Peer- reviewed paper; submitted March 2021; accepted June 2021

Working towards Māori oral health equity: Why te Tiriti o Waitangi needs to underpin the oral health system, using evidence from the New Zealand Oral Health Survey

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Abstract

Background and objectives: The three Articles of te Tiriti o Waitangi establish rights for Māori in relation to Kāwanatanga, Tino Rangatiratanga and Ōritetanga. Despite this constitutional agreement, Māori continue to experience inequities in oral health and access to oral health services. The aim of this study was to describe the impact of oral conditions on the day-to-day lives of Māori adults through a te Tiriti o Waitangi lens.

Methods: Secondary analysis of nationally-representative data from the 2009 New Zealand Oral Health Survey. The short-form Oral Health Impact Profile (OHIP-14) was used to measure oral-health-related quality of life, and we determined the prevalence of one or more impacts 'Fairly often' or 'Very often'. Analyses were weighted and controlled for sex, neighbourhood socioeconomic deprivation and clinical characteristics. The Articles of Te Tiriti o Waitangi (Kāwanatanga, Tino Rangatiratanga and Ōritetanga) provide the te Tiriti analytical framework.

Results: Māori were greatly affected by their oral health in all domains of the OHIP-14 after controlling for sex, neighbourhood socioeconomic deprivation and clinical characteristics. Overall, one or more oral health impacts was reported by one in five Māori, with a sex-adjusted relative risk (relative to non-Māori) of 1.49 (95% CI 1.16, 1.91), reflecting almost 50% higher prevalence of impact.

Conclusion: The oral health system in Aotearoa has caused negative oral health experiences and outcomes for Māori adults and breached Māori rights under te Tiriti o Waitangi. New oral health policies are urgently required to redress this breach.

Introduction

Māori are the tangata whenua of Aotearoa, with rights related to Kāwanatanga, Tino Rangatiratanga and Ōritetanga established with the signing of te Tiriti o Waitangi (te Tiriti) between Māori chiefs and the British Crown in 1840. Te Tiriti is the te reo Māori text of an agreement that enabled the British Crown to set up Government in Aotearoa (Kāwanatanga), protected Māori chiefs in their unqualified chieftainship (Tino Rangatiratanga) over their lands, villages and taonga and granted them the same rights and duties of British citizens (Ōritetanga). Many Māori chiefs believed that they were agreeing to a protectorate arrangement in which their internal power, authority and taonga (which included intangible valued possessions) would be preserved (Orange, 2011). The English version text, known as the Treaty of Waitangi, differs significantly, as Article One states that Māori ceded sovereignty and Article Two focuses on Māori property rights and fails to recognise the protection of Māori taonga. Māori almost certainly understood that their existence as a distinct people and their ways of life would be protected and that they would enjoy an equitable share in all the benefits and innovations of settlement (Te Puni Kōkiri, 2001). Given that over 500 Māori chiefs signed te Tiriti (Orange, 2011), as well as the international doctrine of contra proferentem (Te Puni Kōkiri, 2001) which dictates that in cases of ambiguity a Treaty is to be interpreted against the drafting party, it is te Tiriti o Waitangi that establishes Māori rights. The differences between the two texts have generated tensions between Māori hapū/iwi and successive New Zealand Governments that represent the Crown in the Treaty partnership, with the latter failing to recognise Māori rights as te Tiriti partners. Māori rights to good governance (Reid, 2013), absolute sovereignty over lands, resources and tāonga (which include oral health) and the same rights and privileges as British citizens (which include oral health equity) have not been upheld (Waitangi Tribunal, 2019). The academic literature in Aotearoa has often highlighted oral health disparities between Māori and non-Māori New Zealanders, whereby Māori as a population (along with their Pasifika whānau) experience the poorest oral health (Ministry of Health, 2010).

Data published from the 2009 New Zealand Oral Health Survey provide evidence of breaches of te Tiriti, given that they highlighted the oral health inequities experienced by Māori children and adults in both oral health status and access to oral health services. Māori adults had a greater accumulated lifetime experience of dental disease than non-Māori, were less likely to visit a dental professional, and were more likely to avoid dental care due to cost (Ministry of Health, 2010). Clinical measures of oral disease are well documented in the Aotearoa oral health literature, but what is less well known are the effects of poor oral health on people.

The aim of this study was to understand the ways in which poor oral health impacts the day-to-day lives

of Māori adults. In Aotearoa, there has been very little research published on the oral health of Māori adults and kaumātua. By contrast, the Community Oral Health Services collect annual data on tamariki oral health, with the resulting information demonstrating considerable inequities (Ministry of Health). Given the extent of those childhood inequities, and clear evidence for the widening of inequities with age (Thomson, 2012), we would expect to see greater adulthood inequity. Accordingly, the aim of this study was to describe and interpret the impact of oral conditions on Māori adults through a te Tiriti lens.

Methods

Data come from the 2009 New Zealand Oral Health Survey (NZOHS; Ministry of Health, 2010), a cross-sectional survey of a national sample of the approximately 94% of adults who were usually resident in private dwellings. The 2009 NZOHS followed up on the 2006/07 New Zealand Health Survey, with the sample selected from its re-contact database. The survey, conducted from February to December 2009, involved a computer-assisted face-to-face interview, and a dental examination. Information was collected from 4906 New Zealanders (adults and children), with 3196 dental examinations conducted by examining dentists. The interview gathered information on self-reported oral health status, risk and protective factors for oral conditions, and the use of oral health care services. The clinical examinations collected oral disease information with a focus on dental caries and periodontal disease. A specialised survey company undertook the interviewing, data collection and preparation of the datasets. The New Zealand Health and Disability Multi-Region Ethics Committee granted approval for the 2009 NZOHS (MEC/07/11/149), and the study was undertaken in accordance with the Declaration of Helsinki.

Table 1. The short-form Oral Health Impact Profile (OHIP-14; Slade, 1997)

For each of the 14 items, the respondent circles the response option which best applies to him/her during the previous 4 weeks
Have you had trouble pronouncing any words?
Have you felt that your sense of taste has worsened?
Have you had painful aching in your mouth?
Have you found it uncomfortable to eat any foods?
Have you been self-conscious?
Have you felt tense?
Has your diet been unsatisfactory?
Have you had to interrupt meals?
Have you found it difficult to relax?
Have you been a bit embarrassed?
Have you been a bit irritable with other people?
Have you had difficulty doing your usual jobs?
Have you felt that life in general was less satisfying?
Have you been totally unable to function?

[a]Response options: Never (scoring 0); Hardly ever (1); Occasionally (2); Fairly often (3); Often (4)

The source population numbers represented by each of the age groups in this study were: 18-34, 792,146; 35-44, 596,831; 45-54, 529,577; 55-64, 365,327; and 65 or older, 358,264 (with the total adult population represented being 2,642,144). The 3475 participants in the adult sample included 1267 Māori, 353 Pasifika, 518 Asian and 2125 European/other people aged 18 or over. Some 2209 adults were dentally examined, with 2048 undergoing a periodontal examination. Excluded from the periodontal examination were adults who (at interview) indicated that they were edentulous, and those whose medical history indicated they needed to take antibiotics before a dental visit. Participation was voluntary and informed consent was obtained.

The short-form Oral Health Impact Profile (OHIP-14) (Slade, 1997) was used to measue oral-health-related quality of life (OHRQoL). For each of the 14 items, the respondent circles the response option which best applies during the previous 4 weeks. The response options were based on a five point scale from 0 = Never, 1 = Hardly ever, 2 = Occasionally, 3 = Fairly often and 4 = Often (Table 1). The prevalence of impacts was computed by identifying individuals who experienced at least one impact “Very often” or “Fairly often”.

Data analysis

The statistical programme Stata (version 15.1) for Windows (Stata Corp, College Station, TX, USA) was used in these secondary data analyses. Survey data weights were used. After determining the prevalence of one or more OHIP-14 impacts ‘Fairly often’ or ‘Very often’, we cross-tabulated by ethnicity and age group. We then modelled impact occurrence using the GLM command with a modified Poisson approach (see http://www.ats.ucla.edu/stat/stata/relative_risk.html) to estimate relative risks and confidence intervals using robust error variances. We adjusted for sex, neighbourhood socioeconomic deprivation, the number of untreated decayed teeth, number of missing teeth and xerostomia status.

Te Tiriti o Waitangi Framework

The Articles of te Tiriti o Waitangi have been used as our overarching Tiriti analytic framework. These articles are Kāwanatanga (Article 1), Tino Rangatiratanga (Article 2) and Ōritetanga (Article 3).

Results

Table 2 summarises the sociodemographic characteristics of the sample. Within the adult sample, 11.1% identified as Māori. The proportion of Māori was lower in the older age groups (for example, 17.6% of 18-to-24-year-olds were Māori whereas only 3.7% of those aged 65 or older were). Females slightly outnumbered males.

Overall, one or more oral health impacts was reported by one in five Māori (Table 3), with a relative risk of 1.49 (95% CI 1.16, 1.91), relative to non-Māori, once adjusted for sex, reflecting an almost 50% higher prevalence of impact. Adjustment for neighbourhood socioeconomic deprivation resulted in a relative risk of 1.24 (95% CI 0.96, 1.61), which suggests that socioeconomic factors

Table 2. Sample characteristics: Māori and non-Māori ethnicity by sex and age group (estimates are row percentages unless otherwise indicated)

	Ethnicity					
	Māori		Non-Māori		Both combined[a]	
Sex						
Male	10.6	(10.0, 11.3)	89.4	(88.7, 90.0)	47.8	(46.9, 48.7)
Female	11.5	(11.0, 11.9)	88.5	(88.1, 89.0)	52.2	(51.3, 53.1)
Age group						
18 to 24	17.6	(14.3, 21.5)	82.4	(78.6, 85.7)	13.1	(11.5, 14.8)
25 to 34	15.2	(12.6, 18.2)	84.8	(81.8, 87.4)	16.9	(15.0, 19.1)
35 to 44	13.0	(11.4, 14.8)	87.0	(85.2, 88.6)	22.6	(20.9, 24.4)
45 to 54	9.0	(7.7, 10.5)	91.0	(89.5, 92.3)	20.0	(18.4, 21.8)
55 to 64	6.8	(5.3, 8.8)	93.2	(91.2, 94.7)	13.8	(12.5, 15.2)
65 or older	3.7	(3.0, 4.7)	96.3	(95.4, 97.0)	13.6	(12.5, 14.8)
All combined	11.1	(10.7, 11.5)	88.9	(88.5, 89.3)	100.0	(—)

[a] Column percent

Table 3. Prevalence of OHIP-14 impact by age group and ethnicity (percentage; 95% CI)

	Ethnicity					
	Māori	Non-Māori	Relative risk (unadjusted)	Relative risk[a]	Relative risk[b]	Relative risk[c]
All ages combined	22.8 (18.8, 27.4)	15.2 (12.8, 17.9)	1.50 (1.17, 1.92)	1.49 (1.16, 1.91)	1.24 (0.96, 1.61)	1.10 (0.88, 1.39)
18-34 age group	19.5 (13.3, 27.7)	15.5 (10.2, 22.7)	1.26 (0.72, 2.21)	1.25 (0.72, 2.18)	0.94 (0.54, 1.63)	0.83 (0.53, 1.30)
35-44 age group	23.6 (17.7, 30.7)	12.6 (8.9, 17.6)	1.86 (1.23, 2.84)	1.87 (1.22, 2.85)	1.63 (1.01, 2.64)	1.24 (0.70, 2.20)
45-54 age group	31.7 (23.3, 41.5)	20.8 (15.7, 26.9)	1.53 (1.03, 2.27)	1.47 (0.98, 2.21)	1.32 (0.88, 1.96)	0.96 (0.62, 1.48)
55-64 age group	24.1 (12.1, 42.3)	12.3 (7.7, 19.0)	1.96 (0.92, 4.18)	1.96 (0.93, 4.12)	1.94 (0.82, 4.59)	1.54 (0.60, 3.97)
65+ age group	15.9 (9.8, 19.0)	13.8 (9.8, 19.0)	1.15 (0.50, 2.64)	1.14 (0.49, 2.63)	—[d]	0.84 (0.34, 2.11)

[a] Adjusted for sex
[b] Adjusted for sex and neighbourhood socioeconomic deprivation
[c] Adjusted for sex, neighbourhood socioeconomic deprivation and clinical characteristics (number of untreated decayed teeth, number of missing teeth and xerostomia status)
[d] Model with deprivation in it unable to converge for the oldest age group

contributed about 25% of the higher relative risk for impact on Māori. When clinical characteristics were accounted for, the day-to-day lives of Māori were still heavily impacted, with a relative risk of 1.10 (95% CI 0.88, 1.39). Across all age groups, Māori adults were more likely to experience a poorer quality of life due to their oral health (after adjustment for sex). In the 55-64 age group, Māori adults were almost twice as likely to be impacted (after adjustment for both sex and sex and neighbourhood socioeconomic deprivation).

Discussion

This study has demonstrated that the day-to-day lives of Māori adults are greatly impacted by their oral health, regardless of the extent of their oral disease and level of neighbourhood socioeconomic deprivation. There have been numerous descriptions of how poor oral health and access to services influence inequities (Reda at al, 2018; Knorst et al, 2021). We acknowledge the complex causes of inequities, including the colonial history of Aotearoa that has led to Māori, as tangata whenua, being colonised, marginalised and scrutinised as 'outsiders', as well as the role of racism in all forms: institutional, interpersonal and internalised (Reid and Robson, 2007; Jamieson et al, 2020). These determinants of health are essential components of te Tiriti o Waitangi breaches, and of the equity picture, and contribute to the negative oral health experiences of Māori adults. This is the first study of its kind looking at the way oral health affects the day-to-day lives of Māori adults through a te Tiriti lens. Controlling for sex, neighbourhood socioeconomic deprivation and clinical characteristics (Salmond & Crampton, 2012) indicates that there are additional elements, over and above these control variables, contributing to inequities.

The available oral health literature and data suggest that, at any age, Māori are more greatly impacted by their oral health than non-Māori New Zealanders. Our findings confirm this. This finding persisted following adjustment for neighbourhood socioeconomic deprivation, except for the 18-34 age group. The 55-64 age group appears to experience particularly negative impacts from their

oral health, given that their higher relative risk persisted throughout all adjustments. Interestingly, once clinical measurements were included, the impact on Māori adults in the 18-34, 45-54 and 65+ age group appeared to be lower. Overall, the day-to-day lives of Māori were more likely to be impacted by their oral health status.

Te Tiriti o Waitangi analytical framework is a rights-based approach to scrutinising the oral health care system using the Articles of te Tiriti. Much Government discourse privileges the Treaty of Waitangi and the guiding Treaty principles over te Tiriti o Waitangi. This approach reinforces the incorrect view that Māori ceded sovereignty to the British Crown, an argument that the Waitangi Tribunal found against (Came et al, 2020). Te Tiriti o Waitangi is the definitive Treaty text, given that its Articles were debated by Māori Chiefs and representatives of the British Crown. There is also the international legal doctrine of *contra proferentem*, which maintains that in the event of dispute, the instrument should be interpreted against the drafting party, in this case the British Crown (Te Puni Kōkiri, 2001). As an outcome of the WAI2575 Hauora report, new contemporary principles of Tino Rangatiratanga, Equity, Active protection, Partnership and Options have emerged and been adopted within Whakamaua (Ministry of Health, 2020), the Māori Health Action plan. These new revised principles will play an important role in the health and disability system, but their revision demonstrates how the Government can alter and change the principles to suit the requirements of the day, whereas Māori rights under the Articles of te Tiriti o Waitangi remain the same.

Article One: Kāwanatanga

The Crown is responsible for ensuring equitable policy outcomes and for the active protection of Māori health and well-being (Came et al, 2020). The now outdated government strategy document 'Good oral health for All, for Life' (Ministry of Health, 2006) was set to run a 10-year course from 2006, yet it still sets the strategic vision for oral health policy in Aotearoa. The document is silent on the subject of te Tiriti and does not reference it. During its inception, the strategic vision was guided by the New Zealand Health Strategy—which, according to the Waitangi Tribunal, did not feature equity or prioritise Māori health—and the Primary Health Care Strategy, which featured the principles of the Treaty but failed to acknowledge Māori rights under the Articles of te Tiriti. The New Zealand Health and Disability Act 2000 has been placed under intense scrutiny by the Waitangi Tribunal, with revelations that the Treaty clause does not go far enough in ensuring that the health system upholds Māori rights to equity (Waitangi Tribunal, 2019). The Health and Disability System Review stated that Māori health outcomes are significantly worse than those of other New Zealanders, and that this represents a failure of the health and disability system and does not reflect te Tiriti commitments (Health and Disability System Review, 2020). The Government response to these failures in Kāwanatanga includes the Ministry of Health document Whakamaua (Ministry of Health, 2020) and the recent announcement of a new Māori Health Authority to work alongside the proposed new entity Health New Zealand. With these points in mind, there is hope that future oral health policy and oral health services will be designed and delivered to be compliant with te Tiriti. Breaches in Kāwanatanga create systemic disadvantages that flow down to impact on the day-to-day lives of Māori.

Article Two: Tino Rangatiratanga

The health and disability system must create opportunities for Māori to exercise their rangatiratanga. At a systems level, Tino Rangatiratanga can be expressed through further engagement by the Crown with Māori Health Providers to develop Kaupapa Māori dental services (Ministry of Health, 2011) and through developing the Māori oral health workforce. Investment in Kaupapa Māori services—which reflect mātauranga Māori and give expression to te Tiriti o Waitangi—ensures that both clinically and culturally responsive care is delivered to meet the needs of Māori (Health and Disability Systems Review, 2020). There is a marked under-representation of Māori across a range of health professions (Waitangi Tribunal, 2019). Māori make up only 3.6% of dentists and dental specialists, 2.5% of dental technicians and 10.5% of oral health therapists (Dental Council New Zealand, 2021). Increasing the capacity of the Māori health and disability workforce at all levels of the health and disability system, which would include oral health, is a priority area of Whakamaua. The Māori health workforce is a key enabler to improve health and equity for Māori; when matched to the needs of the community, it can make a substantial contribution to addressing racism in the health system by ensuring culturally safe and responsive care (Ministry of Health, 2020). Based on Māori consumer experiences, recommended actions to improve the experiences of health care include integrating tikanga into all health services, and increasing Māori workforce capacity in developing health services (Health and Disability Systems Review, 2020).

Article Three: Ōritetanga

The Crown has failed to uphold Māori rights to Ōritetanga not only through the inequities in oral health and access to dental care, but also through the failure to collect adult oral health data which would allow for the monitoring of Māori adult oral health. This paper drew on data collected from the 2009 NZ Oral Health Survey because this is the most recent population-wide data-set available, despite the original intention to have a 10-year commissioning cycle, so that the survey would have been repeated in 2019. This highlights the urgent need for a comprehensive nation-wide oral health survey to explore issues such as the impact of oral health on the quality of life of adults in 2021. This is important in terms of collecting Māori health data, because there is insufficient qualitative and quantitative data collection to fully inform the Crown (Waitangi Tribunal, 2019). Up-to-date oral health data are necessary for informing appropriate policy development that will contribute to oral health equity for Māori. To better meet te Tiriti commitments,

the Crown would benefit from additional equity measures across all age groups to ensure that Māori oral health rights to Ōritetanga are met, along with greater sector accountability to meet those expectations.

Recommendations

In terms of future directions and future research, the Māori health action plan, Whakamaua (Ministry of Health, 2020), sets a new direction for achieving Māori health equity using te Tiriti Articles and revised principles, which must be considered when redesigning any new oral health policy and strategy. Guiding action by Whakamaua will enable the health and disability system to fulfil its obligations to te Tiriti, and demonstrate a commitment to Māori oral health. With the pending restructure of the Aotearoa health system and the proposed new Māori Health Authority, there is an urgent need to ensure that Māori oral health is a priority and that whānau have access to quality oral health services that (in turn) lead to equitable oral health outcomes. While Māori child data are currently routinely collected through the Community Oral Health Service (Ministry of Health), in order to better meet te Tiriti obligations, the Crown would benefit from additional equity measures from all age groups to ensure that Māori oral health rights to Ōritetanga are met, and there should be greater sector accountability to meet those expectations.

It is imperative that oral health services delivered in Aotearoa are driven by clinicians who are culturally responsive to Māori. This is especially important in a profession where over one-third of dentists and dental specialists are overseas-qualified (New Zealand Dental Council, 2020). Dental professionals should have proficient understanding of tikanga Māori (Māori ways of thinking and doing) and should be adequately trained in cultural competence and cultural safety, and understand Māori rights under te Tiriti o Waitangi. This is likely to change the way in which Māori patients experience oral health and so influence their quality of life. Māori should not have to leave their culture at the door when they walk into a dental clinic.

Limitations of this research

This study is the first analysis of New Zealand Oral Health Survey data using a te Tiriti lens. The Survey itself provides nationally representative data for 2009. While the survey findings are now over a decade old, we expect contemporary adult oral health data to be similar or worse (based on child oral health trends over the past decade). Some of the 95% confidence intervals reported in this paper span 1.0, indicating a level of statistical uncertainty arising from the relatively small sample sizes in some categories. While the findings have a consistent pattern, they should be interpreted with this uncertainty in mind.

Conclusion

The oral health system in Aotearoa has caused negative oral health experiences and outcomes for Māori adults and breached Māori rights under te Tiriti o Waitangi. Recognising both Tiriti partners, the legislative and policy framework of the New Zealand oral health care system must align with te Tiriti o Waitangi (Waitangi Tribunal, 2019). New oral health policies are urgently required to redress breaches of te Tiriti.

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Glossary

Aotearoa	New Zealand
Hapū	Sub-tribe
Iwi	Tribe
Kaumātua	Older people
Kāwanatanga	Good governance as per article 1 of te Tiriti
Ōritetanga	Same rights and duties as per article 3 of te Tiriti
Tamariki	Children
Tangata whenua	Indigenous people
Taonga	Anything prized, treasured
Te reo Māori	The indigenous language of Māori
te Tiriti o Waitangi (te Tiriti)	The Māori language version of the Treaty
Tikanga	Māori customary practices and values
Tino Rangatiratanga	Sovereignty as per article 2 of te Tiriti
Whānau	Family group