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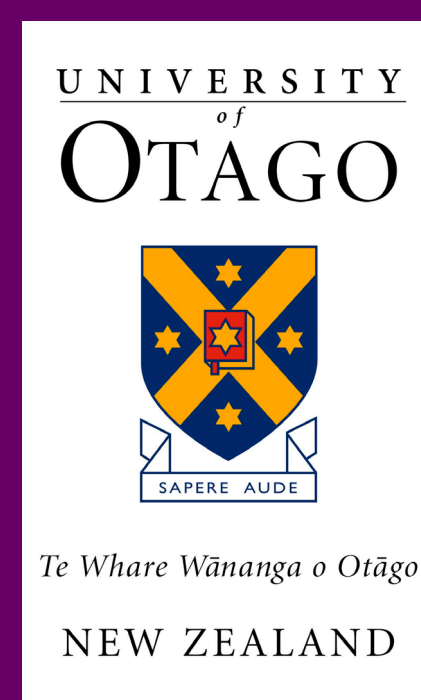
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Ethnicity Classification Approaches and Implications for HIV Behavioural Surveillance Among Gay, Bisexual and other Men who have Sex with Men (MSM)



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Introduction

Surveillance of behaviour is frequently used to identify disparities between racial/ethnic groups to and monitor trends.[1,2] This kind of information is an important cornerstone to country-level responses to HIV/AIDS and sexually transmitted infections (STI).[1] However, **few have compared alternative racial/ethnicity classification systems used in health research or surveillance,[4] to better understand whether they influence findings, how, and for whom.** New Zealand offers a potentially unique setting to examine these questions as ethnicity is routinely included in public health data.

Our **aim** was to investigate the impact of three different ethnicity classification methods on the sample size, demographics, and behavioural outcomes among MSM recruited into HIV behavioural surveillance in New Zealand.

Methods

Data were used from New Zealand's on-going HIV behavioural surveillance among MSM, which consists of the **Gay Auckland Periodic Sex Survey (GAPSS)** and **Gay men's Online Sex Survey (GOSS)**.

- Participants were recruited from:
 - GAPSS: fair day, gay bars, sex-on-site venues
 - GOSS: online dating sites
- Eligibility criteria:
 - At least 16 years old, and
 - report sex with another man in the last five years
- Data pooled across **2006, 2008, and 2011**
- Univariate & multivariate logistic regression
- Key informant consultation** with Māori, Pacific, and Asian academic and **community members** to inform research approach and process
- Independent variables:**
 - HIV testing** (ever & past year), **STI testing** (past year), **STI diagnosis** (past year), **condomless anal intercourse** (CAI, past 6 months)
 - Recruitment year (2006, 2008, 2011) and in-person vs online, age (years), sexual identity (gay, bisexual, other), education (any tertiary vs none)
- Dependent variable:** **ETHNICITY** (allows for **multiple responses**, Fig 1).

Figure 1. Ethnicity question from Statistics New Zealand Census

Ethnicity Classification Systems (to address multiple responses):

Prioritisation	Single-Combined	Total Response
<ul style="list-style-type: none"> Assign everyone to a single ethnic group using a pre-determined hierarchy for multiple responses 1st. Māori, 2nd. Pacific, 3rd. Asian, 4th. other, 5th. European Produces 1 variable with mutually exclusive groups 	<ul style="list-style-type: none"> Assign everyone to a specific ethnic group, which includes mixed/multiple ethnicities (no hierarchy) e.g. "only Māori", "only Pacific" and "Māori-Pacific" Produces 1 variable with mutually exclusive groups 	<ul style="list-style-type: none"> Assign people to each group they identified with and create non-group referent (binary variables) Produced 4 variables; groups not mutually exclusive 1. any Māori ethnicity vs. European-only referent 2. any Pacific ethnicity vs. European-only referent 3. any Asian ethnicity vs. European-only referent 4. any other ethnicity vs. European-only referent

Results

A pooled sample of 8,350 MSM was collected from New Zealand's 2006, 2008, and 2011 national HIV behavioural surveillance survey responses, of whom **8,040 MSM completed the ethnicity question** (n=310, 3.7% missing). Among respondents who self-identified an ethnicity, the **sample size for each major ethnic group varied by classification method** as shown in **Table 1**.

Table 1. Sample size of major ethnic groups in New Zealand by three classification methods

	Prioritisation 1 variable	Single-Combined 1 variable	Total Response 4 variables
European	6155	6155	6155
Māori	801	420	801
Pacific	248	139	304
Asian	642	600	694
other	194	180	207
Māori-European		313	
Pacific-European		78	
other Combinations		155	

Not mutually exclusive groups

Total Response: 4 pairwise variables

Differences by recruitment venue, age, sexual identity and education were compared across classification method with an identical sample of European-only MSM (n=6,155) as the referent category. Generally, differences by ethnicity were similar regardless of classification method. Detailed analysis of demographics are presented elsewhere (Poster THPE154). Univariate results of sexual health and behavioural differences by ethnicity classification method are shown in **Table 2**.

Table 2. Behavioural outcomes of Māori, Pacific, and Asian MSM each compared with European-only MSM by univariate logistic regression for three ethnicity classification methods (p<0.05 considered significant)

	Prioritisation	Single-Combined	Total Response
HIV Testing (ever)	Pacific & Asian less likely	Pacific & Asian less likely	Pacific & Asian less likely
HIV Testing (past 12 months)	No differences	Pacific less likely	No differences
STI testing (past 12 months)	Asian less likely	Asian less likely	Asian less likely
STI diagnosis (past 12 months)	No differences	No differences	Pacific less likely
High condom use casual partners (past 6 months)	Pacific less likely	Pacific less likely	Pacific less likely
High condom use regular partner (past 6 months)	Māori more likely	Māori more likely	Māori more likely

Multivariate Results

Multivariate analyses, which controlled for participant's recruitment year and venue, age, sexual identity, and education, revealed different associations between ethnicity and behavioural outcomes that univariate analyses. One example, a **recent STI diagnosis**, is used to demonstrate this differential impact in **Table 3**.

Table 3. STI diagnosis among Māori, Pacific, and Asian MSM each compared with European-only MSM by multivariate logistic regression for three ethnicity classification methods; adjusted odds ratios (AOR) are shown with 95% confidence intervals in parentheses (p<0.05)

	Prioritisation	Single-Combined	Total Response
STI diagnosis (past 12 months)	Māori MSM no different AOR=1.04 (0.80,1.34)	Māori MSM no different AOR=1.00 (0.70,1.42)	Māori MSM no different AOR=1.03 (0.79,1.34)
	Pacific MSM no different AOR=1.29 (0.87,1.86)	Pacific MSM no different AOR=0.93 (0.51,1.71)	Pacific MSM no different AOR=1.42 (0.99,2.03)
	Asian MSM less likely AOR=0.67 (0.48,0.94)	Asian MSM less likely AOR=0.65 (0.46,0.92)	Asian MSM no different AOR=0.76 (0.56,1.03)

Conclusions

Researchers often provide inadequate detail and definitions of how race and/or ethnicity are operationalized,[4] which is of concern given that **different classification methods altered sample size, and also revealed and masked associations in sexual health and behaviour outcomes by ethnicity.** Intersectionality scholars challenge public health and researchers to also consider the meaning of categories, more complex social locations (e.g., interactions with social class, age, gender), and social-behavioural processes.[5]

Our analysis revealed that a modified Total Response ethnicity classification method offers a number of possible advantages over the current method (prioritisation):

- Allows self-determination (individuals assigned to all groups they identify with).
- Produces largest possible sample sizes (limits the chance of Type II errors).
- Although a single variable is no longer produced, a common referent group can ensure a more objective comparison between groups (e.g., European-only).

Consultation with stakeholder groups will investigate the utility of switching to this method in future HIV behavioural surveillance research.

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