


# The commercial determinants of Indigenous health and well-being: a systematic scoping review

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## ABSTRACT

**Introduction** Health inequity within Indigenous populations is widespread and underpinned by colonialism, dispossession and oppression. Social and cultural determinants of Indigenous health and well-being are well described. Despite emerging literature on the commercial determinants of health, the health and well-being impacts of commercial activities for Indigenous populations is not well understood. We aimed to identify, map and synthesise the available evidence on the commercial determinants of Indigenous health and well-being.

**Methods** Five academic databases (MEDLINE Complete, Global Health APAPsycInfo, Environment Complete and Business Source Complete) and grey literature (Australian Indigenous HealthInfoNet, Google Scholar, Google) were systematically searched for articles describing commercial industry activities that may influence health and well-being for Indigenous peoples in high-income countries. Data were extracted by Indigenous and non-Indigenous researchers and narratively synthesised.

**Results** 56 articles from the USA, Canada, Australia, New Zealand, Norway and Sweden were included, 11 of which were editorials/commentaries. The activities of the extractive (mining), tobacco, food and beverage, pharmaceutical, alcohol and gambling industries were reported to impact Indigenous populations. Forty-six articles reported health-harming commercial practices, including exploitation of Indigenous land, marketing, lobbying and corporate social responsibility activities. Eight articles reported positive commercial industry activities that may reinforce cultural expression, cultural continuity and Indigenous self-determination. Few articles reported Indigenous involvement across the study design and implementation.

**Conclusion** Commercial industry activities contribute to health and well-being outcomes of Indigenous populations. Actions to reduce the harmful impacts of commercial activities on Indigenous health and well-being and future empirical research on the commercial determinants of Indigenous health, should be Indigenous led or designed in collaboration with Indigenous peoples.

## WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Commercial industries such as tobacco, alcohol and ultraprocessed foods are known to employ tactics, such as lobbying and marketing, that impact public health. However, the specific commercial determinants of Indigenous health have not been well described.

## WHAT THIS STUDY ADDS

⇒ This is the first systematic synthesis of the commercial determinants of health for Indigenous peoples. This review details the ways in which marketing, lobbying, corporate social responsibility activities and exploitation of Indigenous land and imagery, undertaken by the mining, tobacco, alcohol, gambling, ultraprocessed food and pharmaceutical industries, among others, is harming health and well-being of Indigenous populations. The commercial sector can enhance Indigenous health, when businesses work closely with or are led by Indigenous people.

## HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ In order to be effective at mitigating negative health and well-being impacts and promoting positive impacts of commercial activity, policy and practice needs to be designed in collaboration with Indigenous communities and should promote the cultural continuity and self-determination. Future research on the commercial determinants of Indigenous health should have greater involvement of Indigenous peoples from the design, implementation and dissemination of research.

## INTRODUCTION

Colonisation continues to impact Indigenous peoples globally, through dispossession, oppression and cultural assimilation.<sup>1 2</sup> Indigenous peoples' knowledge's systems are intrinsically linked to social and economic determinants of health and continue to be damaged by colonisation.<sup>3 4</sup> The authors of this paper recognise and support Indigenous

peoples right to self-determine decisions influencing their communities, as expressed in the United Nations' Declaration of the Rights of Indigenous Peoples.<sup>5</sup> We acknowledge Indigenous peoples continue to maintain a sacred connection to their lands and that the social, cultural and economic practices Indigenous people engaged in before colonisation were deeply sustainable.<sup>6</sup> We refer to Indigenous peoples throughout this paper, though respectfully acknowledge cultural diversity of Indigenous peoples around the world.

Many Indigenous populations worldwide experience health inequities including higher rates of non-communicable diseases and reduced life expectancy compared with their non-Indigenous counterparts.<sup>5 7 8</sup> First Nations, Inuit and Métis populations of Canada, Native Americans and Alaskan Natives, Māori peoples of Aotearoa/New Zealand, and Aboriginal and Torres Strait Islander peoples of Australia have significantly higher mortality rates than non-Indigenous people of the same country.<sup>9-11</sup>

Health constructs for Indigenous peoples are interconnected with local Indigenous knowledge systems that often encapsulate various physical, social, emotional, cultural and spiritual well-being concepts.<sup>12</sup> These knowledge systems often include connection to culture, country, language, family, kinship and community as well as self-determination.<sup>13 14</sup> These connections were damaged through the process of colonisation such as the forcible removal of First Nations children from their families, in both Australia and Canada, as a part of assimilation policies that are now considered a form of cultural genocide.<sup>15 16</sup> Continuing colonisation damage to Indigenous peoples' health and well-being occurs through industrialisation, hierarchialisation, patriarchy, capitalism and an increasingly commercialised existence.<sup>17</sup>

The commercial determinants of health (CDoH) are broadly described as the influence of private companies on public health objectives.<sup>18</sup> This definition encapsulates the power of corporations to influence socioeconomic conditions, legislation, health policy and regulations and population consumption.<sup>18 19</sup> Tobacco, alcohol and ultraprocessed foods are leading contributors to health inequities among Indigenous peoples worldwide.<sup>20-23</sup> In addition, the mining industry is often in direct conflict with the well-being of local Indigenous communities.<sup>24 25</sup>

While some research has been undertaken to understand the social determinants, and more recently the cultural determinants, of Indigenous health,<sup>14 26 27</sup> the influence of commercial entities and activities on Indigenous health and well-being has not been well described. An understanding of the commercial determinants of Indigenous health can enable actions to minimise the harms, and maximise the benefits, to Indigenous populations caused by commercial activities.

There have not been any systematic reviews of the impact of commercial activity on the health of Indigenous peoples. The purpose of this scoping review was to systemically identify, map and synthesise the available

evidence describing the (1) commercial industries and activities influencing Indigenous health and well-being; (2) the health and well-being impacts (positive or negative) of these commercial activities and (3) potential strategies for reducing negative impacts, and enhancing positive impacts, of commercial activities on Indigenous peoples' health and well-being.

## METHODS

This review was undertaken by a non-Indigenous Australian doctoral student (ACC) who worked closely with a team of Aboriginal and Torres Strait Islander researchers (YP, KH, TW, FM, ML and BC) and non-Indigenous Australian researchers (JB, KB) with experience in Indigenous health and CDoH research. Indigenous researchers were involved at each stage of the review process to ensure cultural rigour.<sup>28</sup> The review protocol followed the Joanna Briggs Institute's scoping review guidance and reporting followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines.<sup>29 30</sup>

### Search strategy

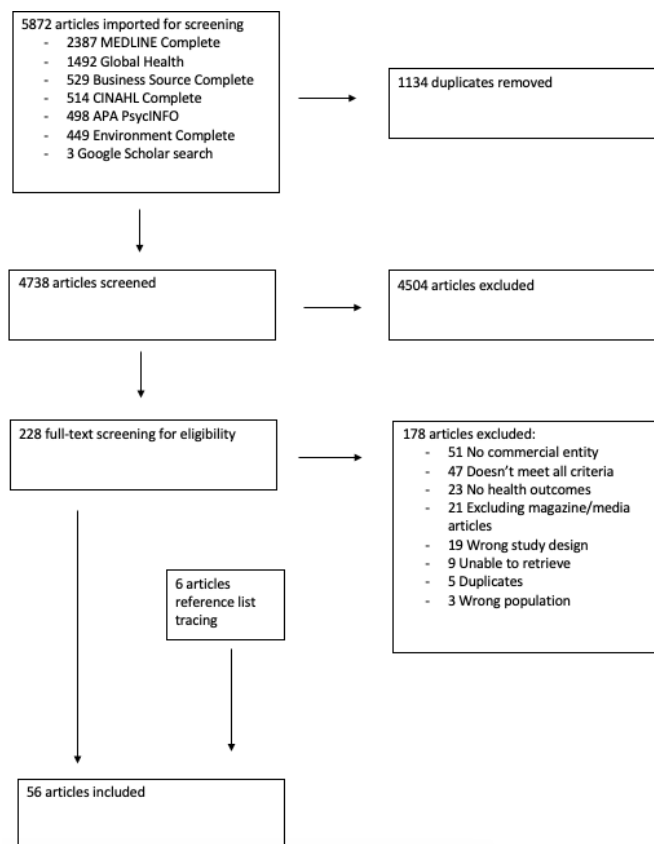
We searched MEDLINE, PsycINFO, CINAHL, Informit (Health, Public Affairs and Indigenous Collections), Global health, Environment Complete, Business Source Complete and Scopus for peer-reviewed literature in November 2021. No date ranges were set. Grey literature searches were undertaken via Australian Indigenous HealthInfoNet, Google Scholar and Google, with the first 100 hits from each website retrieved. Reference lists of included articles were checked for additional resources.

Three different sets of search terms were used to describe (1) Indigenous peoples, (2) commercial industry activities and (3) terms relating to health and well-being outcomes. Search terms within each set, and subject headings when available, were combined with the Boolean operator 'OR' and each set of terms was combined with the Boolean operator 'AND'. The search string was developed in collaboration with a university librarian who had experience with scoping review methodology (online supplemental table 1). Two authors (ACC and JB) piloted the search strategy.

### Inclusion and exclusion criteria

Peer-reviewed articles, published in English, were included if they:

1. Focused on Indigenous peoples of colonised, Western high-income countries, where Indigenous peoples make up a minority of the total population. Countries include Australia, New Zealand, Canada, USA, Norway, Sweden, Finland, Iceland and Denmark.
2. Included only Indigenous participants or included mixed populations but reported findings by Indigenous status.
3. Described commercial strategies or activities, which included, but were not limited to, advertising/marketing, corporate social responsibility (CSR), political



**Figure 1** PRISMA flow chart of included and excluded articles. PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

lobbying, production/supply of harmful products or services, funding/sponsorship.

- Discussed perceived or actual health and well-being risks or outcomes in relation to a commercial activity. Indigenous health was defined as not just the physical well-being of an individual but the social, emotional and cultural well-being of the whole Community.<sup>12</sup> Studies reporting only economic or employment impacts (without health implications) were excluded.
- Any study design, including quantitative, qualitative and commentary/editorial articles. All protocols, books, media articles and theses were excluded.

### Study screening and selection

Titles and abstracts retrieved by the database search were uploaded to Covidence<sup>31</sup> and independently screened by two reviewers, one of whom was Indigenous (TW, KH, FM or ML). All potentially-relevant full text articles were subsequently screened by an Indigenous (TW, KH or BC) and a non-Indigenous reviewer (ACC). Any conflicts were resolved, and consensus reached over a series of meetings involving all the reviewers, including the senior author (JB) (see figure 1).

### Data extraction

A data extraction template was developed in Microsoft Excel and piloted by two reviewers (ACC and BC)

using five studies. Details extracted from each article included geographical location, population of interest, study design, number and type of participants, commercial industries involved, commercial activities examined, health and well-being outcomes, whether commercial activities had a positive, negative, or neutral impact on Indigenous peoples, strategies implemented/proposed to mitigate (or enhance) commercial activity influence on Indigenous health, and evidence of Indigenous involvement in the research. Indigenous involvement fields were informed by the Aboriginal and Torres Strait Islander quality appraisal tool and the CONSIDER guidelines for ethical and culturally appropriate research in Indigenous health research.<sup>32 33</sup> These broad criteria explored whether there was Indigenous involvement in the study design, implementation, and dissemination of findings. Data from all studies were independently extracted by the lead author (ACC) and a second reviewer (JB, KH, BC, TW, ML and FM). Results were cross-checked and discrepancies resolved through discussions at research team meetings.

### Data synthesis

A narrative synthesis was undertaken due to the diverse range of study designs, commercial activities and health outcomes included in retrieved literature. Results are synthesised according to each commercial industry identified.

### Patient and public involvement

This review was undertaken by a team of Indigenous and non-Indigenous health researchers with expertise in public health, nutrition, Indigenous health and cultural safety. It was undertaken as part of a larger research project on the commercial determinants of Indigenous health being undertaken in partnership with the Victorian Aboriginal Community Controlled Health Organisation.

### RESULTS

Fifty-six articles met the inclusion criteria and were included in this review (figure 1). All articles were published in peer-reviewed journals between 1991 and 2021 and were from USA (n=22), Canada (n=15), Australia (n=13), New Zealand (n=9), Norway (n=1) and Sweden (n=1). Twenty-three articles focused on American Indians/Alaskan Natives, 15 focused on First Nations Canadians and Inuit, 13 on Aboriginal and Torres Strait Islander peoples, 9 included Māori and 2 were about Sámi populations.

The diversity of articles indicates that this is an emerging field of research and, thus, many articles reviewed were speculative or narrative in nature. Forty-four of the 56 articles reported empirical research. There were 9 cross-sectional surveys, 3 longitudinal studies, 4 mixed-methods studies, 10 case studies, 18 qualitative studies, including 10 document analyses and 8 interview studies, and 1 literature review. Additionally, 11 editorials (n=2) and commentaries (n=9)

were included. Summary details of each article are in online supplemental table 2.

The activities of each specific industry are described below and summarised in [table 1](#) and [figure 2](#). For specific details of each included article, please see online supplemental table 2.

### Extractive industry

The extractive industry was the most prominent industry described (n=16 articles) with negative impacts reported for Indigenous health and well-being from mining<sup>25 34–47</sup> and fracking.<sup>48</sup> Articles described the exploitation of Indigenous land resulting in environmental pollution/contamination and conflicts over land-use,<sup>34 35 37–40 43–45 47 48</sup> CSR activities<sup>25 36 37 42</sup> and lobbying of governments to acquire more land for mining and reduce licencing requirements to operate on Indigenous land (impact bargaining agreements).<sup>41 46</sup> Most articles about the extractive industry reported negative impacts on health and well-being,<sup>35 36 38–47</sup> most commonly due to environmental pollution, including pollution of drinking water and toxic metal exposure<sup>34 35 37 40 43–47</sup> as well as undermining cultural well-being<sup>34–36 38–42 46–48</sup>. One article suggested enhanced environmental impact assessments could help promote cultural well-being,<sup>25</sup> and improving such assessments was the most frequently suggested strategy for overcoming the negative consequences of the extractive industry on Indigenous health and well-being.<sup>25 37 39–42 45 47</sup> Two articles also recommended broad regulation of the extractive industry including stringent environmental controls.<sup>37 48</sup>

### Tobacco industry

Fifteen articles focused on the tobacco industry.<sup>49–64</sup> These predominately covered marketing, including direct-to-consumer marketing targeting Indigenous populations and/or the use of traditional Native American imagery in tobacco advertisements.<sup>49–65</sup> For example, ‘Red Man’, a racist slur, is a popular chewing tobacco in the USA and ‘Native American Spirit’ cigarette company use American Indian imagery on its packaging.<sup>50</sup> A survey of Native American/Alaskan Native participants indicated a belief that these companies were affiliated with tribes and smoking these brands was healthier.<sup>50</sup> Other tobacco industry activities included selective promotions targeting Indigenous populations,<sup>58 64</sup> corporate sponsorship of Indigenous foundations<sup>52</sup> and illegal tobacco smuggling.<sup>62</sup>

Almost all articles discussed tobacco industry activities in terms of their negative impacts on Indigenous health, with the exception of one article, which described increased industry collaboration with American Indian/Alaskan Native communities, promoting ceremonial tobacco use and other cultural activities.<sup>63</sup> Seven articles reported quantitative findings, demonstrating an increase in the prevalence of smoking or tobacco accessibility.<sup>50 53 55–57 60 61</sup> A further five qualitative studies and two commentaries suggested tobacco industry tactics

contributed to nicotine dependency and tobacco related death and disease in Indigenous communities.<sup>52 54</sup>

Strategies proposed to mitigate tobacco industry activities included culturally appropriate tobacco control interventions and prevention programmes to reduce smoking,<sup>51 55 59 62–64</sup> Indigenous community consultation and collaboration with governments and local organisations to prevent uptake of smoking,<sup>49 55</sup> and stronger regulation. For example, implementing higher tobacco taxes or policies against discounting cigarettes<sup>51 53 54 60 61</sup> and refusing industry funding.<sup>52</sup>

### Food and beverage industry

Food and beverage industries were the focus of six articles, including four which focused on food retailers<sup>65–68</sup> and two on ultraprocessed food companies.<sup>69 70</sup> Articles reporting the potentially detrimental impact of the food and beverage industry on Indigenous health described lobbying and CSR<sup>69</sup> selective pricing,<sup>65 66</sup> supply chain issues<sup>65 67</sup> and marketing of unhealthy foods.<sup>70</sup> For example, one article suggested large transnational food companies, including Nestle and Coca Cola, engaged in CSR activities to build brand image among Indigenous populations through community activities and funding higher education and employment opportunities for Indigenous young people.<sup>69</sup>

Adverse health outcomes associated with the consumption of ultra-processed foods and beverages or lack of access to fresh fruit and vegetables were discussed in five articles.<sup>65–67 69 70</sup> One cross-sectional study demonstrated a positive association between food marketing and increased consumption of ultraprocessed foods and beverages.<sup>69</sup> Authors suggested marketing these products, including through CSR activities, may contribute to the prevalence of childhood obesity-related and diet-related diseases among Indigenous populations.<sup>69</sup> Food supply chain issues, including high transport costs and limited choice in the local supermarkets, further contribute to poor nutrition in remote Indigenous communities.<sup>65 66</sup> One article described the food industry’s potential to increase availability of traditional foods through the economic development of Indigenous-owned traditional food businesses, which the authors argued, could contribute to both nutrition and cultural well-being.<sup>68</sup> The most frequently suggested strategy for mitigating potential harms of the food industry was government and private sector policy/regulation.<sup>65–67 69 70</sup> For example, policies governing the supply, promotion and sale of healthier food and beverages within remote community stores.<sup>67</sup>

### Pharmaceutical industry

Pharmaceutical companies were the focus of five of the studies.<sup>71–75</sup> The key activities of this industry reported in relation to Indigenous health and well-being included CSR and lobbying,<sup>73 75</sup> whereby companies pressured governments to sign trade agreements that threatened access to affordable medicines.<sup>73</sup> Direct-to-consumer

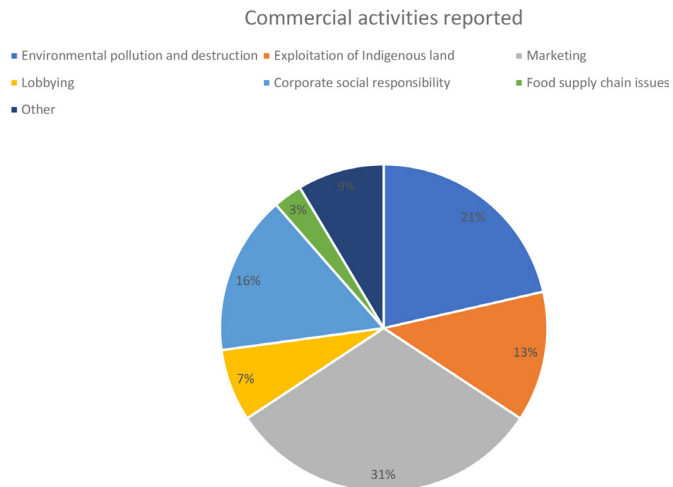
**Table 1** Summary of included articles

Industries/ companies	Study design	Location	Groups targeted	Framing of commercial activity	Types of commercial activities	Health and well-being consequences	Strategies suggested to mitigate negative impacts/promote positive impacts of corporate activities	Indigenous involvement in study or article
Extractive industry (n=16)	Qualitative studies (n=11) Cross-sectional/ longitudinal (n=1) Editorial (n=1) Commentary (n=3)	Australia (n=4) Canada (n=7) USA (n=3) Sweden (n=1) Norway (n=1)	Aboriginal and Torres Strait Islander (n=4) First Nations/Iuit (n=7) American Indian/ Alaska Native (n=4) Sámi (n=2)	Negative (n=14) Positive (n=1) Neutral (n=1)	Environmental pollution/ contamination and land-use (n=10) CSR/lobbying (n=6)	Environmental pollution (n=10) Exploitation of Indigenous land (n=10) Reinforcing environmental and cultural health (n=1)	Environmental impact assessments (EIA) improvements (n=11) Increased regulation (n=3) None (n=1) More research/studies (n=2)	None mentioned (n=5) Reinforces indigenous values/consultation conducted (n=9)
Tobacco industry (including black market tobacco sales) (n=15)	Mixed methods (n=1) Qualitative studies (n=6) Cross-sectional/ longitudinal (n=6) Commentary (n=2)	Australia (n=3) Canada (n=2) USA (n=12) New Zealand (n=2)	Aboriginal and Torres Strait Islander (n=3) First Nations/Iuit (n=2) American Indian/ American Natives (n=12) Māori (n=2)	Positive (n=1) Negative (n=14)	Marketing (n=14) CSR/sponsorship (n=1) Smuggling schemes (n=1) Increases in collaboration with community (n=1)	Smoking (n=14) Reinforcing cultural well- being (n=1)	Prevention programmes/ culturally relevant interventions/ collaboration (n=9) Policy implementation (n=5) Refusing industry funding (n=1) None mentioned (n=2)	Indigenous researcher/s involved (n=2) Reinforces indigenous values/consultation conducted (n=4) None mentioned (n=12)
Food and beverage industry (including supermarkets) (n=6)	Mixed methods (n=1) Qualitative studies (n=1) Cross-sectional (n=1) Literature review (n=1) Editorial (n=1) Commentary (n=1)	Australia (n=3) USA (n=1) New Zealand (n=3)	Aboriginal and Torres Strait Islander (n=4) American Indian/ American Natives (n=1) Māori (n=3)	Negative (n=5) Positive (n=1)	CSR/lobbying (n=1) Selective pricing (n=2) Supply chain issues (n=2) Marketing (n=1) Increased availability (n=1)	Poor nutrition/non- communicable diseases and under-nutrition (n=5) Reinforcing culturally appropriate food consumption (n=1)	Government and private sector policies/regulation (n=5) Better food health promotions (n=1) Education programmes (n=1)	Indigenous researcher/s involved (n=2) Indigenous values/ strength-based approach (n=2) None mentioned (n=4)
Pharmaceutical industry (n=5)	Qualitative studies (n=2) Cross-sectional/ longitudinal (n=1) Commentary (n=2)	Australia (n=1) Canada (n=1) USA (n=1) New Zealand (n=2)	Aboriginal and Torres Strait Islander (n=1) First Nations/Iuit populations (n=1) American Indian/ American Natives (n=1) Māori (n=2)	Negative (n=3) Positive (n=2)	CSR/lobbying (n=4) Marketing (n=1)	Pharmaceutical abuse(n=2) Reduced access to medicines (n=1) Reinforcing cultural well- being (n=2)	Positive CSR/ scholarships/ sponsorship (n=2) Regulation (n=3) Future research (n=1)	None mentioned (n=5)
Manufacturing industry (n=2)	Cross-sectional (n=1) Qualitative studies (n=1)	Canada (n=1) USA (n=1)	First Nations/Iuit (n=1) American Indian/ American Natives (n=1)	Negative (n=2)	Environmental pollution/ contamination (n=2)	Contamination/pollution (n=2) Undermining cultural well- being (n=1)	Employing Indigenous developed theoretical framework (n=1) Independent organisation involvement in EIAs (n=1)	Indigenous consultation conducted (n=2) Indigenous values/ consultation conducted (n=4)

Continued

**Table 1** Continued

Industries/ companies	Study design	Location	Groups targeted	Framing of commercial activity	Types of commercial activities	Health and well-being consequences	Strategies suggested to mitigate negative impacts/promote positive impacts of corporate activities	Indigenous involvement in study or article
Fishing industry (n=3)	Mixed methods (n=1) Qualitative studies (n=2)	Canada (n=1) USA (n=2)	First Nations/Inuit (n=1) American Indian/ American Natives (n=2)	Negative (n=3)	Environmental destruction/ contamination (n=3)	Environmental destruction (n=3) Undermining cultural well- being (n=2)	Collaboration with Indigenous people (n=1) Upholding land sovereignty (n=1) None mentioned (n=1)	No Indigenous involvement mentioned (n=3) Reinforces indigenous values/strength-based approach (n=1)
Gambling industry (n=2)	Qualitative studies (n=1) Cross-sectional (n=1)	Australia (n=1) New Zealand (n=1)	Aboriginal and Torres Strait Islander (n=1) Māori (n=1)	Negative (n=2)	Promotional deals/ leisure deals (n=1) Marketing (n=1)	Gambling dependency (n=1) Domestic violence and family dysfunction (n=1)	Prevention strategies in consultation with Indigenous group (n=1) Regulation (n=1)	None mentioned (n=2)
Alcohol industry (n=2)	Cross-sectional (n=1) Commentary (n=1)	Australia (n=1) New Zealand (n=1)	Aboriginal and Torres Strait Islander (n=1) Māori (n=1)	Negative (n=2)	Marketing (n=1) CSR/lobbying (n=1)	Alcohol abuse (n=2)	Regulation (n=1) None mentioned (n=1)	None mentioned (n=2)
Tourism industry (n=2)	Qualitative studies (n=2)	Australia (n=1) New Zealand (n=1)	Aboriginal and Torres Strait Islander (n=1) Māori (n=1)	Positive (n=2)	Social and culturally appropriate ventures (n=1) Cultural awareness tourism (n=1)	Reinforcing cultural well- being (n=2)	Enhancement of social entrepreneurship (n=1) Implementation of tourism framework (n=1)	Indigenous consultation conducted (n=1) Reinforces indigenous values/strength-based approach (n=2)
Sex industry (n=1)	Mixed methods (n=1)	Canada (n=1) USA (n=1)	First Nations/Inuit Canada (n=1) American Indian/ American Natives populations USA (n=1)	Negative (n=1)	Targeting First Nations Peoples (n=1)	Sexually transmitted infections, physical and sexual abuse, mental illness and drug and alcohol abuse (n=1)	Intervention/ programmes (n=1)	Reinforces indigenous values/consultation conducted (n=2)
Sportswear industry (n=1)	Qualitative studies (n=1)	Canada (n=1) USA (n=1)	First Nations/Inuit (n=1) American Indian/ American Native (n=1)	Negative (n=1)	Marketing (n=1)	Undermining cultural well- being (n=1)	Limiting privatisation social justice (n=1)	None mentioned (n=1)
Medical device industry (n=1)	Qualitative studies (n=1)	Canada (n=1)	First Nations/Inuit (n=1)	Positive (n=1)	Collaboration Indigenous communities (n=1)	Providing culturally appropriate products (n=1)	More collaboration with Indigenous people (n=1)	Reinforces indigenous values/consultation conducted (n=2)
CSR, corporate social responsibility.								



**Figure 2** Commercial activities reported in included articles.

marketing of pharmaceuticals targeting Indigenous populations was also reported.<sup>72</sup> Two studies reported these activities increased the risk of prescription drug (eg, painkiller) dependency<sup>72 75</sup> and reduced access to essential medicines among Indigenous populations.<sup>73</sup>

Two articles reported pharmaceutical industry activities that may have a positive effect on Indigenous health and did not report industry funding.<sup>71 74</sup> They described collaborating with Indigenous communities in product formulation<sup>71</sup> and promoting traditional medicine and healing practices.<sup>74</sup> To mitigate the negative impacts of the pharmaceutical industry, articles recommended industry-funded university scholarships for Indigenous students, involving Indigenous companies and researchers to promote traditional medicine<sup>71 74</sup> and stronger regulatory agencies to govern the pharmaceutical industry, including regulation of direct-to-consumer marketing.<sup>72 73 75</sup>

### Fishing industry

Three articles focused on the commercial fishing industry.<sup>76–78</sup> They all described environmental destruction and contamination in local waterways and poor health outcomes due to environmental pollutants and toxicants.<sup>76–78</sup> An example of this is salmon farms in remote Canada releasing faecal matter, feed and chemicals into the natural marine environment.<sup>76</sup> Two of these articles also suggested that the fishing industry undermined cultural well-being for Indigenous communities by disrupting the reciprocal relationship between Indigenous peoples and other beings through lack of active management of fragile ecosystems.<sup>76 78</sup> The proposed strategies to overcome these consequences were increased collaboration between the industry and Indigenous Peoples<sup>76</sup> and for both governments and industry to uphold land sovereignty.<sup>78</sup>

### Gambling industry

The gambling industry was the focus of two articles, one involving sports-related gambling and lotteries<sup>79</sup> and one focused on casinos.<sup>80</sup> The articles reported that the

gambling industry targeted Indigenous communities with promotional deals in casinos<sup>80</sup> and other forms of marketing.<sup>79</sup> Perceived health outcomes associated with gambling, according to a qualitative study, were domestic violence and family dysfunction,<sup>80</sup> while a cross-sectional study measured exposure to marketing of sports-related gambling and lotteries, suggesting early exposure may lead to higher dependency.<sup>79</sup> Recommendations to overcome the harms associated with gambling industry activities included developing prevention strategies in consultation with Indigenous organisations/groups<sup>80</sup> and increased regulation of casinos by restricting the number, location and visibility of gaming machines.<sup>79</sup>

### Alcohol industry

Alcohol industries were the focus of two articles.<sup>81 82</sup> They reported direct alcohol marketing targeting Indigenous populations,<sup>82</sup> lack of community consultation and strong political lobbying by alcohol retailers regarding proposals to build alcohol outlets near Aboriginal communities.<sup>81</sup> One study demonstrated that alcohol marketing was associated with increased alcohol consumption,<sup>82</sup> and both articles argued increases in alcohol availability and exposure would likely increase the prevalence of alcohol-related harm and the normalisation of alcohol.<sup>81 82</sup> Potential strategies suggested overcoming these health impacts including strict legislation restricting all forms of alcohol marketing<sup>82</sup> and more effective consultation with local Indigenous organisations and communities to respond to the concerns about alcohol availability.<sup>81</sup>

### Other manufacturing industries

Two articles focused on other manufacturing industries, including the pulp mill industry<sup>83</sup> and rubber industry.<sup>84</sup> Both described negative impacts of these industries, reporting that they were associated with land-use conflicts, environmental pollution and contamination with black dust emanating from a rubber facility, and dumping in waterways from the pulp mill.<sup>83 84</sup> The authors argue that the displacement of land due to manufacturing is an act of the colonial state, undermining cultural well-being.<sup>83</sup> They proposed establishing an independent organisation to undertake Environmental Impact Assessments, to replace industry self-assessments.<sup>83</sup>

### Sex industry

A single study focused on the commercial sex industry.<sup>85</sup> It reported the ways in which pimps within this industry specifically targeted girls and women from Native American and Alaskan communities and lured or forced them into prostitution.<sup>85</sup> The health outcomes associated with commercial sexual exploitation and trafficking included sexually transmitted infections and physical and sexual abuse, mental illness and drug and alcohol addiction.<sup>85</sup> The study advocated for coordinated, culturally based, trauma-centred, multilevel services provided by Indigenous staff to support Native American girls who were

vulnerable to exploitation. No recommendations were made about regulating or policing the industry itself.

### Sportswear industry

One article described the negative commercial activities of a sportswear company and the sports industry.<sup>86</sup> The company reportedly produced discriminatory marketing and native mascotry.<sup>86</sup> The authors report Indigenous caricatures, logos and rituals are becoming increasingly prevalent in sportswear companies and sports.<sup>86</sup> This undermines cultural well-being due to the misappropriation of culture and cultural expression. The authors recommended stronger regulation of sports organisations and brand companies.<sup>86</sup>

### Tourism industry

Cultural tourism companies, led by Indigenous people, were reported as commercial ventures that could have a positive impact on the health and well-being of Indigenous people.<sup>87 88</sup> Indigenous tourism operators, culturally sensitive guided tours and community visits<sup>87</sup> and other local ventures that encourage community development,<sup>88</sup> were reported to enhance connection to culture, Indigenous knowledge and spiritual well-being for local community members.<sup>87 88</sup> Authors recommended more support for social entrepreneurship and asserted that Indigenous tourism must be governed by local communities to prevent commercial tourism industry exploitation.

### Medical device industry

Dementia management devices were the focus of one article, which was industry funded.<sup>89</sup> The article reported that the industry made a positive contribution through collaboration with Indigenous communities that, in turn, enabled provision of culturally appropriate health products, including materials in Indigenous languages and altering tracking features in response to community concerns about privacy.<sup>89</sup> Collaboration with Indigenous peoples through focus group discussion to inform design and trialling products within communities was proposed as a strategy to enhance other culturally specific health products.<sup>87</sup>

### Indigenous involvement

Most articles (n=33) did not provide any details of Indigenous involvement in the research. Twenty-five articles described some form of Indigenous involvement, such as consultation processes with Indigenous communities prior to conducting the research,<sup>25 38 39 41 42 53 63 68 80 83 85 87 89</sup> inclusion of Indigenous researchers/authors,<sup>58 68 87 88</sup> incorporation of Indigenous worldviews,<sup>38 58 64 83</sup> and applying cultural values or strength-based approaches.<sup>35 38 39 42 43 47 48 53 55 57 59 67 68 78 83 85 87 88</sup> Only three studies were conducted using an Indigenous research paradigm. These included Indigenous stories as Indigenous theories,<sup>35</sup> Māori perspectives on sustainability that are underpinned by a sociological framework<sup>87</sup> and a Mi'kmaq First Nations Canadian environmental theoretical framework.<sup>83</sup>

## DISCUSSION

This review of 56 articles across 6 countries, highlights multiple examples of commercial industries contributing to Indigenous health and well-being. Our findings suggest that commercial activities such as exploitation of Indigenous land, marketing, lobbying and CSR strategies may be harming Indigenous health through environmental contamination, consumption of unhealthy products (eg, tobacco, alcohol, ultraprocessed foods, prescription drugs) and undermining cultural well-being. Conversely, when commercial actors genuinely worked with, and for, Indigenous communities, this had the potential to enhance cultural well-being. Our review also highlights the need for more Indigenous-led empirical research in this field.

Other reviews examining commercial influences on health have attempted to provide a definition and broad conceptual frameworks for this area of research.<sup>19 90–95</sup> To the best of our knowledge, none have systematically identified and mapped the specific industries, activities and the potential health and well-being consequences that are impacting Indigenous populations. de Lacy-Vawdon and Livingstone outlined the current literature on the key macrolevel conditions, relations, structures, activities and consequences of the CDoH. However, they note that the literature focusses on only the negative outcomes of CDoH, not the potential positive outcomes.<sup>90</sup> Our review of the commercial determinants of Indigenous health identified similar harmful industries to de Lacy-Vawdon and Livingstone, specifically the mining, tobacco, alcohol, food, pharmaceutical and gambling industries. We also identified industries that potentially made positive impacts, with Indigenous cultural tourism being a key example.<sup>90</sup> Poirier *et al* synthesised evidence about mechanisms through which neoliberalism impacts Indigenous health.<sup>96</sup> Similar to our findings, they highlight the role of competitive and private markets in enabling the contamination of Indigenous land and waterways, the loss of traditional lands and food ways, and the 'intense marketing of Western foods' (Poirier *et al*, p8).<sup>96</sup> We extend the findings of Poirier *et al* by detailing the specific commercial industries and activities that are impacting Indigenous health and well-being within neoliberal political environments.<sup>96</sup>

Mining and natural resource extraction was the predominant industry described to negatively influence Indigenous health and well-being (n=16). Our findings align with previous assessments of the impacts of the mining sector on Indigenous health.<sup>37 96</sup> For example, an Australian parliamentary inquiry into the destruction, by Rio Tinto, of a 46 000-year-old rock shelter highlighted the significance to spiritual and cultural well-being for the local Aboriginal community, concluding that Australia lacks effective legislative protections of Indigenous cultural heritage.<sup>97</sup> However, it has also been argued that mining companies can provide employment opportunities for Indigenous people, offering a relatively high income to directly support their families and

communities.<sup>98</sup> Although, it should be noted that when mining companies cease operation, access to essential services for local Indigenous people, such as healthcare, often diminish due to the sudden exodus of workers from the region.<sup>25 37</sup> Transparent mechanisms are required to assess the potential positive and negative impacts of the extractive industry so that communities can be empowered to make informed decision about their lands.

We found that CSR and lobbying strategies were used by multiple industries to influence policy and enable commercial activities in Indigenous communities. For example, we found that mining companies often capitalise on their CSR activities to construct a homogeneous representation of Indigenous Peoples when negotiating mining agreements, consequently the concerns of local Indigenous communities surrounding mining projects can be neglected.<sup>36 46</sup> CSR activities were also prominent with the food and beverage industry through sponsorship of local Indigenous activities related to education and employment opportunities for Indigenous young people.<sup>69</sup> While these CSR activities can provide direct benefits to communities, indirect impacts include promotion of unhealthy products to encourage consumption and brand loyalty.<sup>99</sup> Further, companies' use of CSR in political lobbying to avoid regulation undermines the health and well-being benefits that these activities may provide.<sup>99</sup> The tobacco industry fund foundations that purport to support Indigenous health research as an act of social responsibility, yet continue to promote sales of tobacco, which have indisputable adverse health consequences.<sup>52</sup> Commercial industries that do not predominantly profit from manufacturing or selling harmful products could potentially make a positive contribution on Indigenous health and well-being through CSR.

The most frequently reported avenue of corporate harm on Indigenous health and well-being identified in this review was the targeted marketing of harmful products (figure 2). This targeted marketing to Indigenous people was evident across the tobacco, alcohol, food, pharmaceutical, gambling and sportswear industries.<sup>52 70 75 79 82 86</sup> and often involved the misappropriation of Indigenous imagery in the USA. This misappropriation of Indigenous imagery is not new. In Australia, the 1980s advertising campaign by tobacco company WD & HO Wills used the slogan 'Get your own Black', while, in the 1990s Winfield tobacco had an advertisement that depicted an Aboriginal man playing a didgeridoo with the accompanying slogan 'Australians' answer to 'the peace pipe'.<sup>100</sup> Targeted marketing has also been used to promote products to African American populations.<sup>101</sup> However, over time, increased public attention has led to some companies, for example, within the sports industry, to eliminate the use of Indigenous imagery.<sup>102</sup> The extent and health implications of targeted marketing, including through use of Indigenous imagery, of products known to be harmful to health to Indigenous peoples is an important area for future research and public health policy.

This review identified 12 articles from Australia. In 2021, the Minister for Indigenous Australians requested a parliamentary inquiry on corporate sector engagement with Indigenous consumers, which found several examples of 'poor corporate behaviour', which may be impacting Aboriginal and Torres Strait Islander peoples' well-being.<sup>103</sup> An industry that was highlighted in the inquiry's interim report, that was not identified in this review, was the banking and finance sector, including pay-day loans and car financing and insurance products.<sup>103</sup> Further research is warranted on the health and well-being impacts of these industries on Indigenous peoples.

Our review is the first to consider the potential for Indigenous-led commercial activities to have a positive impact on Indigenous health and well-being. This is in line with the WHO's conceptualisation of the CDoH as private sector activities which can affect health either positively or negatively.<sup>104</sup> Mika and Scheyvens explored the principles of Māori tourism using principles of traditional ways of knowing, being and doing.<sup>87</sup> The authors posit that incorporating traditional Māori principles instils cultural awareness and promotes culturally reinforcing tourism enterprises.<sup>87</sup> Similarly, revitalisation of traditional Māori kai (food) through Indigenous-owned traditional food-based industries could support food security and economic empowerment.<sup>68</sup> Previous studies have found use of traditional foods enabled cultural continuity and connection to language, country and family.<sup>105</sup> However, Indigenous foods are becoming a lucrative industry and another avenue through which non-Indigenous businesses are appropriating Indigenous intellectual property for profit.<sup>106</sup> It is also important to provide a nuanced assessment of the health impacts of some Indigenous businesses. For example, First Nations-owned casinos in North America are a complex issue that may be concurrently associated with economic self-determination and gambling-related harms.<sup>107 108</sup>

We found a notable lack of Indigenous involvement in research about the commercial determinants of Indigenous health and well-being. Most studies included in this review did not mention whether Indigenous Peoples were involved in the research or dissemination of findings, and few explicitly applied an Indigenous research paradigm. This is at odds with the CONSIDER statement, which recommends that all research with Indigenous peoples report on the ways in which research governance, relationships, prioritisation, methodologies, participation; capacity building, data analysis and dissemination is undertaken with Indigenous communities.<sup>33</sup> Although we observed few studies that included Indigenous researchers, it is not always possible to determine the cultural identity of authors in academic journals.<sup>109</sup> The CONSIDER statement was published in 2019, after many of the studies included in this review had been completed. Therefore, we recommend that this tool be used to improve transparency

in the reporting of future research with Indigenous peoples. Supporting Indigenous-led research on the commercial determinants of Indigenous health should be a priority.

Recommendations to mitigate the negative impacts of commercial activities, from articles included in this review, were largely centred around the need for stronger regulation and monitoring of commercial activities, as well as the need for stronger consultation and collaboration with Indigenous communities. However, as Poirier *et al* highlight, in order to achieve transformational change, policy makers, practitioners and researchers must challenge the neoliberal and colonial paradigms that sustain Indigenous health inequity.<sup>96</sup> For example, public health should cease its focus on individual ‘lifestyle’ and, instead, proactively counter the powerful commercial interests that harm Indigenous peoples and undermine self-determination. Systematically monitoring and exposing commercial activities, as we have done in this review, is one recommended approach.<sup>110</sup>

A key strength of this review was that it involved Indigenous people. There were six Indigenous researchers on the review team, who will continue to work together to explore and address the commercial determinants of Indigenous health in a manner that is culturally safe. Through incorporating Indigenous voices into this review, the authors were able to contribute to self-determination principles by addressing topics directly impacting the Indigenous authors’ own communities. Our review team, including Indigenous authors, was based in Australia and we acknowledge that the perspectives of First Nations peoples from other countries may be different to ours, nor do we claim to represent all Aboriginal and Torres Strait Islander Australians. The systematic search strategy and review design is a further strength. Limitations included our decision to only include articles published in English and related to high-income countries. As such, the health implications of commercial activities on Indigenous populations in low-and-middle income countries were not considered. The commercial determinant of health is an emerging field of research, thus many (n=11/56) articles included in this review were commentaries or editorials and only 16 of the studies provided quantitative data. We did not assess the strength of the evidence and, while this is in line with scoping review methodology, the opinions and qualitative findings reported should be empirically tested in future research. Evaluation of strategies to counter the health and well-being consequences of commercial activities within Indigenous populations should be a priority as should defining the elements of Indigenous engagement and leadership required within the private sector to produce positive health and well-being outcomes.

## CONCLUSION

We identified numerous examples of commercial industry activities negatively impacting Indigenous

health and well-being. Strategies to mitigate these negative health consequences are urgently needed. Such strategies are context and industry specific but may include community health promotion interventions combined with stronger industry regulation, both of which should be designed in collaboration with Indigenous communities. The design of future research on the commercial determinants of Indigenous health must have a greater involvement of, and ideally be led by Indigenous peoples.

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