

# 1 Introduction

## 1.1 Background

Socioeconomic position (SEP) is a widely used concept in public health and epidemiological research (House & Williams 2000; Lynch & Kaplan 2000), and there now exists a large and growing literature documenting an association between SEP and health (Feinstein 1993; Krieger & Fee 1994; Turrell & Mathers 2000; Williams & Collins 1995). This evidence shows that the socioeconomically disadvantaged have higher mortality rates for most major causes of death (Davey Smith et al. 1998; Kaplan et al. 1996), a morbidity pattern indicating that they experience more ill health (Merkin et al. 2002; Michelozzi et al. 1999; Tyroler 1999), and a use of health care services that suggests that they are less likely to act to prevent disease or detect it at an asymptomatic stage (Rohlf et al. 1999; Taylor et al. 2001). Socioeconomic differences have also been observed for many health-related behaviours and risk factors, with disadvantaged groups being more likely to engage in riskier behaviours or have a risk factor profile consistent with their poorer health status (Blane et al. 1996; Droomers et al. 2001; Osler et al. 2000). Moreover, socioeconomic differences in health are evident for both males and females at every stage of life (House et al. 1994; Mustard et al. 1997), and these general problems have been found in different historical periods (Krieger & Fee 1996) and in all countries where socioeconomic data are collected (Ancona et al. 2000; Mackenbach 1994; Mishra et al. 2001; Song & Byeen 2000). Turrell et al. (1999) identified in a report entitled *Socioeconomic Determinants of Health: Towards a national research program and a policy and intervention agenda* a number of barriers that must be overcome if we are to improve our understanding of socioeconomic health inequalities and how they might be overcome. One of the most significant barriers is Australia's fragmented, underdeveloped and poorly coordinated monitoring and research infrastructure in relation to health inequalities. In 2001, the School of Public Health at Queensland University of Technology established the Australian Research Program on Health Inequalities to improve our understanding of such inequalities. This research program has five closely interrelated components:

1. *Monitoring and surveillance of health inequalities in Australia.* This examines temporal trends and quantifies the magnitude and direction of mortality and morbidity inequalities, and differences in risk factor prevalence and health-related behaviours between social groups and geographic areas.
2. *Methods and measurement.* This involves the development and application of new measures of inequality and the refinement and improvement of existing measures at the individual, household, and area levels.
3. *Improving knowledge and understanding of health inequalities.* This involves researching the processes and mechanisms that constitute the intermediate links between social and economic factors and health.
4. *Policies and interventions to reduce health inequalities.* This focuses on identifying and critically evaluating the range of actions available to tackle health inequalities.
5. *Strengthening Australia's research capacity and infrastructure as these relate to health inequalities.* This focuses on identifying the necessary 'building blocks', networks and inter-sectoral

linkages that need to form the basis of a nationally coordinated and strategic approach to researching and reducing health inequalities.

Research and monitoring undertaken as part of this research program draws on theories and concepts from a range of disciplines – sociology, psychology, anthropology, politics, and economics – and combines these with information on disease causation from biology and medicine, and the analytic methods of epidemiology and biostatistics. Increasingly, it is being recognised that a multidisciplinary approach is necessary if we are to better understand social variation in disease, and develop policies and strategies to tackle this issue (Lynch 2000; Berkman & Kawachi 2000).

This report – *Health Inequalities in Australia: Morbidity, health behaviours, risk factors, and health service use* – is the second in a series published jointly by the Queensland University of Technology and the Australian Institute of Health and Welfare (AIHW). An earlier report focused on health inequalities in mortality (*Health Inequalities in Australia: Mortality*) and a later report will focus on the measurement and use of socioeconomic indicators in health-related research (*Measuring Socioeconomic Position in Population Health Monitoring and Health Research*). This present report represents the continuation of work conducted earlier by the AIHW in a series of publications that examined health inequalities among Australian children (0–14 years), young adults (15–24 years), working-age adults (25–64 years), and older persons (aged 65 years or more) for the period 1985–1987 (Mathers 1994a, 1994b, 1995, 1996). The current report updates this series, and examines health inequalities in Australia for the period 1989–90, 1995 and 2001 using different measures of socioeconomic position.

## **1.2 Purpose**

*Health Inequalities in Australia: Morbidity, health behaviours, risk factors, and health service use* provides an important statistical reference source on health inequalities across the life course. The report's main purpose is to assess the nature and magnitude of health inequalities in Australia using data from the three most recently completed ABS National Health Surveys. The report is intended to be a resource on patterns of association between each socioeconomic indicator and health.

## **1.3 Indigenous health and inequality**

It is now well established that Indigenous people experience much poorer health than the general population. As numerous reports have shown, Indigenous Australians have a substantially lower life expectancy (approximately 20 years lower than other Australians in 1998–2000), are more likely to experience adverse birth outcomes (for example, low birthweight, premature birth) and greater morbidity and disability, and have higher rates of hospitalisation (ABS & AIHW 2003; AIHW 2002). Given that Indigenous health has been examined and discussed in detail elsewhere, we do not cover the topic in this report.

## 2 Data issues and methods

### 2.1 Data sources

The primary data sources used in this report are the three latest ABS National Health Surveys (NHS): 1989–90, 1995 and 2001. The surveys are a series of cross-sectional population-based surveys that cover a range of self-reported health and demographic information. The surveys are designed to enable the monitoring of health trends over time (ABS 2003a). However, changes in methodology may limit survey comparability, and in some cases may explain the differences observed over time. Despite this, the surveys remain a valuable resource for analysing health-related issues over time. The ABS 1995 National Nutrition Survey (NNS) Confidentialised Unit Record File (CURF) was also used for dietary-related behaviour data for 1995 to allow comparison with the relevant 2001 NHS items.

In this report only variables that have a reasonable level of comparability have been presented. Appendix A presents the questions used by the ABS in the 1989–90, 1995 and 2001 NHS for each of the health-related outcomes used in this report. Appendix B presents the ABS's own assessment of the comparability of the health-related outcomes used in the report. Importantly, we examine only those health-related outcomes that have been deemed by the ABS as being 'comparable' (broadly or directly), 'acceptable' or 'acceptable with limitations'. For more information on NHS and NNS comparability issues, see the relevant user guides (ABS 1991, 1996, 1998b, 2003a). Additionally, issues relating to the time-series comparison of long-term conditions are discussed in an ABS occasional paper *Long-term Health Conditions – A Guide to Time Series Comparability from the National Health Survey* (ABS 2003b); and time-series comparison of risk factors is discussed in the occasional paper *Health Risk Factors – A Guide to Time Series Comparability from the National Health Survey, Australia* (ABS 2004).

#### ABS 1989–90 National Health Survey

The 1989–90 National Health Survey was conducted by the ABS from October 1989 to September 1990. Approximately 26,500 households were selected in the original sample; after sample loss this reduced to 22,202 households. From these households, information for a total of 54,421 persons is available on the 1989–90 NHS CURF. The effective sample included both private dwellings (houses, caravans, flats, etc.) and non-private dwellings (hotels, hostels, boarding houses, etc.). Hospitals, aged care facilities, boarding schools and military establishments were excluded from the scope of the survey. ABS trained interviewers personally interviewed each member of the selected household aged 18 years and over; and permission to interview occupants aged 15–17 years was gained from a parent or guardian. Parents or guardians were asked to answer the survey for children younger than 15 years.

The survey consisted of three questionnaires: the Household/Special Dwellings Form (completed for each dwelling by the interviewer); the Personal Interview Questionnaire (completed for all individuals by the interviewer); and the Women's Health Questionnaire (self-completed by women aged 18–64 years).

For further information on all aspects of the 1989–90 NHS, see the *1989–90 National Health Survey Users' Guide* (ABS 1991).

## **ABS 1995 National Health Survey**

The 1995 NHS was carried out by the ABS from January 1995 to January 1996. A total of 21,787 households fully or partially responded to the survey, resulting in a total of 53,828 individuals on the CURF. The survey covered residents of private dwellings (house, flat, caravan, tent, and so on) and certain non-private dwellings (hotels, motels, boarding houses, caravan parks, and so on). As for the 1989-90 NHS, trained interviewers personally interviewed members of the selected household aged 18 years and over; and permission to interview occupants aged 15-17 years was gained from a parent or guardian. Parents or guardians were asked to answer the survey for children younger than 15 years.

Four questionnaires were used in the 1995 NHS: the Household/Special Dwellings Form (completed for each dwelling by the interviewer); the Personal Interview Questionnaire (completed for all individuals by the interviewer); the General Health and Well-being Form (SF-36) (self-completed by approximately half of all adult respondents before the personal interview questionnaire) and the Women's Health Questionnaire (self-completed by women aged 18 years and over who were not selected for the SF-36). To maximise the capacity of the survey while keeping to acceptable interview time and cost limits, some sections were administered to half of the adult sample only. All participants completed core sections of the personal interview questionnaire. Approximately half of the adult participants were asked to self-complete the SF-36 before the personal interview; the remaining half were asked additional questions in the personal interview covering education, alcohol consumption and private health insurance.

For further information on all aspects of the 1995 NHS, see the *National Health Survey Users' Guide, Australia 1995* (ABS 1996).

## **ABS 2001 National Health Survey**

The 2001 NHS was conducted by the ABS from February to November 2001 in 17,918 dwellings. Unlike the 1989-90 and 1995 NHS, only private dwellings were selected for inclusion in the study. Non-private dwellings (hotels, hostels, boarding houses, and so on), hospitals, aged care facilities, prisons, reformatories and single quarters of military establishments were excluded. Within each dwelling a random subsample of residents was selected for inclusion in the survey: one adult aged 18 years or over; one child aged 7-17 years; and all children aged 0-6 years. This resulted in a considerably smaller sample than the 1989-90 and 1995 NHS, with a total of 26,862 respondent records available on the 2001 NHS CURF. The surveys were carried out by trained ABS interviewers. Where a dwelling housed children (aged 0-17 years), one adult from the dwelling was selected to answer questions on behalf of the children.

Four questionnaires were developed for use in the 2001 NHS: the Household Form (completed by the interviewer for each household); the Personal Interview Adult Questionnaire (completed by the interviewer for all adult respondents); the Personal Interview Child Questionnaire (completed by the interviewer for all children); and the Women's Supplementary Health Form (self-completed by women 18 years and over).

For further information on all aspects of the 2001 NHS, see the *2001 National Health Survey: Users' Guide* (ABS 2003a).

## **1995 National Nutrition Survey**

The 1995 NNS was a joint project between the ABS and the Commonwealth Department of Health and Family Services. The survey was run in conjunction with the 1995 NHS from February 1995 to March 1996. The NNS was conducted on a subsample of private dwellings from the NHS; non-private dwellings were not sampled. No more than three persons (aged 2 years

and over) from each subsampled dwelling were invited to participate in the survey. From a total of 22,562 persons selected to participate, 13,858 completed the survey.

The NNS consisted of four sections: the Individual Food Intake Questionnaire; physical measurements; the food-related questions; and the Food Frequency Questionnaire (FFQ). In addition to demographic data, this report uses data from the food-related questions and the FFQ only. The food-related questions section was completed by the interviewer for all participants. The FFQ was a questionnaire for self-completion that was left with participants aged 12 years and over. Of the 11,937 respondents aged 12 years or over, 9,096 returned a usable FFQ.

For further information on all aspects of the 1995 NNS, see the *National Nutrition Survey Users' Guide 1995* (ABS 1998b).

## 2.2 Socioeconomic indicators

This report examines morbidity, health-related behaviour, health-related risk factors, and health service use differences by the following socioeconomic indicators:

- area of socioeconomic disadvantage
- equivalised income
- education
- occupation.

For details about how the socioeconomic indicators were measured, refer to the explanatory sections at the beginning of each respective chapter.

## 2.3 Health-related indicators

A total of 26 health-related indicators were selected for inclusion in this report. These are grouped around four key areas:

- morbidity
- health-related behaviours
- health-related risk factors
- health service use.

Indicators were selected on the basis of availability and comparability across the 1989–90, 1995 and 2001 National Health Surveys (NHS). Where an item was not available for the 1989–90 NHS, but was available and considered comparable across the two subsequent surveys, the indicator was included for analysis. The subject matter of the health-related indicators are generally consistent with those presented in a series of earlier reports published by the AIHW (Mathers 1994a, 1994b, 1995, 1996), although in many cases the construction of the indicator is different.

### Definitions of morbidity indicators

#### *Self-assessed health status*

The percentage of persons who reported 'fair' or 'poor' health. Respondents were asked to rate their general health status on a five-point scale ('poor', 'fair', 'good', 'very good' or 'excellent') in the 1995 and 2001 NHS. This indicator has been calculated for all persons aged 18 years and over.

### *Days away from work or school/study*

The percentage of persons who had at least 1 day away from work or school/study in the previous 2 weeks due to an illness or injury. This indicator was calculated for all persons aged 5–64 years in the 1989–90, 1995 and 2001 NHS.

### *Selected long-term conditions*

The percentage of persons who have the specified long-term condition as defined by individual codes in the 1989–90, 1995 and 2001 NHS (Appendix C). Long-term conditions are those conditions which have lasted for at least 6 months, or which the respondent expects to last for 6 months or more. Five conditions were selected for inclusion in the analysis: arthritis, asthma, bronchitis/emphysema, diabetes and neoplasms. Conditions were selected where two inter-survey comparisons (1989–90 to 1995 and 1995 to 2001) assessed comparability of the condition as being ‘acceptable’ or ‘acceptable with limitations’ (ABS 2003b), and where the condition was related to one of the National Health Priority Areas. Long-term conditions for asthma and bronchitis/emphysema were calculated for all persons in the 1989–90, 1995 and 2001 NHS. Arthritis was calculated for all persons aged 15 years and over. Diabetes and neoplasms were calculated for all persons aged 25 years and over.

## **Definitions of health-related behaviour indicators**

### *Alcohol risk*

The percentage of persons who consumed alcohol in the previous week at a level that is categorised as ‘risky’ or ‘high risk’. Level of risk is based on the National Health and Medical Research Council (NHMRC) Australian Alcohol Guidelines for risk of harm in the long-term (NHMRC 2001). The average daily consumption of alcohol associated with a risky or high-risk level for males is greater than 50 ml, and for females is greater than 25 ml. This indicator has been calculated for all persons aged 18 years and over in the 1989–90, 1995 and 2001 NHS.

### *Smoking*

The percentage of persons who are current smokers. Current smokers are those who either regularly or occasionally smoke tobacco, including manufactured cigarettes, roll-your-own cigarettes, cigars and pipes, but excluding chewing tobacco and smoking of non-tobacco products. This indicator has been calculated for all persons aged 18 years and over in the 1989–90, 1995 and 2001 NHS.

### *Physical activity*

The percentage of persons who undertook physical activity during the previous 2 weeks that was at a level that is not sufficiently active for health benefits to occur. For the purpose of the NHS, physical activity refers to exercise undertaken for recreation, sport or fitness, excluding physical activity undertaken in the course of work or for other reasons. Respondents were asked the number of times and total time spent on three categories of exercise: walking, moderate exercise, and vigorous exercise. A descriptor of relative overall activity level was calculated by summing each category’s product of the number of times the activity was undertaken, average time per session, and the intensity rating for that category. Intensity rating is expressed as a multiple of the resting metabolic rate (MET) and, for the purpose of this report, was based on the 2001 NHS values designated by the ABS: 3.5 METs for walking, 5.0 METs for moderate exercise and 7.5 METs for vigorous exercise. Based on a previous study (Burton & Turrell 2000) and available

categorisation in the 2001 NHS, an activity level of less than 1600 METS minutes per fortnight was considered insufficiently active for health. This indicator has been calculated for all persons aged 15 years and over in the 1989–90, 1995 and 2001 NHS.

#### *Salt use*

The percentage of persons who usually add salt to food after cooking. Respondents were asked how often salt was added to their food after cooking: 'rarely/never', 'sometimes', or 'usually'. This indicator has been calculated for all persons aged 12 years and over in the 1995 NNS, and 2001 NHS.

#### *Sun protection*

The percentage of persons who did not take sun protection measures in the previous month, including using sunscreen, protective clothing, sunglasses or an umbrella. This indicator has been calculated for all persons aged 0–17 years, where it was reported that they were exposed to the sun in the previous month, for the 1995 and 2001 NHS.

### **Definitions of risk factor indicators**

#### *Breastfed*

The percentage of children who have never been breastfed. This indicator has been calculated for all children aged 0–3 years in the 1995 and 2001 NHS where it was known if the child was or was not breastfed.

#### *Time breastfed*

The percentage of children who were fully breastfed for 12 weeks or less. For this report, fully breastfed refers to when an infant receives only breast milk on a regular basis. The choice of '12 weeks or less' in the indicator was based on dietary guidelines for infants that was current at the time of the 2001 NHS (NHMRC 1995), and the categorisation of age and total time fully/exclusively breastfed available in the 1995 and 2001 surveys. This indicator has been calculated for all children aged 12 weeks to 3 years in the 1995 and 2001 surveys where it was reported that the child had been breastfed.

#### *Overweight but not obese*

The percentage of persons who have a body mass index (BMI) classified as overweight but not obese. BMI is calculated by weight (kg) divided by the square of the height (m). Classification of weight was based on the WHO BMI classification (WHO 2000), where overweight but not obese is a BMI of 25.0–29.9kg/m<sup>2</sup>. As with many other measures, self-reported height and weight information can be problematic. There is a tendency for persons to overestimate their height and underestimate their weight, resulting in an underestimation of prevalence of overweight and obesity (AIHW 2003a). This indicator has been calculated for all persons aged 15 years and over who reported their weight and height in the 1989–90, 1995 and 2001 NHS.

#### *Obesity*

The percentage of persons who have a body mass index (BMI) classified as obese. BMI is calculated by weight (kg) divided by the square of the height (m). Classification of weight was based on the WHO BMI classification (WHO 2000), where obese is a BMI of 30.0 kg/m<sup>2</sup> or over. As with many other measures, self-reported height and weight information can be problematic.

There is a tendency for persons to overestimate their height, and underestimate their weight, resulting in an underestimation of prevalence of overweight and obesity (AIHW 2003a). This indicator has been calculated for all persons aged 15 years and over who reported their weight and height in the 1989-90, 1995 and 2001 NHS.

#### *Hypertension (high blood pressure)*

The percentage of persons who have hypertension as a long-term condition as defined by the individual codes in the 1989-90, 1995 and 2001 NHS (Appendix C). This indicator was calculated for all persons aged 25 years and over in the 1989-90, 1995 and 2001 NHS.

#### *Food insecurity*

The percentage of persons who, at some time in the previous 12 months, ran out of food and could not afford to buy more. This indicator has been calculated for all persons aged 18 years and over in the 1995 NNS and 2001 NHS.

### **Definitions of health service use indicators**

#### *Doctor consultation*

The percentage of persons who consulted a doctor (i.e. general practitioner or specialist) in the previous 2 weeks. This includes consultations via phone or having someone else consult with the doctor on one's behalf. Excluded from this indicator are consultations performed during an inpatient or outpatient episode, or visit to casualty/emergency or a day clinic. Also excluded are visits to a doctor's surgery for the purpose of collecting a prescription or dropping off a sample. This indicator was calculated for all persons in the 1989-90, 1995 and 2001 NHS.

#### *General practitioner consultation*

The percentage of persons who consulted a general practitioner in the previous 2 weeks. This includes consultations via phone or having someone else consult with the general practitioner on one's behalf. Excluded from this indicator are consultations performed during an inpatient or outpatient episode, or visit to casualty/emergency or a day clinic. Also excluded are visits to a general practitioner's surgery for the purpose of collecting a prescription or dropping off a sample. This indicator was calculated for all persons in the 1995 and 2001 NHS.

#### *Specialist consultation*

The percentage of persons who consulted a specialist in the previous 2 weeks. This includes consultations via phone or having someone else consult with the specialist on one's behalf. Excluded from this indicator are consultations performed during an inpatient or outpatient episode, or visit to casualty/emergency or a day clinic. Also excluded are visits to a specialist's surgery for the purpose of collecting a prescription or dropping off a sample. This indicator was calculated for all persons in the 1995 and 2001 NHS.

#### *Dental consultation*

The percentage of persons who consulted a dentist or other dental professional in the previous 2 weeks. Consultations at dental hospitals are included in this indicator. Excluded from this indicator are consultations performed during an inpatient or outpatient episode, or visit to casualty/emergency or a day clinic. This indicator was calculated for all persons in the 1989-90, 1995 and 2001 NHS.

### *Mammogram*

The percentage of women who have never had a mammogram. This indicator was calculated for women aged 50–64 years in the 1989–90, 1995 and 2001 NHS.

### *Time since last mammogram*

The percentage of women who last had a mammogram 2 or more years ago. The timeframe of 2 years or more was based on the categorisation available on the surveys, and the policy of the BreastScreen Australia Program (DoHA 2003a). This indicator was calculated for women aged 50–64 years who reported that they have had a mammogram in the 1995 and 2001 NHS.

### *Pap smear*

The percentage of women who have never had a Pap smear. This indicator was calculated for women aged 25–64 years in the 1989–90, 1995 and 2001 NHS.

### *Time since last Pap smear*

The percentage of women who last had a Pap smear 2 or more years ago. The timeframe of 2 years or more was based on the categorisation available on the surveys, and the policy of the National Cervical Screening Program (DoHA 2003b). This indicator was calculated for women aged 18–64 years who reported that they have had a Pap smear in the 1995 and 2001 NHS.

## **2.4 Statistical analyses**

### **Scope of analysis**

The analysis presented in chapters 3 to 6 looks at the age ranges 0–14, 15–24, 25–64, and 65 years and over and focuses on inequalities between socioeconomic groups both within and between years. With the use of rate ratios and their confidence intervals (CIs), the within-year analysis gives an indication of whether the prevalence of a health-related indicator for one socioeconomic level is significantly different from the prevalence in the highest socioeconomic level. Rate ratios within years are considered to be statistically significantly different (at the 0.05 level) if their confidence intervals do not overlap. Also tested is whether the rate ratios, for specific socioeconomic levels and health indicators, are different between years at the 0.05 level.

### **Age-standardised rates**

Morbidity, health-related behaviours, health-related risk factors, and health service use within a given population is strongly related to age. In order to facilitate comparisons between populations which may have different age structures, all rates in this report have been directly age-standardised (see Armitage et al. 2002) to the total Australian population as at 30 June 2001 using 5-year age groups. The following method was used:

$$SR = \frac{\sum(R_1 \times P_1)}{\sum P_1}$$

where SR = the age-standardised rate

R<sub>1</sub> = the age-specific rate for age group 1

P<sub>1</sub> = the standard population in age group 1

All rates are expressed as a percentage (i.e. cases per 100 persons). In order to present national estimates, rates are calculated using NHS-weighted data.

## Rate ratios

Relative health differences between population groups within survey years are expressed in terms of rate ratios, with the age-standardised rate for each population subgroup being expressed as a proportion of the age-standardised rate of a reference group. The reference group within this report is generally the population group with the highest socioeconomic position. Rate ratios reported in the figures are presented with their associated 95% confidence intervals.

## Standard errors and statistical tests

Standard errors (SE) and Confidence intervals (CI) were calculated for all rates and rate ratios (see Rothman 1986) using the following formulas:

### Rates

$$SE = \frac{SR}{\sqrt{n}}$$

$$CI = \text{Age-standardised rate} \pm (1.96 * SE)$$

where  $n$  = total unweighted cases

### Rate ratios

$$SE = \sqrt{\left(\frac{1}{p_1} + \frac{1}{p_2}\right)}$$

$$CI = \exp(\ln RR \pm 1.96 * SE(\ln RR))$$

where  $p_1$  = total unweighted cases within subpopulation  
 $p_2$  = total unweighted cases within reference group

## Time-series analysis of overall rate

Confidence intervals of the difference in rates for 1989–90 to 1995, 1989–90 to 2001, and 1995 to 2001 have been calculated to determine whether the overall rates differ significantly over the time periods. The following formulas were used:

$$SE(\text{diff}) = \sqrt{SE(R_1)^2 + SE(R_2)^2}$$

$$CI = \text{diff} \pm 1.96 * SE(\text{diff})$$

where  $\text{diff} = R_2 - R_1$

Significance levels for difference in overall rates between surveys are indicated as follows:

+ 1989–90 rate differs significantly from 1995 rate at  $p \leq 0.05$

† 1989–90 rate differs significantly from 2001 rate at  $p \leq 0.05$

‡ 1995 rate differs significantly from 2001 rate at  $p \leq 0.05$

### Significance test for change in NHS rate ratios between years

To test if the rate ratios are significantly different between the surveys the following method was used (Rothman & Greenland 1998):

$$p \text{ value} = \text{chidist}(\text{chisq}, \text{df})$$

where

$$\text{chisq} = \frac{(\ln RR_1 - \ln AveRR)^2}{SE(RR_1)^2} + \frac{(\ln RR_2 - \ln AveRR)^2}{SE(RR_2)^2}$$

$$\ln AveRR = \ln\left(\frac{RR_1 + RR_2}{2}\right)$$

Significance levels for difference in rate ratios between surveys are indicated as follows:

- + 1989-90 rate ratio differs significantly from 1995 rate ratio at  $p \leq 0.05$
- † 1989-90 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$
- ‡ 1995 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$



### 3 Health inequalities by area-level socioeconomic disadvantage

Area-based measures of socioeconomic disadvantage have been widely used by overseas researchers to examine health inequalities. This work has shown that disadvantaged areas have higher rates of mortality (Pickett and Pearl 2001; Davey Smith et al. 1998), morbidity (Blaxter, 1990; Shaw et al. 1999), disability (Rognerud et al. 1998), overweight and obesity (Ellaway et al. 1997; van Lenthe and Mackenbach 2002), smoking (Kleinschmidt et al. 1995) and other risk factors for cardiovascular disease (Sundquist et al. 1999), and lower consumption of fruits and vegetables (Shohaimi et al. 2004).

Area-based socioeconomic inequalities in health have also been found in Australia, with disadvantaged areas exhibiting higher death rates (Draper et al. 2004; Turrell & Mathers 2001; Yu et al. 2000), poorer physical and oral health (Chen 2002; Brennan & Spencer 2002; Sanders & Spencer 2004), a more adverse risk-factor and health behaviour profile (Mathers 1994a, 1994b, 1995, 1996), higher rates of GP use (Turrell et al. 2004) and lower use of preventive health services (Taylor et al. 2001).

This chapter examines area-based socioeconomic health inequalities among infants and children (0–14 years), young adults (15–24 years), working-age adults (25–64 years) and older persons (65 years and older). We use a geographic measure known as the Index of Relative Socioeconomic Disadvantage (IRSD). This index was developed as one of five indexes by the ABS that use census data to categorise areas on the basis of their social and economic characteristics (ABS 1990, 1994, 1998a). IRSD information on the 1989–90, 1995 and 2001 surveys are based on the 1986, 1991 and 1996 Censuses respectively. The index is derived from the weighted area-attributes and, as can be seen in Table 3.1, the variables used to derive the 1986, 1991 and 1996 IRSD are not entirely consistent. Additionally, where the variables are the same, the applied weighting may not be equal.

The IRSD is compiled at the collector's district (CD) level, a census collection unit broadly equivalised in urban areas to a small group of suburban blocks, comprising approximately 250 dwellings (CDs in rural regions usually contain fewer dwellings). Survey respondents were classified into quintiles of socioeconomic disadvantage according to the value of the IRSD for their CD of usual residence, with quintile 1 corresponding to the most advantaged socioeconomic areas and quintile 5 the most disadvantaged. Although the ordering of the IRSD quintiles is opposite to the labels on the surveys, it is in keeping with a previous report in this series (Draper et al. 2004), and a series of earlier reports published by the AIHW (Mathers 1994a, 1994b, 1995, 1996). IRSD quintiles were ascertained for all respondents in the 1989–90 NHS. However, IRSD quintile was missing for a weighted estimate of 0.27% of persons in the 1995 NHS (0.27% of respondents), and 0.03% of persons in the 2001 NHS (0.08% respondents). Respondents with an IRSD quintile that was missing were excluded from all analysis involving area socioeconomic disadvantage.

Where possible, health indicators by IRSD are compared across all three surveys – detailed definitions for each health indicator are given in Chapter 2 'Data issues and methods'. The 1989–90 survey lacked some of the questions that appeared in later surveys or worded questions differently, so in some cases no results appear for that particular survey.

**Table 3.1: Index of Relative Socioeconomic Disadvantage variables**

<b>1989–90 IRSD variables</b>	<b>1991 IRSD variables</b>	<b>1996 IRSD variables</b>
No qualifications	Persons aged 15 and over with no qualifications	Persons aged 15 and over with no qualifications
Families with income less than \$12,000	Families with income less than \$16,000	Families with income less than \$15,600
Females unemployed	Females (in labour force) unemployed	Females (in labour force) unemployed
Males unemployed	Males (in labour force) unemployed	Males (in labour force) unemployed
Employed persons classified as Labourer or related	Employed persons classified as 'Labourer & Related Workers'	Employed females classified as 'Labourer & Related Workers' Employed males classified as 'Labourer & Related Workers'
Left school less than 15 years of age	Persons aged 15 and over who left school at or under 15 years of age	Persons aged 15 and over who left school at or under 15 years of age
Families consisting of head and dependents	One-parent families with dependent offspring only	One-parent families with dependent offspring only
Households renting (government authority)	Households renting (government authority)	Households renting (government authority)
Persons aged 15 and over separated or divorced	Persons aged 15 and over separated or divorced	Persons aged 15 and over separated or divorced
Households with no motor cars	Dwellings with no motor cars at dwelling	Dwellings with no motor cars at dwelling
Employed males classified in trades	Employed males classified as 'Tradespersons'	Employed males classified as 'Tradespersons'
Never at school	Persons aged 15 and over who did not go to school	Persons aged 15 and over who did not go to school
Aboriginals or Torres Strait Islanders	Aboriginals or Torres Strait Islanders	Aboriginals or Torres Strait Islanders
Lacking fluency in English	Lacking fluency in English	Lacking fluency in English
Households with 1 or no bedrooms	Dwellings with 1 or no bedrooms	Families with offspring having parental income less than \$15,600
Households renting (non-government)	Households renting (non-government authority)	Employed males classified as 'Intermediate Production and Transport Workers'
Households in improvised dwellings		Employed females classified as 'Intermediate Production & Transport Workers'
Employed females classified in sales/personal		Employed females classified as 'Elementary Clerical, Sales & Service Workers'
Occupied dwellings with 2 or more families		Occupied private dwellings with two or more families
Employed females classified in trades		
Recent migrant from non-English-speaking country		

### 3.1 Persons aged 0–14 years

Tables 3.2 and 3.3 present associations between the IRSD and a range of health indicators for males and females aged 0–14 years.

- Asthma: Males from the most disadvantaged areas had significantly higher rates of asthma in 1995 (28%) and 2001 (47%). Rates of reported asthma were also higher for males in the second-most disadvantaged quintile (23% higher in 1995 and 74% higher in 2001). Figure 3.1 graphs the association between the IRSD and asthma prevalence for males aged 0–14 years.
- Bronchitis/emphysema: Males from the more disadvantaged areas had significantly higher rates of bronchitis/emphysema in 2001 (170% higher in quintile 2 to 147% higher in quintile 5). No significant differences were found in 1989–90 and 1995.

Males aged 0–14 years from disadvantaged areas also had significantly higher rates of discretionary salt use in 1995 (321% higher), but the rate ratios were estimated with low precision as indicated by the wide confidence levels. No significant differences in discretionary salt use were found in 2001, although the rates were higher in the more disadvantaged quintiles.

Male and female infants from disadvantaged areas were less likely to have been breastfed, and the duration of breastfeeding was shorter.

- Breastfeeding: Rates of non-breastfeeding were significantly higher among male infants from the most disadvantaged quintile in 1995 (124%) and 2001 (119%), and also among female infants in 1995 (69%) and 2001 (256%). Figures 3.2 and 3.3 graph the association between the IRSD and rates of non-breastfeeding for males and females respectively.
- Time breastfed: Female infants from the most disadvantaged quintile were significantly more likely to have been breastfed for less than 12 weeks in 1995 (40%) and 2001 (97%). See also Figure 3.4.

Persons aged 0–14 years from disadvantaged areas were also more likely to visit a doctor, but less likely to consult a specialist or dentist.

- Doctor consultation: Females from the most disadvantaged areas had significantly higher rates of doctor consultation in 1989–90 (21%) and 1995 (27%), although no significant differences were seen in 2001.
- Specialist consultation: Females from the most disadvantaged areas were significantly less likely to have visited a specialist in 2001 (53%); no differences were found in 1995.
- Dental consultation: Females from the most disadvantaged areas were significantly less likely to have visited a dentist in 1989–90 (28%); however, no significant differences were observed in 1995 or 2001. Among males from the most disadvantaged areas, rates of dental consultation were significantly lower in 1995 (40%) and 2001 (51%).

**Table 3.2: Health indicators by IRSD quintile, males aged 0–14 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Morbidity</b>									
Days away from school									
Quintile 1	17.8	1.00		13.1	1.00		17.8	1.00	
Quintile 2	21.4	1.20	0.97, 1.49	17.8	1.36	1.09, 1.70	21.5	1.21	0.93, 1.57
Quintile 3	17.0	0.96	0.77, 1.20	15.9	1.22	0.96, 1.54	20.1	1.13	0.85, 1.50
Quintile 4 †	16.4	0.92	0.75, 1.13	16.1	1.24	0.96, 1.58	26.5	1.49	1.13, 1.96
Quintile 5	19.3	1.08	0.88, 1.34	15.7	1.21	0.96, 1.52	20.2	1.13	0.85, 1.52
Asthma									
Quintile 1	13.8	1.00		15.9	1.00		11.0	1.00	
Quintile 2	16.2	1.17	0.96, 1.42	18.6	1.17	0.99, 1.39	15.5	1.41	1.10, 1.81
Quintile 3	15.2	1.10	0.90, 1.34	17.4	1.09	0.91, 1.31	15.2	1.38	1.07, 1.78
Quintile 4 ††	16.5	1.19	0.99, 1.42	19.5	1.23	1.02, 1.48	19.1	1.74	1.35, 2.25
Quintile 5	15.9	1.15	0.95, 1.39	20.3	1.28	1.07, 1.52	16.2	1.47	1.13, 1.90
Bronchitis/emphysema									
Quintile 1	1.9	1.00		2.9	1.00		1.0	1.00	
Quintile 2 ††	1.4	0.72	0.37, 1.40	1.8	0.62	0.39, 0.98	2.8	2.70	1.36, 5.36
Quintile 3 ††	1.5	0.80	0.43, 1.49	3.5	1.23	0.81, 1.87	2.7	2.65	1.33, 5.30
Quintile 4 ††	2.3	1.19	0.72, 1.96	2.5	0.88	0.55, 1.41	3.3	3.19	1.60, 6.36
Quintile 5 †	2.8	1.45	0.89, 2.36	2.5	0.88	0.54, 1.42	2.6	2.47	1.18, 5.20
<b>Health-related behaviours</b>									
Salt use (usually add salt to food after cooking)									
Quintile 1	..	..		3.4	1.00		10.2	1.00	
Quintile 2 †	..	..	..	19.8	5.86	2.03, 16.85	12.2	1.19	0.55, 2.60
Quintile 3	..	..	..	13.3	3.92	1.25, 12.36	15.5	1.52	0.70, 3.29
Quintile 4	..	..	..	2.1	0.62	0.07, 5.30	12.7	1.24	0.54, 2.88
Quintile 5	..	..	..	14.2	4.21	1.34, 13.26	15.0	1.47	0.64, 3.40
Sun protection (none in previous month)									
Quintile 1	..	..		9.4	1.00		6.3	1.00	
Quintile 2	..	..	..	7.2	0.77	0.61, 0.98	5.2	0.82	0.54, 1.25
Quintile 3	..	..	..	9.3	0.99	0.78, 1.25	5.8	0.92	0.60, 1.40
Quintile 4	..	..	..	10.3	1.10	0.87, 1.39	6.2	0.98	0.65, 1.48
Quintile 5	..	..	..	11.7	1.25	1.00, 1.57	7.6	1.20	0.78, 1.83
<b>Health-related risk factors</b>									
Not breastfed									
Quintile 1	..	..		11.0	1.00		9.3	1.00	
Quintile 2	..	..	..	10.1	0.92	0.58, 1.47	10.8	1.16	0.68, 1.99
Quintile 3	..	..	..	11.1	1.00	0.64, 1.59	9.4	1.01	0.57, 1.78
Quintile 4	..	..	..	15.0	1.36	0.88, 2.11	18.9	2.03	1.23, 3.36
Quintile 5	..	..	..	24.8	2.24	1.52, 3.30	20.5	2.19	1.33, 3.61
Time breastfed (less than 12 weeks)									
Quintile 1	..	..		27.5	1.00		25.4	1.00	
Quintile 2	..	..	..	33.9	1.23	0.92, 1.65	37.0	1.46	1.04, 2.04
Quintile 3	..	..	..	33.1	1.20	0.89, 1.63	29.6	1.16	0.81, 1.66
Quintile 4	..	..	..	27.8	1.01	0.73, 1.40	32.4	1.27	0.88, 1.84
Quintile 5	..	..	..	33.6	1.22	0.89, 1.68	35.3	1.39	0.96, 2.00

(continued)

**Table 3.2 (continued): Health indicators by IRSD quintile, males aged 0–14 years, 1989 to 2001**

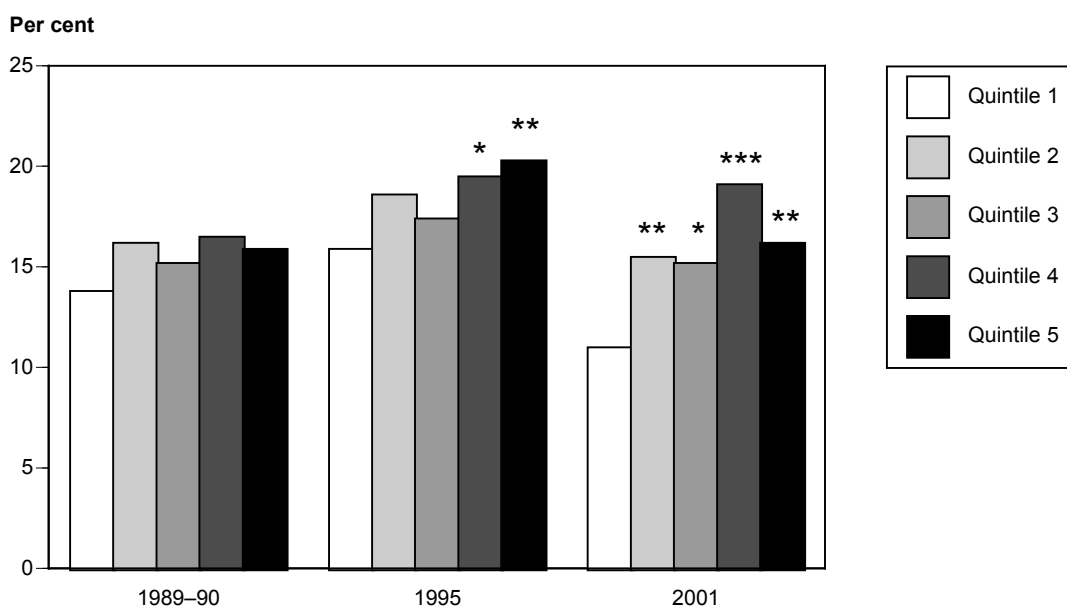
Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Health service use (in the previous 2 weeks)</b>									
Doctor consultation									
Quintile 1	18.2	1.00		20.1	1.00		18.6	1.00	
Quintile 2	16.5	0.91	0.75, 1.09	17.5	0.87	0.74, 1.03	16.8	0.90	0.73, 1.12
Quintile 3	15.4	0.85	0.70, 1.02	20.9	1.04	0.88, 1.24	20.4	1.10	0.89, 1.36
Quintile 4 †	16.4	0.90	0.77, 1.06	18.9	0.94	0.79, 1.13	21.8	1.17	0.95, 1.45
Quintile 5	16.9	0.93	0.78, 1.11	21.6	1.08	0.91, 1.27	18.2	0.98	0.79, 1.21
GP consultation									
Quintile 1	..	..		17.9	1.00		16.3	1.00	
Quintile 2	..	..	..	16.5	0.92	0.77, 1.10	14.5	0.89	0.71, 1.12
Quintile 3	..	..	..	19.1	1.06	0.89, 1.27	18.0	1.11	0.88, 1.39
Quintile 4	..	..	..	16.6	0.93	0.77, 1.12	19.7	1.21	0.96, 1.52
Quintile 5	..	..	..	19.6	1.09	0.92, 1.30	16.2	0.99	0.79, 1.25
Specialist consultation									
Quintile 1	..	..		3.4	1.00		3.7	1.00	
Quintile 2	..	..	..	1.8	0.52	0.33, 0.82	3.2	0.86	0.53, 1.40
Quintile 3	..	..	..	2.6	0.76	0.49, 1.20	4.0	1.08	0.67, 1.73
Quintile 4	..	..	..	3.1	0.92	0.60, 1.43	5.0	1.34	0.85, 2.13
Quintile 5	..	..	..	2.8	0.84	0.55, 1.29	2.7	0.72	0.43, 1.20
Dental consultation									
Quintile 1	6.2	1.00		8.3	1.00		8.5	1.00	
Quintile 2 †	6.6	1.06	0.79, 1.44	5.6	0.68	0.52, 0.89	6.6	0.78	0.54, 1.13
Quintile 3	6.7	1.07	0.80, 1.44	6.2	0.75	0.57, 0.99	6.1	0.72	0.49, 1.05
Quintile 4	5.3	0.85	0.64, 1.13	5.6	0.68	0.51, 0.92	6.5	0.76	0.53, 1.10
Quintile 5 †‡	6.0	0.96	0.71, 1.29	4.9	0.60	0.44, 0.80	4.2	0.49	0.32, 0.76

.. Data not available or not comparable.

+ 1989–90 rate ratio differs significantly from 1995 rate ratio at  $p \leq 0.05$ .

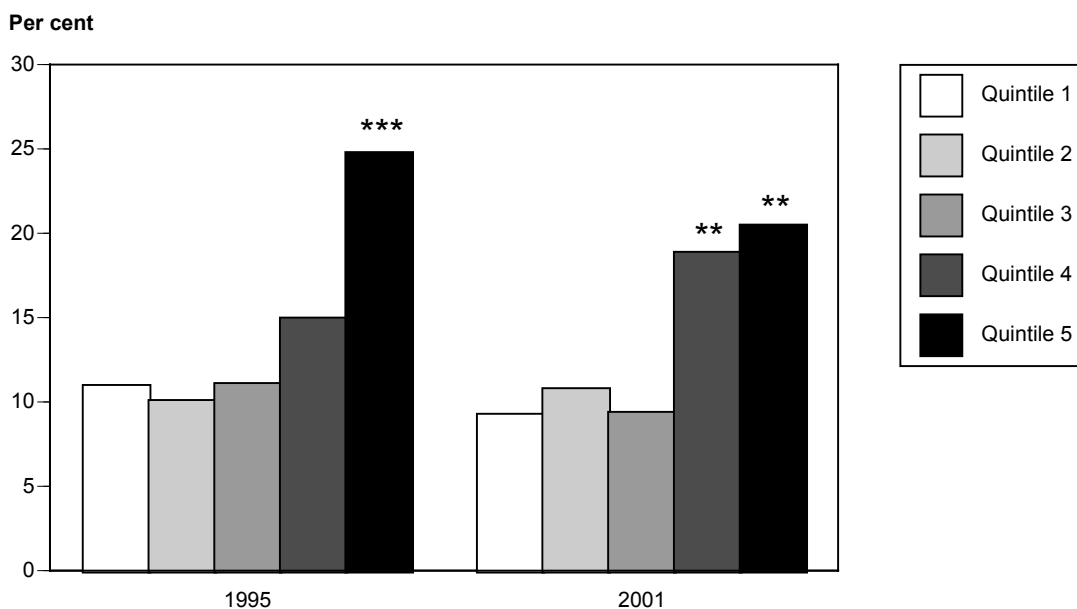
† 1989–90 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

‡ 1995 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.  
 Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.1: Rates of proxy-reported asthma by IRSD quintile, males aged 0-14 years, 1989-90, 1995 and 2001**



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.  
 Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.2: Percentage of infants who were reportedly not breastfed, by IRSD quintile, males, 1995 and 2001**

**Table 3.3: Health indicators by IRSD quintile, females aged 0–14 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Morbidity</b>									
Days away from school									
Quintile 1	21.1	1.00		16.3	1.00		21.7	1.00	
Quintile 2	21.3	1.01	0.82, 1.24	15.4	0.94	0.76, 1.18	19.2	0.89	0.68, 1.15
Quintile 3	19.9	0.94	0.76, 1.16	18.4	1.13	0.90, 1.41	24.8	1.14	0.87, 1.49
Quintile 4	20.7	0.98	0.81, 1.18	14.3	0.87	0.69, 1.11	20.2	0.93	0.71, 1.23
Quintile 5	19.6	0.93	0.75, 1.15	16.4	1.00	0.79, 1.27	19.6	0.91	0.67, 1.22
Asthma									
Quintile 1	11.3	1.00		12.9	1.00		12.7	1.00	
Quintile 2	12.2	1.08	0.85, 1.37	13.9	1.08	0.89, 1.31	10.7	0.84	0.63, 1.13
Quintile 3	9.2	0.82	0.64, 1.05	14.1	1.09	0.89, 1.35	11.6	0.91	0.67, 1.25
Quintile 4	11.4	1.01	0.82, 1.25	13.6	1.06	0.86, 1.30	11.5	0.91	0.67, 1.22
Quintile 5 <sup>‡</sup>	10.6	0.94	0.74, 1.18	15.9	1.23	1.01, 1.51	10.7	0.84	0.61, 1.15
Bronchitis/emphysema									
Quintile 1	1.5	1.00		1.9	1.00		2.6	1.00	
Quintile 2 <sup>‡</sup>	1.1	0.74	0.38, 1.44	2.7	1.42	0.84, 2.40	1.2	0.46	0.21, 0.99
Quintile 3	1.2	0.78	0.40, 1.52	1.6	0.84	0.46, 1.53	1.8	0.68	0.32, 1.45
Quintile 4	1.2	0.81	0.45, 1.45	2.4	1.27	0.75, 2.14	2.2	0.82	0.40, 1.71
Quintile 5 <sup>‡</sup>	1.7	1.08	0.61, 1.92	4.3	2.32	1.46, 3.69	1.0	0.39	0.15, 1.01
<b>Health-related behaviours</b>									
Salt use (usually add salt to food after cooking)									
Quintile 1	..	..		8.8	1.00		9.8	1.00	
Quintile 2	..	..	..	13.1	1.48	0.49, 4.53	13.4	1.37	0.66, 2.84
Quintile 3	..	..	..	6.3	0.71	0.19, 2.67	7.7	0.78	0.33, 1.83
Quintile 4	..	..	..	13.5	1.52	0.50, 4.65	25.0	2.55	1.26, 5.17
Quintile 5	..	..	..	14.4	1.63	0.53, 4.99	16.5	1.68	0.77, 3.68
Sun protection (none in previous month)									
Quintile 1	..	..		11.1	1.00		8.5	1.00	
Quintile 2	..	..	..	8.0	0.72	0.57, 0.91	5.9	0.70	0.48, 1.03
Quintile 3	..	..	..	10.8	0.97	0.77, 1.23	9.7	1.14	0.77, 1.69
Quintile 4	..	..	..	11.4	1.02	0.82, 1.29	7.9	0.94	0.63, 1.38
Quintile 5	..	..	..	12.1	1.09	0.87, 1.37	8.2	0.97	0.65, 1.44
<b>Health-related risk factors</b>									
Not breastfed									
Quintile 1	..	..		11.3	1.00		6.1	1.00	
Quintile 2 <sup>‡</sup>	..	..	..	12.8	1.13	0.72, 1.77	14.0	2.30	1.33, 3.96
Quintile 3	..	..	..	12.6	1.11	0.70, 1.77	7.6	1.24	0.64, 2.39
Quintile 4	..	..	..	11.4	1.01	0.63, 1.64	12.2	2.00	1.12, 3.57
Quintile 5 <sup>‡</sup>	..	..	..	19.0	1.69	1.10, 2.59	21.8	3.56	2.11, 6.01
Time breastfed (less than 12 weeks)									
Quintile 1	..	..		28.2	1.00		23.8	1.00	
Quintile 2	..	..	..	24.3	0.86	0.62, 1.19	29.2	1.23	0.85, 1.78
Quintile 3	..	..	..	27.7	0.98	0.70, 1.37	27.5	1.15	0.78, 1.70
Quintile 4	..	..	..	33.5	1.19	0.87, 1.62	37.5	1.58	1.09, 2.27
Quintile 5	..	..	..	39.5	1.40	1.03, 1.90	46.8	1.97	1.37, 2.81

(continued)

**Table 3.3 (continued): Health indicators by IRSD quintile, females aged 0–14 years, 1989 to 2001**

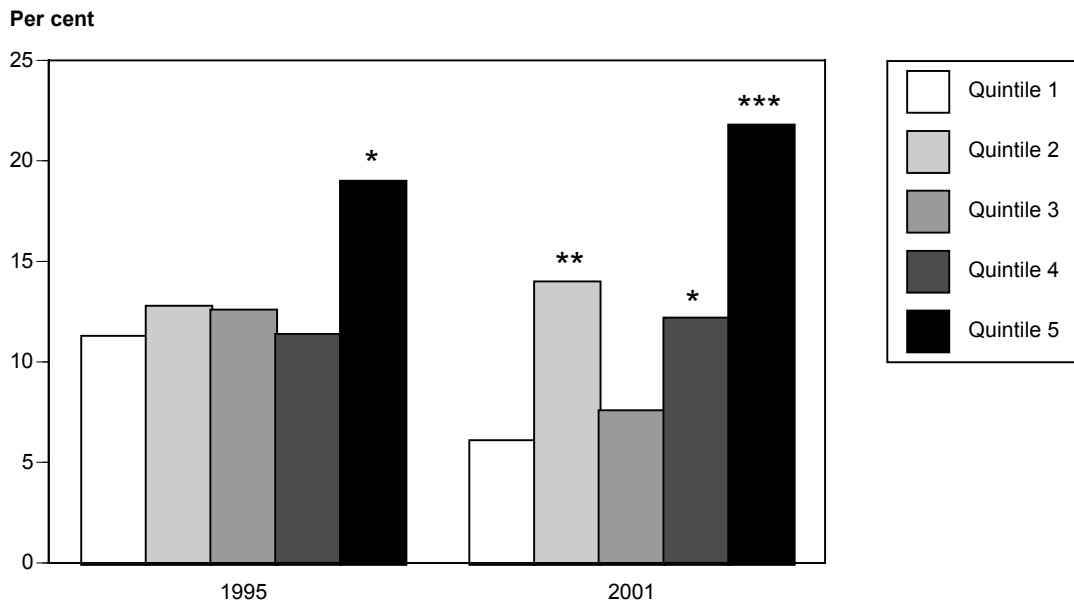
Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Health service use (in the previous 2 weeks)</b>									
Doctor consultation									
Quintile 1	17.5	1.00		16.0	1.00		17.2	1.00	
Quintile 2	19.4	1.11	0.92, 1.33	17.1	1.07	0.89, 1.28	15.2	0.88	0.70, 1.10
Quintile 3	14.9	0.85	0.70, 1.03	16.8	1.05	0.87, 1.27	17.9	1.04	0.82, 1.32
Quintile 4	15.9	0.91	0.77, 1.08	18.3	1.14	0.95, 1.38	17.2	1.00	0.79, 1.26
Quintile 5	21.2	1.21	1.01, 1.44	20.3	1.27	1.05, 1.52	16.7	0.97	0.76, 1.23
GP consultation									
Quintile 1	..	..		14.5	1.00		14.8	1.00	
Quintile 2	..	..	..	16.0	1.10	0.92, 1.33	13.4	0.90	0.71, 1.15
Quintile 3	..	..	..	16.1	1.11	0.91, 1.35	16.6	1.12	0.87, 1.43
Quintile 4	..	..	..	17.4	1.20	0.99, 1.46	16.6	1.11	0.87, 1.42
Quintile 5	..	..	..	19.7	1.36	1.12, 1.64	15.1	1.02	0.79, 1.32
Specialist consultation									
Quintile 1	..	..		1.9	1.00		4.0	1.00	
Quintile 2	..	..	..	2.4	1.31	0.77, 2.23	2.7	0.68	0.41, 1.10
Quintile 3	..	..	..	0.8	0.43	0.23, 0.80	2.1	0.52	0.29, 0.94
Quintile 4	..	..	..	1.7	0.89	0.49, 1.64	1.7	0.41	0.21, 0.81
Quintile 5	..	..	..	1.1	0.58	0.30, 1.10	1.9	0.47	0.25, 0.86
Dental consultation									
Quintile 1	9.1	1.00		8.0	1.00		6.7	1.00	
Quintile 2 †	6.6	0.73	0.54, 0.97	6.4	0.80	0.62, 1.04	7.8	1.16	0.82, 1.64
Quintile 3 †	7.4	0.80	0.61, 1.05	7.1	0.89	0.68, 1.17	9.0	1.33	0.93, 1.91
Quintile 4 †	5.7	0.62	0.48, 0.81	6.0	0.76	0.57, 1.01	7.7	1.15	0.78, 1.68
Quintile 5	6.5	0.72	0.54, 0.95	6.9	0.86	0.65, 1.13	5.8	0.86	0.56, 1.33

.. Data not available or not comparable.

+ 1989–90 rate ratio differs significantly from 1995 rate ratio at  $p \leq 0.05$ .

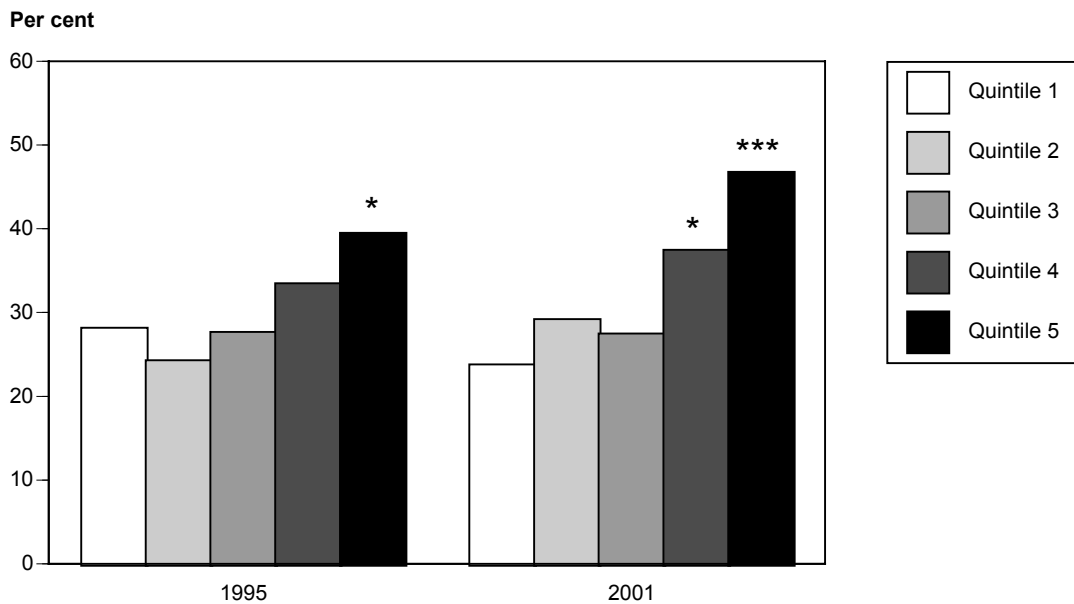
† 1989–90 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

‡ 1995 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.  
 Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.3: Percentage of infants who were reportedly not breastfed, by IRSD quintile, females, 1995 and 2001**



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.  
 Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.4: Percentage of infants who were reportedly breastfed for less than 12 weeks, by IRSD quintile, females, 1995 and 2001**

## 3.2 Persons aged 15–24 years

Tables 3.4 and 3.5 present associations between the IRSD and a range of health indicators for males aged 15–24 years.

- Self-assessed health: Males and females in the most disadvantaged areas were significantly more likely to rate their health as fair or poor in 1995 (males 108% higher, females 53% higher). No significant differences were found in 2001, although the rates tended to be higher in the more disadvantaged quintiles.
- Bronchitis/emphysema: In 2001, females from the most disadvantaged areas had a significantly higher rate of bronchitis/emphysema (181%).

Males and females aged 15–24 years from disadvantaged areas were more likely to engage in a number of risky or harmful health-related behaviours.

- Alcohol risk: In 1995, females from the most disadvantaged areas were significantly more likely to report high-risk alcohol consumption (83% higher).
- Smoking: Males from the most disadvantaged areas were significantly more likely to report being a regular smoker in 1989–90 (22%) and 1995 (61%). Smoking rates were also higher for males from disadvantaged areas in 2001 (34%), although the difference was not statistically significant. Among females from the most disadvantaged areas, smoking rates were significantly higher in 1995 (43%) and 2001 (89%). Figures 3.5 and 3.9 graph the association between the IRSD and smoking rates for males and females respectively.
- Salt use: Females from the most disadvantaged areas had significantly higher rates of discretionary salt use in 1995 (91%) and 2001 (77%). No significant differences were observed for males, although rates of discretionary salt use were higher in the most disadvantaged areas in both 1995 (58%) and 2001 (30%).

Persons from disadvantaged areas were also more significantly likely to be obese. Among males from the most disadvantaged areas, rates of obesity were 70% higher in 1989–90, 71% higher in 1995, and 115% higher in 2001 (see also Figure 3.8). Among females from the most disadvantaged areas, rates of obesity were 103% higher in 1995 and 68% higher in 2001, although this latter difference did not reach statistical significance.

- Food insecurity: In 1995 and 2001, males and females from the most disadvantaged areas were significantly more likely to report that they ran out of food some time in the previous 12 months, and were unable to afford more. Figures 3.6 and 3.10 graph the association between the IRSD and rates of food insecurity for males and females respectively.

In addition, males from the most disadvantaged areas had significantly lower rates of dental consultation in 1995 (52% lower).

**Table 3.4: Health indicators by IRSD quintile, males aged 15–24 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Morbidity</b>									
Self-assessed health status (fair or poor)									
Quintile 1	..	..	..	6.4	1.00		7.4	1.00	
Quintile 2	..	..	..	9.2	1.44	0.99, 2.10	8.6	1.16	0.52, 2.59
Quintile 3	..	..	..	9.1	1.44	0.95, 2.17	11.1	1.50	0.70, 3.21
Quintile 4	..	..	..	11.0	1.73	1.15, 2.61	10.9	1.47	0.68, 3.19
Quintile 5	..	..	..	13.3	2.08	1.43, 3.04	8.2	1.10	0.48, 2.55
Days away from study/school or work									
Quintile 1	17.9	1.00		10.6	1.00		17.0	1.00	
Quintile 2 <sup>†</sup>	13.1	0.73	0.56, 0.94	9.8	0.92	0.70, 1.22	19.3	1.14	0.79, 1.63
Quintile 3	15.7	0.88	0.69, 1.11	10.3	0.98	0.73, 1.31	16.4	0.97	0.66, 1.41
Quintile 4	14.4	0.81	0.64, 1.01	9.5	0.89	0.66, 1.21	15.5	0.91	0.62, 1.36
Quintile 5	14.8	0.83	0.66, 1.04	10.4	0.99	0.73, 1.33	15.1	0.89	0.58, 1.36
Arthritis									
Quintile 1	1.2	1.00		0.4	1.00		1.0	1.00	
Quintile 2 <sup>++</sup>	2.0	1.67	0.74, 3.79	2.4	5.55	2.30, 13.39	0.5	0.55	0.11, 2.71
Quintile 3	1.5	1.20	0.51, 2.84	0.4	0.91	0.27, 3.11	1.4	1.47	0.37, 5.86
Quintile 4	1.3	1.05	0.47, 2.39	0.8	1.94	0.75, 5.01	2.3	2.38	0.62, 9.20
Quintile 5 <sup>+</sup>	1.6	1.32	0.60, 2.95	2.2	5.18	2.09, 12.84	1.6	1.71	0.38, 7.62
Asthma									
Quintile 1	10.1	1.00		14.5	1.00		16.4	1.00	
Quintile 2	9.1	0.90	0.65, 1.25	12.8	0.88	0.69, 1.14	14.2	0.87	0.58, 1.30
Quintile 3	9.2	0.91	0.67, 1.23	16.6	1.15	0.89, 1.47	15.8	0.96	0.64, 1.45
Quintile 4	8.9	0.88	0.65, 1.18	11.5	0.80	0.61, 1.03	16.9	1.03	0.69, 1.53
Quintile 5	9.2	0.91	0.67, 1.24	13.7	0.95	0.73, 1.23	15.1	0.92	0.61, 1.40
Bronchitis/emphysema									
Quintile 1	2.3	1.00		1.6	1.00		1.2	1.00	
Quintile 2 <sup>+</sup>	1.3	0.56	0.26, 1.20	2.8	1.74	0.94, 3.21	1.3	1.14	0.31, 4.23
Quintile 3	2.1	0.89	0.48, 1.64	3.2	1.97	1.08, 3.59	2.1	1.78	0.52, 6.16
Quintile 4 <sup>+</sup>	1.4	0.59	0.30, 1.15	3.0	1.81	0.96, 3.43	1.0	0.82	0.16, 4.23
Quintile 5	2.7	1.17	0.64, 2.13	1.6	1.00	0.47, 2.13	1.4	1.22	0.35, 4.20
<b>Health-related behaviours</b>									
Alcohol risk									
Quintile 1	18.3	1.00		7.0	1.00		18.6	1.00	
Quintile 2 <sup>+++</sup>	16.8	0.92	0.69, 1.23	11.1	1.60	0.97, 2.64	9.6	0.51	0.30, 0.89
Quintile 3 <sup>+</sup>	17.7	0.97	0.73, 1.28	13.4	1.93	1.21, 3.06	23.0	1.23	0.73, 2.08
Quintile 4 <sup>†</sup>	16.7	0.92	0.71, 1.19	5.0	0.72	0.40, 1.33	9.1	0.49	0.27, 0.88
Quintile 5 <sup>++</sup>	17.7	0.97	0.74, 1.27	16.1	2.31	1.46, 3.67	13.5	0.72	0.39, 1.33
Insufficient physical activity									
Quintile 1	47.1	1.00		46.1	1.00		48.4	1.00	
Quintile 2	51.8	1.10	0.96, 1.27	50.4	1.09	0.96, 1.25	45.9	0.95	0.75, 1.19
Quintile 3	50.6	1.07	0.94, 1.23	56.2	1.22	1.06, 1.40	47.6	0.98	0.78, 1.25
Quintile 4	49.6	1.05	0.93, 1.20	49.9	1.08	0.94, 1.24	50.6	1.05	0.83, 1.32
Quintile 5	48.5	1.03	0.90, 1.18	51.1	1.11	0.96, 1.28	51.9	1.07	0.84, 1.37

(continued)

**Table 3.4 (continued): Health indicators by IRSD quintile, males aged 15–24 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Smoking</b>									
Quintile 1	33.4	1.00		25.1	1.00		32.9	1.00	
Quintile 2	38.5	1.15	0.95, 1.41	29.9	1.19	0.97, 1.46	30.5	0.93	0.63, 1.36
Quintile 3	34.9	1.04	0.86, 1.27	32.2	1.28	1.03, 1.59	35.2	1.07	0.72, 1.60
Quintile 4 <sup>+</sup>	33.6	1.00	0.84, 1.21	35.2	1.40	1.13, 1.73	38.6	1.18	0.81, 1.70
Quintile 5 <sup>+</sup>	40.9	1.22	1.02, 1.47	40.5	1.61	1.31, 1.98	44.0	1.34	0.91, 1.98
<b>Salt use (usually add salt to food after cooking)</b>									
Quintile 1	..	..		13.7	1.00		16.8	1.00	
Quintile 2	..	..	..	15.4	1.13	0.65, 1.98	23.8	1.42	0.99, 2.04
Quintile 3	..	..	..	14.6	1.07	0.62, 1.85	23.0	1.37	0.94, 2.00
Quintile 4	..	..	..	14.4	1.06	0.60, 1.85	24.6	1.47	1.00, 2.15
Quintile 5	..	..	..	21.6	1.58	0.94, 2.67	21.9	1.30	0.88, 1.92
<b>Sun protection (none in previous month)</b>									
Quintile 1	..	..		22.9	1.00		12.4	1.00	
Quintile 2 <sup>‡</sup>	..	..	..	16.9	0.74	0.52, 1.06	18.1	1.45	0.85, 2.48
Quintile 3	..	..	..	27.2	1.19	0.83, 1.70	18.0	1.44	0.82, 2.54
Quintile 4	..	..	..	25.1	1.10	0.77, 1.56	17.1	1.37	0.74, 2.54
Quintile 5 <sup>‡</sup>	..	..	..	16.3	0.71	0.47, 1.07	31.6	2.54	1.47, 4.37
<b>Health-related risk factors</b>									
<b>Overweight (but not obese)</b>									
Quintile 1	16.7	1.00		18.6	1.00		20.6	1.00	
Quintile 2	17.3	1.04	0.81, 1.33	22.8	1.23	0.98, 1.53	20.1	0.98	0.66, 1.44
Quintile 3	17.8	1.06	0.84, 1.35	22.4	1.21	0.97, 1.51	30.6	1.49	1.01, 2.18
Quintile 4	18.9	1.13	0.90, 1.41	18.6	1.00	0.79, 1.27	24.2	1.18	0.79, 1.75
Quintile 5	18.9	1.13	0.90, 1.42	17.9	0.96	0.75, 1.24	21.7	1.06	0.70, 1.61
<b>Obese</b>									
Quintile 1	2.4	1.00		3.0	1.00		3.4	1.00	
Quintile 2	3.8	1.58	0.88, 2.84	3.2	1.06	0.60, 1.90	5.8	1.71	0.81, 3.59
Quintile 3 <sup>‡†</sup>	3.1	1.28	0.70, 2.34	3.1	1.04	0.57, 1.87	13.7	4.02	2.05, 7.90
Quintile 4	4.2	1.78	1.05, 3.02	6.2	2.10	1.25, 3.52	7.8	2.31	1.14, 4.67
Quintile 5	4.1	1.70	1.00, 2.89	5.1	1.71	0.99, 2.95	7.3	2.15	1.00, 4.64
<b>Food insecurity (ever ran out of food in last 12 months &amp; couldn't afford more)</b>									
Quintile 1	..	..		8.5	1.00		9.5	1.00	
Quintile 2	..	..	..	6.5	0.77	0.30, 1.96	7.4	0.78	0.39, 1.56
Quintile 3	..	..	..	10.2	1.21	0.62, 2.36	5.1	0.54	0.24, 1.23
Quintile 4	..	..	..	10.8	1.27	0.57, 2.85	10.7	1.13	0.56, 2.27
Quintile 5	..	..	..	20.4	2.40	1.28, 4.50	19.6	2.06	1.05, 4.05
<b>Health service use (in the previous 2 weeks)</b>									
<b>Doctor consultation</b>									
Quintile 1	12.1	1.00		14.6	1.00		13.1	1.00	
Quintile 2	8.7	0.71	0.53, 0.97	13.6	0.93	0.72, 1.20	14.9	1.13	0.77, 1.68
Quintile 3	12.9	1.06	0.81, 1.38	14.4	0.99	0.76, 1.28	11.1	0.85	0.55, 1.30
Quintile 4	12.8	1.05	0.82, 1.36	15.7	1.08	0.83, 1.39	16.6	1.26	0.85, 1.88
Quintile 5	14.4	1.19	0.92, 1.53	13.8	0.95	0.73, 1.24	13.4	1.02	0.66, 1.60

(continued)

**Table 3.4 (continued): Health indicators by IRSD quintile, males aged 15–24 years, 1989 to 2001**

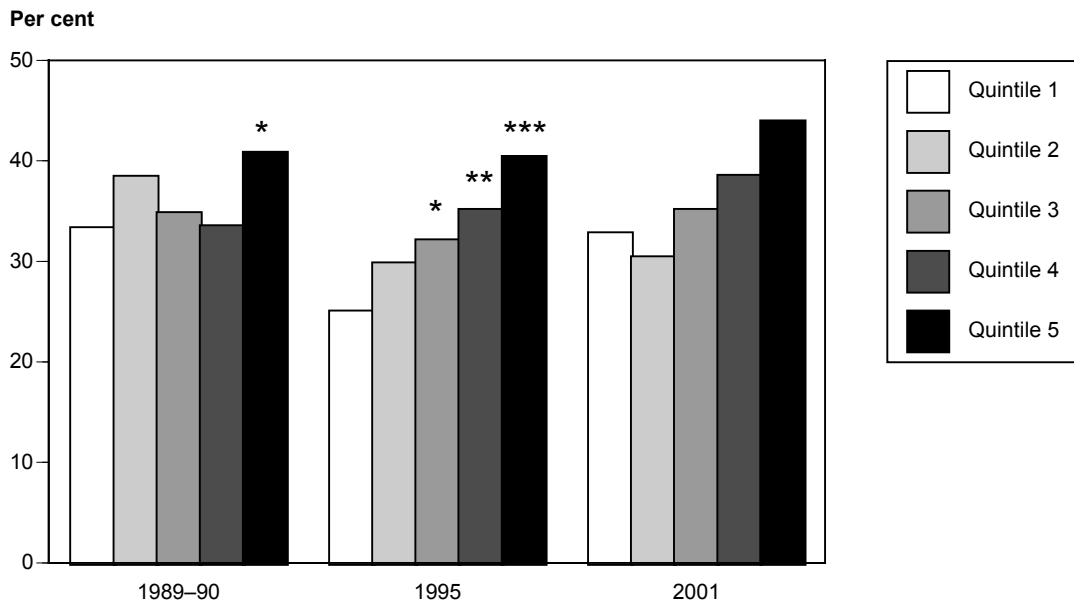
Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
GP consultation									
Quintile 1	..	..		13.5	1.00		12.1	1.00	
Quintile 2	..	..	..	11.7	0.87	0.67, 1.13	13.0	1.08	0.70, 1.66
Quintile 3	..	..	..	13.1	0.97	0.74, 1.29	11.0	0.91	0.58, 1.42
Quintile 4	..	..	..	14.2	1.06	0.81, 1.38	15.1	1.25	0.82, 1.92
Quintile 5	..	..	..	12.2	0.91	0.69, 1.20	12.0	1.00	0.62, 1.61
Specialist consultation									
Quintile 1	..	..		1.9	1.00		2.9	1.00	
Quintile 2	..	..	..	2.5	1.32	0.70, 2.48	3.0	1.03	0.49, 2.17
Quintile 3 †	..	..	..	2.7	1.44	0.78, 2.68	0.3	0.10	0.02, 0.42
Quintile 4	..	..	..	2.3	1.20	0.65, 2.22	2.3	0.79	0.31, 2.05
Quintile 5	..	..	..	3.2	1.67	0.90, 3.09	3.3	1.16	0.51, 2.66
Dental consultation									
Quintile 1	5.1	1.00		6.3	1.00		6.7	1.00	
Quintile 2	3.7	0.72	0.44, 1.17	3.0	0.48	0.32, 0.72	5.7	0.85	0.48, 1.50
Quintile 3	4.6	0.90	0.59, 1.40	5.1	0.81	0.53, 1.24	6.2	0.93	0.52, 1.67
Quintile 4 †	2.1	0.41	0.25, 0.68	3.7	0.59	0.37, 0.94	3.6	0.54	0.28, 1.04
Quintile 5	3.5	0.69	0.44, 1.09	3.0	0.48	0.29, 0.79	7.2	1.08	0.58, 2.03

.. Data not available or not comparable.

+ 1989–90 rate ratio differs significantly from 1995 rate ratio at  $p \leq 0.05$ .

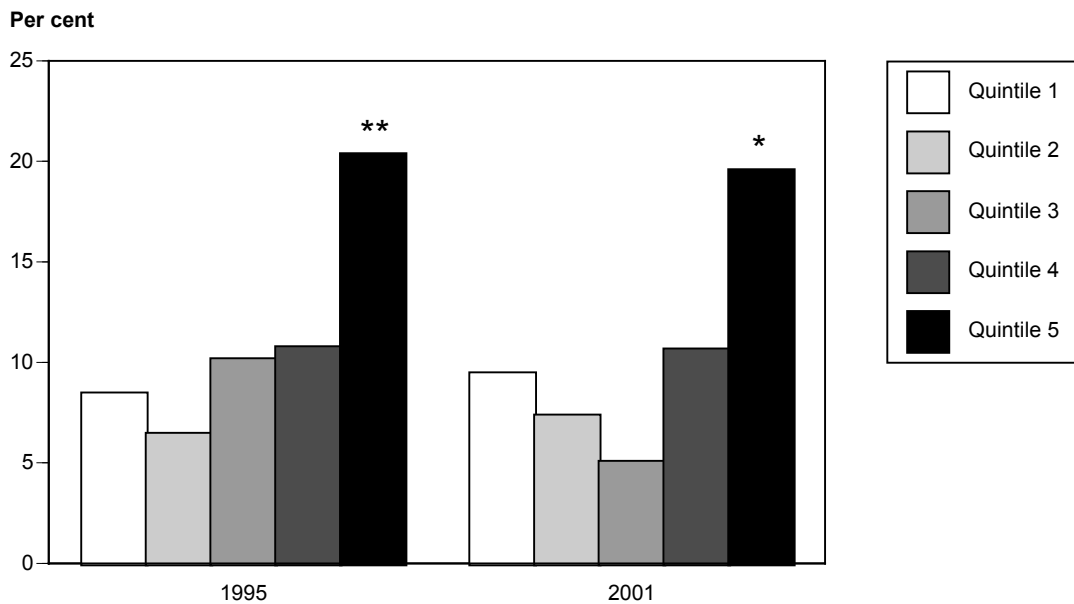
† 1989–90 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

‡ 1995 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.  
 Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

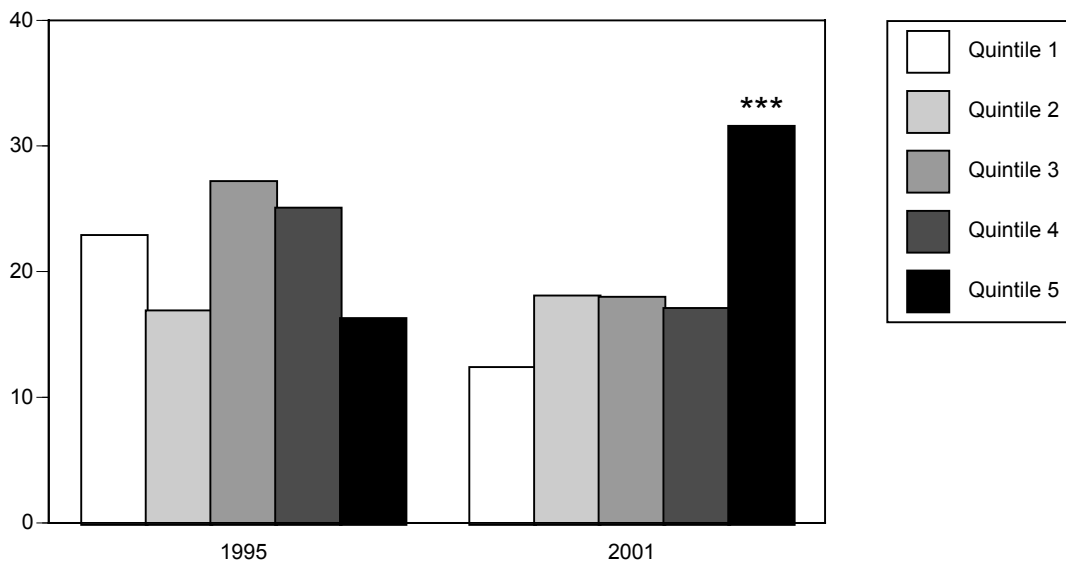
**Figure 3.5: Percentage of males aged 15-24 years who were classified as regular smokers, by IRSD quintile, 1989-90, 1995 and 2001**



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.  
 Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.6: Percentage of males aged 15-24 years who reported experiencing food insecurity, by IRSD quintile, 1995 and 2001**

Per cent

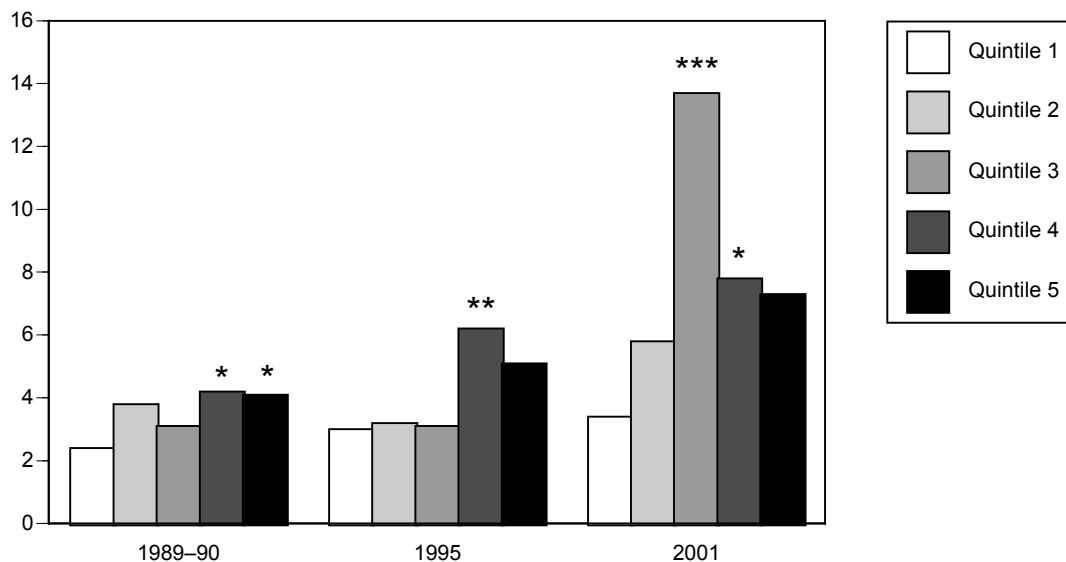


Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.7: Percentage of males aged 15–24 years who reported taking no sun protection in the previous month, by IRSD quintile, 1995 and 2001**

Per cent



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.8: Percentage of males aged 15–24 years who were classified as obese, by IRSD quintile, 1989–90, 1995 and 2001**

**Table 3.5: Health indicators by IRSD quintile, females aged 15–24 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Morbidity</b>									
Self assessed health status (fair or poor)									
Quintile 1	..	..	..	7.6	1.00		12.2	1.00	
Quintile 2 †	..	..	..	11.6	1.51	1.05, 2.19	7.6	0.62	0.33, 1.18
Quintile 3	..	..	..	10.7	1.40	0.96, 2.03	12.7	1.04	0.57, 1.89
Quintile 4	..	..	..	11.2	1.47	1.02, 2.13	11.3	0.92	0.52, 1.64
Quintile 5	..	..	..	11.7	1.53	1.06, 2.20	18.4	1.51	0.87, 2.60
Days away from study/school or work									
Quintile 1	20.2	1.00		13.2	1.00		21.7	1.00	
Quintile 2	20.3	1.00	0.81, 1.25	13.8	1.05	0.82, 1.34	21.1	0.97	0.70, 1.34
Quintile 3	17.1	0.84	0.67, 1.06	13.8	1.05	0.81, 1.35	19.6	0.90	0.64, 1.28
Quintile 4	17.6	0.87	0.71, 1.07	11.6	0.88	0.68, 1.16	22.3	1.02	0.73, 1.44
Quintile 5 †	17.3	0.86	0.69, 1.06	13.9	1.06	0.82, 1.36	29.4	1.35	0.98, 1.87
Arthritis									
Quintile 1	1.8	1.00		2.2	1.00		1.1	1.00	
Quintile 2 †	1.4	0.75	0.33, 1.73	2.4	1.07	0.58, 1.97	2.9	2.74	0.76, 9.80
Quintile 3	2.1	1.13	0.53, 2.39	5.5	2.48	1.43, 4.31	1.6	1.51	0.36, 6.31
Quintile 4	1.4	0.78	0.41, 1.50	2.2	0.99	0.53, 1.83	1.4	1.27	0.32, 5.07
Quintile 5	2.3	1.28	0.67, 2.47	3.2	1.47	0.79, 2.72	1.4	1.31	0.29, 5.84
Asthma									
Quintile 1	10.7	1.00		16.4	1.00		16.6	1.00	
Quintile 2	11.4	1.07	0.80, 1.43	16.4	1.00	0.80, 1.24	13.1	0.79	0.54, 1.17
Quintile 3	13.7	1.28	0.97, 1.70	14.9	0.91	0.72, 1.15	21.9	1.32	0.92, 1.90
Quintile 4	9.1	0.85	0.65, 1.12	13.3	0.81	0.64, 1.04	17.0	1.03	0.71, 1.49
Quintile 5	9.3	0.87	0.66, 1.16	18.8	1.15	0.91, 1.44	18.1	1.09	0.75, 1.59
Bronchitis/emphysema									
Quintile 1	2.4	1.00		4.7	1.00		1.0	1.00	
Quintile 2 †	3.4	1.44	0.81, 2.56	3.2	0.69	0.42, 1.16	1.6	1.62	0.54, 4.81
Quintile 3	3.7	1.58	0.91, 2.74	4.5	0.96	0.59, 1.55	1.6	1.62	0.47, 5.52
Quintile 4 ††	2.1	0.89	0.50, 1.60	4.2	0.90	0.55, 1.48	3.5	3.45	1.28, 9.25
Quintile 5 ††	2.6	1.10	0.63, 1.92	4.6	0.99	0.62, 1.59	2.9	2.81	1.07, 7.38
<b>Health-related behaviours</b>									
Alcohol risk									
Quintile 1	10.3	1.00		6.8	1.00		10.9	1.00	
Quintile 2	9.5	0.92	0.62, 1.36	7.2	1.06	0.61, 1.85	4.9	0.45	0.21, 0.98
Quintile 3	10.9	1.05	0.74, 1.51	4.8	0.71	0.37, 1.34	10.6	0.97	0.50, 1.90
Quintile 4	10.0	0.98	0.70, 1.36	5.6	0.82	0.44, 1.51	8.8	0.80	0.40, 1.63
Quintile 5 ††	10.1	0.98	0.70, 1.39	12.5	1.83	1.10, 3.04	7.6	0.69	0.34, 1.41
Insufficient physical activity									
Quintile 1	62.9	1.00		64.0	1.00		61.7	1.00	
Quintile 2	63.0	1.00	0.88, 1.13	65.9	1.03	0.92, 1.16	69.1	1.12	0.93, 1.35
Quintile 3	64.7	1.03	0.91, 1.16	69.0	1.08	0.96, 1.21	71.1	1.15	0.94, 1.40
Quintile 4	66.7	1.06	0.95, 1.18	69.2	1.08	0.96, 1.22	72.0	1.17	0.96, 1.42
Quintile 5	64.8	1.03	0.92, 1.16	67.7	1.06	0.94, 1.19	68.6	1.11	0.91, 1.36

(continued)

**Table 3.5 (continued): Health indicators by IRSD quintile, females aged 15–24 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Smoking</b>									
Quintile 1	31.6	1.00		22.1	1.00		20.3	1.00	
Quintile 2	35.9	1.14	0.93, 1.40	28.8	1.30	1.04, 1.63	25.0	1.24	0.84, 1.82
Quintile 3	33.9	1.07	0.87, 1.32	29.1	1.32	1.05, 1.65	25.8	1.27	0.86, 1.89
Quintile 4	40.6	1.28	1.07, 1.54	29.1	1.31	1.05, 1.65	28.8	1.42	0.98, 2.08
Quintile 5 †	38.0	1.20	1.00, 1.45	31.6	1.43	1.15, 1.78	38.2	1.89	1.30, 2.74
<b>Salt use (usually add salt to food after cooking)</b>									
Quintile 1	..	..		11.3	1.00		15.3	1.00	
Quintile 2 ‡	..	..	..	20.5	1.82	1.02, 3.24	12.7	0.83	0.56, 1.24
Quintile 3	..	..	..	11.8	1.05	0.57, 1.93	19.2	1.25	0.84, 1.86
Quintile 4	..	..	..	16.3	1.44	0.80, 2.58	17.2	1.13	0.76, 1.67
Quintile 5	..	..	..	21.6	1.91	1.11, 3.28	27.1	1.77	1.22, 2.58
<b>Sun protection (none in previous month)</b>									
Quintile 1	..	..		15.0	1.00		21.2	1.00	
Quintile 2	..	..	..	12.0	0.80	0.54, 1.19	10.7	0.50	0.28, 0.90
Quintile 3	..	..	..	11.7	0.78	0.49, 1.26	17.4	0.82	0.43, 1.54
Quintile 4 ‡	..	..	..	16.9	1.13	0.72, 1.78	8.9	0.42	0.19, 0.92
Quintile 5	..	..	..	16.6	1.11	0.72, 1.70	20.5	0.96	0.55, 1.69
<b>Health-related risk factors</b>									
<b>Overweight (but not obese)</b>									
Quintile 1	8.4	1.00		8.7	1.00		10.3	1.00	
Quintile 2	13.6	1.62	1.19, 2.21	12.9	1.49	1.10, 2.01	12.7	1.24	0.76, 2.02
Quintile 3	10.1	1.21	0.87, 1.68	14.5	1.67	1.23, 2.28	15.4	1.50	0.91, 2.46
Quintile 4	9.0	1.07	0.79, 1.45	11.4	1.31	0.95, 1.80	11.4	1.11	0.67, 1.86
Quintile 5	8.8	1.05	0.77, 1.44	13.2	1.52	1.11, 2.08	13.9	1.35	0.81, 2.25
<b>Obese</b>									
Quintile 1	2.4	1.00		2.6	1.00		4.8	1.00	
Quintile 2	2.5	1.03	0.53, 2.00	4.0	1.56	0.93, 2.64	7.0	1.45	0.63, 3.34
Quintile 3	2.9	1.21	0.65, 2.24	5.2	2.04	1.15, 3.59	4.8	0.99	0.41, 2.36
Quintile 4	4.2	1.73	1.03, 2.90	6.6	2.57	1.53, 4.30	6.8	1.40	0.60, 3.27
Quintile 5	3.4	1.40	0.82, 2.39	5.2	2.03	1.19, 3.45	8.1	1.68	0.72, 3.93
<b>Food insecurity (ever ran out of food in last 12 months &amp; couldn't afford more)</b>									
Quintile 1	..	..		6.0	1.00		5.9	1.00	
Quintile 2	..	..	..	6.0	1.01	0.40, 2.50	6.4	1.07	0.53, 2.17
Quintile 3	..	..	..	12.4	2.07	0.95, 4.51	8.6	1.44	0.72, 2.88
Quintile 4	..	..	..	12.7	2.12	1.00, 4.49	7.9	1.32	0.68, 2.58
Quintile 5	..	..	..	21.9	3.66	1.82, 7.34	17.3	2.91	1.57, 5.42
<b>Health service use (in the previous 2 weeks)</b>									
<b>Doctor consultation</b>									
Quintile 1	17.7	1.00		21.6	1.00		24.2	1.00	
Quintile 2 †	22.3	1.26	1.01, 1.57	22.7	1.05	0.87, 1.27	19.7	0.81	0.58, 1.13
Quintile 3	21.4	1.21	0.97, 1.51	24.7	1.14	0.94, 1.39	23.2	0.96	0.68, 1.34
Quintile 4	21.6	1.22	0.99, 1.49	22.4	1.04	0.84, 1.27	23.0	0.95	0.68, 1.33
Quintile 5	22.2	1.25	1.02, 1.54	23.1	1.07	0.88, 1.30	29.3	1.21	0.88, 1.66

(continued)

**Table 3.5 (continued): Health indicators by IRSD quintile, females aged 15–24 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
GP consultation									
Quintile 1	..	..		19.5	1.00		21.7	1.00	
Quintile 2	..	..	..	20.6	1.06	0.87, 1.29	17.0	0.78	0.55, 1.12
Quintile 3	..	..	..	23.4	1.20	0.98, 1.48	20.4	0.94	0.66, 1.35
Quintile 4	..	..	..	21.7	1.11	0.90, 1.38	21.7	1.00	0.71, 1.42
Quintile 5	..	..	..	21.0	1.08	0.88, 1.32	27.8	1.28	0.92, 1.77
Specialist consultation									
Quintile 1	..	..		3.9	1.00		4.5	1.00	
Quintile 2	..	..	..	3.0	0.78	0.48, 1.25	4.3	0.95	0.44, 2.06
Quintile 3	..	..	..	1.9	0.49	0.28, 0.86	2.8	0.64	0.27, 1.50
Quintile 4	..	..	..	2.0	0.52	0.26, 1.04	2.0	0.46	0.17, 1.24
Quintile 5	..	..	..	2.9	0.74	0.44, 1.25	5.9	1.32	0.61, 2.85
Dental consultation									
Quintile 1	6.1	1.00		6.9	1.00		11.5	1.00	
Quintile 2	5.7	0.93	0.62, 1.40	6.3	0.91	0.64, 1.30	7.4	0.64	0.39, 1.06
Quintile 3	6.3	1.03	0.70, 1.50	5.6	0.81	0.55, 1.19	6.4	0.55	0.33, 0.94
Quintile 4	4.4	0.71	0.49, 1.04	5.2	0.74	0.50, 1.10	7.9	0.69	0.41, 1.17
Quintile 5 <sup>†</sup>	6.1	1.00	0.69, 1.46	5.7	0.82	0.55, 1.20	4.7	0.41	0.22, 0.76

.. Data not available or not comparable.

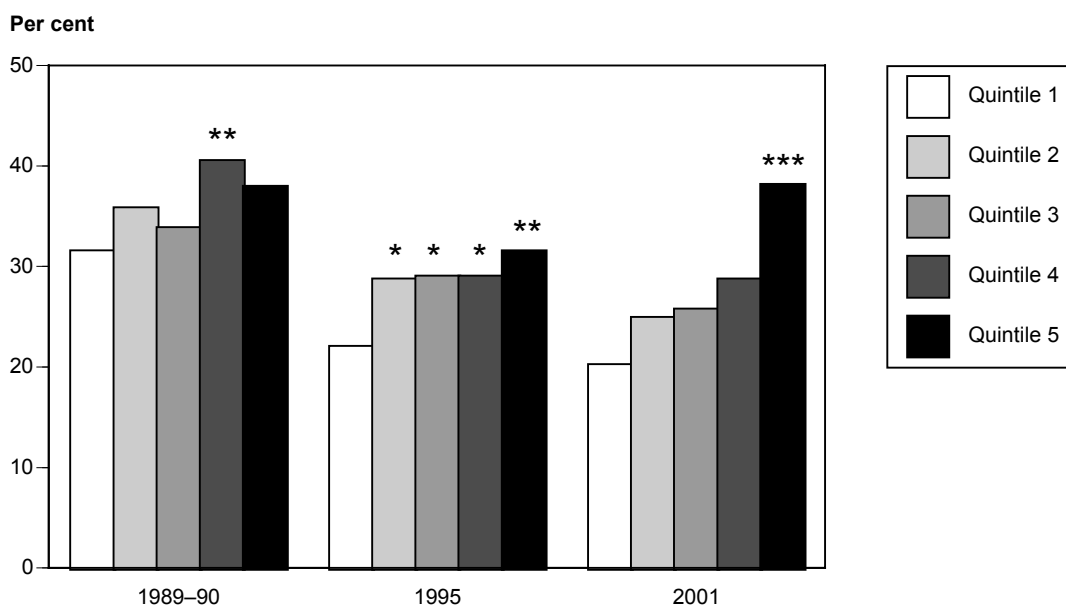
— Data unable to be calculated.

+ 1989–90 rate ratio differs significantly from 1995 rate ratio at  $p \leq 0.05$ .

† 1989–90 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

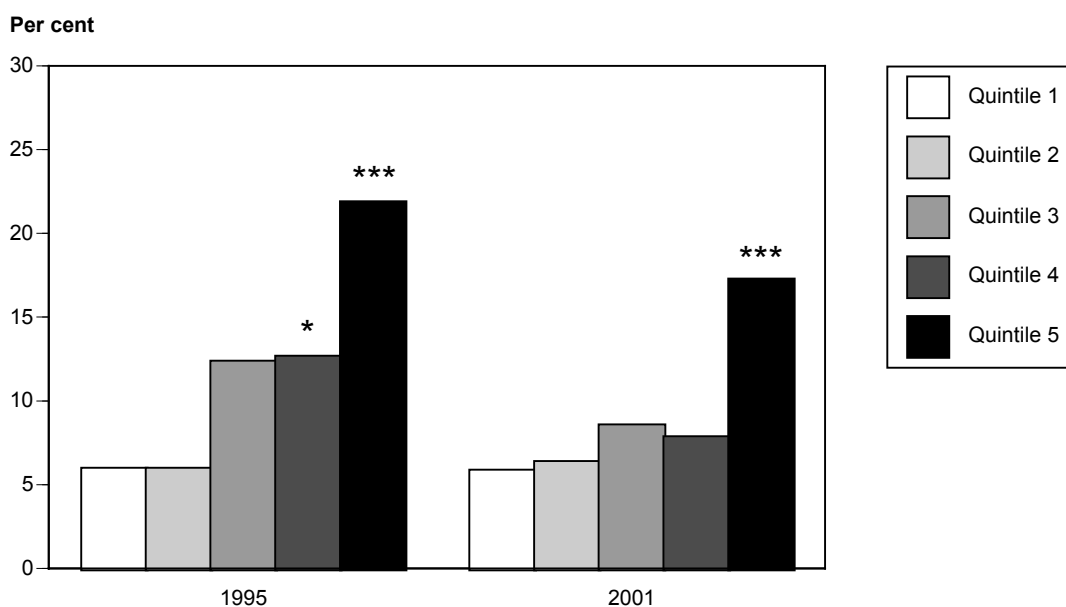
‡ 1995 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

Note: A weighted equivalent of 388 females (1 female respondent) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.  
 Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.9: Percentage of females aged 15-24 years who were classified as regular smokers, by IRSD quintile, 1989-90, 1995 and 2001**



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.  
 Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.10: Percentage of females aged 15-24 years who reported experiencing food insecurity, by IRSD quintile, 1995 and 2001**

### 3.3 Persons aged 25–64 years

Tables 3.6 and 3.7 present associations between the IRSD and a range of health indicators for males and females aged 25–64 years.

Persons living in the most disadvantaged areas rated their own health more poorly, and reported a number of illnesses more often than those living in the least disadvantaged areas.

- Self-assessed health: Males and females from the most disadvantaged areas were significantly more likely to report their health as fair or poor in 1995 (males 150% higher, females 109% higher) and 2001 (males 263% higher, females 96% higher). Figure 3.11 graphs the association between the IRSD and rates of self-assessed health for males.
- Days away from study or work: Males from the most disadvantaged areas were significantly more likely to report that they experienced days away from study or work because of illness in 1989–90 (20% higher), 1995 (53% higher) and 2001 (22% higher).
- Arthritis: Males from the most disadvantaged areas had significantly higher rates in 1989–90 (33%), 1995 (39%) and 2001 (59%). Significantly higher rates of self-reported arthritis were also observed among females in 1995 (27%) and 2001 (51%).
- Asthma: Rates were significantly higher among females from the most disadvantaged areas in 2001 (31% higher).
- Bronchitis/emphysema: Rates were significantly higher among males from the most disadvantaged areas in 1995 (131%) and 2001 (123%), and among females from the most disadvantaged areas in 1989–90 (36%) and 1995 (59%).
- Diabetes: Self-reported rates of diabetes were significantly higher (115%) among males from the most disadvantaged areas in 1995, and among females from disadvantaged areas in 1995 (163%) and 2001 (240%). Figure 3.15 graphs the association between the IRSD and rates of diabetes for females.

Males and females aged 25–64 years from the most disadvantaged areas were more likely to engage in a number of risky or potentially harmful health-related behaviours.

- Alcohol risk: In all three surveys, males from the most disadvantaged areas were significantly more likely to drink alcohol at risky levels (48% higher in 1989–90, 40% higher in 1995, and 29% higher in 2001). In contrast, females from the most disadvantaged areas were significantly less likely to report consuming alcohol at risky levels in 1995 and 2001: 33% and 34% lower respectively.
- Insufficient physical activity: Males from the most disadvantaged areas were significantly more likely to report insufficient leisure-time physical activity in 1989–90 (6%), 1995 (6%) and 2001 (18%). Females from the most disadvantaged areas reported significantly higher levels of insufficient physical activity in 2001 (14% higher).
- Smoking: In all three surveys, males and females from the most disadvantaged areas were significantly more likely to report being a regular smoker (1989–90: males 42%, females 54%; 1995: males 107%, females 96%; and 2001: males 112%, females 101%). Figures 3.12 and 3.16 graph the association between the IRSD and rates of smoking for males and females respectively.
- Salt use: In 1995 and 2001, both males and females from the most disadvantaged areas were significantly more likely to report that they added salt to food.

- Food insecurity: Males and females from the most disadvantaged areas were significantly more likely to report food insecurity in 1995 (males 33%, females 20%) and 2001 (males 36%, females 23%). Figure 3.13 graphs the association between the IRSD and rates of food insecurity for males.

Males and females living in the most disadvantaged areas were also significantly more likely to be obese or experience hypertension.

- Obesity: In all three surveys, males and females from the most disadvantaged areas were significantly more likely to be obese (1989–90, males 25%, females 36%; 1995, males 49%, females 77%; 2001, males 46%, females 87%). Figure 3.17 graphs the association between the IRSD and rates of obesity for females.
- Hypertension: In 1995 and 2001, males from the most disadvantaged areas were significantly more likely to report that they experienced high blood pressure (17% and 57% higher respectively). Similar results were observed among females from disadvantaged areas: rates were 33% higher in 1995 and 48% higher in 2001.

Persons from the most disadvantaged areas were more likely to visit a doctor, but less likely to use a number of other health services.

- Doctor consultation: Males from the most disadvantaged areas were significantly more likely to report that they visited a doctor in 1989–90 (15%), 1995 (23%) and 2001 (78%). Females from the most disadvantaged areas were significantly more likely to report visiting a doctor in 2001 (15%).
- GP consultation: Males and females from the most disadvantaged areas were significantly more likely to report that they visited a GP in 1995 (males 28%, females 16%) and 2001 (males 85%, females 28%). Figure 3.14 graphs the association between the IRSD and rates of GP use for males.
- Specialist consultation: These were significantly lower (27%) among females from the most disadvantaged areas in 2001.
- Dental consultations: In both 1995 and 2001, rates of dental consultation were significantly lower among males and females from the most disadvantaged areas.
- Pap smear: Females from disadvantaged areas were more likely to have never had a Pap smear in 1989–90 (62%), 1995 (66%) and 2001 (24%); and of those females who had previously had a Pap smear, those from disadvantaged areas in 1995 and 2001 were more likely not to have had one in the 2 years preceding the survey (17% and 32% more likely respectively).

**Table 3.6: Health indicators by IRSD quintile, males aged 25–64 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Morbidity</b>									
Self-assessed health status (fair or poor)									
Quintile 1	..	..	..	8.9	1.00		10.9	1.00	
Quintile 2	..	..	..	13.0	1.46	1.26, 1.69	14.7	1.36	1.11, 1.67
Quintile 3	..	..	..	15.0	1.69	1.45, 1.96	16.5	1.52	1.23, 1.87
Quintile 4 <sup>++</sup>	..	..	..	18.5	2.09	1.80, 2.41	19.9	1.84	1.51, 2.24
Quintile 5 <sup>++</sup>	..	..	..	22.2	2.50	2.17, 2.88	28.5	2.63	2.17, 3.18
Days away from study or work									
Quintile 1	11.8	1.00		7.4	1.00		15.0	1.00	
Quintile 2	13.5	1.15	0.99, 1.34	9.0	1.22	1.03, 1.45	15.5	1.04	0.86, 1.26
Quintile 3	13.5	1.15	0.99, 1.33	8.5	1.15	0.96, 1.37	13.8	0.92	0.75, 1.13
Quintile 4	12.5	1.07	0.93, 1.22	9.3	1.25	1.05, 1.50	15.6	1.05	0.86, 1.27
Quintile 5 <sup>+</sup>	14.2	1.20	1.05, 1.39	11.3	1.53	1.29, 1.81	18.3	1.22	1.00, 1.49
Arthritis									
Quintile 1	8.5	1.00		12.1	1.00		10.1	1.00	
Quintile 2	10.5	1.23	1.03, 1.48	13.6	1.13	0.98, 1.30	12.7	1.25	1.00, 1.57
Quintile 3	10.8	1.27	1.07, 1.51	15.3	1.27	1.10, 1.46	13.1	1.30	1.04, 1.63
Quintile 4	9.7	1.14	0.97, 1.35	15.0	1.24	1.08, 1.44	12.9	1.27	1.01, 1.59
Quintile 5	11.3	1.33	1.13, 1.57	16.8	1.39	1.21, 1.61	16.1	1.59	1.28, 1.99
Asthma									
Quintile 1	5.5	1.00		7.1	1.00		8.5	1.00	
Quintile 2	5.2	0.94	0.74, 1.18	6.6	0.93	0.78, 1.12	7.5	0.88	0.68, 1.15
Quintile 3	5.2	0.95	0.76, 1.19	8.3	1.17	0.97, 1.41	7.7	0.90	0.69, 1.18
Quintile 4	4.5	0.82	0.66, 1.02	6.5	0.92	0.75, 1.12	9.6	1.13	0.87, 1.46
Quintile 5	5.0	0.91	0.73, 1.14	8.0	1.14	0.94, 1.38	7.3	0.86	0.65, 1.14
Bronchitis/emphysema									
Quintile 1	2.4	1.00		2.2	1.00		1.8	1.00	
Quintile 2	2.4	0.99	0.70, 1.41	3.1	1.40	1.04, 1.87	2.3	1.25	0.73, 2.14
Quintile 3	2.6	1.11	0.79, 1.54	3.4	1.53	1.12, 2.09	3.3	1.80	1.09, 2.98
Quintile 4 <sup>++</sup>	2.7	1.12	0.82, 1.52	4.3	1.97	1.47, 2.65	4.0	2.18	1.33, 3.60
Quintile 5 <sup>++</sup>	3.0	1.28	0.93, 1.75	5.1	2.31	1.73, 3.10	4.0	2.23	1.36, 3.65
Diabetes									
Quintile 1	1.0	1.00		1.5	1.00		2.7	1.00	
Quintile 2	1.7	1.67	1.05, 2.64	2.7	1.76	1.23, 2.52	3.1	1.18	0.72, 1.91
Quintile 3	1.2	1.18	0.72, 1.93	2.0	1.32	0.89, 1.94	3.3	1.25	0.79, 2.00
Quintile 4	1.5	1.48	0.95, 2.32	2.7	1.74	1.19, 2.54	3.6	1.36	0.86, 2.17
Quintile 5	1.3	1.23	0.76, 1.99	3.3	2.15	1.49, 3.12	3.2	1.21	0.75, 1.94
Neoplasms									
Quintile 1	1.6	1.00		1.4	1.00		1.7	1.00	
Quintile 2	2.0	1.24	0.81, 1.89	1.8	1.29	0.87, 1.92	1.6	0.99	0.53, 1.82
Quintile 3	2.0	1.24	0.82, 1.87	1.9	1.32	0.88, 1.98	1.6	0.99	0.53, 1.86
Quintile 4	1.3	0.82	0.53, 1.24	1.8	1.26	0.83, 1.90	2.0	1.18	0.66, 2.10
Quintile 5 <sup>+</sup>	2.0	1.26	0.83, 1.90	0.9	0.64	0.40, 1.03	1.4	0.86	0.45, 1.63

(continued)

**Table 3.6 (continued): Health indicators by IRSD quintile, males aged 25–64 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Health-related behaviours</b>									
Alcohol risk									
Quintile 1	12.3	1.00		9.2	1.00		12.3	1.00	
Quintile 2	14.6	1.18	1.02, 1.37	11.2	1.22	0.99, 1.51	14.3	1.16	0.95, 1.42
Quintile 3	16.7	1.36	1.18, 1.56	12.5	1.36	1.10, 1.68	15.2	1.24	1.01, 1.52
Quintile 4	16.4	1.33	1.17, 1.52	10.7	1.16	0.92, 1.47	15.2	1.24	1.01, 1.52
Quintile 5	18.2	1.48	1.29, 1.68	12.8	1.40	1.12, 1.73	15.8	1.29	1.04, 1.60
Insufficient physical activity									
Quintile 1	65.6	1.00		64.5	1.00		61.6	1.00	
Quintile 2	69.0	1.05	0.99, 1.12	68.3	1.06	1.00, 1.12	66.7	1.08	0.99, 1.19
Quintile 3	71.1	1.08	1.02, 1.15	68.7	1.07	1.00, 1.13	65.7	1.07	0.97, 1.18
Quintile 4	69.9	1.07	1.00, 1.13	69.6	1.08	1.01, 1.15	68.7	1.12	1.01, 1.23
Quintile 5 †	69.5	1.06	1.00, 1.13	68.3	1.06	0.99, 1.13	72.6	1.18	1.07, 1.30
Smoking									
Quintile 1	27.6	1.00		18.8	1.00		18.8	1.00	
Quintile 2 ††	31.1	1.13	1.02, 1.25	27.4	1.46	1.32, 1.62	28.5	1.52	1.30, 1.77
Quintile 3 ††	35.2	1.28	1.17, 1.40	28.5	1.52	1.37, 1.68	31.5	1.67	1.44, 1.95
Quintile 4 ††	36.4	1.32	1.21, 1.44	32.8	1.74	1.57, 1.93	34.6	1.84	1.58, 2.14
Quintile 5 ††	39.2	1.42	1.30, 1.55	38.9	2.07	1.87, 2.29	39.9	2.12	1.82, 2.46
Salt use (usually add salt to food after cooking)									
Quintile 1	..	..		24.2	1.00		22.7	1.00	
Quintile 2	..	..	..	31.6	1.30	1.08, 1.58	29.1	1.28	1.11, 1.49
Quintile 3	..	..	..	34.9	1.44	1.19, 1.75	32.2	1.42	1.22, 1.65
Quintile 4	..	..	..	33.5	1.38	1.13, 1.68	35.1	1.55	1.33, 1.79
Quintile 5 †	..	..	..	33.7	1.39	1.15, 1.69	40.9	1.81	1.56, 2.09
<b>Health-related risk factors</b>									
Overweight (but not obese)									
Quintile 1	40.3	1.00		45.5	1.00		43.6	1.00	
Quintile 2	39.4	0.98	0.90, 1.07	46.1	1.01	0.94, 1.09	45.8	1.05	0.94, 1.18
Quintile 3	41.2	1.02	0.94, 1.11	43.5	0.96	0.88, 1.04	46.8	1.07	0.95, 1.21
Quintile 4	40.5	1.01	0.93, 1.09	41.9	0.92	0.85, 1.00	43.8	1.00	0.89, 1.14
Quintile 5	37.5	0.93	0.86, 1.01	39.3	0.86	0.79, 0.94	38.3	0.88	0.77, 1.00
Obese									
Quintile 1	8.1	1.00		11.3	1.00		14.9	1.00	
Quintile 2	10.3	1.28	1.07, 1.53	13.0	1.15	0.99, 1.33	18.2	1.23	1.01, 1.48
Quintile 3	10.1	1.25	1.05, 1.49	12.7	1.13	0.97, 1.31	16.2	1.09	0.89, 1.33
Quintile 4	10.6	1.31	1.11, 1.54	15.4	1.36	1.17, 1.58	17.7	1.19	0.98, 1.45
Quintile 5	10.1	1.25	1.06, 1.48	16.8	1.49	1.28, 1.73	21.7	1.46	1.20, 1.78
Hypertension									
Quintile 1	7.0	1.00		10.5	1.00		8.2	1.00	
Quintile 2	8.0	1.15	0.94, 1.41	11.6	1.10	0.95, 1.29	9.3	1.14	0.89, 1.45
Quintile 3	8.1	1.16	0.96, 1.41	11.2	1.06	0.90, 1.25	8.1	0.99	0.77, 1.27
Quintile 4	8.3	1.19	0.99, 1.42	12.4	1.18	1.01, 1.39	10.9	1.33	1.04, 1.71
Quintile 5 †	8.3	1.19	0.98, 1.44	12.4	1.17	1.00, 1.38	12.9	1.57	1.24, 2.00

(continued)

**Table 3.6 (continued): Health indicators by IRSD quintile, males aged 25–64 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Food insecurity (ever ran out of food in last 12 months &amp; couldn't afford more)</b>									
Quintile 1	..	..		2.2	1.00		2.4	1.00	
Quintile 2	..	..	..	1.4	0.64	0.31, 1.32	3.1	1.26	0.83, 1.90
Quintile 3	..	..	..	5.0	2.31	1.26, 4.25	4.4	1.80	1.20, 2.69
Quintile 4	..	..	..	3.8	1.74	0.93, 3.25	5.1	2.11	1.43, 3.12
Quintile 5	..	..	..	9.4	4.35	2.46, 7.67	11.3	4.63	3.23, 6.64
<b>Health service use (in the previous 2 weeks)</b>									
Doctor consultation									
Quintile 1	14.4	1.00		18.0	1.00		15.3	1.00	
Quintile 2 <sup>‡</sup>	15.6	1.08	0.94, 1.24	17.8	0.99	0.88, 1.12	18.9	1.24	1.03, 1.48
Quintile 3	17.0	1.18	1.03, 1.34	18.9	1.06	0.93, 1.19	19.6	1.28	1.07, 1.54
Quintile 4 <sup>††</sup>	15.8	1.09	0.97, 1.24	19.2	1.07	0.94, 1.21	21.7	1.42	1.18, 1.70
Quintile 5 <sup>††</sup>	16.6	1.15	1.01, 1.31	22.0	1.23	1.08, 1.39	27.2	1.78	1.49, 2.13
GP consultation									
Quintile 1	..	..		16.0	1.00		13.4	1.00	
Quintile 2	..	..	..	16.2	1.02	0.90, 1.15	16.4	1.23	1.01, 1.49
Quintile 3 <sup>‡</sup>	..	..	..	17.2	1.08	0.94, 1.22	17.9	1.34	1.10, 1.63
Quintile 4 <sup>‡</sup>	..	..	..	16.5	1.04	0.91, 1.18	19.7	1.47	1.21, 1.79
Quintile 5 <sup>‡</sup>	..	..	..	20.5	1.28	1.13, 1.46	24.8	1.85	1.53, 2.24
Specialist consultation									
Quintile 1	..	..		3.4	1.00		4.0	1.00	
Quintile 2	..	..	..	2.9	0.85	0.64, 1.14	4.8	1.18	0.83, 1.67
Quintile 3	..	..	..	3.2	0.93	0.69, 1.24	3.8	0.94	0.65, 1.37
Quintile 4	..	..	..	4.2	1.22	0.91, 1.63	4.6	1.14	0.79, 1.63
Quintile 5	..	..	..	3.3	0.96	0.70, 1.30	5.4	1.34	0.93, 1.94
Dental consultation									
Quintile 1	4.5	1.00		6.0	1.00		5.1	1.00	
Quintile 2 <sup>‡†</sup>	5.3	1.18	0.93, 1.50	4.6	0.77	0.62, 0.95	6.1	1.22	0.90, 1.64
Quintile 3	4.2	0.93	0.72, 1.19	5.1	0.84	0.67, 1.06	5.4	1.07	0.76, 1.50
Quintile 4	4.0	0.88	0.69, 1.11	4.5	0.75	0.60, 0.95	4.3	0.86	0.60, 1.22
Quintile 5 <sup>††</sup>	4.6	1.01	0.80, 1.29	5.2	0.87	0.68, 1.10	2.8	0.55	0.37, 0.83

.. Data not available or not comparable.

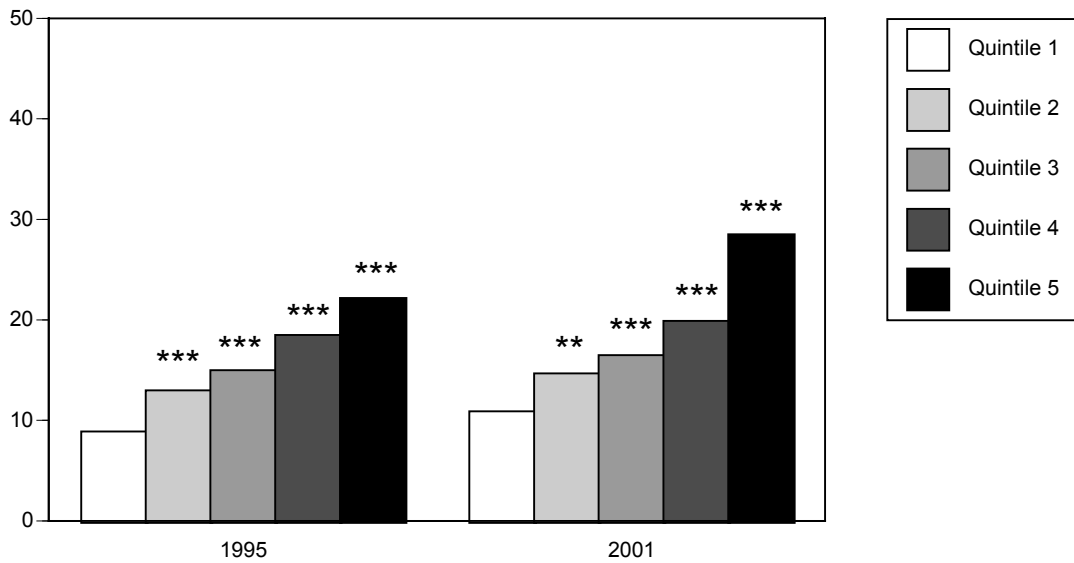
+ 1989–90 rate ratio differs significantly from 1995 rate ratio at  $p \leq 0.05$ .

† 1989–90 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

‡ 1995 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

Note: A weighted equivalent of 1,430 males (1 male respondent) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.

Per cent

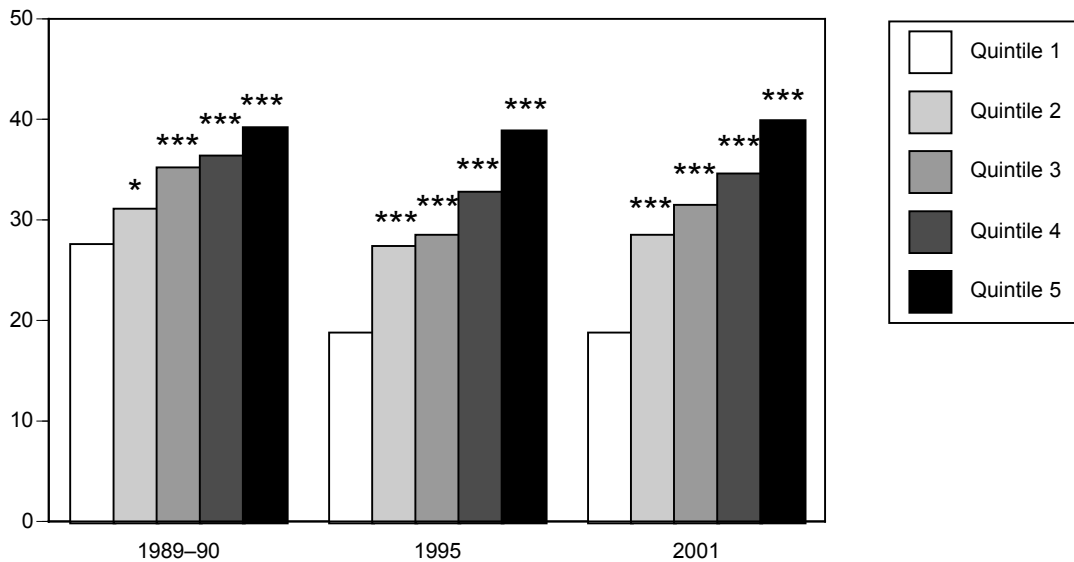


Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.11: Percentage of males aged 25–64 years who reported their general health as ‘fair or poor’, by IRSD quintile, 1995 and 2001**

Per cent

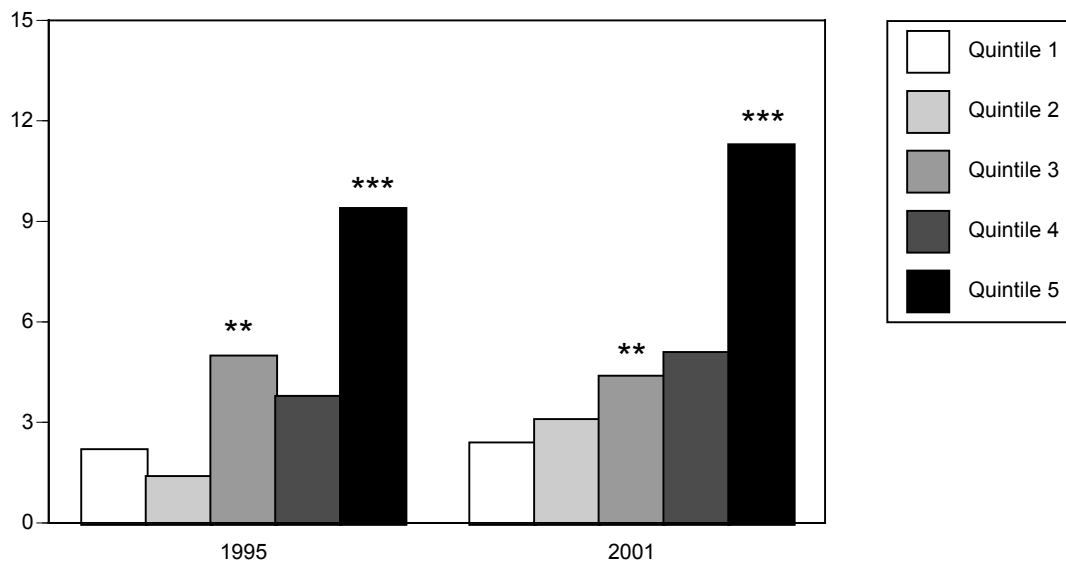


Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.12: Percentage of males aged 25–64 years who were classified as regular smokers, by IRSD quintile, 1989–90, 1995 and 2001**

Per cent

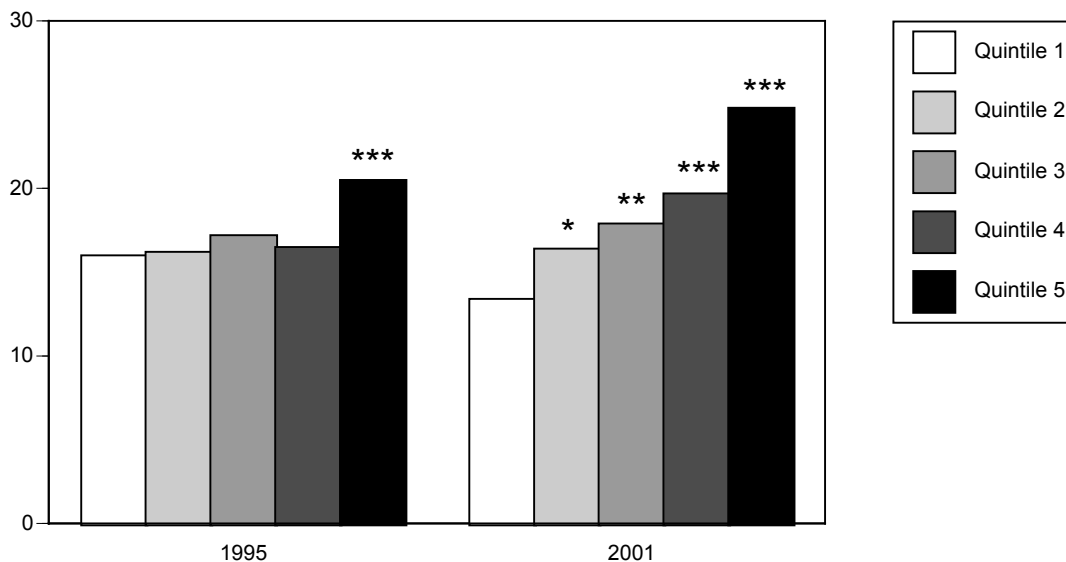


Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.13: Percentage of males aged 25–64 years who reported experiencing food insecurity, by IRSD quintile, 1995 and 2001**

Per cent



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.14: Percentage of males aged 25–64 years who reported visiting a GP in the previous 2 weeks, by IRSD quintile, 1995 and 2001**

**Table 3.7: Health indicators by IRSD quintile, females aged 25–64 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Morbidity</b>									
Self-assessed health status (fair or poor)									
Quintile 1	..	..	..	10.4	1.00		11.9	1.00	
Quintile 2	..	..	..	11.4	1.10	0.95, 1.27	14.4	1.21	1.00, 1.46
Quintile 3	..	..	..	14.9	1.44	1.25, 1.66	14.5	1.22	1.00, 1.49
Quintile 4	..	..	..	16.3	1.58	1.37, 1.82	19.6	1.65	1.37, 1.99
Quintile 5 <sup>+</sup>	..	..	..	21.6	2.09	1.83, 2.39	23.3	1.96	1.64, 2.35
Days away from study or work									
Quintile 1	15.3	1.00		10.8	1.00		18.3	1.00	
Quintile 2	15.7	1.03	0.90, 1.18	10.2	0.94	0.81, 1.09	16.6	0.91	0.77, 1.07
Quintile 3	15.2	1.00	0.87, 1.14	10.7	0.99	0.85, 1.15	18.7	1.02	0.87, 1.21
Quintile 4 <sup>+</sup>	13.2	0.86	0.76, 0.98	11.6	1.07	0.91, 1.25	17.6	0.96	0.81, 1.14
Quintile 5	14.8	0.97	0.85, 1.10	10.9	1.01	0.86, 1.18	16.3	0.89	0.75, 1.06
Arthritis									
Quintile 1	14.0	1.00		18.2	1.00		13.2	1.00	
Quintile 2 <sup>++</sup>	15.8	1.13	0.97, 1.30	16.8	0.92	0.82, 1.04	16.0	1.21	1.01, 1.45
Quintile 3 <sup>++</sup>	14.6	1.04	0.90, 1.20	20.2	1.11	0.98, 1.25	18.4	1.39	1.15, 1.67
Quintile 4	15.7	1.12	0.98, 1.28	21.8	1.20	1.06, 1.35	16.8	1.27	1.05, 1.53
Quintile 5 <sup>†</sup>	15.6	1.11	0.97, 1.28	23.1	1.27	1.13, 1.43	20.0	1.51	1.26, 1.80
Asthma									
Quintile 1	6.1	1.00		9.7	1.00		10.9	1.00	
Quintile 2 <sup>†</sup>	6.2	1.01	0.82, 1.26	9.3	0.95	0.81, 1.11	13.7	1.26	1.03, 1.53
Quintile 3	7.1	1.16	0.95, 1.42	10.2	1.05	0.89, 1.24	11.2	1.03	0.83, 1.28
Quintile 4 <sup>†</sup>	6.1	1.00	0.83, 1.22	9.3	0.95	0.80, 1.12	13.4	1.23	1.00, 1.52
Quintile 5	6.3	1.03	0.84, 1.26	11.2	1.15	0.98, 1.36	14.3	1.31	1.07, 1.61
Bronchitis/emphysema									
Quintile 1	3.0	1.00		3.3	1.00		3.9	1.00	
Quintile 2 <sup>†</sup>	2.4	0.78	0.56, 1.10	4.0	1.23	0.95, 1.59	3.2	0.82	0.57, 1.18
Quintile 3	3.3	1.09	0.81, 1.46	3.4	1.03	0.78, 1.37	3.1	0.80	0.54, 1.19
Quintile 4	3.2	1.06	0.80, 1.40	4.4	1.33	1.02, 1.74	4.6	1.19	0.83, 1.69
Quintile 5	4.1	1.36	1.03, 1.80	5.2	1.59	1.21, 2.08	5.2	1.34	0.95, 1.88
Diabetes									
Quintile 1	1.0	1.00		1.6	1.00		1.1	1.00	
Quintile 2 <sup>++</sup>	0.8	0.76	0.40, 1.43	1.5	0.95	0.65, 1.40	2.5	2.15	1.25, 3.70
Quintile 3	1.2	1.25	0.74, 2.10	2.2	1.36	0.93, 1.99	2.5	2.19	1.20, 3.98
Quintile 4	1.4	1.40	0.86, 2.28	2.2	1.42	0.99, 2.05	2.8	2.49	1.43, 4.33
Quintile 5 <sup>††</sup>	1.0	1.02	0.59, 1.77	4.2	2.63	1.89, 3.67	3.9	3.40	2.03, 5.70
Neoplasms									
Quintile 1	1.7	1.00		1.5	1.00		1.2	1.00	
Quintile 2	2.6	1.53	1.05, 2.22	1.7	1.11	0.77, 1.60	1.6	1.36	0.76, 2.45
Quintile 3	2.1	1.26	0.86, 1.86	2.7	1.75	1.22, 2.49	1.6	1.35	0.72, 2.51
Quintile 4 <sup>†</sup>	1.5	0.87	0.59, 1.30	1.9	1.25	0.85, 1.84	2.4	2.01	1.15, 3.51
Quintile 5	2.7	1.63	1.14, 2.33	3.1	2.00	1.39, 2.87	1.4	1.18	0.64, 2.18

(continued)

**Table 3.7 (continued): Health indicators by IRSD quintile, females aged 25–64 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Health-related behaviours</b>									
Alcohol risk									
Quintile 1	8.3	1.00		7.7	1.00		12.6	1.00	
Quintile 2	6.8	0.82	0.67, 1.00	5.8	0.75	0.58, 0.98	8.1	0.64	0.52, 0.80
Quintile 3 <sup>†</sup>	7.8	0.94	0.78, 1.13	6.0	0.78	0.59, 1.04	8.5	0.67	0.54, 0.84
Quintile 4 <sup>†</sup>	6.7	0.81	0.68, 0.97	5.0	0.65	0.49, 0.87	7.5	0.60	0.47, 0.76
Quintile 5 <sup>††</sup>	8.0	0.97	0.81, 1.15	5.1	0.67	0.50, 0.90	8.4	0.66	0.52, 0.84
Insufficient physical activity									
Quintile 1	74.0	1.00		72.3	1.00		67.0	1.00	
Quintile 2	74.1	1.00	0.94, 1.07	74.4	1.03	0.97, 1.09	72.0	1.07	0.99, 1.17
Quintile 3	73.9	1.00	0.94, 1.06	74.0	1.02	0.97, 1.09	73.7	1.10	1.01, 1.20
Quintile 4 <sup>†</sup>	77.0	1.04	0.99, 1.10	73.8	1.02	0.96, 1.08	76.4	1.14	1.04, 1.24
Quintile 5 <sup>†</sup>	74.5	1.01	0.95, 1.07	75.3	1.04	0.98, 1.11	76.2	1.14	1.04, 1.24
Smoking									
Quintile 1	19.5	1.00		15.2	1.00		17.0	1.00	
Quintile 2	24.4	1.25	1.12, 1.39	20.1	1.32	1.18, 1.47	21.6	1.27	1.09, 1.48
Quintile 3	25.8	1.32	1.19, 1.47	20.6	1.35	1.20, 1.52	22.3	1.31	1.12, 1.54
Quintile 4	28.3	1.45	1.31, 1.59	23.7	1.56	1.39, 1.75	24.8	1.46	1.25, 1.71
Quintile 5 <sup>††</sup>	30.1	1.54	1.39, 1.70	29.8	1.96	1.75, 2.19	34.3	2.01	1.74, 2.33
Salt use (usually add salt to food after cooking)									
Quintile 1	..	..		14.1	1.00		16.9	1.00	
Quintile 2	..	..	..	17.9	1.26	1.01, 1.59	20.1	1.19	1.01, 1.40
Quintile 3	..	..	..	16.6	1.17	0.92, 1.50	24.8	1.46	1.24, 1.72
Quintile 4	..	..	..	17.6	1.25	0.98, 1.58	23.3	1.37	1.16, 1.62
Quintile 5	..	..	..	23.3	1.65	1.31, 2.07	26.0	1.54	1.31, 1.80
<b>Health-related risk factors</b>									
Overweight (but not obese)									
Quintile 1	20.5	1.00		24.3	1.00		25.8	1.00	
Quintile 2	21.7	1.06	0.94, 1.19	25.0	1.03	0.93, 1.14	24.7	0.96	0.83, 1.11
Quintile 3 <sup>†</sup>	25.0	1.22	1.09, 1.36	25.2	1.04	0.93, 1.15	27.2	1.05	0.91, 1.23
Quintile 4	24.3	1.19	1.07, 1.32	27.1	1.11	1.00, 1.24	25.8	1.00	0.86, 1.17
Quintile 5 <sup>†</sup>	24.3	1.18	1.06, 1.32	25.6	1.05	0.94, 1.18	24.2	0.94	0.80, 1.10
Obese									
Quintile 1	8.5	1.00		10.1	1.00		12.4	1.00	
Quintile 2	10.8	1.27	1.06, 1.52	12.1	1.20	1.03, 1.40	17.5	1.41	1.16, 1.70
Quintile 3	11.1	1.30	1.10, 1.55	14.4	1.43	1.22, 1.67	20.2	1.62	1.33, 1.97
Quintile 4	12.9	1.51	1.30, 1.77	15.1	1.50	1.29, 1.75	20.3	1.63	1.34, 1.98
Quintile 5 <sup>††</sup>	11.6	1.36	1.15, 1.61	17.8	1.77	1.52, 2.06	23.3	1.87	1.55, 2.26
Hypertension									
Quintile 1	8.5	1.00		9.7	1.00		8.4	1.00	
Quintile 2	8.9	1.05	0.86, 1.27	9.5	0.98	0.83, 1.15	10.1	1.21	0.95, 1.53
Quintile 3	8.2	0.96	0.80, 1.16	11.5	1.18	1.00, 1.40	8.7	1.03	0.80, 1.33
Quintile 4	9.2	1.08	0.91, 1.28	11.3	1.16	0.98, 1.37	9.6	1.15	0.89, 1.47
Quintile 5 <sup>†</sup>	9.1	1.07	0.89, 1.28	12.9	1.33	1.12, 1.57	12.4	1.48	1.16, 1.87

(continued)

**Table 3.7 (continued): Health indicators by IRSD quintile, females aged 25–64 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Food insecurity (ever ran out of food in last 12 months & couldn't afford more)									
Quintile 1	..	..		3.3	1.00		3.2	1.00	
Quintile 2	..	..	..	4.1	1.23	0.77, 1.95	4.6	1.44	1.06, 1.96
Quintile 3	..	..	..	5.7	1.72	1.07, 2.74	5.4	1.68	1.22, 2.31
Quintile 4	..	..	..	6.8	2.05	1.31, 3.21	7.0	2.16	1.59, 2.93
Quintile 5	..	..	..	10.0	3.02	1.96, 4.63	10.8	3.35	2.53, 4.43
<b>Health service use (in the previous 2 weeks)</b>									
Doctor consultation									
Quintile 1	22.8	1.00		27.4	1.00		28.0	1.00	
Quintile 2	22.4	0.98	0.88, 1.10	26.8	0.98	0.89, 1.07	26.8	0.96	0.84, 1.09
Quintile 3	22.7	1.00	0.90, 1.11	25.9	0.95	0.86, 1.05	28.5	1.02	0.89, 1.17
Quintile 4	23.3	1.02	0.93, 1.13	26.9	0.98	0.89, 1.09	28.7	1.02	0.89, 1.17
Quintile 5	24.1	1.06	0.95, 1.17	29.4	1.07	0.97, 1.19	32.4	1.15	1.01, 1.32
GP consultation									
Quintile 1	..	..		22.5	1.00		23.1	1.00	
Quintile 2	..	..	..	23.5	1.05	0.95, 1.16	23.3	1.01	0.87, 1.17
Quintile 3	..	..	..	22.7	1.01	0.90, 1.12	24.6	1.06	0.91, 1.23
Quintile 4	..	..	..	24.0	1.07	0.96, 1.19	24.7	1.07	0.92, 1.24
Quintile 5	..	..	..	26.2	1.16	1.04, 1.30	29.6	1.28	1.11, 1.48
Specialist consultation									
Quintile 1	..	..		7.5	1.00		8.5	1.00	
Quintile 2	..	..	..	5.4	0.72	0.59, 0.87	7.5	0.88	0.68, 1.14
Quintile 3	..	..	..	5.7	0.77	0.62, 0.94	7.9	0.93	0.72, 1.20
Quintile 4 <sup>†</sup>	..	..	..	4.8	0.65	0.52, 0.80	7.8	0.92	0.71, 1.21
Quintile 5	..	..	..	6.4	0.85	0.69, 1.06	6.2	0.73	0.55, 0.96
Dental consultation									
Quintile 1	5.9	1.00		6.4	1.00		7.5	1.00	
Quintile 2	6.7	1.14	0.92, 1.41	6.2	0.96	0.79, 1.16	7.2	0.97	0.75, 1.25
Quintile 3	6.2	1.05	0.85, 1.30	5.4	0.83	0.68, 1.02	7.0	0.93	0.71, 1.22
Quintile 4	4.6	0.79	0.63, 0.97	4.9	0.76	0.61, 0.93	6.0	0.80	0.60, 1.08
Quintile 5	4.8	0.82	0.66, 1.01	5.0	0.78	0.63, 0.97	5.1	0.68	0.49, 0.93
Mammogram									
50–64 years									
Quintile 1	60.6	1.00		16.8	1.00		12.6	1.00	
Quintile 2	66.2	1.09	0.94, 1.27	20.1	1.20	0.85, 1.69	12.8	1.02	0.69, 1.49
Quintile 3	63.8	1.05	0.91, 1.22	19.3	1.15	0.80, 1.66	14.7	1.17	0.78, 1.75
Quintile 4 <sup>†‡</sup>	63.8	1.05	0.92, 1.20	24.7	1.47	1.05, 2.07	10.2	0.81	0.53, 1.24
Quintile 5 <sup>†</sup>	64.7	1.07	0.93, 1.23	27.6	1.65	1.19, 2.29	15.4	1.22	0.81, 1.84
Time since last mammogram									
50–64 years									
Quintile 1	..	..		16.6	1.00		18.9	1.00	
Quintile 2	..	..	..	14.7	0.89	0.59, 1.34	21.7	1.15	0.82, 1.60
Quintile 3	..	..	..	16.6	1.00	0.64, 1.56	21.4	1.13	0.79, 1.61
Quintile 4	..	..	..	13.8	0.83	0.54, 1.30	21.2	1.12	0.80, 1.58
Quintile 5	..	..	..	23.7	1.43	0.92, 2.22	23.7	1.25	0.90, 1.75

(continued)

**Table 3.7 (continued): Health indicators by IRSD quintile, females aged 25–64 years, 1989 to 2001**

Health indicator/IRSD	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Pap smear (never had)									
Quintile 1	4.8	1.00		3.3	1.00		4.4	1.00	
Quintile 2	6.0	1.25	0.99, 1.59	3.0	0.90	0.61, 1.35	4.7	1.07	0.75, 1.53
Quintile 3	7.1	1.50	1.20, 1.86	3.3	1.00	0.67, 1.50	5.6	1.26	0.88, 1.82
Quintile 4	6.5	1.36	1.11, 1.68	5.8	1.76	1.21, 2.57	5.5	1.25	0.87, 1.79
Quintile 5	7.7	1.62	1.31, 2.01	5.5	1.66	1.13, 2.45	5.4	1.24	0.87, 1.76
Last Pap smear 2 or more years ago									
Quintile 1	..	..		24.2	1.00		28.3	1.00	
Quintile 2	..	..	..	27.1	1.12	0.96, 1.29	31.0	1.10	0.96, 1.26
Quintile 3	..	..	..	27.0	1.11	0.95, 1.30	36.1	1.27	1.11, 1.46
Quintile 4	..	..	..	29.0	1.19	1.02, 1.40	34.6	1.22	1.06, 1.41
Quintile 5	..	..	..	28.3	1.17	1.00, 1.37	37.3	1.32	1.15, 1.51

.. Data not available or not comparable.

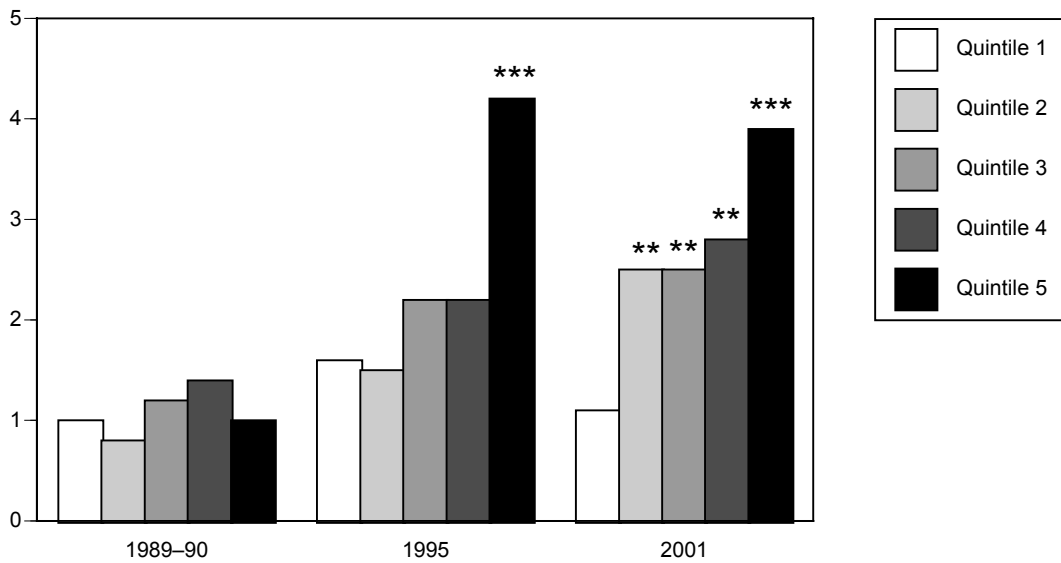
+ 1989–90 rate ratio differs significantly from 1995 rate ratio at  $p \leq 0.05$ .

† 1989–90 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

‡ 1995 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

Note: A weighted equivalent of 2,053 females (7 female respondents) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.

Per cent

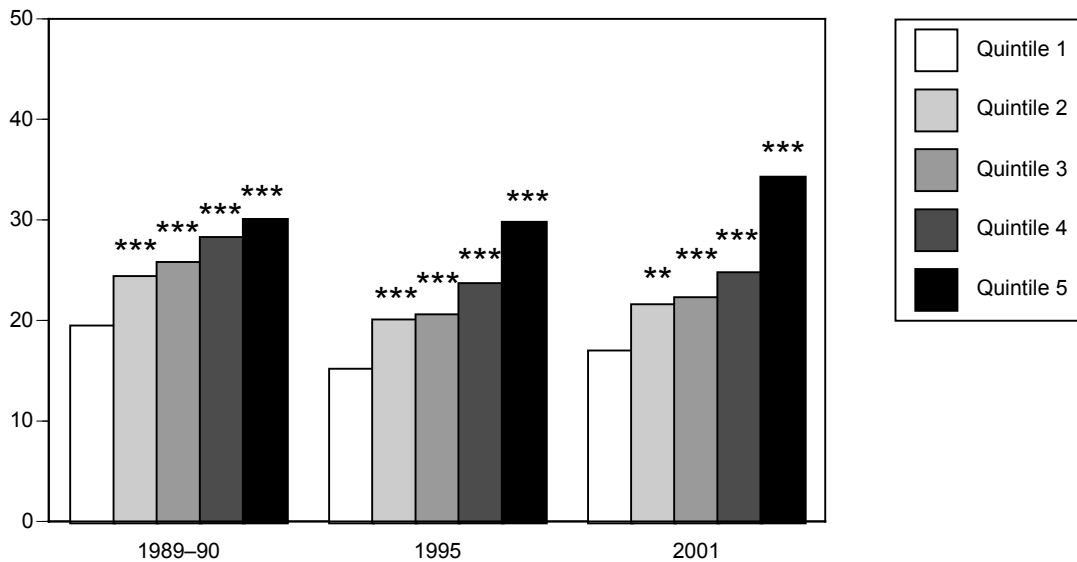


Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.15: Percentage of females aged 25-64 years who reported experiencing diabetes as a long-term condition, by IRSD quintile, 1989-90, 1995 and 2001**

Per cent

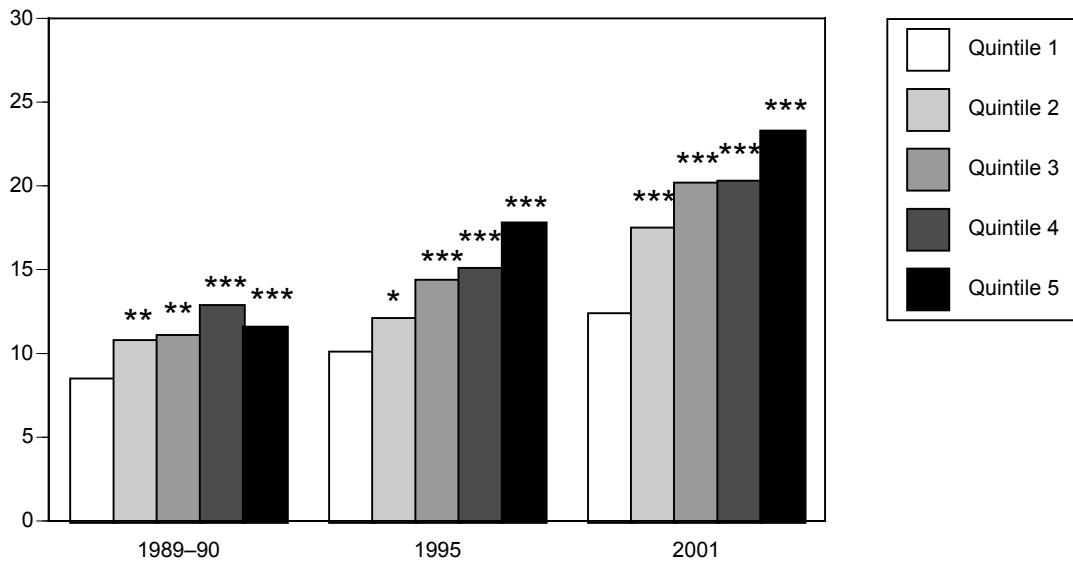


Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.16: Percentage of females aged 25-64 years who were classified as regular smokers, by IRSD quintile, 1989-90, 1995 and 2001**

Per cent

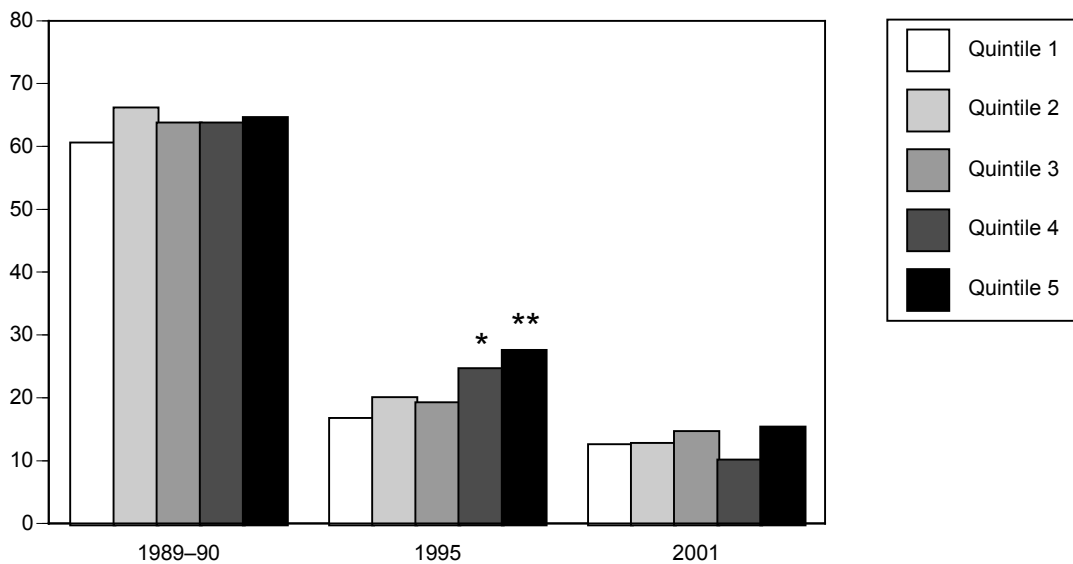


Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.17: Percentage of females aged 25-64 years who were classified obese, by IRSD quintile, 1989-90, 1995 and 2001**

Per cent



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.18: Percentage of females aged 50-64 years who reported never having had a mammogram, by IRSD quintile, 1989-90, 1995 and 2001**

### 3.4 Persons aged 65 years and over

Tables 3.8 and 3.9 presents associations between the IRSD and a range of health indicators for males and females aged 65 years and over.

Males and females from the most disadvantaged areas rated their own health more poorly, and reported a number of long-term illnesses more often than those living in the least disadvantaged areas.

- Self-assessed health: Males from the most disadvantaged areas in 2001 were significantly more likely (44%) to rate their health as fair or poor, as did females from the most disadvantaged areas in 1995 (51%).
- Arthritis and bronchitis/emphysema: Rates were significantly higher among males from the most disadvantaged areas in 2001 (40% and 201% higher respectively).
- Diabetes: Females from the most disadvantaged areas were significantly more likely to report that they had diabetes in 1995 (100%) and 2001 (139%). See also Figure 3.21.
- Smoking: Males from the most disadvantaged areas were significantly more likely to be regular smokers in 1989–90 (47%), 1995 (94%) and 2001 (376%). Females from the most disadvantaged areas were more likely to be regular smokers in 1995 (77%) and 2001 (103%). Figure 3.19 graphs the association between the IRSD and rates of smoking for males.

Males from the most disadvantaged areas who were aged 65 years and over were significantly more likely to be obese in 1995 (113%) and 2001 (182%); females from the most disadvantaged areas were more likely to be obese in 1989–90 (43%), 1995 (81%) and 2001 (62%). Figures 3.20 and 3.22 graph the association between the IRSD and rates of obesity for males and females respectively.

Females from the most disadvantaged areas were more likely to have experienced hypertension in 2001 (34%); however, they had lower rates of dental consultation in 1995 (53%) and 2001 (59%). Figure 3.23 graphs the association between the IRSD and rates of dental use for females.

**Table 3.8: Health indicators by IRSD quintile, males aged 65 years and over, 1989 to 2001**

Condition	1989-90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Morbidity</b>									
Self-assessed health status (fair or poor)									
Quintile 1	..	..	..	36.5	1.00		30.0	1.00	
Quintile 2	..	..	..	40.7	1.11	0.90, 1.39	26.6	0.89	0.65, 1.22
Quintile 3	..	..	..	37.5	1.03	0.82, 1.28	30.6	1.02	0.74, 1.41
Quintile 4	..	..	..	41.8	1.15	0.93, 1.41	38.4	1.28	0.95, 1.73
Quintile 5	..	..	..	39.4	1.08	0.87, 1.34	43.3	1.44	1.08, 1.93
Arthritis									
Quintile 1	34.2	1.00		35.6	1.00		31.6	1.00	
Quintile 2	33.6	0.98	0.78, 1.24	39.8	1.12	0.91, 1.37	37.9	1.20	0.91, 1.59
Quintile 3 <sup>†</sup>	32.8	0.96	0.77, 1.18	39.1	1.10	0.90, 1.35	44.0	1.39	1.04, 1.86
Quintile 4 <sup>†</sup>	29.7	0.87	0.70, 1.07	45.1	1.27	1.05, 1.54	35.6	1.13	0.85, 1.50
Quintile 5	35.5	1.04	0.85, 1.27	42.5	1.19	0.98, 1.46	44.1	1.40	1.06, 1.84
Asthma									
Quintile 1	4.2	1.00		8.5	1.00		9.6	1.00	
Quintile 2	4.1	0.98	0.52, 1.86	7.0	0.83	0.52, 1.32	4.7	0.49	0.26, 0.94
Quintile 3	5.5	1.33	0.77, 2.29	7.0	0.82	0.51, 1.32	6.8	0.71	0.36, 1.38
Quintile 4 <sup>†</sup>	5.5	1.32	0.78, 2.21	7.0	0.82	0.52, 1.31	5.2	0.55	0.28, 1.05
Quintile 5	6.0	1.45	0.86, 2.44	7.9	0.94	0.59, 1.50	11.8	1.23	0.70, 2.16
Bronchitis/emphysema									
Quintile 1	9.7	1.00		15.2	1.00		5.0	1.00	
Quintile 2 <sup>††</sup>	7.2	0.74	0.45, 1.20	15.0	0.99	0.69, 1.41	10.5	2.09	1.06, 4.15
Quintile 3	9.1	0.94	0.63, 1.41	10.0	0.66	0.45, 0.95	6.1	1.21	0.56, 2.57
Quintile 4 <sup>††</sup>	6.9	0.71	0.47, 1.08	11.6	0.76	0.53, 1.09	13.2	2.64	1.35, 5.15
Quintile 5 <sup>††</sup>	10.4	1.07	0.73, 1.58	12.0	0.79	0.55, 1.14	15.1	3.01	1.59, 5.68
Diabetes									
Quintile 1	6.1	1.00		10.8	1.00		9.0	1.00	
Quintile 2	3.4	0.56	0.30, 1.06	7.9	0.74	0.49, 1.11	6.6	0.74	0.42, 1.30
Quintile 3	5.1	0.84	0.49, 1.43	11.1	1.03	0.69, 1.53	10.2	1.14	0.64, 2.03
Quintile 4 <sup>††</sup>	4.8	0.79	0.46, 1.34	9.7	0.90	0.61, 1.31	14.6	1.63	0.99, 2.69
Quintile 5	5.5	0.91	0.55, 1.51	10.2	0.94	0.64, 1.38	10.3	1.15	0.69, 1.92
Neoplasms									
Quintile 1	7.4	1.00		11.3	1.00		10.1	1.00	
Quintile 2 <sup>†</sup>	8.6	1.17	0.72, 1.88	6.9	0.61	0.40, 0.93	9.6	0.96	0.56, 1.62
Quintile 3	6.9	0.93	0.58, 1.50	9.0	0.80	0.52, 1.22	6.0	0.60	0.33, 1.08
Quintile 4	7.9	1.08	0.70, 1.67	7.9	0.69	0.47, 1.03	10.6	1.06	0.63, 1.79
Quintile 5	6.7	0.90	0.58, 1.41	8.6	0.76	0.50, 1.16	6.1	0.61	0.33, 1.14
<b>Health-related behaviours</b>									
Alcohol risk									
Quintile 1	6.0	1.00		6.5	1.00		5.3	1.00	
Quintile 2	5.7	0.96	0.57, 1.60	6.4	0.98	0.48, 2.01	8.5	1.59	0.88, 2.89
Quintile 3	5.1	0.85	0.52, 1.38	4.0	0.62	0.29, 1.29	6.5	1.22	0.64, 2.32
Quintile 4	5.7	0.96	0.61, 1.51	5.3	0.81	0.39, 1.69	8.3	1.55	0.86, 2.80
Quintile 5	7.1	1.19	0.77, 1.83	8.0	1.23	0.61, 2.48	5.7	1.08	0.56, 2.05

(continued)

**Table 3.8 (continued): Health indicators by IRSD quintile, males aged 65 years and over, 1989 to 2001**

Condition	1989-90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Insufficient physical activity</b>									
Quintile 1	62.5	1.00		63.4	1.00		60.5	1.00	
Quintile 2	66.8	1.07	0.90, 1.26	70.2	1.11	0.95, 1.29	69.7	1.15	0.93, 1.43
Quintile 3	64.6	1.03	0.88, 1.21	71.6	1.13	0.97, 1.32	66.6	1.10	0.88, 1.38
Quintile 4	67.4	1.08	0.93, 1.25	70.7	1.12	0.96, 1.29	66.1	1.09	0.88, 1.35
Quintile 5	67.7	1.08	0.93, 1.26	66.9	1.05	0.91, 1.23	73.3	1.21	0.98, 1.50
<b>Smoking</b>									
Quintile 1	12.5	1.00		8.5	1.00		3.4	1.00	
Quintile 2 <sup>†</sup>	11.5	0.92	0.64, 1.33	10.8	1.27	0.84, 1.90	5.7	1.71	0.84, 3.50
Quintile 3 <sup>†</sup>	18.1	1.45	1.06, 1.99	13.8	1.61	1.10, 2.36	9.9	2.96	1.47, 5.95
Quintile 4 <sup>††</sup>	16.4	1.31	0.97, 1.78	16.7	1.96	1.36, 2.83	12.8	3.83	2.00, 7.31
Quintile 5 <sup>††</sup>	18.4	1.47	1.09, 1.98	16.5	1.94	1.34, 2.80	16.0	4.76	2.55, 8.90
<b>Salt use (usually add salt to food after cooking)</b>									
Quintile 1	..	..		39.8	1.00		34.0	1.00	
Quintile 2	..	..	..	31.6	0.80	0.55, 1.15	40.5	1.19	0.90, 1.58
Quintile 3	..	..	..	43.4	1.09	0.78, 1.53	39.6	1.16	0.86, 1.57
Quintile 4	..	..	..	38.8	0.97	0.70, 1.36	45.2	1.33	1.00, 1.76
Quintile 5	..	..	..	35.8	0.90	0.64, 1.27	39.9	1.17	0.88, 1.55
<b>Health-related risk factors</b>									
<b>Overweight (but not obese)</b>									
Quintile 1	34.2	1.00		42.2	1.00		42.8	1.00	
Quintile 2 <sup>†</sup>	40.1	1.17	0.94, 1.46	35.5	0.84	0.69, 1.03	44.0	1.03	0.79, 1.34
Quintile 3	33.9	0.99	0.80, 1.22	35.7	0.85	0.69, 1.04	43.5	1.02	0.77, 1.35
Quintile 4	35.5	1.04	0.85, 1.27	41.4	0.98	0.81, 1.19	44.9	1.05	0.81, 1.37
Quintile 5	35.9	1.05	0.86, 1.28	37.1	0.88	0.72, 1.07	43.4	1.01	0.78, 1.32
<b>Obese</b>									
Quintile 1	7.0	1.00		4.7	1.00		8.2	1.00	
Quintile 2 <sup>†</sup>	6.3	0.90	0.54, 1.50	11.4	2.41	1.54, 3.80	12.8	1.56	0.90, 2.73
Quintile 3 <sup>†</sup>	6.0	0.86	0.54, 1.38	7.7	1.63	1.00, 2.65	14.6	1.79	1.01, 3.17
Quintile 4	8.7	1.25	0.82, 1.91	7.7	1.63	1.03, 2.56	13.4	1.63	0.95, 2.82
Quintile 5 <sup>†</sup>	7.5	1.08	0.70, 1.66	10.1	2.13	1.34, 3.38	14.9	1.82	1.05, 3.16
<b>Hypertension</b>									
Quintile 1	24.9	1.00		30.7	1.00		37.7	1.00	
Quintile 2	29.6	1.19	0.91, 1.54	35.4	1.15	0.93, 1.44	35.9	0.95	0.72, 1.25
Quintile 3	22.7	0.91	0.71, 1.17	34.6	1.13	0.90, 1.41	32.0	0.85	0.63, 1.13
Quintile 4	23.0	0.92	0.72, 1.18	37.5	1.22	0.99, 1.51	33.4	0.88	0.67, 1.16
Quintile 5 <sup>†</sup>	17.8	0.71	0.55, 0.92	35.3	1.15	0.93, 1.43	38.9	1.03	0.79, 1.35
<b>Health service use (in the previous 2 weeks)</b>									
<b>Doctor consultation</b>									
Quintile 1	34.5	1.00		41.2	1.00		43.7	1.00	
Quintile 2	31.5	0.91	0.72, 1.16	42.8	1.04	0.85, 1.27	43.4	0.99	0.77, 1.29
Quintile 3	33.7	0.98	0.79, 1.22	38.0	0.92	0.75, 1.13	38.4	0.88	0.67, 1.16
Quintile 4	31.0	0.90	0.73, 1.11	37.0	0.90	0.74, 1.09	41.2	0.94	0.72, 1.23
Quintile 5	31.6	0.91	0.74, 1.13	41.8	1.02	0.83, 1.24	48.1	1.10	0.85, 1.42

(continued)

**Table 3.8 (continued): Health indicators by IRSD quintile, males aged 65 years and over, 1989 to 2001**

Condition	1989-90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Health service use (in the previous 2 weeks)</b>									
GP consultation									
Quintile 1	..	..		36.0	1.00		39.2	1.00	
Quintile 2	..	..	..	38.7	1.08	0.87, 1.33	37.6	0.96	0.72, 1.27
Quintile 3	..	..	..	34.4	0.96	0.77, 1.19	35.0	0.89	0.67, 1.19
Quintile 4	..	..	..	34.6	0.96	0.78, 1.18	38.1	0.97	0.73, 1.29
Quintile 5	..	..	..	39.8	1.11	0.90, 1.37	45.7	1.17	0.89, 1.52
Specialist consultation									
Quintile 1	..	..		9.5	1.00		12.7	1.00	
Quintile 2	..	..	..	8.2	0.87	0.56, 1.34	10.5	0.83	0.50, 1.37
Quintile 3	..	..	..	8.4	0.89	0.57, 1.38	9.3	0.73	0.43, 1.24
Quintile 4	..	..	..	6.1	0.64	0.41, 1.02	10.5	0.83	0.51, 1.36
Quintile 5	..	..	..	5.5	0.58	0.36, 0.93	8.2	0.65	0.39, 1.08
Dental consultation									
Quintile 1	4.6	1.00		7.7	1.00		6.6	1.00	
Quintile 2	3.6	0.80	0.42, 1.52	6.7	0.87	0.54, 1.40	9.0	1.36	0.72, 2.58
Quintile 3	2.3	0.51	0.25, 1.01	4.7	0.61	0.37, 1.01	7.8	1.18	0.58, 2.41
Quintile 4	2.6	0.58	0.32, 1.05	4.0	0.52	0.30, 0.88	5.0	0.76	0.38, 1.51
Quintile 5	4.9	1.08	0.62, 1.86	5.0	0.65	0.37, 1.12	7.3	1.10	0.58, 2.08

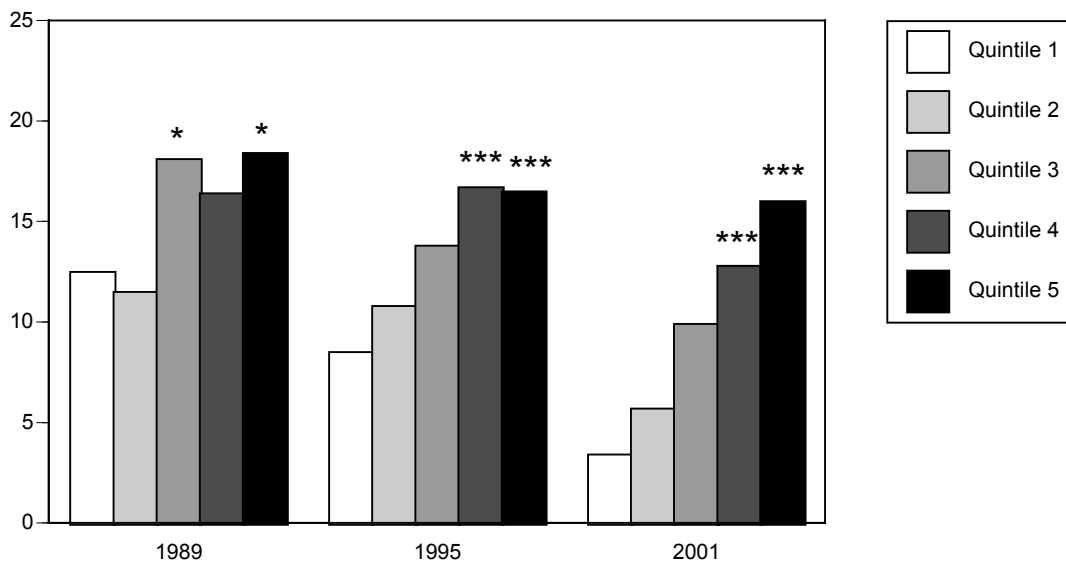
.. Data not available or not comparable.

+ 1989-90 rate ratio differs significantly from 1995 rate ratio at  $p \leq 0.05$ .

† 1989-90 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

‡ 1995 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

Per cent

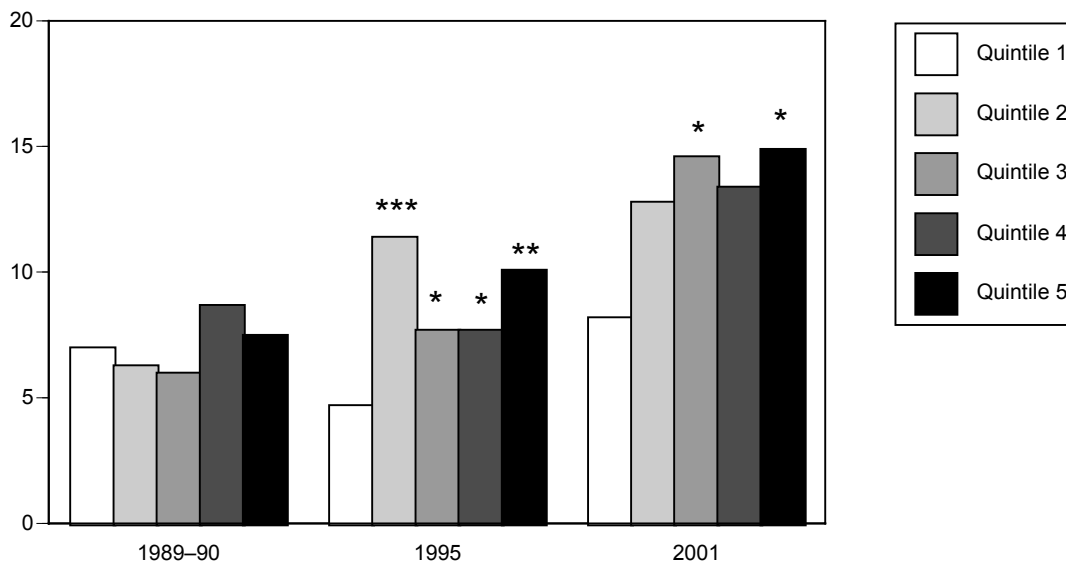


Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.19: Percentage of males aged 65 years and over who were classified as regular smokers, by IRSD quintile, 1989-90, 1995 and 2001**

Per cent



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.20: Percentage of males aged 65 years and over who were classified obese, by IRSD quintile, 1989-90, 1995 and 2001**

**Table 3.9: Health indicators by IRSD quintile, females aged 65 years and over, 1989 to 2001**

Condition	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Morbidity</b>									
Self-assessed health status (fair or poor)									
Quintile 1	..	..	..	26.2	1.00		28.7	1.00	
Quintile 2	..	..	..	28.9	1.10	0.88, 1.38	31.7	1.10	0.84, 1.45
Quintile 3 <sup>+</sup>	..	..	..	39.3	1.50	1.21, 1.85	35.3	1.23	0.94, 1.60
Quintile 4	..	..	..	39.4	1.50	1.23, 1.84	35.2	1.22	0.95, 1.58
Quintile 5	..	..	..	39.6	1.51	1.24, 1.84	34.5	1.20	0.93, 1.55
Arthritis									
Quintile 1	44.8	1.00		53.5	1.00		54.0	1.00	
Quintile 2	42.5	0.95	0.79, 1.14	54.3	1.01	0.86, 1.19	49.2	0.91	0.74, 1.12
Quintile 3	45.0	1.01	0.85, 1.18	57.1	1.07	0.91, 1.25	54.5	1.01	0.82, 1.24
Quintile 4	43.7	0.98	0.84, 1.14	57.9	1.08	0.93, 1.26	52.4	0.97	0.79, 1.18
Quintile 5	44.4	0.99	0.85, 1.16	58.6	1.09	0.94, 1.27	56.7	1.05	0.86, 1.27
Asthma									
Quintile 1	4.6	1.00		7.8	1.00		11.8	1.00	
Quintile 2	2.6	0.55	0.30, 1.02	7.6	0.97	0.64, 1.48	8.3	0.70	0.44, 1.13
Quintile 3	5.2	1.13	0.71, 1.81	6.6	0.86	0.55, 1.33	9.4	0.80	0.51, 1.25
Quintile 4	5.7	1.23	0.80, 1.90	8.4	1.09	0.74, 1.60	9.2	0.78	0.49, 1.23
Quintile 5	6.2	1.34	0.86, 2.07	10.2	1.31	0.90, 1.92	9.8	0.83	0.54, 1.27
Bronchitis/emphysema									
Quintile 1	4.2	1.00		5.3	1.00		7.2	1.00	
Quintile 2	5.3	1.26	0.74, 2.14	6.7	1.26	0.80, 2.01	5.9	0.83	0.47, 1.46
Quintile 3	6.0	1.42	0.88, 2.29	7.0	1.32	0.82, 2.11	8.3	1.15	0.67, 1.99
Quintile 4	4.4	1.03	0.64, 1.67	7.8	1.47	0.96, 2.27	7.9	1.11	0.64, 1.91
Quintile 5	5.5	1.31	0.82, 2.07	7.4	1.40	0.91, 2.15	6.5	0.90	0.52, 1.55
Diabetes									
Quintile 1	4.3	1.00		4.9	1.00		6.7	1.00	
Quintile 2	4.8	1.11	0.64, 1.93	8.2	1.67	1.06, 2.64	12.2	1.83	1.10, 3.04
Quintile 3	4.7	1.07	0.66, 1.76	6.2	1.26	0.78, 2.04	9.8	1.47	0.87, 2.50
Quintile 4 <sup>+</sup>	3.5	0.80	0.49, 1.32	8.2	1.66	1.08, 2.55	10.2	1.53	0.92, 2.54
Quintile 5 <sup>++</sup>	4.4	1.02	0.63, 1.67	9.8	2.00	1.32, 3.02	16.0	2.39	1.48, 3.86
Neoplasms									
Quintile 1	5.2	1.00		4.2	1.00		2.3	1.00	
Quintile 2	5.7	1.09	0.66, 1.80	5.3	1.26	0.71, 2.22	3.7	1.60	0.65, 3.92
Quintile 3	4.8	0.92	0.57, 1.49	7.5	1.77	1.03, 3.04	4.3	1.87	0.78, 4.45
Quintile 4 <sup>†</sup>	4.1	0.79	0.48, 1.29	4.4	1.03	0.58, 1.84	4.3	1.87	0.81, 4.33
Quintile 5	3.8	0.73	0.44, 1.21	4.7	1.11	0.64, 1.93	2.8	1.22	0.50, 2.97
<b>Health-related behaviours</b>									
Alcohol risk									
Quintile 1	5.0	1.00		7.7	1.00		5.1	1.00	
Quintile 2	3.8	0.76	0.44, 1.30	5.0	0.65	0.35, 1.22	6.0	1.18	0.66, 2.10
Quintile 3	4.1	0.83	0.50, 1.37	3.7	0.48	0.19, 1.18	5.5	1.08	0.56, 2.08
Quintile 4 <sup>++</sup>	2.6	0.51	0.31, 0.85	3.9	0.50	0.26, 0.96	8.4	1.65	0.94, 2.88
Quintile 5	5.1	1.02	0.64, 1.61	4.8	0.62	0.33, 1.16	4.8	0.95	0.52, 1.76

(continued)

**Table 3.9 (continued): Health indicators by IRSD quintile, females aged 65 years and over, 1989 to 2001**

Condition	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Insufficient physical activity</b>									
Quintile 1	76.9	1.00		74.0	1.00		77.9	1.00	
Quintile 2	81.2	1.06	0.92, 1.20	78.8	1.06	0.93, 1.21	81.9	1.05	0.89, 1.24
Quintile 3	82.1	1.07	0.94, 1.21	82.5	1.11	0.98, 1.27	82.9	1.06	0.90, 1.26
Quintile 4	80.3	1.04	0.93, 1.17	78.2	1.06	0.93, 1.20	77.1	0.99	0.84, 1.17
Quintile 5	80.2	1.04	0.93, 1.17	79.9	1.08	0.95, 1.22	80.0	1.03	0.88, 1.21
<b>Smoking</b>									
Quintile 1	9.2	1.00		5.7	1.00		4.8	1.00	
Quintile 2 <sup>†</sup>	8.1	0.89	0.60, 1.32	9.5	1.67	1.10, 2.55	5.2	1.07	0.57, 2.01
Quintile 3	10.7	1.17	0.84, 1.63	7.0	1.24	0.79, 1.95	4.8	1.00	0.51, 1.97
Quintile 4 <sup>†</sup>	11.1	1.21	0.88, 1.66	9.4	1.66	1.10, 2.50	10.7	2.21	1.22, 4.00
Quintile 5	12.4	1.35	0.99, 1.85	10.1	1.77	1.19, 2.64	9.8	2.03	1.13, 3.66
<b>Salt use (usually add salt to food after cooking)</b>									
Quintile 1	..	..		20.3	1.00		22.1	1.00	
Quintile 2	..	..	..	18.7	0.92	0.59, 1.44	24.0	1.08	0.79, 1.49
Quintile 3	..	..	..	17.4	0.86	0.54, 1.35	21.6	0.98	0.70, 1.36
Quintile 4	..	..	..	18.2	0.90	0.58, 1.39	28.3	1.28	0.94, 1.73
Quintile 5	..	..	..	23.1	1.14	0.76, 1.70	25.9	1.17	0.87, 1.57
<b>Health-related risk factors</b>									
<b>Overweight (but not obese)</b>									
Quintile 1	24.4	1.00		30.1	1.00		31.4	1.00	
Quintile 2	25.6	1.05	0.82, 1.34	28.7	0.95	0.76, 1.19	30.6	0.98	0.73, 1.30
Quintile 3	26.1	1.07	0.86, 1.34	25.2	0.84	0.66, 1.07	34.0	1.08	0.82, 1.44
Quintile 4	29.1	1.20	0.97, 1.47	29.2	0.97	0.78, 1.21	34.3	1.09	0.84, 1.43
Quintile 5	27.3	1.12	0.91, 1.38	27.4	0.91	0.73, 1.14	30.3	0.97	0.74, 1.26
<b>Obese</b>									
Quintile 1	7.8	1.00		8.2	1.00		14.6	1.00	
Quintile 2	8.2	1.04	0.69, 1.58	12.2	1.49	1.01, 2.21	19.6	1.35	0.88, 2.07
Quintile 3	12.1	1.55	1.10, 2.21	13.2	1.62	1.10, 2.39	16.7	1.15	0.75, 1.77
Quintile 4	11.3	1.44	1.03, 2.03	10.7	1.32	0.91, 1.90	13.6	0.94	0.60, 1.46
Quintile 5	11.1	1.43	1.00, 2.03	14.8	1.81	1.26, 2.60	23.6	1.62	1.08, 2.42
<b>Hypertension</b>									
Quintile 1	30.2	1.00		39.9	1.00		37.5	1.00	
Quintile 2	30.2	1.00	0.81, 1.24	38.9	0.97	0.81, 1.17	43.2	1.15	0.91, 1.45
Quintile 3	33.1	1.09	0.90, 1.33	41.9	1.05	0.88, 1.26	45.8	1.22	0.97, 1.54
Quintile 4	31.8	1.05	0.88, 1.26	42.5	1.06	0.90, 1.27	40.7	1.09	0.86, 1.36
Quintile 5 <sup>†</sup>	30.2	1.00	0.83, 1.21	41.7	1.05	0.88, 1.24	50.4	1.34	1.08, 1.67
<b>Health service use (in the previous 2 weeks)</b>									
<b>Doctor consultation</b>									
Quintile 1	32.4	1.00		36.4	1.00		42.1	1.00	
Quintile 2	36.5	1.13	0.92, 1.38	37.2	1.02	0.84, 1.24	38.2	0.91	0.73, 1.14
Quintile 3	36.3	1.12	0.93, 1.35	37.2	1.02	0.84, 1.24	43.8	1.04	0.84, 1.30
Quintile 4	35.7	1.10	0.92, 1.32	39.9	1.10	0.92, 1.32	44.9	1.07	0.86, 1.32
Quintile 5	39.1	1.21	1.01, 1.44	40.6	1.12	0.93, 1.34	42.7	1.02	0.82, 1.26

(continued)

**Table 3.9 (continued): Health indicators by IRSD quintile, females aged 65 years and over, 1989 to 2001**

Condition	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
<b>Health service use (in the previous 2 weeks)</b>									
GP consultation									
Quintile 2	..	..	..	35.0	1.09	0.89, 1.34	33.8	0.90	0.71, 1.14
Quintile 3	..	..	..	34.5	1.08	0.88, 1.32	38.7	1.03	0.82, 1.30
Quintile 4	..	..	..	37.7	1.18	0.97, 1.42	40.3	1.08	0.86, 1.35
Quintile 5	..	..	..	38.0	1.19	0.98, 1.44	40.1	1.07	0.86, 1.34
Specialist consultation									
Quintile 1	..	..	..	9.0	1.00		10.9	1.00	
Quintile 2	..	..	..	6.0	0.66	0.43, 1.01	8.4	0.77	0.48, 1.24
Quintile 3	..	..	..	7.8	0.86	0.56, 1.33	12.1	1.12	0.73, 1.72
Quintile 4	..	..	..	5.0	0.55	0.36, 0.85	10.0	0.92	0.59, 1.42
Quintile 5	..	..	..	6.4	0.71	0.47, 1.07	7.5	0.69	0.44, 1.10
Dental consultation									
Quintile 1	4.5	1.00		9.0	1.00		6.1	1.00	
Quintile 2 <sup>+</sup>	5.2	1.14	0.68, 1.91	5.0	0.55	0.36, 0.87	5.6	0.92	0.52, 1.66
Quintile 3	2.0	0.44	0.24, 0.81	4.5	0.49	0.30, 0.80	5.6	0.92	0.49, 1.72
Quintile 4	2.1	0.46	0.25, 0.86	4.1	0.46	0.30, 0.71	2.6	0.43	0.22, 0.85
Quintile 5	2.8	0.62	0.36, 1.05	4.3	0.47	0.29, 0.77	2.5	0.41	0.20, 0.82

.. Data not available or not comparable.

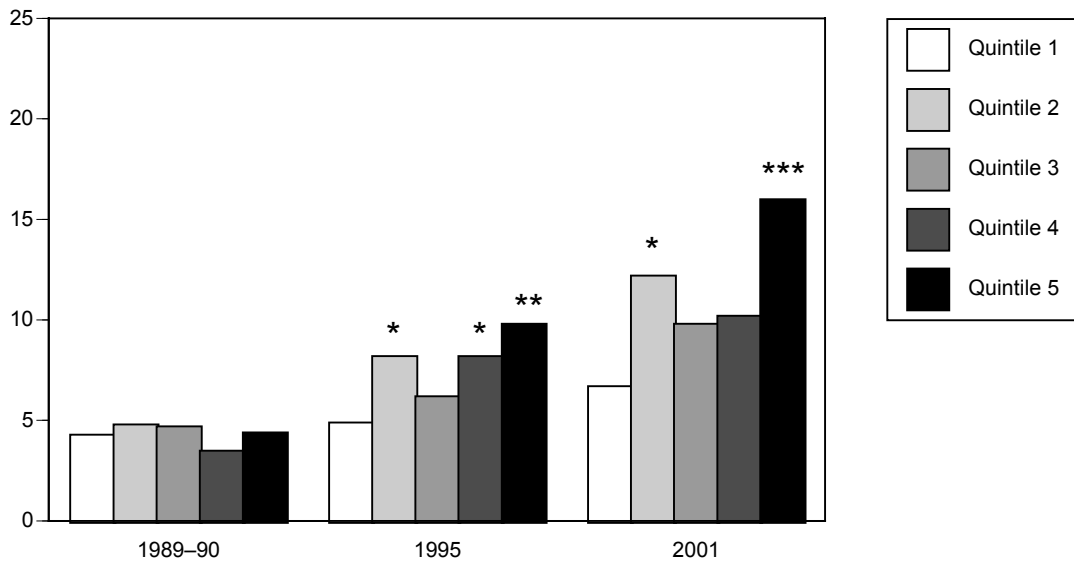
+ 1989–90 rate ratio differs significantly from 1995 rate ratio at  $p \leq 0.05$ .

† 1989–90 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

‡ 1995 rate ratio differs significantly from 2001 rate ratio at  $p \leq 0.05$ .

Notes: A weighted equivalent of 2,430 females (4 female respondents) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.

Per cent

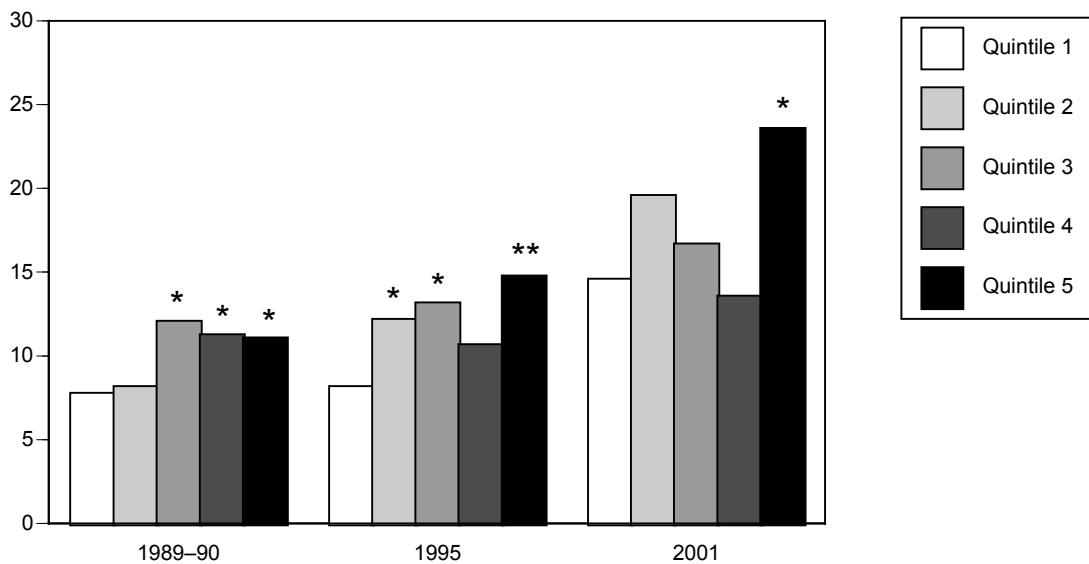


Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.21: Percentage of females aged 65 years and over who reported experiencing diabetes as a long-term condition, by IRSD quintile, 1989-90, 1995 and 2001**

Per cent



Note: Quintile 1 = least disadvantaged, quintile 5 = most disadvantaged.

Rate differs significantly from quintile 1 at \*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001.

**Figure 3.22: Percentage of females aged 65 years and over who were classified as obese, by IRSD quintile, 1989-90, 1995 and 2001**



### 3.5 Summary and discussion

This chapter examined health-related inequalities by area-level socioeconomic disadvantage for males and females aged 0-14, 15-24, 25-64 and 65 years and over for the periods 1989-90, 1995 and 2001. During the last decade of the 20th century, Australia was characterised by large area-based socioeconomic inequalities for morbidity, health-related behaviours and risk factors, and health service use. Males and females from disadvantaged areas, for example, reported poorer health (measured overall and in terms of specific conditions); they were more likely to engage in behaviours that are inconsistent with long-term health such as smoking, insufficient physical activity, adding salt to meals, and less use of sun protection; and they were more likely to be overweight or obese. In addition, their use of preventive health care services such as Pap smears or dental consultations suggests that they were less likely to act to prevent disease or detect it at an asymptomatic stage. Further, those from disadvantaged areas made greater use of GP services, which presumably reflects their higher levels of morbidity. Other findings indicate that children from disadvantaged areas were less likely to have been breastfed, or were breastfed for a shorter duration, and that those from disadvantaged areas were more likely to have run out of food sometime in the last 12 months and been unable to afford more.

The findings of this chapter concur with numerous overseas studies that have examined area-level socioeconomic inequalities in morbidity (Blaxter, 1990; Shaw et al. 1999), disability (Rognerud et al. 1998), overweight and obesity (Ellaway et al. 1997; van Lenthe and Mackenbach, 2002), smoking (Kleinschmidt et al. 1995) and other risk factors for cardiovascular disease (Sundquist et al. 1999). This chapter's results are also consistent with previous Australian research showing that socioeconomically disadvantaged areas exhibit poorer physical and oral

health (Chen 2002; Brennan & Spencer 2002; Sanders & Spencer 2004), a more adverse risk-factor and health behaviour profile (Mathers 1994a, 1994b, 1995, 1996), higher rates of GP use (Turrell et al. 2004) and lower use of preventive health services (Taylor et al. 2001).

When considering this chapter's findings, we need to be mindful of a number of potential sources of bias in the analysis, and in the use of the area-based Index of Relative Socioeconomic Disadvantage (IRSD). First, before undertaking the analysis, it was necessary to exclude those cases where the IRSD identifier was missing; but this problem arose only for a very small proportion of cases, thus their exclusion will have had little effect on the estimates of health inequality.

Second, in assessing the health inequalities, remember that the survey samples had been classified by the ABS into quintiles: different estimates of health inequality would have been obtained if a different statistical grouping had been used (for example, quartile rather than quintile).

Third, the IRSD relates to the average disadvantage of all people living in an area, and so the resultant health inequalities obtained from such a measure will be smaller than if the population were classified using individual socioeconomic characteristics. In other words, the findings of this chapter are very likely to underestimate the 'true' size of the health-related inequalities in morbidity and related outcomes.

Fourth, for each of the survey periods – 1989–90, 1995 and 2001 – respondents were classified into quintiles of socioeconomic disadvantage according to the value of the IRSD for their collector's district (CD) of usual residence; and over the decade covered by this report, some of these CDs may have changed quintile. Additionally, there are likely to be differences between some CD boundaries for the three time periods. Thus the corresponding quintiles for the periods do not consist of exactly the same areas, although for all three periods, the bottom and top quintiles contain the 20% most disadvantaged and 20% least disadvantaged areas respectively.

Finally, a composite index such as the IRSD is adequate for analytical purposes (i.e. examining the nature and extent of association between socioeconomic status and health), but it tells us very little about the specific factor(s) that are producing the inequalities. This and other limitations associated with the IRSD have been discussed by McCracken (2001). The main contributors to the poorer health and risk factor profile of socioeconomically disadvantaged areas could be due to the lower average educational attainment of people residing in these areas, or their low incomes, or their greater propensity to be unemployed, or a combination of these. Alternatively, poorer health in disadvantaged areas might not exclusively reflect the socioeconomic composition of the resident individuals but, rather, the impact of wider contextual and environmental influences that transcend the characteristics of individuals (such as inadequate housing, lack of health care facilities, pollution, or poor public transport). In sum, the use of the IRSD permits only a very general interpretation (i.e. socioeconomic disadvantage is bad for your health) and, by extension, the IRSD is limited in terms of its capacity to shape policies and interventions to reduce socioeconomic health inequalities.

