Ethnic bias and the hidden curriculum: The impact of routine inclusion of ethnicity in medical education assessment

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Abstract

Introduction: In 2012, the University of Otago Medical School in New Zealand amended high stakes examination questions to routinely include ethnicity. This policy change was prompted by the assessment committee, including the Māori subcommittee. This study aimed to examine the portrayal of Māori patients and to explore the impact of routine inclusion of ethnicity.

Methods: A quantitative description of demographic variables of examination questions and responses (role-model answers, multiple-response preferred answer, guidelines for markers) from a pre policy (2009–2011), post policy (2012–2013) and follow-up period (2018–2019) was undertaken. A qualitative content analysis of Māori examination questions was conducted with consideration of trends over time.

Results: The majority (98%) of examination questions did not report ethnicity prior to the 2012 policy, whereas around 80% of cases did post policy implementation. Three themes were identified: the non-adherent Māori patient, determinants of health and the patient assigned Māori ethnicity. Examination questions and responses that portrayed Māori as being non-adherent were more common prior to the implementation of the policy. Post policy, many questions did not require students to consider the relevance of ethnicity but presented an increase in social and cultural contextual information of the patient over time.

Conclusion: Policy implementation by the assessment committee led to less racist stereotyping and "othering" of Māori patients and prompted further refinement of social and cultural determinants of health over time. Future recommendations include increasing representation of Māori as a reflection of the increased burden of disease alongside representing intersectionality using other socio-cultural indicators.

Keywords: Indigenous; Māori; assessment; medical education; bias

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Introduction

Medical students' identity development as doctors is influenced by how implicit values, beliefs and attitudes and tacit learning are conveyed within medical school and health-setting learning environments (Monrouxe, 2010). The hidden curriculum, as described by Hafferty (1998), is a dimension of learning that occurs from "a set of influences that function at the level of the organisational structure and culture" (p. 404). Inadvertent messages can be transmitted through institutional policy, practice, language and documents and indirectly influence students' perceptions of what is valuable and important (Hafferty, 1998). These types of messages can be at odds with the formal curriculum—the explicitly stated and intended curriculum (Hafferty, 1998).

In recent decades, medical curriculum reform has included cultural competency in response to widespread healthcare inequities (Huria et al., 2017; Jones et al., 2019; Pitama et al., 2018). Cultural competency is a component of the formal curriculum that aims to improve students' recognition of ethnic health inequities as well as their attitudes and skills working with diverse populations (Jones et al., 2013). In New Zealand, this includes concepts relevant to Hauora Māori (Māori health). Māori are the Indigenous people of New Zealand and account for 16.5% of the population (Statistics New Zealand, 2019). Similar to other Indigenous populations, they experience high rates of mortality (New Zealand Ministry of Health, 2015) and disproportionate levels of disease (Harris et al., 2006). This reflects an increased exposure to risks for poor health, which occurs in the context of both historical and current impacts of colonisation. One of the contributory risk factors is how clinicians consciously and unconsciously perceive Indigenous patients and how they interact with Indigenous patient and family diversity and intersectionality (Nash, 2008; Viruell-Fuentes et al., 2012).

The language used in health professional learning environments, inadvertently or purposefully, marginalises Indigenous groups by the reinforcement of colonial and racist stereotypes (Ewen et al., 2012). Examination questions, including those in assessment items, are a potential source for institutional and systemic reinforcement of negative stereotypes. Turbes, Kreb and Axtell (2002) conducted a content analysis of medical assessment examination questions to uncover the hidden curriculum regarding gender, sexual orientation and ethnicity. They established an absence of ethnic identification for most examination questions, and when ethnicity was reported, it tended to be a marker of high health risk. Similarly, Marjadi et al. (2023) conducted an audit of 3,566 examination questions across three medical schools and reported a lack of diversity characteristics being portrayed, including a low rate of ethnicity description (7.2%). They concluded that attempts should be made by institutions to include demographic characteristics in examination questions.

Beyond these two studies, the hidden curriculum in assessment documents has received limited attention in the literature. This study sought to investigate the hidden curriculum within one medical school's high stakes examinations and to specifically examine the impact of a new policy on the portrayal of Māori patients.

Methods

Study design

The study was conducted during 2021–2023 using a mixed-method descriptive design. Descriptive designs do not use a pre-existing philosophical framework, rather the analysis and interpretation of the findings remains closely aligned with the original data, which Sandelowski (2010) describes as "data-near". This approach was chosen as it is well suited to the examination of documents and allows for a considered combination of sampling and analysis techniques (Colorafi & Evans, 2016; Sandelowski, 2010). It is important to note that the qualitative analysis required a level of interpretation as a means of uncovering the hidden curriculum in the examination questions and responses. Therefore, the researchers' frames of reference for the analysis are described to assist the reader with interpretation.

Setting and medical examination development

The University of Otago Medical School has a 6-year undergraduate medical program that operates across three main campuses located in major cities in New Zealand. Year 1 is a common year for all health sciences programs. Years 2–3 are predominantly science based, with some clinical exposure, and Years 4–6 are predominantly experience based, with reinforcement of the relevant theory. High-stakes end-of-year assessments occur at the end of Years 2, 3 and 5. High-stakes examination questions and responses were selected because they are used consistently across all three campuses in the medical school and overseen by a governing assessment committee.

Across the study period, there was an evolution of the Māori health curriculum and assessment (Huria et al., 2017). These phases are documented in Table 1.

Table 1

Evolution of Māori Health Curriculum and Assessment

Phase	Timeframe	Characteristics
1	2009–2011	Initial influence of a newly formed Māori health subcommittee (MHSC). A member of the MHSC was assigned membership on the curriculum assessment committee and formally took on the role as examination writers from 2011 onwards. The standard practice from this time is that all examination questions and responses involving Māori patients were screened by a representative of the MHSC prior to their inclusion in the high-stakes exam.
2	2012–2013	To reduce stereotyping and negative cueing and increase the authenticity of the case through the inclusion of ethnicity representative of the New Zealand population, the medical school introduced a new policy to amend high stakes examination questions to routinely include ethnicity.
3	2018–2019	Examination questions broadened to include further patient descriptors, specifically, patient name, age, gender and an assigned occupation as a proxy indicator for socioeconomic status.

Reflexivity and positionality

The researchers come from a variety of backgrounds and clinical disciplines (medicine, psychology and nursing) and are educators involved in the delivery and assessment of the Māori health curriculum. Two of the Māori researchers (SP, CL) were part of the Māori health subcommittee (MHSC) and involved in examination writing after 2012. One of the non-Māori researchers was also involved in examination writing and procedures as a member of the assessment committee (MT). The research group includes both Māori (n = 3) and non-Māori researchers (n = 3). Research relationships between Māori and non-Māori can be understood in the context of the Treaty of Waitangi, with both parties having clear responsibilities as treaty partners (Cram et al., 2006). Lead roles in conducting the research and analysis were undertaken by a senior Māori researcher (SP) and a non-Māori researcher (JM). This partnership is based on the premise that non-Māori researchers are engaged in the research for the benefit of Māori advancement. There was a high level of leadership from the Māori researchers within the group, with a preference for their direction and views regarding how to conduct the analysis and the portrayal of the findings to align with Indigenous research methodologies (Smith, 1999).

Data extraction and coding

All summative assessments at the University of Otago Medical School used for major decision points about readiness to progress between the years 2009 and 2013, and 2018 and 2019, were reviewed to identify questions involving clinical scenarios/stems. Examination questions and responses were drawn from both written questions—short answer (SAQ) and multiple-choice question (MCQ)—and observed structured clinical examination (OSCE) stations. The year, stage and format of the questions were recorded, and the demographic indicators coded for were ethnicity, gender, age and socioeconomic status (SES) quintile. Ethnicity groupings were the same as those used by the New Zealand census. SES quintiles were derived from the occupation stated in the examination question and coded based on the New Zealand socioeconomic index 2013 (NZSEI-13) (Fahy et al., 2017). For retirees, NZSEI-13 scores were based on previous occupation if it was stated. Examination questions were coded according to their occupation potential using the NZSEI-13 appendix input scores, which was based on stated qualifications and age. The full text of all examination questions that indicated Māori ethnicity were extracted for the qualitative analysis component of this study.

Research questions and their answers (multiple-choice options, model answers for short-answer questions, expectations of OSCE simulated patient portrayal based on actor scripts and prompts and marking schedules) were included in the qualitative analysis. Of the 1,750 available exam questions, 153 examination questions indicated Māori ethnicity and were documented as either MCQ, SAQ or OSCE stations.

Quantitative descriptive analysis

A total of 1,750 examination questions were available for quantitative analysis. Data were aggregated into the three time periods. Frequency distributions were determined for the demographic variables in each group and expressed as percentages. All quantitative analyses were performed using the IBM Statistical Package for the Social Sciences (IBM Corp, 2017).

Documentary analysis

Documentary analysis is a process of reviewing and evaluating documents as a means of examining and eliciting meaning (Bowen, 2009). The documentary analysis process can combine elements of thematic and content analysis. The first phase of the analysis was thematic, as described by Braun and Clarke (2012). The qualitative data were analysed initially by JM and then by SP. The first stage of analysis involved inductive coding of questions and their expected answers. These initial codes were refined, and similar codes were clustered, followed by a second phase of pattern coding to create subthemes and higher-order themes. The themes were reviewed by SP, drawing on the raw data and making some adjustments to the coding and theme development. The final phase of analysis was conducted by SP and involved frequency counting of the higher-order themes, with consideration over time. SP has expertise in Hauora Māori curriculum content and had been involved in the MHSC, therefore had insider knowledge. This phase of analysis resulted in the themes being presented using the three time period sections. The final categorisation was checked against the original data by a second qualitative researcher (JM).

Ethical statement

Due to the study not involving human participants, issues or health information, the university process did not require formal ethical approval. However, the study was conducted in accordance with the New Zealand Te Ara Tika Guidelines for Māori Research (Hudson et al., 2010), including the project being designed and conducted by Māori leadership for the intended benefit of advancing Māori health in New Zealand. Principles of equity, protection of rights and minimisation of harm aligned with the intended objectives of the project.

Results

Quantitative results

Overall, 1,750 examination questions were available for quantitative analysis. Of these, the majority were MCQ (84.3%), with a smaller number of SAQ (7.9%) and OSCE (7.8%) questions. The examination questions were predominantly from exams conducted in Year 5 of the course (88.7%), with only a small proportion from Years 2 and 3 (5.6% and 5.7%, respectively). Of the 1,750 cases, 744 (42.6%) were from examinations prior to the routine inclusion of ethnicity (Phase 1); 498 (28.4%) examination questions were

from documents after this change (Phase 2); and the remaining 508 (29.0%) (Phase 3) were from the 2018–2019 follow-up period.

A comparison of the ethnicity distribution between the three time periods/phases and the New Zealand population is shown in Table 2. Of the 1,750 examination questions, 844 (48.2%) stated the ethnicity of the patient, and 149 (17.7%) of these indicated Māori ethnicity. There was a wide variation in the presentation of ethnicity data between the time periods (see Table 2). Preceding routine inclusion of ethnicity, the vast majority (n = 725, 97.4%) of examination questions did not report ethnicity. The small number of examination questions that did include ethnicity were predominantly Māori (n = 13, 68.4%). Following the requirement to specify ethnicity, a higher frequency of ethnicity inclusion was seen (n = 405, 81.3%), and the frequency distributions between ethnic groups were more comparable to the New Zealand population. However, a slightly higher representation of Māori remained (17.3% compared to 14.9 % of the NZ population), whereas all the other ethnic groups were underrepresented, particularly in the NZ European group (62.6% compared to 74.0% of the NZ population). In the follow-up period, there was a similar distribution of ethnicity to the NZ population. The majority of cases in the follow-up period that did not state ethnicity were OSCE (n = 57, 64.8%) and SAQ (n = 30, 34.1%).

Table 2

Ethnicity Distribution in Examination Documents Pre-intervention, Post-intervention and Follow-up Period Compared to the New Zealand Population Usually Resident at the 2013 Census (n = 4,242,051)

	Phase 1 (2009–2011)		**Phase 2** (2012–2013)		**Phase 3** (2018–2019)		**Ethnicities in New Zealand population in 2013**	
Ethnicity	n	(%)	n	(%)	n	(%)	n	(%)
Not stated	725	(97.4)	93	(18.7)	89	(17.5)		-
Stated	19	(2.6)	405	(81.3)	419	(82.5)		-
Māori	13	(68.4)*	70	(17.3)*	66	(15.8)*	598,605	(14.1)**
NZ European	2	(10.5)*	253	(62.5)*	279	(66.6)*	2,969,391	(70.0)**
Pacifica	0	(0.0)*	18	(4.4)*	30	(7.2)*	295,941	(69.8)**
Asian	2	(10.5)*	36	(8.9)*	36	(8.6)*	471,708	(11.1)**
Middle Eastern/ Latin American/ African	1	(5.3)*	2	(0.5)*	0	(0)*	46,953	(1.2)**
Other	1	(5.3) *	25	(6.2) *	8	(1.9)*	67,752	(1.6)

* Valid percentage of cases where ethnicity was stated

** People could identify with more than one ethnic group, therefore proportions do not add up to 100%

Gender was only specified as male or female, with no examination of transgender/non-binary or other self-described genders across the time periods (Table 3). A higher proportion of males was observed for Māori in both the post-intervention period and follow-up periods when compared to non-Māori. Only a small percentage of examination questions stipulated patient occupation in the pre-intervention period (n = 11, 1.5%) and post-intervention periods (n = 27, 5.4%), which limits any interpretation of the distribution of SES status. However, occupation was reported in just over half (n = 260, 51.2%) of the examination questions during the follow-up periods. Of these questions, a fairly even distribution across the SES quantiles for Māori examination questions was observed, whereas non-Māori had a higher proportion of patients in the lowest quantile.

Table 3

Comparison of Māori and Non-Māori Demographic Descriptions When Stated in Examination Documents Pre-intervention, Post-intervention and Follow-up Period

	Phase 1 (2009–2011)				**Phase 2** (2012–2013)				**Phase 3** (2018–2019)			
	Māori		Non-Māori		Māori		Non-Māori		Māori		Non-Māori	
	n	(%)*	n	(%)*	n	(%)*	n	(%)*	n	(%)*	n	(%)*
Gender												
Male	7	(53.8)	3	(50.0)	46	(63.0)	157	(48.9)	36	(54.5)	155	(44.5)
Female	6	(46.2)	3	(50.0)	27	(37.0)	164	(51.1)	30	(45.5)	193	(55.5)
Transgender/ self-described	0	-	0	-	0	-	0		0	-	0	-
Age												
≤ 14	3	(25.0)	0	-	9	(12.7)	39	(12.2)	11	(16.7)	39	(11.1)
15–24	1	(8.3)	2	(33.3)	10	(14.1)	63	(19.7)	14	(21.2)	68	(19.3)
25–44	0	-	3	(50.0)	14	(19.7)	103	(32.2)	16	(24.2)	135	(38.2)
45–64	8	(66.7)	1	(16.7)	28	(39.4)	60	(18.8)	16	(24.2)	62	(17.6)
65 ≤	0	-	0	-	10	(14.1)	55	(17.2)	9	(13.6)	49	(13.9)
SES quintile												
1	3	(37.5)	0	-	5	(38.5)	5	(35.7)	12	(30.0)	25	(11.4)
2	0	-	0	-	0	-	1	(7.1)	8	(20.0)	47	(21.4)
3	3	(37.5)	1	(33.3)	5	(38.5)	2	(14.3)	11	(27.5)	47	(21.4)
4	2	(25.0)	2	(66.7)	3	(23.1)	6	(42.9)	9	(22.5)	101	(45.9)

* Valid percentages not including missing value

Qualitative results

The qualitative analysis process identified three specific themes of how Māori were presented within examination questions: the non-adherent Māori patient, the determinants of health and the patient assigned Māori ethnicity. These themes will now be presented within the three time periods to highlight trends over time.

The non-adherent Māori patient

Within this theme, the portrayal of Māori patients as "problematic" in a clinical setting was typical. The examination question presented Māori patients as exhibiting undesirable characteristics, with an emphasis on non-adherence, such as non-compliance to treatment plans or delayed presentations.

Phase 1.

This theme was present in short-answer questions and OSCE scenarios in the pre-intervention period (4 out of 13 items that recorded Māori as ethnicity). The examination question presented Māori patients in challenging situations, including teenage pregnancy, and implied domestic violence. The language used reinforced negative stereotypes of Māori and coached paternalism by locating the students as experts who needed to save the Māori patient. This is illustrated in the following OSCE case scenario, where Māori ethnicity was signposted with the use of an Indigenous name and a child's hearing loss that had not been previously identified by the teenage mother:

> Jacob Mahi, a 3-year-old child is brought into the emergency department at 8:00 pm by his mother, Maria. A teenage mum, Maria is 5 months pregnant with her second child. Maria reports Jacob had fallen from his cot onto his head early this morning, but apart from crying at the time, he had been his usual self. Around 1:30 pm Jacob vomited then fell asleep, so Maria put him to bed. … On admission, his GCS is assessed as 10/15. He has a large fresh bruise on his left forehead and temporal region. He has a black eye on the same side, and dried blood can be seen underneath Jacob's nose. … Late the next day, he is seen to sit quietly on his bed, and the nursing staff note that Jacob speaks very little. It is decided to have a specialist check Jacob's hearing.

It was also portrayed that previous treatment plans were unsuccessful due to non-compliance and poor lifestyle choices. In the model answers, the students were encouraged to explore lifestyle management choices for the Māori patient over usual interventions. This was illustrated in the following example that emphasised the role of smoking:

> He has always had poor control of his diabetes and continues to smoke, as he sees no connection between smoking and his health.

The presentation of Māori cultural protocols and practices were also used as a counter-narrative to following appropriate medical advice in some examination questions. The model responses highlighted the expectation to acknowledge the patient's cultural beliefs and values but then give the "correct" information, for example, to not bed share with an infant.

Phase 2.

This theme was present in short-answer questions and multiple-choice questions (3 out of 70 items that recorded Māori as ethnicity). Māori patients were non-adherent through being described as aggressive, which included examples of being abusive to staff members, particularly in mental healthcare contexts:

> She has abused staff members and thrown her dinner on the floor. … She knocked a glass out of a fellow resident's hand.

The characteristics of Māori patients being difficult was further reinforced by the senior doctor's comments recorded in the examination question. This was illustrated in the following example, where a senior doctor discussed a Māori patient negatively:

> Dr Grant says to the practice nurse, "I am sick of Stan coming in and wasting our time. … He has to change his behaviour, and he never listens.

Māori patients were also described as overly relaxed and not concerned about their health and wellbeing, which is portrayed in the follow excerpt:

> My view is that I have lived longer than my father and my brother. … I would rather live my life the way I want to.

Phase 3.

In this period, there were no cases that portrayed Māori specifically as non-adherent, non-compliant, aggressive or not wanting access to best-practice care (0 out of 66 questions that recorded Māori as ethnicity).

The determinants of health

This theme required students to consider the impacts of the broader determinants of health, including poverty, SES, employment, housing, racism, previous experiences in the health system, support networks and enablers and barriers to access quality health services. This theme more frequently described Māori patients as actively seeking help and wanting access to quality healthcare. Examination questions and responses in this theme were influenced by the Māori subcommittee involvement and, in most instances, written by them.

Phase 1.

During this period, multiple-choice questions presented this theme (9 out of 13 items that recorded Māori as ethnicity). The content of the examination questions and responses was

consistent with priority areas for Māori health and the role of healthcare services to meet this need. The examination questions and responses required learners to consider both biomedical and social factors that affected the presentation and access to healthcare. This is illustrated in the following excerpt:

> Hoani is reluctant to go to the hospital, as his work commitments make it financially difficult to have a lot of time off work. Hoani lives 20 minutes from the local public hospital.

The multiple-choice answers explored the student's understanding of marginalisation data, Māori health epidemiology, cultural protocols and processes—e.g., including whānau (family) in the consultation—and knowledge of Māori health models. The model answers identified the expectation that the students would consider the role of the determinants of health to inform lines of clinical enquiry, diagnosis and management.

Phase 2.

During this period, multiple-choice questions presented this theme (16 out of 70 items that recorded Māori as ethnicity). These questions expected students to identify the role of Māori beliefs, cultural practices, protocols and te reo Māori (Māori language) to support a more in-depth history from the patient. This is illustrated in the following example, which explores the students' understanding of Tikanga (Māori protocol):

> The Manawanui whānau ask a number of questions. … This includes a specific request to have any organ that is removed from Ms Manawanui to be returned back to them.

Within this period, students were also encouraged to engage in a shared partnership with Māori patients and find solutions that would be acceptable to the patient and whānau as a means of addressing systemic health inequity. For example, being asked "which action by the clinician is most likely to impair engagement with Ms Manawanui?"

Two questions drew on clinical presentations that have high prevalence rates in Māori and encouraged the students to consider the presentation within the context of the determinants of health. The following example identifies a regional area with high rheumatic fever rates:

> She has recently come down from Northland to stay with whanau, and you are unable to get an accurate past medical history. On examination, her temperature is 38.5°C, pulse 120 per minute. Her right knee is red, swollen and tender.

Phase 3.

During this period, multiple-choice questions, short answers questions and OSCE scenarios presented this theme (14 out of 66 items that recorded Māori as ethnicity). The stem for these examination questions had reduced substantially from earlier examination periods and was similar to the formatting of non-Māori specific items. The multiple-

choice answers and the marking guide for the short-answer questions and OSCE stations identified the expectation that the students were familiar with Māori health models, the context of the determinants of health and Māori cultural protocols and practices.

The patient assigned Māori ethnicity

This theme was comprised of multiple-choice questions that primarily presented a clinical presentation, with the patient randomly assigned their ethnicity as Māori:

> A 6-year-old Māori girl with normal development presents with …

Within this theme, the students were required to respond in a way that demonstrated a clear understanding of the pathology behind the presenting disease or illness and asked that the learner recommended a treatment aligned with medical best practice guidelines.

Phase 1.

During this period, one short-answer question fitted into this theme (1 out of 13 items that recorded Māori as ethnicity). Of note, the term "of Māori descent" was used, which is a more race-based term and inconsistent with other examination questions reporting ethnicity.

The case focused on a presenting condition that has high morbidity and mortality rates in Māori and did not promote negative stereotypes of Māori:

> Mr X is a 57-year-old vineyard owner of Māori descent who has a strong family history of heart disease. He presents to his GP with pain and tightness in his chest on exertion.

The role-model answer required students to know about the treatment of the presenting condition and didn't ask the student to establish the social context for the patient.

Phase 2.

During this period, a short-answer question and multiple-choice questions presented this theme (51 out of 70 items that recorded Māori as ethnicity). The frequency of this theme increased substantially from the pre-intervention examination period (from 1 to 51). Following the policy change, Māori ethnicity was randomly assigned to patients described in the examination. These questions presented some consistent broader determinants of health (age and occupation) but did not require the student to consider the relevance of the patients' ethnicity or social context within the case. This is illustrated in the following example:

> A 39-year-old Māori woman suddenly collapsed. An ambulance officer detected a rapid feeble pulse of over 180 beats/minute but was unable to get an ECG tracing because the "tachycardia" was transient. … A 12-lead ECG is normal. From the options provided, which aspect of history or examination is most helpful for making a diagnosis?

Phase 3.

In this period, multiple-choice questions presented this theme (52 out of 66 items that recorded Māori as ethnicity). A review of the random selection process within these questions identified students exposed to Māori patient profiles that reflected the diverse realities of the Māori community, with presentations from a range of disciplines and assigned to acute or non-acute presentations. Therefore, in this period, this theme complemented the "determinants of health" items of the same period and normalised the presence of Māori patients within clinical settings.

Discussion

This is the only retrospective interventional study to investigate whether the routine inclusion of ethnicity in examination questions and responses influences the hidden curriculum in assessments. Our findings suggest that examination questions and responses in medical assessment potentially contribute to the hidden curriculum. In this study, we identified that prior to policy change, racist stereotyping of Māori patients was promoted through the portrayal of non-adherent and aggressive behaviours. There was also evidence of "othering", as examination questions only identified "ethnicity" if the patient was Māori, and this was used as the sole marker of high health risk. The policy directing the routine inclusion of ethnicity and involvement of Māori examination writers/reviewers in examination development appeared to moderate these factors. A similar distribution of Māori ethnicity to the New Zealand population was determined in the follow-up period, however future efforts should aim to have representation that reflects the increased burden of disease and associated healthcare known to impact the Māori population.

The finding of racial stereotyping aligns with other studies that have also noted the presence of racial bias in doctors, with a common theme of perceived non-adherence (Green et al., 2007; Hall et al., 2015; Sabin & Greenwald, 2012). A New Zealand study also established implicit and explicit bias in medical students, who viewed New Zealand European patients as being more adherent relative to Māori patients (Cormack et al., 2018). Factors that impact Māori engagement with the healthcare system include experiences of racism, cultural alienation, socially determined pathways to treatment and health professional relational factors (Graham & Masters-Awatere, 2020). Portraying this as non-adherence is an example of deficit framing these institutional and colonial inadequacies as a fault of Māori rather than acknowledging and addressing the historical and institutional context in which it occurs.

Examination questions and responses were more uniform in Phase 3 and required the student to have sound medical knowledge, but they did not always include an understanding of broader systemic issues that influence Māori health. Whilst the inclusion of ethnicity was a positive step, without consistent use of the markers of social-determinants of health, one could argue these questions are an illustration of what Taylor (2003) describes as medicine's "culture of no culture".

The limitations to this study require consideration. Firstly, our study was undertaken in a single institution within New Zealand. Although the overall number of examination questions and responses included in the analysis was reasonable in size, the lack of ethnic identification prior to the policy change meant only a small number of examination questions were available for qualitative analysis prior to 2012. It is also important to acknowledge the researchers' influence on the generation of the findings and importantly that one of the researchers conducting the analysis was non-Māori. As a means of mitigating the risks associated with this, there was an ongoing process of discussion and reflection on the interpretation of the findings with the Māori researchers' interpretations of the data taking precedence. The final stages of the analysis were then completed by a senior Māori researcher (SP). Finally, the actual impact on student bias has not been evaluated. This would be difficult, as other curriculum changes impacting this have occurred concurrently.

The challenge for the future is for curriculum developers to combine information from Phases 2 and 3, in a succinct way, to ensure the questions are inclusive of ethnicity but not devoid of social and institutional context. This would allow for more holistic framing of health, inclusivity in use of language and a context that supports students from diverse ethnic/social cohorts. It could also be argued that this approach could be expanded to include other intersectionalities, such as LGBQTI+ and disability communities.

The findings highlight how the insidious nature of racism can infiltrate medical examination questions through projecting negative stereotypes, such as non-adherence, and demonstrate how policy change has the potential to circumvent this occurring when implemented with Māori expert committee oversight. Future recommendations include having an increased representation of Māori in examination questions, as a reflection of the increased burden of disease known to impact Māori, alongside an increase in the use of other socio-cultural indicators as a means of representing intersectionality.

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