

Effects of self-reported racial discrimination and deprivation on Māori health and inequalities in New Zealand: cross-sectional study

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Summary

Background Inequalities in health between different ethnic groups in New Zealand are most pronounced between Māori and Europeans. Our aim was to assess the effect of self-reported racial discrimination and deprivation on health inequalities in these two ethnic groups.

Methods We used data from the 2002/03 New Zealand Health Survey to assess prevalence of experiences of self-reported racial discrimination in Māori (n=4108) and Europeans (n=6269) by analysing the responses to five questions about: verbal attacks, physical attacks, and unfair treatment by a health professional, at work, or when buying or renting housing. We did logistic regression analyses to assess the effect of adjustment for experience of racial discrimination and deprivation on ethnic inequalities for various health outcomes.

Findings Māori were more likely to report experiences of self-reported racial discrimination in all instances assessed, and were almost ten times more likely to experience discrimination in three or more settings than were Europeans (4.5% [95% CI 3.2–5.8] vs 0.5% [0.3–0.7]). After adjustment for discrimination and deprivation, odds ratios (95% CI) comparing Māori and European ethnic groups were reduced from 1.67 (1.35–2.08) to 1.18 (0.92–1.50) for poor or fair self-rated health, 1.70 (1.42–2.02) to 1.21 (1.00–1.47) for low physical functioning, 1.30 (1.11–1.54) to 1.02 (0.85–1.22) for low mental health, and 1.46 (1.12–1.91) to 1.11 (0.82–1.51) for cardiovascular disease.

Interpretation Racism, both interpersonal and institutional, contributes to Māori health losses and leads to inequalities in health between Māori and Europeans in New Zealand. Interventions and policies to improve Māori health and address these inequalities should take into account the health effects of racism.

Introduction

More and more research suggests that racism has major health consequences. Most of this work, however, has been done in the USA and, more recently, in the UK.^{1–4} Little is known about the effect of racism on health and ethnic inequalities in other countries, where the history and nature of ethnic relations might be very different. We think there is a need to assess the effect of perceived racial discrimination and deprivation on inequalities in health between two ethnic groups—Māori and European—in New Zealand.

New Zealand has a population of about 4 million, with the main ethnic groups being European (80%), Māori (15%), Asian (7%), and Pacific peoples (7%).⁵ As in other countries with similar histories of colonisation, ethnic inequalities in health exist and, in New Zealand, are most pronounced between Māori (the indigenous peoples) and Europeans.^{6,7} Māori have an 8–9 year lower life expectancy than non-Māori,⁸ with differences noted across most morbidity indicators (including most major chronic diseases, infectious diseases, and injuries).⁹

Great inequalities in socioeconomic position exist between Māori and non-Māori in New Zealand,^{10–12} but they might not fully account for the health inequalities noted between the different ethnic groups.^{10,13,14} Indeed, socioeconomic explanations alone are inadequate, since

they do not take into account the factors that lead to marginalisation of Māori and unequal distribution of socioeconomic resources by ethnicity in the first place.

Racism refers to an ideology of superiority—a belief that some races are better than others.^{4,15} Racial discrimination can vary in form and type, depending on how, by whom, and against whom it is expressed.¹⁶ Various forms of racial discrimination have been described, with the two main types being institutional and interpersonal.¹⁷ Interpersonal discrimination refers to discriminatory interactions between individuals, which can usually be directly perceived. In this report, interpersonal discrimination includes racist assault, both verbal and physical, and unfair treatment. Institutional discrimination refers to discriminatory policies or practices embedded in organisational structures, and so tends to be relatively invisible compared with interpersonal discrimination.^{16,17}

Several studies have noted an association between self-reported experience of racial discrimination and poor health outcomes for a range of ethnic groups in various countries.^{16–22} Outcomes include measures of mental health, physical health, such as hypertension and self-reported health, and health-risk behaviours, such as smoking and drinking alcohol. There are many theories to explain how racism affects health, including differential

Lancet 2006; 367: 2005–09

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exposure to determinants of health—eg, socioeconomic, environmental, and behavioural—differential access to, and quality of, health-care services, and direct effects of racism, such as trauma and stress.^{1,2,4,17,23}

For the first time, the 2002/03 New Zealand Health Survey included a series of questions on people’s experiences of racial discrimination. Analysis of these data showed that self-reported experience of racial discrimination was highest among Māori and that any such experience was strongly associated with negative health effects equally for all ethnic groups.²⁴ Here, we use the data to specifically focus on indigenous health and inequalities by estimating the prevalence of experience of self-reported racial discrimination in specific circumstances and by assessing the potential effect of self-reported racial discrimination and deprivation on ethnic inequalities in health between Māori and European ethnic groups.

Methods

Survey design

The New Zealand Health Survey was done between August, 2002, and January, 2004. The target population was the usually resident, non-institutionalised civilian adult population (aged 15 years and older) living in permanent private dwellings. A complex cluster sample design was applied, with an area-based sampling frame. The primary sampling units (meshblocks of about 100 people) were stratified by ethnic population density thresholds (including Māori, Pacific, and Asian strata) and selected with a probability proportional to size for some strata and with equal probability for others. The secondary sampling units (dwellings within selected meshblocks) were enumerated and selected with an assigned sampling fraction or, in the case of the Māori sample, in low Māori strata all dwellings were screened. Thus, the Māori sample was selected through a combination of targeting and screening. Within each selected dwelling, all eligible people were identified and one was selected as the respondent, by use of a Kish grid.²⁵ This design meant that

all those within the sample frame had a known probability of selection, which is accounted for by the weighting scheme applied to the data. Face-to-face interviews were done in the home, in English, by trained interviewers. Further details of the survey design are reported elsewhere.²⁶

All regional ethics committees in New Zealand granted ethics approval for the survey.

Studied variables

For the survey, questions on individuals’ experience of racial discrimination were derived from items in the UK Fourth National Survey of Ethnic Minorities²⁷ and items proposed for the US 2002 Behavioural Risk Factor Surveillance System.²⁸ Five items that asked about individuals’ personal experience of racial discrimination were included: experience of an ethnically motivated physical or verbal attack, unfair treatment (because of ethnicity) by a health professional, unfair treatment at work or been refused a job, and unfair treatment when renting or buying housing. Experience of discrimination in the past 12 months or ever was sought. For our analysis, we use the variable experience of discrimination ever since it is a comprehensive measure of exposure to discrimination and because of the greater statistical power afforded by this measure. A positive response was therefore the self-report of one or more discriminatory events at any time.

With respect to ethnicity, the survey used the standard question taken from the 2001 census.²⁹ The question allows people to self-identify with one or more ethnic groups. We classified responders as Māori if they identified themselves as Māori either alone or in combination with other ethnic groups, and as European if they identified European as their only ethnic group. We excluded Pacific, Asian, and other ethnic groups from this analysis, which is concerned with a detailed examination of inequalities among indigenous peoples. Estimates of the prevalence of self-reported racial discrimination experienced by these other ethnic groups are presented elsewhere.²⁴

The New Zealand index of deprivation 2001 (NZDep2001) was used as an indicator of socioeconomic position. It is a census-based small-area index of deprivation that combines (by principal component analysis) nine socioeconomic variables from the 2001 census for each census meshblock. The variables are household income, receiving a means-tested benefit, access to a car, overcrowding, home ownership, employment status, qualifications, access to a telephone, and living in a single-parent family.³⁰ We grouped NZDep2001 scores into quintiles for our analysis.

Statistical analysis

We analysed data with Stata (version 8.2). To account for the survey design, we weighted all analyses with integrated survey weights to produce estimates representative of the population of New Zealand. These

For full details of the questionnaire used in the New Zealand Health Survey see <http://www.moh.govt.nz/phi/publications>

	Māori (n=4108)		European (n=6269)	
	Number	% (95% CI)	Number	% (95% CI)
Type of attack				
Physical attack	284	8.5% (6.6–10.3)	204	3.4% (2.8–3.9)
Verbal attack	889	24.5% (21.6–27.3)	691	10.3% (9.4–11.2)
Setting of unfair treatment				
Health-related	214	4.5% (3.2–5.8)	100	1.5% (1.1–1.8)
Work-related	234	5.6% (4.1–7.1)	136	2.1% (1.6–2.5)
Housing-related	339	9.5% (7.6–11.5)	49	0.7% (0.4–0.9)
Number of types of racial discrimination reported				
1	796	21.1% (18.5–23.8)	718	11.5% (10.5–12.4)
2	303	8.3% (6.4–10.2)	176	2.5% (2.0–2.9)
≥3	166	4.5% (3.2–5.9)	34	0.5% (0.3–0.7)

Numbers of people included are those on which analyses are based. Estimated prevalences account for survey design, and are expected prevalence in New Zealand.

Table 1: Prevalence of self-reported experience of racial discrimination (ever) by ethnic group

	Poor or fair self-rated health	Low physical functioning	Low mental health	Cardiovascular disease*
Age and sex	1.67 (1.35–2.08)	1.70 (1.42–2.02)	1.30 (1.11–1.54)	1.46 (1.12–1.91)
Age, sex, and number of types of any racial discrimination	1.39 (1.11–1.75)	1.51 (1.26–1.80)	1.12 (0.95–1.33)	1.34 (1.00–1.79)
Age, sex, and deprivation	1.39 (1.10–1.77)	1.35 (1.11–1.63)	1.17 (0.98–1.39)	1.19 (0.89–1.59)
Age, sex, number of types of any racial discrimination, and deprivation	1.18 (0.92–1.50)	1.21 (1.00–1.47)	1.02 (0.85–1.22)	1.11 (0.82–1.51)

Data are OR (95% CI) for Māori versus Europeans. *Only participants aged 25 years or older.

Table 2: Māori and European health inequalities, adjusted for various factors

took into account selection probability, clustering of the sample, and non-responses.²⁶ We used replicate weights to estimate the sampling error for survey estimates.³¹

We calculated crude prevalence estimates of self-reported, and hence perceived, experience of discrimination for each of the five racial discrimination items for each ethnic group. To capture possible differences in the degree of exposure to racial discrimination, we examined self-reported experience of racial discrimination with respect to one, two, or three or more items.

We did logistic regression to assess the effect of experience of racial discrimination and deprivation on ethnic inequalities between Māori and Europeans for four different health outcomes, which we selected on the basis of the quality of the data and the use of related indicators in similar research on racism and health internationally.^{17,18} They were: poor or fair self-rated health; low physical functioning (lowest quartile of Medical Outcomes Study short form 36 [SF36] physical functioning scale);³² low mental health (lowest quartile of the SF36 mental-health scale); and self-reported cardiovascular disease (including heart disease and stroke).

From the logistic regression models, we calculated odds ratios (OR) with 95% CI. Four models are presented for each health outcome. The model output is the adjusted OR of the health outcome among Māori compared with Europeans and approximates the relative risk.³³ The base-line model is adjusted for age (15–24, 25–44, 45–64, ≥65 years) and sex only. Subsequent models are also adjusted for experience of self-reported racial discrimination and deprivation, both independently and jointly. We noted no significant interactions between racial discrimination and each of deprivation and ethnic origin (data not shown), therefore we used only the main effects model. Previous analyses²⁴ have shown a dose-response relation between racial discrimination and health. We therefore adjusted for racial discrimination in multiple levels (experience of none, one, two, and three or more items ever). We restricted analyses of cardiovascular disease to data from respondents aged 25 years and older.

Role of the funding source

The sponsor of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full

access to all the data in the study and had final responsibility for the decision to submit for publication, once approved by the Deputy Director General of Public Health, New Zealand Ministry of Health, Wellington, New Zealand.

Results

72% of people overall and 70% of Māori approached responded to the survey.²⁶ The characteristics of respondents, weighted for selection probability, closely resembled those of the target population with respect to age, sex, ethnicity, socioeconomic position, and regional distribution. We excluded 18 people who responded because of missing values for NZDep2001. Our dataset consisted of 10 377 people, of whom 4108 were Māori and 6269 were European.

Table 1 shows unadjusted prevalences of self-reported experience of discrimination ever for each item by group. Experience of racial discrimination was higher among Māori for all items, with between a two-fold and 13-fold difference. Verbal attack was the most common form of racial discrimination. The most obvious inequality was in housing (buying or renting), for which Māori were 13 times more likely to report being treated unfairly because of their ethnicity than were Europeans. Table 1 also shows that Māori are more likely to experience discrimination in more than one situation, suggesting the possibility of a dose-response effect. Indeed, Māori are almost ten times more likely to experience three or more types of discrimination than are their European counterparts.

Table 2 shows the effect of ethnicity on health inequalities after adjustment for age, sex, and deprivation. Māori are significantly more likely to report poor or fair self-rated health, low physical functioning, low mental health, and cardiovascular disease than Europeans after adjustment for age and sex. After adjustment for age, sex, experience of perceived racial discrimination, and deprivation, however, inequalities between Māori and Europeans are greatly reduced for all health outcomes, and become non-significant for all except one (physical functioning); the OR for mental health is almost 1.00.

Discussion

The findings of this study show that both deprivation and experiences of perceived racial discrimination contribute to inequalities in health outcomes between Māori and

Europeans. Indeed, the combination of deprivation and discrimination as measured seems to account for much of the disparity in the health outcomes assessed. The main strength of this study is that it is based on a national sample. However, several issues need to be taken into account when interpreting our findings. Karlsen and Nazroo¹⁷ note the difficulties associated with measuring the extent to which individuals experience racism. Experience of racial discrimination might be underestimated in our analysis. For example, there are various situations in which people might experience discrimination that we did not ask about, such as at school, in shops, and on the street. Furthermore, some people might choose not to disclose their experiences of discrimination,³⁴ whereas others might not report discrimination because they are unaware of being treated unfairly.¹⁶

Data on self-reported experience of discrimination is inherently subjective¹⁶ and people's interpretations and responses to the objective experience can vary.¹⁷ For example, internalised racism, in which negative messages become accepted by stigmatised ethnic groups,¹ could result in differential reporting of experiences of discrimination to the same type of exposure, with instances of unfair treatment potentially viewed as deserved and non-discriminatory.¹⁶ Additionally, people might provide socially acceptable responses (potentially downplaying their experience) or exaggerate experiences of discrimination.¹⁶ Because the racial discrimination items we used were not specifically validated for use in New Zealand populations, we cannot identify the extent to which they lead to misclassification of experience of discrimination or whether this was different for Māori and European ethnic groups

Our study is also likely to have underestimated the effect of socioeconomic position on ethnic inequalities in health, since we used only one measure of socioeconomic position—namely, NZDep2001. NZDep2001 does not fully capture all dimensions of socioeconomic position.³ Also, deprivation is only measured at one timepoint, so we are unable to capture cumulative disadvantage over a person's lifetime and across generations, which might have an additional effect on health inequalities.³⁵

Our distinction between deprivation and experience of racial discrimination as independent variables in the models does not mean that we regard socioeconomic position as separate from racism. Indeed, socioeconomic inequality between ethnic groups is in itself thought to be, at least in part, the result of institutional racism.^{1,4,16,17} The measures of racial discrimination we used largely indicate experiences of interpersonal discrimination. Our analyses, therefore, suggest that interpersonal and institutional racism (to the extent that this is mediated through socioeconomic position) might act independently to affect ethnic inequalities in health.

The cross-sectional nature of the data limits the degree to which we can assign causality, especially with respect to temporality. However, our study does meet several of the Bradford Hill criteria, including consistency, plausibility, and dose-response.³⁶ Our findings add to the growing evidence about the association between racism and health. Results of other studies indicate associations between self-reported experience of racial discrimination and negative health outcomes, including mental health, physical health, and factors related to cardiovascular disease.¹⁸ Although alternative, non-causal explanations are possible, such as poor health leading to increased exposure or reporting of discrimination, they seem less plausible.

Racial discrimination is an unacceptable breach of human rights³⁷ that should be addressed irrespective of whether it affects health. For Māori, this breach is also a contravention of indigenous rights.³⁸ Our results provide an additional reason to urgently address racist attitudes and discriminatory practices and their economic consequences in New Zealand society. As a health priority, interventions and policies to improve Māori health and address inequalities should consider the effects of racism.

Contributors

All authors took part in study design. M Tobias, with support from S Karlsen and J Nazroo, conceived the study and designed the survey questions with additional advice from an expert panel. R Harris, M Tobias, M Jeffreys, and K Waldegrave planned the statistical analysis. M Jeffreys did the analysis. R Harris is lead author, but all helped to interpret the data and write the report.

Conflict of interest statement

R Harris, M Tobias, and K Waldegrave are or were employees of the New Zealand Ministry of Health. All other authors declare that they have no conflict of interest.

Acknowledgments

We thank the participants of the 2002/03 New Zealand Health Survey and Sue Paul for assistance with initial analyses. The 2002/03 New Zealand Health Survey was funded by the New Zealand Ministry of Health. The Centre for Public Health Research, Massey University, is supported by a programme grant from the Health Research Council of New Zealand. The views expressed in this paper are the authors' own and do not necessarily represent the views or policy advice of the Ministry of Health.

References

- 1 Jones CP. "Race", racism, and the practice of epidemiology. *Am J Epidemiol* 2001; **154**: 299–304.
- 2 Krieger N. Does racism harm health? Did child abuse exist before 1962? On explicit questions, critical science, and current controversies: an ecosocial perspective. *Am J Public Health* 2003; **93**: 194–99.
- 3 Nazroo JY. The structuring of ethnic inequalities in health: economic position, racial discrimination, and racism. *Am J Public Health* 2003; **93**: 277–84.
- 4 Williams DR. Race and health: basic questions, emerging directions. *Ann Epidemiol* 1997; **7**: 322–33.
- 5 Statistics New Zealand. 2001 census of population and dwellings: national summary. Wellington: Statistics New Zealand, 2002.
- 6 Ajwani S, Blakely T, Robson B, Tobias M, Bonne' M. Decades of disparity: ethnic mortality trends in New Zealand 1980–1999. Wellington: Ministry of Health and University of Otago, 2003.
- 7 Bramley D, Herbert P, Tuzzio L, Chassin M. Disparities in indigenous health: a cross-country comparison between New Zealand and the United States. *Am J Public Health* 2005; **95**: 844–50.

- 8 Statistics New Zealand. New Zealand life tables 2000–2002. Wellington: Statistics New Zealand, 2004.
- 9 Ministry of Health. An indication of New Zealanders' health 2004. Wellington: Ministry of Health, 2004.
- 10 Howden-Chapman P, Tobias M. Social inequalities in health: New Zealand 1999. Wellington: Ministry of Health, 2000.
- 11 Ministry of Social Development. The social report 2004. Wellington: Ministry of Social Development, 2004.
- 12 Crampton P, Salmond C, Kirkpatrick R. Degrees of deprivation in New Zealand, 2nd edn. Auckland: David Bateman, 2004.
- 13 Reid P, Robson B, Jones CP. Disparities in health: common myths and uncommon truths. *Pac Health Dialog* 2000; **7**: 38–47.
- 14 Sporle A, Pearce N, Davis P. Social class mortality differences in Maori and non-Maori men aged 15–64 during the last two decades. *N Z Med J* 2002; **115**: 127–31).
- 15 Bhopal R. Spectre of racism in health and health care: lessons from history and the United States. *BMJ* 1998; **316**: 1970–73.
- 16 Krieger N. Discrimination and health. In: Berkman L, Kawachi I, eds. *Social epidemiology*. New York: Oxford University Press, 2000: 36–75.
- 17 Karlsen S, Nazroo JY. Relation between racial discrimination, social class, and health among ethnic minority groups. *Am J Public Health* 2002; **92**: 624–30.
- 18 Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: findings from community studies. *Am J Public Health* 2003; **93**: 200–08.
- 19 Williams DR, Williams-Morris R. Racism and mental health: the African American experience. *Ethn Health* 2000; **5**: 243–68.
- 20 Karlsen S, Nazroo JY. Fear of racism and health. *J Epidemiol Community Health* 2004; **58**: 1017–18.
- 21 Karlsen S, Nazroo JY, McKenzie K, Bhui K, Weich S. Racism, psychosis and common mental disorder among ethnic minority groups in England. *Psychol Med* 2005; **35**: 1795–803.
- 22 Whitbeck LB, McMorris BJ, Hoyt DR, Stubben JD, Lafromboise T. Perceived discrimination, traditional practices, and depressive symptoms among American Indians in the upper midwest. *J Health Soc Behav* 2002; **43**: 400–18.
- 23 House JS, Williams DR. Understanding and reducing socioeconomic and racial/ethnic disparities in health. In: Smedley B, Syme S, eds. *Promoting health: intervention strategies from social and behavioural research*. Washington: National Academy Press, 2001: 81–124.
- 24 Harris R, Tobias M, Jeffreys M, Waldegrave K, Karlsen S, Nazroo J. Racism and health: the relationship between experience of racial discrimination and health in New Zealand. *Soc Sci Med* (in press).
- 25 Kish L. A procedure for objective respondent selection within the household. *J Am Stat Assoc* 1949; **44**: 380–87.
- 26 Ministry of Health. A portrait of health: key results of the 2002/03 New Zealand health survey. Wellington: Ministry of Health, 2004.
- 27 Modood T, Berthoud R, Lakey J, et al. *Ethnic minorities in Britain: diversity and disadvantage*. London: Policy Studies Institute, 1997.
- 28 Centers for Disease Control and Prevention. Behavioral risk factor surveillance system survey questions. Atlanta: US Department of Health and Human Services, Centers for Disease Control and Prevention, 2002.
- 29 Statistics New Zealand. 2001 census of population and dwellings: definitions and questionnaires. Wellington: Statistics New Zealand, 2001.
- 30 Salmond C, Crampton P. NZDep2001 index of deprivation. Wellington: Department of Public Health, Wellington School of Medicine and Health Sciences, 2002.
- 31 Kott PS. Using the Delte-A-Group jackknife variance estimator in NASS surveys. Washington: US Department of Agriculture, 1998.
- 32 Ware J, Sherbourne C. The MOS 36-item short-form health survey, I: conceptual framework and item selection. *Med Care* 1992; **30**: 473–83.
- 33 Rothman RJ, Greenland S, eds. *Modern epidemiology*, 2nd edn. Philadelphia: Lippincott-Raven, 1998.
- 34 Chahal K, Julienne L. “We can’t all be white!” Racist victimisation in the UK. London: York Publishing Services, 1999.
- 35 Nazroo J. Genetic, cultural or socio-economic vulnerability? Explaining ethnic inequalities in health. *Sociol Health Illn* 1998; **20**: 710–30.
- 36 Hill AB. The environment and disease: association or causation? *Proc R Soc Med* 1965; **58**: 295–300.
- 37 Human Rights Commission. Human rights in New Zealand today. Wellington: Human Rights Commission, 2004.
- 38 United Nations High Commissioner for Human Rights. Draft United Nations declaration on the rights of indigenous peoples. [http://www.unhchr.ch/huridocda/huridoca.nsf/\(Symbol\)/E.CN.4.SUB.2.RES.1994.45.En?OpenDocument](http://www.unhchr.ch/huridocda/huridoca.nsf/(Symbol)/E.CN.4.SUB.2.RES.1994.45.En?OpenDocument) (accessed Sept 21, 2005).