the Tohono O'Odham Nation: a Quality Improvement Project [dissertation]. Ann Arbor (USA): ProQuest Dissertations Publishing; 2021. 92 p.

34. Barnabe C, Kherani RB, Appleton T, Umaefulam V, Henderson R, Crowshoe L. Participant-reported effect of an Indigenous health continuing professional development initiative for specialists. BMC Med Educ. 2021 Dec; 21(1): 116.

35. Brewer KM, McCann CM, Harwood MLN. Working with Māori adults with aphasia: an online professional development course for speech-language therapists. Aphasiology. 2020 Nov; 34(11): 1413–31.

36. Chapman R, Martin C, Smith T. Evaluation of staff cultural awareness before and after attending cultural awareness training in an Australian emergency department. Int Emerg Nurs. 2014 Oct; 22(4): 179–84.

37. Crowshoe L, Han H, Calam B, Henderson R, Jacklin K, Walker L, et al. Impacts of Educating for Equity Workshop on Addressing Social Barriers of Type 2 Diabetes With Indigenous Patients. J Contin Educ Health Prof. 2018 Dec; 38(1): 49–59.

38. Delbridge R, Wilson A, Palermo C. Measuring the impact of a community of practice in Aboriginal health. Stud Contin Educ. 2018 Jan; 40(1): 62–75.

39. Durey A, Halkett G, Berg M, Lester L, Kickett M. Does one workshop on respecting cultural differences increase health professionals' confidence to improve the care of Australian Aboriginal patients with cancer? An evaluation. BMC Health Serv Res. 2017 Dec; 17(1): 660.

40. Hinton R, Bradley P, Trauer T, Nagel T. Strengthening acute inpatient mental health care for Indigenous clients. Adv Ment Health. 2014 Aug; 12(2): 125–35.

41. Hulko W, Mahara MS, Wilson D, Campbell-McArthur G. Culturally safe dementia care: Building nursing capacity to care for First Nation Elders with memory loss. Int J Older People Nurs. 2021 Sep; 16(5): e12395.

42. Kerrigan V, Lewis N, Cass A, Hefler M, Ralph AP. "How can I do more?" Cultural awareness training for hospital-based healthcare providers working with high Aboriginal caseload. BMC Med Educ. 2020 Dec; 20(1): 173.

43. Kerrigan V, McGrath SY, Herdman RM, Puruntatameri P, Lee B, Cass A, et al. Evaluation of 'Ask the Specialist': a cultural education podcast to inspire improved healthcare for Aboriginal peoples in Northern Australia. Health Sociol Rev. 2022 May; 31(2): 139–57.

44. Liaw ST, Hasan I, Wade V, Canalese R, Kelaher M, Lau P, et al. Improving cultural respect to improve Aboriginal health in general practice: a multi-methods and multi-perspective pragmatic study. Aust Fam Physician. 2015 Jun; 44(6): 387-92.

45. Liaw S, Wade V, Furler JS, Hasan I, Lau P, Kelaher M, et al. Cultural respect in general practice: a cluster randomised controlled trial. Med J Aust. 2019 Apr; 210(6): 263–8.

46. McMichael B, Nickel A, Duffy EA, Skjefte L, Lee L, Park P, et al. The Impact of Health Equity Coaching on Patient's Perceptions of Cultural Competency and Communication in a Pediatric Emergency Department: An Intervention Design. J Patient Exp. 2019 Dec; 6(4): 257–64.

47. Sauvé A, Cappelletti A, Murji L. Stand Up for Indigenous Health: A Simulation to Educate Residents About the Social Determinants of Health Faced by Indigenous Peoples in Canada. Acad Med. 2022 Apr; 97(4): 518–23.

48. Wheeler AJ, Hu J, Tadakamadla SK, Hall K, Miller A, Kelly F. Development and feasibility testing of a training programme for community pharmacists to deliver a culturally responsive medication review intervention. Pilot Feasibility Stud. 2022 Dec; 8(1): 51.

49. Curtis E, Jones R, Tipene-Leach D, Walker C, Loring B, Paine SJ, et al. Why cultural safety rather than cultural competency is required to achieve health equity: a

734 literature review and recommended definition. Int J Equity Health. 2019 Nov; 18(1):
735 174.

736 50. Ramsden IM. Cultural safety and nursing education in Aotearoa and Te
737 Waipounamu [dissertation]. Wellington (NZ): Victoria University of Wellington; 2002.
738 211 p.

739 51. Smylie J, Harris R, Paine SJ, Velásquez IA, Nimatuj, Lovett R. Beyond shame,
740 sorrow, and apologies—action to address indigenous health inequities. BMJ
741 (Online). 2022 Jul; 378: o1688.

742 52. Kirkpatrick D. Great ideas revisited: Techniques for evaluating training programs.
743 Train Dev. 1996; 50(1): 54.

744 53. Badger LW, deGruy F, Hartman J, Plant MA, Leeper J, Ficken R, et al. Stability of
745 standardized patients' performance in a study of clinical decision making. Fam Med.
746 1995 Feb; 27(2): 126–31.

747 54. Colliver JA, Vu NV, Marcy ML, Travis TA, Robbs RS. Effects of examinee gender,
748 standardized-patient gender, and their interaction on standardized patients' ratings
749 of examinees' interpersonal and communication skills. Acad Med. 1993; 68: 153–7.

750 55. Rethans JJ, Boven CP van. Simulated patients in general practice: a different look at
751 the consultation. Br Med J Clin Res Ed. 1987 Mar; 294(6575): 809–12.

56. Abad-Arranz M, Moran-Rodríguez A, Mascarós Balaguer E, Quintana Velasco C, Abad Polo L, Núñez Palomo S, et al. Community Assessment of COPD Health Care (COACH) study: a clinical audit on primary care performance variability in COPD care. BMC Med Res Methodol. 2018; 18(1): 68–68.

57. Crabtree A, Sundararaj JJ, Pease N. Clinical audit?—invaluable! BMJ Support Palliat Care. 2020 Jun; 10(2): 213–5.

LIST OF ABBREVIATIONS

Well Living House Quality Appraisal Tool (WLHQAT)

AUTHORS' CONTRIBUTIONS

JS and DS conceptualized the systematic review. JS made significant contributions to the interpretation of the data. CZ carried out the database literature searches. SF and BJH screened titles and carried out data extraction. BJH 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. BJH, SF and JS drafted sections of the manuscript and DS commented on the manuscript in progress. All authors contributed to study design and interpretation of findings, and approved the final manuscript.

COMPETING INTERESTS

All authors have completed the ICMJE uniform disclosure form at qqq.icmje.org/disclosure-of-interest/. BJH, 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 people. One of the interventions studied included an early version of one of the online training programs 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.

FUNDING

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DATA SHARING

Most of the data generated or analysed as well as the WLHQAT applied during this study are publicly available. Additional materials, such as the study protocol and WLHQAT data analyses are available upon request from the corresponding author.

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.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethics approval and consent to participate were not required for this study.

ACKNOWLEDGEMENTS

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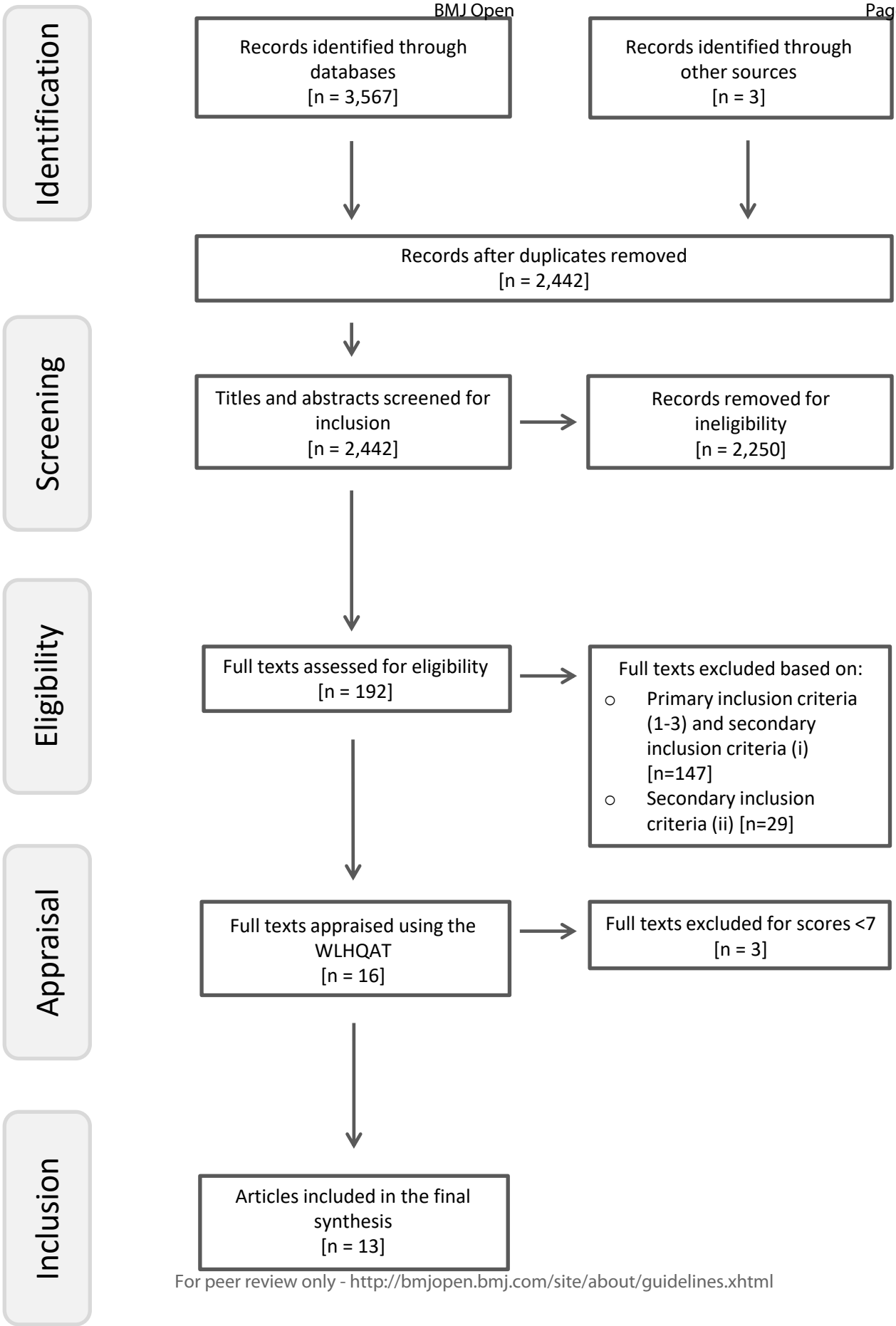
Identification
Screening
Eligibility
Appraisal
Inclusion
Records identified through databases [n = 3,567]
Records identified through other sources [n = 3]
Records after duplicates removed [n = 2,442]
Titles and abstracts screened for inclusion [n = 2,442]
Records removed for ineligibility [n = 2,250]
Full texts assessed for eligibility [n = 192]
Full texts excluded based on:
Primary inclusion criteria (1-3) and secondary inclusion criteria (i) [n=147]
Secondary inclusion criteria (ii) [n=29]
Full texts appraised using the WLHQAT [n = 16]
Full texts excluded for scores <7 [n = 3]
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:

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	pg.1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	pg. 1-2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	pg. 1-3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	pg. 5
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	pg. 6
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	pg. 5-6
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supplement 1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 6-7
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	pg. 7
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	pg. 7-8
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	pg. 7-8
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 8-9; Supplemental 2
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	pg. 9
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	N/A
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	pg. 7
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	pg. 9 and Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	pg. 9
Study characteristics	17	Cite each included study and present its characteristics.	pg. 9-14
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	N/A
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Table 1-3
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	pg. 14
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	pg. 14-17
	23b	Discuss any limitations of the evidence included in the review.	pg. 14-17
	23c	Discuss any limitations of the review processes used.	N/A
	23d	Discuss implications of the results for practice, policy, and future research.	pg. 16-17
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	pg. 3
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	pg. 23
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	pg. 24
Competing interests	26	Declare any competing interests of review authors.	pg. 24
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	pg. 23

From: Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

For more information, visit: www.prisma-statement.org.

BMJ Open

Systematic review of Indigenous Cultural Safety training interventions for health care professionals in Australia, Canada, New Zealand and the United States.

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2023-073320.R1
Article Type:	Original research
Date Submitted by the Author:	20-Jul-2023
Complete List of Authors:	Hardy, Billie-Jo; University of Toronto - St George Campus, Dalla Lana School of Public Health; Unity Health Toronto, Well Living House, Li Ka Shing Knowledge Institute Filipenko, Sam; Unity Health Toronto, Well Living House, Li Ka Shing Knowledge Institute Smylie, Diane; Ontario Federation of Indigenous Friendship Centres Ziegler, Carolyn; Unity Health Toronto, Health Sciences Library, St. Michael's Hospital Smylie, Janet; Unity Health Toronto, Well Living House, Li Ka Shing Knowledge Institute; University of Toronto - St George Campus, Dalla Lana School of Public Health
Primary Subject Heading:	Medical education and training
Secondary Subject Heading:	Health policy
Keywords:	EDUCATION & TRAINING (see Medical Education & Training), Health Equity, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Systematic Review

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Systematic review of Indigenous Cultural Safety training interventions for health care professionals in Australia, Canada, New Zealand and the United States.

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ABSTRACT

Objective: To synthesize and appraise the design and impact of peer-reviewed evaluations of Indigenous cultural safety training programs and workshops for health care workers in Australia, Canada, New Zealand, and/or the United States of America.

Methods: We completed a systematic review of studies that evaluated the outcomes of educational interventions designed to improve cultural safety, cultural competency, and/or cultural awareness for non-Indigenous adult health care professionals in Australia, Canada, New Zealand, or the United States.

We searched key electronic databases and grey literature from January 1, 2006 to May 12, 2022. Our team of Indigenous and allied scientists tailored existing data extraction and quality appraisal tools with input from Indigenous health service partners. We synthesized results using an iterative narrative approach.

Results: 2,442 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 heterogenous. Nine studies used mixed methods, two used qualitative methods, and two used quantitative methods. Training

participants included nurses, family practice residents, specialized practitioners and providers serving specific subpopulations. Theoretical frameworks and pedagogical approaches varied across programs, 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.

SYSTEMATIC REVIEW REGISTRATION

Not Applicable

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Our systematic review built upon existing tailored Indigenous systematic review methodologies to implement a method aimed at optimizing 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 ICS programs 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 programs and related evaluations.
- The review is limited to interventions directed towards health care providers.

INTRODUCTION

Colonization has long been recognized 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 micro level social interactions, organizational design, and social architecture.(10, 13, 14) In healthcare contexts, this includes: racist contamination of the healthcare provider-Indigenous patient interface; organizational 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 health care providers,(18) even when they explicitly express anti-racist 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 racialized 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 policymakers, 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) Upon 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 synthesize the design and impacts of these educational interventions on non-Indigenous

health care 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 history of European colonization that continues to negatively impact the health and wellbeing of First Peoples, including equitable access to these service systems.

METHODS

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

Table 1. Summary of Interventions

Author(s)	Year	Country	Intervention	Content Delivery	Setting	Core Curriculum Topics	Participants
Barajas J.	2021	USA	10 minute 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 C., et al.	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, colonization and white racial privilege; specific health focus	Rheumatologists (n=34)
Brewer K., McCann C., & Harwood M.	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, colonization and white racial privilege; interpersonal communication skills; specific health focus	Speech Language Therapists (n=11)
Chapman R., Martin C., & Smith T.	2014	Australia	3 x 2hour 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 L., et al.	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, colonization and white racial privilege; interpersonal communication skills	Family physicians and Allied Health Professionals (n=32)

Hinton R., et al.	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)
Hulko W., et al.	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, colonization and white racial privilege; specific health focus	Nurses (n=38)
Kerrigan V., et al.	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, colonization and white racial privilege; interpersonal communication skills	Hospital staff (n=621)
Kerrigan V., et al.	2022	Australia	7 x 18-20min podcasts (1/week)	Online podcasts; diary entries	Online	Counterstories; interpersonal communication skills; social justice	Physicians (n=16)
Liaw S-T., et al.	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 S-T., et al.	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 A., Cappelletti A., & Murji L.	2022	Canada	Half-day in-person simulation workshop	Simulation training	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonization and white racial privilege	Physicians (Family Medicine Residents) (n=29)
Wheeler A., et al.	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 J. 2021.	Mixed methods, quality improvement	Post-survey	7 dichotomous (yes/no); 2 open-ended questions	Positive impact on insights, knowledge, and anticipated behaviour change.
Barnabe C., et al. 2021.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). Satisfaction survey (1 week post-intervention)	Social Cultural Confidence in Care Scale (SCCCS); 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 K., McCann C., & Harwood M. 2020.	Qualitative longitudinal	Post-survey. Follow-up interview (6 months post-intervention)	Course feedback; structured interviews	Major themes of "putting it into practice" and "keeping it at the forefront."
Chapman R., Martin C., & Smith T. 2014.	Quantitative	Pre- and post-survey	Area human resources development/population health survey of participation in Aboriginal awareness training workshop	Some change of perceptions towards ATSI people. Small effect on familiarity. No effect on attitudes.
Crowshoe L., et al. 2018.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). 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 R., et al. 2014.	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 W., et al. 2021.	Mixed methods, community-based	Pre- and post -surveys, 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 V., et al. 2020.	Mixed methods	Post-survey	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 V., et al. 2022.	Qualitative, participatory action	Qualitative journal entries. Post-intervention interviews	Weekly reflections; feedback interviews	Raised the critical consciousness of participants leading to self-reported attitudinal and behaviour change.
Liaw S-T., et al. 2015.	Mixed methods, pragmatic	Pre- and post-surveys and patient file audits (6 months post-intervention). Post-intervention 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 S-T., et al. 2019.	Mixed methods, cluster RCT	File audit. Pre- and post-survey (12 months post-intervention)	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.
Sauvé A., Cappelletti A., & Murji L. 2022.	Quantitative	Pre- and post-survey	abridged Scale of Ethnocultural Empathy (aSEE)	Significant increase in empathy, knowledge of Indigenous SDOH, and motivation to engage with Indigenous patients in a culturally safe manner.
Wheeler A., et al. 2021.	Mixed methods	Pre- and post-survey. Training acceptability survey	Cultural Capability Measurement Tool (CCMT); 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.

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 people, cultural competence and health professionals' education. Databases were searched for English language records from 2006 to May 12, 2022 (based upon 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 3 articles were identified for study inclusion. For the detailed search strategies see Supplementary 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 of America;

(2) Study describes educational interventions (workshops, training, coursework, community visits, etc.) designed/implemented to improve cultural safety, cultural competency, and/or cultural awareness;

(3) Educational intervention focused on a majority of non-Indigenous adult participants health care professionals who provide services (e.g., 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 3 criteria.

Three researchers collaborated on full-text screening and further eliminated articles that upon full reading, did not meet the primary inclusion criteria and two secondary inclusion criteria: (i) detailed information about the educational intervention's design and implementation; (ii) 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 organizational versus health care 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 Supplementary 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 (BJH) subsequently reviewed all abstractions and finalized Tables 1-4. The lead and senior authors (BJH, JS) independently appraised methodological quality using a tailored version of the Well Living House quality appraisal tool (WLHQAT)(27-29) (Supplementary 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; rigor 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.

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Table 3: Well Living House Quality Appraisal Scores

Citation	Scoring Range 1-3 / 4-6 / 7-9 / 10-12
Barajas J. 2021	7-9
Barnabe C., et al. 2021.	7-9
Brewer K., McCann C., & Harwood M. 2020.	7-9
Chapman R., Martin C., & Smith T. 2014.	7-9
Crowshoe L., et al., 2018.	7-9
Delbridge R., et al., 2018	4-6
Durey A., et al., 2017	4-6
Hinton R., et al. 2014.	7-9
Hulko W., et al. 2021.	7-9
Kerrigan V., et al., 2020.	7-9
Kerrigan V., et al., 2022.	7-9
Liaw S-T., et al. 2015.	10-12
Liaw S-T., et al. 2019.	10-12
McMichael B., et al., 2019	4-6
Sauvé A., Cappelletti A., & Murji L. 2022.	7-9
Wheeler A., et al. 2021.	7-9

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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 J. 2021.	Yes	Yes	None listed	Yes	Yes	Yes	Yes
Barnabe C., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brewer K., McCann C., & Harwood M. 2020.	None listed	Yes	None listed	None listed	None listed	Yes	None listed
Chapman R., Martin C., & Smith T. 2014.	None listed	None listed	Yes	None listed	None listed	None listed	None listed
Crowshoe L., et al., 2018.	Yes	Yes	Yes	Yes	Yes	Yes	Limited
Hinton R., et al. 2014.	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Hulko W., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2020.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2022.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Liaw S-T., et al. 2015.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Liaw S-T., et al. 2019.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Sauvé A., Cappelletti A., & Murji L. 2022.	Yes	Yes	Yes	None listed	None listed	None listed	None listed
Wheeler A., et al. 2021.	Yes	Yes	Yes	Yes	None listed	None listed	None listed

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 were impactful for whom and in what ways. In addition to our primary aim of identifying, summarizing, and assessing the design and outcomes of existing published evaluations of Indigenous cultural safety education programming for health care professionals, we were particularly interested in documenting underlying pedagogies, instructional strategies, formats, and content and how these might be related to program 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 program 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 (i) the role of underlying pedagogies and (ii) 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 decolonizing lens where we intentionally centered the distinct and diverse knowledges and strengths present in Indigenous communities' practices of health and wellbeing.(31-34) The authors sought to acknowledge and critique the systemic power dynamics that so often inform existing health program 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 upon the foundational Indigenous principles of relationships, reciprocity, responsibility, respect, and relevance (known as the 5 R's),(35-36) and applied our decolonizing 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 programs and policies requires acknowledging the unique and distinct relations and interconnections held by Indigenous peoples that are so often decontextualized through the application of Western methodologies.(27) In keeping with our decolonizing approach, it is important for us to self-locate the authorship team as comprised of two Indigenous women (JS, DS), one racialized settler ally (BJH), and two non-racialized settler allies (SF, 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 2,442 citations (following removal of any duplicates), from which 2,250 were deemed ineligible based on title and abstract screening. 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). (Supplementary 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, 3 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 program 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 analyzed studies were published between 2014 – 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 (n=1) was conducted in the United States (US)(37) and the other (n=1) was conducted in New Zealand (n=1).(39)

Evaluation design varied widely. Nine of the studies (n = 9) 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 randomized trial that incorporated a participatory action research approach, in which the research team cooperated with the communities, supporting institutions and participants.(49) Two (n=2) studies were qualitative.(39,47) Another two (n=2) were quantitative.(40,51) Eight studies (n=8) incorporated pre/post intervention surveys.(38, 40-41, 45, 48-49, 51-52) Six of the studies (n=6) 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 post intervention data immediately following the intervention. One intervention was described and evaluated across multiple publications as part of a larger research program.(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

eleven studies that used survey tools, eight employed previously validated evaluation tools,(38, 40-41, 45, 48-49, 51-52) two 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 (n=3) recruited specialized practitioners: rheumatologists(38), pharmacists(52), and speech language therapists(39). One study recruited only family medicine residents(51) whereas another focussed on nurses.(45) Four of the studies (n=4) 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 randomization 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 randomized 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 upon 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 and colleagues(47) suggested, based upon post intervention 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 generalizable and/or that additional research is required.(37, 45-46, 51) Hulko and colleagues(45) indicated that their intervention and evaluation was based upon 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 programs 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 (E4E)(38, 41). Liaw et al(48-49) describe a trans-theoretical approach in which they harmonised cultural intelligence frameworks, developments in cultural respect, safety and competence and a review of successful Aboriginal programs alongside consultation with Aboriginal communities and others. Others (n=4) designed their program with cultural safety and decolonizing 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 health care training and the possible benefits related to training programs.(40, 45, 52) Lastly, some of the training programs applied participatory action approaches or community-based approaches to the development and delivery of the training.(44-45, 47-49)

Participation for all programs was voluntary. Overall, there were similarities in course content across programs. 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 (n=1), 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 co-delivered/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 program, 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 programs 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 (e.g. 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 program 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 post-survey.(41) Chapman and colleagues,(40) who applied a

multi-modal training delivered by an Indigenous trainer, described how the impact of their training program was limited to significant changes in learners' perceptions whereas learners' attitudes remained unchanged. Kerrigan and colleagues(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 semi-structured interviews post-intervention.

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 program. However, the degree of involvement of local Indigenous people 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 thirteen 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 co-authors.(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 upon health care delivery and/or patient experience. Some established partnerships with Indigenous run organizations(48-49) whereas others relied upon 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 health care 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 health care 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 program approaches, content, and implementation. In contrast, analysis and synthesis of the accompanying evaluations of

these same training programs revealed clear and cross-cutting gaps in the demonstration of clinical 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 and colleagues(47); Brewer and colleagues(39) and Barajas(37) all suggested, through their evaluations, that the training programs 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 health care 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 upon voluntary self-selection. Sample sizes were generally small and those that were longitudinal showed significant baseline to post-intervention loss to follow-up. Eight of the thirteen

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 program. 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 health care 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 three of thirteen studies included tools designed to evaluate patient experience: a subset of patient interviews post intervention(48) and pre/post file audits.(44, 49) Interestingly, Liaw and colleagues 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 standardized patients(56-58), ideally unannounced, or through file audits of clinical care.(59, 60) Kirkpatrick has argued that it is “difficult, if not impossible to evaluate the impact of training on an organization due to an inability to separate the variables which could be attributed to other factors.”((55)p59) In this study, we focused on interventions implemented at the level of the health care provider, however, the approach does not limit the evaluation to individual level measures, as cultural safety training of health care providers can have organizational-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 and colleagues(45) noted that cultural safety research in general needs to advance tools that will measure these effects, and noted that organizational change will require institutional supports and policy changes that encourage health care 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 pre-requisite knowledge, self-awareness and skills is critical to the success of cultural safety training and education programs. 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 program 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 organizational commitment and team involvement. Implementing mandated training alongside appropriate evaluations using file audits, simulation and/or standardized patients will undoubtedly require training and evaluation protocols that address arising concerns of participant health care professionals.

The evidence was limited as to whether or not inclusion of Indigenous people 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 programs they evaluated. Liaw and colleagues concluded that the strength of their program 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 formalized in the toolkit and delivered by the workshop, into practice."((48) p391) Hinton and colleagues(44) also made similar observations regarding cultural advisors, who were involved in the action oriented programming and group sessions.

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 upon existing tailored Indigenous systematic review methodologies(27-29) to implement a method aimed at optimizing relevance for Indigenous peoples through: (1) co- design, co-leadership and co-authorship 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; (3) application of a data extraction tool developed in consultation with

Indigenous community partners: the Southern Ontario Aboriginal Health Access Centre (SOAHAC) (Supplementary 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 ICS programs 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 programs and related evaluations. To optimize feasibility and study coherence, we did not include organizational level interventions as for this initial study. Instead, we limited our focus to interventions directed towards health care providers. We do recognize that it is likely that lasting system-level impacts will require interventions that are implemented and evaluated at both the individual and organizational 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 protocol to ensure that we were centering 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 health care 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 organizations 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 organizations that are leading the work in this field, is required to advance training program evaluation design, implementation, analysis and dissemination to ensure that both the training programs and their evaluations meets 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.

AUTHORS' CONTRIBUTIONS

JS and DS conceptualized the systematic review. JS made significant contributions to the interpretation of the data. CZ carried out the database literature searches. SF and BJH screened titles and carried out data extraction. BJH 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. BJH, SF and JS drafted sections of the manuscript and DS commented on the manuscript in progress. All authors contributed to study design and interpretation of findings, and approved the final manuscript.

COMPETING INTERESTS

All authors have completed the ICMJE uniform disclosure form at qqq.icmje.org/disclosure-of-interest/. BJH, 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 people. One of the interventions studied included an early version of one of the online training programs 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.

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DATA SHARING

Most of the data generated or analysed as well as the WLHQAT applied during this study are publicly available. Additional materials are available upon request from the corresponding author.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethics approval and consent to participate were not required for this study.

REFERENCE LIST

1. Commission on Social Determinants of Health (CSDH). Social Determinants and Indigenous Health: The International Experience and Its Policy Implications. Adelaide: International Symposium on the Social Determinants of Indigenous Health. 2007 Apr [cited 2023 Jan 6]. 40 p. Available from: https://nativehealthdatabase.net/node/17216

2. Stephanovich O. Pope Francis apologizes to Indigenous delegates for “deplorable” abuses at residential schools. CBC News [Internet]. 2022 Apr 1 [cited 2023 Jan 6]. Available from: https://www.cbc.ca/news/politics/pope-francis-responds-indigenous-delegations-final-meeting-1.6404344

3. Yardely J, Neuman W. In Bolivia, Pope Francis Apologizes for Church's 'Grave Sins'. New York Times [Internet]. 2015 Jul 9 [cited 2023 Jan 6]. Available from: https://www.nytimes.com/2015/07/10/world/americas/pope-francis-bolivia-catholic-church-apology.html

4. Parliament of Australia. Prime Minister Kevin Rudd, MP—Apology to Australia's indigenous peoples [television broadcast]. 2008.

5. Spencer G. Queen Signs Historic Maori Land Settlement. AP News. 1995 Nov 2 [cited 2023 Jan 6]. Available from: https://apnews.com/article/808c85d946ad2a26c29813a2403e808e

6. Jackson M. In the end "The hope of decolonization". In: McKinley E, Tuhiwai Smith L, editors. Handbook of Indigenous education. Singapore: Springer; 2019. P. 101-10.

7. Wolfe P. Settler colonialism and the elimination of the native. J Genocide Res. 2006 Dec; 8(4): 387–409.

8. Reid P, Cormack D, Paine SJ. Colonial histories, racism and health—The experience of Māori and Indigenous peoples. Public Health. 2019 Jul; 172: 119–24.

9. Zuberi T. Thicker than blood. How Racial Statistics Lie. Minnesota (USA): University of Minnesota Press; 2013.

10. National Collaborating Centre for Indigenous Health. Reading C. Social Determinants of Health: Understanding Racism. [Internet] Vancouver (CA): NCCIH; 2020 [updated 2020 Sep 08; cited 2023 Jan 6]. Available from: https://www.nccih.ca/495/Understanding_racism.nccih?id=103.

11. Paine S, Cormack D, Reid P, Harris R, Robson B. Kaupapa Māori-informed approaches to support data rights and self-determination. In: Walter M, Kukutai T, Carroll S, Rodriguez-Lonebear D, editors. Indigenous Data Sovereignty and Policy. Oxfordshire (GB): Routledge; 2020. P. 187-203

12. Youé C. Settler colonialism or colonies with settlers? Can J Afr Stud Rev Can Études Afr. 2018; 52(1): 69–85.

13. Allan B & Smylie J, First Peoples, second class treatment: The role of racism in the health and well-being of Indigenous peoples in Canada. (2015). Toronto. The Wellesley Institute

14. Harding L. What's the harm? Examining the stereotyping of Indigenous peoples in health systems. 2018.

15. Smylie J, Harris RB, Paine S, et al. Beyond shame, sorrow, and apologies – action to address Indigenous health inequities. BMJ 2022; 378:o1688

16. Nerestant A. Racism, prejudice contributed to Joyce Echaquan's death in hospital, Quebec coroner's inquiry concludes. CBC News [Internet]. 2021 Oct 01 [cited 2023 Jan 6]. Available from: https://www.cbc.ca/news/canada/montreal/joyce-echaquan-systemic-racism-quebec-government-1.6196038

17. CBC News. Atikamekw community "shocked" by François Legault comments on Joyce Echaquan's death. CBC News [Internet]. 2022 Sep 17 [cited 2023 Jan 6]. Available from: https://www.cbc.ca/news/canada/montreal/atikamekw-shocked-legault-joyce-echaquan-comment-1.6586853

18. Hall WJ, Chapman MV, Lee KM, Merino YM, Thomas TW, Payne BK, et al. Implicit Racial/Ethnic Bias Among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review. Am J Public Health. 2015 Dec; 105(12): e60–76.

19. FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. BMC Med Ethics. 2017 Mar; 18(1): 19.

20. Green AR, Carney DR, Pallin DJ, Ngo LH, Raymond KL, Iezzoni LI, et al. Implicit Bias among Physicians and its Prediction of Thrombolysis Decisions for Black and White Patients. J Gen Intern Med. 2007 Sep; 22(9): 1231–8.

21. The Truth Reconciliation Commission of Canada. Honouring the Truth, Reconciling for the future: summary of the final report of the Truth and Reconciliation Commission of Canada. 2015

22. Churchill M, Parent-Bergeron M, Smylie J, Fridkin A, Smylie D, Firestone M. Evidence Brief: Wise Practices for Indigenous-specific Cultural Safety Training Programs [Internet]. Toronto: Well Living House Action Research Centre for Indigenous Infant, Child, and Family Health and Wellbeing; 2017 Aug [cited 2022 Jan 06]. 21 p. Available from: http://www.welllivinghouse.com/wp-content/uploads/2019/05/2017-Wise-Practices-in-Indigenous-Specific-Cultural-Safety-Training-Programs.pdf

23. MacLean TL, Qiang JR, Henderson L, et al. Indigenous cultural safety training for applied health, social work, and education professionals: a PRISMA scoping review. 2023;20(6):5217

24. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ (Online). 2021 Mar; 372: n71.

25. Lefebvre C, Glanville J, Briscoe S, Littlewood A, Marshall C, Metzendorf M, et al. Searching for and selecting studies. In: Cochrane Handbook for Systematic Reviews of Interventions. Chichester, UK: John Wiley & Sons, Ltd; 2019. p. 67–107

26. Harrison H, Griffin SJ, Kuhn I, Usher-Smith JA. Software tools to support title and abstract screening for systematic reviews in healthcare: an evaluation. BMC Med Res Methodol. 2020 Jan; 20(1): 7.

27. Maddox R, Blais G, Mashford-Pringle A, Monchalin R, Firestone M, Ziegler C, et al. Reviewing Health Service and Program Evaluations in Indigenous Contexts: A Systematic Review. Am J Eval. 2021; 42(3): 332–53.

28. Morton Ninomiya ME, Atkinson D, Brascoupé S, Firestone M, Robinson N, Reading J, et al. Effective knowledge translation approaches and practices in Indigenous health research: a systematic review protocol. Syst Rev. 2017 Feb; 6(1): 34.

29. Smylie J, Kirst M, McShane K, Firestone M, Wolfe S, O'Campo P. Understanding the role of Indigenous community participation in Indigenous prenatal and infant-toddler health promotion programs in Canada: A realist review. Soc Sci Med. 2016 Feb; 150: 128–43.

30. Popay J, Roberts H, Sowden A, Petticrew M, Arai L, Rodgers M, et al. Guidance on the conduct of narrative synthesis in systematic reviews. A product from the ESRC methods programme Version. 2006 Apr; 1(1): b92.

31. Smylie J, Kaplan-Myrth N, McShane K, Métis Nation of Ontario-Ottawa Council Pikwakanagan First Nation Tungasuvvingat Inuit Family Resource Centre. Indigenous knowledge translation: baseline findings in a qualitative study of the

pathways of health knowledge in three indigenous communities in Canada. Health Promot Pract. 2009 Jul; 10(3): 436–46.

32. Smylie J. Knowledge translation and Indigenous knowledge. A decolonizing perspective. In: Banister EM, Leadbeater BJ, Marshall A, editors. Knowledge Translation in community-based research and social policy contexts. Toronto: University of Toronto Press; 2011. p. 181–208.

33. Smylie J, Olding M, Ziegler C. Sharing What We Know about Living a Good Life: Indigenous Approaches to Knowledge Translation. J Can Health Libr Assoc. 2014; 35: 16–23.

34. Allan B, Smylie J. All our relations: Indigenous Women's Health in Canada. In: Varcoe C, Hankivsky O, Morrow MH, editors. Women's health in Canada: challenges of intersectionality. Toronto, CA: University of Toronto Press; 2022. p.116-117

35. Kirkness VJ and Barnhardt R. First Nations and higher education: the four R's - respect, relevance, reciprocity, responsibility. Journal of American Education. 1991; 30(3): 1-15.

36. Restoule JP. The five r's of Indigenous research: Relationship, respect, relevance, responsibility, and reciprocity. Workshop presented at: Wise Practices II: Canadian

Aboriginal AIDS Network Research and Capacity Building Conference; 2008 Nov 26; Toronto.

37. Barajas JJ. Cultural Sensitivity for Healthcare Provides on the Tohono O'Odham Nation: a Quality Improvement Project [dissertation]. Ann Arbor (USA): ProQuest Dissertations Publishing; 2021. 92 p.

38. Barnabe C, Kherani RB, Appleton T, Umaefulam V, Henderson R, Crowshoe L. Participant-reported effect of an Indigenous health continuing professional development initiative for specialists. BMC Med Educ. 2021 Dec; 21(1): 116.

39. Brewer KM, McCann CM, Harwood MLN. Working with Māori adults with aphasia: an online professional development course for speech-language therapists. Aphasiology. 2020 Nov; 34(11): 1413–31.

40. Chapman R, Martin C, Smith T. Evaluation of staff cultural awareness before and after attending cultural awareness training in an Australian emergency department. Int Emerg Nurs. 2014 Oct; 22(4): 179–84.

41. Crowshoe L, Han H, Calam B, Henderson R, Jacklin K, Walker L, et al. Impacts of Educating for Equity Workshop on Addressing Social Barriers of Type 2 Diabetes With Indigenous Patients. J Contin Educ Health Prof. 2018 Dec; 38(1): 49–59.

42. Delbridge R, Wilson A, Palermo C. Measuring the impact of a community of practice in Aboriginal health. Stud Contin Educ. 2018 Jan; 40(1): 62–75.

43. Durey A, Halkett G, Berg M, Lester L, Kickett M. Does one workshop on respecting cultural differences increase health professionals' confidence to improve the care of Australian Aboriginal patients with cancer? An evaluation. BMC Health Serv Res. 2017 Dec; 17(1): 660.

44. Hinton R, Bradley P, Trauer T, Nagel T. Strengthening acute inpatient mental health care for Indigenous clients. Adv Ment Health. 2014 Aug; 12(2): 125–35.

45. Hulko W, Mahara MS, Wilson D, Campbell-McArthur G. Culturally safe dementia care: Building nursing capacity to care for First Nation Elders with memory loss. Int J Older People Nurs. 2021 Sep; 16(5): e12395.

46. Kerrigan V, Lewis N, Cass A, Hefler M, Ralph AP. "How can I do more?" Cultural awareness training for hospital-based healthcare providers working with high Aboriginal caseload. BMC Med Educ. 2020 Dec; 20(1): 173.

47. Kerrigan V, McGrath SY, Herdman RM, Puruntatameri P, Lee B, Cass A, et al. Evaluation of 'Ask the Specialist': a cultural education podcast to inspire improved healthcare for Aboriginal peoples in Northern Australia. Health Sociol Rev. 2022 May; 31(2): 139–57.

48. Liaw ST, Hasan I, Wade V, Canalese R, Kelaher M, Lau P, et al. Improving cultural respect to improve Aboriginal health in general practice: a multi-methods and multi-perspective pragmatic study. Aust Fam Physician. 2015 Jun; 44(6): 387-92.

49. Liaw S, Wade V, Furler JS, Hasan I, Lau P, Kelaher M, et al. Cultural respect in general practice: a cluster randomised controlled trial. Med J Aust. 2019 Apr; 210(6): 263–8.

50. McMichael B, Nickel A, Duffy EA, Skjefte L, Lee L, Park P, et al. The Impact of Health Equity Coaching on Patient's Perceptions of Cultural Competency and Communication in a Pediatric Emergency Department: An Intervention Design. J Patient Exp. 2019 Dec; 6(4): 257–64.

51. Sauvé A, Cappelletti A, Murji L. Stand Up for Indigenous Health: A Simulation to Educate Residents About the Social Determinants of Health Faced by Indigenous Peoples in Canada. Acad Med. 2022 Apr; 97(4): 518–23.

52. Wheeler AJ, Hu J, Tadakamadla SK, Hall K, Miller A, Kelly F. Development and feasibility testing of a training programme for community pharmacists to deliver a culturally responsive medication review intervention. Pilot Feasibility Stud. 2022 Dec; 8(1): 51.

53. Curtis E, Jones R, Tipene-Leach D, Walker C, Loring B, Paine SJ, et al. Why cultural safety rather than cultural competency is required to achieve health equity: a

literature review and recommended definition. Int J Equity Health. 2019 Nov; 18(1): 174.

54. Ramsden IM. Cultural safety and nursing education in Aotearoa and Te Waipounamu [dissertation]. Wellington (NZ): Victoria University of Wellington; 2002. 211 p.

55. Kirkpatrick D. Great ideas revisited: Techniques for evaluating training programs. Train Dev. 1996; 50(1): 54.

56. Badger LW, deGruy F, Hartman J, Plant MA, Leeper J, Ficken R, et al. Stability of standardized patients' performance in a study of clinical decision making. Fam Med. 1995 Feb; 27(2): 126–31.

57. Colliver JA, Vu NV, Marcy ML, Travis TA, Robbs RS. Effects of examinee gender, standardized-patient gender, and their interaction on standardized patients' ratings of examinees' interpersonal and communication skills. Acad Med. 1993; 68: 153–7.

58. Rethans JJ, Boven CP van. Simulated patients in general practice: a different look at the consultation. Br Med J Clin Res Ed. 1987 Mar; 294(6575): 809–12.

59. Abad-Arranz M, Moran-Rodríguez A, Mascarós Balaguer E, Quintana Velasco C, Abad Polo L, Núñez Palomo S, et al. Community Assessment of COPD Health Care

(COACH) study: a clinical audit on primary care performance variability in COPD care. BMC Med Res Methodol. 2018; 18(1): 68–68.

60. Crabtree A, Sundararaj JJ, Pease N. Clinical audit?—invaluable! BMJ Support Palliat Care. 2020 Jun; 10(2): 213–5.

LIST OF ABBREVIATIONS

Well Living House Quality Appraisal Tool (WLHQAT)

South Ontario Aboriginal Health Access Centre (SOAHAC)

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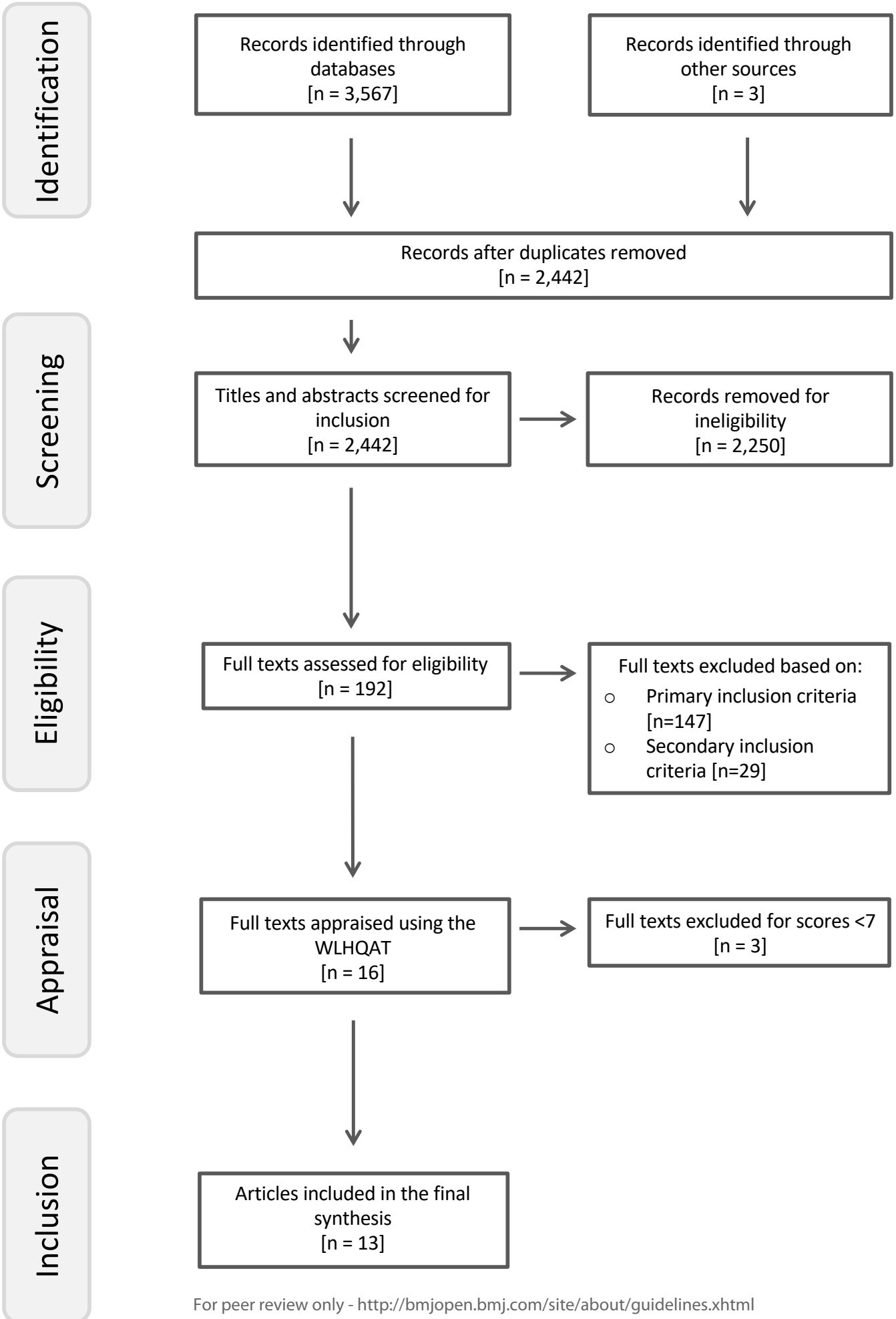
The authors would like to acknowledge Michèle Parent Bergeron and SOAHAC for their contributions to the study.



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:

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			

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	pg.1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	pg. 1-2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	pg. 1-3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	pg. 5
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	pg. 6
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	pg. 5-6
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Supplement 1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 6-7
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	pg. 7
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	pg. 7-8
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	pg. 7-8
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 8-9; Supplemental 2
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	pg. 9
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	N/A
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	pg. 7
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	pg. 9 and Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	pg. 9
Study characteristics	17	Cite each included study and present its characteristics.	pg. 9-14
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	N/A
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Table 1-3
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	pg. 14
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	pg. 14-17
	23b	Discuss any limitations of the evidence included in the review.	pg. 14-17
	23c	Discuss any limitations of the review processes used.	N/A
	23d	Discuss implications of the results for practice, policy, and future research.	pg. 16-17
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	pg. 3
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	pg. 23
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	pg. 24
Competing interests	26	Declare any competing interests of review authors.	pg. 24
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	pg. 23

From: Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

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Systematic review of Indigenous Cultural Safety training interventions for health care professionals in Australia, Canada, New Zealand and the United States.

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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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KEYWORDS

Indigenous health, Education & Training, Health Equity, Health Policy, Quality in Health Care

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ABSTRACT

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

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 January 1, 2006 to May 12, 2022.

Eligibility criteria for selecting studies: Studies that evaluated the outcomes of educational interventions 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 of America.

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 synthesized results using an iterative narrative approach.

Results: 2,442 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 heterogenous. Nine studies used mixed methods, two used qualitative methods, and two used quantitative methods. Training participants included nurses, family practice residents, specialized practitioners and providers serving specific subpopulations. Theoretical frameworks and pedagogical approaches varied across programs, 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.

SYSTEMATIC REVIEW REGISTRATION

Not Registered

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Our systematic review built upon existing tailored Indigenous systematic review methodologies to implement a method aimed at optimizing 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 ICS programs 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 programs and related evaluations.

- The review is limited to interventions directed towards healthcare providers.

INTRODUCTION

Colonization has long been recognized 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 micro-level social interactions, organizational design, and social architecture.(10, 13, 14) In healthcare contexts, this includes: racist contamination of the healthcare provider-Indigenous patient interface; organizational 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 anti-racist 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 racialized 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 policymakers, 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) Upon 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 synthesize 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 history of European colonization that continues to negatively impact the health and wellbeing of First Peoples, including equitable access to these service systems.

METHODS

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

Table 1. Summary of Interventions

Author(s)	Year	Country	Intervention	Content Delivery	Setting	Core Curriculum Topics	Participants
Barajas J.	2021	USA	10 minute 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 C., et al.	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, colonization and white racial privilege; specific health focus	Rheumatologists (n=34)
Brewer K., McCann C., & Harwood M.	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, colonization and white racial privilege; interpersonal communication skills; specific health focus	Speech Language Therapists (n=11)
Chapman R., Martin C., & Smith T.	2014	Australia	3 x 2hour 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 L., et al.	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, colonization and white racial privilege; interpersonal communication skills	Family physicians and Allied Health Professionals (n=32)

Hinton R., et al.	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)
Hulko W., et al.	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, colonization and white racial privilege; specific health focus	Nurses (n=38)
Kerrigan V., et al.	2020	Australia	Full day (7 hours) workshop	Didactic lecture; interactive group discussions, reflections, and experiential exercises	Clinical	Cultural knowledge, inequality, and beliefs; past policies and practices; professional practice issues; oppressive and racist policies, colonization and white racial privilege; interpersonal communication skills	Hospital staff (n=621)
Kerrigan V., et al.	2022	Australia	7 x 18-20min podcasts (1/week)	Online podcasts; diary entries	Online	Counterstories; interpersonal communication skills; social justice	Physicians (n=16)
Liaw S-T., et al.	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 S-T., et al.	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 A., Cappelletti A., & Murji L.	2022	Canada	Half-day in-person simulation workshop	Simulation training	Clinical	Determinants of Indigenous health; professional practice issues; oppressive and racist policies, colonization and white racial privilege	Physicians (Family Medicine Residents) (n=29)
Wheeler A., et al.	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 J. 2021.	Mixed methods, quality improvement	Post-survey	7 dichotomous (yes/no); 2 open-ended questions	Positive impact on insights, knowledge, and anticipated behaviour change.
Barnabe C., et al. 2021.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). Satisfaction survey (1 week post-intervention)	Social Cultural Confidence in Care Scale (SCCCS); 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 K., McCann C., & Harwood M. 2020.	Qualitative longitudinal	Post-survey. Follow-up interview (6 months post-intervention)	Course feedback; structured interviews	Major themes of "putting it into practice" and "keeping it at the forefront."
Chapman R., Martin C., & Smith T. 2014.	Quantitative	Pre- and post-survey	Area human resources development/population health survey of participation in Aboriginal awareness training workshop	Some change of perceptions towards ATSI peoples. Small effect on familiarity. No effect on attitudes.
Crowshoe L., et al. 2018.	Mixed methods	Pre- (1 week pre-intervention) and post-survey (3 months post-intervention). 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 R., et al. 2014.	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 W., et al. 2021.	Mixed methods, community-based	Pre- and post -surveys, 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 V., et al. 2020.	Mixed methods	Post-survey	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 V., et al. 2022.	Qualitative, participatory action	Qualitative journal entries. Post-intervention interviews	Weekly reflections; feedback interviews	Raised the critical consciousness of participants leading to self-reported attitudinal and behaviour change.
Liaw S-T., et al. 2015.	Mixed methods, pragmatic	Pre- and post-surveys and patient file audits (6 months post-intervention). Post-intervention 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 S-T., et al. 2019.	Mixed methods, cluster RCT	File audit. Pre- and post-survey (12 months post-intervention)	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.
Sauvé A., Cappelletti A., & Murji L. 2022.	Quantitative	Pre- and post-survey	abridged Scale of Ethnocultural Empathy (aSEE)	Significant increase in empathy, knowledge of Indigenous SDOH, and motivation to engage with Indigenous patients in a culturally safe manner.
Wheeler A., et al. 2021.	Mixed methods	Pre- and post-survey. Training acceptability survey	Cultural Capability Measurement Tool (CCMT); 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.

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 May 12, 2022 (based upon 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 3 articles were identified for study inclusion. For the detailed search strategies see Supplementary 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 of America;

(2) Study describes educational interventions (workshops, training, coursework, community visits, etc.) designed/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 (e.g., 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 upon full reading, did not meet the primary inclusion criteria and two secondary inclusion criteria: (i) detailed information about the educational intervention's design and implementation; (ii) 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 organizational 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 Supplementary 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 (BJH) subsequently reviewed all abstractions and finalized Tables 1-4. The lead and senior authors (BJH, JS) independently appraised methodological quality using a tailored version of the Well Living House quality appraisal tool (WLHQAT)(27-29) (Supplementary 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; rigor 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.

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Table 3: Well Living House Quality Appraisal Scores

Citation	Scoring Range 1-3 / 4-6 / 7-9 / 10-12
Barajas J. 2021	7-9
Barnabe C., et al. 2021.	7-9
Brewer K., McCann C., & Harwood M. 2020.	7-9
Chapman R., Martin C., & Smith T. 2014.	7-9
Crowshoe L., et al., 2018.	7-9
Delbridge R., et al., 2018	4-6
Durey A., et al., 2017	4-6
Hinton R., et al. 2014.	7-9
Hulko W., et al. 2021.	7-9
Kerrigan V., et al., 2020.	7-9
Kerrigan V., et al., 2022.	7-9
Liaw S-T., et al. 2015.	10-12
Liaw S-T., et al. 2019.	10-12
McMichael B., et al., 2019	4-6
Sauvé A., Cappelletti A., & Murji L. 2022.	7-9
Wheeler A., et al. 2021.	7-9

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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 J. 2021.	Yes	Yes	None listed	Yes	Yes	Yes	Yes
Barnabe C., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Brewer K., McCann C., & Harwood M. 2020.	None listed	Yes	None listed	None listed	None listed	Yes	None listed
Chapman R., Martin C., & Smith T. 2014.	None listed	None listed	Yes	None listed	None listed	None listed	None listed
Crowshoe L., et al., 2018.	Yes	Yes	Yes	Yes	Yes	Yes	Limited
Hinton R., et al. 2014.	None listed	None listed	None listed	None listed	None listed	None listed	None listed
Hulko W., et al. 2021.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2020.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Kerrigan V., et al., 2022.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Liaw S-T., et al. 2015.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Liaw S-T., et al. 2019.	None listed	Yes	Limited	Yes	None listed	None listed	None listed
Sauvé A., Cappelletti A., & Murji L. 2022.	Yes	Yes	Yes	None listed	None listed	None listed	None listed
Wheeler A., et al. 2021.	Yes	Yes	Yes	Yes	None listed	None listed	None listed

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 were impactful for whom and in what ways. In addition to our primary aim of identifying, summarizing, 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 program 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 program 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 (i) the role of underlying pedagogies and (ii) 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 decolonizing lens where we intentionally centered the distinct and diverse knowledges and strengths present in Indigenous communities' practices of health and wellbeing.(31-34) The authors sought to acknowledge and critique the systemic power dynamics that so often inform existing health program 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 upon the foundational Indigenous principles of relationships, reciprocity, responsibility, respect, and relevance (known as the five R's),(35-36) and applied our decolonizing 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 programs and policies requires acknowledging the unique and distinct relations and interconnections held by Indigenous peoples that are so often decontextualized through the application of Western methodologies.(27) In keeping with our decolonizing approach, it is important for us to self-locate the authorship team as comprised of two Indigenous women (JS, DS), one racialized settler ally (BJH), and two non-racialized settler allies (SF, 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 2,442 citations (following removal of any duplicates), from which 2,250 were deemed ineligible based on title and abstract screening. 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). (Supplementary 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 program 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 analyzed studies were published between 2014 – 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 (US)(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 randomized 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 pre/post-intervention 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 three years(44); 12 months(49); six months(39,48); and three months.(38,41) The remainder of the studies (n=7) collected post-intervention data immediately following the intervention. One intervention was described and evaluated across multiple publications as part of a larger research program.(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, eight employed previously validated evaluation tools,(38, 40-41, 45, 48-49, 51-52) two of these, although validated, were adapted by the research team.(41,51)

Sample sizes varied widely, ranging from six 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 specialized practitioners: rheumatologists(38), pharmacists(52), and speech language therapists(39). One study recruited only family medicine residents(51) whereas another focussed 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 randomization 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 randomized 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 upon 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 and colleagues(47) suggested, based upon post-intervention 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 generalizable and/or that additional research is required.(37, 45-46, 51) Hulko and colleagues(45) indicated that their intervention and evaluation was based upon 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 programs 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 (E4E)(38, 41). Liaw et al(48-49) describe a trans-theoretical approach in which they harmonised cultural intelligence frameworks, developments in cultural respect, safety and competence and a review of successful Aboriginal programs alongside consultation with Aboriginal communities and others. Others (n=4) designed their program with cultural safety and decolonizing 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 programs.(40, 45, 52) Lastly, some of the training programs applied participatory action approaches or community-based approaches to the development and delivery of the training.(44-45, 47-49)

Participation for all programs was voluntary. Overall, there were similarities in course content across programs. 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 co-delivered/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 program, 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 programs 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 (e.g. 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 program 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 post-survey.(41) Chapman and colleagues,(40) who applied a multi-modal training delivered by an Indigenous trainer, described how the impact of their training program was limited to significant changes in learners' perceptions whereas learners' attitudes remained unchanged. Kerrigan and colleagues(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 semi-structured interviews post-intervention.

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 program. 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 co-authors.(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 upon healthcare delivery and/or patient experience. Some established partnerships with Indigenous run organizations(48-49) whereas others relied upon 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 program approaches, content, and implementation. In contrast, analysis and synthesis of the accompanying evaluations of these same training programs revealed clear and cross-cutting gaps in the demonstration of clinical- 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 and colleagues(47); Brewer and colleagues(39) and Barajas(37) all suggested, through their evaluations, that the training programs 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 upon voluntary

self-selection. Sample sizes were generally small and those that were longitudinal showed significant baseline to post-intervention loss 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 program. 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 three of 13 studies included tools designed to evaluate patient experience: a subset of patient interviews post-intervention(48) and

pre/post file audits.(44, 49) Interestingly, Liaw and colleagues 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 standardized 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 organization 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 organizational-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 and colleagues(45) noted that cultural safety research in general needs to advance tools that will measure these effects, and noted that organizational 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 pre-requisite knowledge, self-awareness and skills is critical to the success of cultural safety training and education programs. 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 program 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 organizational commitment and team involvement. Implementing mandated training alongside appropriate evaluations using file audits, simulation and/or standardized 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 programs they evaluated. Liaw and colleagues concluded that the strength of their program 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 formalized in the toolkit and delivered by the workshop, into practice."((48) p391) Hinton and colleagues(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 upon existing tailored Indigenous systematic review methodologies(27-29) to implement a method aimed at optimizing relevance for Indigenous peoples through: (1) co-design, co-leadership and co-authorship 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; (3) application of a data extraction tool developed in consultation with Indigenous community partners: the Southern Ontario Aboriginal Health Access Centre (SOAHAC) (Supplementary 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 ICS programs 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 programs and related evaluations. To optimize feasibility and study coherence, we did not include organizational level interventions as for this initial study. Instead, we limited our focus to interventions directed towards healthcare providers. We do recognize that it is likely that lasting system-level impacts will require interventions that are implemented and evaluated at both the individual and organizational 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 centering 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 organizations 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 organizations that are leading the work in this field, is required to advance training program evaluation design, implementation, analysis and dissemination. These investments would ensure that both the training programs 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.

AUTHORS' CONTRIBUTIONS

JS and DS conceptualized the systematic review. JS made significant contributions to the interpretation of the data. CZ carried out the database literature searches. SF and BJH screened titles and carried out data extraction. BJH 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. BJH, SF and JS drafted sections of the manuscript and DS commented on the manuscript in progress. All authors contributed to study design and interpretation of findings, and approved the final manuscript.

COMPETING INTERESTS

All authors have completed the ICMJE uniform disclosure form at qqq.icmje.org/disclosure-of-interest/. BJH, 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 programs 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.

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DATA SHARING

Most of the data generated or analysed as well as the WLHQAT applied during this study are publicly available. Additional materials are available upon request from the corresponding author.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethics approval and consent to participate were not required for this study.

REFERENCE LIST

1. Commission on Social Determinants of Health (CSDH). Social Determinants and Indigenous Health: The International Experience and Its Policy Implications. Adelaide: International Symposium on the Social Determinants of Indigenous Health. 2007 Apr [cited 2023 Jan 6]. 40 p. Available from: https://nativehealthdatabase.net/node/17216

2. Stephanovich O. Pope Francis apologizes to Indigenous delegates for “deplorable” abuses at residential schools. CBC News [Internet]. 2022 Apr 1 [cited 2023 Jan 6]. Available from: https://www.cbc.ca/news/politics/pope-francis-responds-indigenous-delegations-final-meeting-1.6404344

3. Yardely J, Neuman W. In Bolivia, Pope Francis Apologizes for Church’s ‘Grave Sins’. New York Times [Internet]. 2015 Jul 9 [cited 2023 Jan 6]. Available from: https://www.nytimes.com/2015/07/10/world/americas/pope-francis-bolivia-catholic-church-apology.html

4. Parliament of Australia. Prime Minister Kevin Rudd, MP—Apology to Australia’s indigenous peoples [television broadcast]. 2008.

5. Spencer G. Queen Signs Historic Maori Land Settlement. AP News. 1995 Nov 2 [cited 2023 Jan 6]. Available from: https://apnews.com/article/808c85d946ad2a26c29813a2403e808e

6. Jackson M. In the end “The hope of decolonization”. In: McKinley E, Tuhiwai Smith L, editors. Handbook of Indigenous education. Singapore: Springer; 2019. P. 101-10.

7. Wolfe P. Settler colonialism and the elimination of the native. J Genocide Res. 2006 Dec; 8(4): 387–409.

8. Reid P, Cormack D, Paine SJ. Colonial histories, racism and health—The experience of Māori and Indigenous peoples. Public Health. 2019 Jul; 172: 119–24.

9. Zuberi T. Thicker than blood. How Racial Statistics Lie. Minnesota (USA): University of Minnesota Press; 2013.

10. National Collaborating Centre for Indigenous Health. Reading C. Social Determinants of Health: Understanding Racism. [Internet] Vancouver (CA): NCCIH; 2020 [updated 2020 Sep 08; cited 2023 Jan 6]. Available from: https://www.nccih.ca/495/Understanding_racism.nccih?id=103.

11. Paine S, Cormack D, Reid P, Harris R, Robson B. Kaupapa Māori-informed approaches to support data rights and self-determination. In: Walter M, Kukutai T, Carroll S, Rodriguez-Lonebear D, editors. Indigenous Data Sovereignty and Policy. Oxfordshire (GB): Routledge; 2020. P. 187-203

12. Youé C. Settler colonialism or colonies with settlers? Can J Afr Stud Rev Can Études Afr. 2018; 52(1): 69–85.

13. Allan B & Smylie J, First Peoples, second class treatment: The role of racism in the health and well-being of Indigenous peoples in Canada. (2015). Toronto. The Wellesley Institute

14. Harding L. What's the harm? Examining the stereotyping of Indigenous peoples in health systems. 2018.

15. Smylie J, Harris RB, Paine S, et al. Beyond shame, sorrow, and apologies – action to address Indigenous health inequities. BMJ 2022; 378:o1688

16. Nerestant A. Racism, prejudice contributed to Joyce Echaquan's death in hospital, Quebec coroner's inquiry concludes. CBC News [Internet]. 2021 Oct 01 [cited 2023 Jan 6]. Available from: https://www.cbc.ca/news/canada/montreal/joyce-echaquan-systemic-racism-quebec-government-1.6196038

17. CBC News. Atikamekw community "shocked" by François Legault comments on Joyce Echaquan's death. CBC News [Internet]. 2022 Sep 17 [cited 2023 Jan 6]. Available from: https://www.cbc.ca/news/canada/montreal/atikamekw-shocked-legault-joyce-echaquan-comment-1.6586853

18. Hall WJ, Chapman MV, Lee KM, Merino YM, Thomas TW, Payne BK, et al. Implicit Racial/Ethnic Bias Among Health Care Professionals and Its Influence on Health Care Outcomes: A Systematic Review. Am J Public Health. 2015 Dec; 105(12): e60–76.

19. FitzGerald C, Hurst S. Implicit bias in healthcare professionals: a systematic review. BMC Med Ethics. 2017 Mar; 18(1): 19.

20. Green AR, Carney DR, Pallin DJ, Ngo LH, Raymond KL, Iezzoni LI, et al. Implicit Bias among Physicians and its Prediction of Thrombolysis Decisions for Black and White Patients. J Gen Intern Med. 2007 Sep; 22(9): 1231–8.

21. The Truth Reconciliation Commission of Canada. Honouring the Truth, Reconciling for the future: summary of the final report of the Truth and Reconciliation Commission of Canada. 2015

22. Churchill M, Parent-Bergeron M, Smylie J, Fridkin A, Smylie D, Firestone M. Evidence Brief: Wise Practices for Indigenous-specific Cultural Safety Training Programs [Internet]. Toronto: Well Living House Action Research Centre for Indigenous Infant, Child, and Family Health and Wellbeing; 2017 Aug [cited 2022 Jan 06]. 21 p. Available from: http://www.welllivinghouse.com/wp-content/uploads/2019/05/2017-Wise-Practices-in-Indigenous-Specific-Cultural-Safety-Training-Programs.pdf

23. MacLean TL, Qiang JR, Henderson L, et al. Indigenous cultural safety training for applied health, social work, and education professionals: a PRISMA scoping review. 2023;20(6):5217

24. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ (Online). 2021 Mar; 372: n71.

25. Lefebvre C, Glanville J, Briscoe S, Littlewood A, Marshall C, Metzendorf M, et al. Searching for and selecting studies. In: Cochrane Handbook for Systematic Reviews of Interventions. Chichester, UK: John Wiley & Sons, Ltd; 2019. p. 67–107

26. Harrison H, Griffin SJ, Kuhn I, Usher-Smith JA. Software tools to support title and abstract screening for systematic reviews in healthcare: an evaluation. BMC Med Res Methodol. 2020 Jan; 20(1): 7.

27. Maddox R, Blais G, Mashford-Pringle A, Monchalin R, Firestone M, Ziegler C, et al. Reviewing Health Service and Program Evaluations in Indigenous Contexts: A Systematic Review. Am J Eval. 2021; 42(3): 332–53.

28. Morton Ninomiya ME, Atkinson D, Brascoupé S, Firestone M, Robinson N, Reading J, et al. Effective knowledge translation approaches and practices in Indigenous health research: a systematic review protocol. Syst Rev. 2017 Feb; 6(1): 34.

29. Smylie J, Kirst M, McShane K, Firestone M, Wolfe S, O'Campo P. Understanding the role of Indigenous community participation in Indigenous prenatal and infant-toddler health promotion programs in Canada: A realist review. Soc Sci Med. 2016 Feb; 150: 128–43.

30. Popay J, Roberts H, Sowden A, Petticrew M, Arai L, Rodgers M, et al. Guidance on the conduct of narrative synthesis in systematic reviews. A product from the ESRC methods programme Version. 2006 Apr; 1(1): b92.

31. Smylie J, Kaplan-Myrth N, McShane K, Métis Nation of Ontario-Ottawa Council Pikwakanagan First Nation Tungasuvvingat Inuit Family Resource Centre. Indigenous knowledge translation: baseline findings in a qualitative study of the pathways of health knowledge in three indigenous communities in Canada. Health Promot Pract. 2009 Jul; 10(3): 436–46.

32. Smylie J. Knowledge translation and Indigenous knowledge. A decolonizing perspective. In: Banister EM, Leadbeater BJ, Marshall A, editors. Knowledge Translation in community-based research and social policy contexts. Toronto: University of Toronto Press; 2011. p. 181–208.

33. Smylie J, Olding M, Ziegler C. Sharing What We Know about Living a Good Life: Indigenous Approaches to Knowledge Translation. J Can Health Libr Assoc. 2014; 35: 16–23.

34. Allan B, Smylie J. All our relations: Indigenous Women's Health in Canada. In: Varcoe C, Hankivsky O, Morrow MH, editors. Women's health in Canada: challenges of intersectionality. Toronto, CA: University of Toronto Press; 2022. p.116-117

35. Kirkness VJ and Barnhardt R. First Nations and higher education: the four R's - respect, relevance, reciprocity, responsibility. Journal of American Education. 1991; 30(3): 1-15.

766 36. Restoule JP. The five r's of Indigenous research: Relationship, respect, relevance,
767 responsibility, and reciprocity. Workshop presented at: Wise Practices II: Canadian
768 Aboriginal AIDS Network Research and Capacity Building Conference; 2008 Nov
769 26; Toronto.

770 37. Barajas JJ. Cultural Sensitivity for Healthcare Provides on the Tohono O'Odham
771 Nation: a Quality Improvement Project [dissertation]. Ann Arbor (USA): ProQuest
772 Dissertations Publishing; 2021. 92 p.

773 38. Barnabe C, Kherani RB, Appleton T, Umaefulam V, Henderson R, Crowshoe L.
774 Participant-reported effect of an Indigenous health continuing professional
775 development initiative for specialists. BMC Med Educ. 2021 Dec; 21(1): 116.

776 39. Brewer KM, McCann CM, Harwood MLN. Working with Māori adults with aphasia:
777 an online professional development course for speech-language therapists.
778 Aphasiology. 2020 Nov; 34(11): 1413–31.

779 40. Chapman R, Martin C, Smith T. Evaluation of staff cultural awareness before and
780 after attending cultural awareness training in an Australian emergency department.
781 Int Emerg Nurs. 2014 Oct; 22(4): 179–84.

782 41. Crowshoe L, Han H, Calam B, Henderson R, Jacklin K, Walker L, et al. Impacts of
783 Educating for Equity Workshop on Addressing Social Barriers of Type 2 Diabetes
784 With Indigenous Patients. J Contin Educ Health Prof. 2018 Dec; 38(1): 49–59.

42. Delbridge R, Wilson A, Palermo C. Measuring the impact of a community of practice in Aboriginal health. Stud Contin Educ. 2018 Jan; 40(1): 62–75.

43. Durey A, Halkett G, Berg M, Lester L, Kickett M. Does one workshop on respecting cultural differences increase health professionals' confidence to improve the care of Australian Aboriginal patients with cancer? An evaluation. BMC Health Serv Res. 2017 Dec; 17(1): 660.

44. Hinton R, Bradley P, Trauer T, Nagel T. Strengthening acute inpatient mental health care for Indigenous clients. Adv Ment Health. 2014 Aug; 12(2): 125–35.

45. Hulko W, Mahara MS, Wilson D, Campbell-McArthur G. Culturally safe dementia care: Building nursing capacity to care for First Nation Elders with memory loss. Int J Older People Nurs. 2021 Sep; 16(5): e12395.

46. Kerrigan V, Lewis N, Cass A, Hefler M, Ralph AP. "How can I do more?" Cultural awareness training for hospital-based healthcare providers working with high Aboriginal caseload. BMC Med Educ. 2020 Dec; 20(1): 173.

47. Kerrigan V, McGrath SY, Herdman RM, Puruntatameri P, Lee B, Cass A, et al. Evaluation of 'Ask the Specialist': a cultural education podcast to inspire improved healthcare for Aboriginal peoples in Northern Australia. Health Sociol Rev. 2022 May; 31(2): 139–57.

48. Liaw ST, Hasan I, Wade V, Canalese R, Kelaher M, Lau P, et al. Improving cultural respect to improve Aboriginal health in general practice: a multi-methods and multi-perspective pragmatic study. Aust Fam Physician. 2015 Jun; 44(6): 387-92.

49. Liaw S, Wade V, Furler JS, Hasan I, Lau P, Kelaher M, et al. Cultural respect in general practice: a cluster randomised controlled trial. Med J Aust. 2019 Apr; 210(6): 263–8.

50. McMichael B, Nickel A, Duffy EA, Skjefte L, Lee L, Park P, et al. The Impact of Health Equity Coaching on Patient's Perceptions of Cultural Competency and Communication in a Pediatric Emergency Department: An Intervention Design. J Patient Exp. 2019 Dec; 6(4): 257–64.

51. Sauvé A, Cappelletti A, Murji L. Stand Up for Indigenous Health: A Simulation to Educate Residents About the Social Determinants of Health Faced by Indigenous Peoples in Canada. Acad Med. 2022 Apr; 97(4): 518–23.

52. Wheeler AJ, Hu J, Tadakamadla SK, Hall K, Miller A, Kelly F. Development and feasibility testing of a training programme for community pharmacists to deliver a culturally responsive medication review intervention. Pilot Feasibility Stud. 2022 Dec; 8(1): 51.

53. Curtis E, Jones R, Tipene-Leach D, Walker C, Loring B, Paine SJ, et al. Why cultural safety rather than cultural competency is required to achieve health equity: a

literature review and recommended definition. Int J Equity Health. 2019 Nov; 18(1): 174.

54. Ramsden IM. Cultural safety and nursing education in Aotearoa and Te Waipounamu [dissertation]. Wellington (NZ): Victoria University of Wellington; 2002. 211 p.

55. Badger LW, deGruy F, Hartman J, Plant MA, Leeper J, Ficken R, et al. Stability of standardized patients' performance in a study of clinical decision making. Fam Med. 1995 Feb; 27(2): 126–31.

56. Colliver JA, Vu NV, Marcy ML, Travis TA, Robbs RS. Effects of examinee gender, standardized-patient gender, and their interaction on standardized patients' ratings of examinees' interpersonal and communication skills. Acad Med. 1993; 68: 153–7.

57. Rethans JJ, Boven CP van. Simulated patients in general practice: a different look at the consultation. Br Med J Clin Res Ed. 1987 Mar; 294(6575): 809–12.

58. Abad-Arranz M, Moran-Rodriguez A, Mascarós Balaguer E, Quintana Velasco C, Abad Polo L,

Núñez Palamo S, et al., Community Assessment of COPD Health Care (COACH) study: a clinical Audit on primary care performance variability in COPD Care. BMC Med Res Methodol. 2018; 18(1): 68-68

59. Crabtree A, Sundararaj JJ, Pease N. Clinical audit?—invaluable! BMJ Support Palliat Care. 2020 June; 10(2): 213-5

60. Kirkpatrick D. Great ideas revisited: Techniques for evaluating training programs. Train Dev. 1996; 50(1): 54.

LIST OF ABBREVIATIONS

Well Living House Quality Appraisal Tool (WLHQAT)

South Ontario Aboriginal Health Access Centre (SOAHAC)

ACKNOWLEDGEMENTS

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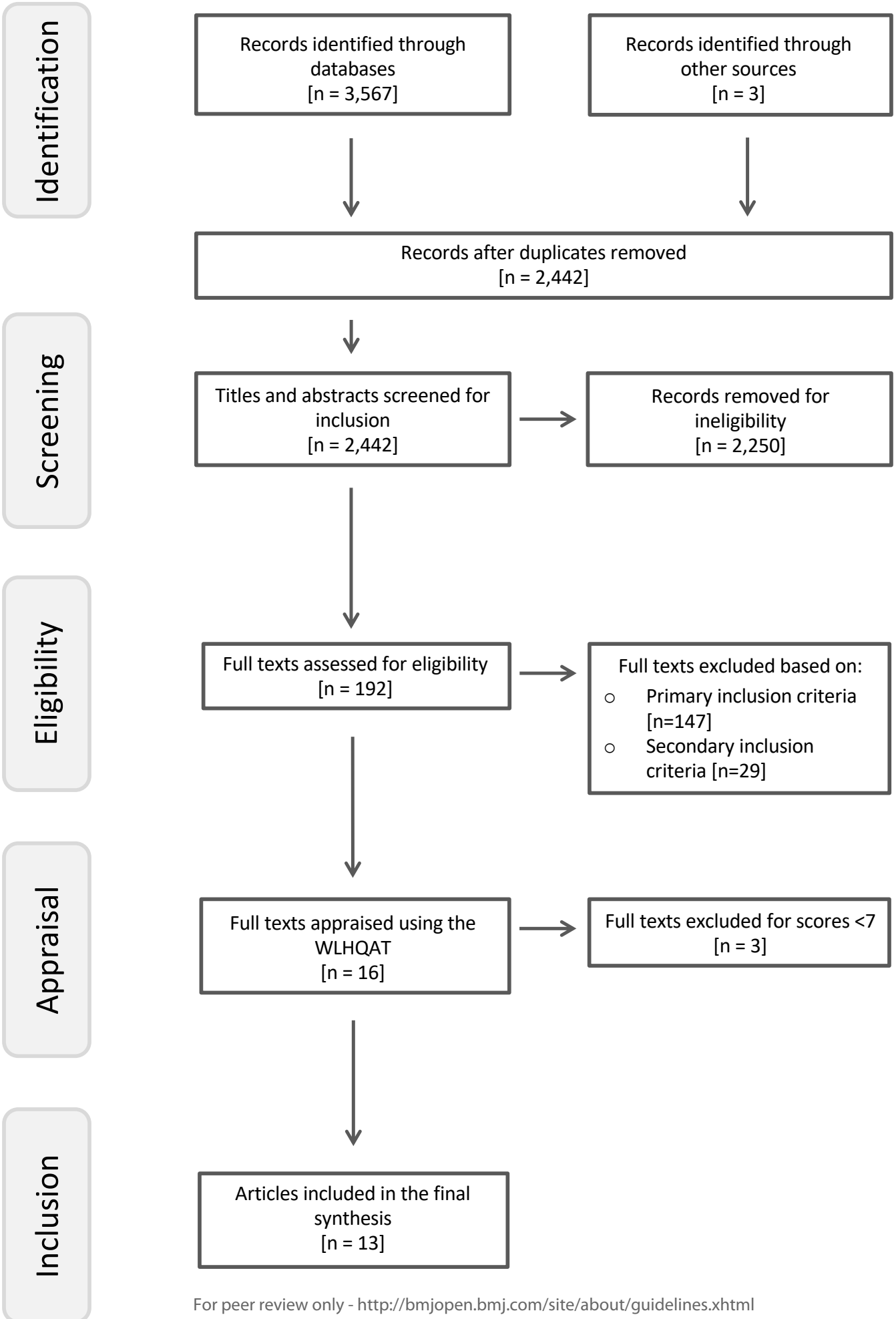

Supplementary Figure 2

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
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32 or/27-31 169128
33 Education/ 608
34 curriculum/ 1584
35 competency-based education/ 89
36 exp education, professional/ 5404
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42 Transcultural Nursing/ed [Education] 0

43 exp Culture/ed [Education] 1
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45 (professional development or staff development).tw,kf. 475
46 or/33-45 200177
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1 exp indigenous populations/ 15198
2 tribes/ 1259
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9 cultural awareness.tw. 1291
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13 cross-cultural.tw. 37152
14 cultural* respect*.tw. 101
15 anti-racis*.tw. 836
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18 colonial*.tw. 6809
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21 medical residency/ 4825
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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
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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:

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			

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	Identify the report as a systematic review.	pg.1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	pg. 2-3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	pg. 3-5
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	pg. 5
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	pg. 10-11
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	pg. 5 & 10
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Suppl. Fig. 1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 10-12
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	pg. 10-12 & Suppl. Files 1 & 2
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	pg. 10-12
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	pg. 10-12
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	pg. 10-12; Suppl. Files 1 & 2
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	pg. 11-12
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	N/A
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	pg. 14-15
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A

PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	pg. 15 & Suppl. Fig. 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	pg. 15
Study characteristics	17	Cite each included study and present its characteristics.	pg. 15-17 & Table 1
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	N/A
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	Tables 1-3
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	pg. 15-17
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	pg. 17-24
	23b	Discuss any limitations of the evidence included in the review.	pg. 3 & 24-25
	23c	Discuss any limitations of the review processes used.	3 & 24-25
	23d	Discuss implications of the results for practice, policy, and future research.	pg. 21-25
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Not Registered; Publically available via link
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	http://www.welllivinghouse.com/indigenous-cultural-safety-protocol/
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	pg. 27
Competing interests	26	Declare any competing interests of review authors.	pg. 26-27
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	pg. 27

From: Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71

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