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Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ASCO	Australian Standard Classification of Occupations
CCLO	Classification and Classified List of Occupations
DoHA	Department of Health and Ageing
DHAC	Department of Health and Aged Care
CURF	Confidentialised Unit Record File
ICD-9	International Classification of Diseases: 9th revision
ICD-10	International Classification of Diseases: 10th revision
IRSD	Index of Relative Socioeconomic Disadvantage
n.a.	Not applicable
NCCH	National Centre for Classification in Health
NHMRC	National Health and Medical Research Council
NHPA	National Health Priority Area
NHS	National Health Survey
NNS	National Nutrition Survey
PHERP	Public Health Education Research Program
QUT	Queensland University of Technology
SEIFA	Socio-economic Indexes for Areas
SEP	Socioeconomic Position
SLA	Statistical Local Area

Summary of findings

The health of the Australian population improved markedly during the twentieth century. The toll of infectious disease was reduced sharply; life expectancy at birth continued to increase; death rates from coronary heart disease and stroke have declined sharply since the late 1960s; and in more recent years we have witnessed a downward trend in deaths from lung, colorectal and breast cancer. Despite this, health gains have not been equally shared across all sections of the population. At the beginning of the twenty-first century there were considerable health-related inequalities between population subgroups in Australia.

This report examines some of these health-related inequalities by area-level socioeconomic disadvantage, equivalised household income, education and occupation among, where applicable, infants and children (0–14 years), young adults (15–24 years), working-age adults (25–64 years), and older persons (65 years or more) for the periods 1989–90, 1995, and 2001. Socioeconomic inequalities were examined on the basis of four self-reported health-related indicators: morbidity, health behaviours, risk factors, and health service use.

The primary data sources used in this report are the three latest Australian Bureau of Statistics (ABS) National Health Surveys (NHS): 1989–90, 1995 and 2001. The ABS 1995 National Nutrition Survey (NNS) was also used for dietary-related behaviour data for 1995 to allow comparison with the relevant 2001 NHS items.

Socioeconomically disadvantaged groups experienced more ill health, and were more likely to engage in behaviours or have a risk factor profile consistent with their poorer health status. Their use of health care services suggested that they were less likely to act to prevent disease or detect it at an asymptomatic stage. Socioeconomic inequalities for many of the health-related indicators were found for both males and females and for each age group, and they were evident irrespective of how socioeconomic position was measured.

The health burden in the Australian population attributable to socioeconomic disadvantage is large; and much of this burden is potentially avoidable.

Health inequalities by area-level socioeconomic disadvantage

This report used an area-based measure of socioeconomic status known as the Index of Relative Socioeconomic Disadvantage (IRSD). The IRSD was developed by the Australian Bureau of Statistics using population census data, and it reflects the overall level of socioeconomic disadvantage of an area measured on the basis of attributes such as low income, low educational attainment, high levels of public sector housing, high unemployment, and jobs in relatively unskilled occupations. Survey respondents were classified into quintiles (fifths) of socioeconomic disadvantage according to the value of the IRSD for their usual residence, with quintile 1 corresponding to the highest socioeconomic area and quintile 5 the lowest. This summary reports on health inequalities between quintiles 1 and 5 only. Quintile 1 contained the least disadvantaged areas, and quintile 5 the most disadvantaged. The health profile of all IRSD quintiles is presented in the main text.

Within each of the three survey periods, compared with persons living in the least disadvantaged areas of Australia, those living in the most disadvantaged areas had significantly *higher* rates (√) for various health-related factors as shown in the table below:

		Males			Females		
Age group		**1989–90**	**1995**	**2001**	**1989–90**	**1995**	**2001**
0–14 years	Asthma	•	√	√	•	√	•
	Bronchitis/emphysema	•	•	√	•	√	•
	Discretionary salt use	n.a.	√	•	n.a.	•	•
	Doctor consultations	•	•	•	√	√	•
15–24 years	Self-assessed health as fair or poor	n.a.	√	•	n.a.	√	•
	Bronchitis/emphysema	•	•	•	•	•	√
	Discretionary salt use	n.a.	•	•	n.a.	√	√
	Smoking	√	√	•	√	√	√
	Obesity	√	•	√	•	√	•
	Alcohol risk	•	√	•	•	√	•
	Food insecurity	n.a.	√	√	n.a.	√	√
25–64 years	Self-assessed health as fair or poor	n.a.	√	√	n.a.	√	√
	Days away from study or work	√	√	√	•	•	•
	Arthritis	√	√	√	•	√	√
	Asthma	•	•	•	•	•	√
	Bronchitis/emphysema	•	√	√	√	√	•
	Diabetes	•	√	•	•	√	√
	Alcohol risk	√	√	√	#	#	#
	Insufficient physical activity	√	•	√	•	•	√
	Smoking	√	√	√	√	√	√
	Discretionary salt use	n.a.	√	√	n.a.	√	√
	Food insecurity	n.a.	√	√	n.a.	√	√
	Obesity	√	√	√	√	√	√
	Hypertension	•	√	√	√	√	√
	Doctor consultation	√	√	√	•	•	√
	GP consultation	n.a.	√	√	n.a.	√	√
	Never having had a Pap smear	n.a.	n.a.	n.a.	√	√	•
	Not having had a Pap smear in the two years preceding survey	n.a.	n.a.	n.a.	n.a.	√	√
65 years & over	Self-assessed health as fair or poor	n.a.	•	√	n.a.	√	•
	Arthritis	•	•	√	•	•	•
	Bronchitis/emphysema	•	•	√	•	•	•
	Diabetes	•	•	•	•	√	√
	Smoking	√	√	√	•	√	√
	Obesity	•	√	√	√	√	√
	Hypertension	•	•	•	•	√	√

√ Difference between most and least disadvantaged areas statistically significant, with a higher rate among the most disadvantaged areas.

• Difference between most and least disadvantaged areas not statistically significant.

Difference between most and least disadvantaged areas statistically significant, with a higher rate among the most advantaged areas.

n.a. Question was either sex-specific, not asked in survey, or not comparable with other years, and therefore excluded from this report.

Compared with persons living in the least disadvantaged areas of Australia, those living in the most disadvantaged areas had significantly *lower* rates (√) for the factors shown in the table below:

		Males			Females		
Age group		**1989–90**	**1995**	**2001**	**1989–90**	**1995**	**2001**
0–14 years	Having ever been breastfed	n.a.	√	√	n.a.	√	√
	Recommended duration of breastfeeding	n.a.	•	•	n.a.	√	√
	Specialist consultations	n.a.	•	•	n.a.	•	√
	Dental consultations	•	√	√	√	•	•
15–24 years	Dental consultations	•	√	•	•	•	√
25–64 years	Dental consultation	•	•	√	•	√	√
	Specialist consultation	n.a.	•	•	n.a.	•	√
65 years & over	Dental consultation	•	•	•	•	√	√

√ Difference between most and least disadvantaged areas statistically significant, with a lower rate among the most disadvantaged areas.
• Difference between most and least disadvantaged areas not statistically significant.
n.a. Question was either sex-specific, not asked in survey, or not comparable with other years, and therefore excluded from this report.

Health inequalities by equivalised income

This report examines income-based socioeconomic health inequalities using an indicator known as 'equivalised income'. This is an adjusted measure that takes into account the composition and requirements of a family, or income unit. Because equivalised income was not calculated the same way in all three surveys, in this report no intersurvey comparisons are made for equivalised income, and we present results only for the 2001 NHS. The equivalised income information available from the 2001 NHS is in deciles (tenths): for the purpose of this report deciles were collapsed into quintiles. This summary reports on health inequalities between quintiles 1 and 5 only. Quintile 1 contained the most affluent households, and quintile 5 the least affluent. The health profile of all equivalised income quintiles is presented in the main text.

Compared with persons living in the highest income households in 2001, those in the poorest income households had significantly *higher* rates (√) for the health-related factors shown in the table below:

Age group		Males	Females
0–14 years	Asthma	√	•
	Bronchitis/emphysema	√	•
	Discretionary salt use	√	•
15–24 years	Self-assessed health as fair or poor	•	√
	Bronchitis/emphysema	•	√
	Discretionary salt use	√	•
	Food insecurity	√	√
	Smoking	•	√
25–64 years	Self-assessed health as fair or poor	√	√
	Days away from study or work	√	√
	Arthritis	√	√
	Asthma	•	√
	Bronchitis/emphysema	√	√
	Diabetes	•	√
	Insufficient physical activity	√	√
	Smoking	√	√
	Discretionary salt use	√	√
	Food insecurity	√	√
	Obesity	√	√
	Hypertension	•	√
	Doctor consultation	√	√
	GP consultation	√	√
	Never having had a mammogram	n.a.	√
	Never having had a Pap smear	n.a.	√
	Having had a Pap smear in the two years preceding the survey	n.a.	√
65 years & over	Self-assessed health as fair or poor	√	√
	Bronchitis/emphysema	√	•
	Diabetes	√	•
	Smoking	√	•
	Hypertension	•	√

√ Difference between highest and lowest income quintiles statistically significant, with a higher rate in the poorest income households.

• Difference between highest and lowest income quintiles not statistically significant.

n.a. Question was either sex-specific, not asked in survey, or not comparable with other years, and therefore excluded from this report.

Compared with persons living in the highest income households in 2001, those in the poorest income households had significantly *lower* rates (√) for the factors shown in the table below:

Age group		Males	Females
0–14 years	Having ever been breastfed	√	√
	Receipt or application of sun protection measures	√	√
	Dental consultations	√	•
15–24 years	Receipt or application of sun protection measures	√	•
	Dental consultations	√	•
25–64 years	High-risk alcohol consumption	√	•
65 years & over	High-risk alcohol consumption	√	√

√ Difference between highest and lowest income quintiles statistically significant, with a lower rate in the poorest income households.
• Difference between highest and lowest income quintiles not statistically significant.

Health inequalities by education level

Numerous state/territory and national surveys collect information on education and health. In this report, we examine health inequalities among males and females aged 25–64 years, and 65 years and over, according to their reported levels of education in the 1989–90, 1995 and 2001 ABS National Health Surveys. Categorisation of education varied somewhat across the three surveys, so for comparisons the highest reported level of education has been reclassified into three groups—bachelor degree or higher (group 1), diploma/vocational qualification (group 2), and no post-school qualification (group 3). This summary reports on health inequalities between groups 1 and 3 only. The health profile of all education groups is presented in the main text.

Compared with persons with a Bachelor degree or higher, those with no post-school qualifications had significantly *higher* rates (√) for the health-related factors shown in the table below:

		Males			Females		
Age group		1989–90	1995	2001	1989–90	1995	2001
25–64 years	Self-assessed health as fair or poor	n.a.	√	√	n.a.	√	√
	Arthritis	√	√	√	√	√	√
	Bronchitis/emphysema	√	√	•	•	√	•
	Diabetes	•	•	•	•	•	√
	Alcohol risk	√	√	√	#	#	#
	Insufficient physical activity	√	√	√	√	√	√
	Smoking	√	√	√	√	√	√
	Discretionary salt use	n.a.	√	√	n.a.	√	√
	Food insecurity	n.a.	√	√	n.a.	•	√
	Obesity	√	√	√	√	√	√
	Hypertension	•	•	•	√	√	√
	Doctor consultation	√	√	√	•	√	•
	GP consultation	n.a.	√	√	n.a.	•	√

(continued)

Continued:

Age group		Males			Females		
		1989–90	1995	2001	1989–90	1995	2001
25–64 years cont.	Never having had a Pap smear	n.a.	n.a.	n.a.	√	•	•
	Not having had a Pap smear in the two years preceding survey	n.a.	n.a.	n.a.	n.a.	√	√
65 years & over	Self-assessed health as fair or poor	n.a.	√	√	n.a.	•	•
	Bronchitis/emphysema	•	•	√	#	•	•
	High-risk alcohol consumption	•	•	√	•	#	•
	Smoking	•	•	√	•	•	•
	Discretionary salt use	n.a.	•	√	n.a.	√	•
	Obesity	√	•	√	•	√	•
	Doctor consultation	•	•	√	•	•	•
	GP consultation	n.a.	•	√	n.a.	•	•

√ Difference between most and least educated statistically significant, with a higher rate among those with no post-school qualifications.
• Difference between most and least educated not statistically significant.
Difference between most and least educated statistically significant, with a higher rate among those with post-school qualifications.
n.a. Question was either sex-specific, not asked in survey, or not comparable with other years, and therefore excluded from this report.

Compared with persons with a Bachelor degree or higher, those with no post-school qualifications had significantly *lower* rates (√) for the factors shown in the table below:

Age group		Males			Females		
		1989–90	1995	2001	1989–90	1995	2001
25–64 years	Dental consultations	√	√	√	√	•	√
	Specialist consultation	n.a.	•	•	n.a.	•	√
65 years & over	Dental consultation	√	√	•	•	•	√

√ Difference between most and least educated statistically significant, with a lower rate among those with no post-school qualifications.
• Difference between most and least educated not statistically significant.
n.a. Question was either sex-specific, not asked in survey, or not comparable with other years, and therefore excluded from this report.

Health inequalities by occupation

Occupation is a widely used measure of an individual's socioeconomic status. This report compares the health profiles of different occupational categories using the Australian Standard Classification of Occupations (ASCO). ASCO is a skill-based measure that groups together occupations requiring similar levels of education, knowledge, responsibility, on-the-job training and experience. These occupational groupings are hierarchically ordered based on their relative skill levels, with those occupations having the most extensive skill requirements located at the top of the hierarchy. For this analysis, occupations were grouped into three categories: managers, administrators and professionals (comprising managers, administrators, professionals and paraprofessionals); white-collar employees (comprising clerks, salespeople and personal service workers); and blue-collar employees (comprising tradespeople, plant and machine operators and drivers, and labourers and related workers). People not active in the labour force were excluded (for example, the unemployed, the retired). This summary reports on health inequalities between managers, administrators and professionals on the one hand and blue-collar workers on the other; the health profile of all three occupational categories is presented in the main text.

Compared with managers, administrators and professions, those in blue collar occupations had significantly *higher* rates (√) for the health-related factors shown in the table below:

		Males			Females		
Age group		**1989–90**	**1995**	**2001**	**1989–90**	**1995**	**2001**
25–64 years	Self-assessed health as fair or poor	n.a.	√	√	n.a.	√	√
	Days away from study or work	•	√	•	•	•	#
	Arthritis	√	√	•	•	•	√
	Bronchitis/emphysema	√	√	•	•	•	•
	Diabetes	•	•	•	•	√	•
	Alcohol risk	√	√	√	#	#	•
	Insufficient physical activity	√	√	√	√	√	√
	Smoking	√	√	√	√	√	√
	Discretionary salt use	n.a.	√	√	n.a.	√	√
	Food insecurity	n.a.	√	√	n.a.	√	√
	Overweight (but not obese)	•	•	•	√	√	•
	Obesity	√	√	√	√	•	√
	Doctor consultation	•	•	√	•	•	•
	GP consultation	n.a.	√	√	n.a.	•	√
	Never having had a Pap smear	n.a.	n.a.	n.a.	√	√	√
	Not having had a Pap smear in the two years preceding survey	n.a.	n.a.	n.a.	n.a.	•	√

√ Difference between managers administrators professionals and blue-collar groups statistically significant, with a higher rate among those in blue-collar occupations.

• Difference between managers administrators professionals and blue-collar groups not statistically significant.

n.a. Question was either sex-specific, not asked in survey, or not comparable with other years, and therefore excluded from this report.

Difference between managers administrators professionals and blue-collar groups statistically significant, with a higher rate among those in manager administrators professionals occupations.

Compared with managers, administrators and professions, those in blue-collar occupations had significantly *lower* rates (√) for the factors shown in the table below:

		Males			Females		
Age group		**1989–90**	**1995**	**2001**	**1989–90**	**1995**	**2001**
25–64 years	Asthma	√	√	•	•	√	•
	Hypertension	•	•	√	•	•	•
	Specialist consultation	n.a.	√	•	n.a.	√	•
	Dental consultations	√	√	√	√	√	•

√ Difference between managers administrators professionals and blue-collar groups statistically significant, with a lower rate among those in blue-collar occupations.

• Difference between managers administrators professionals and blue-collar groups not statistically significant.

n.a. Question was either sex-specific, not asked in survey, or not comparable with other years, and therefore excluded from this report.

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 (Rohlfs 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^2. 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^2 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_1 = the age-specific rate for age group 1

P_1 = 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:

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

$$CI = diff \pm 1.96 * SE(diff)$$

where $diff = R_2 - R_1$

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 value = chidist(*chisq*, df)

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

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

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

1989–90 IRSD variables	1991 IRSD variables	1996 IRSD variables
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

	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Morbidity									
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
Health-related behaviours									
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
Health-related risk factors									
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

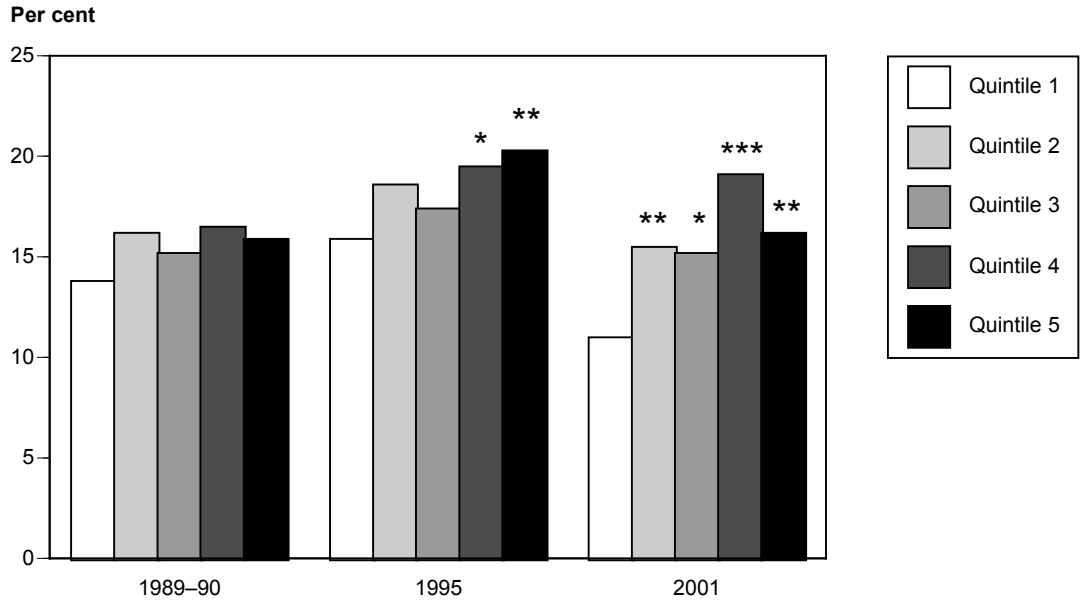
	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Health service use (in the previous 2 weeks)									
Doctor consultation									
Quintile 1	18.2	1.00		20.1	1.00		18.6	1.00	
Quintile 2	16.5	0.91	0.75, 1.09	17.5	0.87	0.74, 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 $p \leq 0.05$.

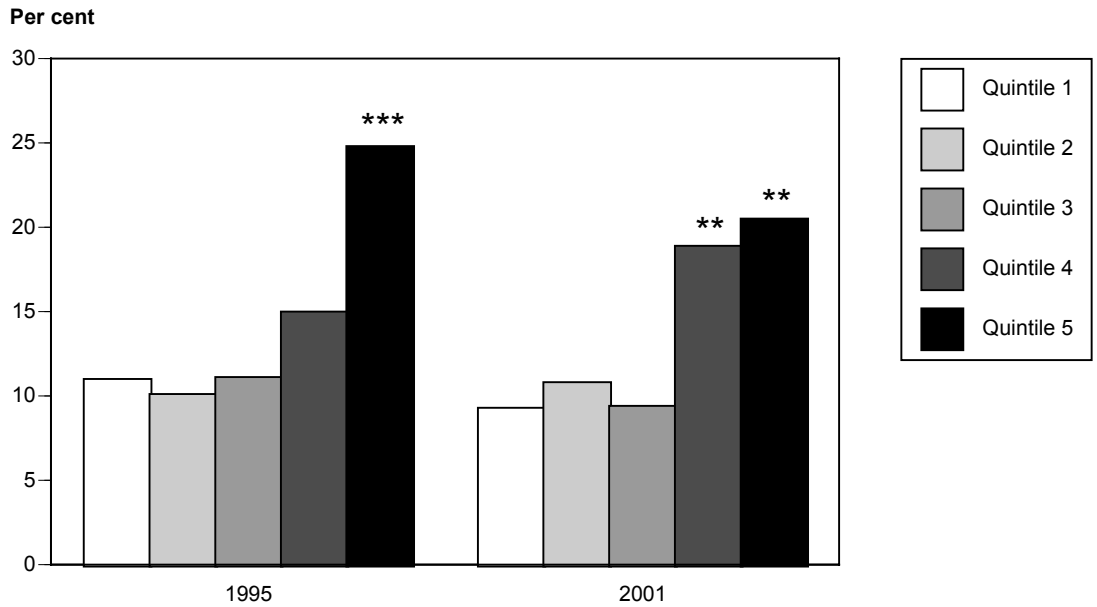
‡ 1995 rate ratio differs significantly from 2001 rate ratio at $p \leq 0.05$.



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

	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Morbidity									
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 ‡	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 ‡	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 + ‡	1.7	1.08	0.61, 1.92	4.3	2.32	1.46, 3.69	1.0	0.39	0.15, 1.01
Health-related behaviours									
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
Health-related risk factors									
Not breastfed									
Quintile 1	. .	. .		11.3	1.00		6.1	1.00	
Quintile 2 ‡	. .	. .	. .	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 ‡	. .	. .	. .	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

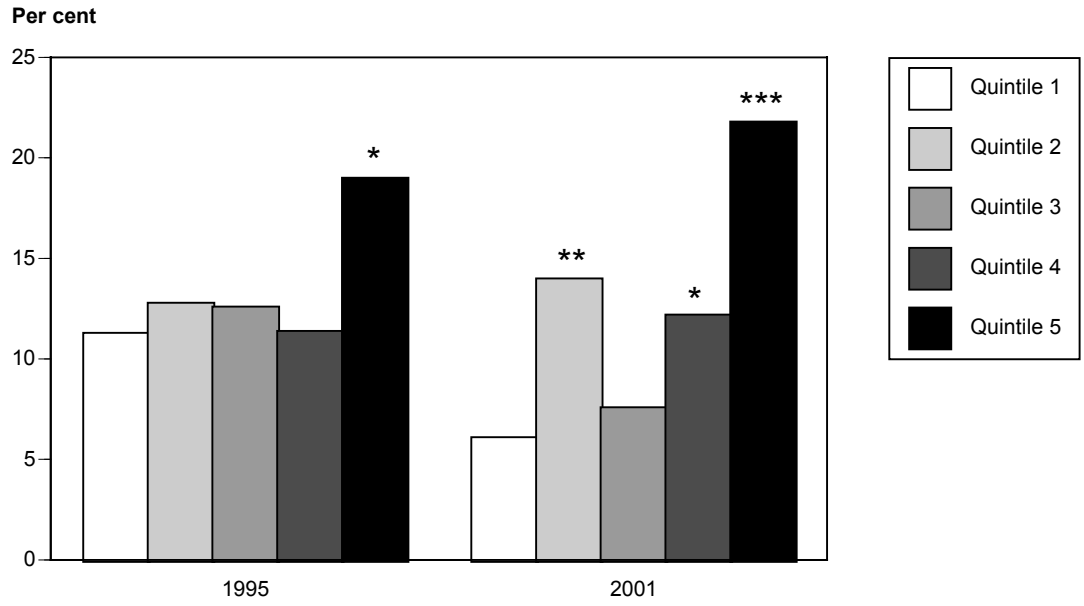
	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Health service use (in the previous 2 weeks)									
Doctor consultation									
Quintile 1	17.5	1.00		16.0	1.00		17.2	1.00	
Quintile 2	19.4	1.11	0.92, 1.33	17.1	1.07	0.89, 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 $p \leq 0.05$.

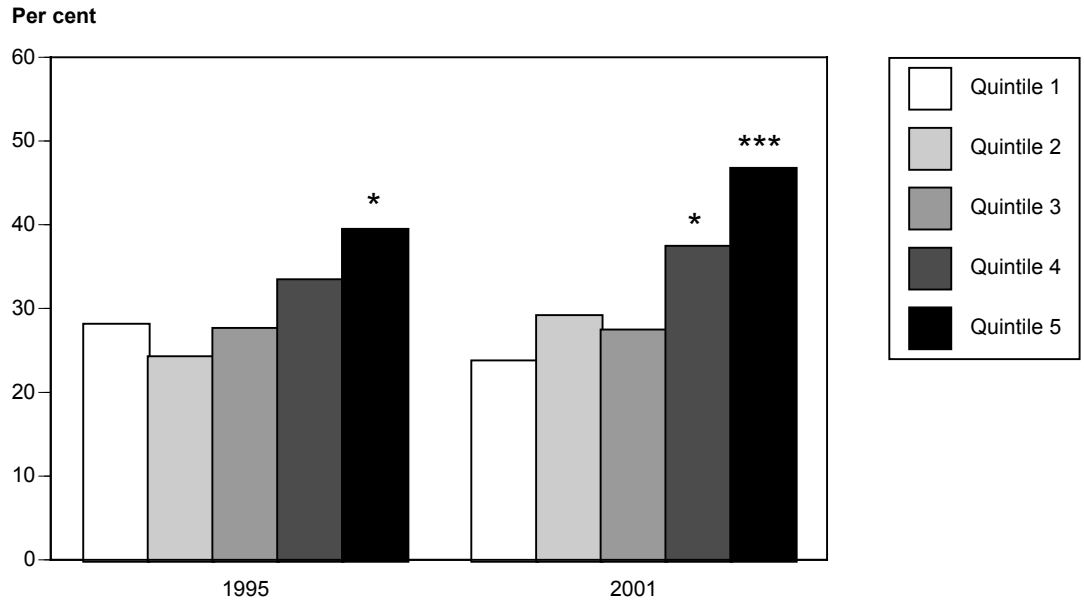
‡ 1995 rate ratio differs significantly from 2001 rate ratio at $p \leq 0.05$.



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

	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Morbidity									
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 †	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 + ‡	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 +	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 +	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 +	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
Health-related behaviours									
Alcohol risk									
Quintile 1	18.3	1.00		7.0	1.00		18.6	1.00	
Quintile 2 + ‡ †	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 +	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 †	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 + ‡	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

	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Smoking									
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 [+]	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 [+]	40.9	1.22	1.02, 1.47	40.5	1.61	1.31, 1.98	44.0	1.34	0.91, 1.98
Salt use (usually add salt to food after cooking)									
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
Sun protection (none in previous month)									
Quintile 1	. .	. .		22.9	1.00		12.4	1.00	
Quintile 2 [‡]	. .	. .	. .	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 [‡]	. .	. .	. .	16.3	0.71	0.47, 1.07	31.6	2.54	1.47, 4.37
Health-related risk factors									
Overweight (but not obese)									
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
Obese									
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 [‡†]	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
Food insecurity (ever ran out of food in last 12 months & couldn't afford more)									
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
Health service use (in the previous 2 weeks)									
Doctor consultation									
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

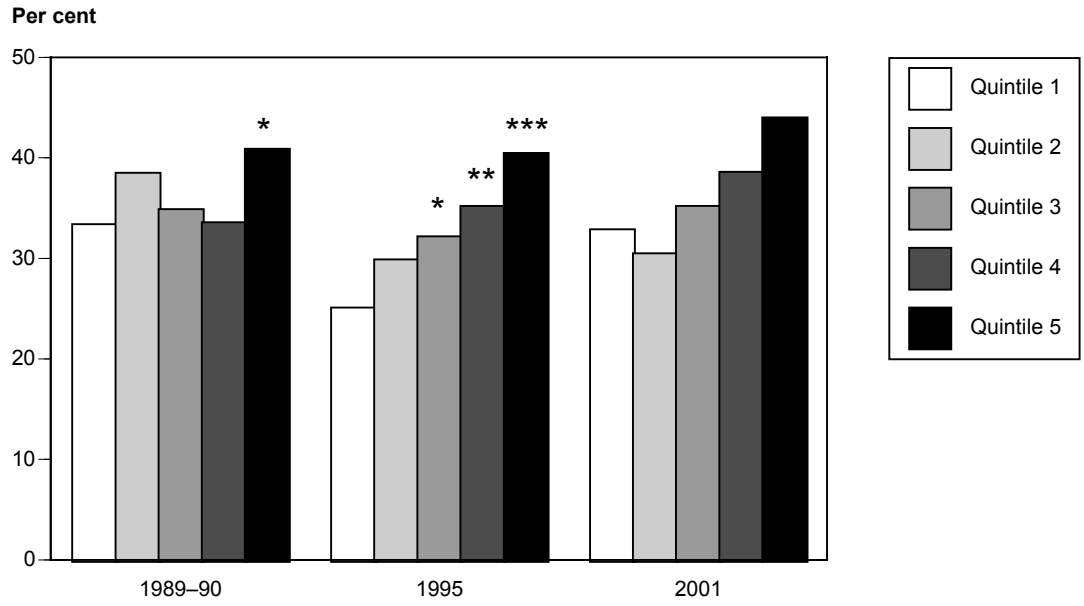
	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
GP consultation									
Quintile 1	. .	. .		13.5	1.00		12.1	1.00	
Quintile 2	. .	. .	. .	11.7	0.87	0.67, 1.13	13.0	1.08	0.70, 1.66
Quintile 3	. .	. .	. .	13.1	0.97	0.74, 1.29	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 $p \leq 0.05$.

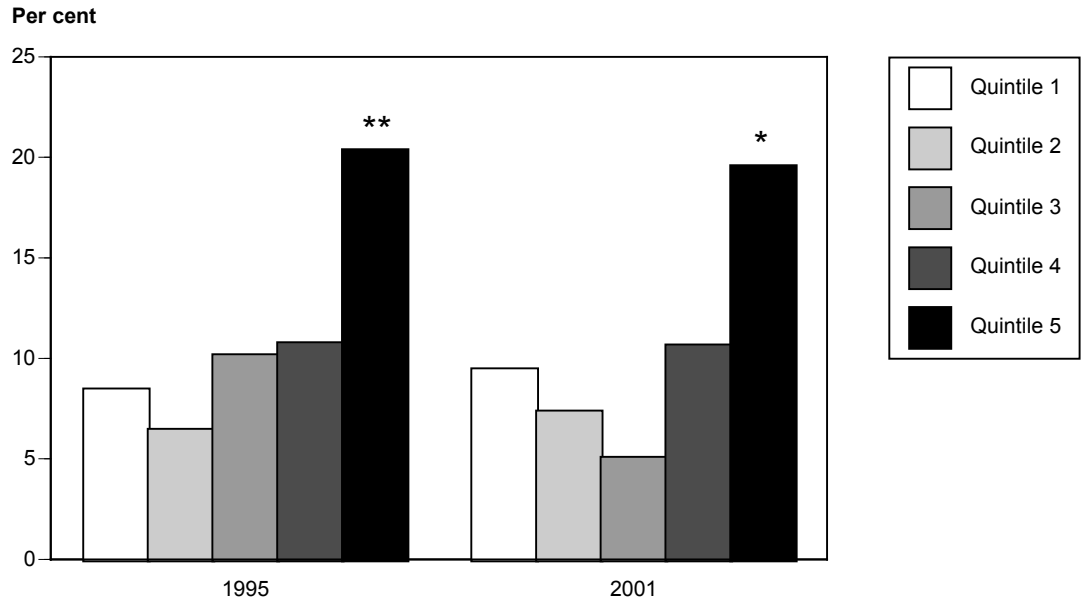
‡ 1995 rate ratio differs significantly from 2001 rate ratio at $p \leq 0.05$.



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.

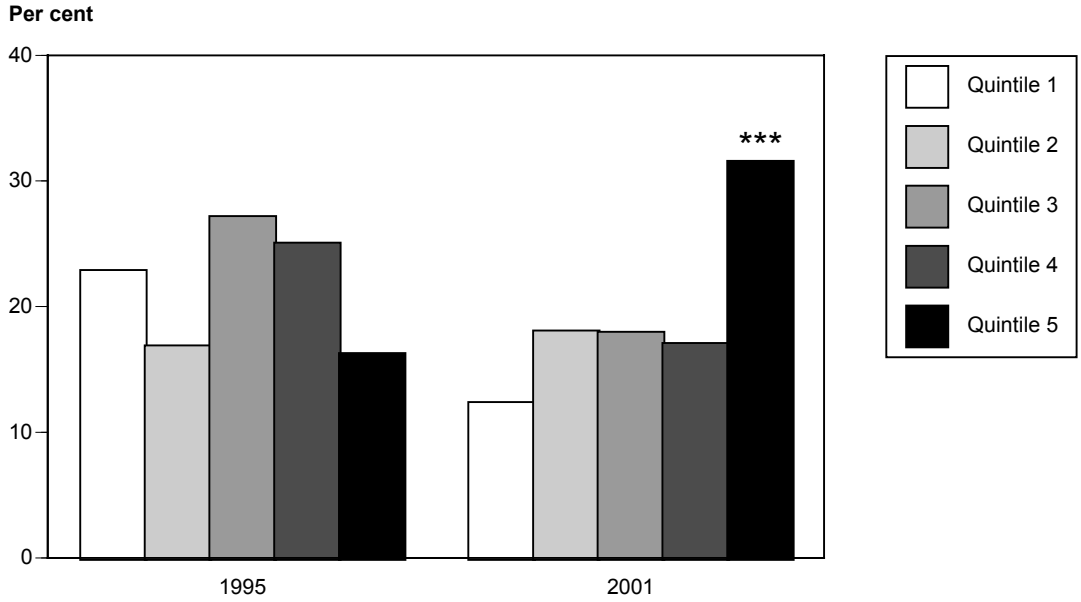
Figure 3.5: Percentage of males aged 15–24 years who were classified as regular smokers, by IRSD quintile, 1989–90, 1995 and 2001



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.

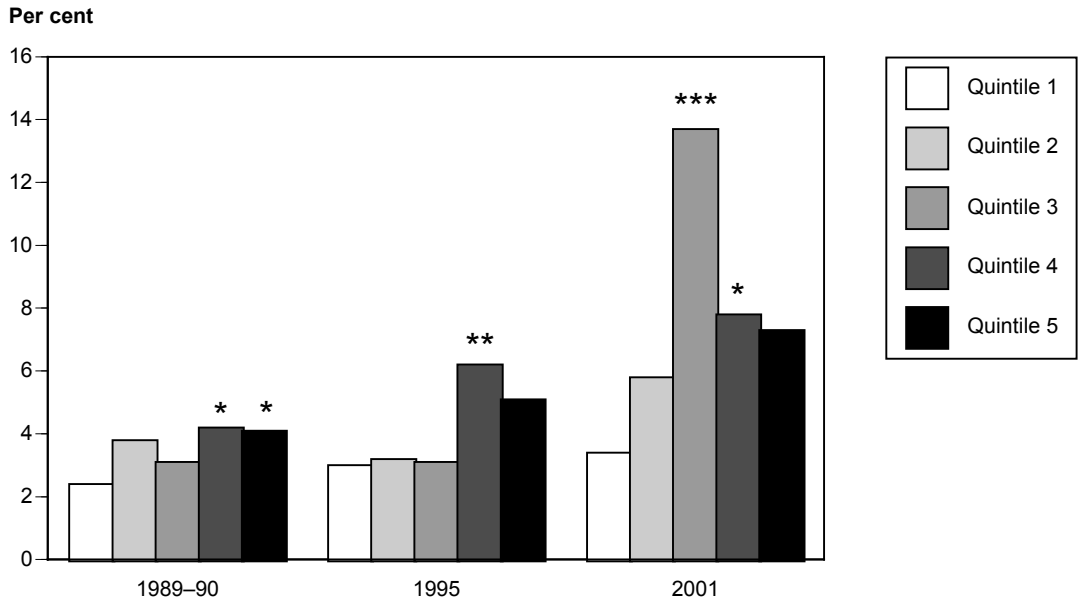
Figure 3.6: Percentage of males aged 15–24 years who reported experiencing food insecurity, by IRSD quintile, 1995 and 2001



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



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

	1989–90			1995			2001		
Health indicator/IRSD	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**
Morbidity									
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
Health-related behaviours									
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

	1989–90			1995			2001		
Health indicator/IRSD	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**
Smoking									
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
Salt use (usually add salt to food after cooking)									
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
Sun protection (none in previous month)									
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
Health-related risk factors									
Overweight (but not obese)									
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
Obese									
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
Food insecurity (ever ran out of food in last 12 months & couldn't afford more)									
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
Health service use (in the previous 2 weeks)									
Doctor consultation									
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

	1989–90			1995			2001		
Health indicator/IRSD	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 †	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.

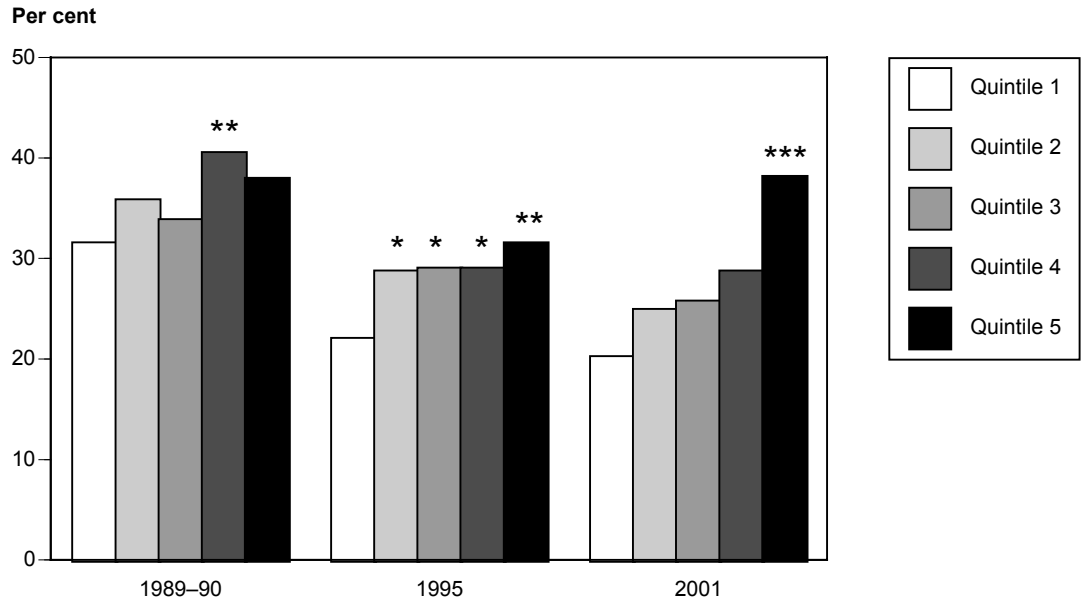
— Data unable to be calculated.

\+ 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 $p \leq 0.05$.

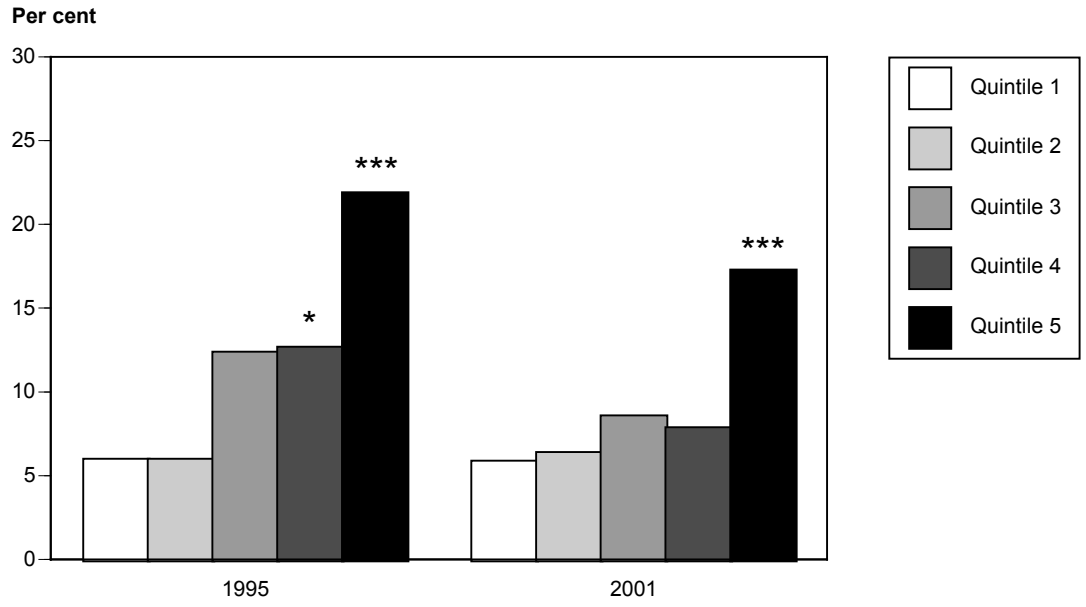
Note: A weighted equivalent of 388 females (1 female respondent) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.



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 335%, females 202%) and 2001 (males 363%, females 235%). 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

	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Morbidity									
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 [+†]	. .	. .	. .	18.5	2.09	1.80, 2.41	19.9	1.84	1.51, 2.24
Quintile 5 [+†]	. .	. .	. .	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 [+]	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 [+†]	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 [+†]	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 [+]	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

	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Health-related behaviours									
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
Health-related risk factors									
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

	1989–90			1995			2001		
Health indicator/IRSD	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	. .	. .		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
Health service use (in the previous 2 weeks)									
Doctor consultation									
Quintile 1	14.4	1.00		18.0	1.00		15.3	1.00	
Quintile 2 ‡	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 ‡ †	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 ‡ †	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 ‡	. .	. .	. .	17.2	1.08	0.94, 1.22	17.9	1.34	1.10, 1.63
Quintile 4 ‡	. .	. .	. .	16.5	1.04	0.91, 1.18	19.7	1.47	1.21, 1.79
Quintile 5 ‡	. .	. .	. .	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 + ‡	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 ‡ †	4.6	1.01	0.80, 1.29	5.2	0.87	0.68, 1.10	2.8	0.55	0.37, 0.83

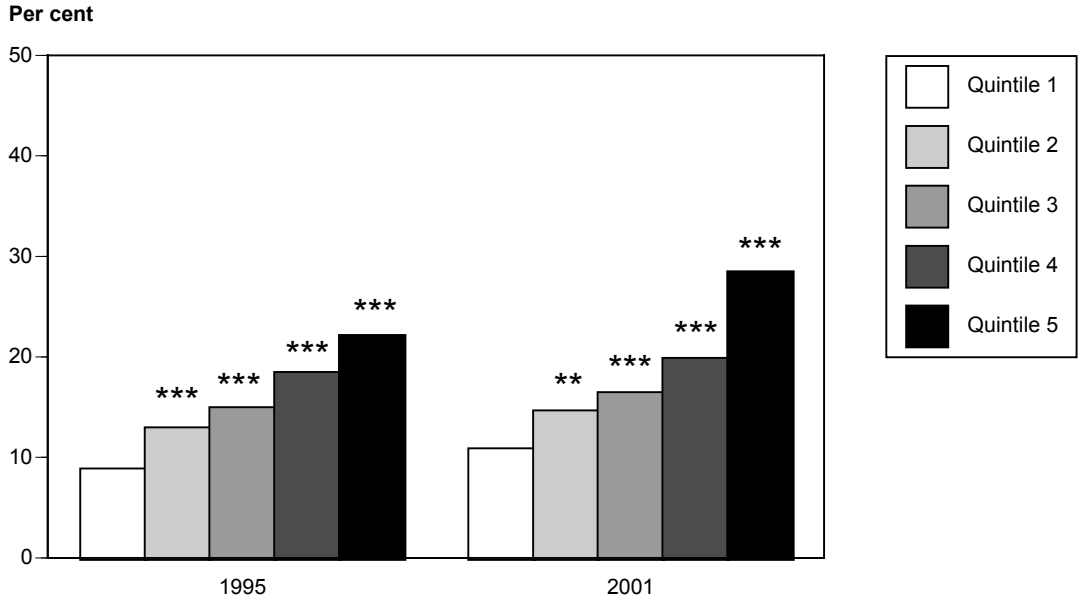
. . Data not available or not comparable.

\+ 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 $p \leq 0.05$.

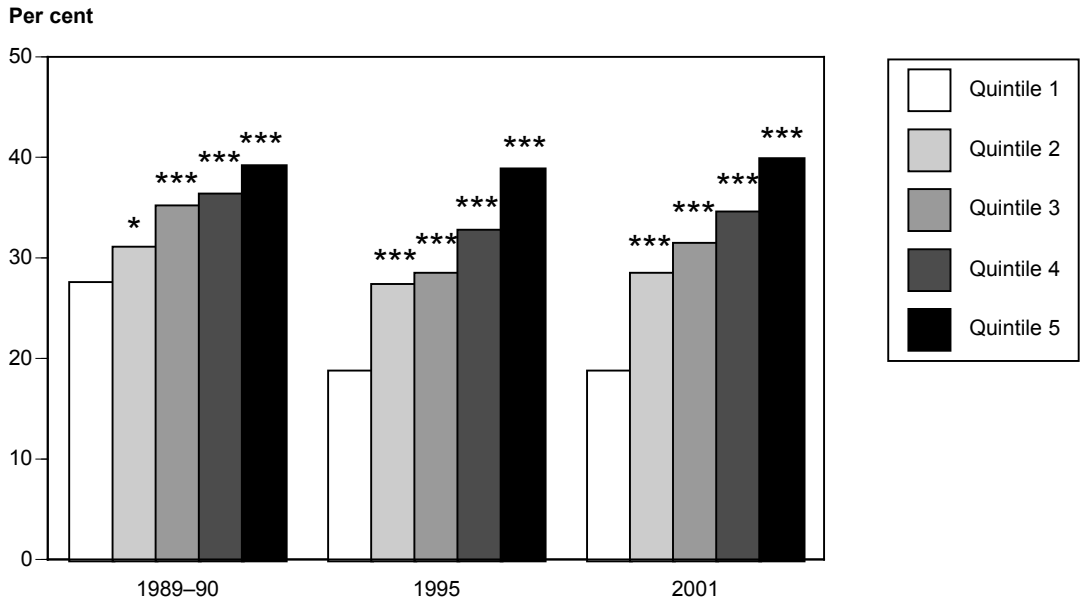
Note: A weighted equivalent of 1,430 males (1 male respondent) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.



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.

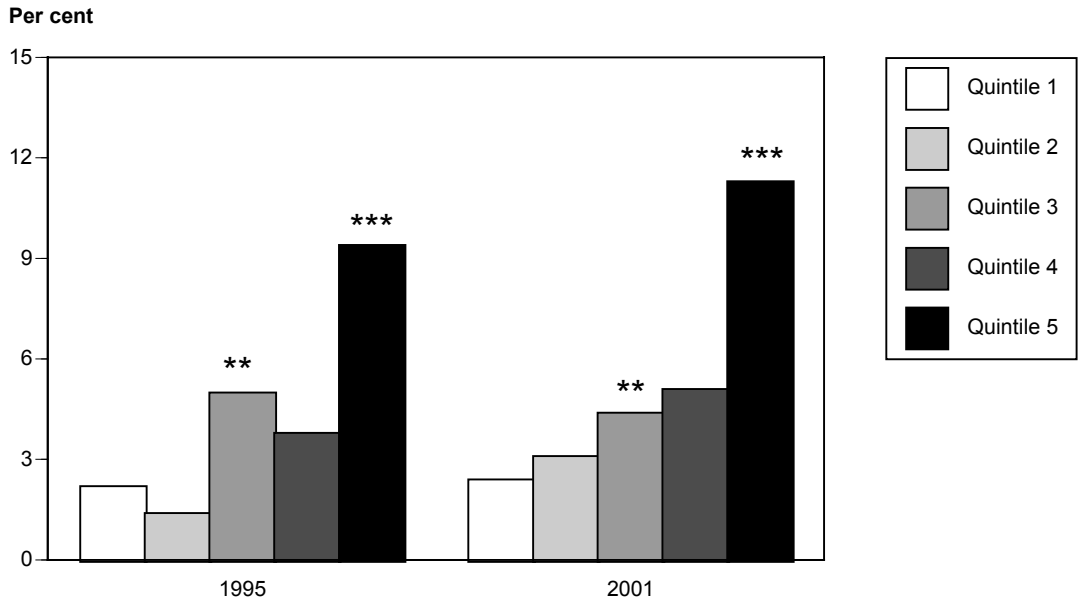
Figure 3.11: Percentage of males aged 25–64 years who reported their general health as 'fair or poor', by IRSD quintile, 1995 and 2001



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.

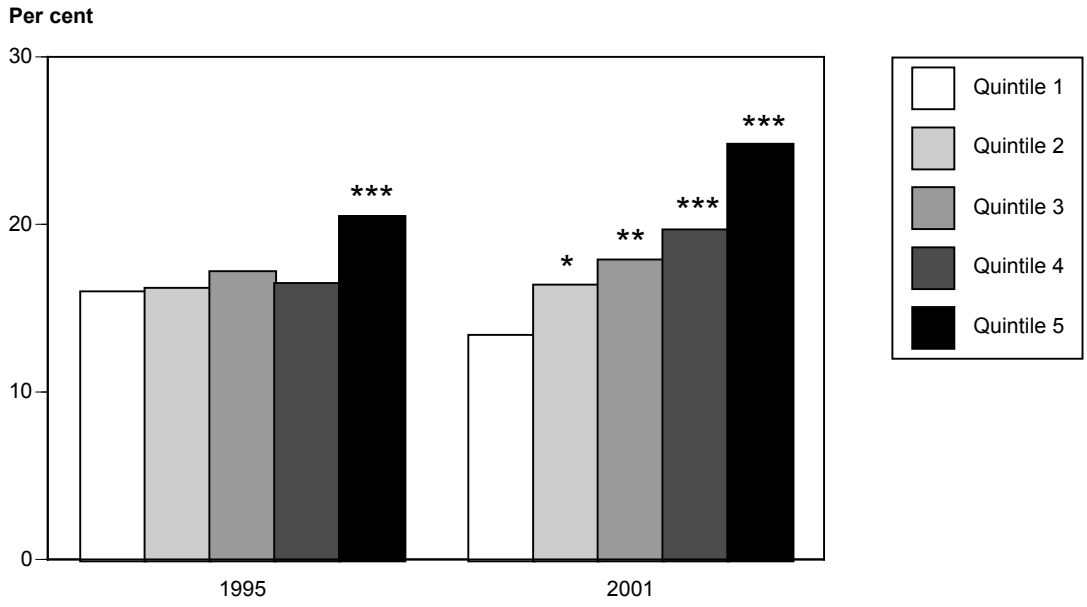
Figure 3.12: Percentage of males aged 25–64 years who were classified as regular smokers, by IRSD quintile, 1989–90, 1995 and 2001



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



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

	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Morbidity									
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 [+]	. .	. .	. .	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 [+]	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 [+‡]	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 [‡†]	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 [†]	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 [‡]	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 [‡]	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 [+]	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 [‡†]	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 [+†]	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 [†]	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

	1989–90			1995			2001		
Health indicator/IRSD	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Health-related behaviours									
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 †	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 †	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 + †	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 ‡	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 †	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 + †	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
Health-related risk factors									
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 +	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 †	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 + †	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 †	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

	1989–90			1995			2001		
Health indicator/IRSD	**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
Health service use (in the previous 2 weeks)									
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 ‡	. .	. .	. .	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 + ‡	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 +	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

	1989–90			1995			2001		
Health indicator/IRSD	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

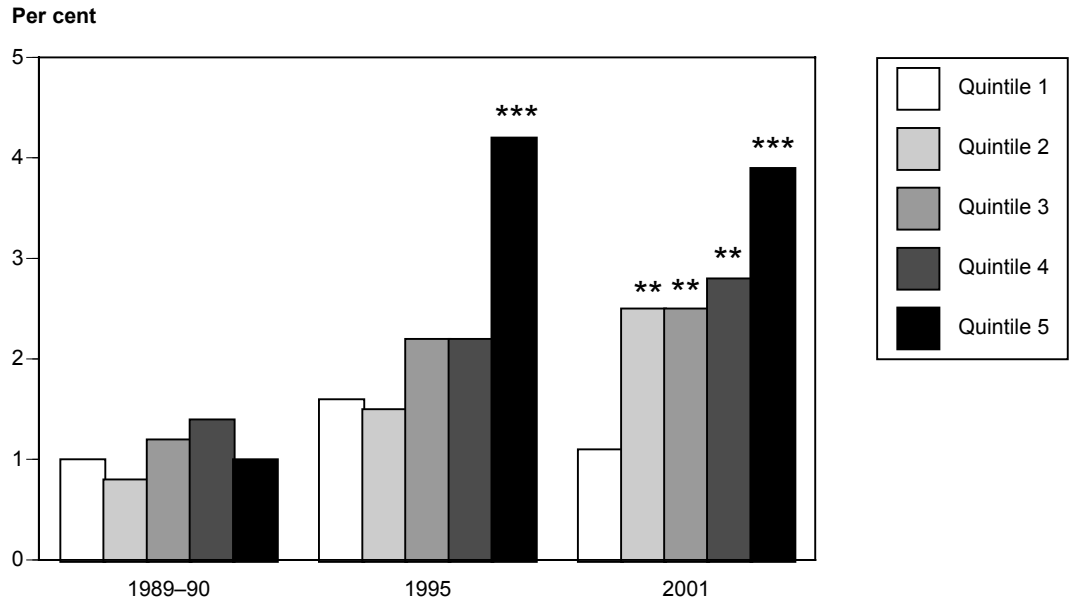
. . Data not available or not comparable.

\+ 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 $p \leq 0.05$.

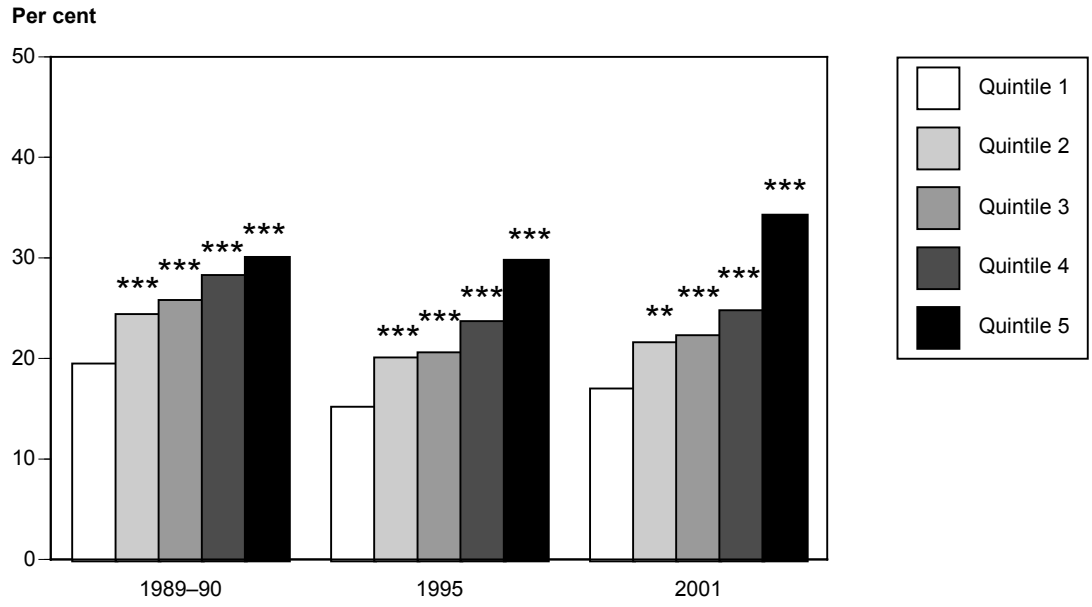
Note: A weighted equivalent of 2,053 females (7 female respondents) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.



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.

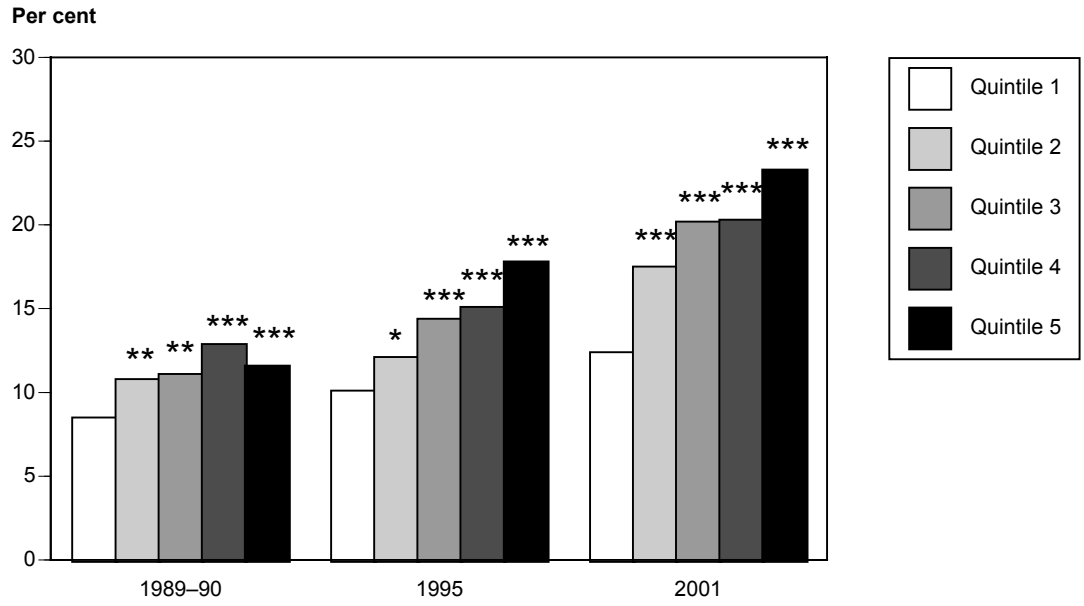
Figure 3.15: Percentage of females aged 25–64 years who reported experiencing diabetes as a long-term condition, by IRSD quintile, 1989–90, 1995 and 2001



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.

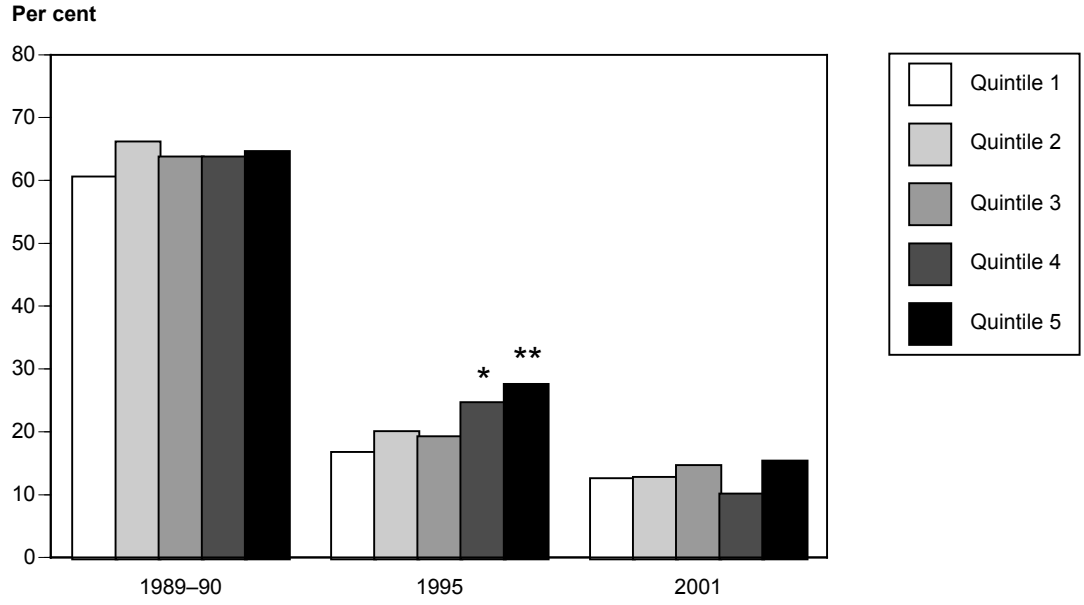
Figure 3.16: Percentage of females aged 25–64 years who were classified as regular smokers, by IRSD quintile, 1989–90, 1995 and 2001



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



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 lease 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

	1989–90			1995			2001		
Condition	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**
Morbidity									
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 †	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 +	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 †	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 ‡†	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 ‡†	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 ‡†	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 ‡†	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 +	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
Health-related behaviours									
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 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Insufficient physical activity									
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
Smoking									
Quintile 1	12.5	1.00		8.5	1.00		3.4	1.00	
Quintile 2 †	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 †	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 ‡ †	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 ‡ †	18.4	1.47	1.09, 1.98	16.5	1.94	1.34, 2.80	16.0	4.76	2.55, 8.90
Salt use (usually add salt to food after cooking)									
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
Health-related risk factors									
Overweight (but not obese)									
Quintile 1	34.2	1.00		42.2	1.00		42.8	1.00	
Quintile 2 +	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
Obese									
Quintile 1	7.0	1.00		4.7	1.00		8.2	1.00	
Quintile 2 +	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 †	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 +	7.5	1.08	0.70, 1.66	10.1	2.13	1.34, 3.38	14.9	1.82	1.05, 3.16
Hypertension									
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 +	17.8	0.71	0.55, 0.92	35.3	1.15	0.93, 1.43	38.9	1.03	0.79, 1.35
Health service use (in the previous 2 weeks)									
Doctor consultation									
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

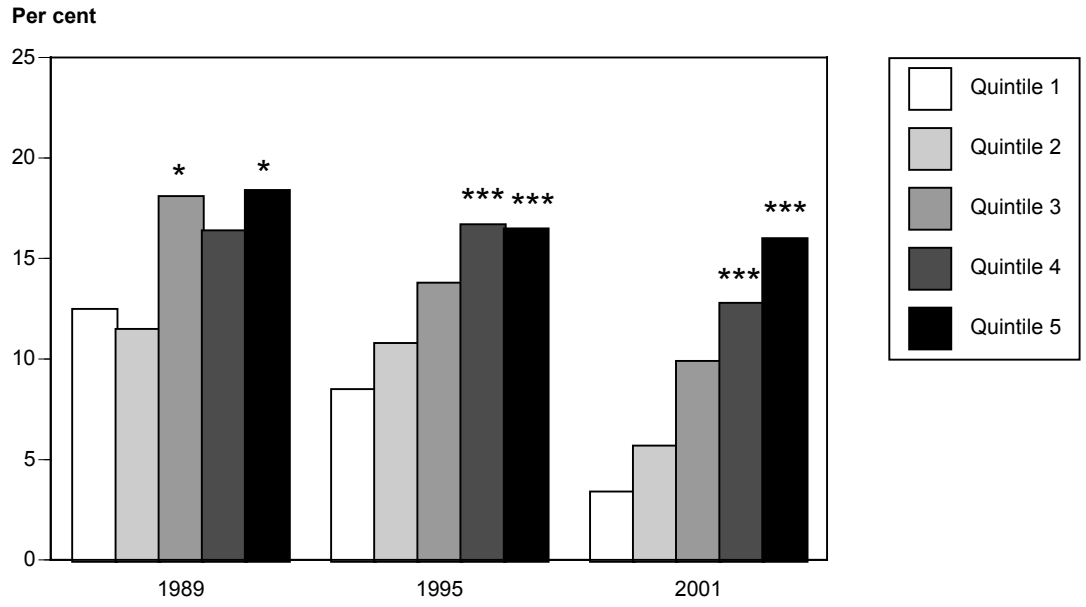
Condition	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Health service use (in the previous 2 weeks)									
GP consultation									
Quintile 1	. .	. .		36.0	1.00		39.2	1.00	
Quintile 2	. .	. .	. .	38.7	1.08	0.87, 1.33	37.6	0.96	0.72, 1.27
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 $p \leq 0.05$.

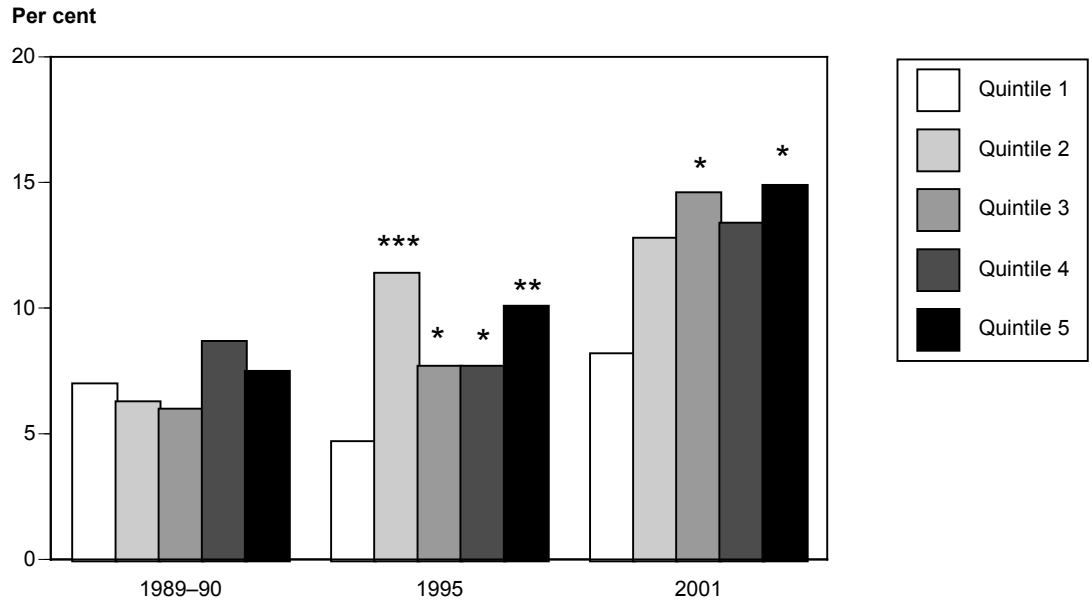
‡ 1995 rate ratio differs significantly from 2001 rate ratio at $p \leq 0.05$.



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



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

	1989–90			1995			2001		
Condition	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Morbidity									
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 [+]	. .	. .	. .	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 [+]	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 [+†]	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 [†]	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
Health-related behaviours									
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 [‡†]	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

	1989–90			1995			2001		
Condition	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**
Insufficient physical activity									
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
Smoking									
Quintile 1	9.2	1.00		5.7	1.00		4.8	1.00	
Quintile 2 †	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 †	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
Salt use (usually add salt to food after cooking)									
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
Health-related risk factors									
Overweight (but not obese)									
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
Obese									
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
Hypertension									
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 †	30.2	1.00	0.83, 1.21	41.7	1.05	0.88, 1.24	50.4	1.34	1.08, 1.67
Health service use (in the previous 2 weeks)									
Doctor consultation									
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

	1989–90			1995			2001		
Condition	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Health service use (in the previous 2 weeks)									
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 +	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

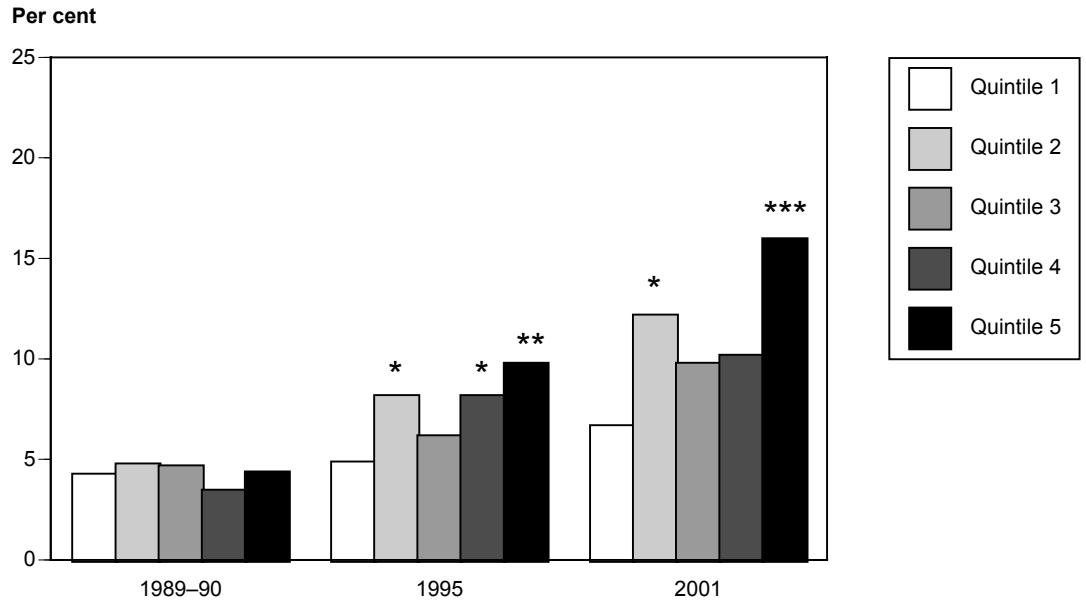
. . Data not available or not comparable.

\+ 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 $p \leq 0.05$.

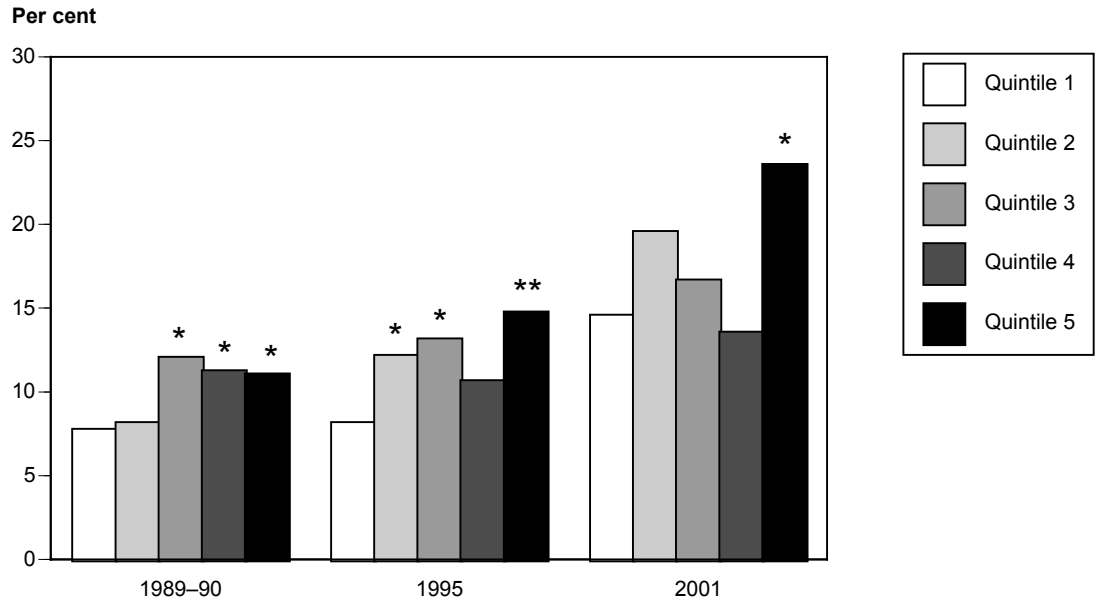
Notes: A weighted equivalent of 2,430 females (4 female respondents) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.



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.

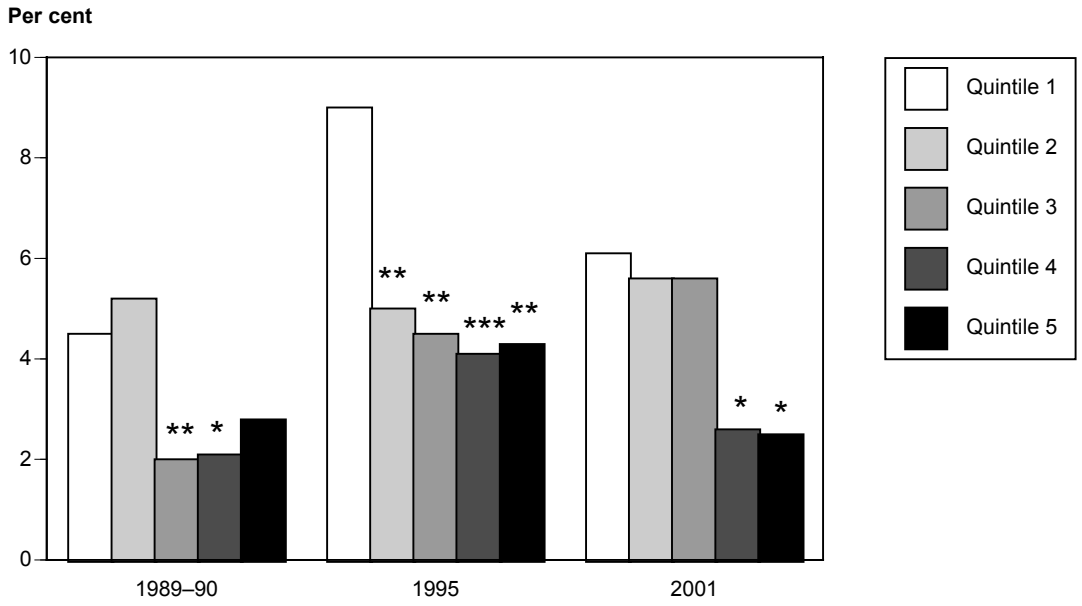
Figure 3.21: Percentage of females aged 65 years and over who reported experiencing diabetes as a long-term condition, by IRSD quintile, 1989–90, 1995 and 2001



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



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 3.23: Percentage of females aged 65 years and over who reported consulting a dentist in the 2 weeks before the survey, 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.

4 Health inequalities by equivalised income

A large and growing overseas literature documents an association between income and health, with persons from low income households typically having the poorest health. Research has shown, for example, that infants from low income households have worse overall health and higher hospital admission rates (Seguin et al. 2003) and that children from economically disadvantaged backgrounds have a higher prevalence of asthma and associated morbidity (Simon et al. 2003) and are more likely to experience decreased resistance to upper respiratory infections in adulthood (Cohen et al. 2004). Studies among adults have shown that those from low income households are more likely to experience depression (Lorant et al. 2002; Martikainen et al. 2003), to report their general health as fair or poor (Huisman et al. 2003; Frank et al. 2003), to have days off work due to ill health (Norris et al. 2003), and to report greater levels of physical impairment and functional limitation (Lynch et al. 1997; Lantz et al. 2001; Marra et al. 2004). A related body of work shows that persons from low income households are likely to have greater difficulty accessing and affording appropriate health care (Schoen & Doty 2004), are treated differently by the health care system from their more affluent counterparts (McCall et al. 2004), and are less likely to seek out preventive health care such as vaccinations (Pena-Rey et al. 2004) or use of mammography or Pap smear screening (Blanchard et al. 2004; Tumiel-Berhalter et al. 2004; Ogedegbe et al. 2005). Further, the results of surveys indicate that low income respondents are more likely to report that they smoke cigarettes (Schuster et al. 2002; Taira et al. 1997; Barbeau et al. 2004), are insufficiently physically active to accumulate health benefits (Eyler 2003; Craig et al. 2004; Stelmach et al. 2004), are overweight or obese (Drewnowski & Specter 2004; Huot et al. 2004; Li et al. 2004), and have food and nutrient intakes that are least consistent with dietary guidelines or healthy eating messages (Subar et al. 1995; Guthrie & Lin 2002; Bhargave 2004).

Research conducted in Australia generally concurs with the findings of overseas studies. Specifically, persons from low income households report higher levels of morbidity (Adams et al. 2003; Clarke et al. 2002), poorer oral health (Sanders & Spencer 2004), and higher levels of hospital episodes and doctor visits and lower rates of mammography and Pap smear screening (Mathers 1994a; Taylor et al. 2001). Moreover, persons with low income are more likely to engage in behaviours that are less conducive to good long-term health—they are more likely to smoke cigarettes (Turrell et al. 2002; Siahpush 2003; Siahpush et al. 2003; Phung et al. 2002), be less physically active during leisure time (Mathers 1994a), and to engage in dietary practices that put them at greater risk of chronic diseases such as coronary heart disease, diabetes and some cancers (Turrell et al. 2003; Giskes et al. 2002; Worsley et al. 2003).

This chapter examines income-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 over). We use an income indicator known as 'equivalised income' which is an adjusted measure that takes into account the composition and requirements of a family, or income unit. The 1989–90, 1995 and 2001 NHS data files provide equivalised income deciles, based on income of the income unit (see glossary for definition of income unit). The Henderson Simplified Equivalence Scale was used to calculate equivalised income in the 1989–90 and 1995 surveys. This scale adjusts income based on labour force information, unit composition, and household and other costs. Due to the sampling methodology of the 2001 NHS it was not possible to use the Henderson scale to derive equivalised income; instead, a simpler OECD scale was

applied to income of the income unit. The OECD scale requires information on unit composition only. Because of the use of different scales, in this report no inter-survey comparisons are made for equivalised income, and we present the results for the 2001 NHS only. The equivalised income data available for the 2001 NHS is in deciles; for the purpose of this report deciles have been collapsed into quintiles. In this chapter the term 'low income' is used to refer to households in quintile 5.

Equivalent income data are not available for a weighted estimate of 22.2% of persons in the 2001 NHS (18.0% of respondents). Respondents with an equivalised income quintile that was missing were excluded from all analyses involving equivalised income.

4.1 Persons aged 0–14 years

Tables 4.1 and 4.2 and Figures 4.1 and 4.2 present associations between equivalised income and a range of health indicators for males and females aged 0–14 years in 2001.

- Asthma: Compared with males from the highest income category (i.e. quintile 1), rates were 41% higher among males from low income households.
- Bronchitis/emphysema: Rates were 182% higher among males from low income households.
- Sun protection: Males from low income households were significantly more likely (106%) to have not received or taken sun protection in the month before the survey. The corresponding figure for females from low income households was 164%.
- Breastfeeding: Male and female infants from low income households were more likely not to have been breastfed (519% and 185% respectively).
- Dental consultations: Males from low income households were 41% less likely to have consulted a dentist.

Table 4.1: Health indicators by equivalised income quintile, males aged 0–14 years, 2001

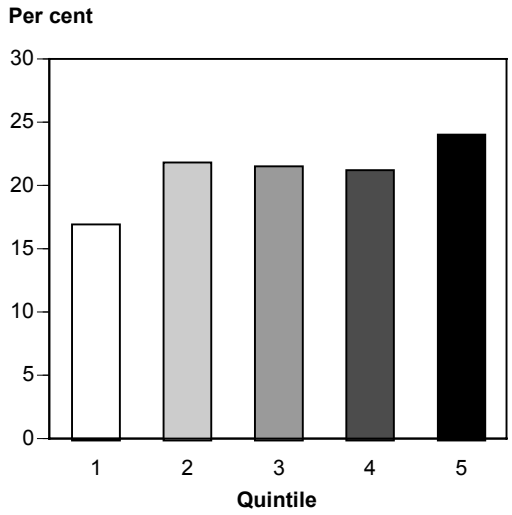
	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Morbidity			
Days away from school			
Quintile 1	16.9	1.00	
Quintile 2	21.8	1.29	0.90, 1.83
Quintile 3	21.5	1.27	0.89, 1.81
Quintile 4	21.2	1.25	0.87, 1.80
Quintile 5	24.0	1.42	0.98, 2.06
Asthma			
Quintile 1	13.4	1.00	
Quintile 2	11.9	0.89	0.64, 1.23
Quintile 3	15.7	1.17	0.86, 1.60
Quintile 4	17.4	1.30	0.96, 1.77
Quintile 5	18.9	1.41	1.02, 1.95
Bronchitis/emphysema			
Quintile 1	1.3	1.00	
Quintile 2	2.0	1.48	0.56, 3.89
Quintile 3	2.7	2.03	0.82, 5.00
Quintile 4	2.3	1.76	0.69, 4.50
Quintile 5	3.7	2.82	1.12, 7.10
Health-related behaviours			
Salt use (usually add salt to food after cooking)			
Quintile 1	4.6	1.00	
Quintile 2	26.3	5.68	1.96, 16.49
Quintile 3	11.5	2.50	0.82, 7.58
Quintile 4	15.5	3.35	1.11, 10.10
Quintile 5	6.3	1.37	0.40, 4.69
Sun protection (none in previous month)			
Quintile 1	3.4	1.00	
Quintile 2	4.7	1.39	0.74, 2.60
Quintile 3	5.5	1.64	0.90, 2.99
Quintile 4	5.5	1.63	0.88, 3.01
Quintile 5	7.0	2.06	1.11, 3.82
Health-related risk factors			
Not breastfed			
Quintile 1	3.6	1.00	
Quintile 2	9.1	2.51	0.94, 6.73
Quintile 3	13.0	3.60	1.41, 9.18
Quintile 4	14.6	4.04	1.59, 10.26
Quintile 5	22.4	6.19	2.40, 15.94
Time breastfed (less than 12 weeks)			
Quintile 1	24.1	1.00	
Quintile 2	32.3	1.34	0.87, 2.07
Quintile 3	34.0	1.41	0.93, 2.14
Quintile 4	33.3	1.38	0.90, 2.11
Quintile 5	28.8	1.19	0.72, 1.97

(continued)

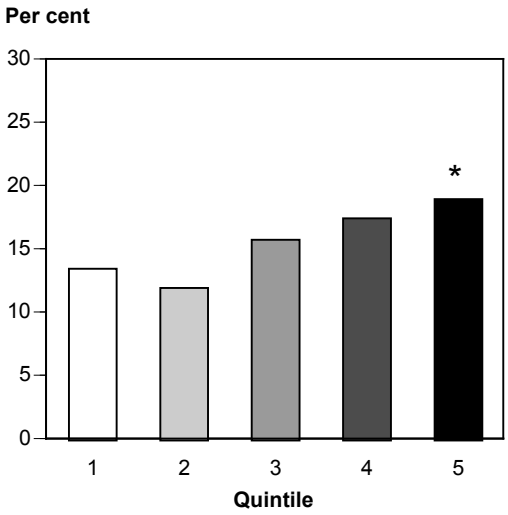
Table 4.1 (continued): Health indicators by equivalised income quintile, males aged 0–14 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Health service use (in the previous 2 weeks)			
Doctor consultation			
Quintile 1	19.5	1.00	
Quintile 2	19.3	0.99	0.76, 1.28
Quintile 3	20.0	1.03	0.79, 1.33
Quintile 4	18.7	0.96	0.74, 1.24
Quintile 5	19.1	0.98	0.73, 1.30
GP consultation			
Quintile 1	17.9	1.00	
Quintile 2	16.9	0.95	0.72, 1.25
Quintile 3	17.9	1.00	0.76, 1.31
Quintile 4	16.7	0.94	0.71, 1.23
Quintile 5	15.6	0.87	0.64, 1.19
Specialist consultation			
Quintile 1	3.4	1.00	
Quintile 2	4.6	1.35	0.73, 2.49
Quintile 3	3.8	1.10	0.59, 2.05
Quintile 4	2.7	0.79	0.41, 1.50
Quintile 5	4.2	1.23	0.63, 2.39
Dental consultation			
Quintile 1	6.9	1.00	
Quintile 2	6.8	0.98	0.63, 1.50
Quintile 3	7.5	1.08	0.71, 1.66
Quintile 4	5.9	0.85	0.54, 1.36
Quintile 5	4.1	0.59	0.36, 0.98

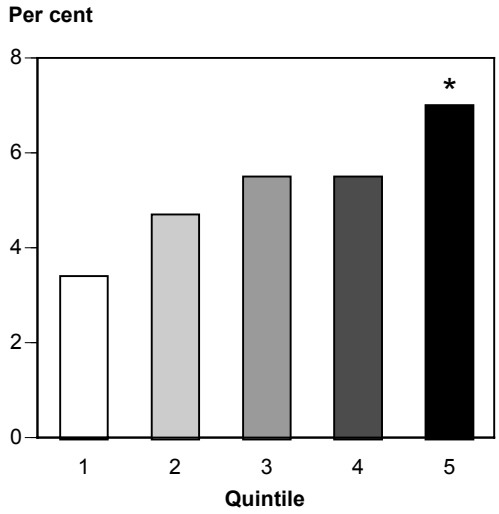
Days away from school



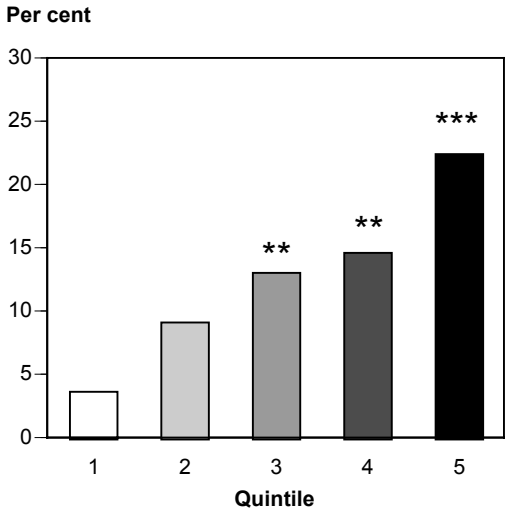
Asthma as a long-term condition



Sun protection (none in previous month)



Not breastfed



Note: Quintile 1 = high income, quintile 5 = low income.

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

Figure 4.1: Health indicators by equivalised income quintile, males aged 0–14 years, 2001

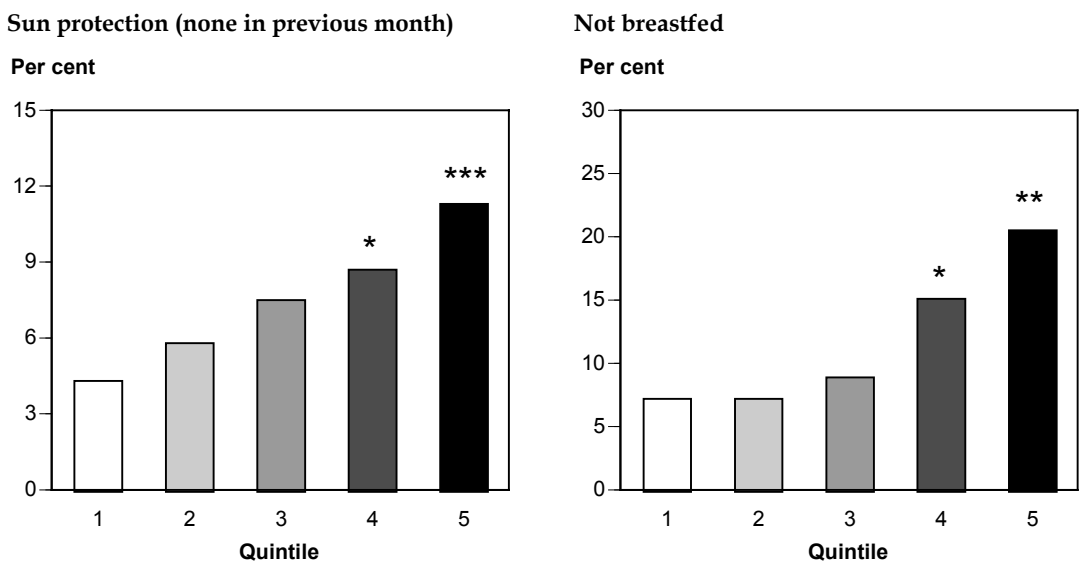
Table 4.2: Health indicators by equivalised income quintile, females aged 0–14 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Morbidity			
Days away from school			
Quintile 1	18.7	1.00	
Quintile 2	19.4	1.04	0.74, 1.46
Quintile 3	22.7	1.22	0.88, 1.69
Quintile 4	22.6	1.21	0.87, 1.68
Quintile 5	16.5	0.88	0.61, 1.28
Asthma			
Quintile 1	10.7	1.00	
Quintile 2	11.0	1.03	0.70, 1.51
Quintile 3	9.3	0.87	0.59, 1.26
Quintile 4	14.3	1.34	0.93, 1.93
Quintile 5	9.5	0.89	0.59, 1.35
Bronchitis/emphysema			
Quintile 1	1.3	1.00	
Quintile 2	1.8	1.37	0.38, 4.92
Quintile 3	1.6	1.20	0.34, 4.21
Quintile 4	2.5	1.89	0.55, 6.54
Quintile 5	1.0	0.78	0.20, 3.13
Health-related behaviours			
Salt use (usually add salt to food after cooking)			
Quintile 1	10.9	1.00	
Quintile 2	6.9	0.63	0.20, 1.95
Quintile 3	14.9	1.37	0.52, 3.59
Quintile 4	19.5	1.79	0.69, 4.61
Quintile 5	15.2	1.39	0.53, 3.66
Sun protection (none in last month)			
Quintile 1	4.3	1.00	
Quintile 2	5.8	1.35	0.74, 2.48
Quintile 3	7.5	1.76	0.99, 3.12
Quintile 4	8.7	2.03	1.17, 3.54
Quintile 5	11.3	2.64	1.49, 4.67
Health-related risk factors			
Not breastfed			
Quintile 1	7.2	1.00	
Quintile 2	7.2	1.00	0.45, 2.22
Quintile 3	8.9	1.24	0.59, 2.59
Quintile 4	15.1	2.09	1.04, 4.20
Quintile 5	20.5	2.85	1.39, 5.85
Time breastfed (less than 12 weeks)			
Quintile 1	25.4	1.00	
Quintile 2	28.1	1.10	0.69, 1.77
Quintile 3	36.8	1.45	0.94, 2.23
Quintile 4	32.6	1.28	0.83, 2.00
Quintile 5	34.7	1.37	0.81, 2.31

(continued)

Table 4.2 (continued): Health indicators by equivalised income quintile, females aged 0–14 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Health service use (in the previous 2 weeks)			
Doctor consultation			
Quintile 1	16.7	1.00	
Quintile 2	14.7	0.88	0.66, 1.18
Quintile 3	15.6	0.93	0.70, 1.23
Quintile 4	18.6	1.11	0.84, 1.46
Quintile 5	14.9	0.89	0.65, 1.23
GP consultation			
Quintile 1	13.0	1.00	
Quintile 2	13.5	1.04	0.75, 1.43
Quintile 3	14.3	1.10	0.81, 1.48
Quintile 4	17.2	1.32	0.98, 1.78
Quintile 5	13.1	1.00	0.71, 1.42
Specialist consultation			
Quintile 1	4.2	1.00	
Quintile 2	1.9	0.46	0.23, 0.91
Quintile 3	2.5	0.61	0.31, 1.17
Quintile 4	2.0	0.47	0.24, 0.94
Quintile 5	3.8	0.90	0.45, 1.79
Dental consultation			
Quintile 1	9.4	1.00	
Quintile 2	7.5	0.80	0.52, 1.23
Quintile 3	6.7	0.72	0.47, 1.10
Quintile 4	7.1	0.76	0.50, 1.15
Quintile 5	7.2	0.76	0.45, 1.28



Note: Quintile 1 = high income, quintile 5 = low income.

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

Figure 4.2: Health indicators by equivalised income quintile, females aged 0–14 years, 2001

4.2 Persons aged 15–24 years

Tables 4.3 and 4.4 and Figures 4.3 and 4.4 present associations between equivalised income and a range of health indicators for males and females aged 15–24 years.

- Self-assessed health: Compared with females in the highest income category (i.e. quintile 1), females from low income households were significantly more likely to asses their health as fair or poor.
- Bronchitis/emphysema: The rate was noticeable higher among females from low income households.
- Smoking: Rates were significantly higher (95%) among females from low income households.
- Salt use: The rate of discretionary salt use was 77% higher among males from low income households.
- Food security: Males and females from low income households were significantly more likely to report that they ran out of food in the previous 12 months and couldn't afford to buy more.

Males aged 15–24 from low income households also reported that they were more likely (337%) not to have taken sun protection measures in the month before the survey, and they were less likely (53%) to have visited a dentist.

Table 4.3: Health indicators by equivalised income quintile, males aged 15–24 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Morbidity			
Self-assessed health status (fair or poor)			
Quintile 1	7.3	1.00	
Quintile 2	9.2	1.26	0.38, 4.17
Quintile 3	7.1	0.96	0.29, 3.20
Quintile 4	8.9	1.21	0.37, 3.94
Quintile 5	11.6	1.58	0.51, 4.90
Days away from study/school or work			
Quintile 1	18.9	1.00	
Quintile 2	17.0	0.90	0.56, 1.43
Quintile 3	18.6	0.98	0.61, 1.57
Quintile 4	20.1	1.06	0.67, 1.69
Quintile 5	16.3	0.86	0.55, 1.36
Asthma			
Quintile 1	18.6	1.00	
Quintile 2	13.4	0.72	0.43, 1.21
Quintile 3	14.9	0.80	0.47, 1.38
Quintile 4	17.3	0.93	0.55, 1.57
Quintile 5	20.8	1.12	0.69, 1.80

(continued)

Table 4.3 (continued): Health indicators by equivalised income quintile, males aged 15–24 years, 2001

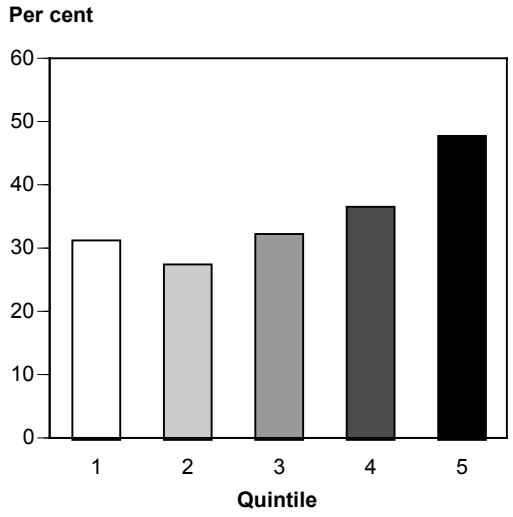
	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Bronchitis/emphysema			
Quintile 1	1.2	1.00	
Quintile 2	1.3	1.11	0.19, 6.65
Quintile 3	0.0	0.00	—
Quintile 4	0.8	0.72	0.10, 5.12
Quintile 5	2.3	1.97	0.41, 9.49
Health-related behaviours			
Alcohol risk			
Quintile 1	16.5	1.00	
Quintile 2	13.5	0.82	0.41, 1.65
Quintile 3	16.6	1.01	0.50, 2.03
Quintile 4	12.2	0.74	0.31, 1.76
Quintile 5	8.0	0.49	0.20, 1.20
Insufficient physical activity			
Quintile 1	50.2	1.00	
Quintile 2	53.6	1.07	0.79, 1.43
Quintile 3	53.0	1.06	0.78, 1.42
Quintile 4	35.3	0.70	0.50, 0.99
Quintile 5	49.3	0.98	0.73, 1.32
Smoking			
Quintile 1	31.2	1.00	
Quintile 2	27.4	0.88	0.53, 1.45
Quintile 3	32.2	1.03	0.63, 1.69
Quintile 4	36.5	1.17	0.67, 2.06
Quintile 5	47.7	1.53	0.94, 2.50
Salt use (usually add salt to food after cooking)			
Quintile 1	18.1	1.00	
Quintile 2	18.2	1.01	0.62, 1.64
Quintile 3	21.4	1.18	0.74, 1.88
Quintile 4	22.2	1.23	0.74, 2.03
Quintile 5	32.0	1.77	1.14, 2.74
Food insecurity (ever ran out of food in last 12 months & couldn't afford more)			
Quintile 1	1.0	1.00	
Quintile 2	4.6	4.41	0.94, 20.76
Quintile 3	5.6	5.35	1.11, 25.77
Quintile 4	14.1	13.47	3.01, 60.18
Quintile 5	10.4	9.92	2.25, 43.66
Sun protection (none in previous month)			
Quintile 1	7.0	1.00	
Quintile 2	6.8	0.97	0.36, 2.61
Quintile 3	19.7	2.80	1.18, 6.66
Quintile 4	18.0	2.56	1.06, 6.17
Quintile 5	30.8	4.37	1.98, 9.67

(continued)

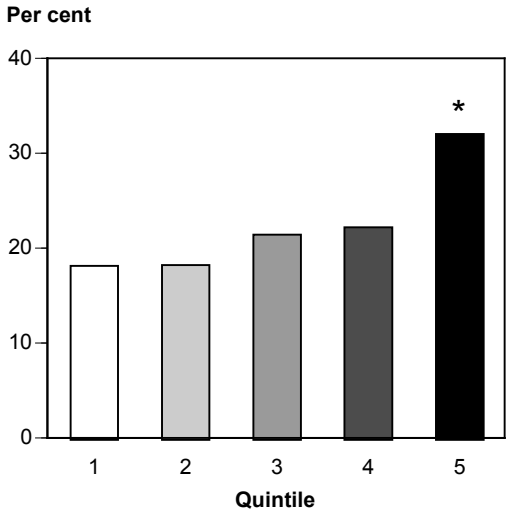
Table 4.3 (continued): Health indicators by equivalised income quintile, males aged 15–24 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Health-related risk factors			
Overweight (but not obese)			
Quintile 1	23.5	1.00	
Quintile 2	23.6	1.00	0.64, 1.57
Quintile 3	29.6	1.26	0.82, 1.94
Quintile 4	18.0	0.77	0.45, 1.30
Quintile 5	17.8	0.76	0.45, 1.29
Obese			
Quintile 1	6.4	1.00	
Quintile 2	3.5	0.55	0.20, 1.52
Quintile 3	5.1	0.79	0.29, 2.19
Quintile 4	13.7	2.14	0.84, 5.43
Quintile 5	8.4	1.32	0.55, 3.15
Health service use			
Doctor consultation			
Quintile 1	14.4	1.00	
Quintile 2	16.1	1.11	0.64, 1.94
Quintile 3	10.3	0.71	0.41, 1.25
Quintile 4	17.6	1.22	0.71, 2.09
Quintile 5	17.7	1.23	0.73, 2.05
GP consultation			
Quintile 1	13.4	1.00	
Quintile 2	16.1	1.19	0.68, 2.11
Quintile 3	9.6	0.72	0.40, 1.30
Quintile 4	15.8	1.18	0.66, 2.09
Quintile 5	15.1	1.12	0.65, 1.94
Specialist consultation			
Quintile 1	2.6	1.00	
Quintile 2	0.0	0.00	—
Quintile 3	2.2	0.85	0.22, 3.19
Quintile 4	3.4	1.32	0.36, 4.86
Quintile 5	4.0	1.55	0.43, 5.62
Dental consultation			
Quintile 1	8.8	1.00	
Quintile 2	5.3	0.60	0.31, 1.15
Quintile 3	5.7	0.65	0.34, 1.22
Quintile 4	8.8	1.01	0.44, 2.30
Quintile 5	4.1	0.47	0.22, 1.00

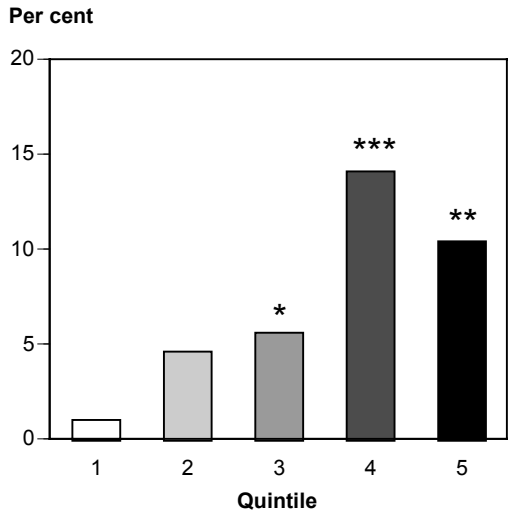
Classified as a regular smoker



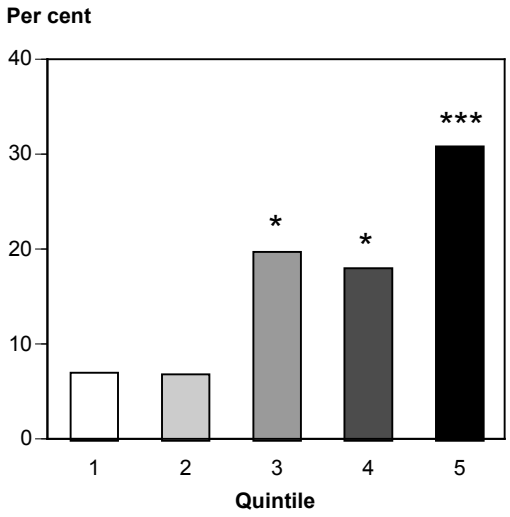
Salt use (usually add to food after cooking)



Food insecurity



Sun protection (none in previous month)



Note: Quintile 1 = high income, quintile 5 = low income.

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

Figure 4.3: Health indicators by equivalised income quintile, males aged 15–24 years, 2001

Table 4.4: Health indicators by equivalised income quintile, females aged 15–24 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Morbidity			
Self-assessed health status (fair or poor)			
Quintile 1	6.2	1.00	
Quintile 2	7.3	1.18	0.41, 3.40
Quintile 3	11.3	1.83	0.71, 4.72
Quintile 4	14.3	2.30	0.93, 5.67
Quintile 5	20.9	3.38	1.39, 8.24
Days away from study/school or work			
Quintile 1	25.3	1.00	
Quintile 2	22.6	0.89	0.59, 1.36
Quintile 3	26.3	1.04	0.68, 1.59
Quintile 4	19.8	0.78	0.51, 1.20
Quintile 5	23.8	0.94	0.62, 1.42
Asthma			
Quintile 1	13.8	1.00	
Quintile 2	18.7	1.35	0.81, 2.25
Quintile 3	12.0	0.87	0.49, 1.54
Quintile 4	19.6	1.42	0.85, 2.37
Quintile 5	22.1	1.60	0.98, 2.60
Bronchitis/emphysema			
Quintile 1	0.0	—	
Quintile 2	2.5	—	—
Quintile 3	2.5	—	—
Quintile 4	0.6	—	—
Quintile 5	5.4	—	—
Health-related behaviours			
Alcohol risk			
Quintile 1	6.1	1.00	
Quintile 2	5.9	0.96	0.35, 2.64
Quintile 3	5.7	0.94	0.34, 2.59
Quintile 4	5.1	0.83	0.28, 2.48
Quintile 5	7.9	1.30	0.46, 3.65
Insufficient physical activity			
Quintile 1	71.1	1.00	
Quintile 2	67.1	0.94	0.73, 1.22
Quintile 3	70.5	0.99	0.77, 1.28
Quintile 4	73.2	1.03	0.80, 1.33
Quintile 5	64.8	0.91	0.71, 1.17
Smoking			
Quintile 1	21.6	1.00	
Quintile 2	21.3	0.99	0.57, 1.71
Quintile 3	31.7	1.46	0.87, 2.45
Quintile 4	29.9	1.38	0.82, 2.32
Quintile 5	42.1	1.95	1.20, 3.17

(continued)

Table 4.4 (continued): Health indicators by equivalised income quintile, females aged 15–24 years, 2001

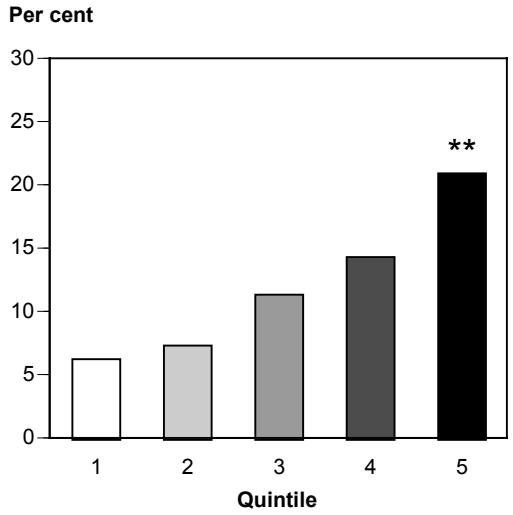
	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Salt use (usually add salt to food after cooking)			
Quintile 1	15.6	1.00	
Quintile 2	12.9	0.83	0.48, 1.45
Quintile 3	16.0	1.03	0.60, 1.77
Quintile 4	14.9	0.96	0.56, 1.64
Quintile 5	18.5	1.19	0.71, 1.99
Food insecurity (ever ran out of food in last 12 months & couldn't afford more)			
Quintile 1	3.0	1.00	
Quintile 2	1.8	0.61	0.14, 2.54
Quintile 3	3.6	1.19	0.31, 4.60
Quintile 4	13.2	4.43	1.31, 14.97
Quintile 5	12.4	4.15	1.24, 13.87
Sun protection (none in previous month)			
Quintile 1	10.8	1.00	
Quintile 2	11.2	1.04	0.38, 2.87
Quintile 3	10.8	1.00	0.34, 2.99
Quintile 4	13.8	1.28	0.43, 3.82
Quintile 5	19.9	1.85	0.70, 4.89
Health-related risk factors			
Overweight (but not obese)			
Quintile 1	12.0	1.00	
Quintile 2	11.2	0.93	0.49, 1.78
Quintile 3	10.9	0.91	0.46, 1.80
Quintile 4	10.0	0.83	0.42, 1.63
Quintile 5	14.7	1.22	0.63, 2.37
Obese			
Quintile 1	3.4	1.00	
Quintile 2	2.9	0.86	0.18, 4.12
Quintile 3	5.9	1.77	0.38, 8.17
Quintile 4	8.5	2.52	0.56, 11.36
Quintile 5	4.7	1.38	0.31, 6.23
Health service use			
Doctor consultation			
Quintile 1	22.4	1.00	
Quintile 2	20.5	0.91	0.59, 1.41
Quintile 3	22.3	0.99	0.63, 1.57
Quintile 4	23.7	1.06	0.68, 1.63
Quintile 5	28.7	1.28	0.84, 1.96
GP consultation			
Quintile 1	21.2	1.00	
Quintile 2	18.3	0.86	0.55, 1.36
Quintile 3	21.0	0.99	0.62, 1.59
Quintile 4	22.0	1.04	0.66, 1.63
Quintile 5	23.1	1.09	0.70, 1.70

(continued)

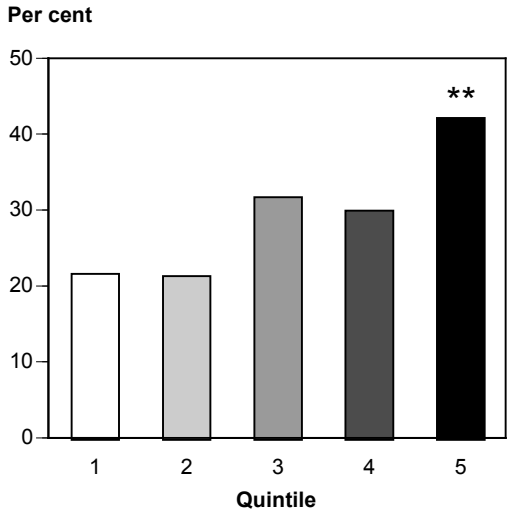
Table 4.4 (continued): Health indicators by equivalised income quintile, females aged 15–24 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Specialist consultation			
Quintile 1	2.3	1.00	
Quintile 2	3.1	1.36	0.41, 4.52
Quintile 3	4.4	1.94	0.60, 6.31
Quintile 4	1.7	0.74	0.21, 2.64
Quintile 5	6.7	2.92	0.92, 9.31
Dental consultation			
Quintile 1	10.0	1.00	
Quintile 2	12.6	1.26	0.66, 2.39
Quintile 3	8.8	0.88	0.45, 1.73
Quintile 4	7.3	0.73	0.36, 1.49
Quintile 5	7.6	0.75	0.39, 1.47

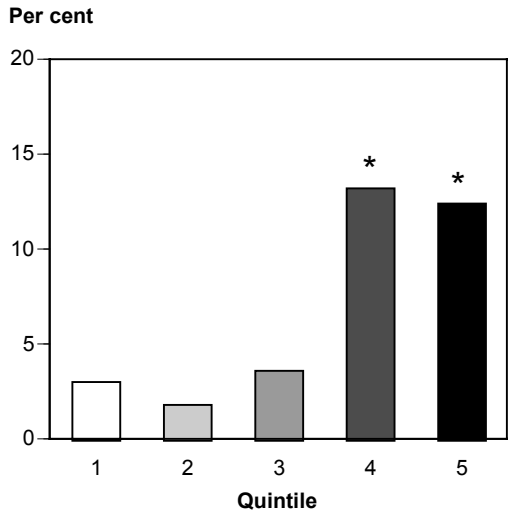
Self-assessed health as 'fair' or 'poor'



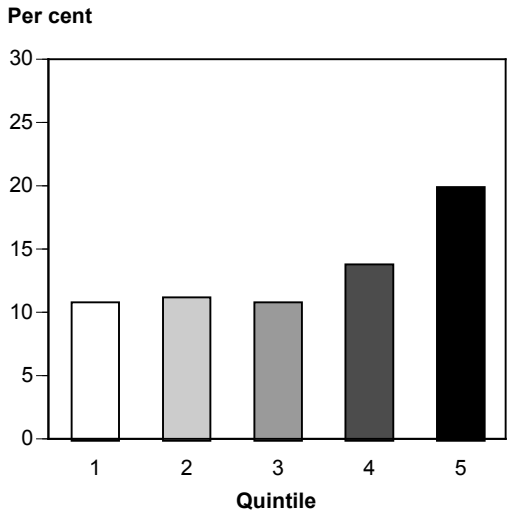
Classified as a regular smoker



Food insecurity



Sun protection (none in previous month)



Note: Quintile 1 = high income, quintile 5 = low income.

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

Figure 4.4: Health indicators by equivalised income quintile, females aged 15–24 years, 2001

4.3 Persons aged 25–64 years

Tables 4.5 and 4.6 and Figures 4.5 and 4.6 present associations between equivalised income and a range of health indicators for males and females aged 25–64 years.

Males and females from low income households (i.e. quintile 5) rated their own health more poorly, and reported a number of long-term conditions more often than those from households in the highest income category (i.e. quintile 1).

- Self-assessed health: Males and females from low income households were significantly more likely to rate their health as fair or poor (males 261%, females 222%).
- Days away from study or work: Persons from low income households were significantly more likely to report that they experienced days away from study or work oweing to illness (males 34% higher, females 20% higher).
- Arthritis: Reported rates were 96% higher among males from low income households, and 93% higher among females from low income households.
- Asthma: Reported rates were 36% higher among females from low income households.
- Bronchitis/emphysema: For males, rates were 128% higher among those from low income households, and 65% higher for females from low income households.
- Diabetes: Females from low income households had reported rates of diabetes that were 156% higher than their counterparts from households in the highest income category.

Persons from low income households were also more likely to engage in a number of risky or potentially harmful health-related behaviours.

- Insufficient physical activity: Persons from low income households were more likely to undertake levels of physical activity that were insufficient to accumulate health benefits (males 19% higher, females 10% higher).
- Smoking: Being a regular smoker was significantly more likely to be reported by males (83%) and females (119%) from low income households.
- Salt use: Rates of discretionary salt use were 58% higher for males from low income households, and 49% higher for females from low income households.
- Food security: Males and females from low income households were significantly more likely to report that they experienced food insecurity.

However, males and females from low income households were significantly less likely to report consuming alcohol at risky levels (males 25% less likely, females 42%).

Persons aged 25–64 years from low income households were more likely to be classified as obese (males 29%, females 61%), and females from low income households were more likely to have reported experiencing hypertension as a long-term condition (72% higher than females from quintile 1).

Persons from low income households were significantly more likely to have visited a doctor (males 79%, females 20%) and more likely to have consulted a GP (males 85%, females 36%).

Females aged 25–64 years from low income households were also more likely to have reported never having had a mammogram (171%) or Pap smear (79%), and more likely (51%) to report that their last Pap smear was 2 or more years ago.

Table 4.5: Health indicators by equivalised income quintile, males aged 25–64 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Morbidity			
Self-assessed health status (fair or poor)			
Quintile 1	9.5	1.00	
Quintile 2	13.1	1.38	1.10, 1.73
Quintile 3	16.6	1.75	1.39, 2.19
Quintile 4	22.4	2.36	1.87, 2.97
Quintile 5	34.3	3.61	2.96, 4.40
Days away from study or work			
Quintile 1	14.2	1.00	
Quintile 2	14.9	1.05	0.86, 1.28
Quintile 3	13.8	0.97	0.79, 1.20
Quintile 4	15.5	1.09	0.86, 1.38
Quintile 5	19.1	1.34	1.09, 1.65
Arthritis			
Quintile 1	9.9	1.00	
Quintile 2	10.7	1.08	0.84, 1.37
Quintile 3	13.2	1.33	1.04, 1.69
Quintile 4	13.6	1.37	1.06, 1.77
Quintile 5	19.4	1.96	1.58, 2.44
Asthma			
Quintile 1	9.3	1.00	
Quintile 2	7.7	0.83	0.64, 1.08
Quintile 3	6.3	0.67	0.50, 0.91
Quintile 4	9.3	1.00	0.74, 1.36
Quintile 5	8.0	0.86	0.64, 1.17
Bronchitis/emphysema			
Quintile 1	1.7	1.00	
Quintile 2	3.3	1.88	1.14, 3.08
Quintile 3	2.6	1.48	0.88, 2.48
Quintile 4	4.0	2.32	1.38, 3.90
Quintile 5	4.0	2.28	1.41, 3.69
Diabetes			
Quintile 1	3.5	1.00	
Quintile 2	3.3	0.96	0.59, 1.55
Quintile 3	1.7	0.48	0.27, 0.86
Quintile 4	4.4	1.27	0.77, 2.11
Quintile 5	4.7	1.35	0.88, 2.07

(continued)

Table 4.5 (continued): Health indicators by equivalised income quintile, males aged 25–64 years, 2001

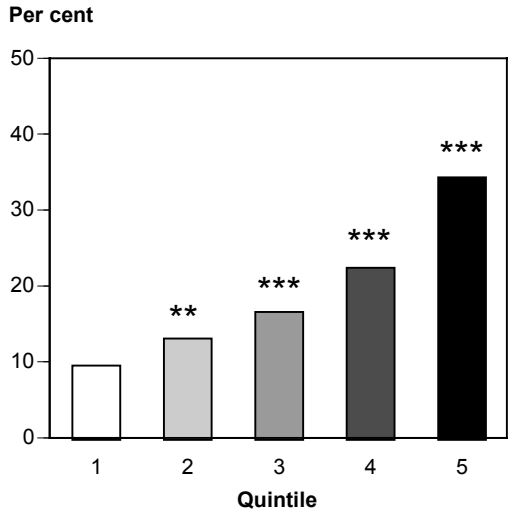
	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Neoplasms			
Quintile 1	1.7	1.00	
Quintile 2	0.9	0.56	0.27, 1.15
Quintile 3	1.8	1.06	0.55, 2.04
Quintile 4	1.7	1.01	0.48, 2.13
Quintile 5	2.9	1.75	0.99, 3.08
Health-related behaviours			
Alcohol risk			
Quintile 1	15.7	1.00	
Quintile 2	13.3	0.85	0.70, 1.03
Quintile 3	15.8	1.01	0.83, 1.23
Quintile 4	9.8	0.62	0.48, 0.81
Quintile 5	11.8	0.75	0.59, 0.96
Insufficient physical activity			
Quintile 1	58.1	1.00	
Quintile 2	68.4	1.18	1.07, 1.30
Quintile 3	69.3	1.19	1.08, 1.32
Quintile 4	73.4	1.26	1.13, 1.41
Quintile 5	68.9	1.19	1.06, 1.32
Smoking			
Quintile 1	21.3	1.00	
Quintile 2	29.0	1.36	1.18, 1.58
Quintile 3	27.9	1.31	1.12, 1.53
Quintile 4	33.6	1.58	1.34, 1.87
Quintile 5	38.9	1.83	1.57, 2.13
Salt use (usually add salt to food after cooking)			
Quintile 1	24.2	1.00	
Quintile 2	28.3	1.17	1.01, 1.36
Quintile 3	31.7	1.31	1.13, 1.52
Quintile 4	35.2	1.46	1.23, 1.72
Quintile 5	38.2	1.58	1.36, 1.85
Food security			
Quintile 1	1.0	1.00	
Quintile 2	1.9	1.91	1.06, 3.43
Quintile 3	3.6	3.56	2.02, 6.27
Quintile 4	8.2	8.05	4.70, 13.78
Quintile 5	16.4	16.07	9.71, 26.59
Health-related risk factors			
Overweight (but not obese)			
Quintile 1	45.3	1.00	
Quintile 2	47.3	1.04	0.93, 1.17
Quintile 3	45.7	1.01	0.89, 1.14
Quintile 4	38.7	0.85	0.74, 0.99
Quintile 5	38.8	0.86	0.74, 0.99

(continued)

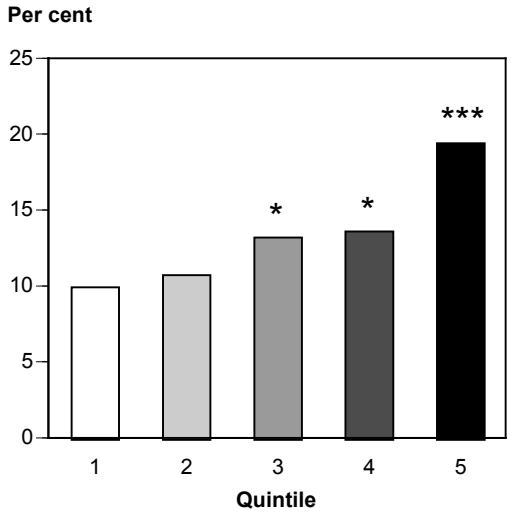
Table 4.5 (continued): Health indicators by equivalised income quintile, males aged 25–64 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Obese			
Quintile 1	16.1	1.00	
Quintile 2	17.5	1.09	0.90, 1.32
Quintile 3	16.1	1.00	0.81, 1.23
Quintile 4	20.2	1.25	1.01, 1.56
Quintile 5	20.8	1.29	1.05, 1.59
Hypertension			
Quintile 1	8.8	1.00	
Quintile 2	10.0	1.14	0.89, 1.46
Quintile 3	9.8	1.12	0.86, 1.44
Quintile 4	9.8	1.12	0.83, 1.49
Quintile 5	10.0	1.14	0.88, 1.47
Health service use			
Doctor consultation			
Quintile 1	17.2	1.00	
Quintile 2	17.4	1.01	0.84, 1.22
Quintile 3	18.9	1.10	0.91, 1.33
Quintile 4	25.4	1.48	1.21, 1.80
Quintile 5	30.7	1.79	1.50, 2.13
GP consultation			
Quintile 1	15.1	1.00	
Quintile 2	15.0	0.99	0.81, 1.20
Quintile 3	17.0	1.12	0.92, 1.37
Quintile 4	23.4	1.54	1.26, 1.90
Quintile 5	27.9	1.85	1.53, 2.23
Specialist consultation			
Quintile 1	4.6	1.00	
Quintile 2	4.9	1.06	0.75, 1.51
Quintile 3	4.2	0.92	0.63, 1.35
Quintile 4	4.3	0.95	0.61, 1.48
Quintile 5	6.3	1.38	0.97, 1.98
Dental consultation			
Quintile 1	5.4	1.00	
Quintile 2	4.0	0.75	0.52, 1.09
Quintile 3	4.2	0.78	0.53, 1.14
Quintile 4	5.3	0.99	0.68, 1.44
Quintile 5	6.9	1.29	0.92, 1.81

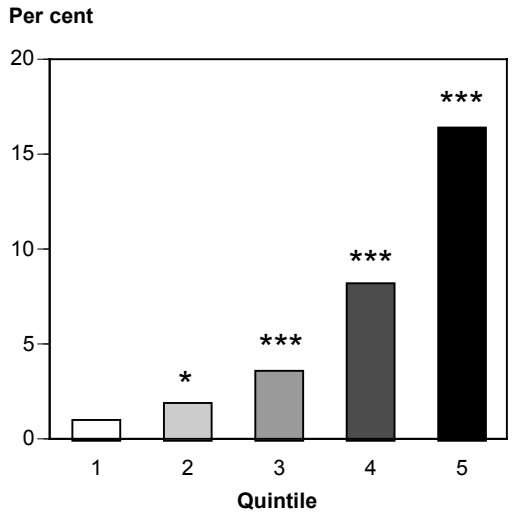
Self-assessed health as 'fair' or 'poor'



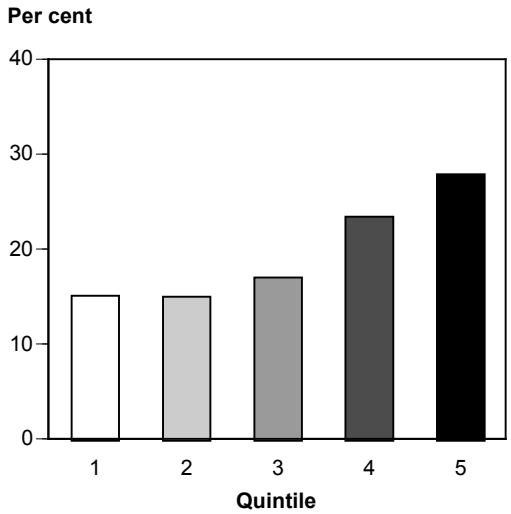
Experienced arthritis as long-term condition



Food insecurity



Visited a GP in last 2 weeks



Note: Quintile 1 = high income, quintile 5 = low income.

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

Figure 4.5: Health indicators by equivalised income quintile, males aged 25–64 years, 2001

Table 4.6: Health indicators by equivalised income quintile, females aged 25–64 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Morbidity			
Self-assessed health status (fair or poor)			
Quintile 1	9.2	1.00	
Quintile 2	10.6	1.16	0.90, 1.49
Quintile 3	13.4	1.46	1.13, 1.88
Quintile 4	21.5	2.35	1.87, 2.95
Quintile 5	29.6	3.22	2.61, 3.98
Days away from study or work			
Quintile 1	17.3	1.00	
Quintile 2	15.4	0.89	0.74, 1.08
Quintile 3	17.7	1.02	0.85, 1.24
Quintile 4	17.7	1.03	0.85, 1.25
Quintile 5	20.7	1.20	1.00, 1.43
Arthritis			
Quintile 1	11.7	1.00	
Quintile 2	14.9	1.28	1.02, 1.61
Quintile 3	15.0	1.29	1.02, 1.62
Quintile 4	19.5	1.67	1.35, 2.08
Quintile 5	22.6	1.93	1.59, 2.36
Asthma			
Quintile 1	11.0	1.00	
Quintile 2	11.7	1.06	0.84, 1.34
Quintile 3	12.0	1.09	0.86, 1.39
Quintile 4	12.9	1.17	0.93, 1.47
Quintile 5	15.0	1.36	1.09, 1.71
Bronchitis/emphysema			
Quintile 1	2.9	1.00	
Quintile 2	2.3	0.80	0.50, 1.28
Quintile 3	3.8	1.31	0.84, 2.04
Quintile 4	3.6	1.24	0.81, 1.88
Quintile 5	4.8	1.65	1.11, 2.45
Diabetes			
Quintile 1	1.6	1.00	
Quintile 2	2.0	1.22	0.61, 2.43
Quintile 3	2.2	1.37	0.71, 2.64
Quintile 4	2.5	1.54	0.81, 2.96
Quintile 5	4.2	2.56	1.43, 4.61
Neoplasms			
Quintile 1	1.7	1.00	
Quintile 2	1.0	0.60	0.31, 1.19
Quintile 3	1.7	0.99	0.50, 1.96
Quintile 4	1.8	1.07	0.57, 2.00
Quintile 5	1.6	0.94	0.54, 1.66

(continued)

Table 4.6 (continued): Health indicators by equivalised income quintile, females aged 25–64 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Health-related behaviours			
Alcohol risk			
Quintile 1	13.0	1.00	
Quintile 2	8.8	0.68	0.54, 0.86
Quintile 3	7.9	0.61	0.47, 0.79
Quintile 4	6.5	0.50	0.38, 0.65
Quintile 5	7.5	0.58	0.45, 0.75
Insufficient physical activity			
Quintile 1	65.9	1.00	
Quintile 2	75.4	1.15	1.04, 1.26
Quintile 3	77.8	1.18	1.07, 1.30
Quintile 4	75.4	1.14	1.04, 1.26
Quintile 5	72.8	1.10	1.00, 1.22
Smoking			
Quintile 1	15.9	1.00	
Quintile 2	19.2	1.21	1.01, 1.45
Quintile 3	19.7	1.24	1.03, 1.50
Quintile 4	27.9	1.75	1.48, 2.08
Quintile 5	34.7	2.19	1.85, 2.58
Salt use (usually add salt to food after cooking)			
Quintile 1	17.3	1.00	
Quintile 2	20.2	1.17	0.98, 1.41
Quintile 3	20.8	1.21	1.00, 1.46
Quintile 4	26.8	1.55	1.30, 1.85
Quintile 5	25.8	1.49	1.26, 1.78
Food security			
Quintile 1	1.0	1.00	
Quintile 2	1.9	1.79	1.01, 3.17
Quintile 3	4.0	3.78	2.25, 6.36
Quintile 4	10.3	9.85	6.14, 15.79
Quintile 5	17.0	16.29	10.30, 25.75
Risk factors			
Overweight (but not obese)			
Quintile 1	28.2	1.00	
Quintile 2	26.7	0.95	0.81, 1.11
Quintile 3	25.6	0.91	0.77, 1.07
Quintile 4	26.4	0.94	0.79, 1.11
Quintile 5	21.7	0.77	0.65, 0.91
Obese			
Quintile 1	13.6	1.00	
Quintile 2	18.0	1.32	1.07, 1.63
Quintile 3	19.7	1.44	1.16, 1.79
Quintile 4	19.8	1.45	1.18, 1.79
Quintile 5	21.9	1.61	1.31, 1.96

(continued)

Table 4.6 (continued): Health indicators by equivalised income quintile, females aged 25–64 years, 2001

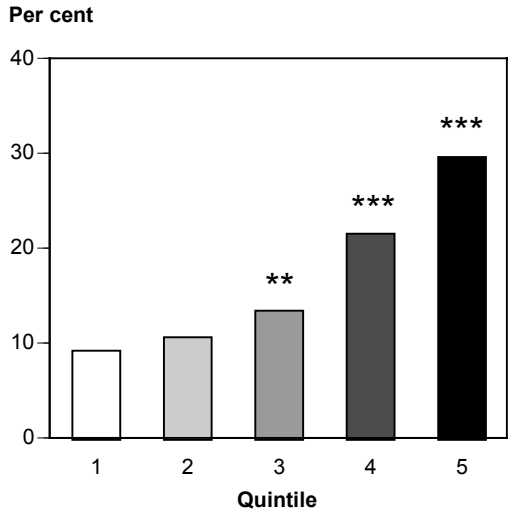
	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Hypertension			
Quintile 1	7.8	1.00	
Quintile 2	9.1	1.17	0.87, 1.58
Quintile 3	7.6	0.99	0.72, 1.35
Quintile 4	10.7	1.38	1.03, 1.84
Quintile 5	13.3	1.72	1.33, 2.23
Health service use			
Doctor consultation			
Quintile 1	28.0	1.00	
Quintile 2	25.5	0.91	0.78, 1.06
Quintile 3	28.6	1.02	0.87, 1.20
Quintile 4	31.1	1.11	0.95, 1.30
Quintile 5	33.7	1.20	1.04, 1.39
GP consultation			
Quintile 1	21.8	1.00	
Quintile 2	22.0	1.01	0.85, 1.20
Quintile 3	25.2	1.16	0.97, 1.38
Quintile 4	27.6	1.27	1.07, 1.50
Quintile 5	29.8	1.36	1.17, 1.60
Specialist consultation			
Quintile 1	9.4	1.00	
Quintile 2	6.9	0.73	0.55, 0.97
Quintile 3	6.8	0.72	0.53, 0.98
Quintile 4	6.6	0.70	0.52, 0.94
Quintile 5	8.4	0.89	0.68, 1.17
Dental consultation			
Quintile 1	7.8	1.00	
Quintile 2	7.3	0.94	0.70, 1.27
Quintile 3	5.2	0.67	0.48, 0.93
Quintile 4	6.2	0.80	0.59, 1.10
Quintile 5	5.8	0.75	0.55, 1.02
Mammogram			
50–64 years			
Quintile 1	5.7	1.00	
Quintile 2	12.5	2.20	1.33, 3.65
Quintile 3	12.2	2.15	1.26, 3.69
Quintile 4	15.6	2.74	1.64, 4.58
Quintile 5	15.4	2.71	1.72, 4.27
Time since last mammogram			
50–64 years			
Quintile 1	21.6	1.00	
Quintile 2	22.7	1.05	0.71, 1.57
Quintile 3	19.5	0.90	0.61, 1.35
Quintile 4	21.8	1.01	0.70, 1.47
Quintile 5	25.2	1.17	0.83, 1.65

(continued)

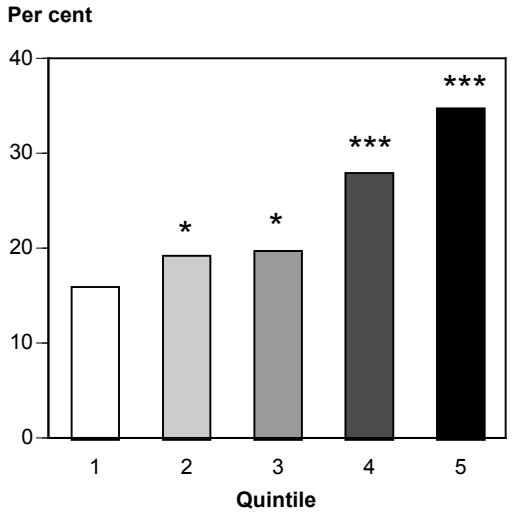
Table 4.6 (continued): Health indicators by equivalised income quintile, females aged 25–64 years, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Pap smear			
Quintile 1	4.0	1.00	
Quintile 2	4.8	1.22	0.83, 1.79
Quintile 3	3.3	0.84	0.53, 1.32
Quintile 4	4.7	1.18	0.77, 1.82
Quintile 5	7.1	1.79	1.24, 2.58
Last Pap smear 2 or more years ago			
Quintile 1	26.7	1.00	
Quintile 2	31.7	1.19	1.01, 1.39
Quintile 3	34.4	1.29	1.10, 1.52
Quintile 4	33.9	1.27	1.08, 1.49
Quintile 5	40.2	1.51	1.29, 1.75

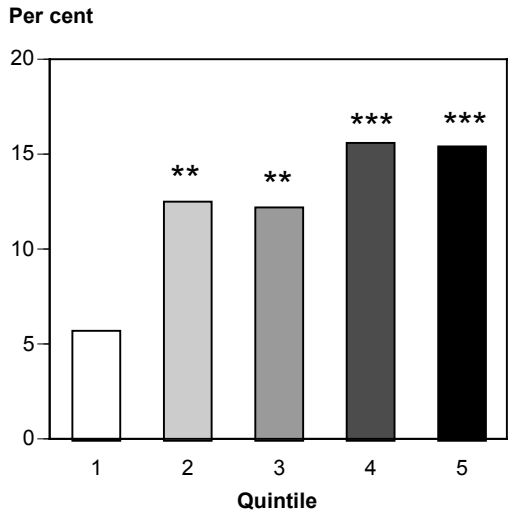
Self-assessed health as 'fair' or 'poor'



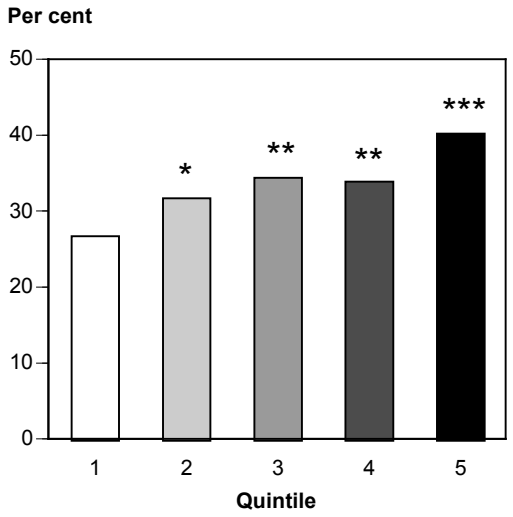
Classified as a regular smoker



Never had a mammogram (50–64 years)



Last Pap smear 2 or more years ago



Note: Quintile 1 = high income, quintile 5 = low income.

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

Figure 4.6: Health indicators by equivalised income quintile, females aged 25–64 years, 2001

4.4 Persons aged 65 years and over

Tables 4.7 and 4.8 and Figures 4.7 and 4.8 presents associations between equivalised income and a range of health indicators for males and females aged 65 years and over.

Compared with persons in the highest income category (i.e. quintile 1), those from low income households had poorer self-rated health, and were more likely to report that they experienced a number of long-term conditions:

- Self-assessed health: Males and females from low income households were more likely to assess their overall health as poor or fair (males 108%, females 160%).
- Bronchitis/emphysema: Rates were significantly higher among males from low income households, although the rates were estimated with very low precision as indicated by the extremely wide confidence intervals.
- Diabetes: rates were significantly higher (263%) among males from low income households.

Males aged 65 years and over from low income households were also more likely to report that they were regular smokers. However, males and females from low income households were less likely than their higher income counterparts to consume alcohol at risky levels (males 67% less likely, and females 78%).

Finally, females from low income households were significantly more likely to have reported that they experienced hypertension as a long-term condition.

Table 4.7: Health indicators by equivalised income quintile, males aged 65 years and over, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Morbidity			
Self-assessed health status (fair or poor)			
Quintile 1	19.8	1.00	
Quintile 2	22.8	1.15	0.59, 2.27
Quintile 3	31.8	1.60	0.89, 2.89
Quintile 4	32.7	1.65	0.96, 2.86
Quintile 5	41.2	2.08	1.21, 3.59
Arthritis			
Quintile 1	40.0	1.00	
Quintile 2	40.8	1.02	0.61, 1.71
Quintile 3	37.8	0.95	0.58, 1.53
Quintile 4	40.0	1.00	0.64, 1.56
Quintile 5	38.0	0.95	0.61, 1.48
Asthma			
Quintile 1	3.2	1.00	
Quintile 2	7.8	2.47	0.62, 9.89
Quintile 3	7.1	2.25	0.65, 7.84
Quintile 4	8.3	2.63	0.81, 8.59
Quintile 5	8.5	2.67	0.82, 8.72

(continued)

Table 4.7 (continued): Health indicators by equivalised income quintile, males aged 65 years and over, 2001

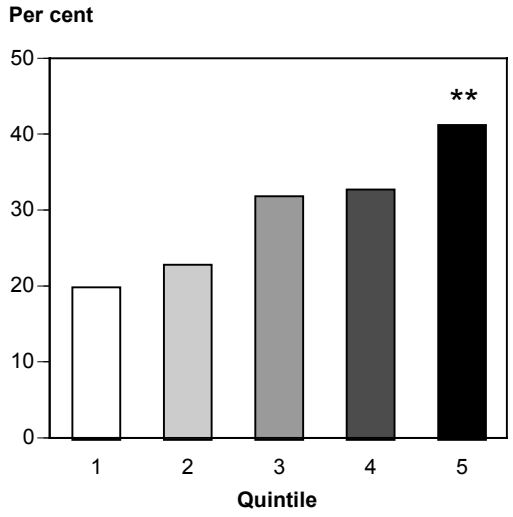
	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Bronchitis/emphysema			
Quintile 1	0.5	1.00	
Quintile 2	7.1	13.54	1.67, 110.04
Quintile 3	8.9	16.79	2.22, 127.11
Quintile 4	11.3	21.35	2.95, 154.64
Quintile 5	13.5	25.54	3.52, 185.25
Diabetes			
Quintile 1	3.3	1.00	
Quintile 2	2.8	0.86	0.22, 3.45
Quintile 3	8.5	2.57	0.85, 7.74
Quintile 4	10.8	3.29	1.19, 9.09
Quintile 5	11.9	3.63	1.30, 10.09
Neoplasms			
Quintile 1	14.1	1.00	
Quintile 2	7.6	0.54	0.19, 1.56
Quintile 3	7.4	0.53	0.20, 1.37
Quintile 4	9.5	0.67	0.29, 1.59
Quintile 5	6.4	0.46	0.19, 1.10
Health-related behaviours			
Alcohol risk			
Quintile 1	15.6	1.00	
Quintile 2	6.4	0.41	0.17, 0.97
Quintile 3	8.5	0.54	0.25, 1.16
Quintile 4	8.6	0.55	0.31, 1.00
Quintile 5	5.1	0.33	0.17, 0.62
Insufficient physical activity			
Quintile 1	59.2	1.00	
Quintile 2	56.1	0.95	0.61, 1.46
Quintile 3	59.0	1.00	0.67, 1.47
Quintile 4	67.0	1.13	0.79, 1.62
Quintile 5	74.8	1.26	0.89, 1.80
Smoking			
Quintile 1	1.3	1.00	
Quintile 2	1.3	0.97	0.16, 5.81
Quintile 3	7.7	5.79	1.32, 25.33
Quintile 4	8.6	6.52	1.58, 26.98
Quintile 5	15.7	11.89	2.91, 48.47
Salt use (usually add salt to food after cooking)			
Quintile 1	30.2	1.00	
Quintile 2	26.3	0.87	0.49, 1.53
Quintile 3	34.5	1.14	0.70, 1.88
Quintile 4	40.2	1.33	0.85, 2.07
Quintile 5	44.5	1.47	0.95, 2.29

(continued)

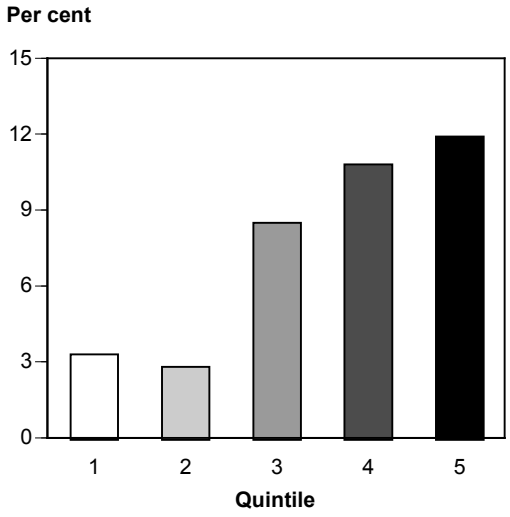
Table 4.7 (continued): Health indicators by equivalised income quintile, males aged 65 years and over, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Health-related risk factors			
Overweight (but not obese)			
Quintile 1	49.4	1.00	
Quintile 2	42.0	0.85	0.53, 1.37
Quintile 3	39.6	0.80	0.52, 1.24
Quintile 4	41.6	0.84	0.57, 1.25
Quintile 5	47.1	0.95	0.65, 1.41
Obese			
Quintile 1	14.6	1.00	
Quintile 2	8.6	0.59	0.22, 1.56
Quintile 3	11.1	0.76	0.33, 1.73
Quintile 4	13.4	0.91	0.44, 1.92
Quintile 5	13.1	0.89	0.43, 1.88
Hypertension			
Quintile 1	47.4	1.00	
Quintile 2	37.6	0.79	0.49, 1.29
Quintile 3	36.7	0.77	0.51, 1.19
Quintile 4	38.3	0.81	0.55, 1.18
Quintile 5	32.4	0.68	0.46, 1.01
Health service use			
Doctor consultation			
Quintile 1	38.7	1.00	
Quintile 2	37.4	0.97	0.56, 1.66
Quintile 3	43.0	1.11	0.68, 1.81
Quintile 4	46.2	1.20	0.76, 1.88
Quintile 5	45.1	1.17	0.74, 1.83
GP consultation			
Quintile 1	28.0	1.00	
Quintile 2	34.5	1.23	0.68, 2.24
Quintile 3	39.4	1.41	0.81, 2.43
Quintile 4	43.1	1.54	0.92, 2.57
Quintile 5	42.5	1.52	0.91, 2.53
Specialist consultation			
Quintile 1	11.8	1.00	
Quintile 2	9.5	0.80	0.31, 2.11
Quintile 3	9.8	0.83	0.35, 1.97
Quintile 4	9.8	0.83	0.38, 1.85
Quintile 5	9.2	0.78	0.35, 1.74
Dental consultation			
Quintile 1	9.7	1.00	
Quintile 2	10.5	1.08	0.39, 2.97
Quintile 3	4.4	0.45	0.16, 1.24
Quintile 4	10.0	1.03	0.46, 2.31
Quintile 5	4.2	0.43	0.18, 1.01

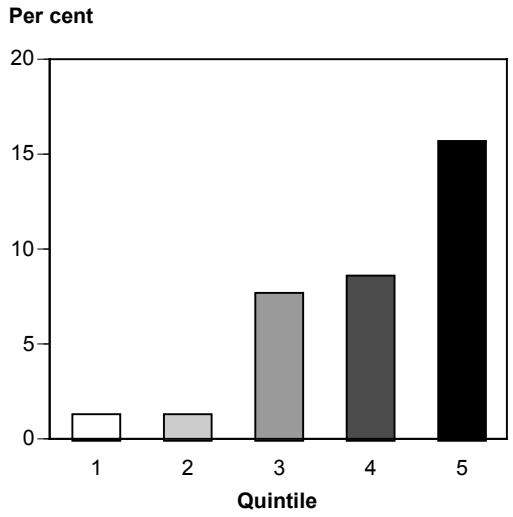
Self-assessed health as 'fair' or 'poor'



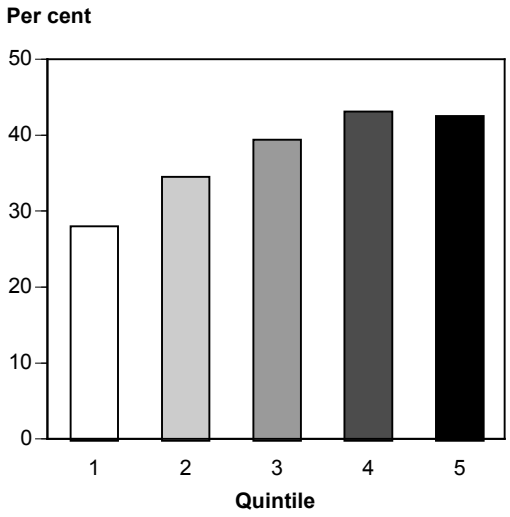
Experienced diabetes as long-term condition



Classified as a regular smoker



Visited a GP in the last 2 weeks



Note: Quintile 1 = high income, quintile 5 = low income.

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

Figure 4.7: Health indicators by equivalised income quintile, males aged 65 years and over, 2001

Table 4.8: Health indicators by equivalised income quintile, females aged 65 years and over, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Morbidity			
Self-assessed health status (fair or poor)			
Quintile 1	13.8	1.00	
Quintile 2	27.2	1.97	0.85, 4.59
Quintile 3	27.0	1.96	0.87, 4.39
Quintile 4	33.0	2.39	1.13, 5.09
Quintile 5	35.9	2.60	1.23, 5.50
Arthritis			
Quintile 1	48.2	1.00	
Quintile 2	52.7	1.09	0.65, 1.84
Quintile 3	53.2	1.10	0.69, 1.77
Quintile 4	53.9	1.12	0.73, 1.72
Quintile 5	53.4	1.11	0.72, 1.70
Asthma			
Quintile 1	5.0	1.00	
Quintile 2	7.2	1.42	0.30, 6.68
Quintile 3	10.4	2.06	0.47, 9.04
Quintile 4	10.8	2.14	0.52, 8.76
Quintile 5	8.9	1.77	0.44, 7.22
Bronchitis/emphysema			
Quintile 1	1.8	1.00	
Quintile 2	9.1	5.09	0.61, 42.30
Quintile 3	2.8	1.57	0.19, 13.04
Quintile 4	8.9	4.99	0.69, 36.11
Quintile 5	6.6	3.68	0.51, 26.71
Diabetes			
Quintile 1	16.6	1.00	
Quintile 2	13.2	0.79	0.27, 2.32
Quintile 3	10.7	0.64	0.23, 1.81
Quintile 4	10.8	0.65	0.26, 1.61
Quintile 5	11.2	0.67	0.27, 1.67
Neoplasms			
Quintile 1	1.0	1.00	
Quintile 2	4.2	4.38	0.46, 42.08
Quintile 3	3.9	4.07	0.47, 34.80
Quintile 4	4.3	4.44	0.60, 32.89
Quintile 5	3.8	3.93	0.53, 28.96
Health-related behaviours			
Alcohol risk			
Quintile 1	22.6	1.00	
Quintile 2	12.9	0.57	0.23, 1.45
Quintile 3	6.6	0.29	0.12, 0.72
Quintile 4	5.1	0.23	0.10, 0.49
Quintile 5	5.1	0.22	0.10, 0.49

(continued)

Table 4.8 (continued): Health indicators by equivalised income quintile, females aged 65 years and over, 2001

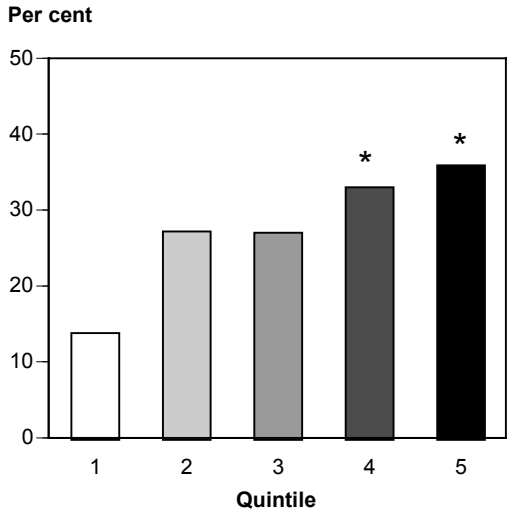
	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
Insufficient physical activity			
Quintile 1	72.4	1.00	
Quintile 2	74.0	1.02	0.67, 1.55
Quintile 3	75.3	1.04	0.71, 1.52
Quintile 4	79.8	1.10	0.78, 1.56
Quintile 5	80.6	1.11	0.79, 1.57
Smoking			
Quintile 1	10.2	1.00	
Quintile 2	1.9	0.18	0.04, 0.81
Quintile 3	8.0	0.78	0.26, 2.36
Quintile 4	7.1	0.69	0.25, 1.94
Quintile 5	8.5	0.83	0.30, 2.26
Salt use (usually add salt to food after cooking)			
Quintile 1	16.7	1.00	
Quintile 2	16.6	1.00	0.38, 2.62
Quintile 3	19.1	1.14	0.48, 2.73
Quintile 4	24.3	1.46	0.64, 3.30
Quintile 5	26.7	1.60	0.71, 3.60
Health-related risk factors			
Overweight (but not obese)			
Quintile 1	26.2	1.00	
Quintile 2	31.3	1.19	0.59, 2.42
Quintile 3	38.6	1.47	0.77, 2.82
Quintile 4	33.6	1.28	0.70, 2.36
Quintile 5	32.3	1.23	0.67, 2.26
Obese			
Quintile 1	9.6	1.00	
Quintile 2	18.4	1.92	0.62, 5.94
Quintile 3	12.3	1.28	0.42, 3.90
Quintile 4	18.5	1.93	0.71, 5.26
Quintile 5	19.4	2.03	0.75, 5.49
Hypertension			
Quintile 1	26.2	1.00	
Quintile 2	41.4	1.58	0.85, 2.95
Quintile 3	43.3	1.66	0.93, 2.95
Quintile 4	45.1	1.72	1.01, 2.95
Quintile 5	45.0	1.72	1.01, 2.94
Health service use			
Doctor consultation			
Quintile 1	32.2	1.00	
Quintile 2	45.5	1.41	0.82, 2.42
Quintile 3	32.9	1.02	0.61, 1.70
Quintile 4	43.4	1.35	0.86, 2.13
Quintile 5	46.5	1.45	0.92, 2.27

(continued)

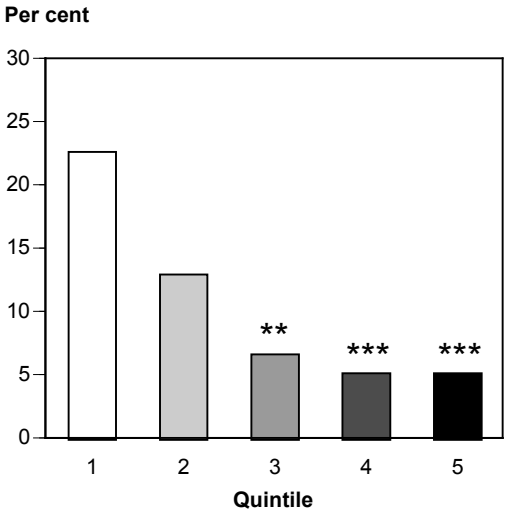
Table 4.8 (continued): Health indicators by equivalised income quintile, females aged 65 years and over, 2001

	2001		
Health indicator/income	**Per cent**	**Rate ratio**	**95% CI**
GP consultation			
Quintile 1	29.2	1.00	
Quintile 2	38.6	1.32	0.75, 2.34
Quintile 3	28.3	0.97	0.57, 1.67
Quintile 4	40.1	1.37	0.85, 2.22
Quintile 5	42.8	1.47	0.91, 2.36
Specialist consultation			
Quintile 1	3.8	1.00	
Quintile 2	12.0	3.20	0.88, 11.62
Quintile 3	10.3	2.75	0.81, 9.39
Quintile 4	8.9	2.37	0.74, 7.58
Quintile 5	9.1	2.43	0.76, 7.74
Dental consultation			
Quintile 1	1.8	1.00	
Quintile 2	2.9	1.63	0.27, 9.73
Quintile 3	8.9	4.95	1.11, 22.13
Quintile 4	4.5	2.50	0.60, 10.50
Quintile 5	2.5	1.42	0.33, 6.03

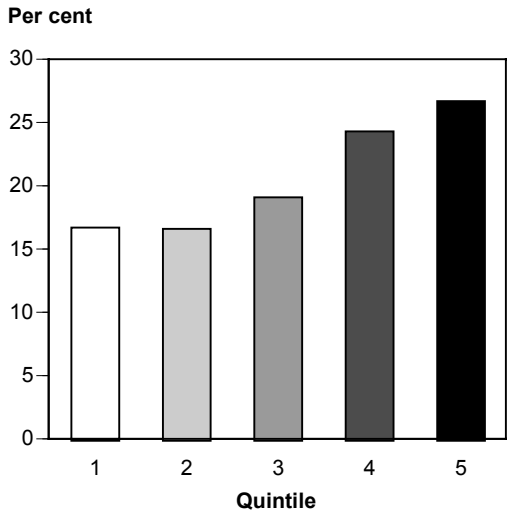
Self-assessed health as 'fair' or 'poor'



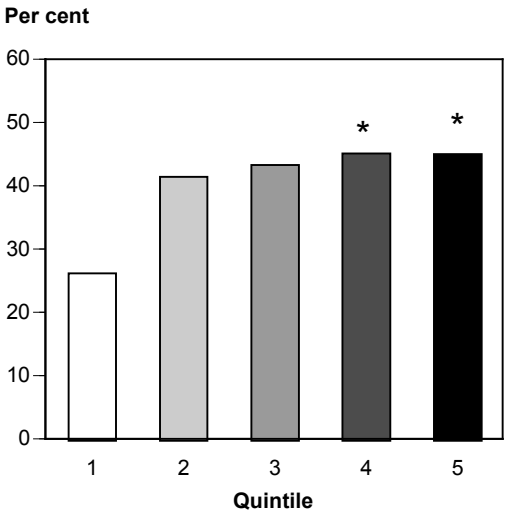
High-risk alcohol consumption



Salt use (usually add to food after cooking)



Hypertension as a long-term condition



Note: Quintile 1 = high income, quintile 5 = low income.

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

Figure 4.8: Health indicators by equivalised income quintile, females aged 65 years and over, 2001

4.5 Summary and discussion

This chapter has examined health-related inequalities by equivalised income for males and females aged 0–14, 15–24, 25–64, and 65 years or more using data from the 2001 National Health Survey. At the beginning of the 21st century, there were considerable income-based health inequalities in Australia. Respondents from low income families, for example, were more likely to report experiencing poorer health (i.e. self-assessed general health and long-term conditions); they were more likely to engage in behaviours that were potentially detrimental to health (i.e. higher rates of smoking and adding salt to food, greater physical inactivity); they were more likely to report food insecurity (i.e. having run out of food and not able to afford more) and to exhibit an adverse risk-factor profile (i.e. obesity, hypertension); and they reportedly made greater use of GP services overall but were less likely to use health care services for preventive reasons (for example, dental consultations, Pap smear screening and mammograms). These findings are consistent with results reported in previous overseas and Australian studies (see Introduction section).

A number of issues need to be considered when interpreting the findings of this analysis of equivalised income and health. First, unlike all other chapters in this report, this chapter was based on data for only one time-point (i.e. 2001), hence no intersurvey comparisons were made. This was due to differences in the sampling methodology and survey design between the 1989–90 and 1995 surveys, and the 2001 survey—in the former two surveys the measure of equivalised income was based on the Henderson Simplified Equivalence Scales, whereas in the latter survey equivalised income was based on the simpler OECD scale (see ABS 2003a for further details).

Second, equivalised income data were not available for approximately 18% of respondents (a weighted estimate of 22% of persons in the 2001 NHS). Part of this was again due to the sampling method used by the ABS (ABS 2003a); however, it is also likely that some respondents refused to provide income-related information, or provided insufficient data for a reliable estimate of equivalised income to be derived, leading to possible biases in the results if the non-reporting of income was different by socioeconomic group. A study of income non-response in the 1995 NHS found that 9.8% of persons aged 15–64 had missing data for income (Turrell 2000). Propensity to not report income increased with age (15–29 years 5.8%, 30–49 10.6%, 50–64 13.8%) although no gender differences were found (males 10.2%, females 9.3%). Income non-response was not strongly or consistently related to education or occupation for males, although there was a suggested association among these variables for females, with highly educated women and those in professional occupations being less likely to report their income. However, strong associations were evident between income non-response, labour force status and main income source. Rates were highest among the employed and those in receipt of an income from their own business or partnership and lowest among the unemployed and those in receipt of government pension or benefit (which excluded the unemployed).

Third, the equivalised income data were provided by the ABS in the form of deciles; and for the purposes of this report these were combined to form quintiles. Different estimates of health inequality were likely to have been obtained if the statistical groupings had been based on deciles rather than quintiles.

Finally, there is the question of how one interprets the findings of this chapter. Specifically, are the significant associations between income and each health-related outcome to be seen as evidence of the direct impact of income per se, or is income more appropriately viewed as a marker of socioeconomic position more generally? Each significant association reported in this

chapter is more likely capturing both processes, although the balance between the two types of interpretation is partly dependent on the outcome being investigated. For example, the strong association found between equivalised income and food security very likely reflected the direct impact of a low income family's capacity to purchase food, whereas the relationship between equivalised income and discretionary salt use was more likely to reflect the influence of other related socioeconomic factors such as education (i.e. income and education correlate, and the latter has been associated with lower levels of knowledge about recommended dietary practices [Turrell 1997; Turrell & Kavanagh 2006]). The direct impact of income is also likely to be evident in the lower rates of dental consultations among low income households, whereas the impact is possibly more indirect (reflecting other socioeconomic processes) for outcomes such as breastfeeding, sun protection, or use of preventive health care services such as Pap smears and mammograms.

5 Health inequalities by education

A person's level of education is an important determinant of health, partly through its link with future occupational opportunities and income potential. In addition, education provides knowledge and skills to help individuals maintain and improve their own health and access health services (AIHW 2004a).

Education level also acts as a simple and well-established indicator of socioeconomic position. Overseas studies measuring health outcomes by levels of education typically find that less educated persons have poorer health. Higher levels of educational attainment are significantly associated with lower mortality rates for most major causes of death (Feldman et al. 1989; Mackenbach et al. 1997; Cavelaars et al. 2000) and lower rates of self-reported illness (Monden et al. 2003). Smoking, insufficient physical activity, high blood pressure and obesity—all important risk factors affecting health—are also less common among persons with more education (Lynch et al. 1997; Luoto et al. 1994).

Australian health research supports the link between less education and poorer health status. Broadhead (1985) and Mathers (1994a) note that individuals with higher levels of education report fewer illnesses and have better mental health than those with lower levels of education. Obesity, body mass index (BMI) and blood pressure levels, as well as combinations of risk factors are elevated in persons with less education (Simons et al. 1986; Bennett 1995). Smoking rates are higher among those disadvantaged by less education (Hill et al. 1998). Conwell et al. (2003) found that adolescent smoking is positively associated with teenage mothers' lower levels of education at the time of pregnancy. Persons with less than 12 years of education are also more likely to be physically inactive than those who complete secondary school or complete a TAFE or tertiary qualification (Owen & Bauman 1992; AIHW 2004b). Less educated persons are more likely to obtain a greater proportion of their dietary energy from fats and sugars, consume fewer micronutrients and have less knowledge about nutrition (Smith & Baghurst 1992, 1993; Turrell 1997). They also consult GPs more often, but dentists less often (Wiggers et al. 1995).

Numerous state/territory and national surveys collect information on education and health. In this chapter, we examine health inequalities among males and females aged 25–64 years, and 65 years and over, according to their reported levels of education in the 1989–90, 1995 and 2001 ABS National Health Surveys. Categorisation of education varied somewhat across the three surveys, so for comparisons, the highest reported level of education has been reclassified into three groups—no post-school qualification, diploma/vocational qualification and bachelor degree or higher (Box 5.1). Where possible, health indicators by education level 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.

Box 5.1: Education categorisation

In this report highest level of education is used as an indicator of socioeconomic position for persons aged 25 years and over. In the 1995 NHS, approximately half of the adult respondents were asked to give information on their highest qualification completed, whereas the 1989–90 and 2001 surveys asked all adult respondents. Those respondents who were not asked about their highest qualification have been excluded from all analysis of education in this report. Based on responses to a number of questions regarding education, the ABS allocated respondents to a particular qualification category. The table below shows the categories used for each National Health Survey.

Highest qualification categories

1989–90 NHS	1995 NHS	2001 NHS
1. Bachelor degree or higher	1. Higher degree	1. Higher degree, postgraduate diploma, bachelor degree
2. Trade/apprenticeship	2. Postgraduate diploma	2. Undergraduate diploma, associate diploma
3. Certificate/diploma	3. Bachelor degree	3. Basic/ Skilled vocational qualification
4. Other	4. Undergraduate diploma	4. Has qualification but level not stated
5. No post-school qualification	5. Associate diploma	5. No post-school qualification
	6. Skilled vocational	9. Not stated
	7. Basic vocational	
	8. Educational qualification inadequately described	
	9. No higher qualifications	

To enable comparison across the three surveys, highest qualification was subsequently recategorised as:

1989–90 NHS	
Bachelor degree or higher	Group 1
Diploma/vocational	Groups 2 and 3
No post-school qualification	Group 5
1995 NHS	
Bachelor degree or higher	Groups 1, 2 and 3
Diploma/vocational	Groups 4, 5, 6 and 7
No post-school qualification	Group 9
2001 NHS	
Bachelor degree or higher	Group 1
Diploma/vocational	Groups 2 and 3
No post-school qualification	Group 5

Respondents for whom highest educational qualification was categorised by the ABS as 'not applicable', 'not adequately described' or 'not stated', or listed as 'other' were also excluded from all analysis involving education. This equates to a weighted estimate of 1.5% of persons aged 25 years and over in the 1989–90 NHS (1.4% of respondents), 0.5% in the 1995 NHS (0.4%), and 2.5% in the 2001 NHS (2.5%).

5.1 Persons aged 25–64 years

Males and females aged 25–64 years with lower educational qualifications—i.e. no post-school qualification or a diploma/vocational qualification— rated their own health more poorly, and reported a number of illnesses more often than those with a bachelor degree or higher (Tables 5.1 and 5.2).

- Self-assessed health: Males and females with no post-school qualification were more likely to report their health as fair or poor in 1995 (males 197% higher, females 138% higher) and 2001 (males 135% higher, females 87% higher).
- Arthritis: This condition was reported consistently more often among persons with no post-school qualifications across all three surveys. In 2001, males and females with no post-school qualifications were 97% and 27% respectively more likely to report arthritis.
- Bronchitis or emphysema: Males with no post-school qualifications were significantly more likely to report this condition in 1989–90 (100% higher) and in 1995 (81% higher) but not in 2001. Females with no post-school qualifications were significantly more likely to report bronchitis or emphysema in 1995 (79% higher) but not in 1989–90 or 2001.
- Diabetes prevalence: In 2001, females with no post-school qualifications were more likely to report this condition (79% higher).

Males and females aged 25–64 years with lower educational qualifications were more likely to engage in a number of risky or harmful health-related behaviours.

- Alcohol risk: Males with no post-school qualifications were more likely to consume alcohol at risky levels for all three surveys (62% higher in 2001). In contrast, risky drinking among females who had no post-school qualifications was consistently lower across all three surveys (29% lower in 2001).
- Insufficient physical activity: This was consistently higher for males and females with no post-school qualifications for all three surveys. Figures 5.2 and 5.5 graph the association between education and rates of insufficient physical activity for males and females respectively.
- Smoking: Males and females with lower education levels reported higher smoking rates across all three surveys. In 2001, rates of smoking were 156% higher for males and 113% higher for females with no post-school qualifications. Figure 5.6 graphs the association between education and rates of smoking for females.
- Salt use: Males with no post-school qualifications were more likely to report discretionary salt use in 1995 (77% higher) and 2001 (106% higher). Females with no post-school qualifications were more likely to report salt use in 2001 (76% higher).
- No food security: Males with no post-school qualifications were more likely to report food insecurity in 1995 (138% higher) and 2001 (189% higher). Females with no post-school qualifications were more likely to report food insecurity in 2001 (175% higher).

Not only were health risk behaviours poorer in those with lower educational qualifications, but also several important health risk factors were higher.

- Obesity: In all three surveys, persons with lower levels of education reported higher rates of obesity. In 2001, obesity rates among the least educated were 77% higher for males and 65% higher for females. Figures 5.3 and 5.7 graph the association between education and rates of obesity for males and females respectively.

- Hypertension: In 1989–90 and 1995, females with no post-school qualifications were more likely to report this condition (81% and 73% respectively).

Persons with lower educational qualifications were also more likely to visit a doctor, but less likely to use a number of other health services.

- Doctor consultation: Visits to a doctor, and more specifically, those to a GP, were higher for less educated males across all three surveys (46% higher in 2001). Among women with lower educational qualifications, only respondents in the 2001 survey reported significantly higher GP consultation rates. Figure 5.4 graphs the association between education and rates of GP use for males.
- Dental consultations: Males and females with lower educational qualifications reported visiting a dentist less frequently in all three surveys (2001, 34% lower for males and 41% lower for females).
- Women aged 50–64 years never having a mammogram: Figure 5.8 graphs the association between education and rates of mammogram use. In 2001, rates of never having had a mammogram were 105% higher among women with no post-school qualifications.
- Pap smear: The 1989–90 survey indicated that women with lower educational qualifications were more likely to have had a Pap smear, although this was not replicated in the 1995 and 2001 surveys. A higher proportion of women with lower educational qualifications, however, reported having their last Pap smear more than 2 years ago—31% higher in 2001 and 30% higher in 1995.

Table 5.1: Health indicators by education level, males aged 25–64 years, 1989 to 2001

	1989–90			1995			2001		
Health indicators/education	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Morbidity									
Self-assessed health status (fair or poor)									
Bachelor degree or higher	. .	. .	. .	6.4	1.00		9.4	1.00	
Diploma/vocational	. .	. .	. .	12.2	1.92	1.46, 2.52	16.3	1.74	1.42, 2.14
No post-school qualification	. .	. .	. .	19.0	2.97	2.29, 3.87	22.0	2.35	1.92, 2.88
Days away from study or work									
Bachelor degree or higher	11.7	1.00		5.6	1.00		15.3	1.00	
Diploma/vocational ‡	13.4	1.15	0.98, 1.34	8.4	1.48	1.12, 1.96	15.5	1.01	0.85, 1.20
No post-school qualification +‡	13.1	1.12	0.96, 1.31	9.6	1.70	1.29, 2.24	15.7	1.03	0.86, 1.22
Arthritis									
Bachelor degree or higher	5.3	1.00		9.8	1.00		7.0	1.00	
Diploma/vocational +‡	11.1	2.12	1.68, 2.68	14.0	1.43	1.14, 1.79	13.9	1.98	1.56, 2.52
No post-school qualification	10.3	1.95	1.54, 2.47	16.5	1.67	1.34, 2.09	13.8	1.97	1.55, 2.50
Asthma									
Bachelor degree or higher	4.8	1.00		6.8	1.00		8.8	1.00	
Diploma/vocational	4.7	0.97	0.77, 1.22	7.0	1.03	0.80, 1.33	7.4	0.85	0.67, 1.07
No post-school qualification	5.5	1.13	0.90, 1.42	6.9	1.02	0.80, 1.32	8.0	0.92	0.73, 1.16
Bronchitis/emphysema									
Bachelor degree or higher	1.5	1.00		2.0	1.00		2.1	1.00	
Diploma/vocational	2.7	1.82	1.16, 2.84	2.8	1.39	0.85, 2.29	3.6	1.68	1.07, 2.65
No post-school qualification	2.9	2.00	1.28, 3.12	3.6	1.81	1.11, 2.95	2.7	1.27	0.80, 2.01

(continued)

Table 5.1 (continued): Health indicators by education level, males aged 25–64 years, 1989 to 2001

	1989–90			1995			2001		
Health indicators/education	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Morbidity									
Diabetes									
Bachelor degree or higher	1.0	1.00		2.0	1.00		2.8	1.00	
Diploma/vocational	1.1	1.15	0.64, 2.05	2.0	0.99	0.56, 1.76	3.3	1.19	0.76, 1.86
No post-school qualification	1.6	1.65	0.94, 2.90	2.8	1.41	0.82, 2.45	3.2	1.14	0.73, 1.78
Neoplasms									
Bachelor degree or higher	1.6	1.00		1.7	1.00		1.8	1.00	
Diploma/vocational	1.7	1.12	0.71, 1.79	1.5	0.93	0.54, 1.59	2.0	1.11	0.64, 1.92
No post-school qualification	1.8	1.14	0.72, 1.81	1.6	0.96	0.56, 1.65	1.4	0.78	0.44, 1.39
Health-related behaviours									
Alcohol risk									
Bachelor degree or higher	10.1	1.00		7.4	1.00		9.6	1.00	
Diploma/vocational	16.3	1.62	1.38, 1.90	9.9	1.33	1.04, 1.69	16.1	1.69	1.38, 2.06
No post-school qualification	16.4	1.62	1.38, 1.91	13.7	1.84	1.46, 2.33	15.5	1.62	1.32, 1.98
Insufficient physical activity									
Bachelor degree or higher	58.3	1.00		58.5	1.00		56.9	1.00	
Diploma/vocational	68.3	1.17	1.09, 1.25	68.2	1.16	1.06, 1.27	67.8	1.19	1.09, 1.30
No post-school qualification	72.2	1.24	1.16, 1.32	70.6	1.21	1.10, 1.32	70.5	1.24	1.13, 1.36
Smoking									
Bachelor degree or higher	18.4	1.00		13.2	1.00		14.7	1.00	
Diploma/vocational	32.6	1.77	1.58, 1.99	25.5	1.94	1.63, 2.31	29.7	2.03	1.73, 2.37
No post-school qualification[+]	39.4	2.14	1.91, 2.40	36.1	2.74	2.31, 3.25	37.5	2.56	2.20, 2.99
Salt use									
Bachelor degree or higher	. .	. .	. .	21.5	1.00		18.4	1.00	
Diploma/vocational	. .	. .	. .	31.6	1.47	1.10, 1.97	31.0	1.68	1.45, 1.96
No post-school qualification	. .	. .	. .	38.0	1.77	1.33, 2.35	37.9	2.06	1.77, 2.39
Food security									
Bachelor degree or higher	. .	. .	. .	2.3	1.00		2.2	1.00	
Diploma/vocational	. .	. .	. .	4.2	1.80	0.79, 4.10	4.4	1.98	1.35, 2.91
No post-school qualification	. .	. .	. .	5.6	2.38	1.07, 5.30	6.4	2.89	1.98, 4.22
Health-related risk factors									
Overweight (but not obese)									
Bachelor degree or higher	34.4	1.00		44.8	1.00		42.6	1.00	
Diploma/vocational [+]	40.9	1.19	1.09, 1.31	43.7	0.98	0.88, 1.09	45.8	1.08	0.97, 1.20
No post-school qualification[+†]	40.6	1.18	1.08, 1.29	43.1	0.96	0.86, 1.07	42.8	1.01	0.90, 1.12
Obese									
Bachelor degree or higher	4.8	1.00		7.4	1.00		11.8	1.00	
Diploma/vocational	9.0	1.89	1.49, 2.40	13.8	1.87	1.44, 2.42	17.1	1.45	1.20, 1.76
No post-school qualification [†]	11.8	2.47	1.96, 3.12	15.7	2.13	1.65, 2.75	20.9	1.77	1.46, 2.14
Hypertension									
Bachelor degree or higher	7.1	1.00		9.9	1.00		9.7	1.00	
Diploma/vocational	8.0	1.12	0.90, 1.39	12.4	1.25	1.00, 1.58	9.7	1.00	0.80, 1.26
No post-school qualification	8.1	1.14	0.91, 1.41	11.4	1.15	0.92, 1.44	10.1	1.04	0.82, 1.30

(continued)

Table 5.1 (continued): Health indicators by education level, males aged 25–64 years, 1989 to 2001

Health indicators/education	1989–90 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Health service use									
Doctor consultation									
Bachelor degree or higher	13.4	1.00		15.6	1.00		15.5	1.00	
Diploma/vocational	15.6	1.17	1.01, 1.36	18.9	1.21	1.01, 1.45	19.5	1.26	1.06, 1.49
No post-school qualification	16.8	1.26	1.08, 1.45	20.7	1.33	1.12, 1.58	22.6	1.46	1.23, 1.72
GP consultation									
Bachelor degree or higher	. .	. .	. .	13.7	1.00		13.4	1.00	
Diploma/vocational	. .	. .	. .	17.1	1.24	1.03, 1.50	17.3	1.29	1.08, 1.56
No post-school qualification	. .	. .	. .	18.9	1.37	1.14, 1.65	20.6	1.54	1.28, 1.85
Specialist consultation									
Bachelor degree or higher	. .	. .	. .	3.4	1.00		4.3	1.00	
Diploma/vocational	. .	. .	. .	3.3	0.98	0.66, 1.47	4.8	1.13	0.81, 1.57
No post-school qualification	. .	. .	. .	3.2	0.94	0.63, 1.41	4.3	1.00	0.71, 1.40
Dental consultation									
Bachelor degree or higher	6.9	1.00		7.1	1.00		6.8	1.00	
Diploma/vocational	4.4	0.64	0.52, 0.80	5.8	0.81	0.61, 1.08	4.2	0.61	0.46, 0.81
No post-school qualification	3.9	0.56	0.45, 0.70	4.6	0.66	0.49, 0.88	4.5	0.66	0.50, 0.88

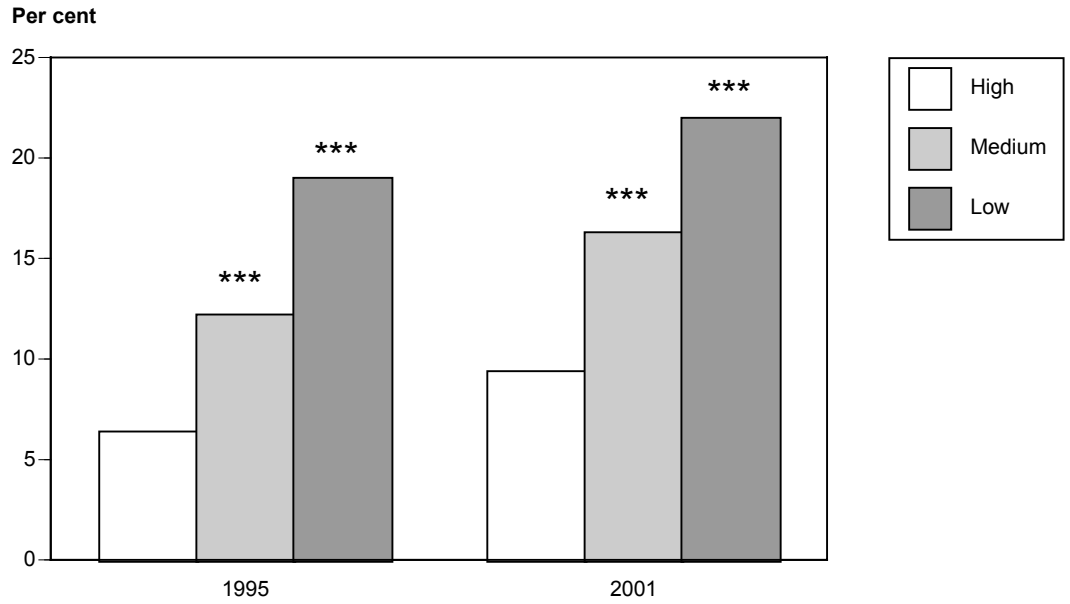
. . Data not available or not comparable.

\+ 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 $p \leq 0.05$.

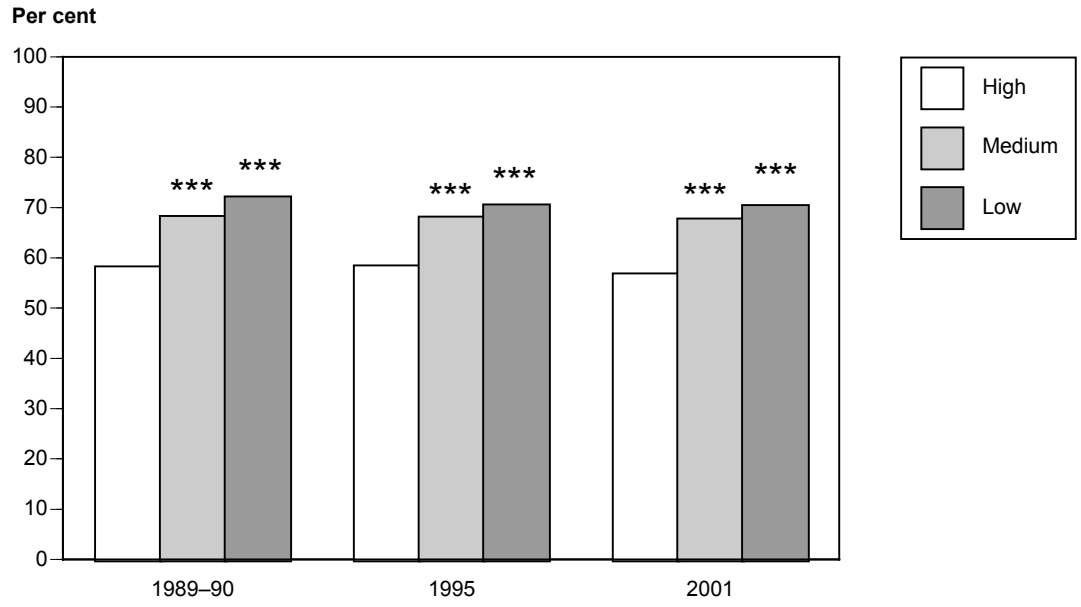
Note: A weighted equivalent of 1,430 males (1 male respondent) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

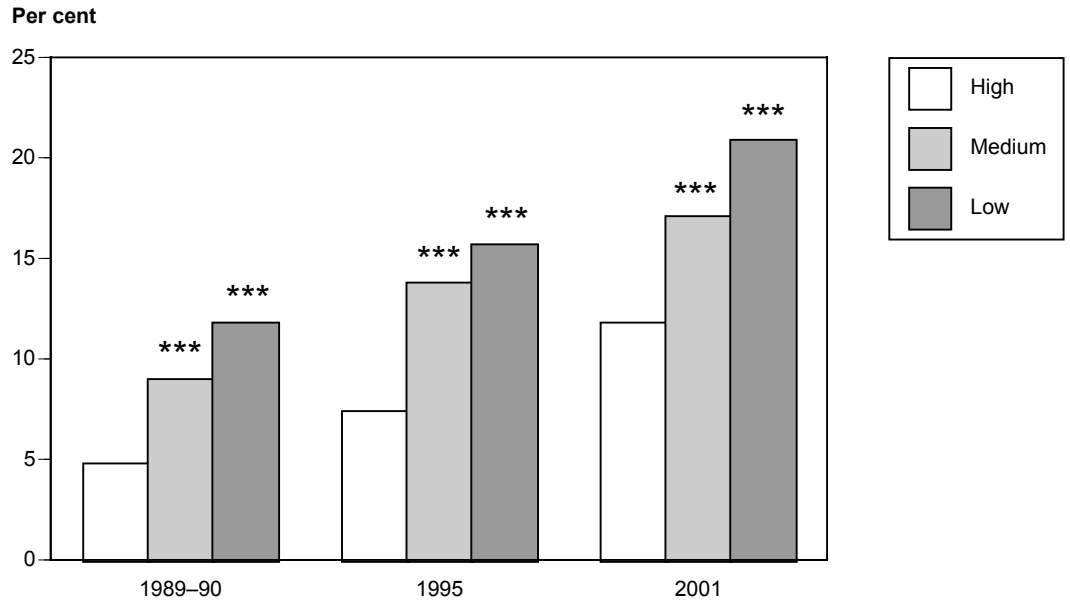
Figure 5.1: Percentage of males aged 25–64 who reported their general health as 'fair' or 'poor', by level of education, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

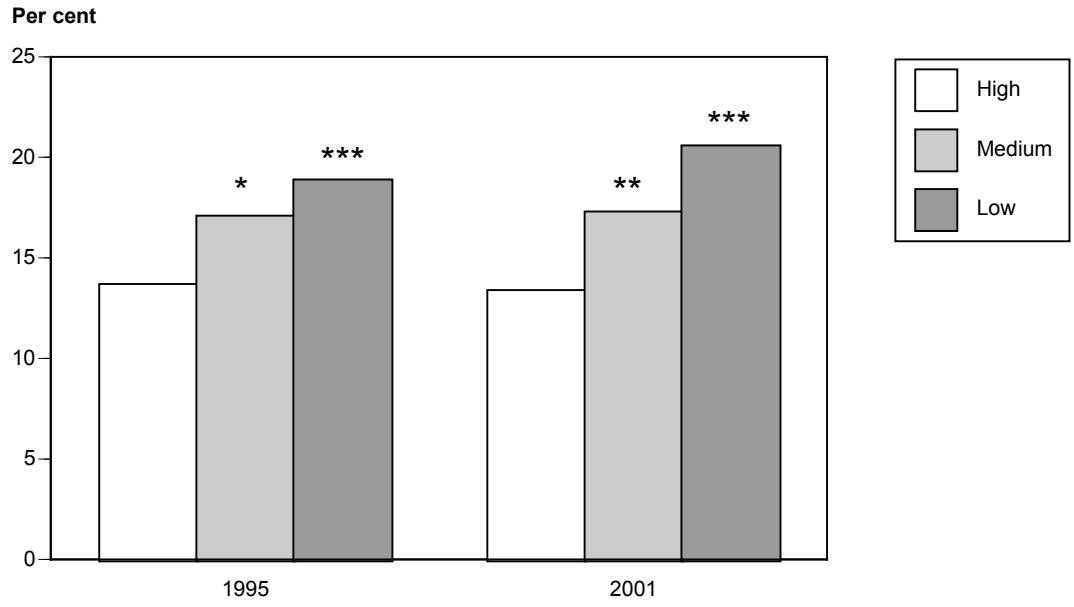
Figure 5.2: Percentage of males aged 25–64 who were classified as engaging in insufficient physical activity, by level of education, 1989–90, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 5.3: Percentage of males aged 25–64 who were classified as obese, by level of education, 1989–90, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 5.4: Percentage of males aged 25–64 who reported visiting a GP in the 2 weeks before the survey, by level of education, 1995 and 2001

Table 5.2: Health indicators by education level, females aged 25–64 years, 1989 to 2001

Health indicators/education	1989–90 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Morbidity									
Self-assessed health status (fair or poor)									
Bachelor degree or higher				7.2	1.00		9.9	1.00	
Diploma/vocational				10.8	1.51	1.14, 2.00	15.6	1.57	1.27, 1.94
No post-school qualification				17.0	2.38	1.84, 3.07	18.6	1.87	1.53, 2.29
Days away from study or work									
Bachelor degree or higher	17.7	1.00		11.1	1.00		20.4	1.00	
Diploma/vocational [‡]	15.5	0.87	0.75, 1.02	10.0	0.90	0.72, 1.14	17.9	0.88	0.75, 1.02
No post-school qualification [+ ‡]	13.8	0.78	0.67, 0.90	10.0	0.90	0.73, 1.12	16.4	0.81	0.70, 0.93
Arthritis									
Bachelor degree or higher	12.3	1.00		12.1	1.00		14.1	1.00	
Diploma/vocational [+ ‡]	14.3	1.17	0.92, 1.49	19.3	1.59	1.26, 2.00	15.9	1.13	0.93, 1.37
No post-school qualification	15.8	1.29	1.02, 1.62	20.4	1.68	1.36, 2.09	17.9	1.27	1.06, 1.52
Asthma									
Bachelor degree or higher	6.3	1.00		10.4	1.00		11.6	1.00	
Diploma/vocational	6.7	1.07	0.84, 1.36	9.7	0.93	0.74, 1.17	13.9	1.20	0.98, 1.47
No post-school qualification	6.0	0.95	0.76, 1.21	9.6	0.92	0.75, 1.14	12.2	1.06	0.87, 1.28
Bronchitis/emphysema									
Bachelor degree or higher	2.7	1.00		2.5	1.00		3.1	1.00	
Diploma/vocational	2.8	1.02	0.67, 1.55	4.1	1.61	1.02, 2.54	3.5	1.12	0.77, 1.64
No post-school qualification	3.4	1.26	0.85, 1.87	4.5	1.79	1.17, 2.74	4.3	1.38	0.97, 1.97
Diabetes									
Bachelor degree or higher	0.5	1.00		1.9	1.00		1.6	1.00	
Diploma/vocational	0.7	1.25	0.43, 3.57	1.4	0.70	0.38, 1.28	2.2	1.33	0.73, 2.40
No post-school qualification	1.3	2.35	0.87, 6.39	2.8	1.43	0.86, 2.38	2.9	1.79	1.04, 3.07
Neoplasms									
Bachelor degree or higher	1.7	1.00		2.5	1.00		1.4	1.00	
Diploma/vocational	2.5	1.41	0.84, 2.36	1.9	0.79	0.46, 1.34	1.5	1.13	0.63, 2.01
No post-school qualification	1.8	1.04	0.63, 1.73	2.4	0.96	0.60, 1.53	1.7	1.27	0.74, 2.19
Health-related behaviours									
Alcohol risk									
Bachelor degree or higher	11.4	1.00		7.4	1.00		11.3	1.00	
Diploma/vocational [+]	7.7	0.67	0.55, 0.83	6.9	0.93	0.71, 1.22	9.2	0.81	0.66, 1.00
No post-school qualification	7.2	0.63	0.52, 0.77	5.4	0.73	0.57, 0.94	8.0	0.71	0.58, 0.86
Insufficient physical activity									
Bachelor degree or higher	67.4	1.00		70.7	1.00		64.4	1.00	
Diploma/vocational	72.2	1.07	0.99, 1.16	70.8	1.00	0.92, 1.10	71.4	1.11	1.02, 1.21
No post-school qualification	77.0	1.14	1.06, 1.23	77.2	1.09	1.01, 1.18	76.9	1.20	1.10, 1.29
Smoking									
Bachelor degree or higher	13.7	1.00		11.4	1.00		13.3	1.00	
Diploma/vocational	22.7	1.65	1.39, 1.95	18.6	1.63	1.33, 2.01	21.7	1.63	1.38, 1.93
No post-school qualification	28.9	2.10	1.79, 2.48	26.0	2.29	1.89, 2.77	28.3	2.13	1.82, 2.49
Salt use									
Bachelor degree or higher	. .	. .	. .	17.3	1.00		14.6	1.00	
Diploma/vocational [‡]	. .	. .	. .	16.3	0.94	0.66, 1.36	20.0	1.37	1.15, 1.63
No post-school qualification[‡]	. .	. .	. .	22.4	1.30	0.94, 1.81	25.7	1.76	1.50, 2.08

(continued)

Table 5.2 (continued): Health indicators by education level, females aged 25–64 years, 1989 to 2001

	1989–90			1995			2001		
Health indicators/education	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Food security									
Bachelor degree or higher	. .	. .	. .	3.6	1.00		2.7	1.00	
Diploma/vocational	. .	. .	. .	4.1	1.14	0.55, 2.32	5.6	2.07	1.50, 2.87
No post-school qualification	. .	. .	. .	6.8	1.89	0.97, 3.66	7.5	2.75	2.02, 3.75
Health-related risk factors									
Overweight (but not obese)									
Bachelor degree or higher	17.2	1.00		23.4	1.00		27.5	1.00	
Diploma/vocational †	20.7	1.20	1.02, 1.42	22.8	0.97	0.82, 1.15	24.8	0.90	0.78, 1.04
No post-school qualification + †	25.1	1.46	1.25, 1.72	27.2	1.16	0.99, 1.36	26.3	0.96	0.83, 1.09
Obese									
Bachelor degree or higher	6.4	1.00		9.2	1.00		12.7	1.00	
Diploma/vocational	8.4	1.31	1.00, 1.71	11.9	1.30	1.02, 1.66	17.8	1.40	1.15, 1.72
No post-school qualification	12.7	1.98	1.54, 2.55	15.3	1.67	1.33, 2.09	21.0	1.65	1.37, 2.00
Hypertension									
Bachelor degree or higher	5.3	1.00		7.0	1.00		7.8	1.00	
Diploma/vocational	7.8	1.48	1.03, 2.12	9.9	1.41	1.06, 1.89	10.1	1.29	0.99, 1.70
No post-school qualification	9.6	1.81	1.28, 2.56	12.1	1.73	1.33, 2.25	10.1	1.29	1.00, 1.67
Health service use									
Doctor consultation									
Bachelor degree or higher	20.9	1.00		23.8	1.00		26.7	1.00	
Diploma/vocational	23.1	1.10	0.96, 1.27	27.3	1.15	0.98, 1.34	30.0	1.12	0.98, 1.28
No post-school qualification	22.9	1.09	0.95, 1.25	27.3	1.15	1.00, 1.32	28.5	1.07	0.94, 1.21
GP consultation									
Bachelor degree or higher	. .	. .	. .	20.5	1.00		21.2	1.00	
Diploma/vocational	. .	. .	. .	23.5	1.14	0.97, 1.35	25.6	1.21	1.04, 1.40
No post-school qualification	. .	. .	. .	23.4	1.14	0.98, 1.33	25.5	1.20	1.04, 1.38
Specialist consultation									
Bachelor degree or higher	. .	. .	. .	5.2	1.00		9.2	1.00	
Diploma/vocational	. .	. .	. .	6.7	1.28	0.94, 1.75	7.8	0.84	0.66, 1.07
No post-school qualification	. .	. .	. .	6.5	1.25	0.93, 1.66	6.9	0.75	0.59, 0.93
Dental									
Bachelor degree or higher	10.4	1.00		5.6	1.00		9.8	1.00	
Diploma/vocational + ‡	6.4	0.61	0.49, 0.77	7.3	1.30	0.96, 1.76	6.5	0.66	0.52, 0.84
No post-school qualification + ‡	4.7	0.45	0.36, 0.56	4.9	0.87	0.65, 1.17	5.8	0.59	0.47, 0.75
Mammogram									
Women 50–64 years									
Bachelor degree or higher	58.2	1.00		19.9	1.00		7.9	1.00	
Diploma/vocational	59.9	1.03	0.80, 1.32	15.0	0.75	0.49, 1.15	9.3	1.18	0.72, 1.94
No post-school qualification †	65.6	1.13	0.89, 1.43	24.1	1.21	0.83, 1.75	16.1	2.05	1.31, 3.21
Time since last mammogram									
Women 50–64 years									
Bachelor degree or higher	. .	. .	. .	14.0	1.00		19.8	1.00	
Diploma/vocational	. .	. .	. .	12.9	0.93	0.53, 1.61	22.8	1.15	0.79, 1.68
No post-school qualification	. .	. .	. .	19.1	1.37	0.84, 2.24	21.4	1.08	0.76, 1.54

(continued)

Table 5.2 (continued): Health indicators by education level, females aged 25–64 years, 1989 to 2001

Health indicators/education	1989–90 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Pap smear									
Bachelor degree or higher	8.3	1.00		4.5	1.00		5.1	1.00	
Diploma/vocational †	5.2	0.63	0.49, 0.80	3.5	0.77	0.53, 1.11	4.8	0.94	0.68, 1.29
No post-school qualification	6.5	0.78	0.62, 0.97	4.2	0.93	0.67, 1.27	4.8	0.94	0.70, 1.26
Time since last pap smear									
Bachelor degree or higher	. .	. .	. .	22.3	1.00		27.4	1.00	
Diploma/vocational	. .	. .	. .	24.3	1.09	0.92, 1.29	32.6	1.19	1.04, 1.37
No post-school qualification	. .	. .	. .	29.0	1.30	1.11, 1.52	35.8	1.31	1.15, 1.49

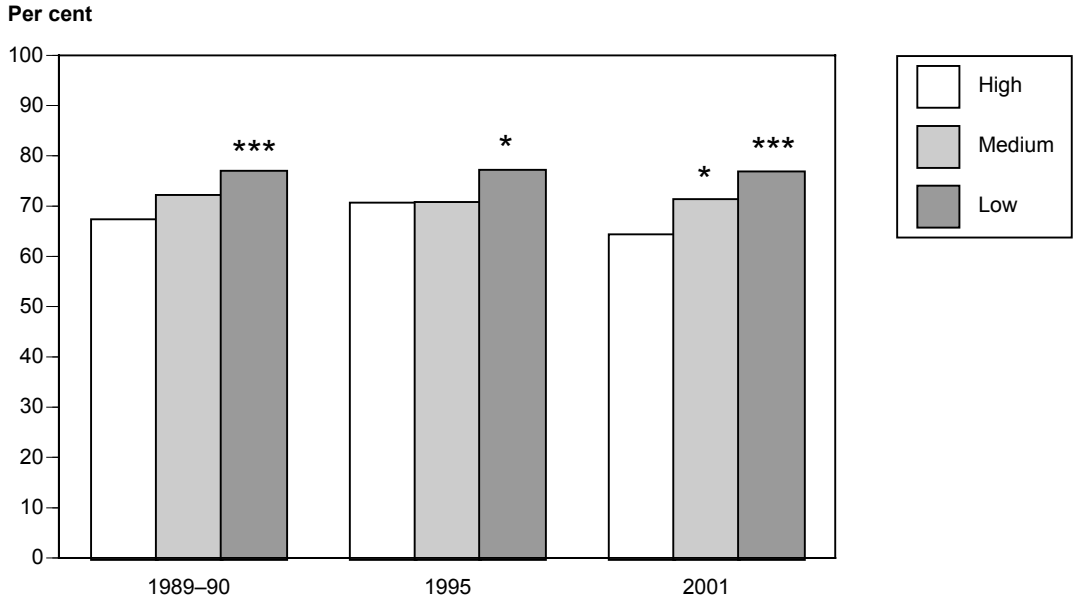
. . Data not available or not comparable.

\+ 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 $p \leq 0.05$.

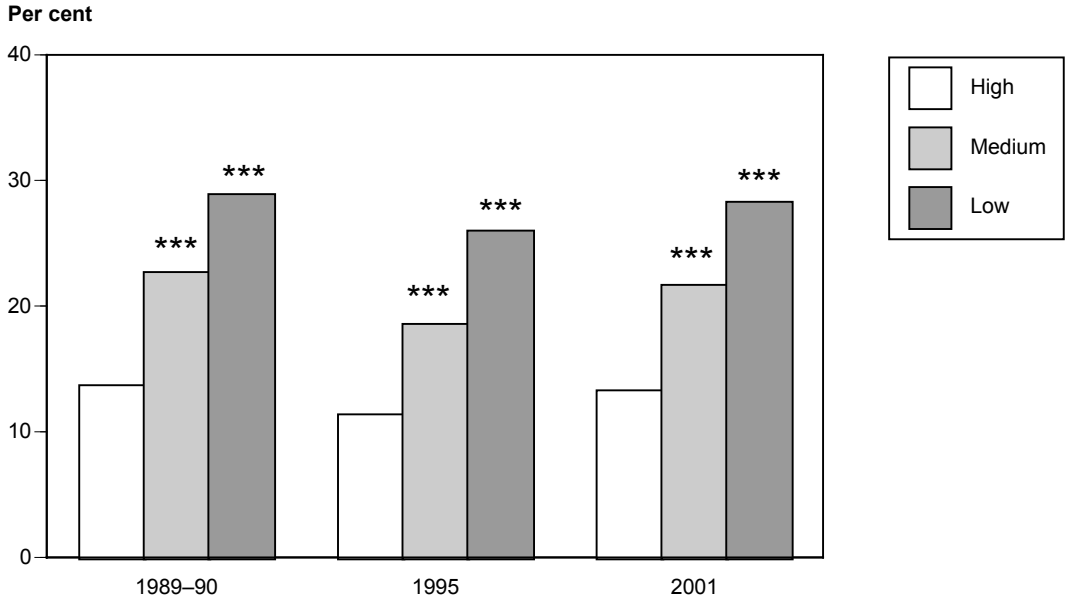
Note: A weighted equivalent of 2,053 females (7 female respondents) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

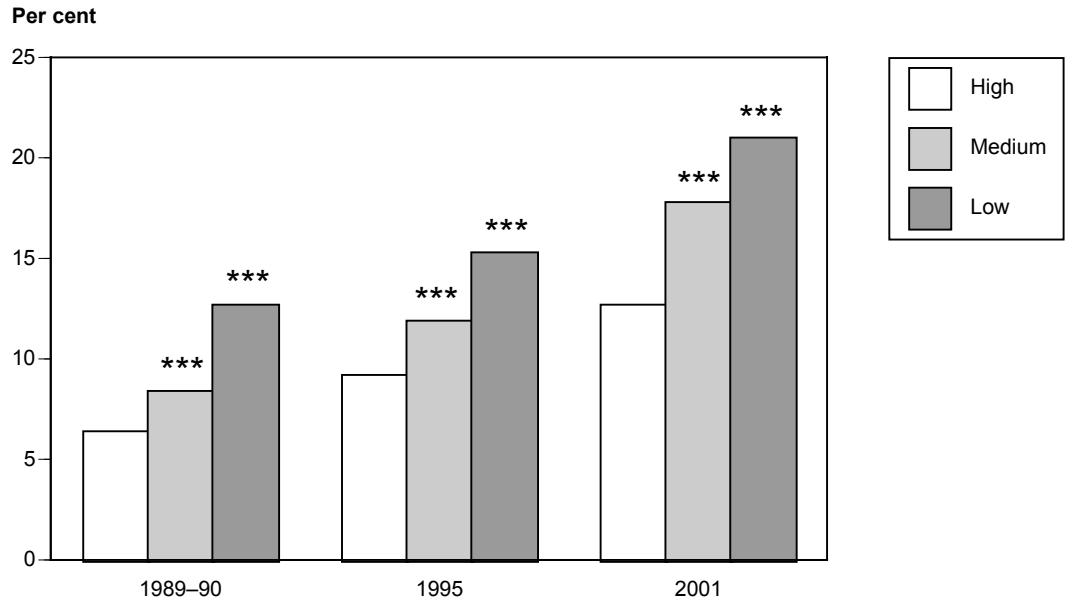
Figure 5.5: Percentage of females aged 25–64 who were classified as engaging in insufficient physical activity, by level of education, 1989–90, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

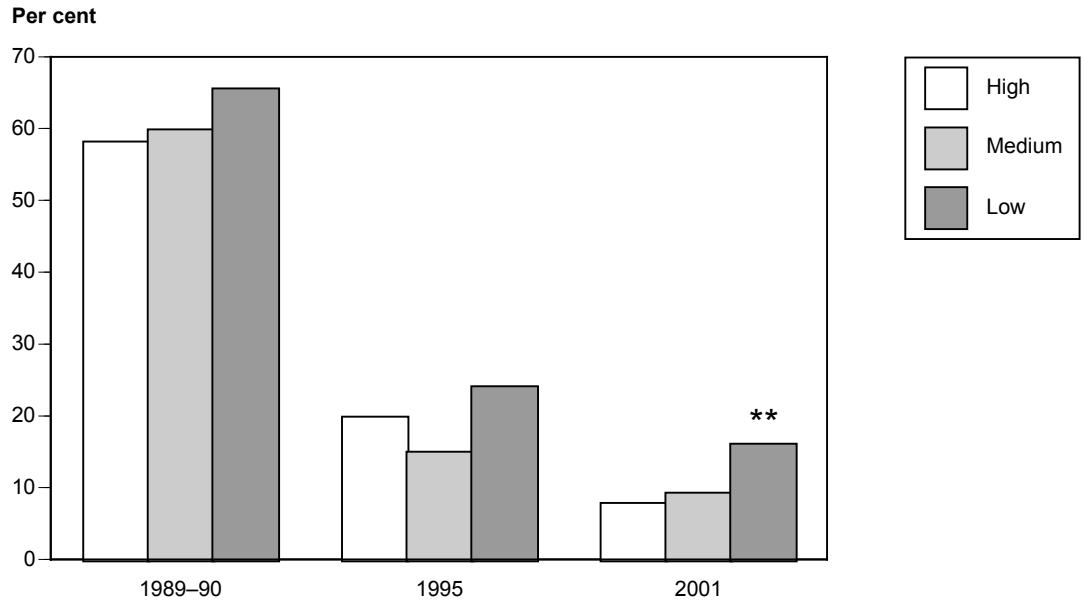
Figure 5.6: Percentage of females aged 25–64 who were classified as regular smokers, by level of education, 1989–90, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 5.7: Percentage of females aged 25–64 who were classified as obese, by level of education, 1989–90, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 5.8: Percentage of females aged 50–64 years who reported never having had a mammogram, by level of education, 1989–90, 1995 and 2001

5.2 Persons aged 65 years and over

Tables 5.3 and 5.4 show the association between education level and health for males and females aged 65 years and over, as reported in the 1989–90, 1995 and 2001 ABS National Health Surveys.

Persons aged 65 years and over with lower educational qualifications were significantly more likely to report a number of poorer health outcomes or adverse health behaviours.

- Self-assessed health rated as fair or poor: In 1995, males with no post-school qualification rated their health as only fair or poor at twice the rate (106% higher) of males with a bachelor degree or higher. Figure 5.9 graphs the association between education and rates of self-assessed health for males.
- Bronchitis/emphysema: Males with a diploma or vocational qualification had a rate 261% higher, and males with no post-school qualifications had a rate 275% higher than males with a bachelor degree or higher in 2001. In contrast, females aged 65 years and over with a diploma or vocational qualification in the 1989–90 survey reported only 33% of the level of bronchitis and emphysema of females with a bachelor degree or higher. Females with no post-school qualifications reported only 43% of the same level.
- Alcohol risk: In the 2001 survey, males with no post-school qualifications were 152% more likely to report drinking alcohol at risk levels. However, in 1995, females with no post-school qualifications reported risk alcohol drinking at only 41% of the rate of females with a bachelor degree or higher.
- Smoking: The 2001 survey found that males with a diploma/vocational qualification, or no post-school qualification, were far more likely to report smoking (688% and 858% respectively) than males with a bachelor degree or higher.
- Salt use: In the 2001 survey, males aged 65 years and over with a diploma/vocational qualification, or with no post-school qualifications were more likely to add salt to food after cooking than males with a bachelor degree or higher. This was also the case among females answering the 1995 survey.
- Obesity: Males with lower educational qualifications were more likely to be obese, at least for the 1989–90 and 2001 surveys. The 1995 survey also found that females aged 65 years and over with diploma/vocational or no post-school qualifications were more obese than females with bachelor degree qualifications or higher. Figure 5.10 graphs the association between education and rates of obesity for males.
- GP consultation: The 2001 survey found that males with lower educational qualifications were more likely to consult a GP. Figure 5.11 graphs the association between education and rates of GP use for males.
- Dental consultation: In 1989–90 and 1995, males with lower educational qualifications were less likely to consult a dentist. Figure 5.12 graphs the association between education and rates of dental consultation for males.

Table 5.3: Health indicators by education level, males aged 65 years and over, 1989 to 2001

	1989–90			1995			2001		
Health indicators/education	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Morbidity									
Self-assessed health status (fair or poor)									
Bachelor degree or higher	. .	. .	. .	20.2	1.00		27.3	1.00	
Diploma/vocational	. .	. .	. .	33.5	1.66	0.97, 2.84	30.1	1.10	0.77, 1.58
No post-school qualification	. .	. .	. .	41.6	2.06	1.23, 3.47	38.4	1.41	1.00, 1.98
Arthritis									
Bachelor degree or higher	25.8	1.00		31.2	1.00		39.4	1.00	
Diploma/vocational	31.4	1.22	0.86, 1.71	41.0	1.31	0.88, 1.95	40.4	1.03	0.75, 1.41
No post-school qualification	35.1	1.36	0.97, 1.90	39.7	1.27	0.86, 1.87	37.5	0.95	0.70, 1.30
Asthma									
Bachelor degree or higher	4.4	1.00		7.7	1.00		6.6	1.00	
Diploma/vocational	5.6	1.28	0.55, 2.98	8.0	1.05	0.37, 3.00	8.7	1.31	0.64, 2.70
No post-school qualification	5.0	1.14	0.50, 2.63	7.1	0.93	0.34, 2.57	6.7	1.01	0.50, 2.07
Bronchitis/emphysema									
Bachelor degree or higher	7.4	1.00		9.9	1.00		3.0	1.00	
Diploma/vocational †	10.1	1.35	0.72, 2.54	14.1	1.43	0.68, 3.02	10.7	3.61	1.12, 11.58
No post-school qualification†	8.2	1.11	0.60, 2.06	12.6	1.28	0.62, 2.63	11.1	3.75	1.18, 11.87
Diabetes									
Bachelor degree or higher	4.2	1.00		9.5	1.00		7.0	1.00	
Diploma/vocational	5.0	1.17	0.50, 2.75	8.6	0.90	0.42, 1.93	10.7	1.54	0.73, 3.22
No post-school qualification	5.4	1.28	0.56, 2.94	10.9	1.15	0.56, 2.36	10.3	1.47	0.71, 3.05
Neoplasms									
Bachelor degree or higher	6.7	1.00		6.7	1.00		11.4	1.00	
Diploma/vocational	7.2	1.07	0.51, 2.24	6.5	0.98	0.43, 2.24	9.3	0.82	0.46, 1.46
No post-school qualification	7.8	1.16	0.57, 2.38	8.9	1.34	0.62, 2.94	7.4	0.65	0.37, 1.15
Health-related behaviours									
Alcohol risk									
Bachelor degree or higher	6.8	1.00		10.9	1.00		3.3	1.00	
Diploma/vocational ‡†	5.3	0.78	0.43, 1.42	5.5	0.51	0.19, 1.34	6.3	1.94	0.87, 4.35
No post-school qualification‡†	6.4	0.94	0.53, 1.68	6.4	0.59	0.24, 1.49	8.2	2.52	1.16, 5.49
Insufficient physical activity									
Bachelor degree or higher	61.0	1.00		59.1	1.00		57.5	1.00	
Diploma/vocational	63.1	1.03	0.82, 1.30	66.5	1.13	0.82, 1.54	64.0	1.11	0.85, 1.46
No post-school qualification	68.8	1.13	0.90, 1.40	71.8	1.22	0.90, 1.64	72.5	1.26	0.97, 1.64
Smoking									
Bachelor degree or higher	9.8	1.00		12.7	1.00		1.2	1.00	
Diploma/vocational ‡†	14.6	1.48	0.86, 2.56	13.4	1.06	0.53, 2.15	9.6	7.88	3.16, 19.64
No post-school qualification‡†	16.6	1.69	0.99, 2.90	16.0	1.26	0.64, 2.48	11.7	9.58	3.89, 23.62
Salt use									
Bachelor degree or higher	. .	. .	. .	32.7	1.00		27.9	1.00	
Diploma/vocational	. .	. .	. .	28.7	0.88	0.40, 1.94	41.1	1.47	1.02, 2.13
No post-school qualification	. .	. .	. .	41.5	1.27	0.59, 2.73	41.1	1.47	1.03, 2.11
Food security									
Bachelor degree or higher	. .	. .	. .	0.0	—		2.0	1.00	
Diploma/vocational	. .	. .	. .	0.3	—	—	0.6	0.27	0.03, 2.64
No post-school qualification	. .	. .	. .	0.9	—	—	0.9	0.47	0.06, 3.79

(continued)

Table 5.3 (continued): Health indicators by education level, males aged 65 years and over, 1989 to 2001

Health indicators/education	1989–90 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Health-related risk factors									
Overweight (but not obese)									
Bachelor degree or higher	34.6	1.00		42.9	1.00		39.5	1.00	
Diploma/vocational	35.1	1.01	0.77, 1.33	34.4	0.80	0.57, 1.14	44.2	1.12	0.81, 1.55
No post-school qualification	36.1	1.04	0.80, 1.36	39.8	0.93	0.67, 1.29	43.6	1.11	0.80, 1.52
Obese									
Bachelor degree or higher	0.3	1.00		2.7	1.00		4.0	1.00	
Diploma/vocational [+ †]	6.8	20.50	2.85, 147.66	5.6	2.04	0.62, 6.74	15.0	3.73	1.50, 9.24
No post-school qualification[+†]	8.2	24.71	3.45, 176.87	8.2	2.99	0.94, 9.52	12.6	3.13	1.27, 7.71
Hypertension									
Bachelor degree or higher	17.8	1.00		31.4	1.00		37.5	1.00	
Diploma/vocational	23.6	1.32	0.91, 1.93	34.1	1.08	0.73, 1.60	33.4	0.89	0.65, 1.22
No post-school qualification	23.6	1.32	0.92, 1.91	35.2	1.12	0.77, 1.63	36.6	0.98	0.72, 1.33
Health service use									
Doctor consultation									
Bachelor degree or higher	32.9	1.00		31.8	1.00		32.6	1.00	
Diploma/vocational	34.3	1.04	0.77, 1.41	40.2	1.26	0.83, 1.93	42.5	1.30	0.93, 1.83
No post-school qualification	31.4	0.95	0.71, 1.28	41.0	1.29	0.86, 1.94	45.2	1.39	1.00, 1.93
GP consultation									
Bachelor degree or higher	. .	. .	. .	29.6	1.00		26.1	1.00	
Diploma/vocational	. .	. .	. .	36.5	1.23	0.79, 1.91	38.6	1.48	1.01, 2.18
No post-school qualification	. .	. .	. .	37.8	1.28	0.83, 1.95	41.8	1.60	1.10, 2.34
Specialist consultation									
Bachelor degree or higher	. .	. .	. .	7.8	1.00		12.0	1.00	
Diploma/vocational	. .	. .	. .	7.5	0.97	0.40, 2.32	12.2	1.02	0.60, 1.72
No post-school qualification	. .	. .	. .	5.7	0.74	0.31, 1.73	8.4	0.70	0.41, 1.18
Dental consultation									
Bachelor degree or higher	8.1	1.00		19.5	1.00		12.3	1.00	
Diploma/vocational	4.7	0.57	0.32, 1.03	5.0	0.25	0.12, 0.55	5.9	0.48	0.25, 0.90
No post-school qualification[‡]	2.4	0.30	0.16, 0.55	3.8	0.20	0.09, 0.41	7.3	0.59	0.32, 1.09

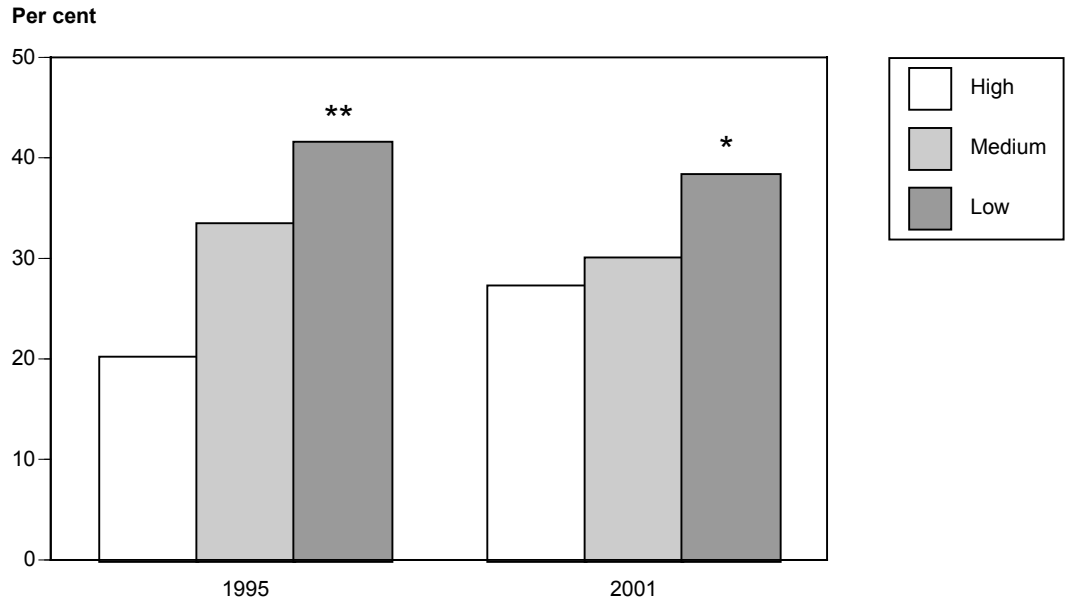
. . Data not available or not comparable.

— 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 $p \leq 0.05$.

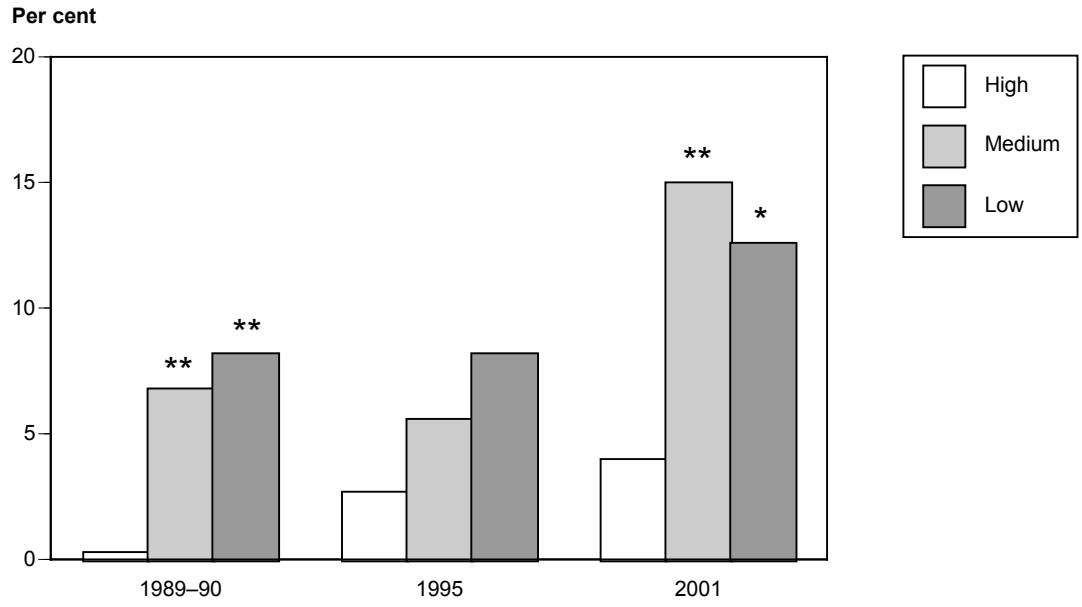
‡ 1995 rate ratio differs significantly from 2001 rate ratio at $p \leq 0.05$.



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

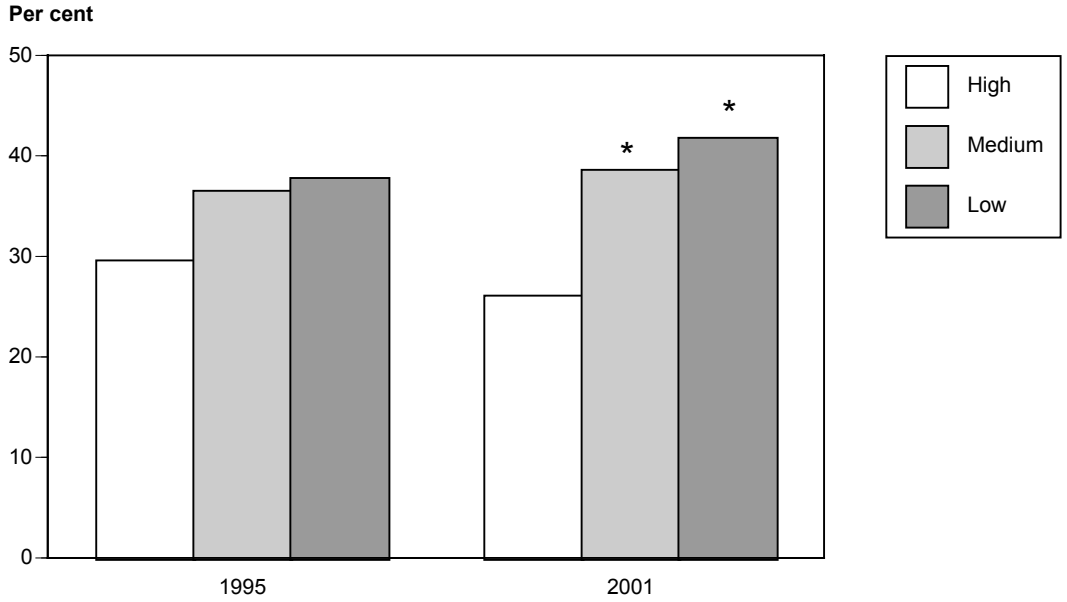
Figure 5.9: Percentage of males aged 65 years and over who reported their general health as 'fair' or 'poor', by level of education, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

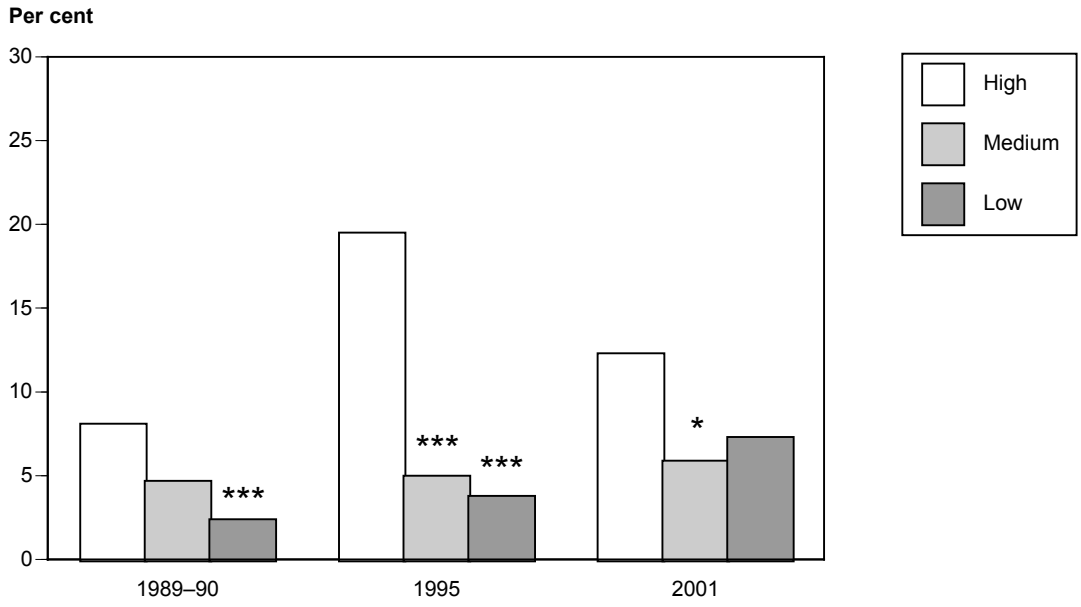
Figure 5.10: Percentage of males aged 65 years and over who were classified as obese, by level of education, 1989–90, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 5.11: Percentage of males aged 65 years and over who reported visiting a GP in the 2 weeks before the survey, by level of education, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 5.12: Percentage of males aged 65 years and over who reported visiting a dentist in the 2 weeks before the survey, by level of education, 1989–90, 1995 and 2001

Table 5.4: Health indicators by education level, females aged 65 years and over, 1989 to 2001

	1989–90			1995			2001		
Health indicators/education	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**
Morbidity									
Self-assessed health status (fair or poor)									
Bachelor degree or higher	. .	. .	. .	35.2	1.00		34.8	1.00	
Diploma/vocational	. .	. .	. .	31.7	0.90	0.50, 1.62	31.5	0.90	0.58, 1.41
No post-school qualification	. .	. .	. .	35.4	1.01	0.58, 1.75	34.4	0.99	0.65, 1.50
Arthritis									
Bachelor degree or higher	29.1	1.00		56.2	1.00		47.2	1.00	
Diploma/vocational	44.1	1.52	0.95, 2.41	54.2	0.96	0.63, 1.47	56.1	1.19	0.85, 1.66
No post-school qualification	44.1	1.52	0.96, 2.39	56.2	1.00	0.68, 1.48	53.1	1.13	0.82, 1.54
Asthma									
Bachelor degree or higher	7.9	1.00		6.6	1.00		12.6	1.00	
Diploma/vocational	4.6	0.57	0.23, 1.47	5.3	0.81	0.27, 2.39	10.5	0.83	0.40, 1.72
No post-school qualification	5.0	0.63	0.26, 1.54	8.3	1.26	0.46, 3.42	9.5	0.75	0.38, 1.48
Bronchitis/emphysema									
Bachelor degree or higher	11.9	1.00		5.0	1.00		5.0	1.00	
Diploma/vocational †	4.0	0.33	0.15, 0.76	4.8	0.97	0.28, 3.41	6.8	1.35	0.47, 3.87
No post-school qualification†	5.1	0.43	0.20, 0.92	6.4	1.28	0.40, 4.05	7.5	1.48	0.54, 4.03
Diabetes									
Bachelor degree or higher	1.1	1.00		0.6	1.00		12.8	1.00	
Diploma/vocational ‡†	3.4	3.06	0.41, 22.56	3.9	7.02	0.92, 53.36	11.4	0.89	0.44, 1.77
No post-school qualification‡†	4.4	3.94	0.55, 28.19	8.2	14.79	2.06, 106.01	11.3	0.88	0.46, 1.67
Neoplasms									
Bachelor degree or higher	6.7	1.00		13.3	1.00		3.3	1.00	
Diploma/vocational	4.7	0.70	0.29, 1.68	5.9	0.45	0.14, 1.38	4.7	1.42	0.42, 4.85
No post-school qualification	4.6	0.69	0.30, 1.57	4.8	0.36	0.13, 1.00	2.9	0.88	0.27, 2.84
Health-related behaviours									
Alcohol risk									
Bachelor degree or higher	2.4	1.00		10.3	1.00		7.0	1.00	
Diploma/vocational +	6.5	2.74	0.66, 11.28	6.9	0.67	0.28, 1.60	6.9	0.99	0.41, 2.37
No post-school qualification+	3.4	1.45	0.36, 5.87	4.3	0.41	0.20, 0.87	5.5	0.79	0.34, 1.82
Insufficient physical activity									
Bachelor degree or higher	76.2	1.00		68.0	1.00		66.6	1.00	
Diploma/vocational	75.0	0.98	0.72, 1.35	78.0	1.15	0.78, 1.69	79.6	1.20	0.90, 1.59
No post-school qualification	81.3	1.07	0.79, 1.45	79.1	1.16	0.81, 1.67	81.2	1.22	0.93, 1.60
Smoking									
Bachelor degree or higher	9.4	1.00		5.5	1.00		4.0	1.00	
Diploma/vocational	10.0	1.06	0.43, 2.64	7.6	1.39	0.46, 4.15	6.9	1.73	0.53, 5.67
No post-school qualification	10.7	1.13	0.47, 2.74	8.4	1.53	0.57, 4.15	7.7	1.93	0.61, 6.08
Salt use									
Bachelor degree or higher	. .	. .	. .	3.5	1.00		25.1	1.00	
Diploma/vocational ‡	. .	. .	. .	14.1	4.03	1.12, 14.44	22.7	0.91	0.55, 1.48
No post-school qualification‡	. .	. .	. .	20.2	5.78	1.82, 18.33	25.3	1.01	0.64, 1.58
Food security									
Bachelor degree or higher	. .	. .	. .	0.0	—		0.8	1.00	
Diploma/vocational	. .	. .	. .	2.0	—	—	1.1	1.30	0.16, 10.76
No post-school qualification	. .	. .	. .	2.0	—	—	1.5	1.89	0.26, 13.99

(continued)

Table 5.4 (continued): Health indicators by education level, females aged 65 years and over, 1989 to 2001

Health indicators/education	1989–90 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Health-related risk factors									
Overweight (but not obese)									
Bachelor degree or higher	22.6	1.00		9.2	1.00		21.2	1.00	
Diploma/vocational [+]	24.4	1.08	0.62, 1.86	28.6	3.11	0.98, 9.89	37.3	1.76	1.07, 2.89
No post-school qualification[+]	26.7	1.18	0.70, 2.01	26.2	2.85	0.91, 8.88	31.1	1.47	0.92, 2.36
Obese									
Bachelor degree or higher	3.9	1.00		0.3	1.00		17.7	1.00	
Diploma/vocational [+ ‡]	9.0	2.27	0.71, 7.24	5.2	17.77	2.36, 133.50	16.6	0.94	0.51, 1.73
No post-school qualification[+‡†]	10.6	2.68	0.86, 8.36	12.4	42.05	5.88, 300.71	18.2	1.03	0.59, 1.81
Hypertension									
Bachelor degree or higher	20.9	1.00		33.4	1.00		49.2	1.00	
Diploma/vocational	30.8	1.47	0.87, 2.49	37.6	1.13	0.65, 1.94	44.2	0.90	0.63, 1.28
No post-school qualification[†]	31.1	1.49	0.89, 2.48	41.9	1.25	0.75, 2.10	43.4	0.88	0.64, 1.22
Health service use									
Doctor consultation									
Bachelor degree or higher	35.9	1.00		38.2	1.00		33.0	1.00	
Diploma/vocational	36.2	1.01	0.66, 1.55	41.9	1.09	0.67, 1.79	41.8	1.26	0.85, 1.87
No post-school qualification	36.1	1.00	0.66, 1.52	38.4	1.01	0.64, 1.59	42.9	1.30	0.90, 1.88
GP consultation									
Bachelor degree or higher	. .	. .	. .	34.4	1.00		29.8	1.00	
Diploma/vocational	. .	. .	. .	38.6	1.12	0.66, 1.91	38.9	1.30	0.86, 1.97
No post-school qualification	. .	. .	. .	35.9	1.04	0.63, 1.72	38.2	1.28	0.86, 1.90
Specialist consultation									
Bachelor degree or higher	. .	. .	. .	5.9	1.00		8.0	1.00	
Diploma/vocational	. .	. .	. .	7.4	1.24	0.47, 3.29	7.7	0.97	0.43, 2.19
No post-school qualification	. .	. .	. .	6.7	1.13	0.46, 2.79	10.0	1.25	0.58, 2.67
Dental									
Bachelor degree or higher	5.9	1.00		5.1	1.00		9.1	1.00	
Diploma/vocational [‡]	5.6	0.96	0.38, 2.44	9.4	1.86	0.63, 5.43	5.2	0.58	0.27, 1.21
No post-school qualification	2.6	0.45	0.18, 1.11	4.9	0.96	0.35, 2.64	3.3	0.37	0.19, 0.72

. . Data not available or not comparable.

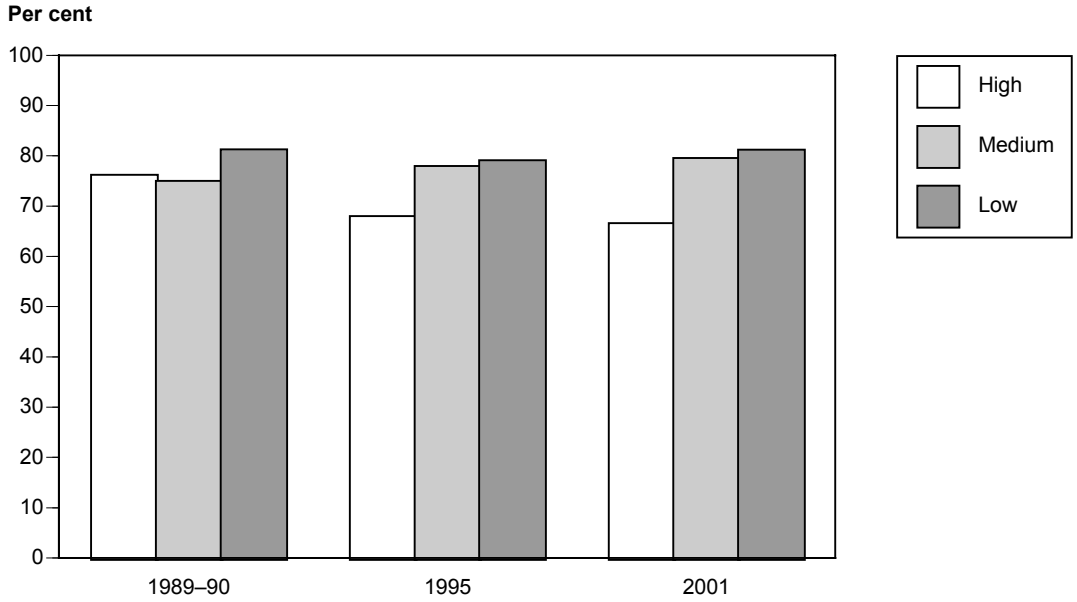
— Data unable to be calculated.

\+ 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 $p \leq 0.05$.

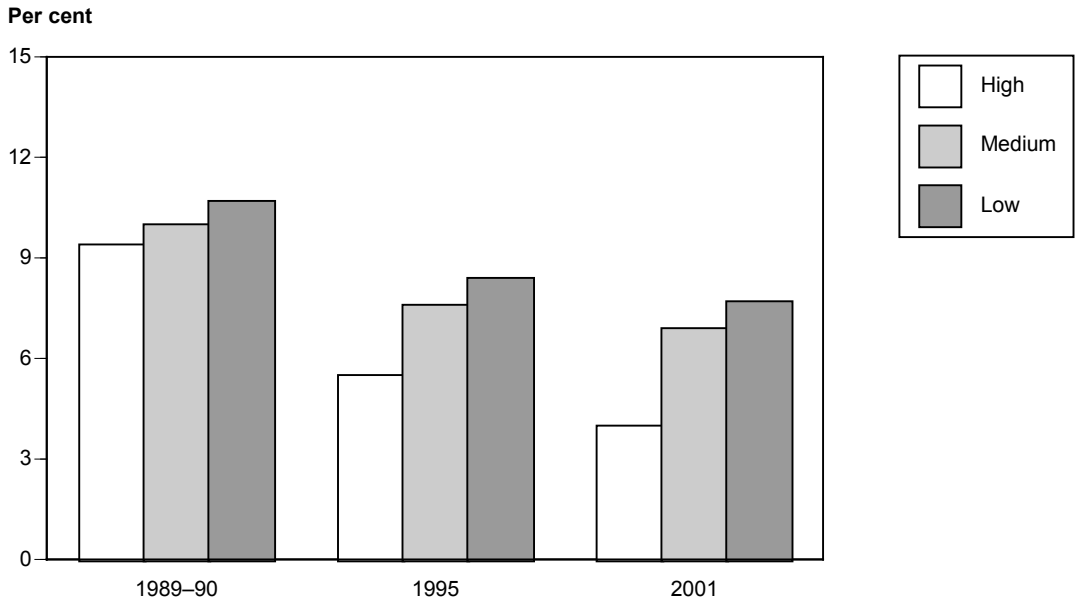
Note: A weighted equivalent of 2,430 females (4 female respondents) were excluded from the overweight (but not obese) and obese analyses as BMI classification could not be accurately established.



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 5.13: Percentage of females aged 65 years and over who were classified as engaging in insufficient physical activity, by level of education, 1989–90, 1995 and 2001



Note: High = Bachelor degree or higher, Medium = Diploma/vocational, Low = No post-school qualification.

Rate differs significantly from Bachelor degree or higher at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 5.14: Percentage of females aged 65 years and over who were classified as regular smokers, by level of education, 1989–90, 1995 and 2001

5.3 Summary and discussion

This chapter examined health-related inequalities by level of education for males and females aged 25–64 years, and 65 years and over, for the period 1989–90, 1995 and 2001, as reported in ABS National Health Surveys. Each of these surveys showed that persons with lower educational qualifications reported poorer health-related and risk factor behaviours, along with heightened morbidity and greater health service use.

Males and females aged 25–64 years with no post-school qualifications rated their own health as poorer, reported higher levels of arthritis and bronchitis, and placed themselves at greater health risk through adverse behaviours such as risk drinking (but only among males), smoking and not exercising enough. Correspondingly, higher levels of obesity were reported. Males and females in this age group with lower educational qualifications also consulted a GP more often, but visited a dentist less often. Women with lower educational qualifications were less likely to have had a Pap smear, and if they did have one, reported longer time periods since their last Pap smear. These findings tend to be consistent across each of the surveys in which the health indicator was measured.

With results from only three surveys (and in some cases just two), conclusions about trends in inequalities by level of education are premature. However, based on the available data in these surveys, there is some indication that doctor consultations among males aged 25–64 years with lower educational qualifications are increasing. Also, reported rates of obesity among females aged 25–64 years with lower educational qualifications are increasing. This is at odds with some studies which have shown that obesity is positively associated with socioeconomic status in developed countries, particularly among women (Sobel & Stunkard 1989; Seidell 1995; WHO 1998).

Males and females aged 65 years and over with no post-school qualifications also reported poorer health behaviours and outcomes, but for many fewer indicators than reported by the younger age group. In 2001, males aged 65 years and over with lower educational qualifications reported higher levels of bronchitis and emphysema, risk alcohol drinking, smoking, salt use, obesity and GP visits.

Less health inequality among those aged 65 years and over is, at first glance, at odds with other research which finds that educational attainment levels are typically fixed at an earlier age (Liberatos et al. 1988; Berkman & Macintyre 1997). It might be expected that, barring any other changes in socioeconomic position, inequalities appearing in younger age groups (25–64 years) would persist into older age (65 years and over) (Mathers 1994b). However, in this instance, the non-appearance of numerous inequalities in the older age group is more likely to be due to small sample sizes ruling out statistically significant differences.

The data presented here generally reinforce the findings of the numerous overseas studies that have examined the link between level of education and inequality in self-reported illness (Monden et al. 2003), and health risk factors such as smoking, insufficient physical activity, high blood pressure and obesity (Lynch et al. 1997; Luoto et al. 1994). The results from this chapter also concur with previous Australian studies that found that individuals with higher education levels have less morbidity (Broadhead 1985; Mathers 1994a, 1994b), and better health risk factor profiles (Owen & Bauman 1992; Bennett 1995; Hill et al. 1998; Conwell et al. 2003).

Higher levels of education are often seen as leading to higher income and occupational attainment. However, Susser et al. (1985) and Liberatos et al. (1988) pointed out that a high level of education does not necessarily lead to a well-paid, high-status occupation, leaving open to question whether education by itself provides a sufficient measure of socioeconomic position.

Mathers (1994a) found that substantial health differentials remained after taking into account other socioeconomic factors such as family income and employment status, and argued that education level remains an important independent predictor of health status and health service use.

Note that, by itself, information about level of education provides few details about the actual relationship between education and health. Further research about the resources provided through education and how education interacts with other socioeconomic determinants is needed in order to more fully understand the association, and to best plan appropriate education-based interventions aimed at reducing health inequalities.

6 Health inequalities by occupation

A person's occupation, including the skills or status level associated with that occupation, is another useful indicator of socioeconomic status. Occupational influences on health are both direct, through workplace hazards, and indirect, through the association with income, education and living standards. Further, it has been suggested that not only do data on occupation shed light on the working life of an individual, but they also allow insight into '…their social community, their financial and residential resources, their cultural experiences, their health-related behaviour, and even the life course opportunities open to them and their children' (Johnson & Hall 1988).

Occupation-based measures of socioeconomic disadvantage are one of the most common measures used by researchers in examining health inequalities. The release of the Black Report in the United Kingdom in 1980 focused attention on health inequalities in finding that between 1931 and 1970–72 there had been a widening of occupational mortality and morbidity differences among working-age males (Townsend & Davidson 1982). Since then, further research has confirmed these health differences by occupation, not only in the United Kingdom, but in most developed countries (Kunst & Mackenbach 1994; Kunst et al. 1996; Mackenbach et al. 1997).

Australian research has also made wide use of occupation as an indicator of socioeconomic status in examining health inequalities. Relevant findings over recent decades relating occupation to health in Australia include the following:

- Persons working in lower status occupations, such as labouring, rate their own health more poorly than those in higher status occupations (Broom 1984).
- Males working in manual (i.e. 'blue-collar') occupations report more recent illness, but females report less chronic illness (Broadhead 1985). Females in lower status occupations have a lower incidence of breast cancer (Chlebourn & Gray 1987). Blue-collar males have a higher incidence of non-fatal heart attack (Dobson et al. 1991) and occupational injuries (Wigglesworth 1990).
- Males in blue-collar occupations have higher systolic blood pressure (Bennett 1996) and mean waist–hip ratio (Boyle et al. 1993). Persons in lower status occupations have a higher body mass index and a higher proportion of obesity (Halloran et al. 1993)
- Persons in blue-collar occupations are more likely to be current smokers (Hill et al. 1998), and are less likely to participate in leisure-time physical activity (Burton & Turrell 2000). Males are also more likely to drink alcohol at high levels, although females have a lower proportion of high-level alcohol users (Dobson et al. 1985). Smith & Baghurst (1992) found that persons in lower status occupations have higher cholesterol and energy intakes, as well as deriving more of their energy from fats and sugars
- Persons in jobs with low occupational status are more likely to visit a GP, but less likely to visit a dentist (Wiggers et al. 1995).

In this chapter, we examine health inequalities among males and females aged 25–64 years, according to their reported occupation in the 1989–90, 1995 and 2001 ABS National Health Surveys. Categorisation of occupation varied somewhat across the three surveys, so for comparisons, occupation has been reclassified into three groups—Managers, administrators and

professionals, White collar and Blue collar (Box 6.1). In this sequence, these broad groupings represent decreasing levels of socioeconomic status and skills. Where possible, health indicators by occupation are compared across all three surveys. The 1989–90 survey lacked some of the questions which appeared in later surveys, or worded questions differently, which means that in some cases no results appear for that particular survey.

Box 6.1: Occupation

In the National Health Surveys, occupation was coded to the Australian Standard Classification of Occupations (ASCO) (ABS 1997). ASCO is a skill-based measure that groups together occupations requiring similar levels of education, knowledge, responsibility, on-the-job training and experience. The occupational groupings are hierarchically ordered based on their relative skill levels, with those occupations having the most extensive skill requirements located at the top of the hierarchy (Turrell et al 1994). In the 1989–90 and 1995 NHS a respondent's main occupation (job in which respondent usually works the most hours) was coded in accordance with the first edition of ASCO, whereas occupation data collected for the 2001 NHS was coded to the second edition of ASCO. The table below shows the major occupational groupings used in each edition.

Australian Standard Classification of Occupations (ASCO) major groupings

ASCO first edition	ASCO second edition
1. Managers and administrators	1. Managers and administrators
2. Professionals	2. Professionals
3. Para-professionals	3. Associate professionals
4. Tradespersons	4. Tradespersons and related workers
5. Clerks	5. Advanced clerical and service workers
6. Salespersons and personal services workers	6. Intermediate clerical, sales and service workers
7. Plant and machine operators, and drivers	7. Intermediate production and transport workers
8. Labourers and related workers	8. Elementary clerical, sales and service workers
	9. Labourers and related workers

The ASCO major occupation groups were subsequently recategorised as follows:

ASCO first edition (1989–90 & 1995 NHS)	
Managers, administrators & professionals	Groups 1, 2 and 3
White collar	Groups 5 and 6
Blue Collar	Groups 4, 7 and 8
ASCO second edition (2001 NHS)	
Managers, administrators & professionals	Groups 1, 2 and 3
White collar	Groups 5, 6 and 8
Blue collar	Groups 4, 7 and 9

The use of three broad occupational groupings allowed us to closely match the two different editions of ASCO, thus minimising any extraneous misclassification error. Also more generally, collapsing the original ASCO categories into three groups served to further dampen error resulting from other sources. Importantly, similar three-level classifications have been used by other Australian researchers, who have demonstrated that the categories are sufficiently sensitive to discriminate between occupation groups in terms of a range of health and social outcomes (Mathers 1994a; Bennett 1996; Turrell 2000; Burton and Turrell 2000).

Occupation, as a socioeconomic indicator, is analysed for the 25–64-year age group only. In this age group, occupation was not available for a considerable proportion of respondents across the three surveys. Respondents who were members of the armed forces, who did not state their occupation, who were unemployed, or whose occupation was inadequately described were excluded from all analysis involving occupation. This equates to weighted estimates of 28.7% of persons aged 25–64 years in the 1989–90 NHS (28.7% of respondents), 26.7% in the 1995 NHS (27.5% of respondents), and 28.0% in the 2001 NHS (27.2% respondents).

6.1 Persons aged 25–64 years

Males and females aged 25–64 years working in blue-collar or white-collar occupations rated their own health more poorly and reported a number of illnesses more often than those working as managers, administrators and professionals (Tables 6.1 and 6.2).

- Self-assessed health rated as fair or poor: White-collar males 54% and females 25% higher in 2001. Blue-collar males 47% higher in 1995, and 64% higher in 2001. Blue-collar females 48% higher in 1995 and 61% higher in 2001. Figure 6.1 graphs the association between occupation and rates of self-assessed health for males.
- Arthritis: Blue-collar males 29% higher in 1989–90 and 1995, but not significantly higher in 2001. White-collar females 24% higher in 2001.
- Asthma: Blue-collar males 18% lower in 1989–90 and 26% lower in 1995, but not significantly lower in 2001. Blue-collar females 24% lower in 1995, but no significant difference for 1989–90 or 2001.
- Bronchitis or emphysema: Blue-collar males 44% higher in 1989–90 and 67% higher in 1995, but not significantly higher in 2001.
- Diabetes: Blue-collar females 97% higher in 1995.

Males and females aged 25–64 years working in less skilled occupations were more likely to engage in a number of risky or harmful health-related behaviours.

- Alcohol risk: In all three surveys, blue-collar males were more likely to drink alcohol at harmful levels (50% higher in 1989–90, 32% higher in 1995, and 18% higher in 2001). In contrast, white-collar and blue-collar females were less likely to drink alcohol at harmful levels (for white-collar females, 23% lower in 1995, and 25% in 2001; for blue-collar females 23% lower in 1989–90 and 38% in 1995) than managers, administrators and professionals.
- Insufficient physical activity: Blue-collar males and females also engaged in less physical activity than managers, administrators and professionals (for males, 19%, 17% and 20% higher in 1989–90, 1995 and 2001; for females, 13%, 13% and 15% higher in 1989–90, 1995 and 2001). Figures 6.2 and 6.5 graph the association between occupation and rates of insufficient physical activity for males and females respectively.
- Both white and blue-collar males and females reported higher rates of smoking—for white-collar males, 31% higher in 1989–90, 37% higher in 1995 and 49% higher in 2001; for blue-collar males, 65%, 81% and 87% higher. For white-collar females, the rates were 29%, 33% and 32% higher, and for blue-collar females, 65%, 86% and 66% higher in 1989–90, 1995 and 2001 respectively. Figures 6.3 and 6.6 graph the association between occupation and rates of smoking for males and females respectively.
- Salt use: In 1995 and 2001, both white- and blue-collar males and females were more likely to add salt to their food.
- No food security: In 1995 and 2001, both white- and blue-collar males and females were more likely to run out of food and not be able to afford to buy extra.

Males and females aged 25–64 years working in less skilled occupations also had adverse outcomes for a number of health-related risk factors.

- Overweight: White and blue-collar males were not significantly more overweight than males working as managers, administrators or professionals. However, blue-collar females were more likely to report being overweight in the 1989–90 and 1995 surveys.

- Obesity: Blue-collar males had higher levels of obesity in all three surveys (50% higher in 1989–90, 30% in 1995 and 21% in 2001). Blue-collar females also reported higher levels of obesity in 1989–90 (48%) and 2001 (63%). Figures 6.4 and 6.7 graph the association between occupation and rates of obesity for males and females respectively.
- Hypertension: Blue-collar males reported 20% less hypertension than managers, administrators and professionals in 2001.

Blue-collar workers were also more likely to visit a doctor, but less likely to use a number of other health services than white collar workers or managers, administrators and professionals.

- GP consultation: Compared with managers, administrators and professionals, GP consultations were 29% higher for white-collar males in 1995 and 57% higher in 2001. They were 13% higher among blue-collar males in 1995 and 55% higher in 2001. In 2001, GP consultations were 25% higher among females working in blue-collar occupations than among females working as managers, administrators and professionals.
- Specialist consultation: Blue-collar males were 25% less likely than male managers, administrators and professionals to consult a specialist in 1995. Blue-collar females were 34% less likely. Rates were also lower, but not significantly so, in 2001.
- Dental consultation: White and blue-collar workers were less likely to consult a dentist—white-collar males 28% and females 18% less likely in 1995. Blue-collar males were 39% less likely in 1989–90, 39% in 1995 and 38% in 2001. It was similar for blue-collar females—38% in 1989–90, 32% in 1995, with no significant difference in 2001.
- Women aged 50–64 years never having a mammogram: Rates were significantly higher among blue-collar females in 2001 (see also Figure 6.8).
- Pap smear: Women in blue-collar occupations were more likely not to have had a Pap smear (35% higher rate than managers, administrators and professionals in 1989–90, 59% in 1995 and 75% in 2001). In 2001, blue-collar women workers were also more likely to have had a Pap smear more than 2 years ago (38%). There were no significant differences for females working in white-collar occupations.

Table 6.1: Health indicators by occupation, males aged 25–64 years, 1989 to 2001

	1989–90			1995			2001		
Health indicator/occupation	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**	**Per cent**	**Rate ratio**	**95% CI**
Morbidity									
Self-assessed health status (fair or poor)									
Managers, administrators & professionals	. .	. .	. .	8.6	1.00		9.9	1.00	
White collar ‡	. .	. .	. .	9.7	1.13	0.94, 1.36	15.3	1.54	1.22, 1.96
Blue collar	. .	. .	. .	12.7	1.47	1.30, 1.67	16.2	1.64	1.38, 1.95
Days away from work									
Managers, administrators & professionals	11.0	1.00		6.8	1.00		13.6	1.00	
White collar ‡	13.0	1.18	1.01, 1.39	9.2	1.35	1.11, 1.64	12.9	0.95	0.74, 1.22
Blue collar	12.3	1.11	0.99, 1.25	9.0	1.32	1.14, 1.52	15.7	1.15	0.98, 1.34
Arthritis									
Managers, administrators & professionals	7.9	1.00		11.1	1.00		10.2	1.00	
White collar ‡	8.8	1.11	0.90, 1.37	10.6	0.96	0.81, 1.15	9.6	0.94	0.70, 1.26
Blue collar	10.2	1.29	1.12, 1.48	14.2	1.29	1.14, 1.45	12.1	1.18	0.98, 1.43
Asthma									
Managers, administrators & professionals	5.5	1.00		7.8	1.00		8.1	1.00	
White collar ‡ †	4.9	0.89	0.69, 1.14	7.0	0.90	0.73, 1.10	10.6	1.30	0.97, 1.74
Blue collar	4.5	0.82	0.68, 0.97	5.8	0.74	0.64, 0.86	6.9	0.85	0.69, 1.05
Bronchitis/emphysema									
Managers, administrators & professionals	1.7	1.00		2.1	1.00		2.2	1.00	
White collar	2.8	1.69	1.14, 2.52	3.0	1.42	1.00, 2.01	2.9	1.29	0.76, 2.21
Blue collar	2.4	1.44	1.07, 1.94	3.5	1.67	1.30, 2.16	3.2	1.42	0.97, 2.08
Diabetes									
Managers, administrators & professionals	0.9	1.00		1.8	1.00		2.4	1.00	
White collar	0.8	0.87	0.45, 1.67	1.5	0.84	0.52, 1.37	2.9	1.19	0.68, 2.07
Blue collar	1.2	1.40	0.92, 2.14	1.7	0.95	0.69, 1.32	3.1	1.26	0.83, 1.91
Neoplasms									
Managers, administrators & professionals	2.0	1.00		1.4	1.00		1.7	1.00	
White collar	1.9	0.98	0.60, 1.59	1.9	1.39	0.89, 2.18	1.6	0.93	0.45, 1.94
Blue collar +	1.3	0.64	0.45, 0.91	1.6	1.19	0.84, 1.69	1.5	0.87	0.51, 1.48
Health behaviour									
Alcohol risk									
Managers, administrators & professionals	12.4	1.00		9.6	1.00		13.4	1.00	
White collar	14.9	1.20	1.03, 1.40	10.3	1.07	0.84, 1.36	15.7	1.17	0.93, 1.49
Blue collar †	18.6	1.50	1.35, 1.67	12.7	1.32	1.12, 1.56	15.8	1.18	1.02, 1.38
Insufficient physical activity									
Managers, administrators & professionals	64.3	1.00		63.2	1.00		61.9	1.00	
White collar	67.1	1.04	0.97, 1.12	64.5	1.02	0.95, 1.10	64.6	1.04	0.93, 1.16
Blue collar	76.2	1.19	1.13, 1.24	73.9	1.17	1.11, 1.23	74.4	1.20	1.12, 1.29

(continued)

Table 6.1 (continued): Health indicators by occupation, males aged 25–64 years, 1989 to 2001

Health indicator/occupation	1989–90 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Smoking									
Managers, administrators & professionals	23.5	1.00		18.1	1.00		19.5	1.00	
White collar	30.7	1.31	1.18, 1.45	24.7	1.37	1.22, 1.53	29.1	1.49	1.26, 1.77
Blue collar †	38.8	1.65	1.53, 1.77	32.8	1.81	1.67, 1.97	36.4	1.87	1.66, 2.09
Salt use									
Managers, administrators & professionals	. .	. .	. .	25.2	1.00		24.5	1.00	
White collar	. .	. .	. .	32.2	1.28	1.04, 1.56	32.0	1.30	1.10, 1.54
Blue collar	. .	. .	. .	35.2	1.39	1.20, 1.62	36.3	1.48	1.33, 1.65
Food security									
Managers, administrators & professionals	. .	. .	. .	1.3	1.00		1.8	1.00	
White collar	. .	. .	. .	3.4	2.63	1.36, 5.10	3.6	2.05	1.26, 3.34
Blue collar	. .	. .	. .	3.2	2.51	1.45, 4.35	3.7	2.08	1.48, 2.92
Health-related risk factors									
Overweight (but not obese)									
Managers, administrators & professionals	40.8	1.00		45.8	1.00		45.6	1.00	
White collar	39.0	0.96	0.87, 1.05	42.2	0.92	0.85, 1.00	46.1	1.01	0.89, 1.16
Blue collar	40.4	0.99	0.93, 1.05	44.0	0.96	0.90, 1.02	44.1	0.97	0.88, 1.06
Obese									
Managers, administrators & professionals	7.3	1.00		11.6	1.00		15.6	1.00	
White collar	8.4	1.15	0.94, 1.41	12.4	1.06	0.90, 1.26	15.6	1.00	0.80, 1.26
Blue collar †	11.0	1.50	1.31, 1.72	15.2	1.30	1.16, 1.47	18.9	1.21	1.04, 1.41
Hypertension									
Managers, administrators & professionals	6.6	1.00		10.3	1.00		10.0	1.00	
White collar	7.9	1.21	0.96, 1.52	13.0	1.27	1.06, 1.51	11.2	1.12	0.84, 1.49
Blue collar ‡ †	7.0	1.06	0.90, 1.25	10.6	1.03	0.90, 1.18	8.0	0.80	0.65, 0.98
Health service use									
Doctor consultation									
Managers, administrators & professionals	13.5	1.00		15.6	1.00		14.1	1.00	
White collar †	15.2	1.13	0.97, 1.31	19.6	1.25	1.09, 1.43	20.8	1.48	1.20, 1.81
Blue collar ‡ †	13.6	1.00	0.90, 1.12	16.7	1.07	0.97, 1.18	20.4	1.44	1.25, 1.67
GP consultation									
Managers, administrators & professionals	. .	. .	. .	13.8	1.00		12.0	1.00	
White collar	. .	. .	. .	17.8	1.29	1.12, 1.49	19.0	1.57	1.26, 1.96
Blue collar ‡	. .	. .	. .	15.5	1.13	1.01, 1.25	18.7	1.55	1.33, 1.82

(continued)

Table 6.1 (continued): Health indicators by occupation, males aged 25–64 years, 1989 to 2001

Health indicator/occupation	1989–90			1995			2001		
	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI	Per cent	Rate ratio	95% CI
Specialist consultation									
Managers, administrators & professionals	. .	. .	. .	3.0	1.00		4.3	1.00	
White collar	. .	. .	. .	3.3	1.10	0.79, 1.55	4.1	0.94	0.61, 1.46
Blue collar	. .	. .	. .	2.2	0.75	0.58, 0.96	3.8	0.87	0.64, 1.19
Dental consultation									
Managers, administrators & professionals	5.6	1.00		6.7	1.00		5.6	1.00	
White collar	4.8	0.85	0.65, 1.10	4.8	0.72	0.56, 0.92	4.0	0.71	0.47, 1.07
Blue collar	3.4	0.61	0.50, 0.74	4.1	0.61	0.51, 0.73	3.5	0.62	0.47, 0.83

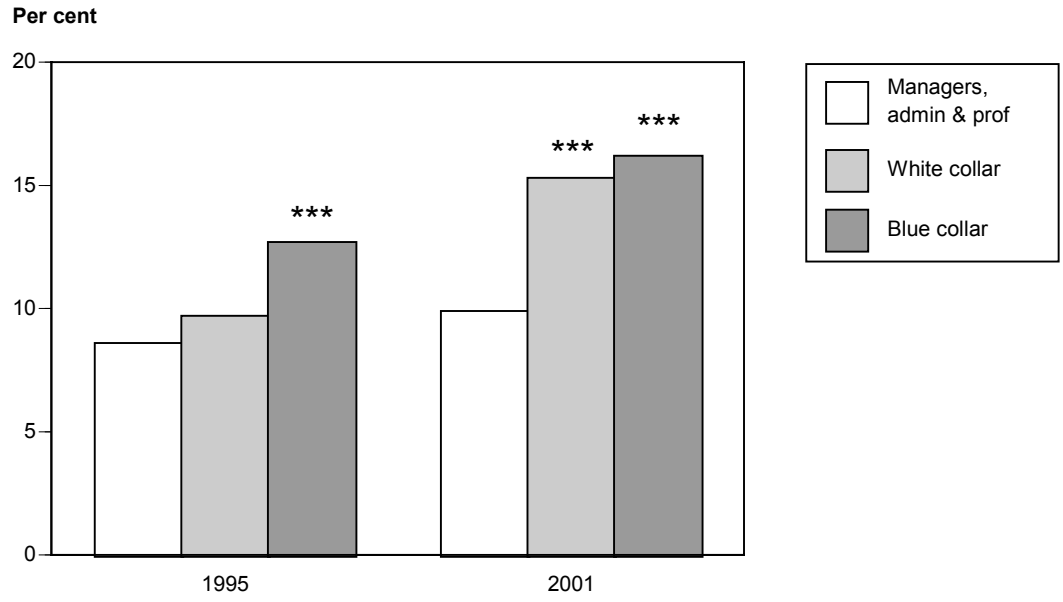
. . Data not available or not comparable.

\+ 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 $p \leq 0.05$.

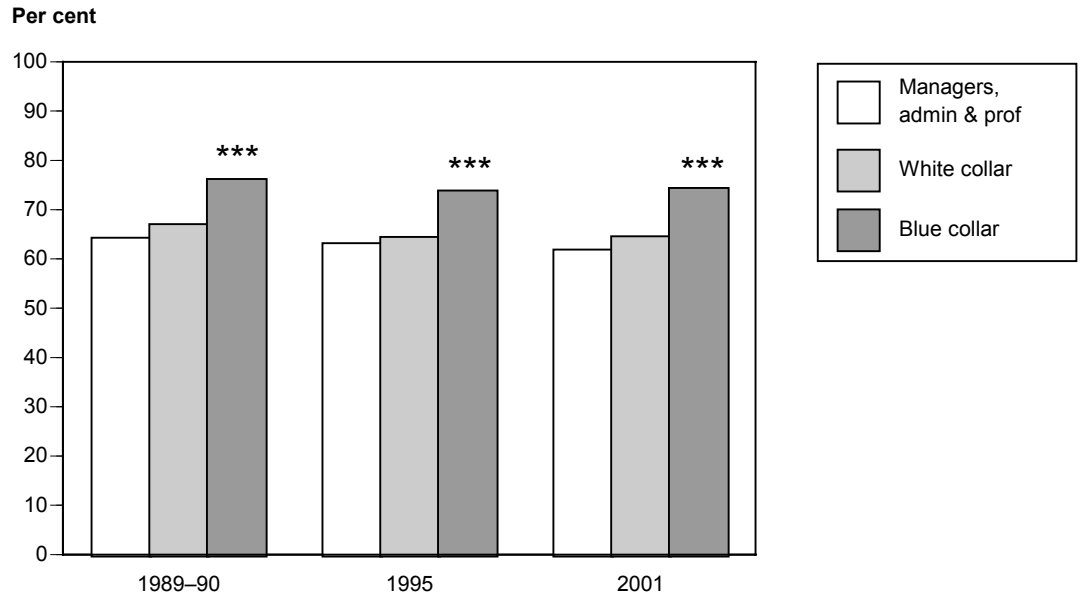
‡ 1995 rate ratio differs significantly from 2001 rate ratio at $p \leq 0.05$.

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.



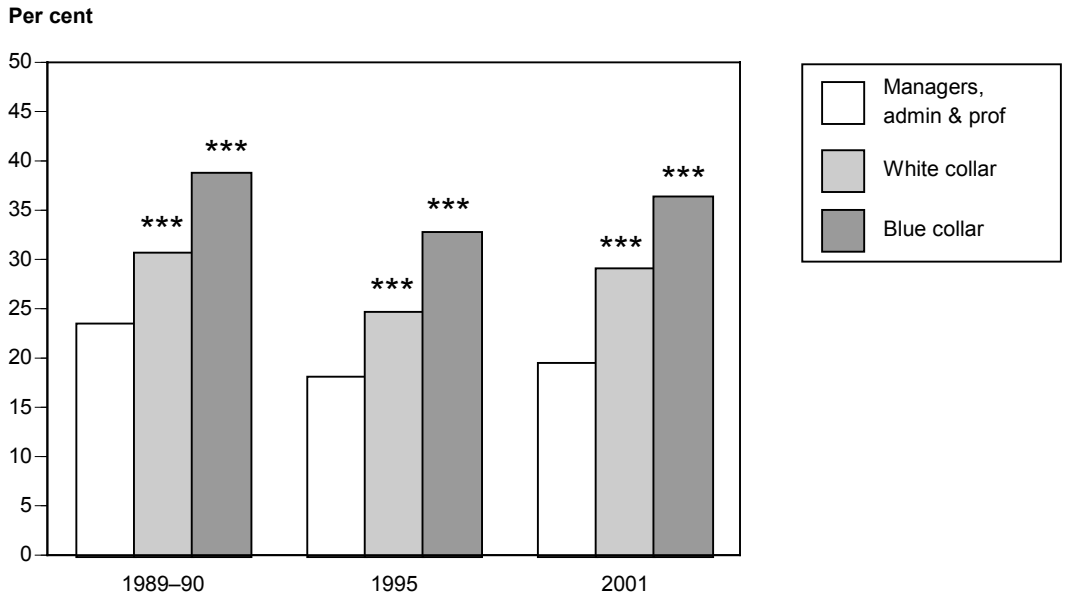
Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 6.1: Percentage of males aged 25–64 years who reported their general health as 'fair' or 'poor', by occupation, 1995 and 2001



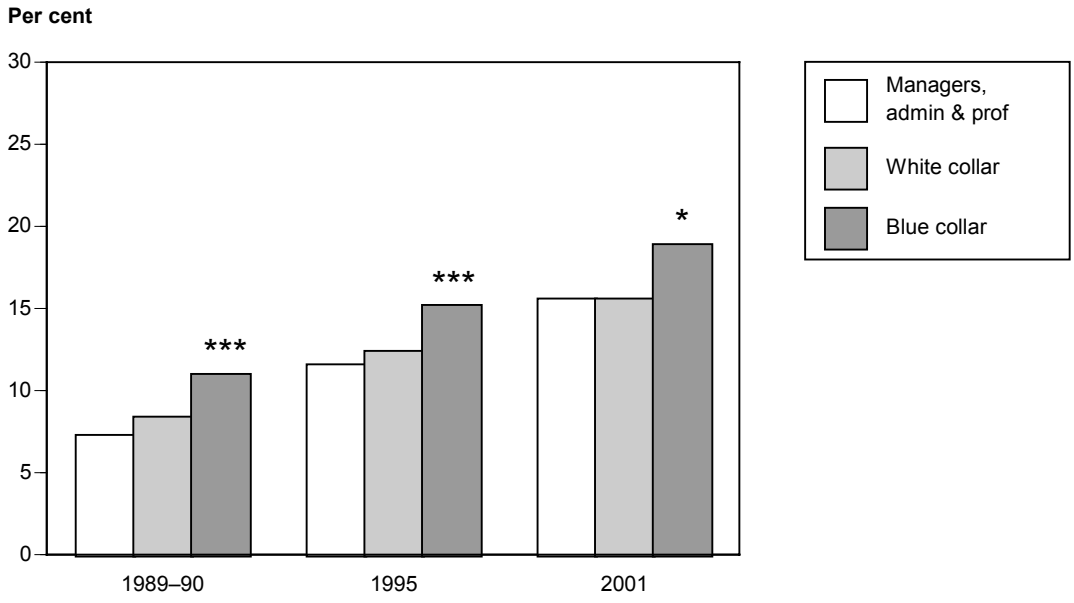
Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 6.2: Percentage of males aged 25–64 years who were classified as engaging in insufficient physical activity, by occupation, 1989–90, 1995 and 2001



Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 6.3: Percentage of males aged 25–64 years who were classified as regular smokers, by occupation, 1989–90, 1995 and 2001



Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 6.4: Percentage of males aged 25–64 years who were classified as obese, by occupation, 1989–90, 1995 and 2001

Table 6.2: Health indicators by occupation, females aged 25–64 years, 1989 to 2001

Health indicator/occupation	1989–90 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Morbidity									
Self-assessed health status (fair or poor)									
Managers, administrators & professionals	. .	. .	. .	8.3	1.00		9.6	1.00	
White collar	. .	. .	. .	8.5	1.03	0.87, 1.22	12.0	1.25	1.02, 1.52
Blue collar [+ †]	. .	. .	. .	12.2	1.48	1.22, 1.79	15.4	1.61	1.26, 2.05
Days away from work									
Managers, administrators & professionals	17.0	1.00		10.2	1.00		18.9	1.00	
White collar	14.2	0.83	0.73, 0.95	9.4	0.93	0.80, 1.07	16.5	0.87	0.75, 1.01
Blue collar [‡]	14.6	0.86	0.73, 1.00	10.8	1.06	0.88, 1.28	14.7	0.78	0.62, 0.98
Arthritis									
Managers, administrators & professionals	12.2	1.00		16.9	1.00		12.6	1.00	
White collar [‡]	13.0	1.07	0.90, 1.27	16.8	0.99	0.87, 1.13	15.6	1.24	1.03, 1.48
Blue collar	13.2	1.08	0.90, 1.31	18.8	1.11	0.95, 1.29	15.9	1.27	1.00, 1.61
Asthma									
Managers, administrators & professionals	6.6	1.00		10.1	1.00		11.6	1.00	
White collar	5.6	0.85	0.69, 1.04	9.0	0.89	0.77, 1.04	11.8	1.02	0.85, 1.22
Blue collar	5.2	0.79	0.61, 1.02	7.7	0.76	0.62, 0.93	12.0	1.03	0.78, 1.36
Bronchitis/emphysema									
Managers, administrators & professionals	2.0	1.00		3.1	1.00		3.1	1.00	
White collar [+ †]	3.6	1.83	1.31, 2.57	3.7	1.20	0.92, 1.58	3.3	1.08	0.76, 1.52
Blue collar	2.9	1.47	0.98, 2.19	3.5	1.13	0.80, 1.59	4.0	1.28	0.78, 2.09
Diabetes									
Managers, administrators & professionals	0.5	1.00		0.8	1.00		1.6	1.00	
White collar	0.8	1.63	0.73, 3.63	1.3	1.59	1.00, 2.54	1.9	1.18	0.67, 2.07
Blue collar	0.7	1.31	0.53, 3.25	1.7	1.97	1.15, 3.36	1.7	1.06	0.47, 2.40
Neoplasms									
Managers, administrators & professionals	1.8	1.00		1.7	1.00		1.2	1.00	
White collar	1.6	0.87	0.58, 1.32	2.2	1.32	0.92, 1.88	1.2	1.03	0.59, 1.82
Blue collar	2.6	1.41	0.89, 2.24	1.4	0.81	0.49, 1.36	1.5	1.25	0.58, 2.69
Health behaviour									
Alcohol risk									
Managers, administrators & professionals	9.8	1.00		8.4	1.00		11.5	1.00	
White collar	8.4	0.85	0.72, 1.01	6.5	0.77	0.61, 0.98	8.6	0.75	0.62, 0.91
Blue collar	7.6	0.77	0.62, 0.96	5.2	0.62	0.44, 0.89	10.4	0.91	0.69, 1.21
Insufficient physical activity									
Managers, administrators & professionals	73.4	1.00		69.4	1.00		67.4	1.00	
White collar	76.7	1.05	0.99, 1.11	73.2	1.06	1.00, 1.12	74.2	1.10	1.02, 1.19
Blue collar	82.7	1.13	1.05, 1.21	78.2	1.13	1.05, 1.21	77.7	1.15	1.03, 1.28

(continued)

Table 6.2 (continued): Health indicators by occupation, females aged 25–64 years, 1989 to 2001

Health indicator/occupation	1989–90 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Smoking									
Managers, administrators & professionals	19.2	1.00		14.6	1.00		17.3	1.00	
White collar	24.9	1.29	1.16, 1.44	19.4	1.33	1.19, 1.48	22.8	1.32	1.15, 1.51
Blue collar	31.7	1.65	1.46, 1.86	27.2	1.86	1.64, 2.12	28.7	1.66	1.39, 1.98
Salt use									
Managers, administrators & professionals	. .	. .	. .	13.7	1.00		16.1	1.00	
White collar	. .	. .	. .	17.1	1.25	0.99, 1.57	22.0	1.37	1.19, 1.59
Blue collar	. .	. .	. .	21.1	1.54	1.17, 2.03	26.8	1.67	1.38, 2.02
Food security									
Managers, administrators & professionals	. .	. .	. .	2.8	1.00		2.7	1.00	
White collar	. .	. .	. .	3.0	1.07	0.66, 1.72	4.6	1.70	1.24, 2.33
Blue collar	. .	. .	. .	7.2	2.55	1.52, 4.29	6.6	2.47	1.69, 3.61
Health-related risk factors									
Overweight (but not obese)									
Managers, administrators & professionals	21.1	1.00		22.3	1.00		27.0	1.00	
White collar [+‡]	19.1	0.91	0.80, 1.02	25.5	1.15	1.03, 1.27	24.3	0.90	0.79, 1.03
Blue collar [‡†]	26.7	1.27	1.11, 1.45	26.6	1.20	1.05, 1.36	25.0	0.93	0.76, 1.13
Obese									
Managers, administrators & professionals	7.8	1.00		11.3	1.00		14.1	1.00	
White collar [+‡]	9.1	1.17	0.97, 1.42	10.4	0.92	0.79, 1.07	18.6	1.32	1.11, 1.56
Blue collar [‡]	11.5	1.48	1.20, 1.84	13.0	1.15	0.96, 1.37	23.0	1.63	1.30, 2.04
Hypertension									
Managers, administrators & professionals	6.8	1.00		8.4	1.00		7.6	1.00	
White collar	8.4	1.23	0.97, 1.56	9.6	1.14	0.94, 1.37	9.5	1.25	0.97, 1.59
Blue collar	7.7	1.14	0.87, 1.49	10.2	1.21	0.97, 1.51	9.1	1.19	0.85, 1.66
Health service use									
Doctor consultation									
Managers, administrators & professionals	19.6	1.00		24.5	1.00		25.1	1.00	
White collar	21.7	1.11	0.99, 1.24	24.8	1.01	0.92, 1.12	27.6	1.10	0.97, 1.25
Blue collar	21.2	1.08	0.94, 1.24	24.0	0.98	0.86, 1.11	29.0	1.15	0.97, 1.38
GP consultation									
Managers, administrators & professionals	. .	. .	. .	20.2	1.00		20.9	1.00	
White collar	. .	. .	. .	21.3	1.05	0.95, 1.17	23.4	1.12	0.98, 1.28
Blue collar	. .	. .	. .	21.6	1.07	0.94, 1.22	26.1	1.25	1.03, 1.51
Specialist consultation									
Managers, administrators & professionals	. .	. .	. .	6.4	1.00		7.4	1.00	
White collar	. .	. .	. .	5.3	0.84	0.69, 1.02	7.2	0.97	0.77, 1.24
Blue collar	. .	. .	. .	4.2	0.66	0.50, 0.88	6.2	0.85	0.58, 1.24

(continued)

Table 6.2 (continued): Health indicators by occupation, females aged 25–64 years, 1989 to 2001

Health indicator/occupation	1989–90 Per cent	1989–90 Rate ratio	1989–90 95% CI	1995 Per cent	1995 Rate ratio	1995 95% CI	2001 Per cent	2001 Rate ratio	2001 95% CI
Dental									
Managers, administrators & professionals	7.0	1.00		7.3	1.00		6.5	1.00	
White collar	5.8	0.83	0.68, 1.01	6.0	0.82	0.69, 0.99	6.7	1.03	0.81, 1.32
Blue collar	4.4	0.62	0.47, 0.83	5.0	0.68	0.53, 0.87	6.1	0.94	0.63, 1.38
Mammogram									
Women 50–64 years									
Managers, administrators & professionals	64.9	1.00		19.1	1.00		8.1	1.00	
White collar	63.9	0.99	0.82, 1.18	19.6	1.03	0.71, 1.51	9.2	1.14	0.73, 1.76
Blue collar ‡ †	65.9	1.02	0.82, 1.26	20.0	1.05	0.66, 1.69	21.9	2.69	1.64, 4.41
Time since last mammogram									
Women 50–64 years									
Managers, administrators & professionals	. .	. .	. .	13.1	1.00		20.7	1.00	
White collar	. .	. .	. .	20.0	1.53	0.95, 2.45	19.6	0.94	0.68, 1.32
Blue collar	. .	. .	. .	15.3	1.17	0.63, 2.15	28.4	1.37	0.87, 2.17
Pap smear									
Managers, administrators & professionals	6.2	1.00		3.3	1.00		4.7	1.00	
White collar	4.7	0.76	0.60, 0.95	3.5	1.05	0.73, 1.50	4.3	0.91	0.66, 1.25
Blue collar	8.3	1.35	1.05, 1.74	5.3	1.59	1.04, 2.41	8.3	1.75	1.15, 2.67
Time since last pap smear									
Managers, administrators & professionals	. .	. .	. .	24.9	1.00		29.3	1.00	
White collar	. .	. .	. .	27.1	1.09	0.94, 1.26	29.5	1.01	0.89, 1.14
Blue collar	. .	. .	. .	28.5	1.14	0.95, 1.38	40.3	1.38	1.16, 1.63

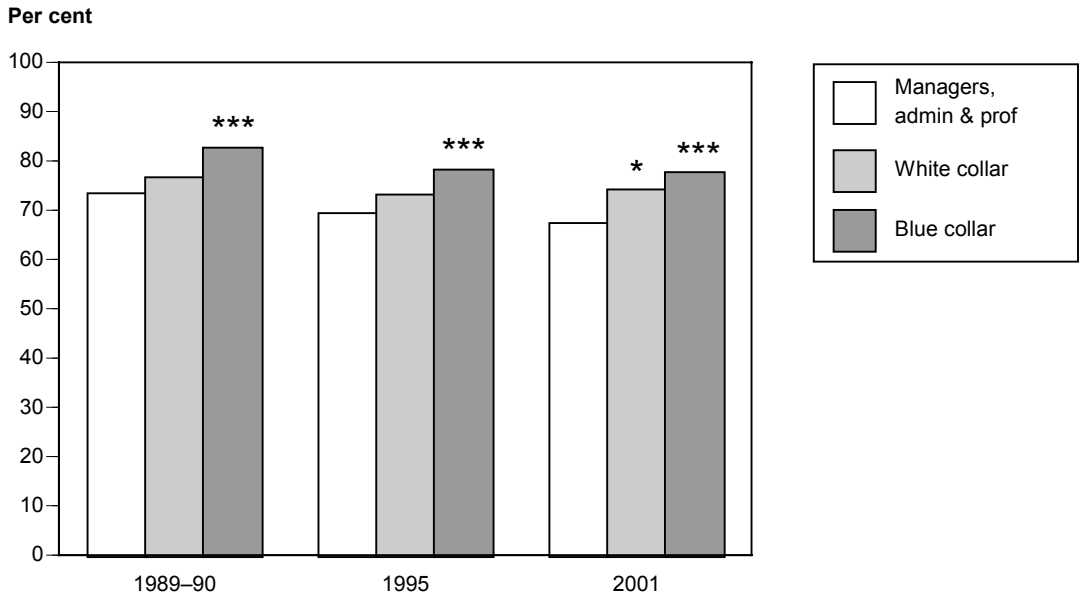
. . Data not available or not comparable.

\+ 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 $p \leq 0.05$.

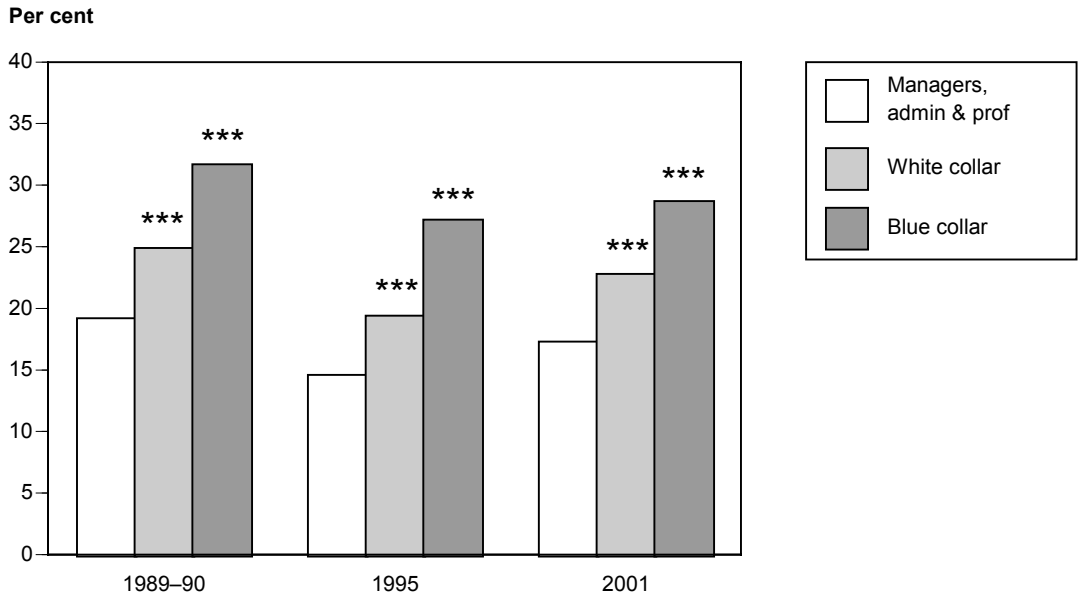
‡ 1995 rate ratio differs significantly from 2001 rate ratio at $p \leq 0.05$.

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.



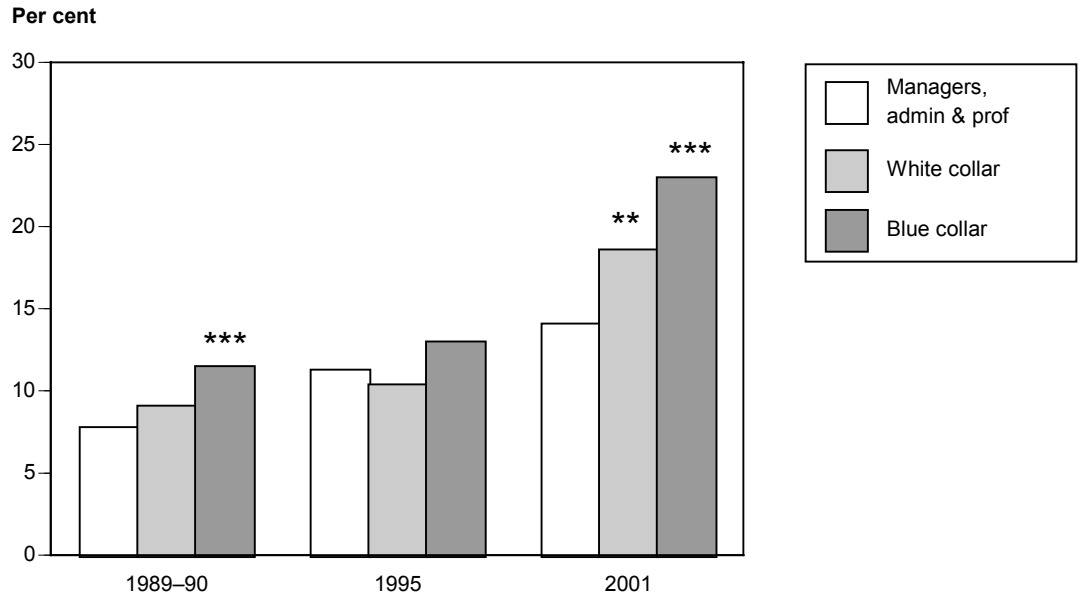
Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 6.5: Percentage of females aged 25–64 years who were classified as engaging in insufficient physical activity, by occupation, 1989–90, 1995 and 2001



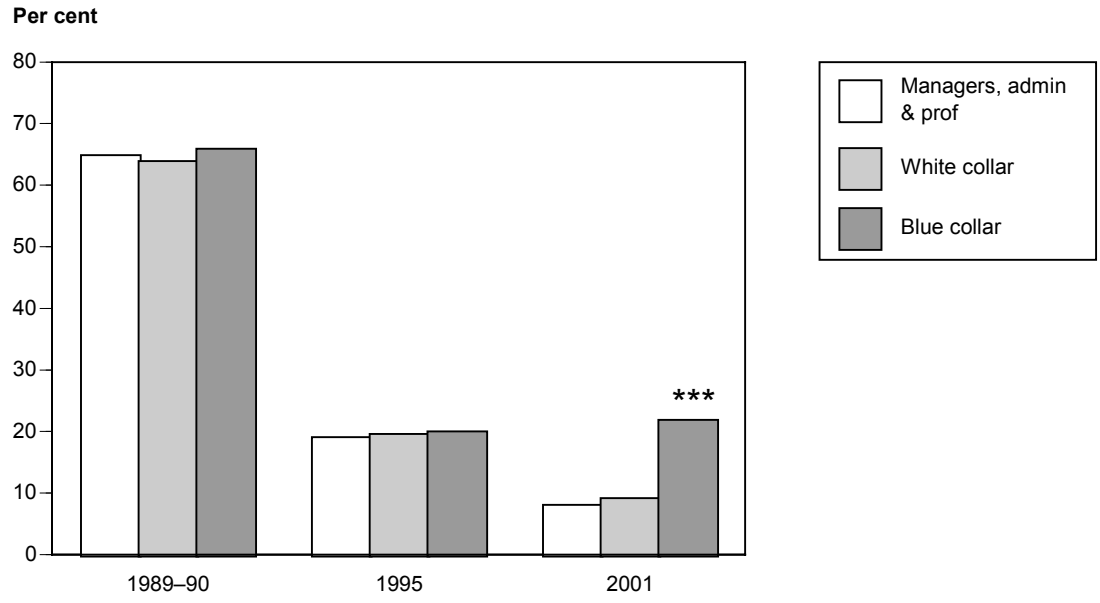
Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 6.6: Percentage of females aged 25–64 years who were classified as regular smokers, by occupation, 1989–90, 1995 and 2001



Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 6.7: Percentage of females aged 25–64 years who were classified as obese, by occupation, 1989–90, 1995 and 2001



Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

Figure 6.8: Percentage of females aged 50–64 years who reported never having had a mammogram, by occupation, 1989–90, 1995 and 2001

Summary and discussion

This chapter examined health-related inequalities by level of occupation for males and females aged 25–64 years for the period 1989–90, 1995 and 2001 as reported in ABS National Health Surveys. The general finding from each of these surveys is that persons in blue-collar or white-collar occupations, with lower status or skill levels, reported poorer health-related and risk factor behaviours, along with greater morbidity and health service use than persons working as managers, administrators or professionals.

Males and females aged 25–64 years working in blue-collar occupations rated their own health as poorer and reported higher levels of arthritis than did those persons working in white-collar occupations or as managers, administrators and professionals. Males in blue-collar occupations also reported higher levels of bronchitis or emphysema in 1989–90 and 1995. Significantly, males and females in blue-collar occupations reported less asthma in 1989–90 and 1995.

Blue-collar males and females aged 25–64 years were also more likely to engage in a number of risky or harmful health-related behaviours, such as smoking, insufficient physical activity, and adding salt to food. Blue-collar males were more likely to drink alcohol at harmful levels, but both blue-collar and white-collar females were less likely to drink alcohol at harmful levels.

Blue-collar males and females reported higher levels of overweight and obesity and visited a GP more often. They were less likely to visit a specialist or a dentist. Females in blue-collar occupations were less likely to have had a Pap smear.

With comparable results from just three surveys (and in some cases only two), it is premature to make firm conclusions about time trends in health inequalities among different occupational groups. However, it is interesting to note that the gap between male skilled workers (managers, administrators and professionals) and male blue-collar workers regarding risk alcohol drinking has narrowed between 1989–90 (when blue-collar male rates were 50% higher), 1995 (32% higher) and 2001 (18%). Rates for male white-collar workers remain between the two. The same can be said about levels of obesity—in 1989–90, blue-collar males reported rates 50% higher, in 1995 rates 30% higher, and in 2001 rates 21% higher. These findings for obesity, however, should be understood in context, with all three occupational groups reporting increasing levels of obesity across the three surveys. All three female occupational groups also report increasing levels of obesity, but unlike males, gaps between these groups show some evidence of widening (48% difference in 1989–90, only 15% in 1995, but 63% in 2001).

Patterns of health service use have also changed across the three surveys. Doctor and GP consultation rates have increased among white- and blue-collar males, but have remained much the same for male managers, administrators and professionals. This has led to a widening of both the gap in rates and the rate ratios. Among women, the overall proportion aged 50–64 years who reported having never had a mammogram declined markedly between 1989–90 and 1995, and less so to 2001. These declines, especially between 1989–90 and 1995, coincide with the 1991 introduction and increased participation in the National Program for the Early Detection of Breast Cancer, now called BreastScreen Australia (AIHW 2000). A cause for some concern is the rate for blue-collar women aged 50–64 years reporting never having had a mammogram, which rose slightly between 1995 and 2001.

These data broadly support the findings of overseas studies that have examined the link between occupation and health inequality (Townsend & Davidson 1982; Mackenbach et al. 1997). The surveys also support the findings of previous Australian studies concluding that persons working in occupations with lower status or skill levels generally rate their own health more poorly (Broom 1984), have higher levels of reported health risk factors (Bennett 1996; Halloran et

al. 1993) and higher rates of adverse health behaviours (Dobson et al. 1985; Smith & Baghurst 1992; Hill et al. 1998; Burton & Turrell 2000).

The close association between occupation and other socioeconomic measures such as income and education could mean that occupational differentials in health status are actually due to differences in income and education. However, Mathers (1994a), after adjusting for other factors such as income and education, concluded that inequalities by occupation remain for self-assessed health, serious chronic illness, hospital episodes and doctor visits.

As with other socioeconomic measures, coding a person's occupation provides little detail about the actual relationship between that occupation and health. Occupation-based measures suffer from a number of weaknesses, such as the fact that a person's occupational status could change substantially over their working life, and the phenomenon of 'reverse causation', where poor health itself might lead to declines in occupational status. Further research about the resources provided through occupation, whether or not the nature of the occupation itself has deleterious or beneficial health effects, and how occupation interacts with other socioeconomic determinants is needed in order to more fully understand the association.

7 Discussion and conclusions

The health of the Australian population improved markedly during the 20th century (AIHW 1998; 2000; Dunn et al. 2002). For example:

- the toll of infectious disease reduced sharply
- there were marked reductions in infant and maternal mortality
- life expectancy at birth continued to increase
- since the late 1960s, death rates from coronary heart disease and stroke declined markedly
- in more recent years, there has been a downward trend in deaths from lung, colorectal and breast cancer (AIHW 2002; Mathers et al. 1999).

Despite these (and other) improvements in population health, Australia at the beginning of the 21st century was characterised by large health inequalities. This report used area-, household- and individual-level measures of socioeconomic inequality and showed that disadvantaged groups experienced more acute and long-term ill health, were more likely to engage in riskier behaviours and have a risk factor profile consistent with poorer health, and made greater use of GP services. Moreover, their use of preventive health care suggests that they were less likely to take action to prevent disease, or to have had its early onset detected at an asymptomatic stage. In this final chapter we present a summary of these findings, examine some possible explanations for the patterns observed, consider a number of issues of relevance for policy, and suggest some directions for the future monitoring of health inequalities in Australia.

Summary of health inequalities in Australia

Morbidity

In this report, morbidity was measured using seven indicators: self-assessed health (percentage reporting fair/poor health), days away from school/study/work owing to ill health, and reports of long-term conditions, namely arthritis, asthma, bronchitis/emphysema, diabetes, and neoplasms. When statistically significant associations were observed, almost without exception people living in disadvantaged areas from low income households with lower levels of education, and those employed in blue-collar jobs reported the poorest health. Moreover, this pattern was found for both males and females in each of the four age-groups (i.e. 0–14, 15–24, 25–64, and 65 years and over). These findings concur with the results of numerous overseas studies that have examined the relationship between socioeconomic inequality and morbidity (for example, Blaxter 1990; Shaw et al. 1999; Seguin et al. 2003; Mackenbach et al. 1997). Australian researchers have also repeatedly shown that socioeconomic inequality is associated with poorer self-reported health (Broom 1984; Broadhead 1985; Mathers 1994a; Adams et al. 2003).

Health-related behaviours

In this report, health-related behaviour was measured using five indicators: insufficient physical activity for the accumulation of health benefits, smoking, discretionary salt use, sun protection, and alcohol risk. When statistically significant associations were observed, it was nearly always the case that persons from disadvantaged backgrounds engaged in behaviours that were least consistent with long-term health. Socioeconomically disadvantaged respondents were more

likely to be insufficiently physically active for health benefits, smoke regularly, and add salt to food after it was cooked. Infants and children from disadvantaged backgrounds were less likely to have received sun protection in the previous month in the form of sunscreen, protective clothing, sunglasses, or an umbrella. Similar findings about the relation between socioeconomic inequality and health behaviour have been reported in overseas (for example, Lynch et al. 1997; Barbeau et al. 2004; Craig et al. 2004) and Australian studies (Mathers 1994a; Turrell et al. 2002; Worsley et al. 2003; AIHW 2004b). The only notable exception to this otherwise consistent pattern was the consumption of alcohol at levels defined by the National Health and Medical Research Council as 'high risk' (NHMRC 2001). Consumption of alcohol at 'risky' levels showed a mixed relationship with socioeconomic inequality depending on the socioeconomic indicator used, gender, and to some extent age group.

Health risk factors

In this report, health-related risk was measured using six indicators: children who had never been breastfed; children who were fully breastfed for 12 weeks or less; persons who had a BMI classified as overweight but not obese; persons who had a BMI classified as obese; hypertension as a long-term condition; and food insecurity. When statistically significant associations were observed, the results indicated that infants from socioeconomically disadvantaged backgrounds were less likely to have been breastfed or were breastfed for a shorter duration. Adolescents and adults from disadvantaged socioeconomic circumstances were more likely to be obese, to have reported hypertension, and to have run out of food sometime in the previous 12 months and been unable to afford more. A significant relationship was also found between socioeconomic inequality and overweight, but only for women in blue-collar jobs aged 25–64 years in 1989–90 and 1995—they were more likely to be overweight than their counterparts in managerial, administrative and professional occupations.

An important pattern worth highlighting is the temporal trend in the overall prevalence of obesity, and the association between socioeconomic inequality and obesity. In 1989–90, 1995 and 2001, the rate of obesity was lowest among persons from the most advantaged groups and highest among those living in the most disadvantaged circumstances (see, for example, Figure 3.17). Between 1989 and 2001, the rate of obesity increased noticeably for all socioeconomic groups, although throughout this period the socioeconomic gradient was maintained. This marked and rapid increase in the percentage of the population who are obese has been noted and discussed in Australia (NHMRC 1997; Baur 2002; Cameron et al. 2003; Stubbs & Lee 2004) and many other developed countries because they are similarly affected (WHO 1998, 2000; Silventoinen et al. 2004; Baskin et al. 2005; Smith et al. 2005).

Health service use

In this report, the use of health services was measured using eight indicators: consultations with doctors (GPs, specialists) and dentists, the use of a mammography service and time since last mammogram, attendance for a Pap smear and time since last Pap smear. Persons from socioeconomically disadvantaged backgrounds were less likely to have visited a dentist in the 2 weeks before being surveyed—this association was found for males and females in each age group, irrespective of how socioeconomic inequality was measured. There was also evidence that persons from disadvantaged socioeconomic circumstances were less likely to have visited a medical specialist. In contrast, consultation rates for GPs were often significantly higher among socioeconomically disadvantaged groups, a pattern that presumably reflects the poorer health profile of these groups (Turrell et al. 2004).

Among women, those from disadvantaged backgrounds were more likely to have never had a mammogram or Pap smear. Women from disadvantaged circumstances were also more likely to have not had a Pap smear in the 2 years preceding the survey. It is worth noting that the overall percentage of women aged 50–64 years who reported having never had a mammogram declined substantially between 1989 and 2001 (see, for example, Figures 3.18 and 5.8). These declines coincide with the introduction of the National Program for the Early Detection of Breast Cancer (now BreastScreen Australia)(AIHW 2000).

Health promotion efforts, in combination with increased availability and access to services such as mobile clinics, can clearly make a major contribution to improving population health, although they may not always alter the underlying inequalities.

Explaining and reducing health inequalities in Australia

At present, our levels of understanding and extent of knowledge about the genesis and persistence of health inequalities is limited. However, there is now a growing acceptance, based on mounting evidence, that most of the types of health inequalities documented in this report have social origins (Eckersley et al. 2001). In previous work, Turrell and colleagues (Turrell et al. 1999; Turrell & Mathers 2000; Turrell 2002) developed a conceptual framework that attempts to identify the main determinants of these inequalities (Figure 7.1). The structure and flow of the framework, and the empirical evidence that underlies it, suggest that ill health and chronic disease morbidity are ultimately a consequence of adverse biological reactions that occur as a result of changes or disruptions to the functioning of physiological systems. Thus, part of the poorer health profile of residents of disadvantaged areas, and those from low income households, with lower levels of education and working in blue-collar occupations, is due to more severe or sustained adverse changes to physical and biological functioning. These changes are often initiated by psychosocial processes and health behaviours acting independently and interdependently. These in turn are a consequence of differential exposure to adverse social, physical, economic and environmental circumstances, which are themselves influenced by factors such as the actions and decisions of governments, the economic market, civic society, and broader global forces. The framework also indicates a direct link between social factors and morbidity resulting from accidents, injury, and violence.

Although furthering our understanding of the determinants of health inequalities represents an important goal for public health, even more important and challenging is the development of policies, interventions and other initiatives to reduce inequalities. There now exists a substantial body of literature on tackling health inequalities (Turrell et al. 1999; Turrell 2002; Oldenburg et al. 2000; Graham 2001; Acheson 1998; Benzeval et al. 1995; Gepkins & Gunning-Schepers 1996; Mackenbach & Bakker 2002). A detailed discussion of this material lies outside the scope of this report, but the approaches suggested fall into one or more of the following categories: changing macro-level social and economic policies; improving living and working conditions; involving local communities in health initiatives; changing health damaging behaviours; empowering individuals and strengthening their social and family networks; and improving the equity of the health care system (Oldenburg et al. 2000). The conceptual framework also provides useful insights and raises issues that need to be considered as part of the development and implementation of policies and interventions to reduce health inequalities. These issues include the following:

- The identification of entry points: where do we intervene or direct our efforts? Efforts can be directed at upstream, midstream or downstream factors. Where we focus and

concentrate these, however, has implications in terms of making a measurable impact on health inequalities. Attempts to tackle inequalities by focusing on upstream factors are likely to result in the greatest impact on population-wide disparities; however, societal-level changes are the most difficult to bring about, and the most politically challenging. In contrast, policies and interventions that focus on midstream factors might benefit the groups or areas that are targeted, but they are unlikely to reduce health inequalities at the national level. Moreover, midstream efforts might improve psychosocial health, or result in behaviour change, but they are not likely to alter the social and economic conditions that gave rise to the problems in the first place. We could also focus our efforts at the micro-level, via, for example, health promotion information provided at GP visits. This approach, although important, may only serve to improve individual health, and is not likely to affect in any discernible way national-level health inequalities.

- Although approaches will differ in their impact depending on where they are directed (upstream, midstream or downstream), attempts to tackle health inequalities should focus simultaneously on macro, intermediate, and micro influences. Policies and interventions need to be implemented on a broad front (Acheson 1998).
- Evidence about the causes of socioeconomic health inequalities points to the need for a 'whole of society' approach to the problem. Health inequalities originate from societal-level conditions associated with housing, employment, education, income, transport and so forth, and reducing inequalities will not be achieved exclusively, or even primarily, by actions taken within the health sector. An effective response to health inequalities will therefore require actions from all sectors, hence intersectoral collaboration and joint efforts are essential.
- To be most effective, efforts to tackle health inequalities should focus on both contexts and individuals, by taking a social-ecological approach to the problem. To date, policy and intervention efforts have largely been non-contextual, and aimed at individuals. This has had limited success in terms of reducing socioeconomic health inequalities. Indeed, an individualised, non-contextual approach may even have widened health inequalities between social groups. For example, health promotion programs that attempt to change individual behaviour have been more effective among the socioeconomically advantaged (Kay & Locker 1996; Schou & Wight 1994; Whitehead 1995; Kawachi & Marmot 1998). This is because disadvantaged groups are often constrained by their social and economic circumstances which make behavioural change difficult.
- There is a need to adopt a life course perspective, which explicitly acknowledges that many adult diseases, health behaviours and psychosocial conditions have their origins in early life and are tied closely to the quality of the social, physical and economic environments that are experienced throughout life.
- Finally, although public policy, health policy and other interventions have apparently been effective in terms of improving average health, population-wide approaches do not necessarily alter the underlying health inequalities. This was demonstrated in this report, which showed that some health inequalities (for example, mammogram screening) persisted over the period 1989 to 2001 even though average health improved. This implies that national or large-scale efforts to improve population health need to be complemented by approaches that are specifically targeted at groups and areas with the poorest health profile.

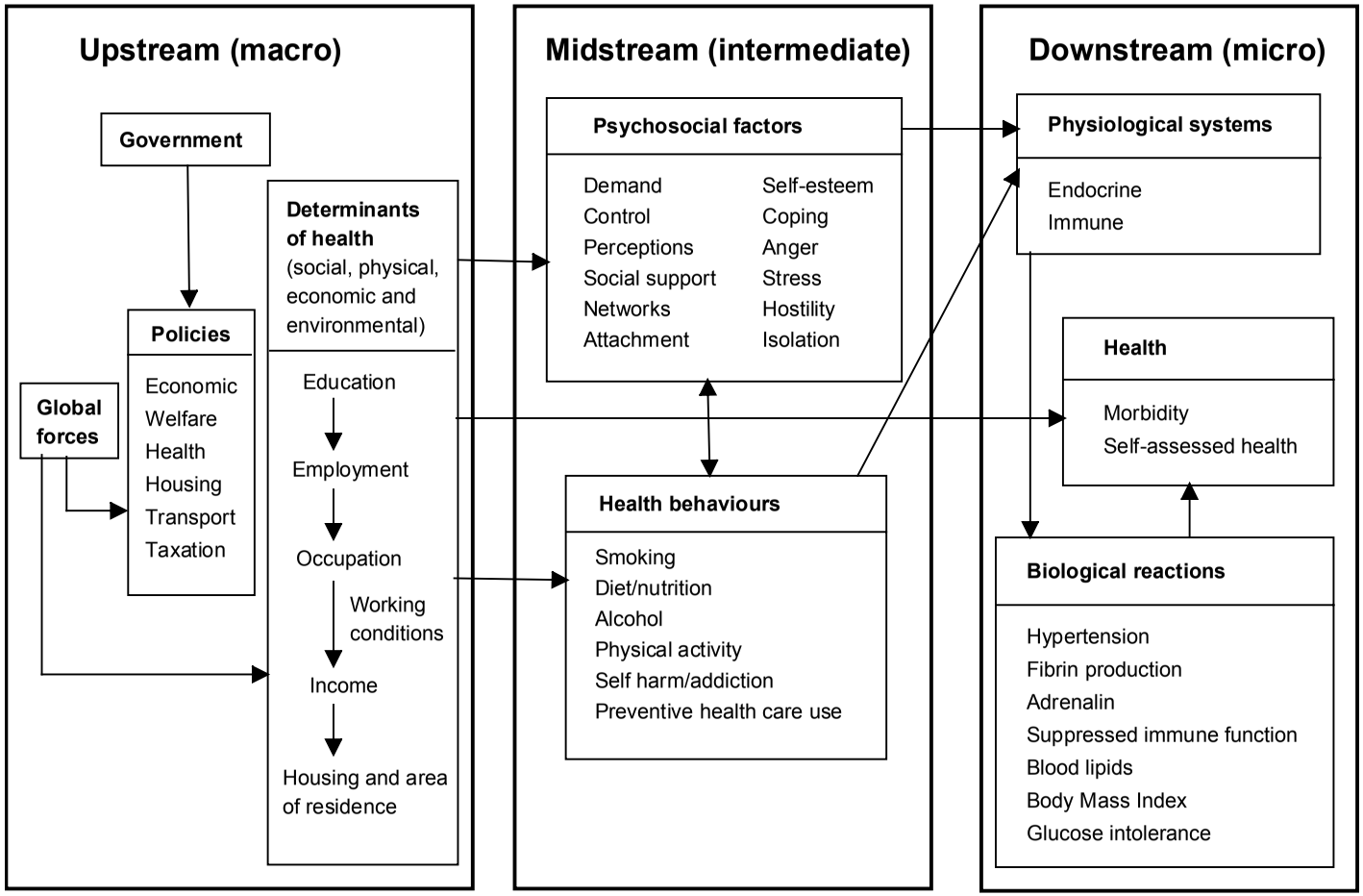


Figure 7.1: Social determinants of health

Implications of this report's findings for the future monitoring of health inequalities

Given the existing, and in some cases expanding, health inequalities in Australia, it is concerning to observe that the monitoring of health inequalities has to date been conducted in a random and unsystematic manner (Turrell et al. 1999). Important knowledge and information is lacking about the nature and extent of health inequalities, their patterning at national, state and local levels, and trends over time. As a result, we have limited capacity to tackle the problem, via allocating resources cost effectively, identifying priority groups, and developing and implementing policies and strategies to reduce inequalities. A national monitoring system and research program for health inequalities, similar to that which exists in other countries (Mackenbach 1994; Mackenbach and Bakker 2002), is required. The establishment of a health inequalities monitoring system and an associated research program would be significant in shaping our efforts to narrow the health inequalities that currently exist between many population subgroups, and to further improve the health of the population as a whole.

Glossary

age standardisation: A method of removing the influence of age when comparing populations with different age structures. Adjustments are made for each of the comparison populations against a standard population.

confidence interval: A statistical term describing a range of values within which we can be 'confident' that the true value lies. Generally reported in terms of a 95% confidence level where the true value has a 95% or higher chance of falling within the reported range.

income unit: An income unit may comprise one person or group of related persons (de facto or registered marriage or parent/dependent child relationship) within a household whose command over income is assumed to be shared.

international classification of diseases: The World Health Organization's internationally accepted classification of death and disease.

morbidity: Refers to ill health in an individual and to levels of ill health in a population or group.

neoplasm: An abnormal ('neo', new) growth of tissue. Can be 'benign' (not a cancer) or 'malignant' (a cancer). Same as a tumour.

quintile: A group derived by ranking the population according to specified criteria and dividing it into five equal parts.

risk factor: Any factor which represents a greater risk of a health disorder or other unwanted condition or event. Some risk factors are regarded as causes of disease, others are not necessarily so.

statistical significance: An indication from a statistical test that an observed difference or association may be significant or 'real' because it is unlikely to be due to chance.

Appendix A

Question descriptions used by the ABS in the 1989–90, 1995, and 2001 National Health Surveys for the morbidity and related outcomes included in this report

	National Health Survey		
	1989–90	**1995**	**2001**
Self-assessed health status		Q.201 In general, would you say that your health is excellent, very good, good, fair, or poor?	Q.202 In general, would you say that your health is excellent, very good, good, fair, or poor?
Days away from work or school/study		Q.533 In the last two weeks have you stayed away from your (work/school/place of study) for more than half the day because of any illness or injury you had?	Q.701 In the last two weeks have you stayed away from your (work/school/place of study) for more than half the day because of any illness or injury you had?
Selected long-term conditions			
Arthritis	Q. 230 Do you have any conditions which you have had for a long time and may have adjusted to such as arthritis or back problems?	Q.438 Have you ever been told by a doctor or nurse that you have arthritis?	Q.545 Do you currently have osteoarthritis?
Asthma	Q.230 Do you have any conditions that recur from time to time such as asthma?	Q.444 The next few questions are about long-term conditions. Please include only those conditions that have lasted or are expected to last for six months or more. Do you have any of these conditions? (The prompt card shown includes 'asthma' among 13 conditions)	Q.359 The next questions are about long-term health conditions. Please include only those conditions that have lasted or are expected to last for six months or more. The next few questions are about asthma. Have you ever been told by a doctor or nurse that you have asthma?
Bronchitis and emphysema	Q.230 Do you have any conditions like these? Prompt card was shown which includes 'Bronchitis/emphysema' among a list of 41 conditions.	Q.444 The next few questions are about long-term conditions. Please include only those conditions that have lasted or are expected to last for six months or more. Do you have any of these conditions? (The prompt card shown includes 'bronchitis and emphysema' among 13 conditions)	Q.550 The next questions are about other long-term conditions, that is, conditions that have lasted or are expected to last for six months or more. Do you have any of these conditions? The prompt card shown included 'bronchitis and emphysema' among 17 conditions
Diabetes, total	Q.230 Do you have any conditions like these? Prompt card was shown which includes 'diabetes or high blood sugar' (specify) among a list of 41 conditions.	Q.417 Have you ever been told by a doctor or nurse that you have diabetes or high sugar levels in your blood or urine?	Q.500 Have you ever been told by a doctor or nurse that you have diabetes or high sugar levels in your blood or urine?

(continued)

	National Health Survey		
	1989–90	1995	2001
Neoplasms, total	Q.230 Do you have any conditions like these? Prompt card was shown which includes 'cancer' among a list of 41 conditions.	Cancer was covered in Q.448 which was a general question to pick up long-term conditions not captured in previous sections. It asked 'Do you have any (other) conditions that have lasted or are likely to last for six months or more, for example: The prompt card shown includes 'cancer' and 'tumour cyst or growth' among 23 conditions.	Q.400 Have you ever been told by a doctor or nurse you have cancer?
Health-related behaviours			
Alcohol	Q. 428 In the last seven days have you had any drinks at all that contain alcohol, including home-made wine and beer? Q.429 How long ago did you last have an alcoholic drink?	Q.219 How long ago did you last have an alcoholic drink? Q.222 On which days in the last seven did you have drinks that contained alcohol?	Q.311 Some people may drink more or less than others, depending on their lifestyle and individual choices. How long ago did you last have an alcoholic drink?
	Q.432 Did you have any drinks that contained alcohol on (specify each day of the week starting from yesterday)?	Q. 224. What did you have to drink on (specify day)(up to the last 3 days alcohol was consumed)?	Q. 312 On which days in the last 7 did you have drinks that contained alcohol?
	Q.433 Interviewer: for each day on which respondent drank, ask both questions below: What kind of drinks did you have on (specify day)? How much (specify drink) did you have on (specify day)? Q.459 Is the amount you drank last week more, less or about the same as you would drink most weeks?	Q.225 Is the amount you drank last week more, less or about the same compared with most weeks?	Q.314B What did you have to drink on (specify day)? Q.318 Is the amount you drank last week more, about the same, or less compared with most weeks?
Smoking	Q.401 I would now like to ask you some questions about smoking. Do you currently smoke?	Q.215 I would now like to ask you some questions about smoking. Do you currently smoke?	Q.220 I would now like to ask you some questions about smoking. Do you currently smoke?
	Q.402 Do you smoke: cigarettes; cigars; or a pipe?	Q.216 Do you smoke regularly, that is, at least once a day?	Q.221 Do you smoke regularly, that is, at least once a day?
		Q.217 Have you ever smoked regularly (that is, at least once a day)?	Q.222 Have you ever smoked regularly (that is, at least once a day)?

(continued)

	National Health Survey		
	1989–90	**1995**	**2001**
Physical inactivity	Q.380 In the last two weeks did you do any walking for exercise or recreation?	Q.205 In the last two weeks have you walked for sport, recreation or fitness?	Q.207 In the last two weeks have you walked for sport, recreation or fitness?
	Q.381 How many times did you walk in the last two weeks?	Q.206 How many times did you walk in the last two weeks?	Q.208 How many times did you walk in the last 2 weeks?
	Q.382 What was the total amount of time you spent walking in the last two weeks?	Q.207 What was the total amount of time you spent walking in the last two weeks?	Q.209 What was the total amount of time you spent walking in the last 2 weeks?
	Q. 383 In the last two weeks did you do any exercise which caused a moderate increase in your heart rate or breathing?	Q. 208 In the last two weeks did you do any exercise which caused a moderate increase in your heart rate or breathing?	Q. 210 In the last 2 weeks did you do any exercise which caused a moderate increase in your heart rate or breathing, that is moderate exercise?
	Q.384 How many times did you do any moderate exercise in the last two weeks?	Q.209 How many times did you do any moderate exercise in the last two weeks?	Q.211 How many times did you do any moderate exercise in the last 2 weeks?
	Q.385 What was the total amount of time you spent doing moderate exercise in the last two weeks?	Q.210 What was the total amount of time you spent doing moderate exercise in the last two weeks?	Q.212 What was the total amount of time you spent doing moderate exercise in the last 2 weeks?
	Q.386 In the last two weeks did you do any exercise which caused a large increase in your heart rate or breathing, that is vigorous exercise?	Q.211 In the last two weeks did you do any (other) exercise which caused a large increase in your heart rate or breathing, that is vigorous exercise?	Q.213 In the last 2 weeks did you do any (other) exercise which caused a large increase in your heart rate or breathing, that is vigorous exercise?
	Q. 387 How many times did you do any vigorous exercise in the last two weeks?	Q. 212 How many times did you do any vigorous exercise in the last two weeks?	Q. 214 How many times did you do any vigorous exercise in the last 2 weeks?
	Q.388 What was the total amount of time you spent doing vigorous exercise in the last two weeks?	Q.213 What was the total amount of time you spent doing vigorous exercise in the last two weeks?	Q.215 What was the total amount of time you spent doing vigorous exercise in the last 2 weeks?

(continued)

	National Health Survey		
	1989–90	1995	2001
Sun protection	NA	The following questions are about sun protection.	The following questions are about sun protection.
		Q.317 In the last month, has….taken any measures, such as these, to protect (himself/herself) from the sun? (Interviewer shows prompt card listing 6 measures, plus an 'other' option)	Q.226 In the last month, has….taken any measures, such as these, to protect (himself/herself) from the sun? (Interviewer shows prompt card listing 6 measures, plus an 'other' option)
Salt use	NA	C4. How often do you add salt to your food after it is cooked? Is it never/rarely, sometimes, or usually?	Q.304 How often do you add salt to your food after it is cooked? Is it never/rarely, sometimes, or usually?
Food security	NA	C.20 In the last 12 months, were there any times that you ran out of food and couldn't afford to buy more?	Q.309 In the last 12 months, were there any times that you ran out of food and couldn't afford to buy more?
Risk factors			
Breastfed	NA	Q.301 The next few questions are about breastfeeding.	Q.151 The next few questions are about breastfeeding.
		Has……ever been breastfed?	Has……ever been breastfed?
Overweight, but not obese; obese	Q. 390 How tall are you without shoes?	Q. 203 How tall are you without shoes?	Q.205 How much do you weigh?
	Q.391 How much do you weigh without clothes and shoes?	Q.204 How much do you weigh?	Q. 206 How tall are you without shoes?
Hypertension	Q.230 Do you have any conditions like these? Prompt card was shown which includes 'high blood pressure or hypertension' among a list of 41 conditions.	Q.444 The next few questions are about long-term conditions. Please include only those conditions that have lasted or are expected to last for six months or more. Do you have any of these conditions? (The prompt card shown includes 'high blood pressure/hypertension' among 13 conditions)	Q.450 Have you ever been told by a doctor or nurse that you have any heart or circulatory conditions? (as they are shown a prompt card which lists 13 conditions including 'high blood pressure or hypertension'.
Health service use			
Doctor consultations (including general practitioners and specialists)		Q.516 Apart from consultations during any hospital visits/(or) day clinics mentioned:	Q. 730 Apart from consultations during any hospital or day clinic visits:
		In the last two weeks have you consulted:	In the last two weeks have you consulted a general practitioner?
		A general practitioner	How many times in the last two weeks did you consult a general practitioner?
		A specialist	
		None of these	

(continued)

	National Health Survey		
	1989–90	1995	2001
Doctor consultations (including general practitioners and specialists)		How many times in the last two weeks did you consult the (general practitioner and/or specialist)?	In the last 2 weeks have you consulted a specialist? How many times in the last 2 weeks did you consult a specialist?
Dental consultations		Q.454 In the last two weeks, have you consulted a dentist or dental professional about your teeth, dentures or gums?	Q.722 In the last 2 weeks, have you consulted a dentist or dental professional about your teeth, dentures or gums?
Mammogram		Q. 7 (Women's Health Supplementary Form). Have you ever had a mammogram?	
Time since last mammogram		Q. 9 (Women's Health Supplementary Form). When did you have your last mammogram?	
Pap smear		Q. 14 (Women's Health Supplementary Form). Have you ever had a Pap smear?	
Time since last Pap smear		Q. 15 (Women's Health Supplementary Form). When did you have your last Pap smear?	

Appendix B

Comparability status of the morbidity and related outcomes included in this report, as assessed by the ABS for the 1989–90, 1995 and 2001 National Health Surveys

	Survey year	Comparability status
Self-assessed health status	1995 and 2001	'Self-assessed health status is considered directly comparable between the 2001 and 1995 surveys' (ABS 2003a:40)
Days away from work or school/study	1989–90 and 1995	'Data collected by the 1995 NHS are broadly comparable with those collected by the previous NHS in respect of days off work, days off school and other days of reduced activity' (ABS 1996:51)
	1995 and 2001	'Data for this topic are considered to be directly comparable between the 1995 and 2001 NHS, for those items and populations common to both surveys' (ABS 1996:17)
Long-term health conditions		
Arthritis	1989–90 and 1995	Acceptable with limitations (ABS 2003b: Part 4)
	1995 and 2001	Acceptable with limitations (ABS 2003b: Part 4)
Asthma	1989–90 and 1995	Acceptable with limitations (ABS 2003b: Part 4)
	1995 and 2001	Acceptable with limitations (ABS 2003b: Part 4)
Bronchitis and emphysema	1989–90 and 1995	Acceptable with limitations (ABS 2003b: Part 4)
	1995 and 2001	Acceptable with limitations (ABS 2003b: Part 4)
Diabetes, total	1989–90 and 1995	Acceptable with limitations (ABS 2003b: Part 4)
	1995 and 2001	Acceptable with limitations (ABS 2003b: Part 4)
Neoplasms, total	1989–90 and 1995	Acceptable with limitations (ABS 2003b: Part 4)
	1995 and 2001	Acceptable with limitations (ABS 2003b: Part 4)
Health-related behaviours		
Alcohol	1989–90 and 1995	Acceptable with limitations (ABS 2004:5)
	1989–90 and 2001	Acceptable with limitations (ABS 2004:5)
	1995 and 2001	Acceptable with limitations (ABS 2004:5)
Smoking	1989–90 and 1995	Acceptable (ABS 2004:13)
	1989–90 and 2001	Acceptable (ABS 2004:13)
	1995 and 2001	Acceptable (ABS 2004:13)
Physical inactivity	1989–90 and 1995	Acceptable (ABS 2004:11)
	1989–90 and 2001	Acceptable (ABS 2004:11)
	1995 and 2001	Acceptable. (ABS 2004:11)
Salt use	1995 and 2001	'Apart from folate intake, all items on dietary habits in the 2001 NHS were included in the 1995 NNS. The questions on adding salt to cooked food…are exactly the same as the 1995 NNS and are expected to be comparable' (ABS 2003a: 19).

(continued)

	Survey year	Comparability status
Food security	1995 and 2001	'Apart from folate intake, all items on dietary habits in the 2001 NHS were included in the 1995 NNS. The questions on….food security are exactly the same as the 1995 NNS and are expected to be comparable' (ABS 2003a:19)
Sun protection	1995 and 2001	Data collected in this survey (i.e. 2001) use the same methodology and most of the same questions as in the 1995 NHS and therefore results for items common to both surveys are regarded as directly comparable for children (ABS 2003a:20)
Risk factors		
Hypertension	1989–90 and 1995	Acceptable with limitations (ABS 2003b: Part 4)
	1995 and 2001	Acceptable with limitations (ABS 2003b: Part 4)
Breastfed; time breastfed	1995 and 2001	'The methodology and questions used in the 2001 NHS were the same as those used in the 1995 survey, and therefore data are available which are considered directly comparable between surveys' (ABS 2003a:23).
Overweight, but not obese; obese	1989–90 and 1995	Acceptable (ABS 2004:9)
	1989–90 and 2001	Acceptable (ABS 2004:9)
	1995 and 2001	Acceptable (ABS 2004:9)
Health service use		
Doctor consultations	1989–90 and 1995	'The methodology adopted for recording information about doctor consultations is similar to that used in the 1989–90 NHS, and therefore data are broadly comparable' (ABS 1996:44).
	1995 and 2001	'The methodology adopted for recording information about doctor consultations is similar to that used in the 1995 NHS, and therefore data from the two surveys are considered to be broadly comparable' (ABS 2003a: Chapter 4:10).
General practitioner and specialist consultations	1995 and 2001	'Both surveys separately identified whether respondents had consulted a general practitioner and/or specialist in the last 2 weeks. However, whereas the 2001 survey collected number of consultations separately for general practitioners and specialists, the 1995 survey obtained only a total number of consultations. While data at the total consultations level can therefore be compared between surveys, the effect of separately reporting general practitioner and specialist consultations may have tended to increase the number of reported consultations in 2001' (ABS 2003a: Chapter 4:10)
Dental consultations	1989–90 and 1995	'Data provided by this (1995) survey about dental consultations are comparable with those provided by the 1989–90 survey for items common to both surveys (ABS 1996:45)
	1995 and 2001	'Data provided by this (2001) survey about dental consultations are comparable with those provided by the 1995 survey for items and populations common to both surveys' (ABS 2003a: Chapter 4:11)

(continued)

	Survey year	Comparability status
Mammogram	1989–90 and 1995	'Information on women's health was collected in this survey (1995) using the same methodology as in 1989–90, i.e. a separate form to be completed by the respondent. While new items were included in the 1995 survey, where items are common to both surveys the data are considered directly comparable' (ABS 1996:79)
	1995 and 2001	'Information on supplementary women's health topics was collected in the 1995 NHS using the same self-completion methodology to that used in the 2001 survey. New items were included in the 2001 survey, and the questionnaire was redesigned to make it easier for respondents to follow. These changes may have impacted on comparability, but for most topics data are considered broadly comparable for common items' (ABS 2003a: Chapter 5:32)
Time since last mammogram	1989–90 and 1995	'Information on women's health was collected in this survey (1995) using the same methodology as in 1989–90 i.e. a separate form to be completed by the respondent. While new items were included in the 1995 survey, where items are common to both surveys the data are considered directly comparable' (ABS 1996:79)
	1995 and 2001	'Information on supplementary women's health topics was collected in the 1995 NHS using the same self-completion methodology used in the 2001 survey. New items were included in the 2001 survey, and the questionnaire was redesigned to make it easier for respondents to follow. These changes may have impacted on comparability, but for most topics data are considered broadly comparable for common items' (ABS 2003a: Chapter 5:32)
Pap smear	1989–90 and 1995	'Information on women's health was collected in this survey (1995) using the same methodology as in 1989–90' i.e. a separate form to be completed by the respondent. While new items were included in the 1995 survey, where items are common to both surveys the data are considered directly comparable' (ABS 1996:79)
	1995 and 2001	'Information on supplementary women's health topics was collected in the 1995 NHS using the same self-completion methodology to that used in the 2001 survey. New items were included in the 2001 survey, and the questionnaire was redesigned to make it easier for respondents to follow. These changes may have impacted on comparability, but for most topics data are considered broadly comparable for common items' (ABS 2003a: Chapter 5:32).
Time since last Pap smear	1989–90 and 1995	'Information on women's health was collected in this survey (1995) using the same methodology as in 1989–90, i.e. a separate form to be completed by the respondent. While new items were included in the 1995 survey, where items are common to both surveys the data are considered directly comparable' (ABS 1996:79)
	1995 and 2001	'Information on supplementary women's health topics was collected in the 1995 NHS using the same self-completion methodology to that used in the 2001 survey. New items were included in the 2001 survey, and the questionnaire was redesigned to make it easier for respondents to follow. These changes may have impacted on comparability, but for most topics data are considered broadly comparable for common items' (ABS 2003a: Chapter 5:32)

Appendix C

Long-term condition codes

Condition	1989–90		1995		2001[a]	
Arthritis	70	Arthritis	68	Rheumatoid arthritis	84	Rheumatoid arthritis
			69	Osteoarthritis	85	Osteoarthritis
			70	Arthritis nec	86	Arthritis ned
Asthma	71	Asthma	71	Asthma	59	Asthma
Bronchitis/emphysema	20	Bronchitis/emphysema	20	Bronchitis/emphysema	55	Bronchitis/emphysema
Diabetes	78	Diabetes mellitus	78	Diabetes mellitus—Type 1	7	Diabetes mellitus—Type 1
			79	Diabetes mellitus—Type 2	8	Diabetes mellitus—Type 2
			93	Diabetes, unspecified	9	Diabetes, unknown
Neoplasms	73	Neoplasms (all types)	65	Skin cancer	4	Skin cancer
			66	Breast cancer	6	Neoplasms nec
			73	Neoplasms		
Hypertension	72	Hypertension	72	Hypertension	49	Hypertension

nec Not elsewhere classified.

(a) 2001 codes refer to ICD–9 output classification apart from diabetes which uses the ICD–10 output classification.

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