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The undercounting of Indigenous Māori imprisoned by the New Zealand carceral state: a national record study

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Abstract

Background Indigenous Māori are imprisoned on a mass scale by the nation-state currently known as New Zealand, driven by racialised inequities that occur across the criminal legal system and a rapidly expanding carceral state. Lack of reliable data limits the ability to monitor and evaluate the health and disability impacts of imprisonment on Māori. We examined ethnicity data quality; specifically, potential miscounting of Māori in prison. All individuals who experienced at least one night of imprisonment between 2018 and 2021 were selected from the Department of Corrections (Corrections) data in the Stats NZ Integrated Data Infrastructure (IDI). We compared counts and proportions of Māori using two sources of ethnicity information; Corrections and IDI's core data. Within this cohort, we compared self-identified ethnicity from the 2018 Census with ethnicity recorded in Corrections data available in the IDI (via individual linkage), to assess levels of match between datasets and calculate net undercount.

Results Lesser numbers of Māori were recorded in the Corrections data compared to the IDI's core data (52% versus 57% of the study cohort), a pattern observed across all age and gender groups, and amongst those sentenced and on remand. For the linked analysis, only one third (34%) of the cohort linked to the IDI central spine had self-identified ethnicity from the 2018 Census. Of this group, 46% self-identified as Māori ethnicity. When this information was compared to ethnicity information reported by Corrections for the same individuals, there was a 12% undercount of Māori in Corrections data. The net undercount of Māori was 6%, equating to at least an extra 405 Māori imprisoned than what is publicly reported by government.

Conclusions Reliable data inclusive of high-quality ethnicity data are critical for understanding and monitoring Māori health in terms of resource allocation, policy decisions, and performance of health and disability services for Māori imprisoned in NZ. Systemic undercounting of Māori in prisons is a breach of Indigenous rights to monitor and evaluate impacts of government actions and inactions for Māori. We do not accept the inevitability of prisons but whilst prisons exist, and until there are no prisons left on Māori whenua (lands), an all-of-government approach

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to prioritisation of high-quality ethnicity data across the criminal legal system that meets obligations to Te Tiriti o Waitangi and international human rights instruments is urgently required.

Keywords Indigenous, Māori, Ethnicity, Prison, Health, Rights, 'Data linkage'

Background

The nation-state currently known as New Zealand (NZ) imprisons Indigenous Māori on a mass scale driven by systemic racialised inequities that occur across the NZ criminal legal system (Jackson, 1988; King, 2019; King et al., 2020). As of March 2025, the Department of Corrections (Corrections) reported that 10,680 people were imprisoned: 4,578 people remanded awaiting trial or sentencing; 5,942 who had received a prison sentence; and, 160 in mental health facilities and in police custody. Over half of those imprisoned (52.6%) are Māori (Corrections, 2025). Yet Māori, otherwise known as *tāngata whenua* (Indigenous peoples of the land) comprise only 17.8% of the NZ population (Stats, 2024).

The imprisonment of Māori on their own *whenua* (lands) reflects government breaches of Te Tiriti o Waitangi (Jackson, 1988; Jones, 2016), the internationally recognised instrument outlining those obligations of the British Crown to provide governance over its own British subjects whilst Māori retained sovereignty over their own nations and territories (Jackson, 1988; Jones, 2016; Te Tiriti o Waitangi, 1840). However, as Māori scholars point out:

Clearly, when our ancestors signed te Tiriti o Waitangi...they were not signing up to colonisation, coloniality, white supremacy and racism. Nor were they signing up to the ensuing widespread executions and mass incarceration of their whānau (extended family) and descendants by both the Crown and a third party (self-proclaimed) legitimate authority—the NZ government. (King et al., 2020, p.142)

The carceral state in NZ is rapidly expanding. Substantive government funding has been directed towards increasing prison infrastructure with additional resources allocated for more police officers and Corrections staff (Mitchell, 2024; Ryan, 2023). Recently enacted legislative measures such as the 'Gangs Act 2024', the 'Sentencing (Reform) Amendment Act 2025', and the 'Sentencing (Reinstating Three Strikes) Amendment Act 2025' will not only increase numbers of people imprisoned but also ensure those imprisoned are imprisoned for longer via the amplification of "criminalisation" through invention of new categories of "crimes" and that of "criminalised activities" for specific communities (Cormack et al., 2025).

Imprisonment itself has been recognised as a determinant of health inequities (Bowleg, 2020). However, the

adverse and inequitable health and disability impacts of prison are not limited to the period of imprisonment but also extend into the period following release. Many people who enter and leave prisons experience significant inequities compared to the non-imprisoned population (Alohan & Calvo, 2020; Blankenship et al., 2018; Borschmann et al., 2024; Cunningham et al., 2022; Dolan et al., 2016; Jahn, 2020; King et al., 2020; Kinner & Young, 2018; Massoglia & Remster, 2019; Sundaresh et al., 2020), with considerable adverse impacts reported for families including for children of parents imprisoned (Conway, 2021).

Research into the impacts of prison on health and disability outcomes and the reciprocal, (such as the impacts of health and disability issues on imprisonment) is still limited in NZ. High rates of mental health and addictions issues have been reported (Indig et al., 2016). Little is known about the physical health of people in NZ prisons with the most current data from a national prison survey almost two decades old and based on self-report only (Ministry of Health, 2006). Information around disability issues for people in prison is also minimal (King, 2019). A recent study on post-release mortality outcomes for people in NZ prisons found experience of imprisonment was associated with high rates of mortality from chronic conditions as well as external causes, with the most common causes of death being cardiovascular disease, cancer and suicide (Cunningham et al., 2022). Much research highlights there are considerable issues regarding poor quality and inaccessibility of health and disability information for people imprisoned in NZ (Carr, 2007; King, 2012, 2019; King et al., 2020; National Advisory Committee on Health and Disability, 2010) let alone their *whānau* (extended family) including the *tamariki* (children) of parents imprisoned (Gordon, 2011).

There is considerable evidence of racialised inequities with systemic, structural, and explicit and implicit biases at each stage of the criminal legal system that drive higher rates of imprisonment and longer sentences for Indigenous Peoples and other non-oppressor ethnic groups. For instance, systemic racialised profiling in policing, pervasive inequities in rates of being charged and convicted in addition to longer prison sentences, occurring both internationally (American Public Health Association, 2021; Du, 2021), and in NZ (Jackson, 1988; King, 2019; King et al., 2020). Accurate data on the numbers of Māori imprisoned are critical to holding states accountable and upholding Indigenous rights. Lack of timely, high-quality data limits the ability of *tāngata whenua* to monitor and

evaluate Māori health impacts of government actions and inactions across the criminal legal system. Critical to this is the accuracy of ethnicity data for Māori.

Māori scholars have consistently argued for timely, high-quality ethnicity data (Cormack, 2010; Cormack & McLeod, 2010; Harris et al., 2022; McLeod & Harris, 2023; McLeod et al., 2023; Paine et al., 2020; Reid et al., 2019; Robson and Reid, 2001; Te Rōpū Rangahau Hauora a Eru Pōmare, 2000) as a *tāngata whenua* “right to be counted” (Reid et al., 2019, p.4). Stats NZ is the government agency responsible for the official definition of ethnicity stemming from the ‘Statistical Standard for Ethnicity V1.0.0’ (the ethnicity standard) (Stats NZ, 2023a) applying to all-of NZ government and informing NZ census ethnicity data collection. Core elements of high-quality ethnicity data as outlined in the literature and in the ethnicity standard include that ethnicity must be self-identified, individuals can identify with multiple ethnicities, and that ethnicity can change over time (Cormack & McLeod, 2010; Harris et al., 2022; Stats NZ, 2023a). Despite the decades long collection of ethnicity data in population datasets and longstanding existence of standardised ethnicity data protocols (Ministry of Health, 2017; Stats NZ, 2022a), poor quality ethnicity data leading to consistent undercounting across numerous national datasets persists for Māori (Cormack & McLeod, 2010; Harris et al., 2022; King, 2019; McLeod & Harris, 2023; McLeod et al., 2023; Paine et al., 2020; Reid et al., 2016).

Action 5.1 under the NZ government’s prison strategy specifies that Corrections will “[a]ccurately record ethnicity...consistent and in conjunction with Stats NZ standards...at an appropriate point for all Māori” (Corrections, 2019, p.27). It is currently unclear what progress, if any, has been made by Corrections in the implementation of strategic actions to improve the accuracy of ethnicity data since the publication of its strategy (Corrections, 2022). According to Corrections, information about ethnicity is self-reported by individuals upon arrival in prison (Corrections, 2022). Whilst people can identify with multiple ethnicities, an individual is asked to determine their ‘preferred’ ethnicity, a process that Corrections itself observes is inconsistent with the NZ government’s ethnicity standard (Corrections, 2012).

The current quality and accuracy of ethnicity data held by Corrections is unknown. This study thus aims to assess the quality of Corrections ethnicity data for a cohort of Māori who have experienced imprisonment in NZ.

Methods

Data sources

This study used data from the Stats NZ Integrated Data Infrastructure (IDI). The IDI is a large collection of de-identified government, non-government organisation and

survey datasets, linked at the individual level (Milne et al., 2019). Datasets are linked through a central ‘spine’ which aims to include all people who have ever been a resident of NZ and includes individuals who were born in NZ (from 1920), holders of NZ visas that permit residing, working or studying in NZ (from 1997), and NZ tax residents (from 1999) (Milne et al., 2019). Short-term visitors to NZ are not included in the IDI central spine (Black, 2016). Similarly, individuals who have not interacted with the NZ tax system and who arrived in the country before 1997, were not required to have a formal visa to enter NZ (Australia, Niue, the Cook Islands, Tokelau), or did not have their births registered are not included in the IDI central spine (Black, 2016). We note that decisions about the integration of datasets into the IDI are made by Stats NZ and assume a ‘social license’ to link data (as opposed to an informed consent approach) (Kukutai & Cormack, 2019).

Data can only be accessed in a secure data lab environment by researchers who have been reference checked and have completed Stats NZ IDI training. Before release, all outputs must be aggregated, confidentialised, and checked by Stats NZ (Stats, 2019a). To include the most up to date data, the IDI is ‘refreshed’ three times a year. We used data from the October 2023 ‘refreshed’ version of the IDI.

Study cohort

The last three most recent and complete years of available Corrections data in the October 2023 refresh of the IDI were used to form a cohort of individuals who had spent at least one night imprisoned, either on remand or after sentencing, between 1 January 2018 and 31 December 2021 (Cohort A). For each cohort member, information was retrieved on imprisonment type (any sentenced imprisonment or remand only), and most recent start date of imprisonment between 2018 and 2021. Individuals with an imprisonment flag could have also spent some time in prison on remand, whereas individuals with a remand only flag had only spent time in prison on remand between 2018 and 2021.

Date of birth and gender information for each individual were sourced from IDI’s core data tables. Age was calculated at the start date of the most recent imprisonment event over the period 2018 to 2021 (in other words, the closest event in time to December 2021). This age was chosen as the most recent point in time that an individual could have reported or changed their ethnicity information with Corrections. Age was categorised into the following groups: <20, 20–29, 30–39, 40–49 and 50+ years for analysis, with the boundary for the topmost category chosen due to the young age structure of the population imprisoned in NZ. Core IDI data uses both gender and sex information from 23 data sources interchangeably

to derive a 'gender and sex' variable that is officially reported as 'male', 'female' or 'another'. This is because most of these data sources have implicitly collected gender information, and very few have explicitly collected sex at birth information (for example Department of Internal Affairs birth records). In the data that were available for our study cohort, there was nobody reported for the 'another gender and sex' variable. We categorised the variable responses (available to our data) into either 'tāne' (men) or wāhine (women) gender.

Ethnicity data

Within the IDI, ethnicity data were retrieved from three sources: Corrections; the IDI 'personal detail' table (part of IDI's core data); and, the 2018 NZ Census individual form.

Corrections

With each IDI refresh, Corrections supplies an extract to Stats NZ with demographic information for individuals who have been or are currently under Corrections. This record only contains a single 'preferred' ethnicity. Although Corrections report people are able to identify with multiple ethnicities, an individual is asked to determine their 'preferred' ethnicity and only the 'preferred' ethnicity information is supplied to the IDI (Corrections, 2022). As noted earlier, this process does not align with the NZ government ethnicity standard.

In the Corrections data available in the IDI, there is no information available on the date ethnicity information was recorded or updated (in other words, no date stamp). For the majority of individuals only one demographic record was available from Corrections in the IDI and so this was used. However, for a small number of individuals, there are multiple demographic records available, and in some cases, these hold different 'preferred' ethnicity information. This is a result of Stats NZ's cross-referencing process during each IDI refresh, which aims to roll up records for individuals who have multiple unique identifiers within a dataset over time (Stats, 2022a). In the criminal legal system, people may be known by various aliases over time. Because there is no date stamp provided in the Corrections data demographic extract to the IDI, there is no way of knowing when the 'preferred' ethnicity data were collected and recorded. If there are multiple records, there is no way of knowing which record reports the individual's 'preferred' ethnicity from the most recent imprisonment event. We therefore used all ethnicity information provided for each individual by Corrections and created a dichotomous 'ever Māori' variable from the Corrections data.

IDI 'personal detail' table

The IDI core data schema contains several tables derived by Stats NZ from datasets supplied to the IDI. This includes the 'personal detail' table. Ethnicity information in this table has been derived using a 'source ranked' ethnicity method whereby ethnicity information from 18 data sources in the IDI that contain this information, not including data from the criminal legal system data collections, is consolidated and ranked by source prior to being assigned to an individual (Stats, 2022b; Teng et al., 2021). The quality of the 18 data sources have been ranked on the basis of how well ethnicity information in each dataset aligns with the NZ Census as the highest ranked source (Stats, 2022b; Teng et al., 2021). If self-identified ethnicity information is not available on either the 2018 or 2013 individual census record, this information is retrieved from other (non-census) sources. The second highest ranked source for ethnicity information is the Department of Internal Affairs (DIA), which includes birth records, and the Ministry of Health (MoH) ethnicity data is ranked third (refer to supplementary table). Therefore, most individuals (94%) will have ethnicity data from one of these three sources as their highest ranked source. It is important to note that collection methods in datasets ranked relatively high might actually be quite divergent from best practice (Reid et al., 2016).

After ranking, the total response ethnicity for each individual (from the highest ranked source) is reported in the 'personal detail' table using Level 1 groupings. These being: European; Māori; Pacific Peoples; Asian; Middle Eastern/Latin American/African (MELAA); and, Other.

For the total IDI central spine population ('ever resident NZ population'), 94% of source ranked ethnicity information comes from the top three ranked sources: census (58%); DIA (14%); and, MoH (22%). For our cohort that was linked to the IDI central spine (whereby source ranked ethnicity information was available), 99% of source ranked ethnicity information came from the top three ranked sources: census (64%); DIA (22%); and, MoH (14%).

2018 census

The final data source for ethnicity information for this study was self-identified ethnicity data from the 2018 NZ Census. Census records where ethnicity data was supplemented from other administrative data sources or imputed data were excluded for this analysis.

Analysis

In total, three different cohorts were created to compare ethnicity data between the three data sources described. Our analytical approach ensured all Māori within each data source were counted, in other words, those who could only be identified in one dataset and not in others

were not excluded. The first cohort (Cohort A) contains all individuals who experienced imprisonment during 2018 to 2021, using Corrections data in the IDI. For this cohort, Corrections ethnicity data was the only source of ethnicity information. The second cohort (Cohort B) includes all individuals who experienced imprisonment during 2018 to 2021 and were linked into the IDI central spine. For this cohort, in addition to Corrections ethnicity data, ethnicity data was also available from the IDI 'personal detail' data (associated with the IDI central spine). The third and final cohort (Cohort C) includes all individuals who experienced imprisonment during 2018 to 2021, were linked in the IDI central spine, and had self-identified their ethnicity in the 2018 Census. For this cohort, ethnicity data was available from three sources: Corrections, the IDI 'personal detail table' and self-identified ethnicity information from the census.

In the first part of the analysis, comparisons were made at the aggregate level whereby the number and proportion of Māori in the total cohort of people imprisoned during 2018 to 2021 (Cohort A) was described using Corrections ethnicity information, and this was compared to

Table 1 Demographic and imprisonment type recorded by corrections for individuals imprisoned for a minimum of one-night, 2018–2021 (Cohort A)

Variable	Category	N	%
'Preferred' ethnicity*	European	12,000	30.7%
	Māori	20,304	51.9%
	Pacific	4311	11.0%
	Asian	1515	3.9%
	MELAA^	408	1.0%
	Other	141	0.4%
	Missing	495	1.3%
Age at most recent imprisonment in the study period	< 20 years	1437	3.7%
	20–29 years	12,675	32.4%
	30–39 years	12,981	33.2%
	40–49 years	7590	19.4%
	50+ years	4413	11.3%
Gender	Tāne (men)	34,464	88.2%
	Wāhine (women)	4611	11.8%
	Missing	24	0.1%
Imprisonment type	Imprisonment (w/wo remand)	22,299	57.0%
	Remand only	16,800	43.0%
Linked into the Integrated Data Infrastructure central spine	Yes	38,418	98.3%
	No	681	1.7%
Total†		39,096	

* Corrections supplies an extract with demographic information for current and past individuals to Stats NZ. This record contains 'preferred' ethnicity information only as this information is the only information that has been supplied by Corrections to the IDI

† Population counts retrieved from the Stats NZ IDI are random rounded to base 3, meaning that the sum of individual counts may exceed the total count

^ Middle Eastern/Latin American/African

the number and proportion of Māori in the cohort who were linked in the IDI central spine (Cohort B), using the IDI 'personal detail' table ethnicity information. As the focus was on identifying those of Māori ethnicity, individuals with missing ethnicity information (a zero for each 'preferred' ethnicity category in Corrections or for each Level 1 grouping in 'personal detail') were categorised as non-Māori. Counts and proportions of Māori between the two datasets were compared overall, and by age group, gender, and imprisonment type.

In the second part of the analysis, individual-level comparisons of reported ethnicity were made between datasets, with self-identified ethnicity data in the 2018 Census treated as 'gold-standard' (as it follows the government ethnicity standard). To do this Cohort C was used (including members of the total cohort who were both linked in the IDI central spine and had self-identified ethnicity in the 2018 Census). For these individuals, ethnicity information as recorded by Corrections was compared to their self-identified ethnicity in the 2018 Census.

Among these individuals (Cohort C), potential misclassification of ethnicity was measured in two different ways. The total number of individuals with self-reported Māori ethnicity was used as the denominator for calculations. First, the proportion whose ethnicity was the same in both datasets (Corrections and census) was calculated for Māori, using the counts of Māori from the 2018 Census as the denominator (proportion matched). The proportion recorded as Māori on the 2018 Census but not on Corrections data was reported (the total undercount). Secondly, to estimate to what extent misclassification was differential, the net undercount of Māori in Corrections data as compared to the 2018 Census was estimated. In other words, the number of Māori on the 2018 Census classified as non-Māori in Corrections data, less the number of non-Māori on the 2018 Census classified as Māori in Corrections data, divided by the total number of Māori recorded in the 2018 Census. For these assessments of individual level agreement between datasets, comparisons were made overall, and by age group, gender, and imprisonment type.

Results

Cohort descriptions

A total of 39,096 individuals were imprisoned on remand or after prison sentencing, for at least one night between 1 January 2018 and 31 December 2021 (refer to Table 1). The majority of the Cohort A were tāne (88%) and under 40 years of age (69%). More than half had experienced at least one period of imprisonment (sentenced with or without remand) between 2018 and 2021 (57%), whilst the remainder had been imprisoned on remand only during the study period.

According to Correction's ethnicity data, more than half of Cohort A had Māori (52%) recorded as their 'preferred' ethnicity. Ethnicity information in Corrections data was missing for 495 individuals (1.3%) and 78 people (0.2%) had multiple 'preferred' ethnicities reported in the one summary record (with 88% of these having Māori recorded as one of their 'preferred' ethnicities). A total of 38,415 individuals (98.3%) from Cohort A were linked to the IDI central spine and as such had 'source ranked' ethnicity information available in the IDI 'personal detail' table (Cohort B). Of note, 99% of those reported as Māori in Corrections data were linked in the IDI central spine.

A total of 13,146 individuals from Cohort A (34%) were linked in the IDI central spine and had self-identified ethnicity recorded in the 2018 Census (Cohort C). The proportion of the original cohort (Cohort A) who met these requirements for inclusion in Cohort C differed by ethnicity. Of those who had Māori recorded as 'preferred' ethnicity in Corrections data ($n=20,304$ individuals), only 30% ($n=6042$ individuals) were linked and had 2018 Census self-identified ethnicity information available.

In comparison, of the 18,792 individuals not classified as Māori in Corrections data, 38% ($n=7101$ individuals) were linked and had self-identified ethnicity information on the 2018 Census record (refer to Table 2).

Aggregate comparison of recorded Māori ethnicity between datasets

Table 3 presents counts and proportions of Māori comparing ethnicity information from Corrections and the IDI 'personal detail' table by age, gender, and imprisonment type. As ethnicity data from the 'personal detail' table was only available for individuals who had a record in the IDI central spine (Cohort B, $n=38,415$ individuals), the denominator to calculate proportions of Māori differed between the two data sources. Overall, 52% of Cohort A were Māori according to the information held by Corrections, whilst 57% of Cohort B were Māori according to information recorded in the IDI 'personal detail' table. Across all age and gender groups, a lower proportion were identified as Māori by Corrections than were identified as Māori in the IDI 'personal detail' table.

Table 2 Demographic and imprisonment type recorded by corrections for original study cohort (Cohort A), for 98% of cohort linked in the IDI central spine (Cohort B), and for 34% of cohort linked in the integrated data infrastructure (IDI) central spine with self-reported ethnicity in the 2018 census (Cohort C)

Variable	Category	Cohort A: Original study cohort		Cohort B: Individuals in original study cohort linked to the IDI central spine (98%)		Cohort C: Individuals in original cohort that were linked to the IDI central spine and had self-reported ethnicity data in the 2018 Census (34%)	
		N	%	N	%	N	%
'Preferred' ethnicity*	European	12,000	30.7%	11,892	31.0%	4908	37.3%
	Māori	20,304	51.9%	20,091	52.3%	6045	46.0%
	Pacific	4311	11.0%	4191	10.9%	1329	10.1%
	Asian	1515	3.9%	1365	3.6%	537	4.1%
	MELAA^	408	1.0%	363	0.9%	117	0.9%
	Other	141	0.4%	138	0.4%	57	0.4%
	Missing	495	1.3%	450	1.2%	174	1.3%
Age at most recent imprisonment in study period	< 20 years	1437	3.7%	1392	3.6%	597	4.5%
	20–29 years	12,675	32.4%	12,402	32.3%	4080	31.0%
	30–39 years	12,981	33.2%	12,819	33.4%	4095	31.2%
	40–49 years	7590	19.4%	7473	19.5%	2523	19.2%
	50+ years	4413	11.3%	4329	11.3%	1845	14.0%
Gender	Tāne (men)	34,464	88.2%	33,882	88.2%	11,706	89.0%
	Wāhine (women)	4611	11.8%	4533	11.8%	1431	10.9%
	Missing	24	0.1%	NA	NA	NA	NA
Imprisonment type	Remand only	16,800	43.0%	16,467	42.9%	4998	38.0%
	Imprisonment (w/wo remand)	22,299	57.0%	21,948	57.1%	8145	62.0%
Linked into IDI central spine	Yes	38,418	98.3%	38,418	100%	13,146	100%
	No	681	1.7%	NA	NA	NA	NA
Total +		39,096		38,418		13,146	

* Corrections supplies an extract with demographic information for current and past individuals managed to Stats NZ. This record contains preferred ethnicity information only. While individuals can identify with multiple ethnicities, they will have to determine their 'preferred' ethnicity, and only this information has been supplied to the IDI

+ Population counts retrieved from the Stats NZ IDI are random rounded to base 3, meaning that the sum of individual counts may exceed the total count

^ Middle Eastern/Latin American/African

Table 3 Number and proportions of Māori among individuals imprisoned for minimum one-night between 2018–2021 using ethnicity data from corrections (Cohort A) and integrated data infrastructure (IDI) ‘personal detail’ table (Cohort B)

Variable	Category	Corrections data (Cohort A)			IDI ‘personal detail’ data (Cohort B)		
		Number recorded as Māori	% of strata recorded as Māori	Total	Number recorded as Māori	% of strata recorded as Māori	Total
Tāne (men) x age group*	<20	744	59%	1269	795	65%	1230
	20–29	5838	53%	11,061	6330	59%	10,818
	30–39	5850	52%	11,301	6261	56%	11,160
	40–49	3393	50%	6777	3600	54%	6687
	50+	1689	42%	4056	1788	45%	3990
Wāhine (women) x age group*	<20	111	66%	168	123	76%	162
	20–29	1017	63%	1608	1104	70%	1584
	30–39	1059	63%	1680	1131	68%	1662
	40–49	453	57%	801	477	61%	786
	50+	153	43%	354	162	48%	339
Imprisonment type	Remand only	8328	50%	16,800	9069	55%	16,467
	Imprisonment (w/wo remand)	11,976	54%	22,299	12,696	58%	21,948
Total ⁺		20,304	52%	39,096	21,771	57%	38,418

* Those with missing information on gender were excluded from the gender by age analyses ($N=24$). Within Corrections, ethnicity information was missing for 495 individuals, whereas this was the case for 201 in the IDI ‘personal detail’ table. These individuals were classified as non-Māori in both datasets

+ Population counts retrieved from the Stats NZ IDI are random rounded to base 3, meaning that the sum of individual counts may exceed the total count

Individual level comparison of recorded Māori ethnicity between datasets

Table 4 presents the results from the linked individual analysis by age group, gender and imprisonment type for Cohort C. Overall, 6,042 individuals (46%) were Māori according to information held by Corrections, whilst 6,447 individuals (49%) were Māori according to self-identified ethnicity information from the 2018 Census.

Of those who self-identified as Māori in the 2018 Census, 5,643 individuals had Māori ethnicity also recorded in the Corrections data, meaning that Māori in our study were undercounted by 12% when using ethnicity information from Corrections. The net undercount for Māori between ethnicity information in Corrections data and self-identified ethnicity from the 2018 Census was 6% (calculated from (6447 minus 5643) less (6042 minus 5643) divided by 6447) (refer to Table 4). Comparing ethnicity information between the two data sources, in Corrections data, Māori were undercounted within all age and gender groups, and amongst those sentenced and those on remand (refer to Table 4).

Discussion

To our knowledge, this is the first study to have examined the quality of ethnicity data and undercounting of Indigenous Peoples in prison. Our findings demonstrate significant undercounting of Māori, a population that in actuality experiences mass imprisonment by the NZ carceral state across all age and gender groups. Despite Māori being 17.8% of the total NZ population, at least 52% of those who were imprisoned were Māori. In our

examination of the accuracy of Corrections ethnicity data, fewer individuals were identified as Māori using Corrections data than using the Stats NZ IDI ‘personal detail’ Table (52% versus 57% of individuals imprisoned). This pattern of lower proportions of Māori when using Corrections ethnicity data (versus IDI ethnicity data) was observed across all age and gender groups, and amongst those sentenced and those held on remand.

In our second analysis we compared self-identified census ethnicity data to Corrections data for those in the cohort that could be linked in the IDI and had these data available (34% of the original cohort). Compared to self-identified ethnicity data from the 2018 Census (the ‘gold standard’ collection), there was a 12% undercount of Māori in Corrections data (in other words, 12% of people who self-identified as Māori in the 2018 Census were not identified as Māori by Corrections). The net undercount of Māori in Corrections data (the total difference in the number of people identified as Māori by Corrections compared to the number identified as Māori in the 2018 Census) was 6%, or at least 405 additional Māori individuals imprisoned who would not have been reported as Māori in public statistics. The net undercount was worse for Māori held on remand (9%).

Limitations

Our overall analysis is limited to data supplied to the IDI. Corrections may have more complete ethnicity information than was available within the IDI. Data on gender that we have used from Corrections in the IDI may not necessarily align with self-identified gender of

Table 4 Individual-linked analysis of individuals imprisoned for a minimum of one-night, 2018–2021 comparing the number (and undercount) of individuals recorded as Māori in corrections data versus 2018 census self-identified ethnicity data (Cohort C).*

Variable	Māori		N in Corrections	N matched Corrections and 2018 Census	% Matched	Undercount of Māori	Net un-dercount of Māori
	N in 2018 Census	N in Corrections					
Tāne (men) x age group							
< 20	303	282	255	84%	-16%	7%	
20–29	1866	1731	1605	86%	-14%	7%	
30–39	1767	1677	1575	89%	-11%	5%	
40–49	1077	1011	951	88%	-12%	6%	
50+	591	564	522	88%	-12%	5%	
Wāhine (women) x age group							
< 20	39	30	30	77%	-23%	23%	
20–29	297	270	258	87%	-13%	9%	
30–39	330	312	291	88%	-12%	5%	
40–49	129	120	114	88%	-12%	7%	
50+	48	45	42	88%	-13%	6%	
Imprisonment type							
Remand only	2385	2181	2031	85%	-15%	9%	
Imprisonment (w/wo remand)	4056	3867	3609	89%	-11%	5%	
Total +	6447	6042	5643	88%	-12%	6%	

* Table only includes those individuals who had self-reported ethnicity data available in the 2018 Census (n = 13,146)

+ Population counts retrieved from the Stats NZ IDI are random rounded to base 3, meaning that the sum of individual counts may exceed the total count

individuals. As our focus was on Māori, we did not examine ethnicity data for other ethnic groups in NZ. Whilst we did examine data by gender and age, we were unable to examine data for other important groups. For instance, Māori who are gender diverse (due to the lack of information in the cohort), or those who are tāngata whaikaha Māori (Māori with lived experience of disability), Corrections previously having noted there is a higher proportion of tāngata whaikaha Māori in prison than in the general population (Corrections, 2023).

Further, only one-third (34%, n = 13,146) of our original study cohort (n = 39,096) were linked to the IDI central spine and had information on self-identified ethnicity in the 2018 Census. Given the incompleteness of this coverage, there is a potential that this smaller ‘linked’ dataset (Cohort C) may have quite different characteristics than our original study cohort (Cohort A). This should be considered in generalising these findings to the wider cohort and people imprisoned in NZ.

Implications

Our study has found that the NZ carceral state uses a source of ethnicity data that undercounts Māori in prisons, thereby underestimating the magnitude of Māori imprisonment in NZ. The absolute number of Māori imprisoned is higher than what is being reported, with a significantly greater proportion of Māori imprisoned relative to other population groups.

Reliable data inclusive of high-quality ethnicity data are critical for understanding and monitoring and evaluating the impacts of government actions and inactions on Māori health, for instance, resource allocation, policy decisions, and the performance of health and disability services for Māori imprisoned in NZ. It is likely that policy advice to successive NZ governments on the disproportionately adverse impacts on Māori of government legislative measures in relation to the criminal legal system (such as the Sentencing and Parole Reform Act 2010) will have underestimated the magnitude of adverse impacts due to undercount. Undercounting of Māori will also affect other legislation enacted by the NZ government such as the ‘Sentencing (Reinstating Three Strikes) Amendment Act 2025’ with regard to monitoring and evaluating the impacts on Māori.

In examining the quality of ethnicity data held in national datasets, it is inadequate to analyse quality at an aggregate level only, for instance, counting numbers of Māori individuals within each dataset and comparing how they match numbers of Māori on the census. Ensuring datasets are fit for purpose with regard to the accurate identification of Māori individuals requires their assessment at the de-identified individual level, for example, comparing an individual’s ethnicity on the dataset to that of their self-identified ethnicity in the census or via

ethnicity data audits (McLeod & Harris, 2023; McLeod et al., 2023).

Our findings at an individual level demonstrate Corrections data may be systematically undercounting Māori (compared to the census). In addition, although 98% of people in prison could be linked to the IDI central spine, only one third (34%) had self-identified ethnicity data available from the 2018 Census, meaning that a full evaluation of the quality of ethnicity data held by Corrections was not possible.

Whilst it is possible that people may self-report ethnicity differentially in various settings, and that they may change their ethnic identity (Carter et al., 2009), the main driver of the systemic undercounting of Māori in prisons is likely to be Corrections' non-adherence to ethnicity data protocols, an example being that Corrections only outputs 'preferred' ethnicity (a made-up category) (Corrections, 2012), especially given that many Māori identify with multiple ethnic groups (Harris et al., 2022). In addition, Corrections itself notes that historical data on its dataset is highly inaccurate, where the ethnicity of individuals imprisoned prior to 1998 is either unknown or stems from the old Justice 'Law Enforcement System' dataset that recorded police officers' ascription of an individual's ethnicity (likely to amount to guessing their ethnicity based on name or appearance) (Corrections, 2012). A further driver likely relates to failed processes around census data collection in prison whereby the approximate response rate from prisons for the census is 50% with some prisons not returning any completed forms on census night (Stats NZ personal communication, April 23, 2024).

As previously noted, on the 2018 Census, if self-identified ethnicity information was not available in the 2018 and 2013 Census, the missing information was retrieved from other (non-census) sources such as administrative data, or if not available from these sources, it was imputed. Non-self-identified ethnicity is more likely to be the case for Māori given the issues with the poor quality of the 2018 Census (2018 Census External Data Quality Panel, 2020; Greaves et al., 2024). In the case of the NZ prisons, Stats NZ utilised ethnicity data provided by the Corrections dataset on census night. Note that in the case of the 2018 Census, Stats NZ used ethnicity data for 100 individuals provided by Corrections (Stats, 2019b).

Our findings underline substantive problems with using administrative data instead of (or to 'improve') census data more generally. Low quality ethnicity data from administrative sources as highlighted in this study is a critical issue in the context of the NZ government's current move to an administrative population census (APC) (Stats, 2025). The APC explores the use of linked administrative data to produce census information drawing on data from the IDI (Stats, 2023b). Use of the APC assumes

that administrative datasets contain high quality (including ethnicity) data for the entire NZ population, an assumption clearly lacking in empirical foundation. Propagating use of poor-quality data that invisibilises Māori who are imprisoned further perpetuates the invisibilisation and sidelining of communities already experiencing marginalisation by the carceral state.

Systemic under-counting of Māori in government datasets is not new, having been investigated in various settings (particularly health) over time, although contrary to other audits whereby ethnicity data is consistently worse for tāne than for wāhine, and especially poor for those aged between 20 and 24 years in health settings (Harris et al., 2022; McLeod and Harris, 2023; McLeod et al., 2023), we found that ethnicity data was poorer for young wāhine under the age of 20 years (although numbers were small).

Similar to the implications of poor-quality datasets on the use of ethnicity data to ascertain an individual's eligibility for health and disability services (Harris et al., 2022; McLeod & Harris, 2023; McLeod et al., 2023), poor quality ethnicity data for Māori in prisons has considerable implications for Māori accessing Māori-specific pathways, units, programmes and services (health and disability or otherwise) (Corrections, 2019).

Our findings indicate that the government does not have the ability to accurately performance monitor and evaluate progress on actions (and inactions) in relation to Māori for its own prison strategy. This reflects a paradox (Walter, 2018), whereby Māori are made hypervisible due to racialised surveillance in society more generally (Cormack & Kukutai, 2022), but are invisibilised within state institutions, such as prisons, limiting our ability to fully understand the harms to Māori and our efforts to plan for a future without prisons.

Conclusions

The systemic undercounting of Māori in prisons due to poor quality Corrections ethnicity data demonstrates a breach of obligations to Māori under Te Tiriti and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) regarding tāngata whenua rights to monitor and evaluate impacts on Māori of government actions and inactions. It also represents a breach of Te Tiriti as a lack of reliable data compromises the government's ability to fully inform itself of how its criminal legal system is performing in relation to Māori health overall (Waitangi Tribunal, 2019), or how it is specifically identifying and monitoring intersections of racism, ableism and disablism to eliminate inequities for groups of the Māori population such as tāngata whaikaha Māori (Ingham et al., 2022).

We call for an all-of-government approach to the prioritisation of timely, high quality ethnicity data across the criminal legal system that affirms and embeds

government obligations pertaining to Te Tiriti and to other international human rights instruments such as the UNDRIP. This includes recognising and acknowledging that data that either identifies, or has the potential to identify Māori, that is from Māori or about Māori, must have Māori governance (Kukutai et al., 2023). In addition, we caution that the Stats NZ APC is not fit-for-purpose as an alternative to the census until systemic issues with poor quality ethnicity data in national administrative data sets are addressed and resolved.

In arguing for better data that more accurately allows us to understand the impacts and harms to Māori from imprisonment, we are not suggesting the expansion of data collection or additional surveillance, but rather that Corrections must meet their fundamental obligations to record basic demographic data accurately and reliably. We do not accept the inevitability of prisons, however while prisons exist and until there are no prisons left on Māori whenua, comprehensive documentation of how ethnicity is sourced; robust assessment of the quality of ethnicity data at aggregate and individual levels; and, instigation of robust accountabilities for compliance at all levels that require regular reporting mechanisms against these accountabilities back to Māori is urgently required.

Supplementary Information

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Supplementary material 1

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Author contributions

PTK, CD, and RC led the overall project. PTK, RC, FSP-D, MM and RH conceptualised the study. PTK, FSP-D and RC led the overall writing of the manuscript. FSP-D and RC led data analysis, presentation of results, and writing methods. CD, DC, TI, BJ, BR, NPP, GB, BT-T, JS, MC, TP, JC, CK, and MHC contributed to reviewing and writing the second draft. All authors reviewed the final draft of the article.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

Ethics approval for this study was granted by the University of Otago Ethics Committee— Health (Reference No: HD22/075).

Competing interests

The authors declare no competing interests.

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