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

	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**
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 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
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

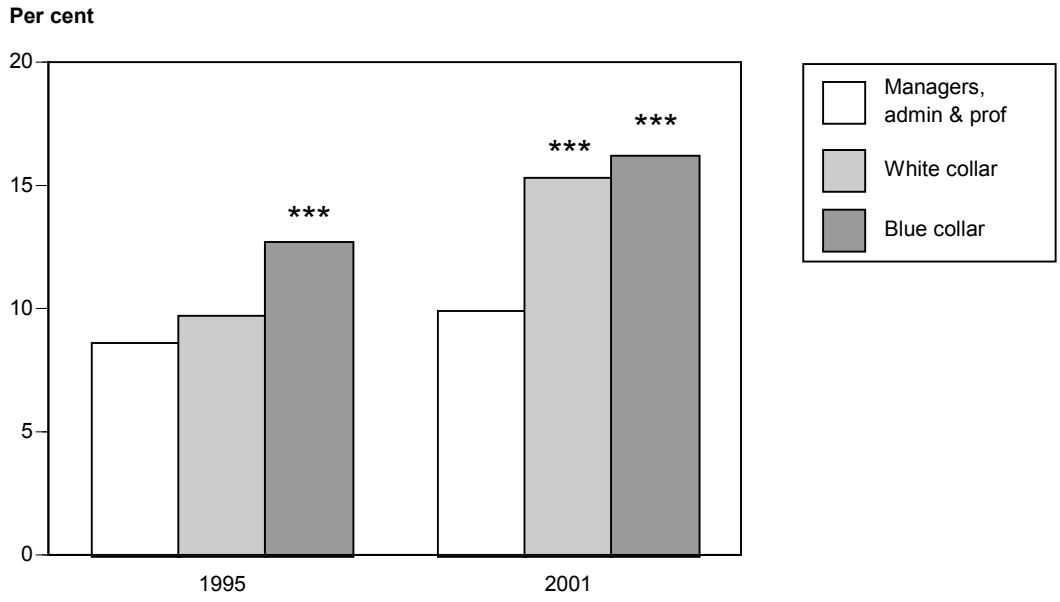
. . Data not available or not comparable.

\+ 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 $p \leq 0.05$.

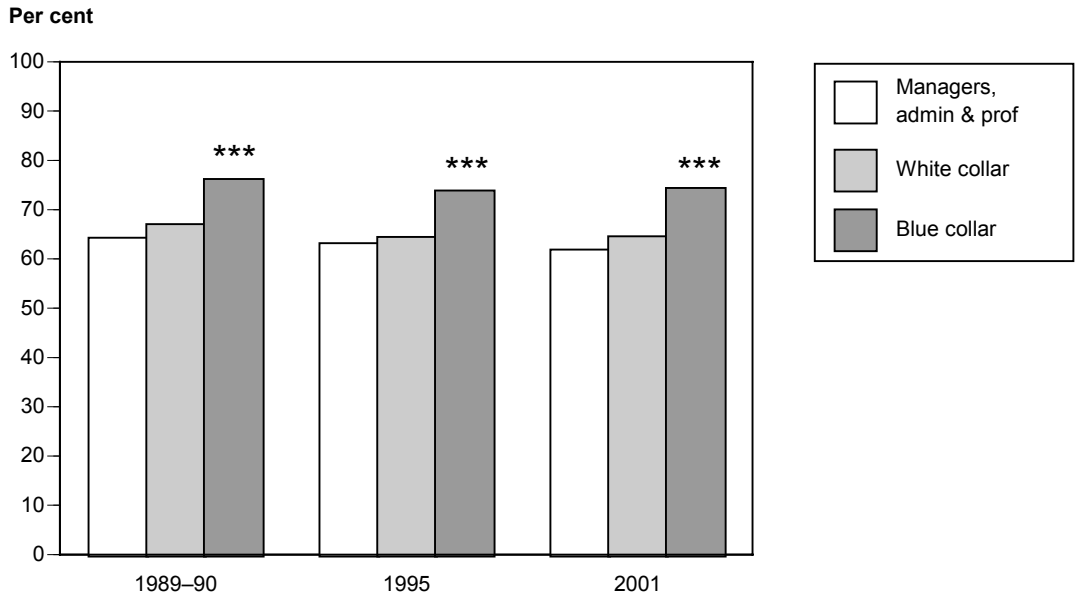
‡ 1995 rate ratio differs significantly from 2001 rate ratio at $p \leq 0.05$.

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.



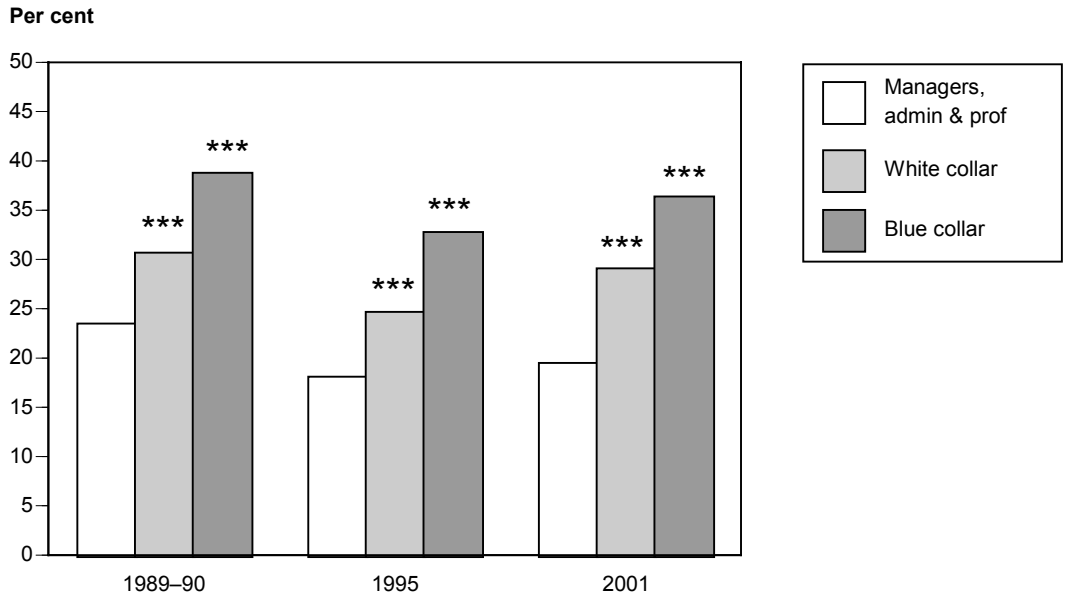
Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

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



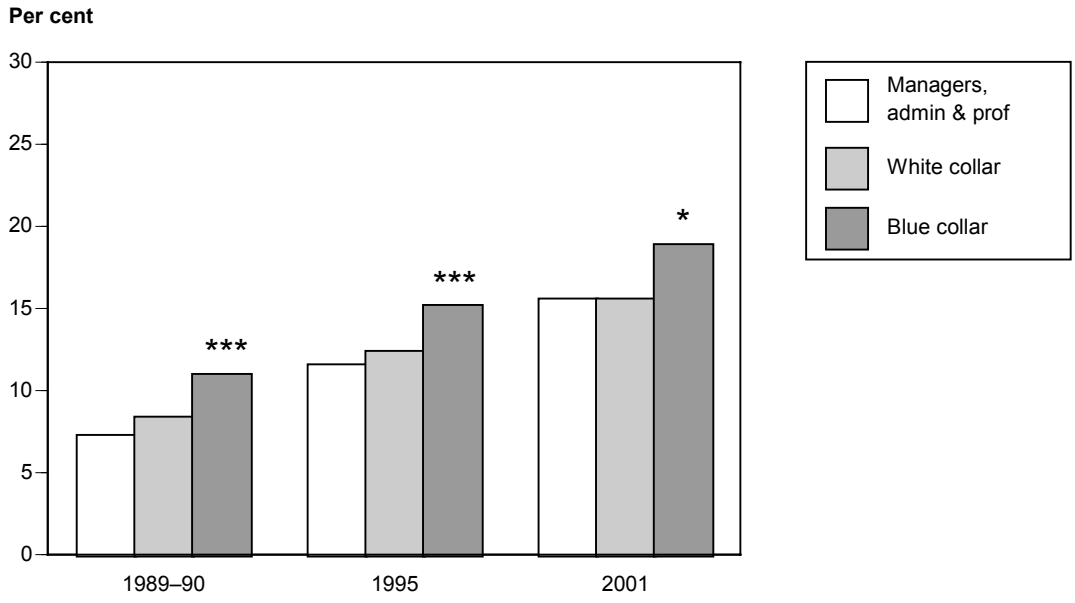
Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

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

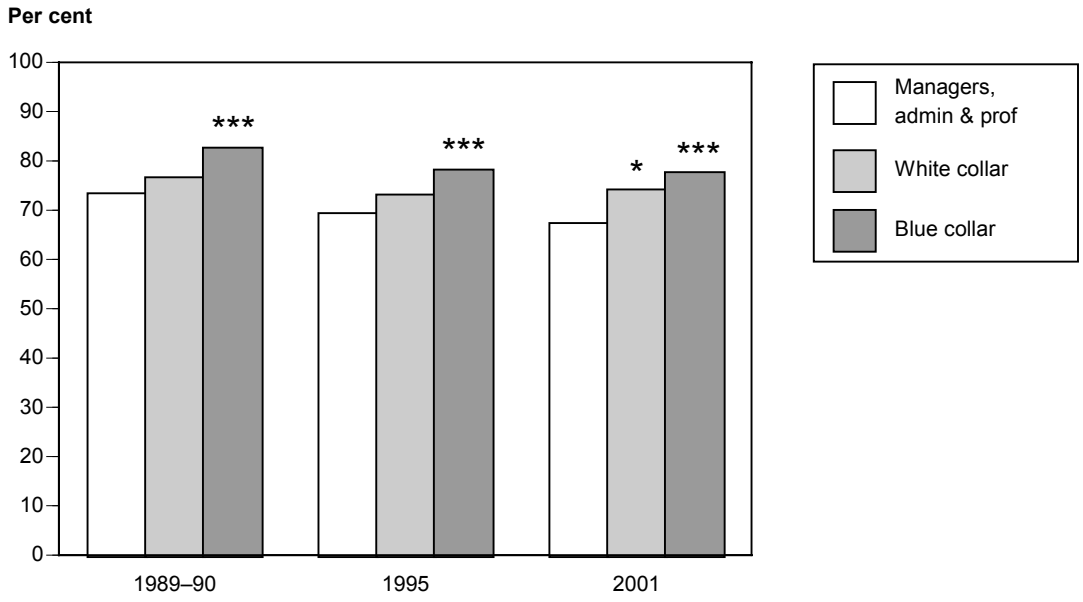
. . Data not available or not comparable.

\+ 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 $p \leq 0.05$.

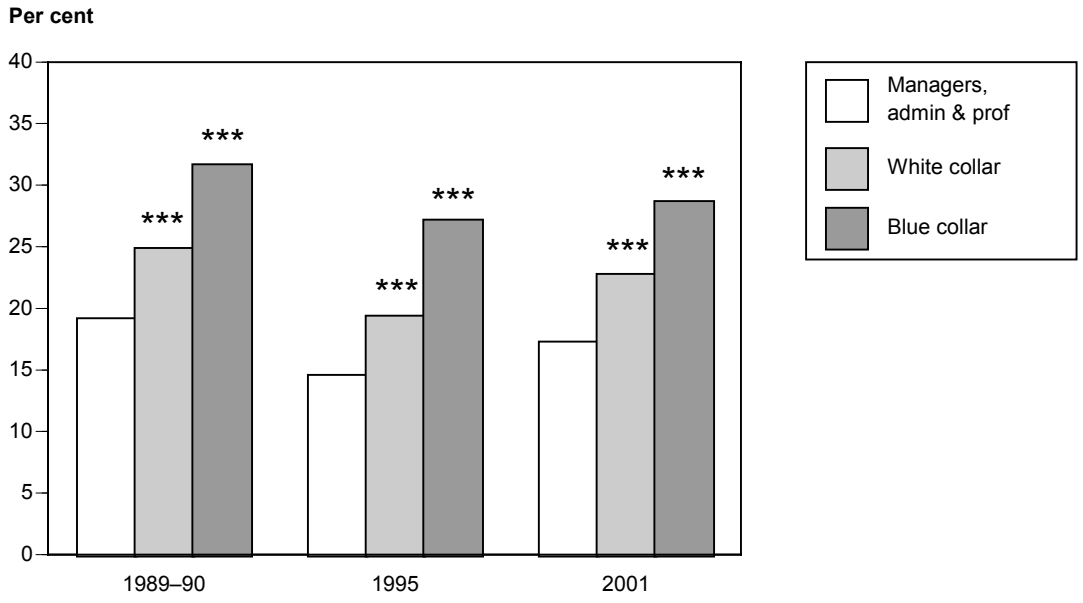
‡ 1995 rate ratio differs significantly from 2001 rate ratio at $p \leq 0.05$.

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.



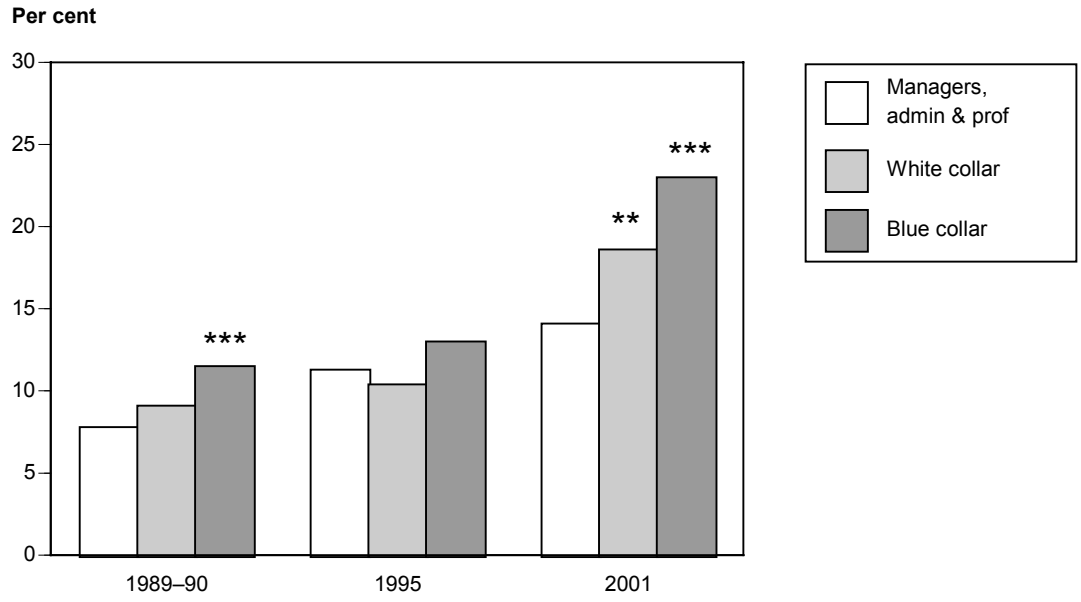
Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

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



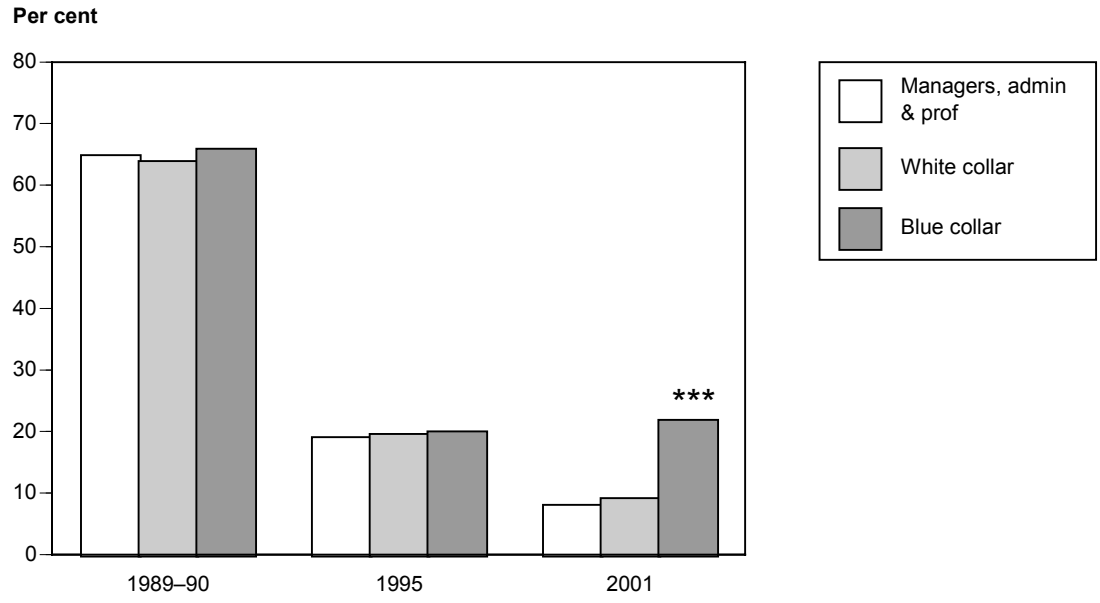
Rate differs significantly from Managers, administrators and professionals at *p < 0.05, **p < 0.01, ***p < 0.001.

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.

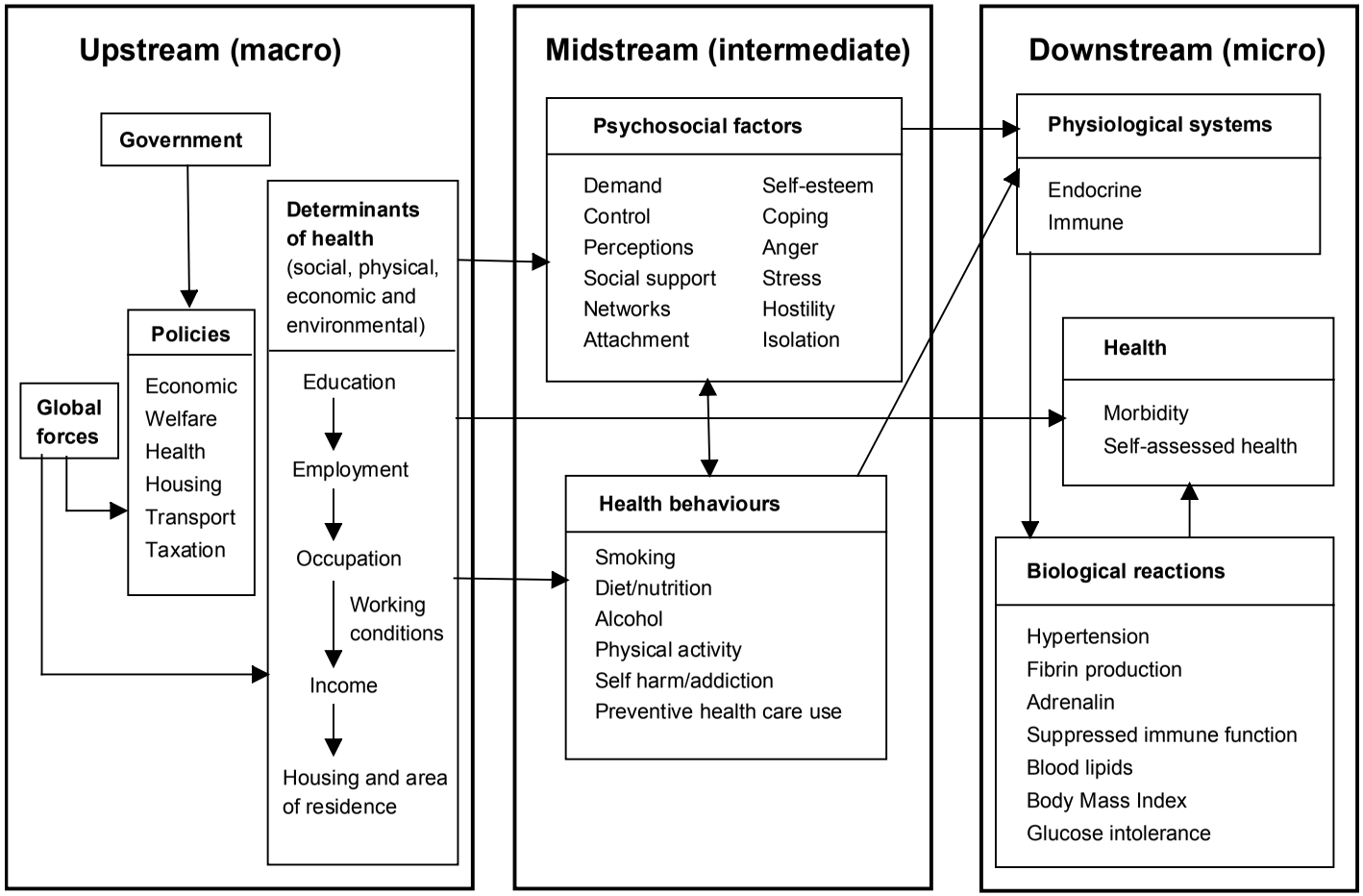


Figure 7.1: Social determinants of health

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.