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Review

Review

Interventions to improve cultural competency in health care for Indigenous peoples of Australia, New Zealand, Canada and the USA: a systematic review

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Abstract

Purpose: This article describes the characteristics and reviews the methodological quality of interventions designed to improve cultural competency in health care for Indigenous peoples of Australia, New Zealand, Canada and the USA.
Data sources: A total of 17 electronic databases and 13 websites for the period of 2002–13.
Study selection: Studies were included if they evaluated an intervention strategy designed to improve cultural competency in health care for Indigenous peoples of Australia, New Zealand, the USA or Canada.
Data extraction: Information on the characteristics and methodological quality of included studies was extracted using standardized assessment tools.
Results of data synthesis: Sixteen published evaluations of interventions to improve cultural competency in health care for Indigenous peoples were identified: 11 for Indigenous peoples of the USA and 5 for Indigenous Australians. The main types of intervention strategies were education and training of the health workforce, culturally specific health programs and recruitment of an Indigenous health workforce. Main positive outcomes reported were improvements in health professionals' confidence, and patients' satisfaction with and access to health care. The methodological quality of evaluations and the reporting of key methodological criteria were variable. Particular problems included weak study designs, low or no reporting of consent rates, confounding and non-validated measurement instruments.
Conclusion: There is a lack of evidence from rigorous evaluations on the effectiveness of interventions for improving cultural competency in health care for Indigenous peoples. Future evaluations should employ more rigorous study designs and extend their measurement of outcomes beyond those relating to health professionals, to those relating to the health of Indigenous peoples.

Key words: cross-cultural issues, patient-centred care, equity in health care, access to care

Purpose

Health disparities between Indigenous and non-Indigenous peoples are well recognized [1]. The social determinants of health (e.g. social, political and economic factors) and those embedded in Indigenous peoples' historical experiences (e.g. loss of land and culture, transgenerational trauma, grief and loss, racism and social exclusion) are widely recognized as leading causes of the disproportionately high rates of illness and disease found in Indigenous populations [2]. There is also growing recognition of the role of social and cultural factors in the provision of health care to Indigenous peoples [3, 4].

Cultural competence is a broad concept used to describe a variety of strategies designed to improve the accessibility and effectiveness of health care for people from ethnic/racial minority groups [5]. The concept of cultural competence first emerged in the USA in the 1980s and was focused on improving interactions between health professionals and immigrants from non-English-speaking countries [6]. Since then, numerous models and frameworks have been used to conceptualize it [4, 5], and its scope has expanded to include improving the capacity and ability of health-care organizations and systems to improve health-care access and health outcomes of specific cultural groups [6].

There is a substantial amount of international literature on the importance of cultural competence in health care [6, 7]. Cultural competence has been incorporated into health policy documents [7, 8] and professional accreditation standards [9], strengthening its legitimacy. Despite the growing prominence of cultural competence in health-care research, policy and practice, there is a lack of consensus as to the most effective ways to improve cultural competency in health care [5, 6]. Existing reviews provide some evidence on the effectiveness of strategies designed to improve cultural competence at the level of the health professional, organization and patient [6]. This evidence, however, is largely derived from evaluations of interventions designed to improve cultural competency in health care for ethnic/minority groups in the USA. A recently published systematic review of reviews of interventions to improve cultural competency in health care [6] identified only one review focused on Indigenous Australians [9] and none on the Maori of New Zealand or First nation people of Canada. Outcomes of cultural competency interventions for Indigenous peoples in one of these countries are likely to be applicable to Indigenous peoples in the other countries, in so much as they exist as formerly colonized peoples that receive a significant portion of their health care from members and institutions of their settler colonial society [1]. The aims of this review are to first identify published evaluations of interventions designed to improve cultural competence in health care for Indigenous peoples of Australia, New Zealand, Canada or the USA; second, to review the key characteristics and outcomes of these interventions to determine which are effective for improving cultural competence in health care for Indigenous peoples; and third, to examine their methodological quality.

Data sources

Consistent with methods detailed in Cochrane Guidelines for systematic reviews [10] and used in previous systematic reviews [11, 12], the search strategy comprised two key steps (Fig. 1).

First, consultation with a qualified librarian identified 17 relevant electronic databases to search: Indigenous Australia, Indigenous Studies Bibliography: AIATSIS, ATSIHealth, APAIS-ATSIS, FAMILY-ATSIS, Informit Indigenous Collection, Campbell Library, EBM Reviews/Cochrane DSR/ACP Journal Club/DARE, PsycINFO, PsycEXTRA, Medline, Embase, CINAHL, Global Health, PAIS and Sociological Abstracts. Separate searches for each database for the time period 2002–13 (July) using database-specific subject headings and keywords were undertaken. The time period chosen reflects that government policies mandating cultural competence did not occur at least until the early 2000s [8]. Electronic databases were searched individually with specific search strings, because this method is more effective at identifying relevant articles than a simultaneous search using generic search terms [10]. The search groups (i.e. groups of subject headings and keywords) included: (Indigenous OR Aborigine* OR Torres Strait Islander OR Native Americans OR Inuit OR Maori OR First Nations) AND (cultural competence* OR cultural sensitivity OR cultural safety OR cultural security OR cultural awareness OR cultural literacy OR cultural respect OR cultural framework OR health disparities OR health-care disparities) AND (Intervention OR evaluation OR outcome assessment OR policy OR program). All subject headings were exploded so that narrower terms were included. The combined searches of the 17 databases identified 1005 references (after removal of duplicates) that were imported into Endnote. To maximize coverage of studies, Indigenous-specific national websites were searched (Australia: Indigenous HealthInfoNet and Closing the Gap Clearinghouse, Canada: The National Collaborating Centre for Aboriginal Health and National Aboriginal Health Organization, New Zealand: Maori Health and USA: American Indian Health). A total of 14 additional studies were identified. These were reviewed using hardcopy printouts because the databases lacked the capacity to export references to Endnote.

Second, reference lists from reviews of interventions to improve cultural competency in health care identified by Step 1 ($n = 13$) were hand-searched for relevant studies not yet identified [6, 13–23]. This process identified three additional relevant studies [24–26].

Study selection

The abstracts of studies ($n = 1022$) were manually examined by the first author (AC). This initial screening was repeated by two other authors (JM and RB), and any disagreements were resolved by discussion by all authors (AC, JM, RB and KT) until consensus was reached. Studies were included if they (i) evaluated an intervention strategy designed to improve cultural competency in health care for Indigenous peoples of Australia, New Zealand, USA or Canada. This included studies evaluating strategies to improve the cultural competency of health professionals working with Indigenous peoples, health-care programs or services delivered for Indigenous peoples, and Indigenous peoples' access to culturally competent health care; and (ii) reported on the effectiveness of the intervention strategy (i.e. reported outcomes related to people participating in the intervention). A total of 998 studies were excluded, leaving 24 studies. The full-text articles of these 24 studies were obtained and examined by two of the authors (A.C. and R.B.). Eight studies were excluded as they did not evaluate the intervention or adequately report outcomes of the evaluation. Sixteen intervention studies were retained for review.

Data extraction

Criteria for data extraction from studies were adapted from the Cochrane Collaboration Handbook for Systematic Reviews of Health Promotion and Public Health Interventions [10]. As summarised in Table 1, the criteria relate to the intervention/s type and components, study population and setting, sample size, study design, outcomes measured and intervention effectiveness. Due to the heterogeneity

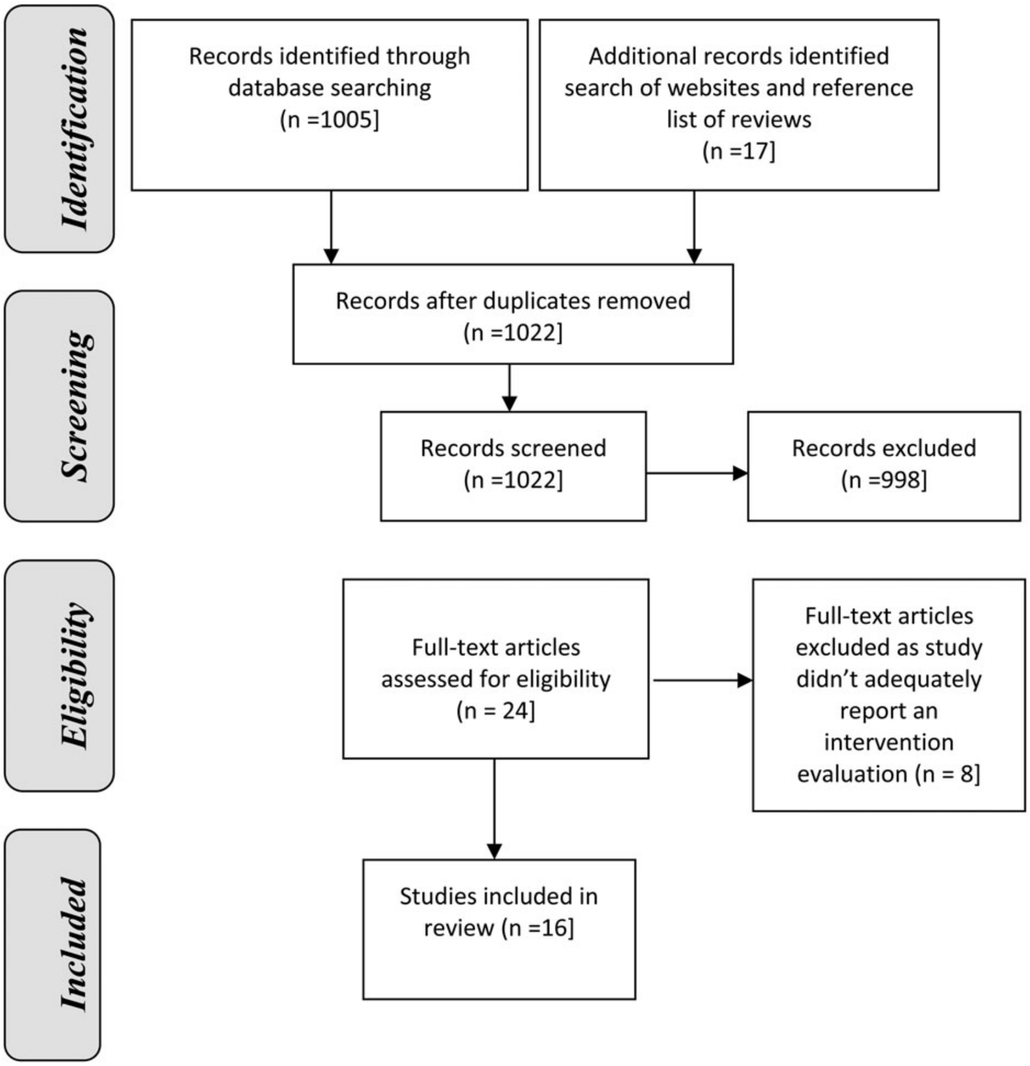

Figure 1 Flow chart of search strategy.

between the studies in terms of the study design, interventions and outcomes measured, we performed a narrative review rather than a meta-analysis.

The methodological quality of studies was assessed using criteria from the Dictionary for the Effective Public Health Practice Project Quality Assessment Tool for Quantitative Studies. Specific criteria included selection bias, study design, confounders, data collection and withdrawal and dropouts. Criteria were coded weak, moderate or strong, consistent with the component rating scale of the dictionary. Descriptive information for intervention integrity and data analysis was recorded using dictionary recommendations as a guide [10].

Results of data synthesis

Table 1 summarizes the characteristics of intervention evaluations.

Indigenous populations

Eleven studies evaluated interventions to improve cultural competence in health care for Indigenous peoples of the USA, including Native Americans [29, 31, 33, 36, 37, 39, 40], Native Hawaiians [27, 28, 34] and Native Alaskans [25]. Five studies targeted Indigenous Australians [24, 26, 30, 32, 35]. No study targeted the Maori peoples of New Zealand or First Nation peoples of Canada.

Study population and sample

The study population included health professionals ($n = 11$ studies) and/or specific Indigenous patient groups ($n = 6$ studies). Health professionals included pharmacists [32]; Indigenous health workers [25, 26, 29, 35]; health professionals in general [35, 37]; non-Aboriginal health professionals in general [24]; community practitioners [27]; undergraduate medical [30], nursing and health science [36] students; and postgraduate counseling students [33]. Seven of the 11 studies with a study population of health professionals reported the sample size ranging from 11 to 374 [24, 30–33, 35, 37]; three reported the age of participants ranging from 18 to 61 years [27, 33, 36]; and four reported the percentage of female participants 81% [292], 70% [36], 58% [37] and 40% [32].

Indigenous patient groups included those with cancer [27, 29, 37, 39], diabetes [26], cardiovascular problems [34] and who smoke tobacco [38]. All six studies with a study population of Indigenous patients reported the sample size ranging from 14 to 317 [26, 28, 29, 34, 37, 39], five reported the age of participants ranging from 24 to 79

Table 1 Characteristics of evaluations of interventions to improve cultural competency in health care

First author, publication date	Indigenous population	Study population/ setting	Intervention type and components	Study design	Outcome measures	Follow-up	Positive outcomes
Ka' opua, [2003]	Native Hawaiians	11 community practitioners (10 female; age: 30–61 years, mean age = 50 years)	*Education and training*: 16-h manual-based training delivered to community practitioners combining adult pedagogical strategies with Native Hawaiian cultural practices.	Pre–post survey, no control group	Knowledge of native healing practices and intervention protocols and application of knowledge	Post-training (F/up = 91%)	Significant increases in knowledge ($P < 0.01$); no significant improvement in application of knowledge.
Braun *et al.*, [2005]	Native Hawaiian	16 Hawaiian civic clubs 121 club members (mean age: 65.7 years. 72% were female, 90% were Native Hawaiian)	*Culturally specific program*: tailored cancer screening education delivered by Native Hawaiian physician and cancer survivor.	Randomised controlled trial(RCT)	Patient satisfaction, knowledge, attitudes, intentions, self-efficacy, screening	4–16 weeks (F/up = 95%)	Intervention group more likely to rate intervention as culturally appropriate ($P < 0.05$) and enjoyable. No significant changes in knowledge, attitudes, self-efficacy and screening.
Dignan *et al.*, [2005]	Native Americans	157 Urban breast cancer services/ Native American women ≥40: mean age = 54.2 years	*Indigenous health workforce*: indigenous patient navigators (Native sisters): tailored education brochure and provision of education and support from navigator to patient.	RCT	Adherence to mammography screening guidelines	6 months (F/up = 71%)	Significant within group increase in women reporting mammography screening: face to face, 31%; phone, 42%.
Mooney *et al.*, [2005]	Indigenous Australian	91 Urban health service/ non-Aboriginal health professionals	*Education and training*: half-day cultural awareness training workshop delivered by Indigenous health workers to non-Aboriginal health professionals.	Pre–post with historical control	Knowledge, attitudes	Up to 1 week (F/up = NR)	Significant improvement in participants' familiarity of friendships with Aboriginal people ($P < 0.05$). Significant increase in understanding that Aboriginal people have complex health problems ($P < 0.01$). No significant increase in attitudes toward Aboriginal people.
Paul *et al.*, [2006]	Indigenous Australian	224 University/ Australian medical students	*Education and training*: Aboriginal Health Curriculum delivered to undergraduate medical students (37–150 h over 6 years)	Cohort with historical control	Self-perceptions of readiness and commitment to improve health of Aboriginal people	Post-graduation (F/up = 76 and 85%)	Significant improvements ($P < 0.05$) in preparedness to work with Aboriginal people; play an advocacy role and responsibility to work for change in Aboriginal health.
Si *et al.*, [2006]	Indigenous Australians	7 Remote community health centers 137 Aboriginal patients (62% female; age range (>35 <65)	*Indigenous health workforce:* employment of Indigenous health workers to improve diabetes care in remote Aboriginal communities in Australia	Pre–post clinical audit with repeated measures	Delivery of guideline-specified diabetic services; outcomes of diabetes care (HbA1C, BP)	6 m, 1, 2 and 3 years (F/up = 78%)	Improved adherence to delivery of diabetes services ($P < 0.05$), clinical examinations. No improvement in patient outcomes.

McCabe *et al.*, [2006]	Native Americans	22 Health-care workers from Indian health services: nurse aides, health educators, ambulance driver and physician assistant	*Education and training*: 2-day didactic workshop on implementing the Navajo English diabetes curriculum versus 40-min video and study materials.	Pre–post survey with parallel control group	Diabetes knowledge, frequency of patient interpreting about diabetes, comfort level when interpreting, interpreting ability	Post-training and at 4 months (F/up = 95%)	No tests of significance: some % improvements in knowledge and skills reported across both groups. Greater improvements in quality of interpretations in intervention group.
McRae *et al.*, [2008]	Indigenous Australian	12 Pharmacies/ pharmacists (8 females) 47 Aboriginal health workers (AHWs)	*Education and training*: pharmacist-led education program combining culturally appropriate teaching methods by pharmacy academics and 4-h cultural awareness programs delivered by Aboriginal trainer.	Post-test with repeated measures	Knowledge, confidence attitudes, program acceptability	2 Follow-ups post-program completion (F/up = 85%)	Significant improvements in pharmacists' confidence with Indigenous health issues and educating AHWs post-training and education of AHWs ($P \leq 0.01$).
Steinfeldt and Wong, [2010]	Native Americans	46 Counseling Masters students (22–50 years; mean age = 25.71 years; 81% female)	*Education and training*: 45-min training presentation on culturally sensitive counseling practices with Native American clients versus 45-min presentation addressing issues important to the use of Native-themed mascots to improve multicultural competence.	Pre–post with parallel control group	Racial attitudes, awareness of offensiveness of native theme mascots	Post-training presentation (F/up = 93%)	Significant within group improvements in attitudes and awareness ($P < 0.05$); no significant between-group differences. Positive relationship between racial attitudes and increased awareness of offensive native mascots for intervention group.
Cook *et al.*, [2010]	Native Hawaiian	Hospital/Native Hawaiian patients	*Culturally specific program:* tailored inpatient heart program using traditional education strategies, culturally tailored resources and principles of traditional healing methods.	Cohort with historical control	Quality of care, patient satisfaction and cardiovascular outcomes	NR	Percentage reductions in CV complications, re-admissions and patient satisfaction.
Hearn *et al.*, [2011]	Indigenous Australian	State health services/ health staff ($n = 374$)	*Education and training*: 1-day training workshop in a smoking brief intervention for Aboriginal clients using face-to-face interactive presentations, group work and case studies. Aboriginal and non-Aboriginal presenters.	Pre–post with historical control	Knowledge, skills, confidence, behaviors	6 months (F/up = 56 and 67%)	Significant higher proportion of intervention group more confident talking about health effects ($P = 0.001$), offering quit advice ($P = 0.001$), assessing readiness to quit ($P = 0.001$). Significantly more participants reported providing advice about Nicotine replacement therapy ($P = 0.001$), Environmental tobacco smoke ($P = 0.006$) and reducing tobacco use ($P = 0.034$).

continues

Table 1 Continued

First author, publication date	Indigenous population	Study population/ setting	Intervention type and components	Study design	Outcome measures	Follow-up	Positive outcomes
Walton, [2011]	Native Americans	65 Health science students 30 student nurses (18–45 years; 70% female)	*Education and training*: 60-min education presentation delivered by nurse.	Pre–post survey, no control group	Knowledge, awareness, beliefs, attitudes and critical reflection	Immediately post-intervention (F/up = NR)	Significant changes in some knowledge and awareness domains ($P < 0.01$).
Sanderson *et al.*, [2010]	Native American	14 Native American women with breast cancer (mean age 54 years, range: 44–67 years) 26 health professionals (58% female)	*Culturally specific program*: 12-min culturally specific breast cancer educational video for health professionals treating.	Post-test survey only, no control group	Knowledge, attitudes and beliefs	Post-video and 6 months (F/up = 76, 100%)	Descriptive statistics: 96% health professionals found video adequate and 100% utilization by those treating women with breast cancer.
D'Silva *et al.*, [2011]	Native American	317 Indian health clinics/Native American tobacco smokers (65% female; 70%, 25–54 years)	*Culturally specific program:* tobacco cessation treatment including cultural and historical characteristics and values and traditions. Four sessions with individual participants.	Pre–post survey, no control group	Program satisfaction, tobacco use and quit rates	90 days (F/up = 47%)	Patient satisfaction >90% Quit rate = 21.8%
Guadagnolo *et al.*, [2011]	Native Americans	52 Native American cancer patients (median age = 62 years; age range: 24–79; 60% male)	*Culturally specific program:* patient navigation by trained culturally competent staff (training in Native American patients' beliefs and cultural practices).	Pre–post survey, no control group	Medical mistrust, patient satisfaction	Post-treatment (F/up = 53%)	Significant increase ($P < 0.0001$) in mean score for satisfaction. No significant difference for medical mistrust.
Wetterhall *et al.*, [2011]	Native Alaskans	6 Remote dental clinics/233 caregivers of native Alaskan patients (233)	*Indigenous health workforce:* Indigenous dental therapists trained to work in remote Alaskan villages.	Post-test only	Patient satisfaction, access to dental care	F/up = NA	Descriptive statistics reporting % in satisfaction with care reported.

NR = not reported.

years [26, 28, 29, 31, 38] and the percentage of female participants was 100% [29, 37], 72% [28], 65% [38], 62% [26] and 40% [39].

Intervention strategies and their effectiveness

There were three main types of intervention strategies among the studies: education and/or training of health professionals or health students. [24, 27, 30, 31, 33, 35, 36], culturally specific health programs or resources for Indigenous people [28, 31, 34, 37, 38] and Indigenous health workers [25, 26, 29].

Education and/or training of health professionals

Seven studies delivered education and/or training to health professionals. Education and training sessions were delivered using didactic (e.g. video, study materials), interactive (e.g. group work and case studies) and experiential (e.g. field trips and placements) methods. The duration of education and training interventions varied and included brief educational sessions of 60 min or less [33, 36], training workshops of half a day to 2 days duration [24, 31, 35] and curriculum delivered over a number of weeks [27, 30]. Measured outcomes of education and training interventions focused on knowledge and confidence related to cultural competency. Knowledge outcomes measured by studies included health professionals' knowledge of Indigenous health issues [24, 30–32], cultural concepts [27, 36] and specific Indigenous health problems [31]. Confidence-related outcomes included health professionals' confidence to deliver health care to Indigenous people [24, 30, 31, 35] and work with Indigenous health professionals [32]. While four of the five studies measuring confidence reported statistically significant improvements in this outcome [24, 30, 32, 35], only two of the seven studies measuring knowledge reported statistically significant improvements ($P < 0.01$; <0.05) in at least one knowledge outcome [24, 27].

In addition to knowledge and confidence outcomes, attitude and skill outcomes were measured by two studies each [24, 33]. Attitude outcomes measured included health professionals' general attitudes toward Indigenous Australians [24] and racial stereotypes of Native Americans [40]. Skill outcomes measured included communication skills [31] and frequency of treatment delivery [35]. McCabe *et al.* [31] used audiotapes to measure Indigenous health workers' ability to communicate diabetes results to Indigenous patients, while Hearn *et al.* [35] measured changes in health professionals' frequency of delivering a brief intervention to Indigenous people who smoke. Hearn *et al.* [35] reported statistically significant improvements ($P < 0.001$) in health professionals' rates of delivering brief intervention; however, these were assessed using self-report.

Culturally specific programs

Six studies evaluated culturally specific health program for Indigenous peoples [28, 34, 37–40]. These programs were generally described as 'culturally tailored' or 'culturally sensitive.' The main outcomes measured included health-care delivery, patient satisfaction and health outcomes. 'Culturally tailored' programs were those developed for the general population then modified to improve their acceptability and accessibility to Indigenous people. For example, Braun *et al.* [28] culturally tailored an education intervention for colorectal cancer based on social learning theory to Native Hawaiians to improve their satisfaction with and rates of colorectal cancer screening. The intervention was delivered by a Native Hawaiian physician and cancer survivor. There was a statistically significant ($P < 0.05$) higher level of program satisfaction among participants in the intervention versus the control group, but there were no between-group differences in cancer screening rates [28]. D'Silva *et al.* [40] tailored a tobacco cessation treatment program for Native Americans. Inclusion of cultural and historical values and traditions into the program was a main feature of the tailoring process. An increase in patient satisfaction and a quit smoking rate of 21.8% were the main positive outcomes reported [27].

'Culturally sensitive' interventions were those designed specifically for Indigenous people. Cook *et al.* [34] and Guadagnolo *et al.* [39] implemented culturally sensitive models of care, the former to reduce disparities in Native Hawaiian cardiac outcomes and quality of care and the latter to reduce medical mistrust and to improve patient satisfaction among Native American cancer patients. Cook *et al.*'s model of care employed traditional education strategies, culturally tailored resources and principles of traditional healing methods. Reductions in the proportion of Native Hawaiians with cardiac complications were reported, but these were not statistically significant [34]. The main component of Guadagnolo *et al.*'s model of care was the utilization of culturally competent patient navigators trained in Native American cultural beliefs and practices. Statistically significant improvements in levels of patient satisfaction ($P < 0.0001$) but not medical mistrust were reported [39]. Another study evaluated the effect of a culturally specific breast cancer education video on treatment knowledge, attitudes and beliefs of Native American women with breast cancer [37]. Only post-test outcomes were reported.

Indigenous health workforce

Three studies increased Indigenous involvement in health-care delivery to Indigenous people. The main outcomes measured include health-care delivery [26, 29], patient satisfaction [25] and patient health outcomes [26]. One study employed Aboriginal health workers to improve the quality of diabetes care provided to remote Indigenous Australians [26]. Significant improvements in health professionals' adherence to diabetes care guidelines ($P < 0.05$) but not patients' diabetic outcomes were reported [26]. Of the remaining two studies, one trained remote Native Alaskans as dental therapists to increase remote Indigenous communities access to preventive dental care [25], while the other trained Indigenous community members as patient navigators to increase breast cancer screening rates in Native American women [29]. The former study only reported post-intervention outcomes [25], while the latter, a Randomised Controlled Trial (RCT), reported statistically significant improvements ($P < 0.05$) in breast cancer screening rates among Indigenous women receiving support from Indigenous patient navigators [29].

Methodological quality and reporting

Table 2 summarizes the methodological quality of studies.

Nine studies employed a pre–post study design [24, 26, 27, 31, 33, 35, 36, 39, 40]; five did not employ a control group [26, 27, 36, 39, 40], making it difficult to attribute outcomes reported to the intervention. Only two studies employed randomization [28, 29], making it unlikely that the sample population is representative of the target population for the majority of studies. Only one of eight studies employing a control group reported blinding, although the nature of interventions implemented would make effective blinding difficult. Only one of the eight studies employing a control group was rated strong for confounding on the basis that there were no important differences between groups prior to the intervention [28]. Of the other seven studies, one was rated moderate because important differences between groups were identified but not adequately controlled for in the analysis [29] and six were rated weak because their

Table 2 Methodological quality of cultural interventions to improve cultural competency in health care

Publication [Year]	Selection bias	Study design	Confounders	Data collection	Withdrawal and dropouts
Ka' opua [2005]	Moderate	Moderate	NA	Weak	Strong
Braun *et al.* [2005]	Weak	Strong	Strong	Moderate	Strong
Dignan *et al.* [2005]	Weak	Moderate	Moderate	Strong	Moderate
Mooney *et al.* [2005]	Weak	Moderate	Weak	Weak	Weak
Paul *et al.* [2006]	Moderate	Moderate	Weak	Strong	Moderate
Si *et al.* [2006]	Strong	Moderate	NA	Strong	Moderate
McCabe *et al.* [2006]	Weak	Strong	NR	Weak	Strong
McRae *et al.* [2008]	Weak	Weak	NA	Weak	Strong
Sanderson *et al.* [2010]	Weak	Weak	NA	Weak	Moderate
Steinfeldt *et al.*, [2010]	Moderate	Moderate	Weak	Strong	Strong
Cook *et al.* [2010]	Strong	Moderate	Weak	Strong	Weak
Hearn *et al.* [2011]	Weak	Moderate	Weak	Weak	Moderate
Walton [2011]	Weak	Moderate	NA	Weak	Weak
D'Silva *et al.* [2011]	Moderate	Moderate	NA	Moderate	Weak
Guadagnolo *et al.* [2011]	Moderate	Moderate	NA	Strong	Weak
Wetterhall *et al.* [2011]	Weak	Weak	NA	Moderate	NA

NR, not reported; NA, not applicable.

non-randomized design reduced the ability to sufficiently control for confounding variables [24, 30, 31, 33–35]. No study reported economic costs.

Nine out of the 16 studies collected outcome data using a previously tested or validated instrument [25, 26, 29, 30, 33–35, 39, 40]. For the other seven studies, the measurement instrument was not validated or reported [24, 27, 28, 31, 36, 37]. All of these studies measured outcomes of health professionals receiving cultural competency education and/or training.

Ratings for methodological quality criteria related to selection bias and withdrawal and dropouts were variable across studies. Nine of the 16 studies were rated weak for selection bias on the basis that <60% of eligible participants agreed to participate or the percentage of eligible participants was not reported [24, 25, 28, 29, 31, 32, 35–37]. Follow-up rates were reported by 12 studies and ranged from 47 to 95% [24, 26, 27, 29, 31, 33, 35, 37–40]. Three quarters of studies reporting follow-up reported rates >70% [24, 31, 32, 35, 39, 40]. Methods shown to optimize intervention fidelity were reported by nine studies and included trained or experienced intervention deliverers [24, 27, 29, 30, 33, 39, 40], support [29, 39] and manuals/protocols [27]. Only two studies provided a citation to justify their method of statistical analysis [32, 39].

Discussion

Consistent with previous reviews, few published evaluations of interventions to improve cultural competency in health care for Indigenous peoples were identified in the peer review and grey literature, and the methodological quality of studies was less than optimal. More than two-thirds of the studies were from the USA, with the remaining studies from Australia. No studies were from Canada or New Zealand. One possible explanation for the majority of studies being from the USA is that guidelines and standards for cultural competency are embedded in federal and state health policy and reporting requirements [41]. New Zealand also has embedded cultural competency within national legislation, but this has been a more recent addition [42]. In Australia, the concept of cultural competency is referenced in health professional competencies [5] and has been incorporated into health policy documents [8, 44].

Strengths and limitations of interventions

The studies in this review focused on different types of interventions. Even studies evaluating the same type of intervention strategy targeted different groups in different settings and measured different outcomes. This heterogeneity in intervention strategies and their implementation makes it difficult to generate empirical evidence on the effectiveness of specific strategies and knowledge of the best ways to implement and evaluate them.

The three main types of intervention strategies evaluated across studies—education and/or training of health professionals, culturally specific programs for Indigenous peoples and an Indigenous health workforce—were consistent with a framework of linking intervention strategies to social and cultural barriers to health care at the clinical (e.g. health professionals' knowledge), structural (e.g. culturally tailored health care) and organizational (e.g. Indigenous health workforce) levels [4]. This suggests that strategies employed by interventions were matched to address sociocultural barriers to health care for Indigenous peoples.

Intervention strategies generally had some evidence for their effectiveness. However, intervention strategies with the greatest potential to improve patient-related outcomes were not always employed. For example, education and/or training of qualified or training health professionals was the primary strategy employed by slightly less than half of all interventions. Although education and/or training of health professionals is an important component of an overall framework for cultural competence, it is generally insufficient to change health professionals' behavior [21], and in turn, patient-related outcomes such as patient satisfaction, adherence and health outcomes [20]. Improving these types of outcomes is likely to require structural changes at the level of the organization, to reinforce and sustain behavior change in health professionals [4]. Some strategies proposed for achieving this include embedding cultural competency in organizational policy, protocols and related key performance indicators [8]. Although there is some evidence that organizations that have integrated cultural competency standards into policies and practices influence health professionals to develop more culturally competent behaviors [43], more rigorous research is needed in this area.

Self-report was the most common method used by studies to assess outcomes. A questionnaire administered to health professionals and/

or patients was the most common type of self-report method. Reliance on self-report, even when bias is minimized by using validated measurement instruments, is problematic because the method is prone to bias [44]. For example, self-report at the individual level is subject to social desirability bias [45]. Two studies used self-report by health professionals to measure the impact of an intervention strategy on health-care delivery [31, 35]. The use of objective non-self-report measures, such as clinical audit data, would increase confidence in the validity of outcomes reported by these studies. The use of objective non-self-report measures is important for developing a stronger evidence base for the effectiveness of cultural competency interventions.

The rating of studies across methodological review criteria was variable. For example, more than one half of the 13 studies rated moderate or strong for study design were rated weak on at least two other methodological criteria. Selection bias and follow-up rates were rated weak for one half of all studies due to consent and/or follow-up rates <60%. The reporting of key methodological criteria was less than optimal, particularly for studies evaluating education and/or training interventions. Variable reporting of an intervention evaluation makes it difficult for the intervention to be replicated or adapted for other populations and settings and implemented more widely. No study reported costs. Economic analysis is important for understanding resources and the potential cost-effectiveness of intervention strategies designed to improve cultural competency in health care for Indigenous peoples and subsequent economic cost and social savings [46].

Overall, the evidence base for the effectiveness of interventions to improve cultural competency in health care for Indigenous peoples would be strengthened by evaluation studies that employ more rigorous study designs, recruit more representative samples, utilize validated measurement instruments and conduct high-quality economic evaluations.

Limitations

Although a rigorous and thorough search strategy was used, there is the possibility that the review did not locate all relevant studies. Relevant intervention evaluations may have been misclassified. However, a high level of agreement between blinded coders suggests otherwise. Since evaluations with statistically significant findings are more likely to be published, it is possible that the published evaluations reviewed overestimate the true effectiveness of interventions to improve cultural competency in health care for Indigenous peoples [47].

Conclusion

The results of this review suggest that there is insufficient evidence from published evaluations as to which intervention strategies are most effective for improving cultural competency in health care for Indigenous peoples in Australia, New Zealand, Canada and the USA. A number of clear recommendations for improving future evaluations can be posited. First, evaluations could be improved by more explicitly linking specific health professional outcomes (e.g. knowledge and confidence to deliver culturally competent health care) to patient outcomes of interest (e.g. quality of health care and health outcomes), to determine the extent to which changes in health professionals' outcomes translate to improvements in health care delivery to, and health outcomes of, Indigenous patients. Second, the further development and wider application of standardized, validated instruments to measure the effectiveness of cultural competence interventions are needed to enable reliable comparisons between studies. Third, given the heterogeneity of cultural competence interventions, it would be helpful if future evaluations compared similar types of interventions (e.g. cultural awareness training using experiential versus instructive learning). Fourth, researchers undertaking evaluations of cultural competence interventions should provide data on the resources and costs required for their implementation to enable economic analysis of the level of investment required to achieve a given outcome.

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