


## REVIEW ARTICLE

# Curriculum Indigenization in oral health professions' education worldwide: A scoping review

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**Abstract**

**Objective:** To explore the literature on Indigenous content within the oral health professions' education curricula.

**Methods:** This scoping review included all types of literature on oral health care educational programs on Indigenous content, following the JBI (Joanna Briggs Institute) methodology. An initial search using "Indigenous," "education," and "oral health" as keywords informed a full search strategy for MEDLINE, CINAHL, Embase, Scopus, ERIC, EPPI, MedEdPORTAL, Google Scholar, ProQuest Dissertations and Theses Global, Australian Government Department of Health, and Australian Indigenous HealthInfoNet. The search included literature available until November 1, 2023, irrespective of language. Two reviewers independently screened the studies, and data were extracted and presented in tabular and narrative summary formats.

**Results:** A total of 948 records were identified, and 101 studies were chosen for full-text review. Twenty-three studies met the criteria for data extraction. Of all studies, 95.6% were published between 2007 and 2021, mostly from Australia and New Zealand. The most frequently covered content included Indigenous culture, followed by history, Indigenous oral health, and Indigenous Peoples' health. Rural and clinical placements were the most employed delivery methods, and evaluation surveys were the most employed assessment technique. Barriers to delivering an Indigenous curriculum included students' disinterest and limited interaction with Indigenous communities, while facilitators included cultural immersion and supportive mentorship.

**Conclusion:** Despite progress in integrating Indigenous content into oral health education, challenges persist. Prioritizing Indigenous perspectives, community partnerships, and standardized assessment tools is needed. Future research should focus on long-term impacts and best practices for Indigenous curriculum development and delivery.

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## KEYWORDS

cultural competence, dentistry, education, Indigenous, oral health

## 1 | INTRODUCTION

There are estimated 476 million Indigenous peoples' worldwide, which make up 6% of the world's global population and represent more than 5000 cultures.<sup>1,2</sup> Although there is no official definition of Indigenous peoples, they are known through key features, including self-identification, historical continuity with pre-colonial or pre-settler societies, ancestral ties to territories and surrounding natural resources where they live or from which they have been displaced, and distinct cultural, social, economic, and political organizational structures.<sup>2,3</sup> United Nations Declaration on the Rights of Indigenous Peoples in 2007 states that Indigenous people have an equal right to receive the highest attainable standard of physical and mental health.<sup>4</sup> Yet, the health disparities between Indigenous and non-Indigenous populations remain universal and pervasive.<sup>5,6</sup> Colonialism, racism, and forced assimilation are at the root of health issues impacting them.<sup>6-8</sup> Furthermore, inequities in the availability and access of services, and failure to deliver care that is relevant, bias-free, and appropriate are also responsible for persistent gaps in health outcomes between Indigenous and non-Indigenous peoples worldwide.<sup>9</sup> Indigenous populations also experience a disproportionate inequity in oral health care in most countries.<sup>10-12</sup> The root cause of these disparities includes the fact that Indigenous people are less likely to receive timely oral health care services due to unavailability, lack of cultural appropriateness, inaccessibility of such services.<sup>13</sup>

The continued inequalities that Indigenous people experience call for professional training to enhance the likelihood of health professional graduates working proficiently and respectfully with Indigenous peoples.<sup>9</sup> Therefore, Indigenous content should be integrated in all levels of health professional training, including within university curricula.<sup>14-16</sup> Moreover, several studies have shown that education focusing on the specific needs of Indigenous people can improve knowledge, attitudes, skills, and behaviors related to providing equitable care.<sup>17-19</sup> In this regard, the accreditation process by the Australian Dental Council mandates the integration of Indigenous culture and knowledge within dental curricula.<sup>20</sup> In 2015, the Truth and Reconciliation Commission (TRC) of Canada released 94 Calls to Action. The TRC call to Action 23 urges the government to increase and retain Indigenous healthcare providers in Indigenous communities and to train all healthcare professionals in providing culturally

safe care for Indigenous peoples. Call to Action 24 requires medical and nursing schools in Canada to mandate a course on Indigenous health issues, including history, treaties, Indigenous teachings, and cultural competency<sup>1</sup> training. Additionally, calls to Action 10.3 and 62.2 recommend the development of culturally appropriate curricula and provide funding to post-secondary institutions to educate instructors on integrating Indigenous knowledge and teaching methods into classrooms, respectively.<sup>21</sup> The United States has also included teaching related to transparent cultural competencies in their medical schools, and between 2002 and 2010, there was a revision on the accreditation standards for U.S. dental schools to include cultural competency similar to medical schools.<sup>22,23</sup>

As different educational institutions across the globe seem to be at differing levels of implementing and evaluating approaches to improve education in Indigenous content,<sup>24</sup> exploring the literature around Indigenous the curriculum can help build on what has been achieved so far to improve efforts in Indigenous oral health and support ongoing development in this field.

An initial search was conducted through MEDLINE, the Cochrane Database of Systematic Reviews, and JBI Evidence Synthesis on Indigenous health content within all oral health providers' professional education. However, no literature was found that addresses the question proposed by this review. A systematic review by Francis-Cracknell et al.<sup>25</sup> published in 2018, for example, focused on examining the impact of the Indigenous healthcare curriculum on the preparedness of undergraduate health professional learners for delivering equitable healthcare. Yet, this review did not specifically address oral health, nor did it encompass other levels of post-secondary education, non-English literature, or grey literature. Another recent review by MacLean et al. in 2023 looked into Indigenous cultural safety training within the fields of health, social work, and education in four British colonial settler nations, with limited coverage of oral health literature.<sup>26</sup> In contrast, our study aims to comprehensively explore all available literature worldwide pertaining to Indigenous education for oral health care providers (such as dentists, dental hygienists, and dental therapists), including grey literature, and without language limitations.

This scoping review focuses on the following research question "To what extent are Indigenous content, delivery methods, and assessment addressed within all post-secondary educational levels (certificate programs, diploma undergraduate, graduate, postgraduate and

continuing education) of Oral health professions curricula?”, along with the following sub-questions:

- What are the Indigenous curriculum’s content?
- What are the Indigenous curriculum’s methods of delivery?
- What are the Indigenous curriculum’s assessment?
- What are the Indigenous curriculum’s barriers and facilitators?

## 2 | METHODS

This scoping review was conducted in accordance with the Joanna Briggs Institute (JBI) methodology for scoping reviews.<sup>27</sup> To provide a comprehensive picture of curriculum Indigenization, a scoping review was selected as the most appropriate method, given the exploratory nature of the research question.

### 2.1 | Eligibility criteria

#### 2.1.1 | Participants

This review only considered literature that included the Indigenous content delivered to oral health care providers in all post-secondary educational levels (certificate programs, diploma, undergraduate, graduate, postgraduate, and continuing education). The literature review focused on the following oral health care providers: graduated dentists, dental hygienists, and dental therapists as well as students enrolled in various oral health-related programs at different educational stages related to these three professions.

#### 2.1.2 | Concept

This review explored the concept of Curriculum Indigenization at the level of oral health care professional’s post-secondary education. This review’s definition of Curriculum Indigenization refers to any approach or philosophy of education characterized by delivering Indigenous content and cultural perspectives to oral health care professionals.

#### 2.1.3 | Context

The context is oral health care educational programs on Indigenous content at all post-secondary levels worldwide.

### 2.1.4 | Types of study

This scoping review considered all forms of evidence, including quantitative, qualitative, and mixed-method studies and grey literature sources. Systematic reviews and meta-analyses were also considered for inclusion. No restrictions were imposed on the earliest publication date, as information in this field is limited. There was also no language limitation on the text if the publication’s keywords were available in English. Literature was excluded if they had one of the following criteria:

- Literature that solely stated the presence of Indigenous program without providing details regarding the programs’ components (e.g., content, delivery methods, and assessment).
- Literature that did not provide English keywords, as the authors were not able to access that material.
- Absence of the full text of a literature for review (e.g., only abstract, conference poster was available).

### 2.2 | Search strategy

A systematic search following three steps, as recommended by the JBI methodology, was conducted.<sup>27</sup> An initial limited search of MEDLINE (via Ovid) and CINAHL was undertaken to identify literature on the topic, using the keywords of “Indigenous,” “education,” and “oral health,” and the first five articles in line with the study’s objective and concept were selected to extract a more elaborated set of keywords. Subsequently, the keywords used in the relevant literatures’ abstracts and titles and their indexed terms informed the development of a full search strategy in all included databases (Table 1). The selected literatures’ reference lists were also hand searched for additional papers. An individual search was conducted in each of the following databases: MEDLINE (via Ovid), CINAHL (via EBSCO), Embase, Scopus, ERIC, EPPI, and MedEdPORTAL. Additional records were identified through Google Scholar from the first 10 pages of the obtained results,<sup>28</sup> ProQuest Dissertations and Theses Global, Australian Government Department of Health, and HealthInfoNet. The search took place on November 1, 2023, and all studies available up to this date were included in the search.

### 2.3 | Study/source of evidence selection

Following the search in the selected databases, all identified literature were exported into Covidence (Veritas Health Innovation, Melbourne, Australia), a systematic

TABLE 1 Search strategy.

Databases searched	Search Strategy
- MEDLINE (via Ovid)—CINAHL (via EBSCO)—Embase—Scopus—ERIC—EPPi—MedEdPORTAL—ProQuest Dissertations and Theses Global	((educat* OR Curricul* OR pedagogy OR teach OR competenc* OR undergraduate OR graduate OR “continuing education” OR diploma OR college OR faculty OR “interprofessional education”) AND (Native Hawaiian OR “Other Pacific Islander” OR Indians OR aboriginal OR Inuits OR Metis OR “Indigenous Canadians” OR “Indigenous Peoples” OR Indigenous OR “First Nation” OR Maori OR “Maori People” OR eskimo OR Inuit) AND (Dent* OR “oral care” OR “oral health” OR “oral therapy”))
- Google Scholar—Australian Government Department of Health—HealthInfoNet.	Databases were searched manually

review management software that automatically removes duplicates. In the next phase, two reviewers independently screened all the titles and abstracts using the inclusion criteria to determine studies eligible for full-text review. The screening took place between November 2023 and April 2024. Any disagreements between the reviewers at each stage of the selection process were resolved by meeting and discussing until reaching a consensus and reasons for the articles' exclusion were documented. The results of the search and the study inclusion process was reported in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram (Figure 1).<sup>37</sup>

## 2.4 | Data extraction

A data extraction tool was developed based on the review's objectives. The extraction process was piloted using the first two included articles. Subsequent revisions were made in consultation with the third author which included separating barriers and facilitators into distinct columns, while combining the columns for Author's name, year of publication, and country into a single column.

## 2.5 | Data analysis and presentation

The extracted information regarding the number of Indigenous programs for oral health care providers education, level of education (certificate programs, diploma, undergraduate, graduate, postgraduate and continuing education), country, content, method of delivery, assessment, barriers, and facilitators of the Indigenous curriculum were analyzed. The extracted information is presented in a table including the authors, year of publication, country, study, target students, Indigenous population, and brief results regarding the programs' components to summarize and map out the existing literature. A narrative summary follows the table to further describe the findings.

## 3 | RESULTS

A total of 948 records were identified from the databases and manual searches, with 140 removed as duplicates. The remaining 808 records were screened by title and abstract, and 101 studies were chosen for full-text review. Of these, 23 studies met the criteria for data extraction. Table 2 presents a summary of the 23 studies included in this review. It is worth noting that there is some overlap between studies in the extraction table, as multiple studies addressed similar Indigenous education programs.

### 3.1 | Study characteristics

A total of 23 documents were included, covering studies from five countries: New Zealand ( $n = 9$ ), Australia ( $n = 12$ ), Canada ( $n = 2$ ), United States of America ( $n = 1$ ), and Brazil ( $n = 1$ ). These studies covered programs focused on different Indigenous populations, including: Aboriginal and Torres Strait Islander People of Australia ( $n = 12$ ), Māori People of New Zealand ( $n = 9$ ), First Nations and Inuit People of Canada ( $n = 2$ ), White Mountain Tribe of USA ( $n = 1$ ), and Aldeias Indigenous People of Brazil ( $n = 1$ ).

The studies were published between 1974 and 2021 with 95.65% published between 2007 and 2021. The included seven qualitative studies, three cross-sectional studies, five mixed-methods studies, three reports, one review, one viewpoint, and two retrospective studies. The majority of the studies (95%,  $n = 21$ ) focused on undergraduate education, with one study each at the graduate and continuing education levels, respectively. In 34.8% of the studies ( $n = 8$ ), the programs exclusively targeted undergraduate dental students. Conversely, 65.2% of the studies developed programs for undergraduate dental students in conjunction with Bachelor of Oral Health, dental hygiene, or other health disciplines. Additionally, one study specifically focused on dental hygiene students, and another on oral therapist graduates.

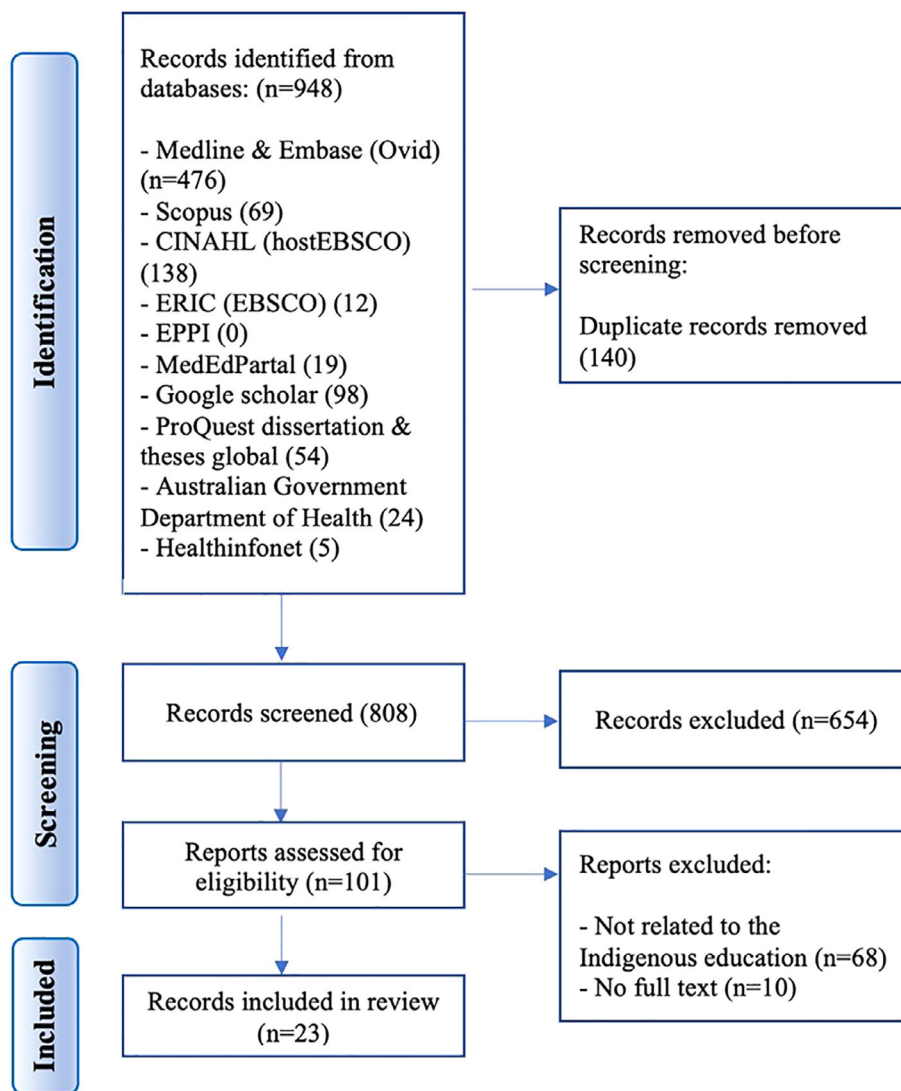


FIGURE 1 PRISMA scoping review flowchart.

### 3.2 | Indigenous curriculums content

Fourteen studies reported on Indigenous curriculum content, providing a diverse range of topics. Among the most frequently covered topic, Indigenous culture was addressed in 92.8% ( $n = 13$ ) of the studies. This was followed by history, Indigenous oral health, and Indigenous peoples' health, each covered in 50% of the studies. Other topics included: oral health education,<sup>29–32</sup> models of health service provision for Indigenous people,<sup>33,34</sup> and effect of racism and colonization.<sup>30</sup>

### 3.3 | Indigenous curriculum delivery methods

Among the 21 studies that reported on their delivery methods, different programs employed various combinations

of approaches. The most prevalent method, utilized in 90% of the studies, was rural and clinical placements in Indigenous communities. This was followed by lectures and seminars, reported in 42.9% of the studies. Other methods included group discussion and problem-based learning session, group projects, and workshops.

### 3.4 | Indigenous curriculum assessment methods

Fifteen studies reported on assessment methods, utilizing various approaches to evaluate students' understanding and cultural competence. Evaluation surveys were the most commonly reported method, used in 33.3% of the studies. This was followed by written reports, assignments, reflective journals, and written examinations. Less frequently mentioned methods included formative feedback,

TABLE 2 Extraction table.

Authors, year & country	Target students	Indigenous population	Study design	Indigenous content	Delivery methods	Curriculum assessment	Limitation or barriers	Advantages and facilitators
Abuzar et al., 2009, Australia	Dental and Bachelor of Oral Health (dental therapy & hygiene) students/ Final year	Australian Indigenous People	Mixed methods: qualitative and case series with post-test outcomes	N/A	4-week compulsory rural placement including 3 h tutorial with cultural safety training.	Research and oral presentation: Students given a topic related to rural & Indigenous health to search and 45-60 min oral presentation at the end of rotation.	Barriers to rural placement: 1- Separation from family 2- Professional isolation and lack of social interaction with friends. Appreciative patients 3- Friendly community 4- Rewarding work 5- Opportunity for good and/or wide clinical experience	Facilitators in rural placement: 1- Good working environment (comprising teamwork and mentorship) 2- Appreciative patients 3- Friendly community 4- Rewarding work 5- Opportunity for good and/or wide clinical experience
Abuzar et al., 2016, Australia	Dental and Bachelor of Oral Health (dental therapy & hygiene) students/ Final year	Aboriginal and Torres Strait Islander people in the Greater Shepparton Region, Victoria, Australia	Retrospective case series with post-test outcomes	1- Histories 2- culture 3-Community attitude toward accessing oral health care services	5-week compulsory rural placement (communication with elders) including 2 h cultural competency seminar (before placement).	1- Summative assessment (weighted 10% of the overall final year DDS assessment); Written report- Group presentation on the last day of the rotation 2- Formative assessment: The clinical logs for every patient	Barriers: 1- High turnover rate of clinical instructors which made it difficult for students to receive consistent feedback from clinical supervisors. 2- Non-attendance of Indigenous patients	Facilitators: 1- well organized program 2- Assistance received by the clinical staff: Had good knowledge of the community and were able to provide students with important cultural information of the patients presenting to the clinic. 3- Well equipped rooms in clinic
Anderson et al., 2015, New Zealand	Dental and Bachelor of Oral Health (dental therapy & hygiene) students/ Final year	Māori Indigenous People in New Zealand	A mixed methods kaupapa Māori action research project	1-Public health issues 2-Māori perspectives/working with Māori 3-Cross-cultural engagement 5 (8%) 4- Māori oral health (theoretical course)	Prior to the outreach placement: Clinical and public health courses, and Māori oral health content The clinical outplacements: Six five-week 'rotations' annually (three per semester).	Post-outplacement reflection/ Satisfactory performance on clinical outplacement is necessary in order to pass the final-year program	Barrier: No funding during the 2012-2013 period.	N/A

(Continues)

TABLE 2 (Continued)

Authors, year & country	Target students	Indigenous population	Study design	Indigenous content	Delivery methods	Curriculum assessment	Limitation or barriers	Advantages and facilitators
Bazen et al., 2007, Australia	Dental students/ Final year	Australian Indigenous People (including the Northern Territory from 2003)	Longitudinal mixed-methods study	N/A	Optional three-week rural placement rotation	Two equally weighted parts: 1- Written essay 2- Supervisors feedback on students' performance	Disadvantages of rural practice: 1- Lack of technical and specialist support 2- longer waiting lists for patients 3- Isolation from family, friends, and other support bases 4- Lack of facilities and social activities 5- Preconceived negative ideas about rural life	Advantages: 1- Broader scope of treatment needs. 2- Relaxed and friendly atmosphere.
Bazen et al., 2007, Australia	Dental students	Australian Indigenous People	N/A	1- History 2- Culture 3- Population health 4- Models of health service delivery 5- Communication skills and working with Indigenous peoples	Lectures, tutorials, case studies, guest lecturers, reflective discussions, experiential learning, problem-based tutorials, community placements, simulated patients, and interactional skills development.	Assignments, examinations, reading reviews, reflective journals, peer review, case studies, simulated testing situations, observed interactional skills and class dialogue participation	N/A	N/A
Broughton, 2010, New Zealand	Dental students/ Four-year (year one to four)	Māori Indigenous People in New Zealand	Report	1- The relationship between Māori and the Crown 2- Māori world view of health, beliefs, and practices 3- Provision of Māori oral health services 4- Oral health promotion and education targeted at Māori 5- Social determinants of health and their impact on Māori oral health	Year Two: Workshop Years One to Four: Clinical engagement- Year Four: Two students are assigned to the Te Whare Kaitiaki clinic weekly to treat patients under the supervision of a Māori dentist- Some Final Year Students: Clinical placement with a Māori health provider	Compulsory written question in the final's examination paper worth 20% of the exam	N/A	N/A

(Continues)

TABLE 2 (Continued)

Authors, year & country	Target students	Indigenous population	Study design	Indigenous content	Delivery methods	Curriculum assessment	Limitation or barriers	Advantages and facilitators
Bulgarelli et al., 2012, Brazil	Dental students/ Final year	Brazilian Indigenous People ('aldeias': a local Indigenous Community)	Qualitative: Content Analysis and Social Repre- sentation Theory.	N/A	Community placement/Outreach program: four visits per year to the Brazilian Xingu Indigenous National Park	N/A	N/A	N/A
Doucette et al., 2014, Canada	Dental Hygiene students/ Year one	First Nations and Inuit Peoples	Case-control cross sectional survey (Quasi- experimental, non- equivalent control design)	Seven tobacco dependence education PowerPoint modules with specific Canadian First Nations and Inuit peoples historical and current content	Face to face component in tobacco dependence module.	N/A	Budget restriction	N/A
Forsyth et al., 2018, Australia	Dental and Bachelor of Oral Health (dental therapy & hygiene) students	Australian Indigenous People	Qualitative: Semi- structured interviews and Thematic analysis	N/A	N/A	N/A	Barriers: 1- Students being clinically focused 2- difficulties in accessing Indigenous communities due to ethical considerations in avoiding over researching of these communities 3- Racism and ignorance of Indigenous issues by a number of academics and students.	N/A

(Continues)

TABLE 2 (Continued)

Authors, year & country	Target students	Indigenous population	Study design	Indigenous content	Delivery methods	Curriculum assessment	Limitation or barriers	Advantages and facilitators
Forsyth et al., 2019, Australia	Dental students/ Year 3 and 4, and Bachelor of Oral Health students (dental therapy & hygiene)/ Year 3	Australian Indigenous People	Qualitative: Semi-structured interviews and Thematic analysis	BOH: First year: Indigenous health outcomes in Australia- Second year: Indigenous guest speaker sharing experiences pre-1967 Referendum- Third year: Indigenous oral health promotion/ Dentistry: Statistics on Indigenous oral health and water fluoridation- Indigenous health education program covering history and cultural background	BOH: Report- Lecture: Indigenous guest speaker- Community Placement Dentistry: Lecture: Indigenous guest speaker and a non-Indigenous person- Assignment: Research and developing a health education program for an Indigenous Community	N/A	Barriers: 1-Lack of understanding of historical and current disparities experienced by Indigenous peoples 2-Packed curriculum 3-Curriculum being very disease-focused 4-Students focusing more on procedures and high grades than experiential learning 5-Absence of Indigenous instructors, reducing authenticity of cultures in the students' cohorts, 6-Lack of student engagement in Indigenous communities.	Advantages: 1- Having an Indigenous guest speaker to share first-hand experiences 2- Students viewed having Indigenous students in their programs as favorable to increase faculty and student knowledge and understanding of Indigenous culture. 3- there is a good mix of cultures in the students' cohorts, which has increased their cultural competence.
Forsyth et al., 2017, Australia	Dental Bachelor of Oral Health (dental therapy & hygiene) students	Australian Indigenous People	Cross-sectional (Survey)	1- Population Oral Health and social determinants of health—History—Culture 4- Effects of Racism and Colonization	Lectures: were the most common pedagogical method used for teaching Indigenous curriculum Other modes of delivery: Case studies- Reflective writing- Group discussions- Problem-based learning -Community placement	N/A	1- Packed curriculum 2- Limited Indigenous content: 74% of students felt there was limited Indigenous content currently in the curriculum	N/A

(Continues)

TABLE 2 (Continued)

Authors, year & country	Target students	Indigenous population	Study design	Indigenous content	Delivery methods	Curriculum assessment	Limitation or barriers	Advantages and facilitators
Broughton, 2013, New Zealand	Dental students	Māori People in Tunohopu Marae region	Viewpoint	N/A	Voluntary community placement for a week of students' mid-semester break	An evaluation form	N/A	Advantages: 1- Understanding of Māori health from real life experience 2- Seeing and treating the whole whānau (family) 3- The cultural experience of being immersed in Māori culture 4- Gaining confidence in themselves as dentists
Kline et al., 2013, Canada	Different health professions including 2 Dental students	Stó:lō Nation (First Nations People inhabiting the Fraser Valley of British Columbia)	Qualitative: Semi-structured interviews and an interpretive thematic analysis	lifestyles of the Stó:lō people, including aspects of the medicine wheel (spiritual, mental, physical, and emotional) while learning about oneself and the larger First Nations community-Indigenous Health	Community as teacher: placement in summer camps for Aboriginal youth in groups of two to six for the length of 3-4 days. Learning through drumming, singing, canoeing, Longhouse ceremonies, talking with Elders, and interacting with the youth. Students also facilitated discussion groups on health-related topics chosen by camp leaders and participants.	No official assessment. Interviews with students and community members on the experience (part of the study not student's assessment).	Limitation: It is difficult to reach a large number of students and make it part of formal academic curricula because increasing the number of students would jeopardize the immersive nature of the experience and burden the community.	Facilitators: 1- The voluntary nature of the intervention, which may attract self-reflective students 2- Removing students from their familiar settings so they can interact with the community on the latter's terms 3- Students' immersion in the community as learners (not service providers) helped the community assume the role of teacher and created a favorable learning environment for cultural safety 4- students see the community as an authority on its members' unique strengths, needs, and challenges, engages students in self-exploration, and adds authenticity

(Continues)

TABLE 2 (Continued)

Authors, year & country	Target students	Indigenous population	Study design	Indigenous content	Delivery methods	Curriculum assessment	Limitation or barriers	Advantages and facilitators
Kruger et al., 2010, Australia	Dental students/ Final year	Australian Indigenous People	Review	Understanding of the unique social, cultural, and clinical needs and expectations of rural & Indigenous People	Community placement/ For the first five or more years the placement was voluntary but, recently, it has become mandatory.	Originally, the rural program had a graded system that included an element of reporting from the clinical mentor at the placement site. Overtime, this has evolved into a non-graded (i.e., Pass/Fail) approach and a stronger leaning to a post-placement report assessment.	Barrier: Family/cultural commitments that would prevent travel and make mandatory placements a significant pressure	Advantage: 1- The short duration of rural placements allowed more students to access a variety of sites 2- Students benefited from an experienced academic and clinical team, ensuring secure and supported early experiences with Indigenous Australians 3- A post-placement report motivated students to maintain good records and engage in reflection.
Laloo et al., 2012, Australia	Dental students/ Final year	Rural, remote, and Indigenous People in Australia	Mixed method (analysis of online survey and reflective journal)	Cultural awareness	Rural clinical placement (three weeks in rotations of eight students)	Anonymous voluntary online survey and submission of a compulsory reflective journal	1- Students being Clinically focused instead of looking at the “bigger picture” of health and well-being and the importance of community 2- Lack of patient flow in clinic 3-The long distance between the university base and the placements	Being in a small setting allows students to connect with the community and develop skills of engagement that could be more difficult in a large urban-based dental clinic.
Lisagor et al. 1974, USA	Dental and hygiene students	White Mountain Tribe of Apaches in Eastern Arizona	Report	N/A	Voluntary clinical placement (3–9 weeks)	N/A	N/A	N/A

(Continues)

TABLE 2 (Continued)

Authors, year & country	Target students	Indigenous population	Study design	Indigenous content	Delivery methods	Curriculum assessment	Limitation or barriers	Advantages and facilitators
Nicholson et al., 2016, Australia & New Zealand	Dental, Dental hygiene, and Oral health therapy students	Aboriginal and Torres Strait Islanders and/or Māori People	Descriptive, cross-sectional study	N/A (Indigenous cultural groups)	The most reported method: lectures (N = 12, 80%). Other common methods: discussion (73.3%), self-directed learning (66.7%), group work (60%), and workshops (60%)	Half of the responding programs used multiple assessment method- Remaining programs used one form of assessment- One program did not use any form of assessment	N/A	N/A
Broughton, 2013, New Zealand	Dental students/ Final year	Māori People in Rotorua	Report	The Kaupapa Māori approach to the provision of health services and the principles of whānau ora (family health).	A five-week compulsory clinical placement	Evaluation form: at the end of the program	N/A	N/A
Pelham et al., 2016, New Zealand	Health disciplines of dentistry, dietetics, medicine, pharmacy, physiotherapy, nursing, and occupational therapy students/Final year, pre-registration	Māori People in Tairāwhiti region	Qualitative study, using template analysis, a form of thematic analysis	N/A	Clinical placement + Community education group project/ 5-week rotations spaced over the academic year	N/A	1-Disinterested students/project focus 2- Tough community to be accepted by 3- Patient denies consent to be seen	Facilitators: 1- Exposes students to the environment as well as the whānau (extended family) in the community 2- Māori cultural aspect 3- Willingness of staff to take on students 4- Many students being highly motivated and patient-centered

(Continues)

TABLE 2 (Continued)

Authors, year & country	Target students	Indigenous population	Study design	Indigenous content	Delivery methods	Curriculum assessment	Limitation or barriers	Advantages and facilitators
Gallagher et al., 2015, New Zealand	Health disciplines of Medicine, Dentistry, Nursing, Physiotherapy, Pharmacy and Dietetics/Final year, pre-registration	Māori People in Tairāwhiti region	Qualitative study, using modified grounded theory approach	N/A	Clinical placements: 5-week rotations spaced over the academic year	Group project (key assignment task): for the students to devise a credible community education resource that could be of immediate benefit to the community as well as facilitate student learning.	Some students were unclear about the actual purpose of the assignment and the focus of the projects puzzled some students.	The assignment: Students reported that their awareness of the need for health professionals to be socially accountable was heightened as a result of the assignment task.
Pullon et al., 2016, New Zealand	Health disciplines of Medicine, Dentistry, Nursing, Physiotherapy, Pharmacy and Dietetics/Final year, pre-registration	Māori People in Tairāwhiti region	Cohort study with a pre and post quasi-experimental design	Treaty of Waitangi obligations, competency in Māori health, long-term condition management skills	5-week rotations: Each rotation: rural placement with a formal Māori welcome which includes an overnight stay in a traditional communal living situation). Also, Students work together on case studies, Māori health, and community education projects.	Survey: a) end of rotation questionnaires and b) year-start and year-end questionnaires	N/A	Students agreed that their knowledge of Māori culture and customs, and ability to incorporate these values and skills into their practice had greatly improved as a result of the program.
Skinner et al., 2021, Australia	Graduate Oral health therapists (continuing education)	Australian Aboriginal and/or Torres Strait Islander People	Mixed method study	N/A	Community placement for 12 months/ participating in planned professional development activities four times each year and to participate in weekly teleconferences.	Online survey post-placement	1- Living alone and away from friends and family 2- Finding/organizing enough oral health promotion activity 3- Isolation and socializing with people their own age 4- Travelling long distances to work	Advantages: 1- Friendships and expanded social networks 2- Community engagement 3- Delivering oral health services, prevention, and oral health promotion projects 4- Understanding and knowledge of Aboriginal culture, history, and community 5- Support mentorship

(Continues)

TABLE 2 (Continued)

Authors, year & country	Target students	Indigenous population	Study design	Indigenous content	Delivery methods	Curriculum assessment	Limitation or barriers	Advantages and facilitators
Delany et al, 2017, Australia & New Zealand	Specific to Dentistry: Dentistry at master's level	Indigenous People from Australia & New Zealand	Qualitative study, using thematic analysis	Specifically mentioned for Dentistry: History and culture	N/A	Specifically mentioned for Dentistry: written assessments and Practice-based assessment (OSCE)	Specifically mentioned for Dentistry: teaching challenges: encountering explicit resistance to Indigenous health content	N/A

Objective Structured Clinical Examination (OSCE), and clinical logs.

### 3.5 | Barriers and/or disadvantages of Indigenous curriculum

Fifteen studies reported various challenges and barriers encountered during the implementation of Indigenous curriculum. Overall, the most frequently mentioned barriers, cited in 33.3% of the studies, included students' disinterest as they may focus on clinical procedures at the expense of broader learning experiences. Additionally, community placements faced several specific challenges, the most frequent being lack of interaction with Indigenous people. Another prevalently mentioned barrier in community placements was separation from family and isolation, which was cited in 26.6% of the studies. Other barriers included funding issues, logistical problems (long distances, lack of facilities, etc.), a packed curriculum, lack of Indigenous content, and not having Indigenous instructors.

### 3.6 | Advantages and/or facilitators of Indigenous curriculum

Fewer studies reported on the advantages and/or facilitators of the Indigenous curriculum ( $n = 12$ ). The most frequently mentioned facilitator was specific to community placements and involved real-life experience and Indigenous cultural immersion (58.3% of studies), followed by supportive mentorship (50% of studies). Other factors that facilitated Indigenous training included appreciative patients and friendly communities,<sup>35–37</sup> the voluntary nature of the program,<sup>38</sup> motivated students,<sup>31</sup> Indigenous guest speakers, and having Indigenous students and students from different cultural backgrounds.<sup>39</sup>

## 4 | DISCUSSION

This scoping review explored the integration of Indigenous content within oral health professions education globally, identifying 23 relevant studies from five countries, including New Zealand, Australia, Canada, the United States, and Brazil. The review highlighted the diverse range of Indigenous curriculum content, delivery methods, assessment techniques, barriers, and facilitators across different educational programs.

This review identified a notable increase in research on Indigenous cultural safety training in oral health-related education over the past few decades, especially within the

last 10 years, considering the majority of studies were published after 2007. This trend suggests that newer initiatives, such as Canada's Truth and Reconciliation Commission (TRC),<sup>40</sup> alongside similar federal government efforts in Australia, New Zealand, and the USA, have spurred the development of training programs aimed at enhancing Indigenous cultural safety and competence in health education systems.<sup>20,23,26,41</sup> However, the topic of Indigenous education appears to have been prioritized differently worldwide, given the significant disparity in the number of studies from Australia ( $n = 12$ ) compared to Canada ( $n = 2$ ), for example. This uneven distribution of scholarly work is also highlighted in a review by MacLean et al., which suggests that Australia's commitment to action was initiated almost a decade before Canada's Truth and Reconciliation Commission's Final Report and Calls to Action.<sup>26</sup> But this can also suggest some form of bias in publication as studies solely describing curriculum development might be less likely to get published particularly if they do not have formal results.<sup>42</sup>

The review found that Indigenous curriculum content predominantly includes Indigenous culture, history, and health. Given the holistic nature of Indigenous peoples' concept of health, it is important for health professionals to thoroughly understand Indigenous histories and cultures. This understanding is essential for comprehending the ongoing impacts of colonization on Indigenous communities' health outcomes and for fostering a more inclusive and empathetic approach among oral health-care providers.<sup>36</sup> For instance, integrating specific cultural component such as tobacco dependence education, as addressed in one of the included studies, demonstrates the curriculum's responsiveness to community-specific health needs. This approach is also encouraged in the study by Janis et al., which emphasizes the importance of oral health students understanding the traditional use of tobacco in ceremonies to provide culturally responsive care.<sup>43,44</sup>

The varied methods of curriculum delivery, particularly the emphasis on rural and clinical placements, highlight the value of experiential learning. Most included studies detailed the mutual benefits of cultural immersion for both students and the community. As Clifford et al. mentioned, many of the challenges to improving health outcomes for Indigenous people are linked to healthcare professionals' lack of understanding of the living contexts of Indigenous populations and the effects of these contexts on their health outcomes.<sup>14,45</sup> Also, cultural safety education in Indigenous health is only considered culturally safe if the community itself recognizes it as such. Therefore, real-world experiences within Indigenous communities can increase students' acknowledgement of Indigenous

knowledge and culture and expose them to complex Indigenous health issues.<sup>18,46,47</sup> Lectures and seminars were also reported in the present review. While lectures are commonly utilized methods,<sup>48–50</sup> their effectiveness in promoting long-term cultural competence may vary depending on the depth of the content presented and students' engagement. One effective way to increase student engagement is through the flipped classroom approach.<sup>51</sup> In a study by Brondani and colleagues, both community members who joined the lectures as guest speakers and the students appreciated this approach, as it encouraged students to come better prepared and more engaged in the class topic.<sup>52</sup> However, what is important is to ensure Indigenous voices are central to identifying and prioritizing the content and in delivering Indigenous education.<sup>26,53</sup>

Various tools are available to assess cultural competence training, yet there is no agreement on which tool is the most effective.<sup>30,54</sup> This review highlights a variety of assessment methods, ranging from evaluation surveys to reflective journals, offering multiple ways to measure students' cultural competence. The debate on whether assessment drives learning is ongoing.<sup>55,56</sup> Scott argued that assessment can indeed drive learning, but it requires active and purposeful engagement with students, institutions, curriculum, and the thoughtful use of assessments and feedback.<sup>56</sup> Moreover, research indicates that to ensure assessments effectively promote practically relevant and sustained learning for engaging with Indigenous health issues, educators must align Indigenous health learning goals with assessment tasks. Additionally, they need to develop accessible criteria for students to evaluate the quality and practical relevance of their responses.<sup>57–60</sup>

Despite the progress in integrating Indigenous content into oral health curricula, several barriers and challenges remain. The most common barrier is students' disinterest, as they often focus on clinical skills over broader educational experiences, tending to neglect the psychosocial aspects of patient care.<sup>61–64</sup> This reveals a gap in valuing cultural competence compared to technical proficiency. To address this, Forsyth et al. suggested incorporating reflective journals, case studies, and interactional skills to enhance Indigenous cultural competence, facilitating knowledge acquisition, growth, and attitudinal change over time.<sup>61,65</sup> Community placements also face challenges, with limited interaction with Indigenous people being the most prevalent.<sup>66</sup> This is due to two reasons: first, patients from Indigenous communities were sometimes unwilling to receive treatment from students, leading to reduced interaction and learning opportunities<sup>31,67,68</sup> and second, difficulties accessing Indigenous communities due to ethical considerations.<sup>38,69</sup> Conversely, this review also

identified several facilitators that can enhance the integration of Indigenous curriculum, with cultural immersion and supportive mentorship being the most prevalent. The positive effect of cultural immersion is also addressed in other studies, providing significant benefits for both students and the community.<sup>18,70</sup> These facilitators and challenges highlight the importance of effective strategies to foster meaningful engagement and practical exposure during Indigenous placements, ensuring that students gain valuable insights and experience in culturally competent care.

While this review provides a comprehensive overview of the integration of Indigenous content in oral health education, several limitations must be acknowledged. First, this is not a systematic review, which means it does not rigorously examine the quality of the included studies. Second, despite efforts to include all relevant literature, some publications may have been missed, particularly those not indexed in the searched databases or those that did not contain the specific keywords used in our search. Although there was no limitation on the language of the literature, only English keywords were used for the search, potentially excluding relevant non-indexed literature. Lastly, the review did not include a detailed analysis of the long-term impact of Indigenous education programs on health outcomes for Indigenous communities, indicating a need for future research in this area.

## 5 | CONCLUSION

While significant progress has been made in integrating Indigenous content into oral health education, several challenges and barriers remain. Prioritizing Indigenous perspectives, fostering community partnerships, and developing standardized assessment tools can help educational institutions ensure that health professionals are moving toward reconciliation and are equipped with the knowledge and skills to facilitate culturally appropriate ways to provide equitable and respectful care to Indigenous communities. Future research should focus on evaluating the long-term impact of these educational programs on health outcomes for Indigenous populations and identifying best practices for curriculum development and delivery. Furthermore, the majority of studies focused on Indigenous education in Australia and New Zealand, with little reporting on Indigenous educational programs in other countries. This leaves an open question of how much Indigenous content is incorporated into oral health education around the world. Addressing this gap can help establish a holistic approach to including Indigenous perspectives in oral health education.

## ACKNOWLEDGMENTS

The authors acknowledge that this review is a part of the first author's MSc thesis. Also, this research received no grant from any funding agency.

## CONFLICT OF INTEREST STATEMENT

The authors of this manuscript declare that they have no conflict of interest or any other disclosures.

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**How to cite this article:** Shokouhi P, Bakhshaei A, Brondani M. Curriculum Indigenization in oral health professions' education worldwide: A scoping review. *J Dent Educ.* 2025;89:34-51.  
<https://doi.org/10.1002/jdd.13690>