# Gender differences in financial barriers to primary health care in New Zealand

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## ABSTRACT

**INTRODUCTION:** Gender differences in health status and use of health care services have been established in the developed world with less attention paid to gender differences in financial barriers to primary care. Such barriers represent potentially avoidable mortality and morbidity.

**AIM:** To examine gender differences in financial barriers to New Zealand primary health care.

**METHODS:** Data from SoFIE-health, an add-on to Statistics New Zealand–led Survey of Family, Income and Employment (SoFIE), analysed using logistic regression, controlling for demographic, socioeconomic, health behaviour and health variables. Access to primary health care includes general practitioner and dental care and prescription drugs.

**RESULTS:** Odds of deferring seeing their doctor(s), dentist and buying a prescription respectively at least once during preceding 12 months, because they could not afford the cost of a visit or prescription, were greater for women compared to men (Odds Ratio (OR) 1.82, 95% CI: 1.67–1.99; OR 2.05, 95% CI: 1.78–2.34; and OR 1.58, 95% CI: 1.47–1.71; respectively). Adjusting for demographic, socioeconomic, health behaviour and health status attenuated OR to 1.45 (1.31–1.61) for deferring medical visit, 1.47 (1.26–1.71) buying prescription, and 1.35 (1.24–1.46) for deferring dental visit, although confidence intervals still excluded the null.

**DISCUSSION:** Gender significantly associated with reporting cost barriers to primary health care, regardless of individual deprivation or income levels, suggesting that primary health care policies targeting gender-specific factors are warranted. Policy measures to reduce co-payments may improve access to care for both women and men, and may have positive health implications.

**KEYWORDS:** Gender; primary health care; access barriers; New Zealand

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## Introduction

Gender differences in health status and use of health care services have been established in the developed world. For example, numerous studies report women having a higher prevalence of chronic conditions compared to men, assessing their own health less positively than men, reporting more often the presence of disability than men of the same age (and this difference increases with age), and spending a greater duration of time with a disability.[1–4] Similarly, research from developed countries on gender differences in health and patterns of health service use suggests women's rate of utilisation of almost all health services is higher than that of men.[5–21] However, less attention has been paid to gender differences in barriers to access to health care. Such barriers represent potentially avoidable mortality and morbidity. In view of the World Health Organization's (WHO's) vision of equity and social justice in global health as embedded in the non-binding Alma-Ata Declaration on primary health care and commitments of many governments to tackle inequities in access, it seems important that subpopulations such as ethnic minorities and women have equitable access to

health care. However, research on the reduction of social inequalities in health and in access to health care has focused on socioeconomic and ethnic inequalities, and gender differentials in access to health care have received less attention in the literature. The majority of studies identify the general determinants of barriers to access to health services, including gender, but were not designed to examine how these factors differ between men and women.[22–25] This is despite the fact that gender is recognised as an important factor in predicting health access and trends.[26] Gender has typically been included as a control variable in these analyses. Notwithstanding this, a few studies have found gender differences in access to health care, with access measured by whether the individual has a usual source of care, health insurance coverage[27] and physician visits.[28]

The approach of using gender as a control variable, however, does not permit explicit examination of the underlying issue that predictive models may vary by gender.[27] As a result, our understanding of most influences on health-related outcomes is based on effects independent of gender.[27] Since gender interacts with other predictors, statistical models based on the main effects of gender will results in biased estimates.[29] Hence, attempts to adequately understand whether men and women differ in barriers to health care require approaches that take into account the relationship between gender and other predictors of barriers to access to health care. Understanding the interplay between gender and the distinct determinants of these indicators has important implications for policies designed to promote equal access to health care.[27] This paper sets out to examine gender differences in financial barriers to access to primary health care in New Zealand. If there are differences, do they remain even after controlling for socioeconomic, health behaviour and health factors? Access to primary health care is frequently seen as access to a general practitioner; however, this study includes prescription drugs and dental care as well. While examining gender differentials in delaying primary health care because of cost is of interest in its own right, it is particularly important in the New Zealand context because gender is one of the variables used in population-based funding formulae and ensuring equitable access to services is one of the seven fundamental principles guiding the 2001 New Zealand Health Strategy.[30] A brief description of the New Zealand primary health care system has been included elsewhere.[31]

## Methods

### Data

This research used cross-sectional data (2004/05) from SoFIE-Health, which is an add-on to the Statistics New Zealand–led Survey of Family, Income and Employment (SoFIE). SoFIE is a nationally representative panel study of over 22 000 adults interviewed annually through face-to-face interviews from 2002 to 2010. SoFIE collected annual information about the same individuals on income levels, sources and changes, and about the major influences on income such as employment and education experiences, household and family status and changes, demographic factors and self-rated health status. Every two years (waves 2, 4, and 6) it also collected information on assets and liabilities to monitor net wealth and savings.[2]

The SoFIE-Health add-on is composed of 20 minutes of questionnaire time in waves 3 (2004–05), 5 (2006–07) and 7 (2008–09), in the following health-related domains: SF-36 (Short-Form health survey), Kessler-10 (K-10), perceived stress, chronic conditions (heart disease, diabetes, and injury-related disability), tobacco smoking, alcohol consumption, health care utilisation, access and continuity of primary health care, and an individual deprivation score.

### Measurement

The three main outcomes were financial barriers to each of: doctor visits, collection of prescription items, and dental care within the past year. Financial barriers to doctor visits were measured by the following: 'In the past 12 months, have you put off going to see your doctor when you needed to, because you could not afford the cost of a visit?' 'If yes, how many times have you done this in the past 12 months?' Financial barriers to the collection of prescription items were measured by the following: 'In the past 12 months, have there been any times when a doctor gave you a prescription, but you didn't collect one or

more of these items because you could not afford the cost?' 'If yes, how many times have you done this in the past 12 months?' Financial barriers to dentist visits were measured by the following: 'In the past 12 months, have you put off going to see a dentist when you needed to, because you could not afford the cost of a visit?'

The main independent variable for this analysis is gender, categorised as men and women. 'Men' is the reference group. Deferral of accessing primary health care services was hypothesised to depend on socioeconomic and health need factors. The specific aim was to explore the extent to which observed gender differences, if there are any, remain even after controlling for socioeconomic, health behaviour and health factors. The covariates included sociodemographic variables, health risk behaviour and health status. Sociodemographic variables in this analysis are affiliation with a primary health care provider, age, ethnicity, marital status, ethnicity, family structure, household equalised income, working status, highest level of education achieved, NZDep (area deprivation), and NZiDep (individual deprivation). Health behaviour and health included current smoking status, self-assessed health, Kessler-10 and number of chronic conditions. Detailed descriptions of the creation of various variables have been published elsewhere.[31–32]

## Statistical analysis

This paper provides cross-sectional analyses of wave 3. The population used in the analyses was 18 320 adult (15 years and above) original sample members at wave 3. Analysis of data was carried out first using chi-square tests to evaluate the bivariate association between delays in receiving primary health care and other variables. Bivariate analyses were also carried out using cross-sectional weights to reflect the distribution of the New Zealand population. However, as there were no significant differences in the weighted and unweighted results, we carried out all our analyses on unweighted data.

Using sequential multiple logistic regression models, the independent effect of gender for deferring primary health care because of cost was evaluated, while controlling for explanatory variables added progressively and cumulatively in the following model specifications:

1. Gender only
2. Gender and demographic variables
3. Gender, demographic and socioeconomic variables
4. Gender, demographic, socioeconomic, health behaviour and health variables.

This approach allowed examination of indirect effects and the mediating influence of other variables on the initial relationship between gender and delayed access to primary health care because of cost. We also conducted separate logistic regression analyses for men and women in order to examine whether the determinants of financial barriers to access to primary health care were different according to the gender of the respondent (Table 3). The population used in the regression analyses was 17 035 adult (15 years and above) original sample members at wave 3 who had complete information on all the socioeconomic, health behaviour and health characteristics. All counts presented in this paper are random rounded (up or down) to the nearest multiple of 5, with a minimum value of 10, as per the Statistics New Zealand protocol. All analyses were performed using SAS version 8.2.

## WHAT GAP THIS FILLS

**What we already know:** Gender differences in health status and use of health care services have been established in the developed world, with women more likely than men to report poor health and greater utilisation of health services; less attention, however, has been paid to gender differences in financial barriers to primary health care.

**What this study adds:** Women are more likely than men to defer primary health care because of cost, regardless of individual deprivation or income levels, underscoring the critical role gender plays in facilitating or impeding access to primary health care. Determinants of financial barriers to access to primary health care differed between genders. However, gender differences in predictors of deferred care vary according to measures of deferred care that we considered.

## Results

Table 1 presents bivariate associations between gender and the three outcome measures. The results show that women were more likely to report

that they had deferred seeing their doctor(s), dentist or collecting a prescription at least once during the preceding 12 months because they could not afford the cost of a visit or prescription. For example, women were more likely than men to defer a doctor's visit (19.9% and 11.4% respectively), buying a prescription (8.2 and 4.2 respectively) and a dentist's visit (26.4 and 18.5 respectively) (Table 1).

Table 2 indicates that gender was significantly associated with deferring primary health care, with the odds of postponing a doctor's visit, buying a prescription and accessing dental care 1.8, 2.1 and 1.6 times respectively higher for women than for men in Model 1. Addition of demographic factors to the model reduced the gender effect odds ratio to 1.67 for deferring a doctor's visit, 1.78 for buying a prescription, and 1.49 for dental visits (Table 2, Model 2); and the association between gender and deferring a doctor's visit, buying a prescription and dental care remained statistically significant. After controlling for the demographic and socioeconomic factors in Model 3 of Table 2, the gender odds ratio declined further to 1.43 for deferring a doctor's visit, 1.40 for buying a prescription and 1.33 for dental care; however, the effect of gender still remained statistically significant. The final model (Model 4, Table 2) indicates that adding health behaviour and health variables to Model 3 either did not change the gender odds ratio (in the case of deferring a doctor's visit and dental visits) or increased the gender effect odds ratio slightly from 1.40 to 1.47 in the case of deferring buying a prescription, and the association between gender and all the outcome variables remained statistically significant.

Logistic regression analyses were carried out separately for men and women in order to identify gender differences in the predictors of cost-related barriers to doctors' visits, medications and dental visits (Table 3). For both men and women, younger age, being in the middle tertile of income, having more individual deprivation characteristics (5+), current smokers and reporting more than two comorbid diseases were all significantly associated with increased odds of deferring doctors' visits, prescription medications and dental visits because of cost. While high and very high levels of psychological distress was significantly associated with increased odds of deferring doctors' visits and prescription medications, being of Maori or Pacific ethnicity were significantly associated with increased odds of deferring buying prescription medications, and living in a couple-only family structure was significantly associated with decreased odds of deferring a dental visit for both men and women.

For men, living in the most deprived areas was associated with increased odds of deferring doctors' visits and collecting prescription medications,

*Table 1. Deferred primary health care because of cost by gender: SoFIE-Health, 2004–05**

| Variable | Total | % | Male | % | Female | % |
|---|---|---|---|---|---|---|
| **Total** | 18 320 | 100.0 | 8430 | 100 | 9890 | 100 |
| **Deferring one or more doctor's visit** | | | | | | |
| **Yes** | 2845 | 15.5 | 965 | 11.4 | 1880 | 19.0 |
| **No** | 15 370 | 83.9 | 7460 | 87.9 | 7965 | 81.0 |
| **Deferring buying prescription** | | | | | | |
| **Yes** | 1165 | 6.4 | 355 | 4.2 | 810 | 8.2 |
| **No** | 17 050 | 93.1 | 8020 | 95.1 | 9035 | 91.3 |
| **Deferring dentist visit** | | | | | | |
| **Yes** | 4175 | 22.8 | 1560 | 18.5 | 2610 | 26.4 |
| **No** | 14 015 | 76.5 | 6805 | 80.7 | 7210 | 72.9 |

* All numbers of respondents presented in this paper are random rounded to the nearest multiple of five, with a minimum value of 10, as per Statistics New Zealand protocol.

SoFIE = Survey of Family, Income and Employment.

Number may not add up to 100% because of random rounding or missing values.

*Table 2. Odds ratios (OR) and 95% confidence intervals (CI) of postponing a doctor's visit, collecting a prescription and a dentist's visit because of cost, adjusting for effects of demographic, socioeconomic, health behaviour and health variables: SoFIE-Health, 2004–05**

| Deferring a doctor's visit | | | | |
|---|---|---|---|---|
| **Variable** | **Model 1‡** | **Model 2§** | **Model 3‖** | **Model 4¶** |
| **Sex** | | | | |
| **Male** | 1.00 | 1.00 | 1.00 | 1.00 |
| **Female** | 1.82 (1.67–1.99) | 1.67 (1.53–1.83) | 1.43 (1.31–1.60) | 1.45 (1.31–1.61) |
| **Initial –2 log-likelihood** | 14785.143 | 14785.143 | 14785.482 | 14785.482 |
| **–2 log-likelihood by all variables in the model** | 14592.373 | 13414.979 | 11307.278 | 11107.891 |
| **Δ–2 log-likelihood** | 192.770† | 1370.164† | 3478.204† | 3677.252† |
| **Deferring collecting a prescription** | | | | |
| **Variable** | **Model 1** | **Model 2** | **Model 3** | **Model 4** |
| **Sex** | | | | |
| **Male** | 1.00 | 1.00 | 1.00 | 1.00 |
| **Female** | 2.05 (1.78–2.34) | 1.78 (1.55–2.04) | 1.47 (1.26–1.71) | 1.47 (1.26–1.71) |
| **Initial –2 log-likelihood** | 8106.231 | 8106.231 | 8106.231 | 8106.231 |
| **–2 log-likelihood by all variables in the model** | 7985.631 | 7240.652 | 5949.000 | 5742.767 |
| **Δ–2 log-likelihood** | 120.600† | 865.579† | 2157.231† | 2363.464† |
| **Deferring a dentist's visit** | | | | |
| **Variable** | **Model 1** | **Model 2** | **Model 3** | **Model 4** |
| **Sex** | | | | |
| **Male** | 1.00 | 1.00 | 1.00 | 1.00 |
| **Female** | 1.58 (1.47–1.71) | 1.49 (1.38–1.61) | 1.34 (1.23–1.45) | 1.35 (1.24–1.46) |
| **Initial –2 log-likelihood** | 18339.772 | 18339.772 | 18339.772 | 18339.772 |
| **–2 log-likelihood by all variables in the model** | 18183.961 | 16910.839 | 15389.307 | 15258.144 |
| **Δ–2 log-likelihood** | 155.811† | 1428.933† | 2950.465† | 3081.628† |

* SoFIE = Survey of Family, Income and Employment.

† $p<0.0001$

‡ Model 1: Gross model

§ Model 2: Adjusted for ethnicity, affiliation with a primary care provider, age, marital status, and family type (demographic factors)

‖ Model 3: Adjusted for all the variable in Model 2 and income, NZDep, NZiDep, income and education (socioeconomic factor)

¶ Model 4: Adjusted for all the variables in Model 2 and Model 3 and smoking, self-assessed health, K-10 and presence of a comorbid condition (health and health behaviour factors)

and being Maori was significantly associated with increased odds of deferring a dental visit. Among women, living in a couple-only family structure was significantly associated with decreased odds of deferring doctors' visits and collecting prescription medications because of cost. Being previously married, and being in the lowest tertile of income were significantly associated with increased odds of deferring a doctor's visit, and being of Asian or Maori ethnicity was significantly associated with decreased odds of deferring a doctor's visit for women but not for men.

## Discussion

This study explored the impact of gender on cost-related barriers to doctors' visits, medications and dental visits. With respect to our two research questions, we found that significant gender differences exist in all of the three measures of deferred care that we considered. We found that women are significantly more likely to defer primary health care than men because of cost, even after controlling for a wide range of factors likely to affect deferral of primary health care.

*Table 3. Odds ratios of postponing a doctor's visit, buying prescription medication and a dentist's visit because of cost (95% confidence intervals), adjusting for effects of demographic, socioeconomic, health behaviour and health variables, separate models for men (n=7828) and women (9241): SoFIE-Health, 2004–05**

| | Deferring doctor's visit | | Deferring buying prescription medication | | Deferring dentist's visit | |
|---|---|---|---|---|---|---|
| | Men | Women | Men | Women | Men | Women |
| | OR (95% CI) | OR (95% CI) | OR (95% CI) | OR (95% CI) | OR (95% CI) | OR (95% CI) |
| **Affiliation with a primary care provider** | | | | | | |
| **No** | 1.00 | 1.00 | 1.00‡ | 1.00§ | 1.00 | 1.00 |
| **Yes** | 1.22 (0.95–1.56) | 1.30 (0.99–1.72) | 2.38 (1.47–3.83) | 1.75 (1.13–2.71) | 0.85 (0.70–1.03) | 1.16 (0.92–1.47) |
| **Age** | | | | | | |
| **15–24** | 1.00† | 1.00† | 1.00† | 1.00† | 1.00† | 1.00† |
| **25–44** | 1.00 (0.78–1.29) | 0.86 (0.71–1.05) | 0.95 (0.65–1.37) | 1.01 (0.77–1.33) | 2.19 (1.76–2.73) | 1.56 (1.30–1.87) |
| **45–64** | 0.48 (0.35–0.65) | 0.42 (0.33–0.54) | 0.49 (0.30–0.78) | 0.51 (0.36–0.72) | 1.04 (0.80–1.35) | 0.86 (0.70–1.07) |
| **65+** | 0.23 (0.15–0.37) | 0.14 (0.10–0.21) | 0.17 (0.08–0.38) | 0.17 (0.09–0.29) | 0.49 (0.35–0.70) | 0.33 (0.24–0.44) |
| **Marital status** | | | | | | |
| **Currently married** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Previously married** | 1.17 (0.87–1.58) | 1.28 (1.03–1.58) | 0.88 (0.61–1.58) | 1.11 (0.82–1.50) | 1.12 (0.88–1.42) | 1.13 (0.88–1.42) |
| **Never married** | 1.19 (0.93–1.52) | 1.11 (0.91–1.36) | 1.24 (0.85–1.82) | 1.11 (0.84–1.47) | 1.10 (0.91–1.34) | 0.99 (0.91–1.34) |
| **Ethnicity** | | | | | | |
| **NZ European** | 1.00 | 1.00‡ | 1.00‡ | 1.00† | 1.00§ | 1.00 |
| **Asian** | 0.67 (0.46–1.00) | 0.54 (0.39–0.76) | 0.82 (0.40–1.67) | 0.77 (0.47–1.26) | 0.74 (0.55–1.01) | 0.81 (0.63–1.03) |
| **Maori** | 0.85 (0.66–1.09) | 0.78 (0.65–0.94) | 1.42 (1.02–1.98) | 1.25 (0.99–1.58) | 1.22 (1.00–1.48) | 1.01 (0.86–1.20) |
| **Pacific** | 0.99 (0.70–1.41) | 0.84 (0.63–1.10) | 2.13 (1.35–3.36) | 2.22 (1.62–3.06) | 1.26 (0.94–1.68) | 0..99 (0.78–1.26) |
| **Family structure** | | | | | | |
| **Couple with children** | 1.00 | 1.00§ | 1.00 | 1.00‡ | 1.00§ | 1.00§ |
| **Couple only** | 0.90 (0.72–1.14) | 0.81 (0.66–0.98) | 0.97 (0.66–1.43) | 0.69 (0.51–0.93) | 0.74 (0.62–0.89) | 0.80 (0.69–0.93) |
| **Not in a family** | 0.96 (0.75–1.22) | 1.01 (0.82–1.24) | 0.98 (0.67–1.42) | 0.93 (0.69–1.24) | 0.89 (0.73–1.09) | 0.80 (0.66–0.96) |
| **Sole parent** | 0.89 (0.64–1.23) | 0.86 (0.70–1.07) | 0.94 (0.59–1.50) | 0.60 (0.45–0.80) | 0.84 (0.63–1.12) | 0.92 (0.76–1.15) |
| **Income tertiles** | | | | | | |
| **1 (low)** | 1.20 (0.95–1.52) | 1.22 (1.02–1.46) | 1.00 (0.68–1.47) | 1.29 (0.97–1.49) | 1.05 (0.87–1.26) | 1.08 (0.93–1.26) |
| **2** | 1.53 (1.25–1.87) | 1.40 (1.19–1.64) | 1.48 (1.05–2.07) | 1.42 (1.18–1.77) | 1.34 (1.15–1.56) | 1.33 (1.17–1.52) |
| **3 (high)** | 1.00† | 1.00‡ | 1.00§ | 1.00§ | 1.00‡ | 1.00† |
| **NZDep** | | | | | | |
| **NZDepQ1 (least)** | 1.00‡ | 1.00‡ | 1.00 | 1.00 | 1.00‡ | 1.00‡ |
| **NZDepQ2** | 1.84 (1.37–2.45) | 1.20 (0.96–1.49) | 1.42 (0.84–2.41) | 1.04 (0.73–1.49) | 1.31 (1.06–1.62) | 1.22 (1.03–1.44) |
| **NZDepQ3** | 1.67 (1.25–2.25) | 1.48 (1.19–1.84) | 1.32 (0.77–2.25) | 1.13 (0.80–1.59) | 1.46 (1.18–1.80) | 1.43 (1.19–1.70) |
| **NZDepQ4** | 1.55 (1.16–2.07) | 1.18 (0.95–1.46) | 1.84 (1.12–3.02) | 1.29 (0.92–1.78) | 1.30 (1.05–1.61) | 1.33 (1.11–1.58) |
| **NZDepQ5 (most)** | 1.63 (1.21–2.20) | 1.19 (0.95–1.50) | 1.86 (1.12–3.07) | 1.14 (0.81–1.60) | 1.19 (0.95–1.49) | 1.15 (0.95–1.40) |
| **NZiDep** | | | | | | |
| **0 dep** | 1.00† | 1.00† | 1.00† | 1.00† | 1.00† | 1.00† |
| **1 dep** | 3.62 (2.97–4.42) | 2.90 (2.48–3.40) | 3.00 (2.13–4.22) | 3.31 (2.56–4.28) | 2.61 (2.21–3.08) | 2.58 (2.25–2.95) |
| **2 dep** | 8.19 (6.31–10.63) | 7.11 (5.85–8.64) | 6.45 (4.37–9.51) | 8.06 (6.13–10.60) | 5.52 (4.33–7.03) | 4.84 (4.02–5.82) |
| **3–4 dep** | 13.90 (10.38–18.60) | 10.83 (8.69–13.49) | 9.59 (6.42–14.31) | 13.24 (9.97–17.59) | 6.45 (4.91–8.49) | 6.93 (5.62–8.55) |
| **5+ dep** | 17.72 (10.41–30.16) | 18.56 (12.67–27.20) | 27.8 (15.45–50.0) | 26.89 (18.18–39.78) | 9.61 (5.67–16.28) | 8.63 (6.04–12.32) |

*Table 3 CONTINUED. Odds ratios of postponing a doctor's visit, buying prescription medication and a dentist's visit because of cost (95% confidence intervals), adjusting for effects of demographic, socioeconomic, health behaviour and health variables, separate models for men (n=7828) and women (9241): SoFIE-Health, 2004–05**

| | Deferring doctor's visit | | Deferring buying prescription medication | | Deferring dentist's visit | |
|---|---|---|---|---|---|---|
| | Men | Women | Men | Women | Men | Women |
| | OR (95% CI) | OR (95% CI) | OR (95% CI) | OR (95% CI) | OR (95% CI) | OR (95% CI) |
| **Education** | | | | | | |
| **No education** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00‡ | 1.00† |
| **School** | 1.04 (0.83–1.31) | 1.00 (0.84–1.19) | 0.85 (0.60–1.18) | 0.87 (0.68–1.11) | 1.29 (1.07–1.57) | 1.40 (1.20–1.63) |
| **Post-school vocational** | 1.21 (0.99–1.49) | 1.17 (0.99–1.37) | 0.84 (0.62–1.15) | 0.95 (0.76–1.18) | 1.41 (1.19–1.67) | 1.64 (1.42–1.89) |
| **Smoking** | | | | | | |
| **Never** | 1.00† | 1.00† | 1.00‡ | 1.00‡ | 1.00† | 1.00‡ |
| **Current** | 1.56 (1.29–1.89) | 1.46 (1.25–1.71) | 1.77 (1.32–2.37) | 1.48 (1.19–1.83) | 1.57 (1.34–1.83) | 1.21 (1.05–1.39) |
| **Ex** | 1.22 (0.99–1.51) | 1.20 (1.03–1.41) | 1.29 (0.91–1.84) | 1.13 (0.89–1.42) | 1.44 (1.22–1.69) | 1.16 (1.02–1.33) |
| **Self-assessed health** | | | | | | |
| **Excellent–Good** | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| **Fair–Poor** | 1.25 (0.96–1.62) | 1.06 (0.85–1.31) | 1.31 (0.91–1.88) | 1.17 (0.90–1.53) | 1.20 (0.96–1.50) | 1.03 (0.85–1.25) |
| **Kessler-10 groups** | | | | | | |
| **Low (10–15)** | 1.00§ | 1.00† | 1.00† | 1.00‡ | 1.00 | 1.00† |
| **Moderate (16–21)** | 1.60 (1.31–1.95) | 1.33 (1.13–1.98) | 1.83 (1.35–2.47) | 1.43 (1.16–1.77) | 1.16 (0.97–1.37) | 1.26 (1.09–1.441) |
| **High / V. High (22+)** | 1.60 (1.20–2.12) | 1.60 (1.30–1.98) | 2.15 (1.48–3.11) | 1.51 (1.17–1.94) | 1.08 (0.83–1.41) | 1.44 (1.19–1.75) |
| **Comorbidity index (%)** | | | | | | |
| **0** | 1.00† | 1.00† | 1.00‡ | 1.00† | 1.00‡ | 1.00‡ |
| **1–2** | 1.22 (1.02–1.44) | 1.40 (1.22–1.60) | 1.56 (1.18–2.06) | 1.76 (1.45–2.15) | 1.20 (1.05 –1.38) | 1.20 (1.07–1.35) |
| **>2** | 1.35 (0.99–1.85) | 2.08 (1.67–2.59) | 2.27 (1.47–3.32) | 2.82 (2.11–3.77) | 1.62 (1.26–2.08) | 1.43 (1.18–1.73) |
| **Initial –2 log-likelihood** | 5573. 579 | 9018. 794 | 2723.187 | 5262.444 | 7496. 986 | 10686.976 |
| **–2 log-likelihood by all variables in the model** | 4322.415 | 6757.899 | 1986.196 | 3733.167 | 6382.138 | 8837.912 |
| **Δ–2 log-likelihood** | 1251.164† | 2260.895† | 736.991† | 1529.277† | 1114.848† | 1849.064† |
| **R-Square (Max-rescaled)** | 0.29 | 0.35 | 0.30 | 0.35 | 0.21 | 0.26 |

* SoFIE= Survey of Family, Income and Employment.
† p<0.0001
‡ p<0.01
§ p<0.05

Our results are in line with previous research that reported gender as having an important and independent association with deferring primary health care, with women having higher odds of deferring primary health care compared to men.[22,33–34] High deferral of primary health care by women is concerning because research from overseas studies has shown that women not only have lower access to resources to pay out-of-pocket costs for medication and other health care services, but they may also have lower access to health care than men due to greater demands placed on their time, especially for those who combine employment with domestic responsibilities.[35] Women are also more likely to face non-financial barriers to care such as inconvenient location, non-availability of a female GP, family/child care responsibilities, transportation problems or long distance, or lack of other resources to seek care (e.g. availability of a child care facil-

ity). For example, research has shown that women were more likely than men to report that taking care of others had caused them to delay seeking health care for themselves.[33] Since SoFIE-Health asked only about financial barriers to accessibility, our analyses probably underestimate the real differences between genders in postponing needed primary health care.

There were some significant gender differences in predictors of deferred care. However, gender differences in predictors of deferred care varied according to the measure of deferred care that we considered. While some factors associated with deferred primary health care were significant in the models for men and women, other factors were significant only for one or the other. Moreover, some determinants differ by the type of primary health care service. These findings underscore the complexity of examining the gender and deferred care nexus and the determinants of that nexus: some factors (e.g. individual deprivation characteristics) determine deferred primary health care, regardless of gender, while other factors (e.g. ethnicity) determine deferred primary health care depending on the gender of the respondent as well as the dimension of primary health care under consideration (e.g. doctor's visit, prescription or dental care). The findings also emphasise the need to consider multiple dimensions of primary health care when examining access disparities in relation to gender.

Several caveats to this study are worth mentioning. First, the study reports cross-sectional analyses which prohibit drawing causal conclusions. Follow-up data (wave 5 and wave 7) will allow conclusions regarding the direction of effects, allowing causal inferences to be drawn more confidently. Second, as with other self-reported surveys, measurement of delays in receiving primary health care relies on respondents' ability to recall information accurately. If the reporting of deferred primary health care among women differed in some systematic way from men, this may bias the results. The magnitude and direction of such bias is unknown. Following Verbrugge's assertion[3] that women are more likely than men to have greater retrospective reporting because they have better recall of symptoms they experience, our results may have overestimated their deferred care in comparison with men. While not eliminating the recall bias, we are encouraged to see consistency in the findings with previous research in the areas explored here. Third, although we have adjusted for many confounding variables, it is possible that the gender differences we found in deferred primary health care could be the result of other factors associated with unmet primary health care need that we did not measure. Fourth, we did not ask about the perceived need or urgency of primary health care or type of medication that was deferred because of cost. Another limitation is the potential for attrition in the data. In wave 3 of the SoFIE study, 83% of the original sample members were re-interviewed,[32] which combined with the household response rate at wave 1 of 77%, gives an estimated effective response rate of 64%. However, the attrition within the SoFIE study is low compared with other population-based longitudinal panel surveys.[36–37] Sixth, since 2004 significant changes have been made to the subsidies for general practice and pharmaceuticals so that co-payment levels for these services have decreased for most of the population. Any change in the cost of primary health care will usually have at least some impact on utilisation rates of different population groups (e.g. co-payments should have declined for lower income people living in higher income areas); however, we think that the subsidy increases have not had any major impact on the results because (a) the subsidy changes applied equally to men and women, and (b) cost is more of a barrier for lower income people than higher income people, and higher subsidies had already been introduced for people living in deprived areas prior to 2004/05. Another important question for future studies is whether and how often people would not have deferred a visit or deferred buying a prescription if they did not have to pay for them.

Despite these limitations, the results presented here are important in several ways. This study uses a large, original, national survey on financial barriers to primary health care. Few previous studies have considered cost as a factor in delaying health care services such as prescription drugs and dental care. Even fewer have focused on gender differentials in access to primary health care. The study findings increase

understanding of the importance of gender in the context of addressing inequalities in access to primary health care. While cost affects many population subgroups, it poses a significant economic hurdle for women, who have fewer resources than men to pay for health care services. Moreover, delayed care has negative repercussions for women's health as well the health of others, because women are also most often responsible for providing care to family members and friends.[33,38–39] One strategy to improve access is to provide primary health care free or to make co-payments sufficiently low that people are able to seek timely primary health care unimpeded by cost barriers. If cost barriers are not overcome, many—particularly women—will remain at risk of receiving less timely and appropriate preventive and other health services.

The present study did not set about addressing the 'attribution' of differences in financial barriers to primary health care between men and women. This would seem to require gaining an understanding of why women are placed in the position of having to defer care more so than men. One reason could be that women are more often in the position of needing or wanting to access care than men, and therefore have to pay more in terms of co-payments, increasing their chances that at some stage during the year they will find co-payments difficult to pay, and hence defer accessing primary health care. The present study possibly cannot address this issue as there are no data in the current study on number of visits for men and women. However, another study from New Zealand has found that women were more likely than men to have visited a GP over the past 12 months, even after excluding gynaecological and obstetric conditions, and across all age groups.[40] It is plausible that women's reports of delayed care are more likely to incorporate care for their children as well as themselves (unlike men's reports). It might be that women prioritise expenditure on areas other than health care. It is also possible that men are more often obliged to see their doctor because employers require sickness certification. There are no data currently available in SoFIE-Health that could provide insight into what could explain the differences reported here. More detailed studies are needed for a better understanding of the reasons and underlying meaning of gender differences in deferring primary health care because of cost.

Since this work has identified both different and common predictors of financial barriers to access to primary health care for men and women, it is possible to target gender-specific factors that reduce the risk of postponing primary health care. For example, women living in couple-with-children family settings are more likely than men to defer primary health care. Programmes to encourage women to obtain needed primary health care might have increased effectiveness if child care or elder care services are provided on site at health care facilities, if care for multiple family members is coordinated and if temporary caregivers are identified.[22] Men would also benefit from approaches developed for women. The strong association of gender with deferred care, even when controlling for socioeconomic factors, may reflect that there are some fundamental causes for such disparities and, without addressing those fundamental causes, achieving equitable access to services may not be realised. While the fundamental causes are likely to be complex and multifaceted, they require further investigation to provide evidence on which to base policy interventions.

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**STATISTICS NEW ZEALAND SECURITY STATEMENT**
Access to the data used in this study was provided by Statistics New Zealand in a secure environment designed to give effect to the confidentiality provisions of the Statistics Act, 1975. The results in this study and any errors contained therein are those of the authors, not Statistics New Zealand.

**COMPETING INTERESTS**
None declared.

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