

# Ethnic group differences in patient satisfaction with GP services: findings from the New Zealand Attitudes and Values Study

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## ABSTRACT

**AIM:** To identify key predictors of general practitioner (GP) satisfaction and increase insight into the mechanisms behind ethnic health inequities in New Zealand.

**METHOD:** Regression analyses were conducted using data from the 2019 New Zealand Attitudes and Values Study (n=38,465).

**RESULTS:** Initially, Māori and Asian peoples showed lower, and Pasifika people showed no significant difference in GP satisfaction level relative to New Zealand (NZ) Europeans. However, after accounting for differences in patient-perceived GP cultural respect and GP ethnic similarity, Māori and Pasifika people showed higher and Asian peoples showed no difference in GP satisfaction level relative to NZ Europeans. These effects continued to hold when adjusting for a range of demographic factors. Subsequent regression analyses were conducted to investigate the impact of GP perceptions, GP satisfaction and demographic factors on healthcare access satisfaction and health status across ethnic groups. For all ethnic groups, GP satisfaction was the strongest predictor of satisfaction with access to healthcare. Higher GP satisfaction was also a significant predictor of higher self-rated health and lower psychological distress.

**CONCLUSION:** Lack of GP cultural respect is a key contributor to lower GP satisfaction among ethnic minorities, which can further exacerbate inequities in healthcare access and health outcomes. Interventions to enhance GPs' provision of culturally respectful and safe healthcare services may help reduce ethnic health inequities and improve population health.

In July 2022, a new national New Zealand health system was launched with the aim of delivering more “equitable”, “accessible”, “cohesive”, and “people-centred” healthcare services.<sup>1</sup> The health system had previously failed to fulfil Te Tiriti o Waitangi obligations and long under-served Māori (the Indigenous population) and other minority groups.<sup>2,3</sup> Past studies indicate that ethnic minorities are less likely to have ethnic-concordant general practitioners (GPs), and often encounter cultural misunderstandings or racism in the primary healthcare setting.<sup>4-8</sup> Relative to New Zealand (NZ) Europeans (67.8% and 74.1%), ratings of high GP satisfaction and perceived cultural respect are lower among Māori (60.7% and 62.5%), Pasifika peoples (64.8% and 65.2%) and Asian peoples (59% and 60.8%).<sup>8</sup> (Note: The proportion of “high GP satisfaction” and “high GP cultural respect” are reported respectively for each ethnic group. All differences in proportions between NZ Europeans and ethnic minority groups were statistically significant, except for GP satisfaction between NZ European and Pasifika peoples).

As GPs are generally the first health professional one encounters in the health system, it is essential that they provide satisfactory and culturally respectful services to all patients. Lack of GP cultural awareness and respect can make it difficult for ethnic minorities to build rapport and comfortably discuss health concerns.<sup>5,6</sup> Perceived racism can further lead to higher unmet healthcare needs, and negative mental and physical health outcomes.<sup>4,9-11</sup> Enhancing GP cultural respect may thus be an important mechanism that helps increase GP satisfaction among ethnic minorities and reduce ethnic health inequities.

In addition to ethnic minority status, lower education and socio-economic status, and younger age have been linked to reduced access to and/or lower quality healthcare services.<sup>10,12-15</sup> However, studies have yet to examine the extent to which patient perceptions of GPs (i.e., degree of ethnic similarity and cultural respect) contribute to ethnic differences in GP satisfaction relative to demographic factors. Moreover, little is known about whether GP-related or demographic factors are stronger predictors of healthcare access

and health outcomes for distinct ethnic groups. As cultural values, health beliefs and healthcare experiences differ across ethnic groups,<sup>16–19</sup> there may be ethnic disparities in key predictors of good health and satisfactory healthcare access.

The present study assesses whether GP cultural respect is a key driver of lower GP satisfaction among ethnic minorities, independent of demographic factors. Data for this study were derived from the 2019 New Zealand Attitudes and Values study, before the 2022 health reform. A nested regression with three blocks is conducted to investigate how the relationship between: 1) ethnic groups (NZ Europeans, Māori, Pasifika, Asian) and GP satisfaction changes when we 2) include GP perception variables in our model, and 3) further control for a range of patient demographic factors. Subsequently, we examine the distinct influence that GP satisfaction, GP perceptions and demographic variables have on patient satisfaction with healthcare access, level of psychological distress and self-rated health for each ethnic group. Identifying ethnicity-specific predictors of positive health outcomes will inform improvements to the delivery of culturally respectful and equitable health services.

## Method

### Sampling procedure

The New Zealand Attitudes and Values Study (NZAVS) is an annual longitudinal study of a probability sample of New Zealanders. It is reviewed by a Human Participants Ethics Committee every 3 years. Time 1 (2009) NZAVS participants were randomly sampled from the New Zealand electoral roll (response rate: 16.6%). This study uses Time 11 data (2019, n=42,684; see technical document).<sup>20</sup>

### Participants

Time 11 participants had a mean age of 52 years (standard deviation [SD]=13.87), mean deprivation score of 4.75 (1 = low deprivation, 10 = high deprivation), and median household income of \$100,000 NZD (SD=125,544.83). Around 63.8% of participants were female (35.8% male), 92.6% were NZ European, 10.1% were Māori, 2.7% were Pasifika, and 4.5% were Asian (ethnic categories not mutually exclusive). Roughly 78% were born in New Zealand and 90.1% had a regular family doctor/GP.

### Statistical analyses

All regressions were conducted on Mplus version 8 and only included those with a regular GP. Block one of the nested regressions predicting GP satisfaction included Māori, Pasifika and Asian ethnicities (reference group: NZ Europeans). Block two included GP ethnic similarity and GP cultural respect. Block three included a wide range of demographic variables.

Multiple regressions predicting satisfaction with healthcare access, psychological distress and self-rated health were conducted for NZ Europeans, Māori, Pasifika peoples and Asian peoples separately. Predictors included GP satisfaction, GP ethnic similarity, GP cultural respect and demographic factors. Missing data for exogenous variables were estimated using Rubin's multiple imputation procedure (10,000 imputed datasets, thinned every 200th iteration).

### Measures

#### GP perception variables

Participants were asked, “Do you have a regular family doctor/GP?” (yes/no answer). If “yes”, participants were asked to rate on a scale of 1 to 7 to what extent:

1. “Are you satisfied with the service and care you receive from your family doctor/GP?” (1 = not satisfied, 7 = very satisfied)
2. “Do you think your doctor/GP shares a similar cultural background to you?” (1 = definitely no, 7 = definitely yes)
3. “Does your doctor/GP respect your cultural background when you are discussing health issues with them?” (1 = definitely no, 7 = definitely yes)

#### Demographic variables

Ethnicity was measured using the standard New Zealand Census item, whereby participants indicated which ethnic group(s) they belonged to. This item was used to create a prioritised ethnicity variable (order of prioritisation: Māori, Pasifika, Asian, NZ European). Education was coded into an 11-level ordinal variable (0 = no qualification, 1 = Level 1 Certificate [basic knowledge/skills for work] to 10 = doctoral degree) based on the 10 tertiary qualification levels in New Zealand. Deprivation level was measured using the 2018 New Zealand Deprivation Index (1 = least deprived to 10 = most deprived).<sup>21</sup>

### Healthcare access and health status

Participants rated their level of satisfaction with their “access to healthcare when you need it (e.g., doctor, GP)”, on a scale of 0 (completely dissatisfied) to 10 (completely satisfied). Self-rated health was measured using the average of three items from the Short-form Subjective Health Scale.<sup>22</sup> Psychological distress was measured using the average score of the 6 items on the Kessler-6 Scale.<sup>23</sup>

## Results

GP cultural respect is referred to as “GP respect” and GP ethnic similarity is referred to as “GP similarity” in the Results section for ease of readability. These concepts were assessed as two separate variables and included in model 2 and 3 of the nested regressions predicting GP satisfaction.

As shown in Table 1, NZ Europeans showed the highest percentage of “high GP satisfaction” (64.9%) followed by Pasifika peoples (58.9%), Māori (58%), and Asian peoples (54.3%). Fifty-two percent of NZ Europeans reported “high GP similarity” compared to only 23% of Māori and Pasifika peoples, and 27.7% of Asian peoples. Seventy-five percent of NZ Europeans reported “high GP respect” whereas 62.5% of Māori, 67.3% of Pasifika peoples and 63.8% of Asian peoples reported the equivalent. “Low GP respect” was lowest among NZ Europeans (1%), followed by Pasifika peoples (2.3%) and Asian peoples (2.4%), and Māori (3.6%).

### Predicting GP satisfaction

#### Model 1: ethnicity

As seen in Table 2, model 1 only assessed ethnic differences in GP satisfaction. Māori (Beta [B]=-.192, standard error [SE]=.026,  $p<.001$ ) and Asian (B=-.239, SE=.035,  $p<.001$ ) peoples showed lower satisfaction compared to NZ Europeans, while Pasifika peoples showed no significant difference.

#### Model 2: inclusion of GP respect and GP similarity

After including GP respect and GP similarity, Māori (B=.078, SE=.023,  $p<.001$ ) and Pasifika peoples (B=.168, SE=.041,  $p<.001$ ) showed higher GP satisfaction compared to NZ Europeans. Asian ethnicity was no longer significant. GP respect (B=.473, SE=.007,  $p<.001$ ) and GP similarity (B=.100, SE=.004,  $p<.001$ ) were associated with higher GP satisfaction. Both GP variables had a standardised beta ( $\beta$ ) above .1 ( $\beta$ =.409 and .136 respectively).

### Model 3: inclusion of demographic variables

After including demographic variables, Māori (B=.104, SE=.023,  $p<.001$ ) and Pasifika peoples (B=.180, SE=.021,  $p<.001$ ) continued to show higher GP satisfaction compared to NZ Europeans. The strength of association between GP satisfaction and these two ethnic groups slightly increased compared to Model 2. Asian ethnicity remained non-significant. GP respect (B=.471, SE=.007,  $p<.001$ ) and GP similarity (B=.093, SE=.004,  $p<.001$ ) continued to show the strongest association with greater GP satisfaction ( $\beta$ =.408 and .127 respectively).

Men (B=.093, SE=.003,  $p<.001$ ), older (B=.007, SE=.001,  $p<.001$ ) and religious people (B=.047, SE=.013,  $p<.001$ ), and those living in urban areas (B=.095, SE=.017,  $p<.001$ ) showed higher GP satisfaction. In contrast, higher deprivation (B=-.011, SE=.002,  $p<.001$ ) and being employed (B=-.047, SE=.016,  $p=.003$ ) were linked with lower GP satisfaction. Education level, parental and partner status and born in New Zealand were non-significant.

## Predicting healthcare access satisfaction, psychological distress and self-rated health

Tables reporting regression results for each ethnic group can be found in the Appendix. Only GP variables and key demographic variables are reported in-text.

### NZ Europeans

#### Healthcare access satisfaction

Higher GP satisfaction (B=.646, SE=.011,  $p<.001$ ), GP respect (B=.089, SE=.049,  $p<.001$ ), and GP similarity (B=.028, SE=.006,  $p<.001$ ) were associated with higher healthcare access satisfaction. All variables except “born in New Zealand” were significant. Having a partner (B=.458, SE=.027,  $p<.001$ ) and lower deprivation (B=-.048, SE=.004,  $p<.001$ ) were the strongest demographic predictors. Overall, GP satisfaction showed the strongest effect ( $\beta$ =.412).

#### Psychological distress

Higher GP satisfaction (B=-.054, SE=.003,  $p<.001$ ), GP respect (B=-.012, SE=.003,  $p<.001$ ) and GP similarity (B=-.008, SE=.002,  $p<.001$ ) were associated with lower psychological distress. All demographic variables except religion were significant. Age (B=-.015, SE=.000,  $p<.001$ ) and having a partner (B=-.160, SE=.009,  $p<.001$ ) showed particularly strong

**Table 1:** Percentage of low, moderate and high ratings of GP satisfaction, GP respect and GP similarity across prioritised ethnic groups.

	GP satisfaction (N=38,411 for total sample)			GP cultural similarity (N=38,205 for total sample)			GP cultural respect (N=38,022 for total sample)		
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
NZ European	3.9% (978)	31.1% (7,761)	64.9% (16,190)	12.2% (3,018)	35.8% (8,880)	52.1% (12,919)	1% (249)	23.6% (5,815)	75.4% (18,623)
Māori	6.3% (322)	35.7% (1,840)	58% (2,989)	31.2% (1,595)	45.8% (2,342)	23% (1,174)	3.6% (181)	33.9% (1,716)	62.5% (3,165)
Pasifika	4.3% (82)	36.8% (698)	58.9% (1,116)	30.0% (565)	47.3% (888)	22.7% (427)	2.3% (43)	30.5% (576)	67.3% (1,272)
Asian	4.8% (273)	40.9% (2,339)	54.3% (3,104)	31.3% (1,780)	41% (2,335)	27.7% (1,574)	2.4% (134)	33.9% (1,923)	63.8% (3,619)
Total sample	4.5% (1,715)	33.6% (12,903)	61.9% (23,793)	18.6% (7,110)	38.7% (14,776)	42.7% (16,319)	1.6% (618)	27.0% (10,277)	71.3% (27,127)

Notes: Items were rated on a Likert scale of 1 (not satisfied/definitely no) to 7 (very satisfied/definitely yes). Ratings were categorised into three groups: low (1–2), moderate (3–5) and high (6–7). Only respondents who indicated having a GP were included in analyses. Ethnic categories were mutually exclusive and prioritised in the following order: Māori, Pasifika, Asian, NZ European. Standard NZAVS weighting procedure on gender, ethnicity and region of residence applied.

**Table 2:** Regression predicting GP satisfaction.

	Model 1: ethnicity				Model 2: GP respect and similarity				Model 3: demographic factors			
	B	SE	STD beta	P-value	B	SE	STD beta	P-value	B	SE	STD beta	P-value
Māori	-.192	.026	-.041	.000**	.078	.023	.017	.000**	.104	.023	.022	.000**
Pasifika	.014	.048	.002	.773	.168	.041	.019	.000**	.180	.040	.021	.000**
Asian	-.239	.035	-.035	.000**	.001	.031	.000	.984	.013	.033	.002	.694
GP respect					.473	.007	.409	.000**	.471	.007	.408	.000**
GP similarity					.100	.004	.136	.000**	.093	.004	.127	.000**
Gender									.093	.013	.032	.000**
Age									.007	.001	.071	.000**
Education									-.002	.002	-.004	.344
Deprivation									-.011	.002	-.022	.000**
Religion									.047	.013	.016	.000**
Parent									-.032	.017	-.010	.059
Partner									-.012	.016	-.004	.465
Employment									-.047	.016	-.014	.003**
Urban									.095	.017	.026	.000**
Born in New Zealand									-.027	.016	-.008	.089

Note: \*p<.05

\*\*p<.01.

NZ Europeans were the reference group for ethnicity. STD beta refers to standardised beta (STD beta >.1 bolded). Sample limited to those who indicated having a GP. Analyses conducted with data imputation for missing values. Average number of observations = 38,465. R-squared = .003, .217, .225 respectively.

effects. Overall, age ( $\beta=-.296$ ) and GP satisfaction ( $\beta=-.112$ ) showed the strongest effects.

### **Self-rated health**

Higher GP satisfaction ( $B=.104$ ,  $SE=.005$ ,  $p<.001$ ), GP respect ( $B=.025$ ,  $SE=.006$ ,  $p<.001$ ), and GP similarity ( $B=.020$ ,  $SE=.004$ ,  $p<.001$ ) were associated with higher self-rated health. Most demographic variables were significant. Overall, employment ( $B=.362$ ,  $\beta=-.132$ ,  $SE=.016$ ,  $p<.001$ ) and GP satisfaction ( $\beta=-.123$ ) showed the strongest effects.

## **Māori**

### **Healthcare access satisfaction**

Higher GP satisfaction ( $B=.746$ ,  $SE=.034$ ,  $p<.001$ ) was associated with higher healthcare access satisfaction. GP respect and GP similarity were non-significant. Having a partner ( $B=.380$ ,  $SE=.081$ ,  $p<.001$ ) and lower deprivation ( $B=-.062$ ,  $SE=.012$ ,  $p<.001$ ) were strongest demographic predictors. Overall, GP satisfaction showed the strongest effect ( $\beta=.459$ ).

### **Psychological distress**

Higher GP satisfaction ( $B=-.059$ ,  $SE=.009$ ,  $p<.001$ ) was associated with lower psychological distress, but GP respect and GP similarity were non-significant. Of the demographic variables, age ( $B=-.018$ ,  $SE=.001$ ,  $p<.001$ ) and employment ( $B=-.281$ ,  $SE=.030$ ,  $p<.001$ ) showed the strongest effects. These variables showed stronger effects than GP satisfaction ( $\beta=-.119$  vs  $\beta=-.326$  and  $\beta=-.161$  respectively).

### **Self-rated health**

Higher GP satisfaction ( $B=.102$ ,  $SE=.016$ ,  $p<.001$ ) and GP similarity ( $B=.027$ ,  $SE=.010$ ,  $p=.008$ ) were associated with higher self-rated health. GP respect was non-significant. Employment ( $B=.479$ ,  $SE=.050$ ,  $p<.001$ ) and having a partner ( $B=.217$ ,  $SE=.046$ ,  $p<.001$ ) were the two strongest demographic predictors. Overall, employment ( $\beta=-.168$ ) and GP satisfaction ( $\beta=-.126$ ) showed the strongest effects.

## **Pasifika peoples**

### **Healthcare access satisfaction**

Higher GP satisfaction ( $B=.572$ ,  $SE=.067$ ,  $p<.001$ ) and GP similarity ( $B=.160$ ,  $SE=.064$ ,  $p=.012$ ), older age ( $B=.012$ ,  $SE=.005$ ,  $p=.024$ ) and having a partner ( $B=.525$ ,  $SE=.152$ ,  $p=.001$ ) were associated with higher healthcare access satisfaction. All other

variables were non-significant. GP satisfaction ( $\beta=.337$ ) showed the strongest effect, followed by partner status ( $\beta=.110$ ) and GP respect ( $\beta=.100$ ).

### **Psychological distress**

Older age ( $B=-.014$ ,  $SE=.002$ ,  $p<.001$ ), higher education ( $B=-.032$ ,  $SE=.009$ ,  $p<.001$ ), being a parent ( $B=-.136$ ,  $SE=.061$ ,  $p=.027$ ) and employed ( $B=-.253$ ,  $SE=.063$ ,  $p<.001$ ) were associated with lower psychological distress. GP satisfaction ( $B=-.036$ ,  $SE=.019$ ,  $p=.059$ ) showed a marginally significant effect, and all other variables were non-significant.

### **Self-rated health**

Higher GP satisfaction ( $B=.108$ ,  $SE=.033$ ,  $p=.001$ ), being religious ( $B=.164$ ,  $SE=.080$ ,  $p=.041$ ), employed ( $B=.298$ ,  $SE=.100$ ,  $p=.003$ ) and having a partner ( $B=.237$ ,  $SE=.091$ ,  $p=.009$ ) were associated with higher self-rated health. GP satisfaction ( $\beta=.127$ ) and employment ( $\beta=.102$ ) showed particularly strong effects. All other variables were non-significant.

## **Asian peoples**

### **Healthcare access satisfaction**

Higher GP satisfaction ( $B=.632$ ,  $SE=.051$ ,  $p<.001$ ) and GP respect ( $B=.104$ ,  $SE=.050$ ,  $p=.037$ ), having a partner ( $B=.403$ ,  $SE=.128$ ,  $p=.002$ ) and being born in New Zealand ( $B=.384$ ,  $SE=.109$ ,  $p<.001$ ) were associated with higher satisfaction. GP satisfaction showed the strongest effect ( $\beta=.408$ ). All other variables were non-significant.

### **Psychological distress**

Higher GP satisfaction ( $B=-.054$ ,  $SE=.105$ ,  $p<.001$ ), older age ( $B=-.014$ ,  $SE=.002$ ,  $p<.001$ ) and having a partner ( $B=-.176$ ,  $SE=.045$ ,  $p<.001$ ), being employed ( $B=-.164$ ,  $SE=.047$ ,  $p=.001$ ) and lower deprivation ( $B=.015$ ,  $SE=.007$ ,  $p=.023$ ) were associated with lower psychological distress. Age ( $\beta=-.272$ ) showed the strongest effect, followed by having a partner ( $\beta=-.105$ ) and GP satisfaction ( $\beta=-.103$ ). All other variables were non-significant.

### **Self-rated health**

Higher GP satisfaction ( $B=.093$ ,  $SE=.026$ ,  $p<.001$ ) and GP respect ( $B=.061$ ,  $SE=.028$ ,  $p=.027$ ), and being born overseas ( $B=-.246$ ,  $SE=.066$ ,  $p<.001$ ) was associated with higher self-rated health. GP satisfaction ( $\beta=-.109$ ) showed the strongest effect. All other variables were non-significant.

## Discussion

### Predictors of GP satisfaction

GP cultural respect was identified as a key driver of ethnic disparities in GP satisfaction. When only assessing ethnic differences, Māori and Asian peoples showed lower, and Pasifika peoples showed no significant difference in GP satisfaction compared to NZ Europeans. However, these effects substantially changed after accounting for differences in patient-perceived GP cultural respect and ethnic similarity. Māori and Pasifika peoples now showed higher, and Asian peoples showed no difference in GP satisfaction, relative to NZ Europeans. These changed effects remained significant after a wide range of demographic factors were further controlled for.

Men, older, religious people, unemployed individuals and those living in urban and more affluent areas showed higher GP satisfaction. Financial and physical barriers to healthcare are likely to drive lower satisfaction among those living in rural or more deprived areas.<sup>12,24</sup> Conversely, women and young people are less likely to report that their healthcare professionals listened to them and involved them in treatment decisions.<sup>15</sup> A notable finding from our study was that GP perceptions, especially GP cultural respect, showed a much stronger relationship with GP satisfaction than demographic factors. Controlling for demographic factors alone did not alter initial ethnic differences in GP satisfaction (see Appendix). Hence, low GP cultural respect appears to be the most central factor driving low GP satisfaction among ethnic minorities.

Māori and other ethnic minorities persistently report greater feelings of discrimination and culturally incongruent healthcare.<sup>5-7,12,25</sup> Our findings suggest that interventions focussed on patient-perceived cultural respect would be a key method to increase GP satisfaction among these groups. As cultural barriers and racism are strongly linked to low healthcare access and poor health outcomes,<sup>4,9,10</sup> supporting GPs to be more culturally respectful may help increase ethnic minorities' healthcare utilisation and reduce health inequities.<sup>5-7,12,25</sup> Given the lower proportion of ethnic minority doctors in New Zealand,<sup>26</sup> it is encouraging to find that GP cultural respect is a stronger predictor of GP satisfaction than GP ethnic similarity. Even if one does not have an ethnic-concordant GP, their GP satisfaction may still be substantially improved if GPs can provide culturally respectful healthcare services.

To better address health inequities, GPs should aim to deliver “culturally safe” healthcare; a more comprehensive concept that encompasses and goes beyond cultural respect.<sup>27</sup> Cultural safety requires doctors to be critically conscious of their own attitudes and prejudices that may impact interactions with patients and reduce bias that contributes to health inequity.<sup>27</sup> Yet, the demands of clinical competencies often leave doctors with limited time and energy to dedicate to cultural training and the provision of culturally safe services to diverse groups.<sup>16</sup> The significance of cultural respect and safety,<sup>27</sup> including its contribution to clinical outcomes and reducing health inequities, may require greater recognition in the healthcare system. Beyond the inclusion of cultural safety in policies and frameworks, our results indicate the importance of evaluating how well cultural safety is being translated into actual clinical practice.

### Predictors of healthcare access satisfaction, psychological distress and self-rated health

GP satisfaction was associated with higher healthcare access satisfaction and better health status for all ethnic groups. These associations were comparable to or stronger than that identified between demographic factors and health outcomes. Despite controlling for a wide range of factors (including GP satisfaction), GP cultural respect showed significant associations with higher healthcare access satisfaction among Pasifika peoples and Asian peoples, and higher self-rated health among Asian peoples. These findings further emphasise the overarching impact of GP cultural respect, illustrating its promising role in contributing to improved healthcare access and health status for ethnic minorities.

GP cultural respect and ethnic similarity showed significant relationships with all three outcome variables only among NZ Europeans. Higher GP ethnic similarity was associated with higher Māori self-rated health but was not significant for Pasifika peoples and Asian peoples. While increasing GP satisfaction may be an effective way to improve self-rated health for all ethnic groups, having an ethnic-concordant GP appears to have further unique health benefits for Māori.

Generally, older age, having a partner and higher education, and being employed were associated with better healthcare access and/or positive health across ethnic groups. Younger age was a particularly strong risk factor for higher psychological

distress. Greater deprivation consistently predicted negative health and reduced healthcare access for NZ Europeans and Māori, but only predicted increased distress for Asian peoples and was not significant for Pasifika peoples. Among Asian peoples, those born in New Zealand reported better access to healthcare but lower self-rated health. Hence, second-generation Asian immigrants may encounter fewer language or cultural barriers to healthcare access, but this does not necessarily indicate better health status.

Across all ethnic groups, GP satisfaction was by far the strongest predictor of healthcare access satisfaction. Māori and Pasifika peoples frequently report financial barriers to healthcare,<sup>12</sup> but our results suggest that GP satisfaction is a more crucial determinant of perceived access to healthcare than deprivation. Increasing GP satisfaction through greater cultural respect should be better recognised as a priority area of intervention to improve healthcare access among ethnic minorities. Moreover, it is essential to note that there may be ethnic group differences in the way one judges GP cultural respect, and each ethnic group has unique characteristics that impact their pattern of healthcare utilisation and health outcomes (e.g., Māori experience of colonisation, younger Pasifika population).<sup>17,28</sup> Healthcare professionals should be aware of such differences, and recognise that patients and the community themselves may know best what cultural safety looks like for them.<sup>27</sup>

### Caveats and future research

Our sample had a higher proportion of women, NZ Europeans and those with higher education and income, and only people with a regular GP

were included in analyses (the proportion of women was 63.8% and NZ Europeans was 92.6%). Participants could identify with more than one ethnicity. Mean education level was 5.7 (1 = lowest, 10 = highest) and median household income was \$100,000). Thus, our findings cannot be generalised to all groups in New Zealand. Further research is warranted on ethnic minorities with lower income and educational qualifications, and limited English abilities, as these groups are most likely to experience culturally incongruent GP services. There would also be great value in continuously tracking changes in GP satisfaction and health outcomes across ethnic groups throughout and beyond the health reform. This would allow us to assess the extent to which aspired improvements in health equity are being achieved over time.

### Conclusion

Patient-perceived GP cultural respect was identified as a key driver of ethnic disparities in GP satisfaction. Initially, Māori and Asian peoples showed lower, and Pasifika peoples showed no significant difference in GP satisfaction level, relative to NZ Europeans. After accounting for differences in GP cultural respect and ethnic similarity, Māori and Pasifika peoples showed higher and Asian peoples showed no difference in satisfaction level compared to NZ Europeans. Higher GP satisfaction showed strong associations with better healthcare access and health outcomes for all ethnic groups. Increasing GP satisfaction through the provision of culturally respectful and safe healthcare services may be an essential step to reducing ethnic health inequities and improving population health.



**COMPETING INTERESTS**

Nil.

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## Appendix

**Table A1:** Socio-demographic characteristics of sample for each ethnic group and total sample.

	Gender		Mean age (Age range, SD)	Proportion of people born in New Zealand	Proportion of employed people	Mean education level (SD)	Mean deprivation level (SD)
	Female	Male					
NZ European (n=35,701)	65.29%	34.71%	52.94 (18–99, 13.57)	80.16%	75.73%	5.69 (2.66)	4.63 (2.69)
Māori (n=3,794)	68.2%	31.8%	50.85 (18–92, 13.38)	96.86%	75.08%	5.08 (2.74)	5.84 (2.89)
Pasifika peoples (n=1,012)	66.47%	33.53%	48.89 (19–92, 13.66)	75.27%	75.74%	5.30 (2.70)	6.00 (3.01)
Asian peoples (n=1,670)	64.80%	35.2%	46.03 (18–83, 14.09)	29.42%	78.70%	6.82 (2.19)	4.94 (2.69)
Total sample (n=38,265)	64.95%	35.05%	52.70 (18–99, 13.58)	78.08%	75.73%	5.70 (2.66)	4.71 (2.72)

Note: Data imputation for missing values was used for all regressions. Sample descriptives were obtained from Mplus regression analysis results. “Total sample” was used for the nested regressions predicting GP satisfaction.

**Table A2:** Regression predicting healthcare access satisfaction, psychological distress and self-reported health among *NZ Europeans*.

	Healthcare access satisfaction				Psychological distress (K6)				Self-rated health			
	B	SE	STD beta	P-value	B	SE	STD beta	P-value	B	SE	STD beta	P-value
GP satisfaction	.646	.011	<b>.412</b>	.000**	-.054	.003	<b>-.112</b>	.000**	.104	.005	<b>.123</b>	.000**
GP respect	.089	.011	.049	.000**	-.012	.003	-.021	.000**	.025	.006	.025	.000**
GP similarity	.028	.006	.023	.000**	-.008	.002	-.021	.000**	.020	.004	.031	.000**
Gender	.062	.021	.014	.004**	-.026	.007	-.018	.000**	-.077	.013	-.031	.000**
Age	.006	.001	.035	.000**	-.015	.000	<b>-.296</b>	.000**	.004	.001	.041	.000**
Education	.038	.004	.047	.000**	-.011	.001	-.045	.000**	.011	.002	.024	.000**
Deprivation	-.048	.004	-.060	.000**	.013	.001	.051	.000**	-.023	.002	-.052	.000**
Religion	-.047	.022	-.010	.033*	.008	.007	.006	.239	-.003	.013	-.001	.842
Parent	-.120	.027	-.024	.000**	-.082	.009	-.052	.000**	.123	.016	.045	.000**
Partner	.458	.027	.090	.000**	-.160	.009	<b>-.102</b>	.000**	.163	.016	.059	.000**
Employment	.118	.026	.023	.000**	-.167	.009	-.106	.000**	.362	.016	<b>.132</b>	.000**
Urban	.204	.028	.037	.000**	.047	.008	.027	.000**	-.080	.015	-.027	.000**
Born in New Zealand	-.026	.025	-.005	.309	-.039	.008	-.023	.000**	-.006	.015	-.002	.675

Note: \*p<.05

\*\*p<.01

Sample limited to those who indicated having a GP and identified as being NZ European. STD beta refers to standardised beta (STD >.1 bolded). Analyses conducted with data imputation for missing values. Average number of observations = 35,701. R-squared = .224, .148, .057, respectively.

**Table A3:** Regression predicting healthcare access satisfaction, psychological distress and self-reported health among Māori.

	Healthcare access satisfaction				Psychological distress (K6)				Self-rated health			
	B	SE	STD beta	P-value	B	SE	STD beta	P-value	B	SE	STD beta	P-value
GP satisfaction	.746	.034	<b>.459</b>	.000**	-.059	.009	<b>-.119</b>	.000**	.102	.016	<b>.126</b>	.000**
GP respect	.041	.035	.024	.240	-.008	.010	-.014	.450	.016	.017	.019	.350
GP similarity	.006	.018	.005	.754	.007	.006	.018	.242	.027	.010	.045	.008**
Gender	.098	.073	.019	.180	.000	.024	.000	.996	-.138	.041	-.052	.001**
Age	.014	.003	.074	.000**	-.018	.001	<b>-.326</b>	.000**	.007	.002	.077	.000**
Education	.029	.014	.032	.033*	-.012	.004	-.042	.008**	.005	.008	.010	.553
Deprivation	-.062	.012	-.072	.000**	.011	.004	.040	.009**	-.030	.007	-.071	.000**
Religion	-.121	.074	-.024	.105	.024	.024	.015	.328	-.025	.041	-.010	.538
Parent	-.274	.090	-.047	.002**	-.079	.030	-.044	.010*	.041	.050	.014	.416
Partner	.380	.081	.072	.000**	-.154	.027	-.096	.000**	.217	.046	.083	.000**
Employment	.226	.090	.040	.012*	-.281	.030	<b>-.161</b>	.000**	.479	.050	<b>.168</b>	.000**
Urban	.327	.097	.052	.001**	.073	.028	.038	.008**	-.054	.049	-.017	.267
Born in New Zealand	-.174	.167	-.012	.297	-.089	.064	-.021	.164	.126	.103	.018	.223

Note: \*p&lt;.05

\*\*p&lt;.01

Sample limited to those who indicated having a GP and identified as being Māori. STD beta refers to standardised beta (STD >.1 bolded). Analyses conducted with data imputation for missing values. Average number of observations = 3,794. R-squared = .256, .167, .078, respectively.

**Table A4:** Regression predicting healthcare access satisfaction, psychological distress, and self-reported health among *Pasifika* peoples.

	Healthcare access satisfaction				Psychological distress (K6)				Self-rated health			
	B	SE	STD beta	P-value	B	SE	STD beta	P-value	B	SE	STD beta	P-value
GP satisfaction	.572	.067	<b>.377</b>	.000**	-.036	.019	-.069	.059	.108	.033	<b>.127</b>	.001**
GP respect	.160	.064	<b>.100</b>	.012*	-.023	.020	-.042	.235	.005	.034	.006	.885
GP similarity	-.033	.032	-.031	.299	.009	.012	.024	.467	.037	.020	.063	.061
Gender	.113	.131	.024	.387	-.074	.049	-.045	.129	-.129	.082	-.048	.116
Age	.012	.005	.073	.024*	-.014	.002	<b>-.244</b>	.000**	.004	.003	.046	.188
Education	.032	.025	.038	.207	-.032	.009	<b>-.109</b>	.001**	.013	.016	.028	.407
Deprivation	-.014	.023	-.018	.547	.003	.009	.012	.713	-.012	.014	-.029	.385
Religion	-.184	.129	-.041	.153	.011	.049	.007	.829	-.164	.080	-.065	.041*
Parent	-.277	.167	-.055	.098	-.136	.061	-.078	.027*	-.002	.096	-.001	.980
Partner	.525	.152	<b>.110</b>	.001**	-.091	.056	-.055	.105	.237	.091	.089	.009**
Employment	.192	.162	.037	.235	-.253	.063	<b>-.139</b>	.000**	.298	.100	<b>.102</b>	.003**
Urban	.192	.193	.026	.320	.102	.078	.040	.190	.037	.134	.009	.781
Born in New Zealand	-.116	.156	-.022	.458	-.128	.060	-.071	.031	-.133	.095	-.046	.160

Note: \*p<.05

\*\*p<.01

Sample limited to those who indicated having a GP and identified as being of Pacific ethnicity. STD beta refers to standardised beta (STD >.1 bolded). Analyses conducted with data imputation for missing values. Average number of observations = 1,012. R-squared = .213, .127, .059, respectively.

**Table A5:** Regression predicting healthcare access satisfaction, psychological distress, and self-reported health among *Asian peoples*.

	Healthcare access satisfaction				Psychological distress (K6)				Self-rated health			
	B	SE	STD beta	P-value	B	SE	STD beta	P-value	B	SE	STD beta	P-value
GP satisfaction	.632	.051	<b>.408</b>	.000**	-.054	.015	<b>-.103</b>	.000**	.093	.026	<b>.109</b>	.000**
GP respect	.104	.050	.061	.037*	-.021	.016	-.036	.192	.061	.028	.066	.027*
GP similarity	.001	.025	.001	.955	.000	.009	.000	.990	-.012	.015	-.020	.436
Gender	.124	.098	.027	.206	-.013	.037	-.008	.728	.009	.061	.004	.878
Age	.007	.004	.042	.105	-.014	.002	<b>-.272</b>	.000**	.001	.002	.013	.645
Education	.026	.022	.026	.238	-.023	.009	-.067	.007**	.021	.015	.038	.150
Deprivation	-.020	.018	-.025	.263	.015	.007	.054	.023*	-.020	.011	-.045	.078
Religion	.041	.100	.009	.685	-.008	.036	-.006	.815	.055	.059	.023	.353
Parent	-.134	.127	-.030	.289	-.044	.045	-.028	.335	.125	.077	.050	.103
Partner	.403	.128	.082	.002**	-.176	.045	<b>-.105</b>	.000**	.059	.074	.022	.425
Employment	.172	.128	.032	.180	-.164	.047	-.089	.001**	.142	.081	.048	.080
Urban	-.014	.228	-.001	.951	-.069	.094	-.020	.460	-.220	.147	-.040	.135
Born in New Zealand	.384	.109	.080	.000**	-.043	.040	-.026	.275	-.246	.066	-.093	.000**

Note: \*p&lt;.05

\*\*p&lt;.01

Sample limited to those who indicated having a GP and identified as being of Asian ethnicity. STD beta refers to standardised beta (STD >.1 bolded). Analyses conducted with data imputation for missing values. Average number of observations = 1,670. R-squared = .213, .138, .050, respectively.

**Table A6:** Regression predicting GP satisfaction (without GP respect and GP similarity).

	Step 1: ethnicity				Step 2: demographic factors			
	B	SE	STD beta	P-value	B	SE	STD beta	P-value
Māori	-.192	.026	-.041	.000**	-.133	.026	-.028	.000**
Pasifika	.013	.048	.002	.780	.055	.047	.006	.243
Asian	-.237	.035	-.035	.000**	-.194	.037	-.028	.000**
Gender					.030	.015	.010	.039
Age					.011	.001	.106	.000**
Education					.009	.003	.017	.001**
Deprivation					-.026	.003	-.050	.000**
Religion					.078	.015	.027	.000**
Parent					-.034	.019	-.011	.072
Partner					.004	.018	.001	.839
Employment					-.075	.018	-.023	.000**
Urban					.145	.019	.040	.000**
Born in New Zealand					.007	.018	.002	.707

Note: \*p<.05

\*\*p <.01. Sample limited to those who indicated having a GP. STD beta refers to standardised beta (STD >.1 bolded). Analyses conducted with data imputation for missing values. Average number of observations = 38,465. R-squared = .003, .02, respectively.