

Who are Pacific peoples in terms of ethnicity and country of birth? A cross sectional study of 2,238,039 adults in Aotearoa New Zealand's Integrated Data Infrastructure

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ABSTRACT

Background: The aggregation of Indigenous peoples from Pacific Island nations as 'Pacific peoples' in literature may mask diversity in the health needs of these different groups. The aim of this study was to examine the heterogeneity of Pacific groups according to ethnicity and country of birth.

Methods: Anonymised individual-level linkage of administrative data identified all NZ residents aged 30–74 years on 31 March 2013 with known ethnicity and country of birth. All participants were described according to ethnicity and country of birth. Pacific participants were also described according to the number of ethnicities they identified.

Findings: A total of 2,238,039 NZ residents were included, of whom 117,957 (5.0%) were Pacific. Nearly two-thirds of Pacific peoples (65.7%) were born overseas, ranging from 45.3% (Cook Islands Māori) to 82.7% (Fijian) (Māori 2.3%, non-Māori non-Pacific 28.9%). Among NZ-born Pacific peoples, 46.9% (Samoan) to 81.9% (Fijian) were multi-ethnic; the proportion was much lower for overseas-born Pacific peoples (ranging from 3.7% [Tongan] to 23.9% [Tokelauan]).

Interpretation: There is substantial heterogeneity among Pacific peoples in their country of birth and identification with sole or multiple ethnicities. Assumptions regarding homogeneity in the needs of Pacific peoples are not appropriate and government statistics should therefore disaggregate Pacific peoples whenever possible.

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1. Introduction

In Western countries, collective terms such as Pacific, Pacific peoples, Pacific Islanders, Pasifika, Asian/Pacific Islanders, and Native Hawaiian and Other Pacific Islanders are often used to describe the ethnicity of immigrants from the more than 16 Pacific Island countries that make up the regions of Polynesia, Micronesia and Melanesia [1–7]. These labels homogenise Pacific peoples and exist only outside of Pacific Island countries. For example, Samoans in Samoa are identified as tangata Samoa but are typically referred to as 'Pacific peoples' in Aotearoa New Zealand (NZ).

In NZ, as in this study, ethnicity is defined as “the ethnic group or groups that people identify with or feel they belong to. Ethnicity is a measure of cultural affiliation, as opposed to race, ancestry, nationality or citizenship. Ethnicity is self-perceived and people can affiliate with more than one ethnic group.” [16] Key elements of this definition are self-identification as well as the ability to identify with more than one ethnic group [8,9]. The self-identification of one's ethnicity asks individuals to identify with as many different ethnicities as they wish, which can then be aggregated to Level 1 ethnic groupings, as illustrated for Pacific peoples in Fig. 1 below. Potential reasons for reporting using Level 1 aggregate ethnic groups

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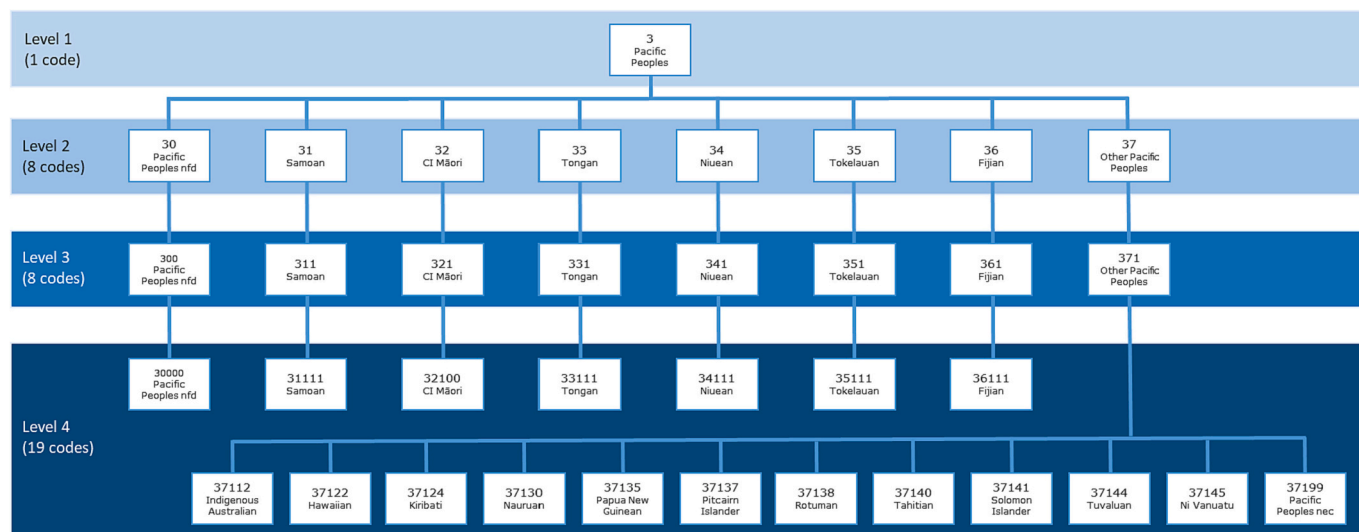
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Note. CI Māori: Cook Islands Māori, nfd: not further defined, nec: not elsewhere classified

Example:
 Level 1: (least detailed level) Code '3' is Pacific
 Level 2: Code '37' is Other Pacific Peoples
 Level 3: Code '371' is Other Pacific Peoples
 Level 4: (most detailed level), code '37112' is Indigenous Australian, code '37122' is Hawaiian, code '37124' is Kiribati, code '37130' is Nauruan, code '37135' is Papua New Guinean, code '37137' is Pitcairn Islander, code '37138' is Rotuman, code '37140' is Tahitian, code '37141' is Solomon Islander, code '37144' is Tuvaluan, code '37145' is Ni Vanuatu, code '37199' is Pacific Peoples nec

Fig. 1. Ethnicity classification level relationship for Pacific Peoples.

include: small number of respondents for ethnic groups at level 2 or below or the self-identification of level 1 ethnic groupings only.

In NZ, ethnicity is classified in a hierarchical structure of four levels, ranging from Level 1 (the broadest, with six ethnic groups including “Pacific Peoples”), Level 2 (21 ethnic groups, including eight Pacific groups [Samoan, Cook Island Māori, Tongan, Niuean, Tokelauan, Fijian, Other Pacific Peoples (defined in Appendix A) and Pacific Peoples not further defined]), Level 3 (36 ethnic groups) down to Level 4 (the most detailed, with 180 ethnic groups) [9–11]. All ethnic group codes at the more detailed levels (Levels 2–4) can be collapsed into successively higher levels up to one of the six Level 1 ethnic groups, as illustrated for Pacific Peoples in Fig. 1 below.

There are three standard forms of outputting ethnicity data when a person identifies multiple ethnicities [10,12]. These are sole/combination, prioritised and total response (overlapping) outputs, though only the latter two are commonly used [10]. In prioritised output, each respondent is allocated to single ethnic group using a predetermined order (see Appendix B) [10,13]. Prioritisation ensures that (where a need exists to assign people to mutually exclusive ethnic groups, ethnic groups of policy importance or of small size) ethnic groups are not swamped by the larger NZ European ethnic group [10,12]. However, individuals may not be counted in the ethnic group they would self-identify into if they were asked to report a single ethnic group [14,15] and Statistics NZ recommended the discontinuation of this method over 15 years ago [16]. This contrasts total response, where people are allocated to each ethnic group they identified with (up to six ethnic groups). Prioritised ethnicity is the most used output method because it is easier to use than total response for funding calculations and for monitoring changes in ethnic composition of health service utilisation as the sum of people will match the population size [12]. Additionally, issues in the interpretation of data arise when total response ethnicity is used and comparisons (often using regression analysis) are being made between groups who have overlapping data [10,16]. However, prioritised ethnicity conceals diversity and can be seen as biasing data towards certain ethnic groups [12,16].

In addition to ethnicity, country of birth adds complexity when trying to understand the diversity of Pacific peoples in NZ. International literature has suggested that immigrants tend to have better health in

their new countries compared to those born in the countries they are migrating to [17–19]. Although often referred to as migrant populations, in 2013 the majority of Pacific peoples were born in NZ (62.3%) [20,21]. However, the median age of NZ-born Pacific peoples was 13 years in 2006, suggesting that younger Pacific peoples were most likely to be born in NZ [22]. This is important because key differences between NZ-born and OS-born Pacific peoples health have been described, the authors noting that service delivery needs to account for differences by country of birth [23–25].

NZ legislation mandates a health system that achieves equitable health outcomes for all New Zealanders [26]. This includes Pacific peoples, who currently experience a persistent six-year life expectancy gap with their non-Māori non-Pacific counterparts [27]. It is unclear whether this gap varies between individual Pacific ethnic groups as life expectancy, as well as other outcomes, are generally reported for ‘Pacific peoples’ as if they were a homogenous group. This is despite the concept of ethnicity itself being based on the principle of ‘self-identification’, as previously mentioned.

Any differences in health needs between Pacific ethnic groups (including whether they identify with a single or multiple ethnicities) and according to whether or not they were born in NZ are not adequately measured or reported which has impacts on the health system’s ability to fund, plan and deliver appropriately. The visibility of Pacific peoples is further compromised through the common use of prioritised ethnicity output in health sector reports, which means that Pacific peoples who also identify as Indigenous Māori (tangata whenua of Aotearoa) are classified as Māori [10].

The aim of this research was to examine the heterogeneity of different Pacific groups in NZ according to country of birth.

2. Methods

This study is reported using the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines [28].

2.1. Methodology

Underpinned by Pacific Theory and Research Methodologies, this

research centralises Pacific peoples indigenous to the countries of Micronesia, Melanesia and Polynesia, empowering Pacific peoples to define the Pacific and its peoples from their viewpoints, and critique non-Pacific systems that frame Pacific peoples in problematic ways [25,29,30]. It seeks to contribute to the development of Pacific research and researchers [30]. This research was conducted as part of the PhD of first author JW (Tongan), under the guidance of a Pacific Advisory Group and as part of the Manawataki Fatu Fatu Programme (Māori and Pacific hearts in unison for Achieving Cardiovascular Care for Equity Studies, ACCESS). Manawataki Fatu Fatu is led by CG (Samoan) and MH (Māori).

2.2. Study design and population

A cross-sectional study was conducted using anonymised individual-level routinely collected data stored in the Statistics NZ Integrated Data Infrastructure (IDI). The IDI is the most comprehensive database in NZ and contains more than 9 million unique current and past NZ residents. The IDI is a secure virtual environment housed in a physical data lab environment which is accessible for research purposes, and all users of the IDI are required to obtain approval from the Government Statistician [31]. The structure of the IDI can be described as having a spine, to which data collections are linked [11]. The IDI spine aims to capture people who have ever been resident in NZ, and is constructed through the linkage of NZ birth records (from 1920), tax records (from 1999) and visa records (from 1997, except for those given to visitors and people in transit through NZ) [11]. An activity-based approach was used to identify the study population [11,32], who met criteria 1 and/or 2 and each of criteria 3–5 below. Participants eligible for inclusion were:

1. Within the IDI spine with recorded activity in tax, education or injury claims between 1 April 2012 and 31 March 2013; and/or
2. Within ≥ 1 of the following health datasets between 1 April 2012 and 31 March 2013: primary care enrolment, general medical subsidy claims, community laboratory test claims, national outpatients, pharmaceutical dispensing, and publicly funded hospitalisations; and
3. Present in New Zealand for ≥ 6 months between 1 April 2012 and 31 March 2013; and
4. Alive and aged 30–74 years on 31 March 2013; and
5. Able to have their ethnicity and country of birth data determined as specified below.

The study period was selected to enable us to use ethnicity data, a critical variable for our study, from Census 2013 which had a lower undercount of Pacific peoples than the most recent Census (2018). The Census 2013 response rate for Pacific peoples was 88%, and fell more than 20 percentage points to 65% in the 2018 Census [4,33].

All relevant data, including ethnicity and country of birth, were linked to study participants using a Stats NZ encrypted identification code.

2.3. Ethnicity

The collection of ethnicity data is a legislative requirement of the 5-yearly NZ Census [11]. Census ethnicity data is therefore the highest quality and most comprehensive source of ethnicity data in NZ. Therefore, for this study, ethnicity data were obtained in the first instance from the Census. As noted above we used ethnicity data from Census 2013 rather than Census 2018 because of an increase in the undercount of Pacific people in Census 2018. Where ethnicity data were not available from Census 2013, ethnicity data were obtained from the Population Cohort Demographics table of the NZ Ministry of Health National Health Index. Over 85% of the ethnicity variable used in this research was derived from Census 2013.

For this study, ethnicity was used and ethnic groups were classified

as Pacific, Māori or non-Māori non-Pacific. Pacific people were further classified using the Level 2 Pacific ethnic groups noted above. Further detail regarding these groups is provided in Appendix C.

As this research centralises Pacific peoples indigenous to the countries of Micronesia, Melanesia and Polynesia, Fijian Indian people (who are not indigenous Pacific peoples as they are descendants of Indian indentured labourers who starting arriving in Fiji in 1879 [34,35]) have been classified as non-Māori non-Pacific (see Appendix C).

The statistical approach for handling individuals who identified with more than one ethnic group was considered. As per the recommendation of Statistics NZ, the total response output method was used in this study [10,16]. Individuals who identified multiple ethnic groups will be counted more than once and the sum of ethnic group populations will exceed the total population.

2.4. Country of birth

Country of birth information was derived from the Department of Internal Affairs (DIA) Births, Deaths and Marriages records (to capture people born in NZ), the NZ Transport Agency Driver's License and Motor Vehicles registers or the 2013 Census (to capture people born overseas). Country of birth was defined as NZ-born or overseas-born (OS-born) among people in whom country of birth information was available. Nationality data was not used to determine country of birth, as the accuracy of this information is uncertain, particularly for migrants.

2.5. Analyses

The age distribution of Pacific and non-Māori non-Pacific participants has been described. The proportion of people NZ-born or OS-born was provided by ethnicity. Two groupings of ethnicity were used: aggregated (Māori, Pacific peoples, non-Māori non-Pacific) for all participants and the Level 2 Pacific ethnic groups described above for Pacific peoples. The proportion of Pacific peoples identifying with a single (sole) or multiple ethnicities (multi-ethnic) was also provided by country of birth.

All analyses were undertaken using SAS 8.1.

2.6. Ethics

This study is part of the Vascular Informatics using Epidemiology & the Web (VIEW) research programme approved by the Northern Region Ethics Committee Y in 2003 (AKY/03/12/314), with subsequent annual re-approval by the national Multi-Region Ethics Committee since 2007 (MEC/01/19/EXP). Individual participant consent was not required as all data are anonymized.

3. Results

Māori and Pacific peoples had younger age structures compared to non-Māori non-Pacific (see Appendix D). Approximately 50% of all Pacific peoples in the study cohort were aged 30–44 years compared to 35% of all non-Māori non-Pacific. The median age varied between Pacific-specific ethnic groups (each between 44 and 45 years), Māori (46 years) and non-Māori non-Pacific (50 years). Approximately 49% of Pacific peoples and non-Māori non-Pacific in the study cohort were male, compared to less than 48% for Māori.

A total of 2,409,861 people were identified, of whom ethnicity was known for 2,307,501 (95.8%) and country of birth was known for 2,280,021 (94.6%). Country of birth was missing for 2.6% for Māori, 5.5% for non-Māori non-Pacific and 10.6% for Pacific peoples (prioritised ethnicity). A total of 2,238,039 NZ residents were included in the study of whom 117,957 (5.0%) were Pacific.

The majority of Māori (267,438/273,663, 97.7%) and non-Māori non-Pacific people (1,400,472/1,968,885, 71.1%) were born in NZ (Fig. 2). This contrasted with Pacific peoples, of whom nearly two thirds

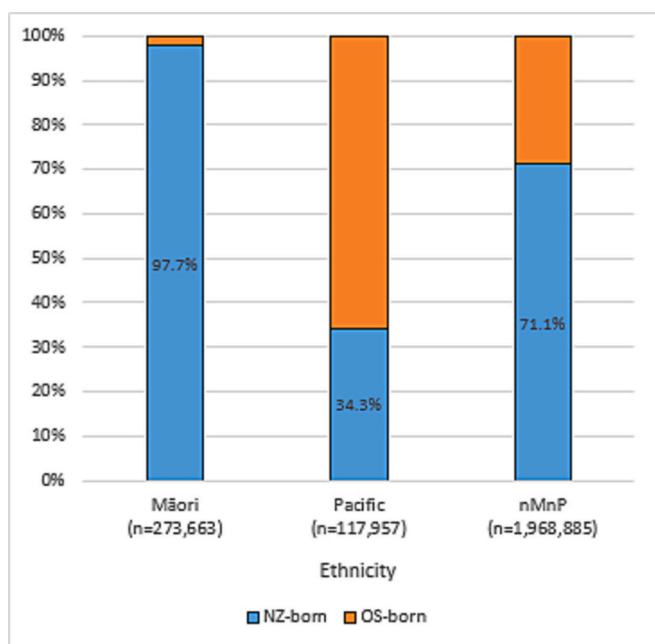


Fig. 2. Ethnicity of study cohort (total response, level 1), by country of birth. Notes: nMnP: non-Māori non-Pacific, which is a supper-aggregate level 0 grouping that is not a standard aggregation group under the Statistics NZ classification. NZ-born: New Zealand-born. OS-born: Overseas-born.

were overseas-born (77,463/117,957, 65.7%).

There are differences in the proportions of Pacific people born overseas by Pacific-specific ethnicity, as shown in Fig. 3. The proportion of OS-born ranged from 45.3% (Cook Island Māori) up to 82.7% (Fijian). The three Pacific ethnic groups with the lowest proportion of OS-born (Cook Island Māori, Niuean [48.5%], Tokelauan [53.6%]) are Realm of NZ Pacific Islands. The Realm of NZ comprises part of the region of Oceania where the monarch of NZ is the head of state, and includes the self-governing states of Niue and the Cook Islands and the non-self-governing territory of Tokelau [36]. The next highest proportion of OS-born was Samoan (65.2%), and then Other Pacific (76.7%), Tongan (81.6%) up to Fijian.

The proportions of people who identified as of sole ethnicity or multiple (combination) ethnic groups are compared by Pacific ethnic groups according to country of birth (Fig. 4, Appendix E). The proportions of people who identified as being of sole ethnicity was higher in OS-born than in NZ-born people for all Pacific ethnicities. The range in proportions for OS-born people with sole ethnicity was 76.1% for Tokelauans to 96.3% for Tongans. This differed substantially to the range in proportions for NZ-born people with sole ethnicity, which was 18.1% for Fijians to 53.1% for Samoans.

Differences in the ethnic combinations for multi-ethnic Pacific peoples are also evident between Pacific-specific ethnic groups and by country of birth (Figs. 5-6, Appendix F). NZ-born Niueans had the largest proportion of people who identified as also being of Māori ethnicity (25.8%). This proportion for Niueans was 3 times higher than that of NZ-born Tokelauans (8.5%). In comparison, NZ-born Tokelauans had the highest proportion of people who identified as being of at least two Pacific-specific ethnicities (36.7%). The proportion of people identifying with at least two Pacific-specific ethnicities was 4.2 times higher for Tokelauans than Cook Islands Māori (8.7%). Over two-thirds of NZ-born

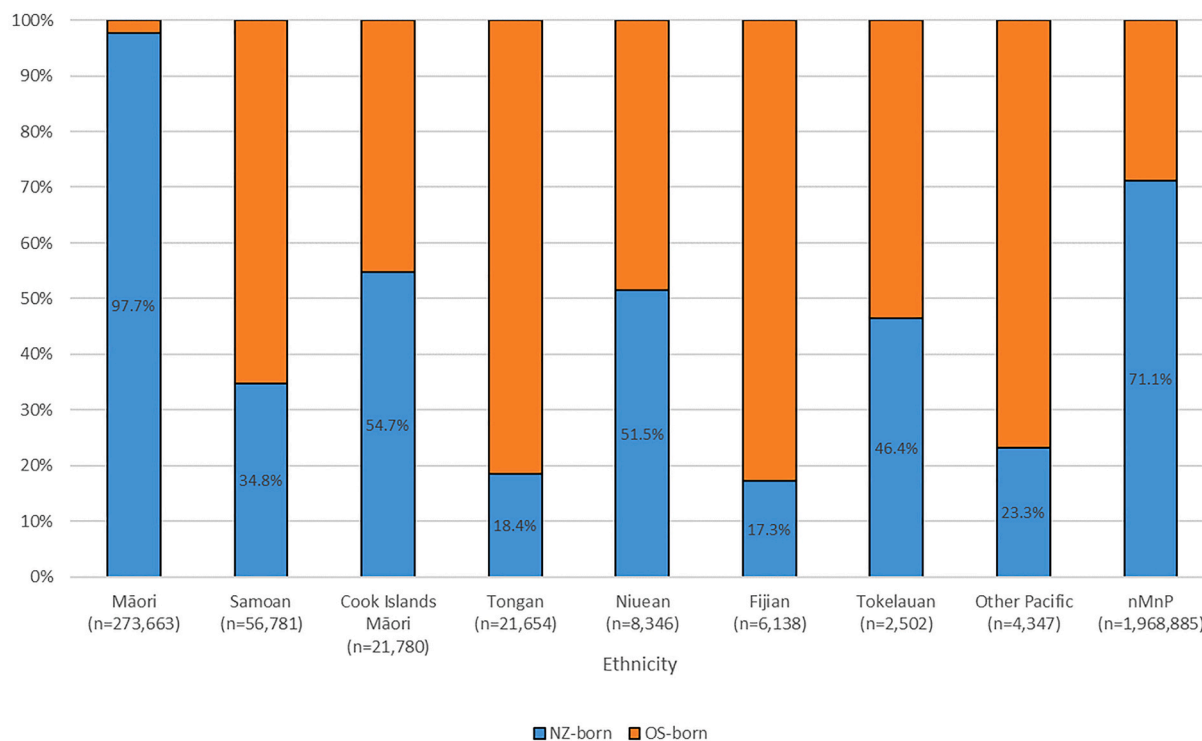


Fig. 3. Total response ethnicity (level 2) proportions of study cohort, by country of birth, 2013.

Notes: nMnP: non-Māori non-Pacific, which is a supper-aggregate level 0 grouping that is not a standard aggregation group under the Statistics NZ classification. NZ-born: New Zealand-born. OS-born: Overseas-born.

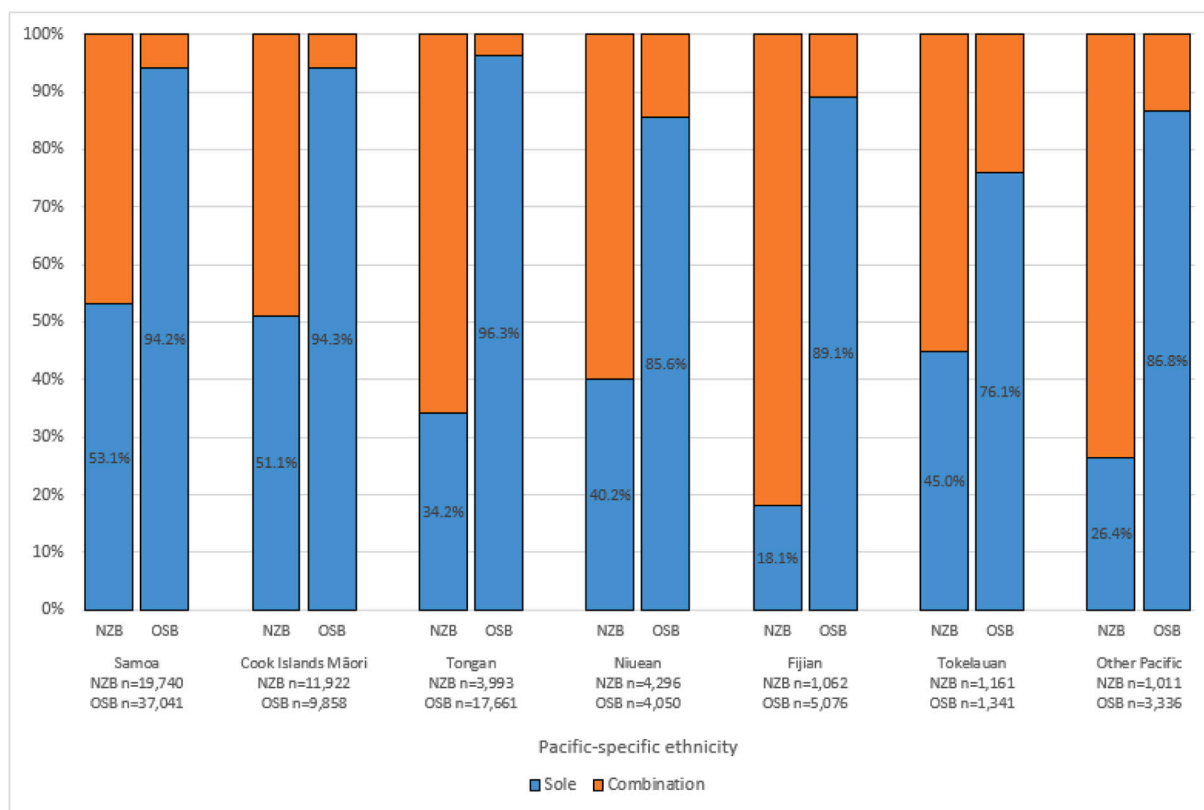


Fig. 4. Pacific peoples reporting of sole or multiple ethnicities (level 2) by country of birth, 2013.

Notes:

NZ-born: New Zealand-born.

OS-born: Overseas-born.

Fijians identified as being of non-Māori non-Pacific ethnicity (65.3%). This was over three times more than the proportion of NZ-born Tokelauans who identified with a non-Māori non-Pacific ethnicity (19.9%).

Among OS-born Pacific peoples who were multi-ethnic, there were no OS-born Tokelauans who reported being of Māori ethnicity, whilst OS-born Niueans had the highest proportion of people who also identified as Māori (1.3%). The range of proportions of OS-born Pacific peoples who identified with at least two Pacific-specific ethnicities was 1.9% for Cook Islands Māori to 22.8% for Tokelauans. The range of proportions of OS-born Pacific peoples who also identified with a non-Māori non-Pacific ethnicity was 1.8% for Tongans and 8.5% for Fijians (See Appendix F).

4. Discussion

This study of 2,238,039 NZ residents has demonstrated the considerable heterogeneity of Pacific peoples according to self-identified ethnicity and country of birth. Nearly two-thirds of Pacific peoples (65.7%) were born overseas, ranging from 45.3% (Cook Island Māori) to 82.7% (Fijian). Together the three realm of NZ Pacific groups (Cook Island Māori, Niuean, and Tokelauan) had the lowest proportion of overseas-born of all Pacific groups. The proportion of Māori and non-Māori non-Pacific overseas-born was much lower (2.3% and 28.9%, respectively). Among NZ-born Pacific peoples, 46.9% (Samoan) to 81.9% (Fijian) reported multiple ethnicities. The proportion of multi-ethnic overseas-born Pacific peoples was much lower, ranging from 3.7% (Tongan) to 23.9% (Tokelauan). Within individual Pacific groups, the proportion who identified with multiple ethnicities also varied by country of birth (e.g. for Tongan, from 3.7% for overseas-born to 65.8% for NZ-born). Among NZ-born multi-ethnic Pacific peoples, the range in the proportion who also identified as Māori was 8.5%-25.8%, another

Pacific ethnic group was 8.7%-36.7% and who also identified with a non-Māori non-Pacific ethnic group was 19.9%-65.3%.

Ethnicity is an important and complex variable, but there has been little focus on how ethnicity is classified and how this influences conclusions drawn from data [37,38]. This is the first Pacific-led study using Statistics New Zealand's IDI that has explored the classification of ethnicity for Pacific peoples according to country of birth. An important strength of this study is that we were able to construct our ethnicity variable using ethnicity data collected in the Census. This is a strength as most health researchers who do not use the IDI are unable to link Census and health datasets to each other. There has been no exploration of the undercount of Pacific peoples (as an aggregate ethnic group or for Pacific-specific ethnic groups) at a national level using health datasets. However, there is evidence that Māori are under-represented in health datasets compared to official population numbers [39]. This has implications for the quality of ethnicity data and therefore how health and health inequities are understood, monitored and targeted through service provision.

This work adds to a limited body of literature that explores country of birth as a source of diversity within and between ethnic groups [40,41]. Differences in age-structures for Chinese, Samoan and Middle Eastern ethnic groups were reported for NZ-born and overseas-born people using 2006 Census data [40], and differences in the proportion of NZ-born people reported by Pacific-specific ethnic group using 2013 Census data were highest for Niuean, Cook Islands Māori and Tokelauan people [13,41]. To the best of our knowledge, this is the most recent work to have explored differences in Pacific ethnicities according to country of birth. This work also adds to the discussion on the complexities of working with ethnicity data to monitor and report health in NZ and added complexity in the reporting of multiple ethnicities [42-44].

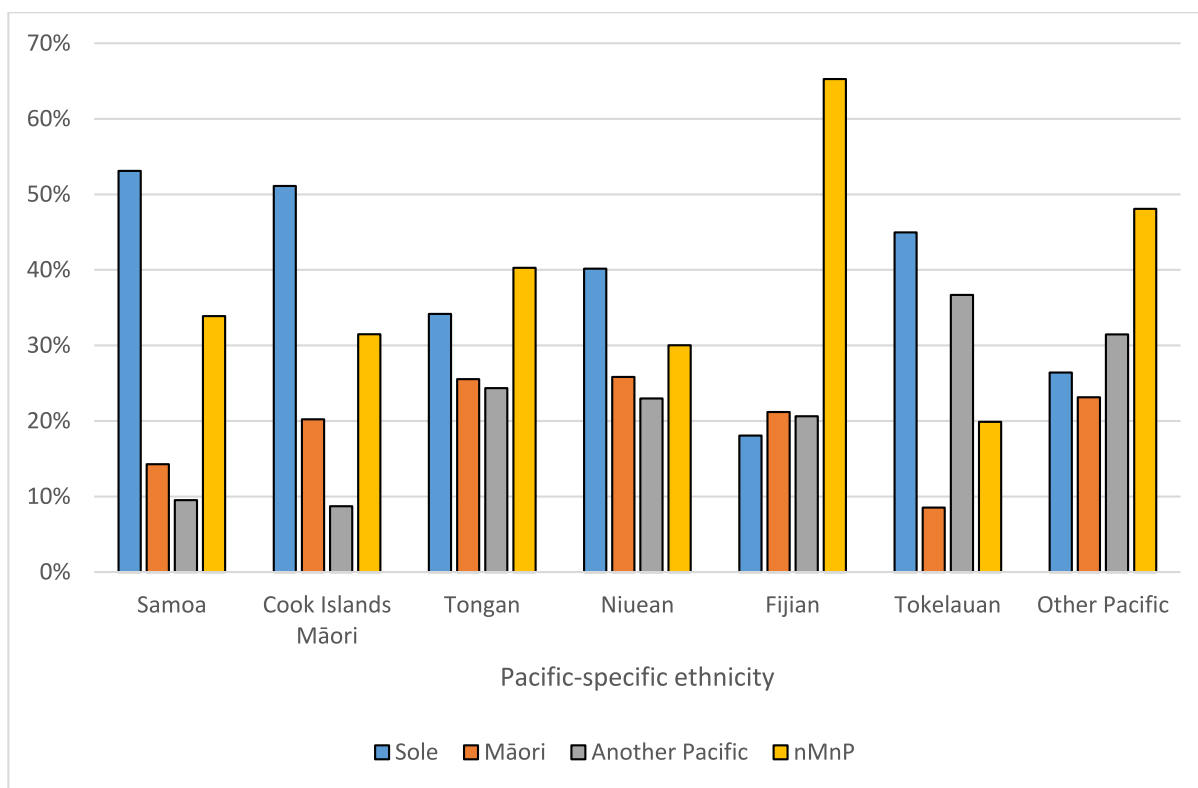


Fig. 5. NZ-born Pacific peoples (level 2) ethnic combinations, 2013.

Notes:
 nMnP: non-Māori non-Pacific, which is a supper-aggregate level 0 grouping that is not a standard aggregation group under the Statistics NZ classification.
 NZ-born: New Zealand born.

To the best of our knowledge, this study is also the first to describe in detail the multi-ethnic combinations for Pacific peoples according to country of birth. There has been a preponderance of research on Pacific peoples by non-Pacific researchers [45–53]. This study centralises indigenous Pacific peoples and is led by indigenous Pacific peoples, aligning with Pacific health research values [54] and the recently established Pacific Data Sovereignty Network principles [55,56]. Exploring Pacific ethnic groups according to sole/multiple ethnic identification as well as by country of birth is important to understand the diversity of Pacific peoples. The common use of the aggregate ‘Pacific peoples’ ethnic group generalises potentially variable experiences of different Pacific ethnic groups, which is further confounded by country of birth. For example, as previously mentioned, immigrants tend to have better health compared to those born in the countries they have migrated to [17–19]. However, this advantage appears to be absent or potentially opposite for Pacific peoples who were born overseas and have migrated to NZ [19,57]. Without this critical information, the NZ health system’s response to improving Pacific health may be misdirected.

There are a number of limitations to the study. Ethnicity data collected by the census forms the basis for official population statistics by ethnicity in NZ [9]. We used ethnicity data derived from a health dataset only if ethnicity data was missing from the 2013 Census. However, health datasets in the IDI are updated up to four times per year and usually three months delayed [58]. Individuals who reported ethnicity in the 2013 Census and subsequently reported different ethnicities as healthcare users will not have their most recently identified ethnicity (ies) used in this study. Ethnicity data from the 2013 Census was used because of the known data quality issues of the 2018 Census [33,59]. Ideally, this research would be repeated with future Census data.

For OS-born people, the NZ Ministry of Business, Innovation and Employment (MBIE) is believed to provide the most extensive country of

birth information in the IDI, from 1997 onwards [60,61]. However, country of birth data is missing for many individuals in the relevant MBIE dataset. MBIE also prefers the use of nationality over country of birth in analysis of migrants’ origin countries [61]. As people may have a different nationality to their country of birth, we derived overseas country of birth information from the NZ Transport Agency (NZTA) Drivers Licence Register (available from 2006 onwards) and the 2013 Census. In the census we relied on respondents’ self-report of their country of birth, which could be inaccurate if people misread or did not understand the question being asked [60]. Previous work exploring country of birth information for NZ residents in the 2013 Census and administrative datasets in the IDI shows that coverage of country of birth data is better for younger people and recent immigrants (from 1997 onwards) in the IDI [60]. Given the missingness of data for immigrants prior to 1997 and the robustness of the NZ birth registration data for capturing NZ-born people, we consider that it may be reasonable to define overseas-born people as those not captured in the NZ DIA birth registration data.

This exploration of who Pacific peoples are in terms of ethnicity and country of birth preceded analyses exploring the burden of cardiovascular disease (CVD) for Pacific peoples in NZ, which will be presented in another paper. The age range for inclusion was based age-based recommendations for CVD risk assessment in the NZ CVD risk management guidelines which is 30 to 74 years without prior CVD [62–64]. Pacific peoples are a youthful population, who had a median age of 22.1 years in 2013 [41]. The age range for inclusion (30–74 years), captured less than half of all Pacific peoples in NZ. Those excluded from this study due to age (0–29, 75+ years) may be systematically different from those included in this study. For example, younger Pacific peoples are more likely to be of multiple ethnicities and NZ-born [22], while those aged 75 years and over are more likely to be of sole ethnicity [22].

Our findings emphasize the substantial heterogeneity between and

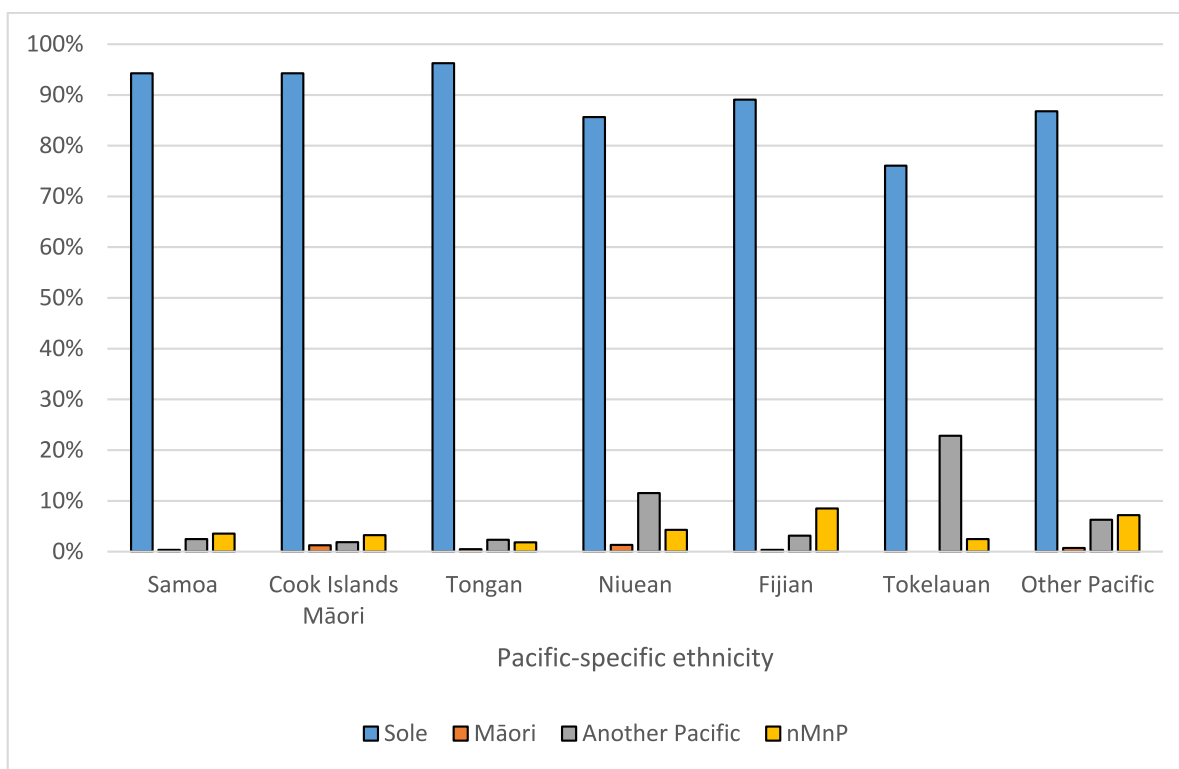


Fig. 6. Overseas-born Pacific peoples (level 2) ethnic combinations, 2013.

Notes:

nMnP: non-Māori non-Pacific, which is a super-aggregate level 0 grouping that is not a standard aggregation group under the Statistics NZ classification.
 OS-born: Overseas-born.

within Pacific-specific ethnic groups according to country of birth as well as the number and type of additional ethnicities with which they identify. Disaggregation of Pacific peoples is important to determine if health burden differs according to Pacific-specific ethnicity (at minimum level 2) and/or country of birth, and therefore necessitate targeted services to be more effective in achieving health equity for Pacific peoples in NZ. However, we recognise there will be instances where level 2 ethnicity is unfeasible, such as where there are small sample sizes. In these situations we recommend the reporting of outcomes for Pacific peoples with mention of limitations associated with aggregate ethnic groupings.

There are implications for all routine data collections in NZ. For example, the NZ Health Survey monitors population health and provides evidence for health policy and strategy development [65]. An annual sample size of approximately 14,000 adults and 5000 children [65] includes increased sample sizes for Māori, Pacific peoples and Asian ethnic groups. However, this may not be enough to account for Pacific-specific ethnic groups and approaches to sample specific numbers of adults and children for each Pacific-specific ethnic group may be warranted.

It is clear that the aggregation of Pacific peoples into one group is limiting, given the diversity in self-identified ethnicity, age variation, and different pattern in health outcomes for migrants and multiple ethnicities. We anticipate these issues to increase with time which will have implications for future health planning, funding and research. For example, Pacific migrants' understanding of how to navigate the health system in NZ, which may be contributing to the disproportionate burden of ill health that Pacific peoples experience in NZ requires prioritisation.

For too long, research on and to Pacific peoples by non-Pacific researchers has resulted in misunderstanding of who Pacific peoples are [30]. 'No research about us (Pacific peoples), without us (Pacific peoples)' reflects the commitment of Pacific researchers to decolonise and reframe the way in which our peoples are described and understood [56].

Contributors

JW, CG, JP, MH and VS each contributed to the conception of the article, interpretation of results, drafting, revision and approval of the final manuscript. JW and JP constructed the cohort and undertook the analyses in the Statistics NZ IDI. JW, CG, JP, MH and VS each had full access to all the data in the study and accept responsibility to submit for publication.

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The authors have not been paid to write this article by a pharmaceutical company or other agency. The authors were not precluded from accessing data in the study, and they accept responsibility to submit for publication.

Declaration of Competing Interest

The authors declare the following financial interests/personal

relationships which may be considered as potential competing interests:

Julie Winter-Smith reports financial support was provided by Health Research Council of New Zealand. Matire Harwood, Corina Grey reports financial support was provided by The National Heart Foundation of New Zealand and Healthier Lives - He Oranga Hauora - National Science Challenge of NZ. Vanessa Selak, Matire Harwood reports a relationship with Health Research Council of New Zealand that includes: funding grants. Vanessa Selak reports a relationship with Auckland Medical Research Foundation that includes: board membership and funding grants.

Data availability

All data were output from the Statistics New Zealand Integrated Data Infrastructure (IDI). Access to the code is available on request and access to IDI data is available on request to the IDI.

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Statistics NZ disclaimer: These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Statistics NZ. For more information about the IDI please visit <https://www.stats.govt.nz/integrated-data/>. The opinions, findings, recommendations and conclusions expressed in this paper are those of the authors not Statistics NZ, University of Auckland or individual data suppliers. Access to the data used in this study was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Statistics Act 1975. Careful consideration has been given to the privacy, security and confidentiality issues associated with using administrative and survey data in the IDI. Further detail can be found in the Privacy impact assessment for the Integrated Data Infrastructure available from www.stats.govt.nz.

Appendix A. Supplementary data

Supplementary material: Ethnic groups and order of prioritisation are defined in the appendices. Additional information is also provided for the age distribution of non-Māori non-Pacific and Pacific peoples, as well as for Figs. 4-6. Supplementary data to this article can be found online at [<https://doi.org/10.1016/j.dialog.2023.100152>].

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