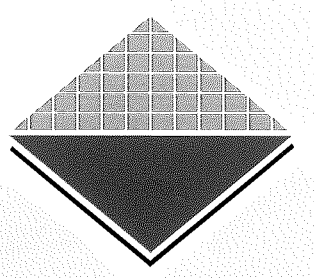
HealthMonitoringSeries
Number 2

Health differentials among older Australians

Colin Mathers



AUSTRALIAN INSTITUTE OF
HEALTH & WELFARE

Australian Institute of Health and Welfare

The Australian Institute of Health and Welfare (AIHW) is an independent federal statistics and research agency, responsible for developing information on Australia's health, and its health and welfare services. It comprises three major research divisions, four external units, and a supporting corporate services division.

Welfare Division
Health Services Division
Health Monitoring Division
National Perinatal Statistics Unit
National Injury Surveillance Unit
Dental Statistics and Research Unit
National Reference Centre for Classification in Health
Corporate Services Division

AUSTRALIAN INSTITUTE OF HEALTH AND WELFARE
HEALTH MONITORING SERIES
Number 2

Health differentials among older Australians

Colin Mathers

assisted by
Michael de Looper

Australian Government Publishing Service
Canberra

This is the second publication in the Australian Institute of Health and Welfare's Health Monitoring Series. A complete list of the Institute's publications is available from the Publications Unit, Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601.

Acknowledgements

The methodology for this project was developed in consultation with the Steering Committee established by the National Health Strategy for the Inequalities in Health project in 1991–1992. Members of this Committee included:

Jenny Macklin	(National Health Strategy)
Alison McClelland	(National Health Strategy)
Geoff Sims	(Australian Bureau of Statistics)
John Glover	(South Australian Health Commission)
Jane Hall	(Centre for Health Economics Research and Evaluation)
Joe Christensen	(Commonwealth Department of Health, Housing, Local Government and Community Services)
Neil Thomson	(Australian Institute of Health and Welfare).

The Australian Bureau of Statistics provided assistance by adding information on family income and index of disadvantage to the National Health Survey unit record public release data and also providing unpublished information on estimation of sampling errors. Alison McClelland provided much useful advice on analysis and interpretation of results. The report was refereed by John Glover and Stan Bennett.

Michael de Looper provided valuable assistance with preparation of tables and graphs, and desktopping of the report. The report was edited by Janette Whelan.

National Library of Australia Cataloguing-in-Publication data

Health differentials among older Australians

ISSN 1036–6148

ISBN 0 644 42748 5

1. Health status indicators – Australia. 2. Health surveys – Australia. 3. Australia – Statistics, Medical. I. Australian Institute of Health and Welfare. II. Title. III. Title; Health differentials among older Australians. (Series: Health monitoring series; no. 2).

Suggested citation

Mathers C. 1994, *Health differentials among older Australians*, Australian Institute of Health and Welfare: Health Monitoring Series No. 2, AGPS, Canberra.

Contents

Executive summary

Although older Australians (aged 65 years or more) constitute just over 10% of the population, they account for more than one-third of total health expenditure in Australia. It is often assumed that old age is a time of universal ill-health, and little attention has been paid to inequalities in health at older ages. This report shows that the inequalities in the health of younger Australians continue into older ages.

By all available measures of socioeconomic status (education level, equivalent family income and areas of socioeconomic disadvantage), there is a consistent relationship in Australia between socioeconomic status and health which persists among older people, although less marked than for working-age people. Older men and women with low family income or low education level report that their health is worse, are generally more likely to be inactive, overweight or smokers, and report higher levels of health service use.

This report is the second in a series of four reports which systematically document health differentials in Australia using national population health and mortality data relating to the late 1980s. The first, entitled *Health differentials among adult Australians aged 25–64 years*, was published earlier this year by the Australian Institute of Health and Welfare.

Men and women

Older men die earlier and at a greater rate than women, but report fewer illnesses or visits to the doctor. Older men have:

- 61% higher death rate from all causes
- 69% higher death rate from ischaemic heart disease
- 196% higher death rate from bronchitis/emphysema/asthma
- 286% higher death rate from suicide
- 387% higher death rate from lung cancer.

The prevalence of severe handicap was 32% higher for older women, who also reported more recent and minor illnesses.

Older men are 16% more likely to be overweight or obese, 45% more likely to be smokers and 46% more likely to be risk drinkers than older women.

Marital status and living arrangements

Unmarried older people have higher mortality and worse self-reported health than married older people. In contrast to some other countries and to working-age Australians, health differentials by marital status for older men are not generally greater than those for older women.

Death rates for unmarried older men and women are around 40% higher than those for married older men and women. Mortality differentials are even higher for specific causes, for example:

- pneumonia and influenza—around 150% higher for never married men and women, and around 100% higher for divorced and widowed men and women
- suicide—over 140% higher for unmarried men and 125% higher for divorced and widowed women, but not higher for never married women
- diabetes—43% and 37% higher for divorced or widowed men and women respectively.

Severe handicap is 50% higher for never married men and 30% higher for divorced or widowed older men compared with their married counterparts. Never married women have a prevalence of severe handicap over double that of their married, divorced or widowed counterparts. However, unmarried older men and women do not report more chronic, recent or minor illnesses.

Reported levels of fair/poor health, and chronic, recent and minor illnesses do not vary according to whether single older people live alone or with others. Older men and women who are single are over three and two times more likely respectively to report that they are unhappy whether they live alone or with others.

Older men and women who live alone, and also older single women who live with others, are significantly more likely to be smokers (over 50% higher prevalence). Older single men, but not women, are significantly more likely to be risk drinkers.

Income and education

Older men and women with low family income report worse health status than those with high family income:

- fair/poor health—39% higher for men and 26% higher for women
- severe handicap—29% higher for women
- unhappiness—127% higher for men and 115% higher for women.

With the exception of arthritis, they do not report more chronic or recent illness. Older adults with low income are substantially more likely to be smokers (117% higher for men and 55% higher for women) and inactive (35% higher for men and 17% higher for women).

Older men and women with low income report substantially fewer dental visits (65% fewer for men and 47% fewer for women).

Older men and women with low education levels report significantly worse perceived health, higher levels of handicap and reduced activity, but not more chronic illness, than those with high education level. Differentials in perceived health between high and low education groups are greater than those for income: the prevalence of fair/poor health is 44% higher for older men and 48% higher for older women with low education, compared with their counterparts with high education.

Older women with low education are significantly more likely to be overweight or obese (unlike women with low income), and both men and women with low education are significantly more likely to be inactive. Unlike low income older men and women, those with low education are not significantly more likely to be smokers.

Older men and women with low family income or low education level report that their health is worse, are generally more likely to be inactive, overweight and/or smokers, and report higher levels of health service use. However, unlike working-age adults in Australia, older people with low education or income do not generally report significantly more chronic or recent illness than their more advantaged counterparts.

Socioeconomic disadvantage of area of residence

For older men and women, there is a clear gradient of increasing mortality and worse perceived health status with increasing level of socioeconomic disadvantage of local area of residence. Comparing death rates for the quintile of most disadvantage (5th quintile) with those of the quintile of least disadvantage (1st quintile):

- total death rate—14% higher for men and 11% higher for women
- pneumonia/influenza—53% higher for men (but only 16% higher for women)
- diabetes—32% higher for women (but only 15% higher for men)
- lung cancer—28% higher for men
- bronchitis, emphysema, asthma—18% higher for men
- ischaemic heart disease—10% higher for men and 15% higher for women
- cerebrovascular disease—16% higher for men and 6% higher for women
- suicide—44% lower for women.

There are no clear gradients of chronic or recent illness with level of socioeconomic disadvantage of area, although minor illnesses and some specific chronic illnesses are reported more frequently by those in the more disadvantaged quintiles. Older men and women in the fifth quintile are substantially more likely to be smokers (49% for men and 32% for women) and inactive (26% for men and 29% for women). The prevalence of overweight or obesity increases with increasing disadvantage of area for older women but not for men.

State, Territory and region

There are significant differences between age-standardised death rates for nearly all States and Territories. Death rates for the Northern Territory are substantially higher than the national average, reflecting the very high mortality rates experienced by Aboriginal people. New South Wales and Tasmanian men and women have death rates significantly above the national average (for older Tasmanian women it is 12% higher), while older residents of Queensland, South Australia and Western Australia have deaths rates significantly lower than the national average. Apart from the Northern Territory, some of the strongest differentials for selected causes of death are:

- pneumonia/influenza—109% higher for men in the Australian Capital Territory and over 40% higher for men and women in South Australia
- stomach cancer—36% higher for men in Tasmania
- colorectal cancer—31% higher for women in Tasmania
- diabetes—over 30% higher for men and women in Victoria
- bronchitis/emphysema/asthma—25% higher for men and women in Victoria.

There are few significant State/Territory differentials in handicap, disability or self-reported health status between the States and Territories, with the exception of Tasmania, where older women have a handicap rate 21% above the national average. However, older Queensland women report significantly more serious chronic illness and minor illness. Specific chronic and minor illnesses reported significantly more often include:

- diabetes—296% more often for women in the Australian Capital Territory
- injuries—120% more often for men and 239% for women in Queensland
- back problems—146% more often for men in the Australian Capital Territory
- mental disorders—131% more often for men in Queensland
- minor injuries—82% more often for men in Queensland; 76% more often for women in South Australia
- asthma—68% more often for men in South Australia
- hernia—56% more often for men in Queensland

- heart disease—44% more often for women in Queensland
- ill-defined heart symptoms—44% more often for men in Victoria.

Older people living in non-metropolitan areas do not have higher death rates overall than those resident in capital cities, but they do have somewhat higher death rates from respiratory, digestive system and genito-urinary system diseases, and 6–8% fewer deaths from cancer.

Migrants

About 27% of older Australians in the late 1980s were born outside Australia and, of these, around 20% spoke a language other than English at home. Except for those born in the United Kingdom and Ireland, overseas-born older Australians have lower mortality than those born in Australia. Older Australians born in the United Kingdom and Ireland have a 15% higher death rate from cancer for both sexes. Some individual causes of death for which differentials are particularly striking include:

- lung cancer—45% higher for men and 74% higher for women born in United Kingdom or Ireland
- stomach cancer—50–60% higher for men and women born in United Kingdom, Ireland or other European countries
- diabetes—over 50% higher for men and over 120% higher for women born in continental Europe or Asia
- motor vehicle accidents—47% higher for men born in continental Europe; 80–90% higher for men and women born in Asia
- suicide—47% higher for men and 210% higher for women born in continental Europe.

In general, older people born overseas report somewhat less chronic and recent illness than those born in Australia. Some of these reported differences may relate to cultural differences in perception and reporting of illness, and in response to illness by reduction of activity.

Older men and women born in continental Europe are significantly more likely to be overweight. Older men and women born in the United Kingdom or Ireland are more likely to be smokers (47% higher for men and 40% higher for women).

Older men and women who do not speak English at home report fair/poor health and unhappiness more often but report significantly fewer chronic, recent or minor illness conditions. The unhappiness differentials are particularly noteworthy, with a nearly three-fold differential for older women, but only 66% more for older men. Diabetes is the only specific chronic illness reported more often by those who do not speak English at home (132% higher for women only). It is possible that non-English-speaking people have more difficulties in reporting specific illnesses than English-speaking people, resulting in a less accurate representation of the health experience of non-English-speaking migrants.

There were no significant differentials in hospital inpatient use or doctor visit rates for older adults who did not speak English at home. Men, but not women, who did not speak English at home reported significantly fewer outpatient or dental visits.

Lifestyle risk factors

Overweight or obese older men and women report more chronic and recent illness and women more days of reduced activity. Specific chronic illness reported more frequently include:

- hypertension—64% more often for men and 52% more often for women
- diabetes—73% more often for men and 116% more often for women
- arthritis—34% more often for men and 18% more often for women.

Inactive older people are significantly more likely to report fair/poor health, unhappiness and days of reduced activity. The only chronic and minor illnesses reported significantly more frequently by the inactive are:

- arthritis—22% more often for men and 15% more often for women
- hernia—46% more often for women
- constipation—52% more often for men.

Unlike working-age smokers, older smokers are not more likely to report fair/poor health or unhappiness and report significantly fewer days of reduced activity and fewer chronic illnesses. The only specific chronic or minor illness reported significantly more frequently by smokers is:

- bronchitis/emphysema—52% more often for men and 74% for women.

Older men whose alcohol consumption was classified as moderate or high risk report more chronic illness (but less fair/poor health). Older female risk drinkers report fewer recent illnesses but are 97% more likely to report bronchitis/emphysema, probably reflecting the 162% higher prevalence of smoking among older female risk drinkers.

Introduction

This report is the second in a series of four reports which systematically document health differentials in Australia for the following age groups:

- children aged 0–14 years
- young adults aged 15–24 years
- adults aged 25–64 years
- older people aged 65 years or more.

The first, entitled *Health differentials among adult Australians aged 25–64 years,* was published earlier this year by the Australian Institute of Health and Welfare (Mathers 1994). These reports result from a project undertaken at the request of the National Health Strategy in 1991 and 1992 by the Australian Institute of Health and Welfare to systematically document health differentials among Australians using all major sources of population health data. This project aimed to extend and update an earlier report on health differentials published by the Australian Institute of Health (Lee et al. 1987). The project methodology was developed in consultation with a Steering Committee established by the National Health Strategy (see Acknowledgements).

Selected results from these analyses for children and working-age adults were published in 1992 by the National Health Strategy (1992a) in its first research paper, *Enough to make you sick: how income and environment affect health.* More detailed results for these two age groups were also published in a statistical supplement available on request from the Australian Institute of Health and Welfare (National Health Strategy 1992b). Summary results for all four age groups were also published in chapter 4 of *Australia's health 1992* (Australian Institute of Health and Welfare 1992). The results reported here differ from those previously published in three respects: (a) mortality differentials relate to deaths occurring in the calendar years 1985, 1986 and 1987, whereas previously published results relate to deaths registered in those years, (b) differentials for specific conditions are provided, and (c) health differentials are provided for population groups defined by risk factor status (chapter 11).

The purpose of these reports is to provide a reference source of statistics on health differentials which covers a comprehensive range of health indicators, a comprehensive set of sociodemographic breakdowns of the Australian population, and differentials for disease groups and specific major diseases. These reports are intended to be a reference source of statistics rather than a scholarly study of health differentials. The commentaries are intended to give the reader an overview of the detailed statistical tabulations and to refer to some of the major relevant studies and hypotheses. They are not intended to provide a comprehensive review of that literature or an assessment of the evidence relating to causes of these differentials. More detailed references to the health differentials literature are given in Mathers (1994).

Health differentials refer to the unequal distribution or inequalities in the health of different population groups in a purely statistical sense. The term 'inequity' has a moral and ethical dimension. It refers to differentials which are unnecessary and avoidable, but in addition are also considered unfair and unjust (McClelland 1991). Not all health differentials are inequitable. This report documents health differentials in Australian society in the late 1980s, but does not attempt to identify the causes of inequalities or which inequalities are inequitable. A more detailed discussion of the underlying causes of health inequalities is provided by the National Health Strategy (1992a).

Introduction

These analyses are based on either cross-sectional surveys or death data. The cross-sectional surveys collect data on health status and sociodemographic characteristics at the same point in time. Although it is possible to identify statistical associations between these variables, it is not possible to infer causal relationships from such data. The primary purpose of the analyses reported here is to document differences in the health and health service use of older Australians across various socioeconomic and other population characteristics.

Data sources

Three sources of population data on health status, risk factors and health service use have been used in these analyses:

- deaths occurring in 1985, 1986 and 1987
- the 1989–90 National Health Survey conducted by the Australian Bureau of Statistics (ABS 1991a,b)
- the 1988 Survey of Disability and Ageing conducted by the Australian Bureau of Statistics (ABS 1990).

Although the National Heart Foundation's 1989 Risk Factor Prevalence Study was used to estimate risk factor differentials for adults aged 25–64 years (Mathers 1994) and included people aged 65–69 years, it has not been used here for examining differentials for older persons because the sample size for this age group (320 men and 342 women aged 65–69 years) does not permit the level of disaggregation used in this report.

Deaths occurring in 1985, 1986 and 1987

Registration of deaths in Australia is the responsibility of the State and Territory Registrars of Births, Deaths and Marriages. Information on the cause of death is supplied by the medical practitioner certifying the death or by a coroner. Other information about the deceased is supplied by a relative or other person acquainted with the deceased, or by an official of the institution where the death occurred. Registration of death is a legal requirement in Australia, and compliance is virtually complete.

The information is provided by the Registrars to the Australian Bureau of Statistics (ABS) for coding of information and compilation into national statistics. The statistics in this publication were derived from the registration data coded by ABS and provided to the Institute by the State and Territory Registrars.

A variety of quality control mechanisms are used by ABS to ensure that the mortality data are as reliable as possible. Nevertheless, the data are not error-free (ABS 1989) and missing data for some of the differentiating factors (e.g. the not stated group for marital status) may result in an underestimation of the differentials associated with these variables. Where relevant, the magnitude of the missing data problem is discussed in each chapter in the box defining the population subgroups.

Finally, problems may arise from the fact that the numerators and denominators for the calculation of death rates are derived from different sources: death registrations and the population census respectively. The definitions and methods used for ascertaining socio-demographic characteristics vary between the census and the death collection and this may give rise to errors (see Appendix B).

Limited sociodemographic information is collected on death certificates in Australia, so mortality differentials can be calculated for a much more limited range of population sub-groups than for the population survey data.

ABS National Health Survey 1989–90

The most important recent survey of health in Australia took place from October 1989 to September 1990, when the Australian Bureau of Statistics conducted the National Health Survey 1989–90 which collected information by personal interview about the health of approximately 54,600 Australians living in a sample of about 22,000 households (ABS 1991a,b). Institutionalised people, including hospital inpatients and residents of nursing homes, were excluded from the survey. As well as basic demographic details, information was collected from respondents on family composition and a variety of aspects of socio-economic status. Such detailed socio-demographic information is not available in administrative data sources such as hospital admission data or Medicare data, and the ABS National Health Survey has been used as a principal source for the analysis of health and health service use differentials in Australia.

Information recorded in the National Health Survey is essentially 'as reported' by respondents and is not medically verified. Conditions which have a considerable effect on people are likely to be better reported than those which have little effect. People may also be unaware of some conditions, particularly if they have not been diagnosed. They may also be reluctant to report some conditions (ABS 1991a). The quality of health indicators constructed from self-reported data is discussed in the section 'Health indicators' (page 7).

ABS Survey of Disability and Ageing

The ABS 1988 Survey of Disabled and Aged Persons included approximately 67,000 people from households and about 6,700 from 535 health establishments (ABS 1990). The definitions of disability and handicap used in this survey are discussed in the section 'Health indicators'. Similar sociodemographic information was collected in this survey to that collected in the National Health Survey. However, many items such as income level were collected only for respondents in households, not those in institutions, and some were collected only for disabled respondents.

Scope of analysis

This report documents differentials between groups of Australian adults aged 65 years or more and characterised by various indicators of socioeconomic status, ethnicity, family composition, place of residence and sex.

For most of the results presented, the effect of age differences on health indicators has been eliminated by age-standardisation (see below). However, age is itself a very significant aspect of differences in health (Australian Institute of Health and Welfare 1992, chapters 2 and 4). For example, death rates for the age group 85 years and over are over six times greater than those for the age group 65–69 years, a larger differential than most of those between the socio-demographic subgroups. Similarly, the prevalence of disability and serious chronic illness increases steeply with age. In general, the more serious the outcome being measured by the health indicator, the steeper is the gradient with age. Age differentials in health status and service use have not been reported here, as they are routinely reported in most health statistical publications such as *Australia's health 1994* (Australian Institute of Health and Welfare 1994).

Sample numbers in the population surveys were insufficient to allow a comparison of health differentials by individual countries of birth. The grouping of people from a number of different birthplaces may conceal health differences between specific ethnic groups.

Because information on illness conditions was collected by self-report in the National Health Survey, it is possible that mental illnesses, particularly, were under-reported. This may lead to

an underestimation of mental health differentials between some population groups.

The national data sources used in this project did not permit a comparison between Aboriginal and non-Aboriginal Australians at the national level. There are various reasons for this. Aboriginality is still not recorded on death certificates in all States, and, even for those where it is, there are some States with significant problems of under-reporting. In addition, there are insufficient numbers of Aborigines sampled through the population surveys to allow meaningful analyses of health differentials. Analyses of health differentials between Aboriginal and non-Aboriginal Australians have been published from other sources by the Australian Institute of Health and Welfare (1992, 1994) and the National Health Strategy (1992a).

Other major gaps in the completeness of the health indicators reported here are in the area of nutrition and disease incidence. A major report on food and nutrition in Australia has recently been published (Lester 1994). A report on differentials in cancer incidence rates among Australians is also currently under preparation by the Australian Institute of Health and Welfare.

Age-standardised rates and rate ratios

As noted above, many health indicator rates rise with age, so the age distribution of population subgroups greatly influences their crude rates for these measures of health. All health indicators have been directly age-standardised (Armitage & Berry 1987) to the total mid-year Australian population in 1988. This produces an estimate of the rate which would have prevailed in the standard population if it had experienced the age-specific rates of the population subgroup, thus eliminating from the differentials reported here the effects of the age distributions of the population subgroups.

All indicators have been directly standardised using five-year age groups from 65–69 onwards as follows:

$$SR = \Sigma \{ R_i * P_i \} / \Sigma P_i$$

where SR = age-standardised rate

R_i = age-specific rate for age group i

P_i = standard population in age group i

For mortality, disability and handicap indicators, the five-year age groups ended with the open interval 85 years and over. For indicators derived from the ABS National Health Survey, the final age group was 80 years and over.

Differentials between population groups are expressed in terms of rate ratios, where the age-standardised rate for each population subgroup is expressed as a multiple of the age-standardised rate for a reference group, chosen either to be the largest subgroup (such as Australian-born for country of birth differentials) or the subgroup with the best health status (such as professionals for occupational differentials). For example, sex differentials are given in terms of the ratio of the male rate to the female rate. Thus a ratio of 1.0 indicates that there is no difference between the rates of the two groups. A rate ratio of 1.92 means that men have a rate which is almost twice or 92% higher than that of women.

Standard errors and statistical tests

Standard errors were calculated for all age-specific rates; for rates derived from population surveys, these take into account the statistical uncertainty resulting from the fact that only a representative sample of the total Australian population was included in the survey. Standard

errors for survey estimates were calculated from published tables for the Survey of Disability and Ageing (ABS 1990), and for the National Health Survey from unpublished tables specially prepared for this project by the Australian Bureau of Statistics. For deaths data, standard errors were calculated assuming that the probability of death due to a given cause or group of causes is binomially distributed.

Standard errors have been calculated for all age-standardised rates. Significance levels for rate ratios were calculated using the following test statistic (assumed normally distributed around zero under the null hypothesis that the rate ratio is 1.0):

$$z = \frac{\log 10\,(r_1/r_2) \times ln\,(10)}{sqrt\,[se\,(r_1)^2/r_1^2 + se\,(r_2)^2/r_2^2]}$$

where r_1 and r_2 are age-standardised rates (Breslow & Day 1980). When the estimated rate ratio r_1 for a population subgroup was zero, the probability that the underlying population rate was that of the reference group r_2 was calculated as follows:

$$p(r_1 = 0) = (1-r_2)^{n_1}$$

where n_1 was the size of the survey sample for the population subgroup.

Significance levels for rate ratios are indicated as follows:

*	$p < 0.05$
**	$p < 0.01$
***	$p < 0.001$

These statistical significance tests do not take into account non-sampling errors such as those which may arise from self-reporting biases or misclassification. Additionally, many hundreds of statistical tests have been performed throughout this report, and it is therefore likely that some results reported as 'statistically significant' are the result of chance. This problem can be minimised to some extent by confining attention to selected indicators and population groups of interest rather than scanning the entire report for significant differentials. Where there is a consistent and significant trend across population groups (for example a rate ratio which increases monotonically across quintiles of socioeconomic disadvantage) or where a differential consistently appears for a number of measures of socioeconomic disadvantage, this will add some weight to the results, as will consistency with other studies and with epidemiological and medical knowledge.

Structure of this report

The following section ('Health indicators') defines the health indicators used in this report. In the eleven numbered chapters that follow, each chapter presents health differentials for these indicators across population subgroups defined by various sociodemographic factors. Thus chapter 1 compares men and women, chapter 2 present differentials according to marital status and so on.

Each chapter starts with a commentary on the results and a box defining the categories used for the population subgroups. Health differentials for men and women in these population subgroups are presented graphically for a number of summary indicators of health status and health risk. Following the commentary is a table presenting detailed information on health differentials for all the health indicators.

Tables and graphs

The following symbols are used in the tables:

.	Indicator not relevant or data not available
–	Sample size insufficient for calculation of indicator
*	Rate ratio differs significantly from 1.0 with $p < 0.05$
**	Rate ratio differs significantly from 1.0 with $p < 0.01$
***	Rate ratio differs significantly from 1.0 with $p < 0.001$

The more asterisks, the more statistically significant the differential.

Rate ratios are presented graphically using a logarithmic scale—the vertical axis represents a rate ratio of 1.0 and rate ratios of 0.5 and 2 are represented by equal-length bars extending outwards from the vertical axis in opposite directions. The error bars plotted for each rate ratio on graphs indicate the 95% confidence interval for the rate ratio.

References

Armitage P, Berry G (1987). Statistical methods in medical research. Blackwell Scientific Publications, Melbourne: 399–403.

Australian Bureau of Statistics (1989). Review of causes of death and perinatal death collections. Internal report, ABS, Canberra.

Australian Bureau of Statistics (1990). Disability and handicap. Australia, 1988. ABS Cat. No. 4120.0, Canberra.

Australian Bureau of Statistics (1991a). 1989–90 National Health Survey. Users' guide. ABS Cat. No. 4363.0, Canberra.

Australian Bureau of Statistics (1991b). 1989–90 National Health Survey. Summary of results. ABS Cat. No. 4364.0, Canberra.

Australian Institute of Health and Welfare (1992). Australia's health 1992: the third biennial report of the Australian Institute of Health and Welfare. AGPS, Canberra.

Australian Institute of Health and Welfare (1994). Australia's health 1994: the fourth biennial report of the Australian Institute of Health and Welfare. AGPS, Canberra.

Breslow NE, Day NE (1980). Statistical methods in cancer research. Volume 2. IARC Lyon.

Lee SH, Smith L, d'Espaignet E, Thomson N (1987). Health differentials among working age Australians. Australian Institute of Health, Canberra.

Lester I (1994). Australia's food and nutrition. Australian Institute of Health and Welfare, Canberra.

Mathers C (1994). Health differentials among Australian adults aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

McClelland A (1991). In fair health? Equity and the health system. Background Paper No. 3, National Health Strategy, Melbourne.

National Health Strategy (1992a). Enough to make you sick: how income and environment affect health. National Health Strategy Research Paper No. 1, Melbourne.

National Health Strategy (1992b). Supplement to Research Paper No. 1: Enough to make you sick. National Health Strategy, September 1992.

Health indicators

Defining and measuring health

Historically, health has usually been referred to negatively as the absence of death, disease and illness. The World Health Organization has focused attention on a broader, more positive concept of health, defining it as 'a state of complete physical, mental and social well-being, and not merely the absence of disease or injury' (WHO 1980). Unfortunately, population data are not readily available on positive aspects of health and well-being, and the only practical approach which can be adopted is to measure health, according to Kaplan (1989), in terms of deviations from normative standards for concepts such as:

- mortality
- morbidity (disease or impairment)
- limitations to functional abilities (disability)
- role limitations because of health problems (handicap)
- bodily pain.

Another complication is that health has both short-term and longer-term aspects. This has prompted an explicit distinction between the present health state of an individual, which can fluctuate considerably from day to day or week to week, and the longer-term 'health status' of the individual which is more stable (e.g. disabled, hypertensive) although it changes over time (Blaxter 1985). The health status, service use and risk factor indicators defined below cover a range of time spans:

- one to three years—various indicators of health service use
- six months or more—disability, handicap, chronic illness
- two weeks—recent illness, reduced activity.

These time frames are chosen to minimise memory effects. For recent illness, less serious complaints are usually forgotten relatively quickly, whereas for more serious events (such as hospitalisation) retrospective questions about the preceding year or even longer can be answered correctly. Indicators for the number of contacts with health service professionals are based on short recall periods of two weeks. Reported rates are converted to an annual basis by multiplying them by 26; these annual rates are thus not distorted by memory effects.

Given that health includes a number of quite different concepts, and that most of these can only be assessed by proxy measures, the approach taken in this series of reports has been to construct a wide range of health indicators, tempered by the practical constraints of information availability. The three sources of population data (see 'Introduction') have been used to construct a wide range of health indicators, relating to various dimensions of health. These indicators are summarised in the box below and defined in more detail in the following pages.

Summary of health indicators used

Aspect of health / indicator	*Data source*
Mortality	
Death rate per 100,000 population	*Deaths in 1985, 1986 and 1987*
Disability and handicap	
Prevalence of severe handicap	*ABS Survey of Disability and Ageing 1988*
Prevalence of handicap	
Prevalence of disability	
Short-term disability	
Average days of reduced activity per year	*ABS National Health Survey 1989–90*
Perceived health	
Per cent reporting fair or poor health	*ABS National Health Survey 1989–90*
Per cent reporting that unhappy or very unhappy	
Illness	
Average number of serious chronic illnesses	*ABS National Health Survey 1989–90*
Average number of serious and intermediate chronic illnesses	
Average number of serious and intermediate recent illnesses	
Average number of minor recent illnesses	
Prevalence of dental problems	
Risk factors	
Prevalence of overweight or obesity	*ABS National Health Survey 1989–90*
Prevalence of inactivity	
Prevalence of smoking	
Prevalence of risk alcohol drinking	
Health service use	
Average number of hospital inpatient episodes per year	*ABS National Health Survey 1989–90*
Average number of doctor visits per year	
Average number of hospital outpatient visits per year	
Average number of dental visits per year	
Average number of visits to other health professionals per year	

The measurement of these health indicators ranges from relatively objective physiological assessments to individuals' own subjective perceptions of their health. Most of the indicators reported here are based on personal self-reported assessments, which will clearly reflect individual awareness of health problems, subjective interpretations and beliefs, as well as relative valuations of various dimensions of health. The only objective indicators are those based on death registration data.

There is increasing evidence that self-assessment of health status is a good measure of current physical health and a significant predictor of mortality for some subgroups of the population (Mossey & Shapiro 1982; Idler, Kasle & Lempke 1990; Wannamethee & Shaper 1991). There is a growing appreciation that instruments based on subjective data from patients can provide important information that may not be evident from physiologic measurements and may be as reliable as—or more reliable than—many of the clinical, biochemical, or physiologic indexes on which doctors have traditionally relied (Epstein 1990). A recent Australian study of older Australians (60 years and over) found that self-reported health status (fair and poor for women and poor for men) was a significant predictor of mortality over a seven-year follow-up period (McCallum, Shadbolt & Wang 1994). Self-reported health status remained an important predictor of subsequent mortality after controlling for demographic factors, major illnesses, co-morbidities, minor illness, disability, depression and social support.

No attempt has been made in this report to combine the various health indicators into a single summary measure of health status. Apart from the considerable problems of developing methods for combining indicators measured in entirely incommensurate units, there is also a trade-off in the loss of information that results from aggregation of different health status variables. This report presents differentials for a wide range of indicators, leaving it to readers to focus on those indicators and disease states most relevant to their interest.

Population mortality

Mortality rates for all causes and for specific causes of death have been constructed for deaths occurring in the years 1985 to 1987 using ABS death registration data (ABS 3302.0) and estimates of the resident population for the same years (refer to Appendix B). Estimates of the population in various sociodemographic subgroups were obtained using data from the 1986 census (ABS 1989).

Although mortality data are commonly accepted as the most objective measures of the health status of the population, they are the most extreme indicator of the health of the community and may not necessarily reflect patterns in other important dimensions of health, such as disability, handicap and morbidity.

Disability and handicap

One of the important dimensions of health status is functional ability, the ability to perform tasks of daily living and to carry out social roles. The terms impairment, disability and handicap are often erroneously used interchangeably, although the *International classification of impairments, disabilities and handicaps* (ICIDH) (WHO 1980) provides a conceptual framework and a consistent terminology. The key concepts are defined as follows (Mathers 1991):

- **Impairment:** Any disturbance to the body's mental or physical structure or functioning. The impairment is characterised by a permanent or temporary loss or abnormality of psychological, physiological, or anatomical structure or function in a tissue, organ, limb, functional system or mechanism in the body.
- **Disability:** A reduction or loss of functional capacity or activity resulting from an impairment. Disability is characterised by excesses or deficiencies of customarily expected behaviour or functions, and represents the objectification of impairments through their effects on everyday activities.
- **Handicap:** The social disadvantage resulting from an impairment and/or a disability, entailing a divergence between the individual's performance or status and that expected of him by his social group. Handicap therefore represents the social and environmental consequences of impairments and disabilities.

The 1981 and 1988 ABS surveys on disability defined a person with a disability as having one or more of a group of selected conditions (such as loss of sight or hearing, incomplete use of arms or legs, slowness at learning or understanding) which have lasted, or are likely to last, for six months or more. These conditions include impairments, disabilities, and a handicap, as defined in the WHO ICIDH framework, and even some health conditions, and should perhaps be viewed as defining a wider population likely to contain those persons with a disability.

Although disability and handicap are generally thought of as longer-term health conditions (having lasted or likely to last six months or more according to the definitions used by ABS), it is also possible to measure short-term disability and handicap, e.g. in terms of days of reduced activity or days off work.

Morbidity

The 1989–90 National Health Survey focused on measures of ill-health, specifically the numbers and types of health conditions experienced recently (in the last two weeks) and the number and types of long-term health conditions experienced. This information was 'as reported' by respondents, which by its nature involves a degree of subjectivity in the way conditions are identified and described. In order to maximise the completeness of reporting of health conditions, the questionnaire was designed to first ask respondents about the health-related actions taken in the last two weeks, then to identify the conditions for which those actions were taken. Finally, respondents were asked about other conditions for which no action had been taken and prompt cards were used to assist in completeness of reporting (ABS 1991a).

Illness indicators presented here thus relate to conditions reported by respondents and hence do not necessarily represent conditions as medically diagnosed. Some under-reporting may still have occurred, particularly for long-term conditions which recur infrequently, are controlled by treatment (such as glasses to correct sight problems) or which may be undiagnosed or perceived as socially stigmatised (e.g. drug abuse, epilepsy, mental illness).

Illness conditions were classified into 105 categories using a classification broadly based on the International Classification of Diseases, 9th revision (ICD-9) (WHO 1977). Many of the ICD-9 categories were collapsed into broader groupings of conditions which reflect the type and level of information provided in a household survey. Some special categories were added to cover commonly reported conditions and 'healthy' reasons for health service contact (ABS 1991a).

Overall, 96% of the population aged 65 years and over reported experiencing one or more illness conditions in the two weeks prior to interview. Similarly, 95% reported having long-term conditions (lasting six months or more). There is thus little point in examining differentials in total illness levels, as almost all older Australians reported having both recent and chronic conditions.

As described in Appendix A, a three-level severity classification of diseases defined according to ICD-9 three-digit (and in some cases four-digit) codes (McCormick & Rosenbaum 1990) was adapted to classify illness conditions as serious, intermediate or minor. This classification is based entirely on the description of the disease (and in some cases whether it is chronic or led to days of reduced activity). There will thus be misclassification of some illness conditions for particular survey respondents. For example, although arthritis may be an intermediate condition for most people, it will be a minor condition for some and a serious condition for others. This misclassification is likely to have reduced apparent differences in illness rates

between population subgroups, and illness differentials reported here are likely to be underestimates.

Risk factors

The physical and social environments and individual lifestyles contribute in complex ways to the many causes of disability, morbidity and death (Australian Institute of Health and Welfare 1992, section 2.5). The main source of information for selected risk factors was the 1989–90 National Health Survey, which asked respondents about self-reported height and weight, leisure-time exercise, smoking and alcohol consumption.

Health service use

Inpatient hospital episodes provide an important indicator for more serious health problems faced by Australians. Consultations with medical and other health professionals tend to cover a broader range of health problems from serious to minor conditions. Although data on health service use are available from administrative sources for both hospital episodes and medical consultations (Australian Institute of Health and Welfare 1994), the indicators reported here are based on data from the 1989–90 National Health Survey for self-reported hospital episodes in the last twelve months and visits to health professionals in the last two weeks. This is because the National Health Survey collected extensive information on the sociodemographic characteristics of the respondents which is used here to examine health service use differentials between population groups. Such information is not generally available in administrative data sources.

Definitions of health status indicators

- **Death rate:** Number of deaths per 100,000 population. These rates are calculated from death registration data supplied by the ABS for deaths occurring in the calendar years 1985, 1986 and 1987. Denominators for the calculation of rates are derived from population and census data as described in Appendix A. Death rates for major causes of death are calculated using major cause of death groups defined by the chapters of the ICD-9. Selected causes of death are defined in terms of groups of ICD-9 codes at the three-digit level (WHO 1977). These causes were chosen to include leading causes of death such as ischaemic heart disease and also some specific diseases such as brain cancer where there are known to be clear socioeconomic differentials (McMichael 1985). Selected causes are ordered by ICD-9 code.
- **Disability rate:** Prevalence of disability (as a percentage of population). These rates are calculated using data from the 1988 Survey of Ageing and Disability (ABS 1990). A disabled person is defined as a person who has one or more of a group of selected impairments and disabilities (such as loss of sight or hearing, incomplete use of arms or legs, slowness at learning or understanding) which have lasted, or are likely to last, for six months or more.
- **Handicap rate:** Prevalence of handicap (as a percentage of population). Calculated using data from the 1988 Survey of Ageing and Disability (ABS 1990). A handicapped person is defined as a disabled person who is limited in his or her ability to perform tasks relating to self-care, mobility, communication, schooling or employment.
- **Severe handicap rate:** Prevalence of severe handicap (as a percentage of population). Calculated using data from the 1988 Survey of Ageing and Disability (ABS 1990). A

handicap is defined as severe if personal help or supervision are required or the person is unable to perform tasks relating to self-care, mobility or communication.

- **Fair/poor health:** The estimated percentage of people who report 'fair' or 'poor' health using data from the National Health Survey, which asked survey respondents for self-assessed health status on a four-point scale of Excellent, Good, Fair, Poor.
- **Serious chronic illness:** The average number of serious chronic (long-term) illness conditions per person, estimated from the numbers of illness conditions which have lasted at least six months, or which the respondent expects to last for six months or more, reported in the ABS National Health Survey 1989–90. Serious illness conditions are listed in Table A.2 in Appendix A.
- **Chronic illness:** The average number of serious and intermediate chronic (long-term) illness conditions per person, estimated from the numbers of illness conditions which have lasted at least six months, or which the respondent expects to last for six months or more, reported in the ABS National Health Survey 1989–90. Serious and intermediate illness conditions are listed in Table A.2 in Appendix A.
- **Major chronic illness groups:** The estimated percentage of people who report one or more serious or intermediate chronic illnesses within illness groups defined by the chapters of ICD-9. Each person is counted once only in this indicator, unlike the previous one.
- **Selected chronic conditions:** The estimated percentage of people who report selected chronic conditions defined by individual codes in the National Health Survey. The 12 leading serious or intermediate chronic illnesses (for males and females aged 65 years and over combined) were selected and are tabulated in order of decreasing prevalence. 'Other' categories of chronic illness were excluded from this selection, as were neoplasms and injuries (where a single code corresponds to an entire chapter of ICD-9). Condition 39 'Disorders of the intervertebral disc' and Condition 40 'Back trouble (unspecified)' were combined into a single category 'Back problems'.
- **Recent illness:** The average number of serious or intermediate illness conditions per person experienced in a two-week period, estimated from reported illness conditions experienced in the two weeks prior to interview in the ABS National Health Survey 1989–90. Minor illnesses (as defined in Table A.2) are excluded from this average.
- **Minor illness:** The average number of minor illness conditions per person experienced in a two-week period, estimated from reported illness conditions experienced in the two weeks prior to interview in the ABS National Health Survey 1989–90. Minor illnesses are defined in Appendix A.
- **Selected minor conditions:** The estimated percentage of people who experienced selected minor conditions (as defined by individual codes in the National Health Survey) in the two weeks prior to interview. The 8 leading recent minor conditions (for males and females aged 65 years and over combined) were selected and are tabulated in order of decreasing prevalence. Condition 60 'Headache due to stress/tension' and Condition 61 'Headache due to unspecified or trivial cause' were combined into a single category 'Headache (excluding migraine)'.
- **Dental problems:** The estimated percentage of people who reported experiencing dental problems (including toothache, bleeding gums, gingivitis, mouth ulcer) in a two-week period, estimated from reported illness conditions experienced in the two weeks prior to interview in the ABS National Health Survey 1989–90.
- **Reduced activity:** The average number of days of reduced activity per person per annum due to illness or injury. This is estimated by multiplying by 26 the average reported days

of reduced activity in the two weeks prior to interview in the ABS National Health Survey 1989–90. Reduced activity includes any day which the respondent spent in hospital, stayed home from work or school or otherwise cut down on his or her usual activities for all or most of the day.

- **Unhappiness:** The estimated percentage of people who report being 'unhappy' or 'very unhappy' using data from the National Health Survey, which asked survey respondents how they felt generally on a four-point scale of Very happy, Happy, Unhappy, Very unhappy.

Risk factors

- **Overweight or obesity:** The estimated percentage of people with a body mass index greater than 25.0 kg/m^2 (NHMRC definition). Body mass index is calculated from self-reported height and weight in the National Health Survey. Waters (1993) has analysed misclassification error for overweight or obesity calculated using self-reported data. Overweight and obesity are risk factors for coronary heart disease, breast cancer, diabetes mellitus, arthritis and other conditions.
- **Inactivity:** The estimated percentage of people who undertake no physical exercise for recreation, sport or health/fitness reasons. Calculated using data from the National Health Survey on the amount of time spent in the last two weeks in walking, moderate exercise and vigorous exercise for recreation, sport or fitness reasons. Inactivity is a risk factor for coronary heart disease, stroke, diabetes mellitus, osteoporosis and some other musculoskeletal conditions.
- **Smoking:** The estimated percentage of people who are current smokers (from the ABS National Health Survey). Smoking is a risk factor for coronary heart disease, lung, cervical, buccal and digestive cancers, stroke and chronic lung disease.
- **Alcohol risk:** The estimated percentage of people who are at medium or high relative health risk due to alcohol consumption according to ABS categories based on NHMRC recommendations (ABS 1991a). Men and women were classified as medium or high risk if their reported average daily consumption of ethanol exceeded 50 mL and 25 mL respectively, using data from the ABS National Health Survey. Alcohol abuse is a risk factor for digestive system cancer, motor vehicle accidents, other accidents, suicide, violence, liver cirrhosis and brain damage.

Health service use

- **Hospital episodes:** Average number of inpatient episodes during last twelve months where both admission and discharge took place within the twelve-month period. Estimated from ABS National Health Survey data for 1989–90.
- **Doctor visits:** Average number of doctor consultations per annum (including telephone calls and proxy visits). This is estimated by multiplying by 26 the average number of doctor visits in the two weeks prior to interview in the ABS National Health Survey 1989–90. Doctor consultations during hospital inpatient episodes or visits to hospital outpatient/casualty clinics not included. 'Doctor' includes general practitioners and specialists.
- **Outpatient visits:** Average number of visits to hospital emergency, casualty or outpatient clinics per annum. This is estimated by multiplying by 26 the average number of casualty/outpatient visits in the two weeks prior to interview in the ABS National Health Survey 1989–90.

- **Dental visits:** Average number of dental consultations per annum. Dental consultations include consultations with all dental professionals (e.g. dentists, orthodontists, dental nurses and dental technicians) about teeth, dentures or gums. This is estimated by multiplying by 26 the average number of dental consultations in the two weeks prior to interview in the ABS National Health Survey 1989–90.
- **Other health professional visits:** Average number of consultations per annum with the following health professionals: chemist (for advice), optician/optometrist, physiotherapist, psychologist, social worker/welfare officer, chiropodist/podiatrist, nurse (school, baby health, other excluding dental nurse), dietitian, chiropractor, osteopath, naturopath, herbalist, acupuncturist. Includes only consultations at which some discussion and/or treatment of a health-related or medical condition took place or was arranged. Estimated by multiplying by 26 the average number of consultations with the health professionals listed above in the two weeks prior to interview in the ABS National Health Survey 1989–90.

References

Australian Bureau of Statistics. Deaths Australia. ABS Cat. No. 3302.0, Canberra.

Australian Bureau of Statistics (1989). Census 86—Summary characteristics of persons and dwellings, Australia. ABS Cat. No. 2487.0, Canberra.

Australian Bureau of Statistics (1990). Disability and handicap. Australia, 1988. ABS Cat. No. 4120.0, Canberra.

Australian Bureau of Statistics (1991a). 1989–90 National Health Survey. Users' guide. ABS Cat. No. 4363.0, Canberra.

Australian Bureau of Statistics (1991b). 1989–90 National Health Survey. Summary of results. ABS Cat. No. 4364.0, Canberra.

Australian Institute of Health and Welfare (1992). Australia's health 1992. AGPS, Canberra.

Australian Institute of Health and Welfare (1994). Australia's health 1994. AGPS, Canberra.

Blaxter M (1985). Self-definition of health states and consulting rates in primary care. Quarterly Journal of Social Affairs 1(2):131–171.

Epstein AM (1990). The outcomes movement—will it get us where we want to go? New England Journal of Medicine 323:266–270.

Idler EL, Kasle SV, Lempke J (1990). Self-evaluated health and mortality among the elderly in New Haven, Connecticut, and Iowa and Washington Counties, Iowa, 1982–1986. American Journal of Epidemiology 131:91–103.

Kaplan RM (1989). Health outcome models for policy analysis. Health Psychology 8(6):723–735.

McCormick A, Rosenbaum M (1990). Morbidity statistics from general practice 1981–82. Third national study: socio-economic analyses. RCGP, OPCS and Department Health series MB5 no. 2. HMSO, London.

Mathers, C. (1991). Health expectancies in Australia, 1981 and 1988. Australian Institute of Health, Canberra.

McCallum J, Shadbolt B, Wang D (1994). Self-rated health and survival: a 7-year follow-up study of Australian elderly. American Journal of Public Health 84(7):1100–1105.

McMichael AJ (1985) Social class (as estimated by occupational prestige) and mortality in Australian males in the 1970s. Community Health Studies 9(3):220–230.

Mossey J, Shapiro E (1982). Self-rated health: a predictor of mortality among the elderly. American Journal of Public Health 72:800–808.

Wannamethee G, Shaper AG (1991). Self-assessment of health status and mortality in middle-aged British men. International Journal of Epidemiology 20:239–245.

Waters AM (1993). Assessment of self-reported height and weight and their use in the determination of body mass index: analysis of data from the 1989 Risk Factor Prevalence Survey. Australian Institute of Health and Welfare, Canberra.

World Health Organization (1977). Manual of the international statistical classification of diseases, injuries and causes of death. 9th revision, volumes 1 and 2. WHO, Geneva.

World Health Organization (1980). International classification of impairments, disabilities, and handicaps: a manual of classification relating to the consequences of disease. WHO, Geneva.

1 Sex differentials

In Australia and other developed countries, males have higher mortality than females at all ages, and the major contributors are ischaemic heart disease, lung cancers, and accidents and other violence (Hart 1989; Australian Institute of Health and Welfare 1994; Waldron 1993). Men's higher mortality from these causes has been due to a wide variety of sex differences in behaviour (smoking, heavier drinking and other types of risk taking, occupational hazards), as well as intrinsic biological sex differences. These sex differences in mortality persist into older ages. However, numerous studies in Western countries have found that women use health services at a greater rate and also report more illness than men (Verbrugge 1990). It appears that this apparent contradiction arises because women have higher rates of acute illnesses and most non-fatal chronic conditions, but men have higher prevalence rates of the leading fatal conditions, which parallels their higher mortality. These differences also persist into older ages. Victor (1989) found that older women reported worse health status and more chronic illness than older men. Mutran & Ferraro (1988) found that older women use medical services to a greater extent than do older men.

Five groups of explanations for sex differences in health have been proposed:
(1) biological risks—intrinsic differences between men and women based on their genes, physiology, hormones; (2) acquired risks—including lifestyle and health habits, work and leisure-related injury; (3) illness behaviour—including perceptions and awareness of illness and propensity to seek treatment; (4) health reporting behaviour—how people talk about their health, including to interviewers; and (5) prior health care—how treatment provided influences the course of current diseases and the incidence of new disease (Verbrugge 1990; Kane 1991).

Box 1: Sex categories

The following categories were used:

- *male*
- *female.*

Sex was ascertained for all persons in the three population data sources:

ABS 1985–1987 mortality data

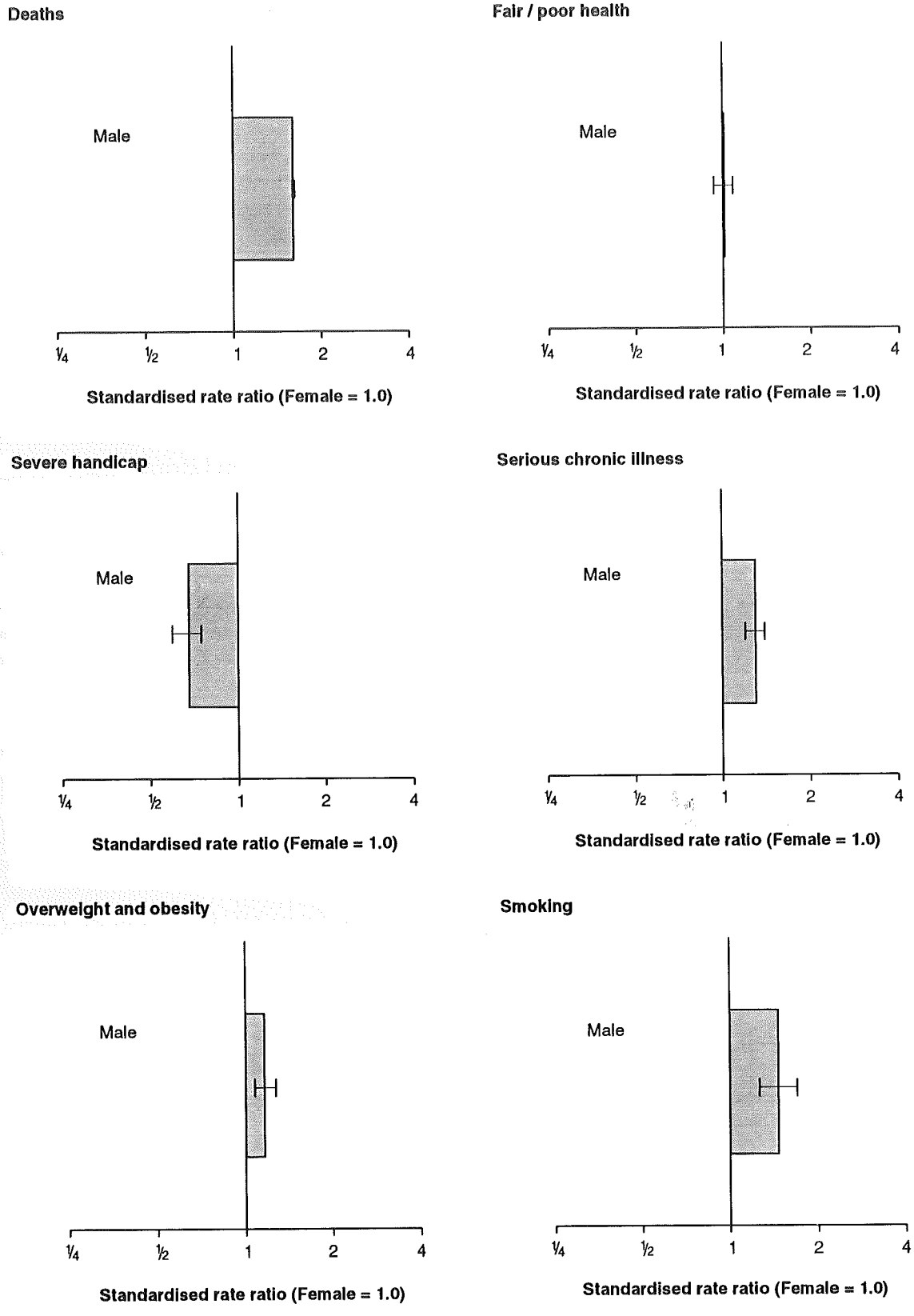
ABS 1989–90 National Health Survey

ABS 1988 Survey of Disabled and Aged Persons

The term 'sex' is used in its demographic sense in this chapter, simply to designate the two population groups of interest, men and women.

1 Sex

65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 1.1: *Health status differentials by sex, Australians aged 65 years and over, late 1980s*

Of these reasons, biology and prior health care are thought to favour women whereas illness behaviour and health reporting behaviour are thought to increase the reported level of ill-health for women. It has been argued that women are taught to be more health conscious, are given greater freedom to express symptoms of health problems and are more willing to seek help (Mutran & Ferraro 1988). Acquired risks include those that disadvantage men (including lifetime occupational hazards, smoking and alcohol consumption) and those that disadvantage women (such as role pressures, lower socioeconomic status and other structural disadvantage) (Verbrugge 1990; National Health and Medical Research Council 1991). Recent trends in mortality differentials between older men and women in European countries is thought to have been influenced by changing sex differences in smoking and a variety of additional factors, such as effects of improvements in health care interacting with inherent biological risks (Waldron 1993).

The major purpose of this chapter is to document differentials between the health of older men and women in a systematic way, insofar as they are described by the health indicators reported here, not to seek to explain the reasons for those differentials. The major focus of this report is on health differentials between population subgroups (classified by sociodemographic characteristics) of the same sex, and a further purpose is to provide overall values of the health indicators for all men and all women aged 65 years and over so that indicator values for population subgroups reported in later chapters can be compared with national averages for the same sex.

For 1985–1987, men aged 65 years and over had a death rate 61% higher than the age-standardised rate for females (Table 1.1). Older men had significantly higher death rates than women for all major causes of death including those relating to the genitourinary system (unlike working age men). Those involving large numbers of deaths included:

- lung cancer—men 387% higher
- suicide—men 286% higher
- bronchitis/emphysema/asthma—men 196% higher
- stomach cancer—men 139% higher
- motor vehicle traffic accidents—men 92% higher
- ischaemic heart disease—men 69% higher
- colorectal cancer—men 41% higher.

In 1988, the prevalence rate for disability was also higher for older men than for older women, but there was no difference in the prevalence of handicap, and older women had a 32% higher prevalence of severe handicap. While older men die earlier and at a greater rate than females, they reported fewer minor and recent illnesses, the same level of chronic illness and more serious chronic illnesses. Older men reported significantly fewer days of reduced activity and fewer visits to the doctor than older women. There were no differences in the reported levels of fair/poor health or unhappiness (Table 1.1).

In terms of chronic illness, older men were significantly more likely to report cancers, diseases of the nervous system and sense organs, and diseases of the respiratory and digestive systems. Older women were significantly more likely to report circulatory system and genito-urinary system diseases. Specific chronic and minor illnesses reported significantly more frequently by older women than men were:

- nerves/tension/emotional problems—50% more often
- headache—50% more often
- varicose veins—46% more often
- high cholesterol—44% more often

- constipation—42% more often
- insomnia—36% more often
- arthritis—26% more often
- hypertension—26% more often.

On the other hand, older men reported the following illnesses more frequently:

- deafness—104% more often
- bronchitis/emphysema—73% more often
- back problems—55% more often
- hernia—45% more often
- heart disease—30% more often.

For all risk factors except inactivity, older men had significantly higher levels than women. Older men were significantly more likely to be overweight or obese (16% higher), smokers (45% higher) and risk drinkers (46% higher).

Older men reported 36% more hospital episodes (though this did not reach statistical significance) but significantly fewer doctor visits (Table 1.1). These differences are broadly consistent with the higher mortality rates of older men and their higher prevalence of serious chronic illness and with the higher reported levels of recent and minor illnesses for older women. These service use differences are also consistent with health service use patterns reported from administrative data collections. Using data published by the Australian Institute of Health and Welfare (1992, Table A.8), age-standardised hospital admission rates for persons aged 65 years and over in New South Wales and South Australia in 1988 were 0.54 and 0.41 per person for men and women respectively, compared with the self-reported rates of 0.41 and 0.30 in Table 1.1. National data are not available, but if national rates are comparable to those for New South Wales and South Australia combined, it is likely that there is around 25% under-reporting of hospital episodes by older men and women. The levels of under-reporting appear to be very similar for the two sexes, so that the resulting errors in estimates of differentials may be much smaller. Mutran & Ferraro (1988) found that the higher hospitalisation rate of older US men persisted when medical need was considered. Given equal levels of disability and overall health status, older men were more likely to be hospitalised than older women. This may be because the nature of men's illnesses (e.g. cardiovascular problems and respiratory disease) lead to higher rates of hospitalisation in contrast to the medical problems more often experienced by older women (e.g. musculoskeletal and sensory problems).

Deeble (1991) has published data for 1989–90 on the use of medical services covered by Medicare. Excluding pathology service use, men and women aged 60 years and over had an average of 9.96 and 12.95 services respectively in 1989–90. This compares well with the 10.96 and 11.83 doctor visits (age-standardised) reported by men and women aged 65 years and more in Table 1.1. Glandon, Counte & Tancredi (1992) found that older people may over-report or under-report doctor visits, but that those with poorer health status tend to under-report to a lesser degree. Mutran & Ferraro (1988) found little difference in doctor visit rates of older US adults when health status was controlled for, although self-assessment of health had a slightly greater effect on men than on women in prompting them to see a doctor.

The differences between men and women in mortality, reported illness and health service use reflect an as yet unknown combination of biological, behavioural and environmental factors. However, it seems clear that sex differences in health are characteristic of all phases of the life cycle, and persist into older ages. Some have argued that sex differences in chronic illness levels increase in later life; women are more likely to reach old age, but more likely than men to experience chronic ill-health (Hart 1985; Victor 1989) and minor illness (Kane 1991). This is

supported to some extent by the results reported here for older Australians, in that older Australian women report more recent and minor conditions and have a 32% higher prevalence of severe handicap (age-standardised). However, they do not report more chronic illness and report significantly less serious chronic illness. Some of the complexities of sex differentials in the health of older people are considered further in chapters 2 and 3 which examine differentials by marital status and family composition.

References

Australian Institute of Health and Welfare (1992). Australia's health 1992. AGPS, Canberra.

Australian Institute of Health and Welfare (1994). Australia's health 1994. AGPS, Canberra.

Deeble J (1991). Medical services through Medicare. National Health Strategy. Background Paper No. 2, Melbourne.

Glandon GL, Counte MA, Tancredi D (1992). An analysis of physician utilisation by elderly persons: systematic differences between self-report and archival information. J Gerontol 47:S245–S252.

Hart A (1985). The sociology of health and illness. Causeway Press, London.

Hart N (1989). Sex, gender and survival: inequalities of life chances between European men and women. In: Fox J (ed.). Health inequalities in European countries. Gower Publishing, Aldershot.

Kane P (1991). Women's health: from womb to tomb. Macmillan, London.

Mutran E, Ferraro KF (1988). Medical need and use of services among older men and women. J Gerontol 43:S162–171.

National Health and Medical Research Council (1991). Women and mental health. Monograph Series No. 1, AGPS, Canberra.

Verbrugge L (1990). The twain meet: empirical explanations of sex differences in health and mortality. In: Ory MG & Warner HR (eds.) Gender, health and longevity: multidisciplinary perspectives. Springer, New York.

Victor CR (1989). Inequalities in health in later life. Age and Ageing 18: 387–391.

Waldron I (1993). Recent trends in sex mortality ratios for adults in developed countries. Soc Sci Med 36:451–462.

Table 1.1: *Health indicators—age-standardised[(a)] rates and rate ratios by sex, Australians aged 65 years and over, late 1980s*

Health indicator / sex	Number of cases[(b)]	Rate	SE (rate)	Rate ratio
Health status indicators				
Mortality				
Male	123,789	64.49	0.19	1.61 ***
Female	126,608	40.10	0.11	1.00
Fair/poor health				
Male	345,594	43.50	1.34	1.01
Female	456,236	42.88	1.11	1.00
Severe handicap				
Male	99,081	14.25	0.70	0.68 **
Female	231,667	21.03	0.61	1.00
Handicap				
Male	322,955	44.10	0.94	1.02
Female	459,257	43.29	0.76	1.00
Disability				
Male	399,217	53.94	0.93	1.09 ***
Female	521,155	49.49	0.77	1.00
Serious chronic illnesses				
Male	547,982	0.70	0.02	1.30 ***
Female	570,664	0.54	0.01	1.00
Chronic illnesses				
Male	1,799,554	2.29	0.04	1.02
Female	2,391,724	2.25	0.03	1.00
Recent illnesses				
Male	1,144,773	1.46	0.03	0.90 ***
Female	1,715,686	1.61	0.02	1.00
Minor illnesses				
Male	683,358	0.88	0.02	0.77 ***
Female	1,214,135	1.14	0.02	1.00
Dental problems				
Male	30,551	3.73	0.42	1.11
Female	35,603	3.36	0.34	1.00
Reduced activity				
Male	1,141,207	38.50	0.29	0.92 ***
Female	1,707,364	41.76	0.26	1.00
Unhappiness				
Male	51,436	6.66	0.58	0.92
Female	76,438	7.22	0.50	1.00
Risk factors				
Overweight and obesity				
Male	347,342	43.58	1.33	1.16 ***
Female	364,712	37.43	1.09	1.00
Inactivity				
Male	292,516	37.66	1.28	0.82 ***
Female	486,960	45.85	1.14	1.00
Smoking				
Male	129,928	15.86	0.83	1.45 ***
Female	115,398	10.90	0.60	1.00
Alcohol risk				
Male	55,260	6.47	0.53	1.46 **
Female	46,834	4.44	0.40	1.00

(continued)

Table 1.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by sex, Australians aged 65 years and over, late 1980s*

Health indicator/ sex	Number of cases[b]	Rate	SE (rate)	Rate ratio
Health service use				
Hospital episodes				
Male	319,168	0.41	0.05	1.36
Female	320,865	0.30	0.04	1.00
Doctor visits				
Male	330,082	10.96	0.21	0.93 **
Female	484,845	11.83	0.17	1.00
Outpatient visits				
Male	48,705	1.64	0.11	1.13
Female	58,312	1.44	0.10	1.00
Dental visits				
Male	38,001	1.20	0.04	1.05
Female	46,119	1.13	0.06	1.00
Other health professional visits				
Male	168,306	5.82	0.32	0.89
Female	268,737	6.56	0.45	1.00
Major cause of death groups				
Cancers				
Male	30,748	15.28	0.09	1.96 ***
Female	23,443	7.78	0.05	1.00
Endocrine, metabolic, nutritional				
Male	2,459	1.29	0.03	1.23 ***
Female	3,244	1.04	0.02	1.00
Mental disorders				
Male	1,465	0.85	0.02	1.26 ***
Female	2,241	0.67	0.01	1.00
Nervous system, sense organs				
Male	1,805	0.95	0.02	1.47 ***
Female	2,018	0.65	0.01	1.00
Circulatory system				
Male	64,072	33.74	0.14	1.43 ***
Female	75,464	23.59	0.09	1.00
Respiratory system				
Male	13,050	6.94	0.06	2.86 ***
Female	7,666	2.43	0.03	1.00
Digestive system				
Male	3,624	1.90	0.03	1.31 ***
Female	4,634	1.45	0.02	1.00
Genito-urinary system				
Male	2,020	1.15	0.03	1.44 ***
Female	2,555	0.80	0.02	1.00
Injury and poisoning				
Male	2,689	1.39	0.03	1.64 ***
Female	2,679	0.85	0.02	1.00
Other				
Male	1,857	1.00	0.02	1.20 ***
Female	2,664	0.84	0.02	1.00
All causes				
Male	123,789	64.49	0.19	1.61 ***
Female	126,608	40.10	0.11	1.00

(continued)

Table 1.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by sex, Australians aged 65 years and over, late 1980s*

Health indicator/ sex	Number of cases[b]	Rate	SE (rate)	Rate ratio
Selected causes of death				
Stomach cancer				
Male	1,788	0.90	0.02	2.39 ***
Female	1,167	0.38	0.01	1.00
Colorectal cancer				
Male	3,948	1.97	0.03	1.41 ***
Female	4,270	1.40	0.02	1.00
Pancreatic cancer				
Male	1,295	0.64	0.02	1.37 ***
Female	1,403	0.47	0.01	1.00
Lung cancer				
Male	8,450	4.05	0.04	4.87 ***
Female	2,430	0.83	0.02	1.00
Brain cancer				
Male	513	0.24	0.01	1.65 ***
Female	410	0.14	0.01	1.00
Diabetes mellitus				
Male	2,066	1.07	0.02	1.25 ***
Female	2,662	0.86	0.02	1.00
Ischaemic heart disease				
Male	39,488	20.29	0.10	1.69 ***
Female	37,702	11.98	0.06	1.00
Cerebrovascular disease				
Male	12,759	6.94	0.06	1.06 ***
Female	21,097	6.52	0.05	1.00
Pneumonia/influenza				
Male	1,917	1.12	0.03	1.44 ***
Female	2,604	0.78	0.02	1.00
Bronchitis/emphysema/asthma				
Male	3,277	1.69	0.03	2.96 ***
Female	1,743	0.57	0.01	1.00
MV traffic accident				
Male	688	0.34	0.01	1.92 ***
Female	523	0.18	0.01	1.00
Suicide				
Male	653	0.32	0.01	3.86 ***
Female	236	0.08	0.01	1.00
Major chronic illness groups				
Neoplasms				
Male	59,857	7.57	0.61	1.64 ***
Female	49,216	4.61	0.40	1.00
Endocrine, metabolic, nutritional				
Male	111,232	13.84	0.79	0.93
Female	158,003	14.95	0.70	1.00
Mental disorders				
Male	10,799	1.36	0.26	0.78
Female	18,736	1.75	0.25	1.00
Nervous system, sense organs				
Male	261,417	34.21	1.24	1.28 ***
Female	284,496	26.69	0.90	1.00
Circulatory system				
Male	299,878	37.89	1.27	0.81 ***
Female	497,066	46.70	1.15	1.00

(continued)

Table 1.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by sex, Australians aged 65 years and over, late 1980s*

Health indicator/ sex	Number of cases[b]	Rate	SE (rate)	Rate ratio
Respiratory system				
Male	158,773	20.07	0.95	1.25 ***
Female	170,063	16.05	0.72	1.00
Digestive system				
Male	115,418	14.62	0.83	1.24 **
Female	124,645	11.75	0.63	1.00
Genito-urinary system				
Male	30,672	3.96	0.45	0.75 *
Female	56,516	5.30	0.43	1.00
Skin and subcutaneous tissue				
Male	50,483	6.44	0.56	1.49 **
Female	45,987	4.33	0.39	1.00
Musculoskeletal system				
Male	391,772	49.70	1.43	0.87 ***
Female	605,372	57.02	1.25	1.00
Injury and poisoning				
Male	14,463	1.92	0.32	1.36
Female	15,143	1.42	0.23	1.00
Other				
Male	29,681	3.83	0.44	1.25
Female	32,368	3.06	0.33	1.00
All causes				
Male	679,977	86.39	1.81	0.99
Female	923,679	87.02	1.49	1.00
Selected chronic conditions				
Arthritis				
Male	256,285	32.63	1.19	0.74 ***
Female	466,580	43.89	1.12	1.00
Hypertension				
Male	186,824	23.15	1.00	0.74 ***
Female	334,334	31.41	0.97	1.00
Deafness (complete/partial)				
Male	151,835	19.91	0.97	2.04 ***
Female	104,189	9.77	0.57	1.00
Back problems				
Male	109,234	13.30	0.77	1.55 ***
Female	90,987	8.61	0.54	1.00
Heart disease				
Male	86,709	11.19	0.74	1.30 **
Female	92,452	8.64	0.54	1.00
Hay fever				
Male	54,539	6.75	0.56	1.00
Female	71,024	6.73	0.48	1.00
Bronchitis/emphysema				
Male	69,267	8.74	0.65	1.73 ***
Female	53,825	5.06	0.42	1.00
Varicose veins				
Male	28,361	3.61	0.43	0.54 ***
Female	70,545	6.67	0.48	1.00
Asthma				
Male	41,884	5.24	0.50	1.00
Female	55,449	5.23	0.43	1.00
Hernia				
Male	48,328	6.11	0.55	1.45 **
Female	44,856	4.21	0.39	1.00

(continued)

Table 1.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by sex, Australians aged 65 years and over, late 1980s*

Health indicator/ sex	Number of cases[b]	Rate	SE (rate)	Rate ratio
Diabetes mellitus				
Male	40,067	5.11	0.50	1.17
Female	46,323	4.37	0.39	1.00
High cholesterol				
Male	23,625	2.81	0.36	0.56 ***
Female	52,230	5.00	0.42	1.00
Selected minor conditions				
Insomnia				
Male	81,567	10.85	0.74	0.64 ***
Female	179,702	16.85	0.74	1.00
Headache (excluding migraine)				
Male	52,443	6.52	0.56	0.50 ***
Female	137,198	12.96	0.65	1.00
Constipation				
Male	38,967	5.25	0.53	0.58 ***
Female	96,857	9.09	0.56	1.00
Nerves/tension/emotional problems, etc.				
Male	35,430	4.44	0.46	0.50 ***
Female	94,644	8.91	0.55	1.00
Ill-defined heart symptoms				
Male	46,653	6.40	0.59	1.02
Female	67,050	6.28	0.47	1.00
Skin rash, eczema, dermatitis				
Male	47,665	5.93	0.53	0.97
Female	64,564	6.10	0.46	1.00
Common cold				
Male	49,828	6.20	0.54	1.11
Female	58,959	5.57	0.44	1.00
Minor injuries				
Male	36,741	4.67	0.48	0.94
Female	52,579	4.94	0.42	1.00

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
(b) Number of deaths, illness conditions, service encounters, at-risk persons, etc.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

2 Marital status differentials

Studies in a large number of countries have confirmed that unmarried people have higher death rates than married people at all ages, including among older people (Korenman, Goldman & Hu 1990). Similar differentials for self-reported health status and illness rates have also been well documented (Verbrugge 1979, 1983; Arber 1991; Wyke & Ford 1992). Mathers (1994) found that there are very large differentials in mortality, disability, handicap, illness and self-reported health status among working-age Australians according to marital status. Health differentials by marital status at younger ages have consistently been found to be greater for men than women, a finding which has often been interpreted to mean that the advantages of marriage are greater for men than women (e.g. Gove 1973; Umberson 1992). Less attention has been paid to health differentials by marital status at older ages.

A number of studies have found increased mortality is greater among divorced and widowed older men than women (Kaprio, Koskenvuo & Rita 1987; Korenman, Goldman & Hu 1990; Kane 1991). Korenman, Goldman & Hu, in an analysis of US mortality rates for people aged 60 years and over, found that relative mortality ratios are similar for unmarried men and women (at around 1.5 to 1.6). The one exception was divorced older men, who experienced greater mortality risks than other unmarried men and women. They also analysed disability and health status data from the US Longitudinal Study of Aging and found less evidence of differentials by marital status among older people.

For older Australian men and women, there were large differences in age-standardised mortality between married and unmarried people. Never married, widowed and divorced women had an age-standardised death rate more than 40% higher than that of married women. Divorced and widowed men also experienced a mortality rate just over 40% higher than that of married men, whereas for never married men the differential was slightly lower at 33% excess mortality (Table 2.1). These differentials are consistent with, but around half the magnitude of, those found for working-age adults (Mathers 1994).

Box 2: Marital status categories

Marital status categories for the deaths data relate to legal status and do not take account of de facto relationships. The following categories have been used for the examination of health differentials by marital status in this chapter:

ABS 1985–87 mortality data

Never married:	*Includes never married persons in a de facto relationship*
Married:	*Includes married persons who are separated*
Divorced or widowed:	*Includes divorced or widowed persons in a de facto relationship*

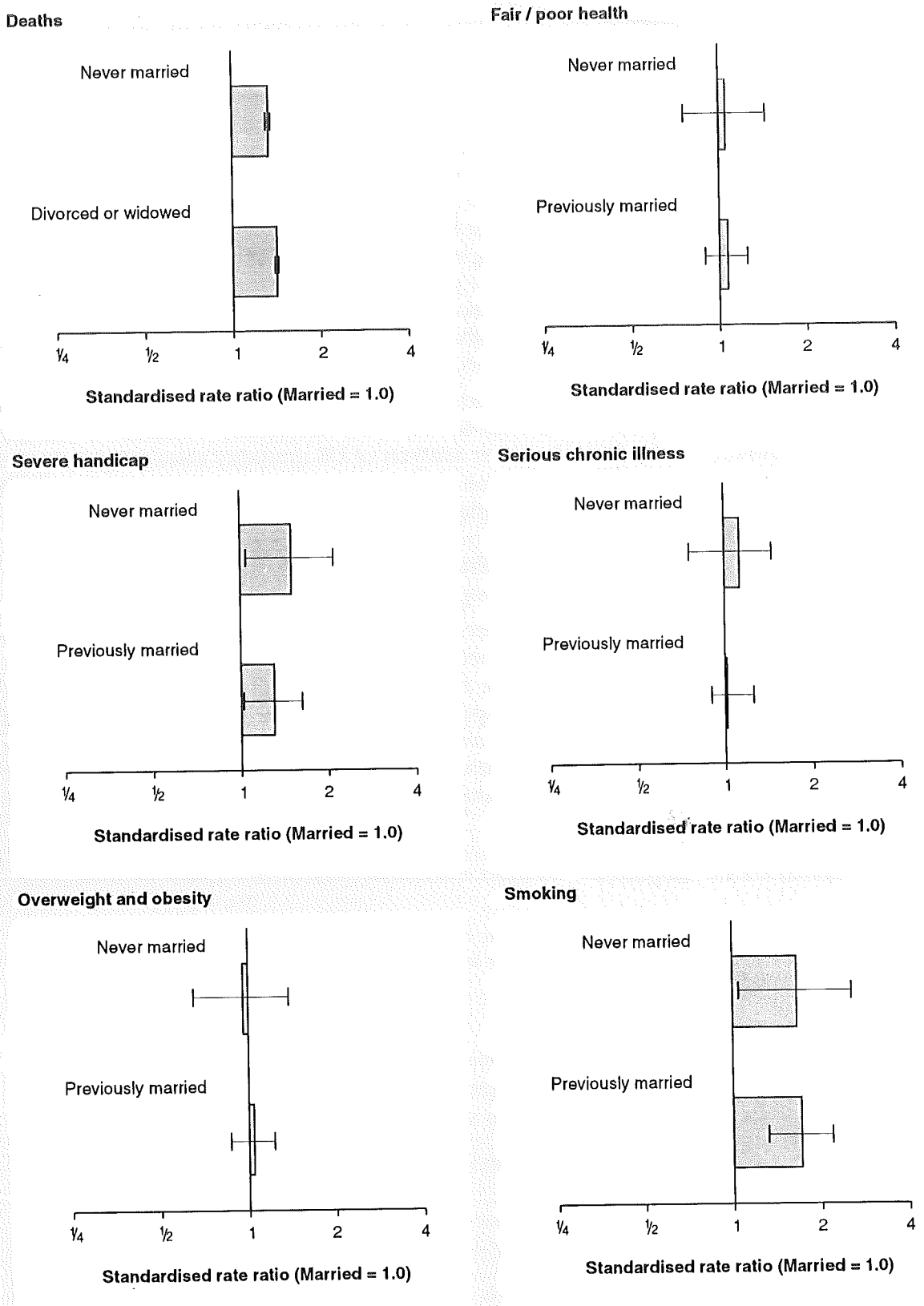
ABS 1988 Survey of Disabled and Aged Persons and 1989–90 National Health Survey

Never married	
Married:	*Includes persons in a de facto relationship*
Previously married:	*Separated, divorced or widowed*

Marital status was ascertained for all respondents in each survey. However, for deaths occurring in 1985 to 1987 (inclusive), there was a total of 0.7% or 1,859 persons (1,432 males and 427 females) where marital status was 'not stated'. The 'not stated' deaths were excluded from the analysis.

2 Marital status

Males 65 years and over

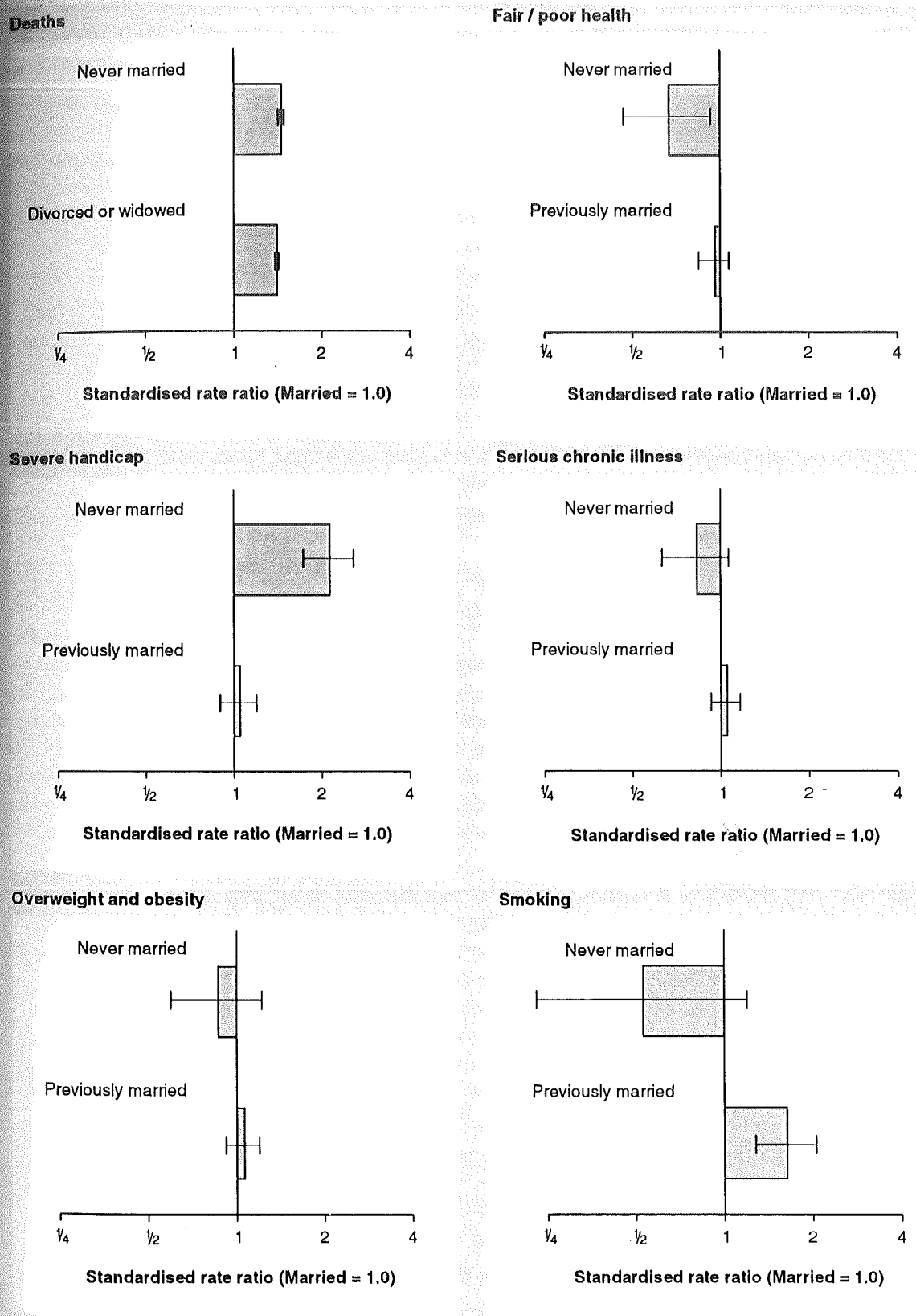


Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 2.1: *Health status differentials by marital status, Australian males aged 65 years and over, late 1980s*

2 Marital status

Females 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 2.2: ***Health status differentials by marital status, Australian females aged 65 years and over, late 1980s***

2 Marital status — 65 years and over

Unmarried older people had significantly higher death rates for most major causes of death, the only exceptions being endocrine, metabolic and nutritional diseases for never married women and diseases of the nervous system and sense organs for divorced and widowed men and women. Some selected causes of death for which unmarried older people had substantially higher death rates than their married counterparts include:

- pneumonia/influenza—140–160% higher for never married men and women, 80–100% higher for previously married men and women
- suicide—over 140% higher for unmarried men, 125% higher for previously married women, not significantly higher for never married women
- motor vehicle accidents—over 100% higher for unmarried men
- bronchitis/emphysema/asthma—over 50% higher for never married men and women and previously married men, 34% higher for previously married women
- lung cancer—over 40% higher for previously married men and women
- diabetes—43% and 37% higher for previously married women and men respectively
- cerebrovascular disease—42% higher for previously married women and men, 54% and 32% higher for never married women and men respectively
- ischaemic heart disease—42% and 35% higher for previously married women and men respectively.

The prevalence of disability and handicap for unmarried older men was around 25% higher than that for married men. Previously married older women have significantly higher prevalence of disability and of handicap (14% higher). The prevalence of severe handicap (requiring assistance for activities of daily living) was 50% higher for never married men and 30% higher for previously married men. For older women, however, the pattern was very different as never married women had a prevalence of severe handicap over double that of their married or previously married counterparts. Despite this, their reported level of fair/poor health was over 30% lower than that of all other groups and their reported level of unhappiness was 23% lower than that of older married women. Previously married older men and women, and never married older men also reported unhappiness at 2 to 3 times the rate of their married counterparts (Table 2.1).

Despite the large differences in mortality, disability and handicap rates, there were no significant differences in reported chronic, recent or minor illness levels according to marital status. Chronic and minor illnesses which were reported significantly more or significantly less frequently among older non-married than married people include:

For those never married:

- diseases of skin and subcutaneous tissue—157% more often for women
- ill-defined heart symptoms—119 % more often for women
- deafness—55% less often for men
- digestive system diseases—65% less often for women
- mental disorders—not reported at all for women

For those previously married:

- diseases of skin and subcutaneous tissue—89% more often for women
- cancers—53% more often for women

Previously married men and women and never married men were also significantly more likely to be smokers (over 60% higher prevalence) whereas never married women were less likely to be smokers. Unmarried men, but not women, were also twice as likely to be risk drinkers.

Despite their poorer reported health status and higher mortality rates, never married men and women were not significantly greater users of hospital or medical services (except for previously married women, who visited the doctor 10% more often). Unmarried men reported significantly fewer doctor and dental visits than their married counterparts. Never married women report 66% more dental visits.

Researchers have proposed two distinct processes that may contribute to health differentials by marital status (Hu & Goldman 1990; Wyke & Ford 1992):

Selection: Marriage and remarriage select healthier persons and leave a higher proportion of persons with health problems among the never married and previously married. In addition, married people who have or develop health problems may be less likely to maintain their marriage.

Protection: Environmental, social and psychological factors make marriage a healthier state than the alternatives. A number of studies have also documented increased mortality after loss of a spouse, with the highest relative mortality risk immediately after bereavement (Kaprio, Koskenvuo & Rita 1987). The higher mortality of widowed persons has been variously attributed to the effect of loss of a spouse and grief, the fact that married persons share a common environment and lifestyle with risks common to both spouses or to partner selection on the basis of health and predisposition to illness.

A number of distinct 'protection' mechanisms for marriage have been proposed:

- Widowed, separated and divorced people are financially worse off than their married counterparts and this lack of material resources results in worse health (Wyke & Ford 1992). Korenman, Goldman & Hu (1990), in an analysis of survival data from the US Longitudinal Study of Aging, found that socioeconomic differences (poverty status) explained little of the observed mortality differentials by marital status in older people.
- Marriage results in a healthier lifestyle, with lower levels of smoking and alcohol consumption, improved nutrition and sleep patterns and reduced exposure to violence and accidents. There is some evidence that the healthier lifestyle results from spouse efforts to monitor and control their partners' health behaviours and that this is of greater benefit to men than women (Umberson 1992). Brown & McCreedy (1986) found that married men, but not married women, practised more health behaviours than their unmarried counterparts. Kaprio, Koskenvuo & Rita (1987) concluded that changes in health behaviour patterns (nutrition, alcohol use, smoking, physical activity) after loss of a spouse may be contributing factors in the excess long-term mortality in widowers under age 65.
- Marriage provided social support and integration, which are associated with better health status. It is possible that the support offered by marriage makes people less vulnerable to the effects of stress, or that marriage protects against stress by providing a well-defined and socially acceptable role (Wyke & Ford 1992). Conversely, the loss and grief resulting from separation or loss of spouse may result in adverse health effects.

It is clear from the results presented here that health differentials according to marital status do continue into older ages and remain important. Although these differentials tend to decline relatively with increasing age, due to the increasing burden of ill-health and mortality with increasing age they become more important in absolute terms. Contrary to results for some other countries and for working-age Australians, health differentials by marital status for older men are not generally greater than those for older women.

References

Arber S (1991). Class, paid employment and family roles: making sense of structural disadvantage, gender and health status. Soc Sci Med 32:425–436.

Brown JS, McCreedy M (1986). The hale elderly: health behaviour and its correlates. Research in Nursing and Health 9:317–329.

Gove W (1973). Sex, marital status and mortality. Am J Sociol. 79:45–67.

Hu Y, Goldman N (1990). Mortality differentials by marital status: an international comparison. Demography 27:233–250.

Kane P (1991). Women's health: from womb to tomb. Macmillan, London.

Kaprio J, Koskenvuo M, Rita H (1987). Mortality after bereavement: a prospective study of 95,647 widowed persons. AJPH 77(3):283–287.

Korenman S, Goldman N, Hu Y (1990). Health and mortality differentials by marital status at older ages: economics and gender. Paper presented at the annual meeting of the Population Association of America, Toronto, May 1990.

Mathers CD (1994) Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

Umberson D (1992). Gender, marital status and social control of health behaviour. Soci Sci Med 34:907–917.

Verbrugge LM (1979). Marital status and health. Journal of Marriage and the Family 41:167–285.

Verbrugge LM (1983). Multiple roles and physical health of women and men. Journal of Health and Social Behaviour 24:16–30.

Wyke S, Ford G (1992). Competing explanations for associations between marital status and health. Soc Sci Med 34:523–532.

2 Marital status

65 years and over

Table 2.1: *Health indicators—age-standardised[(a)] rates and rate ratios by marital status and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ marital status	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Health status indicators						
Mortality						
Never married	75.73	0.75	1.33 ***	44.71	0.44	1.46 ***
Married	56.90	0.22	1.00	30.68	0.21	1.00
Divorced or widowed	80.63	0.44	1.42 ***	43.16	0.16	1.41 ***
Fair/poor health						
Never married	45.28	7.26	1.06	29.66	4.97	0.67 *
Married	42.75	1.58	1.00	44.41	2.06	1.00
Previously married	45.84	3.52	1.07	42.75	1.66	0.96
Severe handicap						
Never married	19.13	3.13	1.50 *	43.60	3.54	2.13 ***
Married	12.76	0.84	1.00	20.47	1.25	1.00
Previously married	16.62	1.61	1.30 *	21.48	0.88	1.05
Handicap						
Never married	51.22	4.03	1.24 *	43.60	3.54	1.09
Married	41.45	1.13	1.00	40.07	1.43	1.00
Previously married	51.76	2.32	1.25 ***	45.81	1.17	1.14 **
Disability						
Never married	61.63	3.97	1.21 **	50.52	3.72	1.10
Married	50.98	1.14	1.00	45.78	1.44	1.00
Previously married	63.20	2.27	1.24 ***	52.27	1.19	1.14 ***
Serious chronic illnesses						
Never married	0.77	0.08	1.13	0.45	0.06	0.83
Married	0.68	0.02	1.00	0.54	0.02	1.00
Previously married	0.70	0.04	1.02	0.57	0.02	1.05
Chronic illnesses						
Never married	2.18	0.15	0.95	2.19	0.13	0.98
Married	2.28	0.04	1.00	2.22	0.05	1.00
Previously married	2.32	0.08	1.01	2.29	0.04	1.03
Recent illnesses						
Never married	1.28	0.13	0.87	1.40	0.11	0.88
Married	1.46	0.03	1.00	1.58	0.04	1.00
Previously married	1.50	0.06	1.03	1.65	0.04	1.04
Minor illnesses						
Never married	0.91	0.11	1.02	1.00	0.09	0.90
Married	0.89	0.02	1.00	1.11	0.03	1.00
Previously married	0.87	0.05	0.98	1.17	0.03	1.05
Dental problems						
Never married	1.97	1.45	0.48	7.33	2.60	2.10
Married	4.09	0.50	1.00	3.49	0.54	1.00
Previously married	2.43	0.83	0.60	2.81	0.47	0.81
Reduced activity						
Never married	30.44	1.34	0.77 ***	30.45	1.38	0.72 ***
Married	39.40	0.35	1.00	42.46	0.49	1.00
Previously married	41.53	0.86	1.05 *	43.96	0.42	1.04 *
Unhappiness						
Never married	11.71	3.19	2.61 **	3.51	1.65	0.77
Married	4.49	0.56	1.00	4.57	0.65	1.00
Previously married	13.73	1.95	3.06 ***	9.63	0.85	2.11 ***
Risk factors						
Overweight and obesity						
Never married	41.65	7.77	0.96	31.41	5.50	0.87
Married	43.31	1.55	1.00	36.29	1.81	1.00
Previously married	45.29	3.63	1.05	38.50	1.72	1.06

(continued)

Table 2.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by marital status and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ marital status	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Inactivity						
Never married	35.33	6.01	0.95	32.48	5.32	0.67 *
Married	37.19	1.53	1.00	48.18	2.20	1.00
Previously married	39.97	3.28	1.07	44.36	1.65	0.92
Smoking						
Never married	22.87	4.91	1.65 *	4.59	1.89	0.53
Married	13.84	0.90	1.00	8.66	0.82	1.00
Previously married	23.67	2.66	1.71 ***	14.16	1.07	1.64 ***
Alcohol risk						
Never married	10.74	2.95	2.00 *	3.73	1.76	0.81
Married	5.38	0.55	1.00	4.61	0.60	1.00
Previously married	10.59	1.81	1.97 ***	4.18	0.59	0.91
Health service use						
Hospital episodes						
Never married	0.46	0.25	1.14	0.22	0.18	0.76
Married	0.40	0.06	1.00	0.29	0.07	1.00
Previously married	0.44	0.12	1.09	0.33	0.06	1.13
Doctor visits						
Never married	6.45	0.87	0.56 ***	9.32	0.86	0.82 *
Married	11.54	0.25	1.00	11.37	0.31	1.00
Previously married	10.03	0.53	0.87 *	12.48	0.27	1.10 **
Outpatient visits						
Never married	0.34	0.18	0.21 **	1.16	0.40	0.74
Married	1.64	0.13	1.00	1.57	0.17	1.00
Previously married	1.92	0.28	1.17	1.18	0.13	0.75
Dental visits						
Never married	0.29	0.10	0.21 ***	1.93	0.39	1.66 *
Married	1.41	0.05	1.00	1.16	0.09	1.00
Previously married	0.52	0.07	0.37 ***	0.95	0.09	0.82
Other health professional visits						
Never married	8.52	2.66	1.67	8.29	2.77	1.68
Married	5.12	0.35	1.00	4.93	0.62	1.00
Previously married	6.97	0.78	1.36 *	7.21	0.73	1.46 *
Major cause of death groups						
Cancers						
Never married	15.45	0.33	1.08 ***	8.54	0.21	1.28 ***
Married	14.31	0.11	1.00	6.69	0.09	1.00
Divorced or widowed	18.14	0.22	1.27 ***	8.24	0.07	1.23 ***
Endocrine, metabolic, nutritional						
Never married	1.49	0.10	1.32 ***	0.88	0.06	1.04
Married	1.14	0.03	1.00	0.84	0.03	1.00
Divorced or widowed	1.60	0.06	1.41 ***	1.17	0.03	1.39 ***
Mental disorders						
Never married	1.59	0.11	2.47 ***	0.88	0.06	1.79 ***
Married	0.64	0.03	1.00	0.49	0.03	1.00
Divorced or widowed	1.13	0.05	1.76 ***	0.70	0.02	1.43 ***
Nervous system, sense organs						
Never married	1.12	0.09	1.21 *	0.90	0.07	1.49 ***
Married	0.93	0.03	1.00	0.60	0.03	1.00
Divorced or widowed	0.98	0.05	1.05	0.65	0.02	1.08
Circulatory system						
Never married	38.45	0.54	1.29 ***	25.81	0.33	1.47 ***
Married	29.90	0.16	1.00	17.50	0.16	1.00
Divorced or widowed	41.63	0.32	1.39 ***	25.42	0.12	1.45 ***

(continued)

Table 2.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by marital status and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ marital status	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Respiratory system						
Never married	9.65	0.27	1.72 ***	2.96	0.11	1.72 ***
Married	5.60	0.07	1.00	1.72	0.05	1.00
Divorced or widowed	9.65	0.15	1.72 ***	2.70	0.04	1.56 ***
Digestive system						
Never married	2.65	0.14	1.68 ***	1.73	0.09	1.75 ***
Married	1.58	0.04	1.00	0.99	0.04	1.00
Divorced or widowed	2.65	0.08	1.68 ***	1.59	0.03	1.60 ***
Genito-urinary system						
Never married	1.56	0.11	1.73 ***	0.96	0.07	1.66 ***
Married	0.90	0.03	1.00	0.58	0.03	1.00
Divorced or widowed	1.51	0.06	1.67 ***	0.89	0.02	1.53 ***
Injury and poisoning						
Never married	2.27	0.13	2.14 ***	1.00	0.07	1.56 ***
Married	1.06	0.03	1.00	0.64	0.03	1.00
Divorced or widowed	2.06	0.07	1.95 ***	0.94	0.02	1.46 ***
Other						
Never married	1.49	0.11	1.78 ***	1.06	0.07	1.69 ***
Married	0.84	0.03	1.00	0.62	0.03	1.00
Divorced or widowed	1.28	0.05	1.53 ***	0.88	0.02	1.41 ***
All causes						
Never married	75.73	0.75	1.33 ***	44.71	0.44	1.46 ***
Married	56.90	0.22	1.00	30.68	0.21	1.00
Divorced or widowed	80.63	0.44	1.42 ***	43.16	0.16	1.41 ***
Selected causes of death						
Stomach cancer						
Never married	0.86	0.08	0.98	0.35	0.04	1.04
Married	0.88	0.03	1.00	0.33	0.02	1.00
Divorced or widowed	1.01	0.05	1.15 *	0.40	0.02	1.20 *
Colorectal cancer						
Never married	2.01	0.12	1.08	1.69	0.09	1.42 ***
Married	1.85	0.04	1.00	1.19	0.04	1.00
Divorced or widowed	2.17	0.07	1.17 ***	1.44	0.03	1.21 ***
Pancreatic cancer						
Never married	0.59	0.07	0.98	0.38	0.04	0.90
Married	0.60	0.02	1.00	0.42	0.02	1.00
Divorced or widowed	0.72	0.04	1.19 *	0.50	0.02	1.19 **
Lung cancer						
Never married	3.90	0.17	1.05	0.75	0.06	1.11
Married	3.70	0.05	1.00	0.68	0.03	1.00
Divorced or widowed	5.30	0.12	1.43 ***	0.97	0.03	1.44 ***
Breast/prostate cancer						
Never married	2.15	0.13	0.95	1.36	0.08	1.38 ***
Married	2.27	0.05	1.00	0.99	0.03	1.00
Divorced or widowed	2.65	0.08	1.16 ***	1.18	0.03	1.19 ***
Brain cancer						
Never married	0.13	0.03	0.56 **	0.15	0.03	1.09
Married	0.24	0.01	1.00	0.14	0.01	1.00
Divorced or widowed	0.24	0.03	0.98	0.14	0.01	1.01
Diabetes mellitus						
Never married	1.12	0.09	1.15	0.71	0.06	1.04
Married	0.97	0.03	1.00	0.68	0.03	1.00
Divorced or widowed	1.33	0.06	1.37 ***	0.97	0.02	1.43 ***

(continued)

Table 2.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by marital status and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ marital status	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Ischaemic heart disease						
Never married	22.26	0.40	1.22 ***	12.42	0.23	1.35 ***
Married	18.28	0.13	1.00	9.19	0.11	1.00
Divorced or widowed	24.76	0.25	1.35 ***	13.03	0.09	1.42 ***
Cerebrovascular disease						
Never married	8.08	0.25	1.32 ***	7.54	0.17	1.54 ***
Married	6.10	0.08	1.00	4.91	0.09	1.00
Divorced or widowed	8.69	0.14	1.42 ***	6.96	0.06	1.42 ***
Pneumonia/influenza						
Never married	2.05	0.13	2.63 ***	1.13	0.07	2.40 ***
Married	0.78	0.03	1.00	0.47	0.03	1.00
Divorced or widowed	1.57	0.06	2.01 ***	0.83	0.02	1.76 ***
Bronchitis/emphysema/asthma						
Never married	2.16	0.13	1.53 ***	0.70	0.06	1.52 ***
Married	1.41	0.03	1.00	0.46	0.02	1.00
Divorced or widowed	2.35	0.08	1.66 ***	0.62	0.02	1.34 ***
MV traffic accident						
Never married	0.56	0.06	2.10 ***	0.20	0.03	1.35
Married	0.27	0.01	1.00	0.15	0.01	1.00
Divorced or widowed	0.53	0.04	2.00 ***	0.20	0.01	1.31 **
Suicide						
Never married	0.54	0.06	2.45 ***	0.06	0.02	1.22
Married	0.22	0.01	1.00	0.05	0.01	1.00
Divorced or widowed	0.54	0.04	2.48 ***	0.12	0.01	2.25 ***
Major chronic illness groups						
Neoplasms						
Never married	7.86	2.62	1.13	6.67	2.28	1.27
Married	6.94	0.68	1.00	5.26	0.80	1.00
Previously married	10.61	1.78	1.53 *	4.62	0.60	0.88
Endocrine, metabolic, nutritional						
Never married	10.47	3.39	0.75	16.28	3.82	1.07
Married	14.05	0.93	1.00	15.19	1.19	1.00
Previously married	13.32	1.96	0.95	15.18	1.08	1.00
Mental disorders						
Never married	2.61	1.40	2.18	0.00	0.00	0.00 *
Married	1.20	0.29	1.00	2.39	0.53	1.00
Previously married	1.98	0.76	1.66	1.68	0.36	0.70
Nervous system, sense organs						
Never married	23.55	5.39	0.68	31.16	5.18	1.21
Married	34.68	1.49	1.00	25.76	1.65	1.00
Previously married	34.59	3.03	1.00	26.18	1.29	1.02
Circulatory system						
Never married	38.04	6.47	1.00	46.58	6.41	0.99
Married	37.94	1.51	1.00	46.99	2.12	1.00
Previously married	38.84	3.26	1.02	46.94	1.74	1.00
Respiratory system						
Never married	22.51	5.52	1.14	16.17	3.77	1.10
Married	19.67	1.10	1.00	14.73	1.18	1.00
Previously married	20.12	2.37	1.02	17.40	1.13	1.18
Digestive system						
Never married	13.69	3.39	0.93	4.24	1.75	0.35 *
Married	14.79	0.98	1.00	12.08	1.12	1.00
Previously married	13.39	1.93	0.91	12.53	0.97	1.04

(continued)

Table 2.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by marital status and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ marital status	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Genito-urinary system						
Never married	1.29	0.94	0.32	2.45	1.44	0.49
Married	3.97	0.53	1.00	4.97	0.69	1.00
Previously married	4.58	1.11	1.15	5.77	0.66	1.16
Skin and subcutaneous tissue						
Never married	7.63	3.30	1.20	7.20	2.44	2.57 *
Married	6.36	0.64	1.00	2.81	0.50	1.00
Previously married	5.76	1.23	0.91	5.29	0.64	1.89 **
Musculoskeletal system						
Never married	49.55	8.46	0.99	50.90	6.70	0.89
Married	50.05	1.70	1.00	57.26	2.32	1.00
Previously married	47.79	3.57	0.95	57.73	1.90	1.01
Injury and poisoning						
Never married	4.27	1.94	2.50	0.28	0.38	0.19
Married	1.71	0.35	1.00	1.43	0.44	1.00
Previously married	1.86	0.64	1.09	1.64	0.33	1.15
Other						
Never married	1.38	0.98	0.37	2.20	1.24	0.84
Married	3.73	0.51	1.00	2.61	0.53	1.00
Previously married	4.86	1.15	1.30	3.03	0.44	1.16
All causes						
Never married	81.77	9.94	0.95	88.49	8.81	1.03
Married	86.46	2.16	1.00	86.18	2.74	1.00
Previously married	85.71	4.70	0.99	87.96	2.29	1.02
Selected chronic conditions						
Arthritis						
Never married	37.51	7.41	1.16	31.68	5.22	0.74
Married	32.25	1.40	1.00	43.07	2.05	1.00
Previously married	32.91	2.99	1.02	45.55	1.71	1.06
Hypertension						
Never married	25.81	5.56	1.10	42.31	6.13	1.31
Married	23.40	1.19	1.00	32.30	1.76	1.00
Previously married	23.37	2.60	1.00	30.07	1.43	0.93
Deafness (complete/partial)						
Never married	9.18	3.20	0.45 *	10.73	2.93	1.20
Married	20.31	1.17	1.00	8.92	1.05	1.00
Previously married	19.99	2.34	0.98	10.18	0.82	1.14
Back problems						
Never married	10.37	3.71	0.74	10.75	3.05	1.15
Married	13.98	0.91	1.00	9.35	0.96	1.00
Previously married	11.79	1.89	0.84	8.47	0.83	0.91
Heart disease						
Never married	10.80	3.10	0.94	5.16	2.04	0.62
Married	11.51	0.89	1.00	8.27	0.94	1.00
Previously married	9.55	1.59	0.83	8.71	0.76	1.05
Hay fever						
Never married	8.31	3.50	1.20	6.66	2.42	1.03
Married	6.93	0.65	1.00	6.49	0.79	1.00
Previously married	5.36	1.22	0.77	6.87	0.72	1.06
Bronchitis/emphysema						
Never married	12.10	3.84	1.50	6.78	2.32	1.50
Married	8.09	0.71	1.00	4.53	0.73	1.00
Previously married	9.51	1.60	1.18	5.96	0.68	1.32

(continued)

Table 2.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by marital status and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ marital status	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Varicose veins						
Never married	1.98	1.23	0.55	5.54	2.06	0.90
Married	3.57	0.50	1.00	6.19	0.79	1.00
Previously married	4.11	1.04	1.15	7.47	0.77	1.21
Asthma						
Never married	5.08	2.08	0.98	3.67	1.64	0.80
Married	5.18	0.59	1.00	4.61	0.61	1.00
Previously married	5.56	1.26	1.07	6.02	0.70	1.31
Hernia						
Never married	6.98	2.40	1.19	3.64	1.62	0.84
Married	5.88	0.62	1.00	4.31	0.71	1.00
Previously married	6.68	1.39	1.14	4.53	0.59	1.05
Diabetes mellitus						
Never married	2.61	1.38	0.49	3.94	1.75	0.87
Married	5.35	0.59	1.00	4.52	0.70	1.00
Previously married	3.99	1.02	0.75	4.88	0.63	1.08
High cholesterol						
Never married	1.62	1.09	0.57	6.38	2.37	1.14
Married	2.87	0.41	1.00	5.60	0.67	1.00
Previously married	3.14	0.99	1.10	4.52	0.63	0.81
Selected minor conditions						
Insomnia						
Never married	11.49	3.87	1.05	14.72	3.44	0.92
Married	10.94	0.89	1.00	15.99	1.28	1.00
Previously married	10.64	1.70	0.97	16.90	1.06	1.06
Headache (excluding migraine)						
Never married	5.68	2.90	0.83	7.14	2.44	0.54
Married	6.88	0.67	1.00	13.11	1.09	1.00
Previously married	5.60	1.23	0.81	13.13	1.00	1.00
Constipation						
Never married	7.84	3.27	1.62	11.46	3.05	1.18
Married	4.83	0.60	1.00	9.69	1.07	1.00
Previously married	5.81	1.20	1.20	8.93	0.80	0.92
Nerves/tension/emotional problems, etc.						
Never married	7.31	2.48	1.84	6.64	2.27	0.66
Married	3.97	0.52	1.00	10.04	1.02	1.00
Previously married	5.83	1.28	1.47	9.14	0.85	0.91
Ill-defined heart symptoms						
Never married	5.47	2.98	0.83	10.55	2.96	2.19 *
Married	6.63	0.73	1.00	4.82	0.76	1.00
Previously married	6.92	1.36	1.04	6.93	0.67	1.44
Skin rash, eczema, dermatitis						
Never married	4.37	1.84	0.74	2.84	1.49	0.43
Married	5.89	0.61	1.00	6.67	0.84	1.00
Previously married	5.30	1.14	0.90	6.07	0.68	0.91
Common cold						
Never married	3.86	1.69	0.62	4.88	2.05	0.97
Married	6.26	0.62	1.00	5.05	0.69	1.00
Previously married	5.95	1.30	0.95	6.16	0.69	1.22
Minor injuries						
Never married	2.00	1.26	0.41	4.89	1.98	1.02
Married	4.92	0.58	1.00	4.78	0.67	1.00
Previously married	5.13	1.25	1.04	4.95	0.61	1.04

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3 Family composition differentials

The previous chapter presented evidence that being married is generally associated with lower mortality for older men and women. There is increasing evidence that social support more generally is also associated with better health status (Blaxter 1990; Benzeval, Judge & Solomon 1992; Wyke & Ford 1992) and it is commonly hypothesised that social support is an important mechanism underlying marital status differences in mortality or health for older people (Seeman et al. 1987; Korenman, Goldman & Hu 1990; Steinbach 1992). An obvious proxy for social support (albeit a crude one) is the presence of another adult in the household. This chapter presents health differentials by family composition (or living arrangements) for older Australians using data from the ABS surveys. Although information on number of children ever born is included on Australian death registrations, this information is of very poor quality (Mathers 1994), and has not been used to analyse mortality differentials for older women by numbers of children ever born.

The 1988 Survey of Disabled and Aged Persons recorded information on living arrangements for all respondents in households. For older men and women who lived at home, the prevalence of disability and handicap was significantly higher if they were single and lived alone (Table 3.1). In distinct contrast, the prevalence of severe handicap was significantly lower if they lived alone (30% lower for both men and women). Since the prevalence of severe handicap was higher among the widowed and divorced (see previous chapter), this suggests that the severely handicapped in this group are very much more likely to be in health institutions.

There were no significant differences in reported levels of fair/poor health, chronic, recent or minor illness levels according to family composition for older people. Older women who are single did report significantly more days of reduced activity, whereas single older men who live with others reported significantly fewer. The major difference was for reported unhappiness: older men and women who are single were more than three and two times respectively more likely to report that they were unhappy (Table 3.1).

Box 3: Family composition categories

ABS 1988 Survey of Disabled and Aged Persons

ABS 1989 National Health Survey

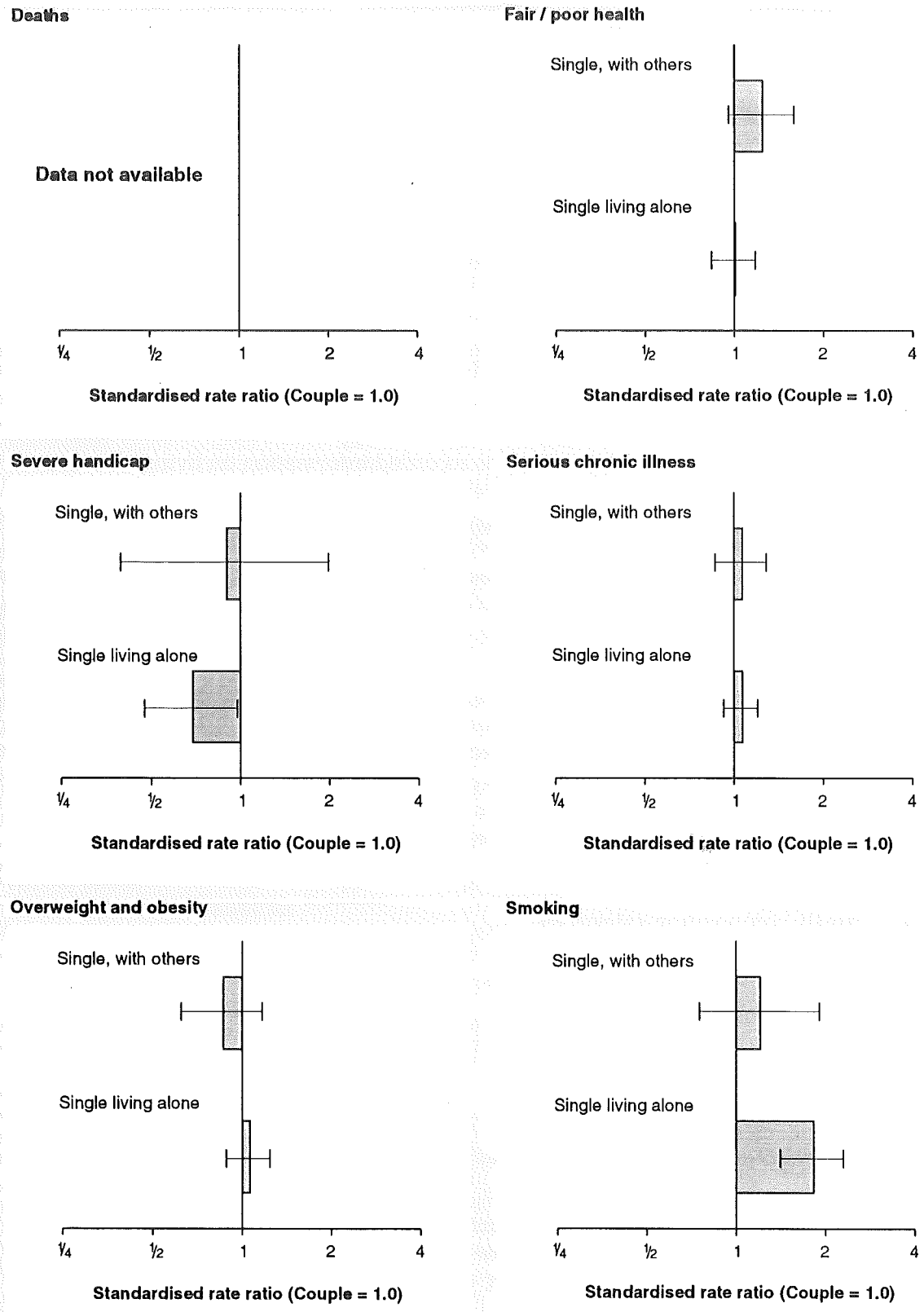
Couple
Single, with others
Single and living alone

Adults are classified as part of a 'couple' if they usually live in the same household as a spouse (married or de facto).

Single adults without dependants are classified as living with others if they live in a dwelling with one or more dependent children or other persons with whom they regularly have meals. Lodgers who receive accommodation but not meals are classified as living alone.

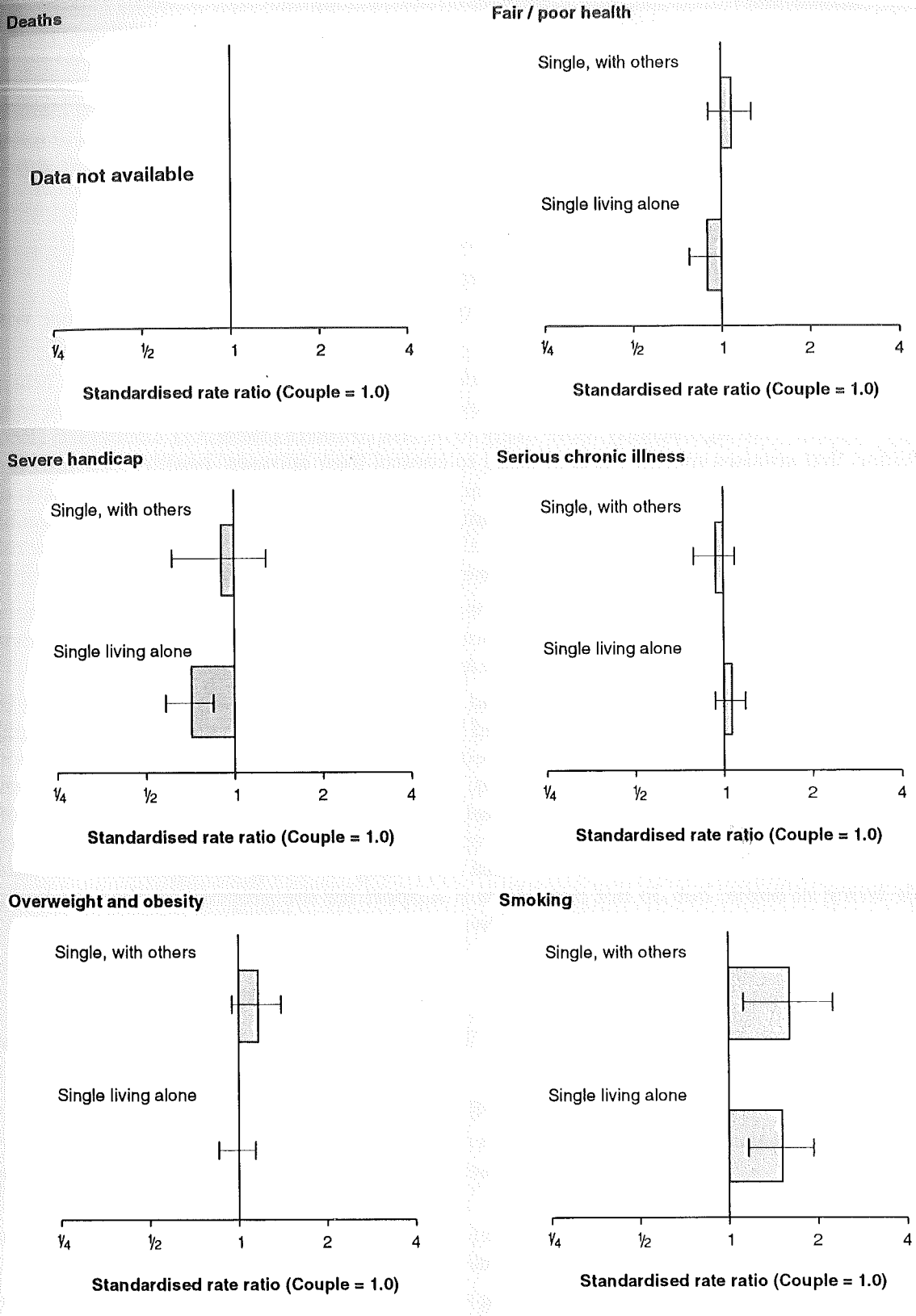
A dependant child (including an adopted child) is one either aged 0–14 who usually lives with the parent or an unmarried full-time student aged 15–24 years without dependants of his or her own and who lives with the parent. Older adults with dependent children were included in the category 'Single, with others'.

3 Family composition — Males 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 3.1: ***Health status differentials by family composition, Australian males aged 65 years and over, late 1980s***



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 3.2: *Health status differentials by family composition, Australian females aged 65 years and over, late 1980s*

Specific chronic and minor illnesses which were reported significantly more or significantly less frequently among single older people included:

- injury—nearly 200% more often for single men who live with others
- skin conditions—around 100% more often for single women, whether they live alone or not
- nerves/tension/emotional problems—79% more often for single men who live alone
- bronchitis/emphysema—54% more often for single women who live alone
- back problems—39% less often for single women who live with others
- mental disorders—56% less often for single women who live alone
- headaches (excluding migraine)—over 70% less often for single men who live with others.

Older men and women who live alone, and also older single women who live with others, were significantly more likely to be smokers (over 50% higher prevalence). Older single men, but not women, were significantly more likely to be risk drinkers (Table 3.1). Umberson (1992) concluded that spouses monitor and attempt to control their spouses' health behaviour and that women do this to a greater extent than men. However, there has been little research on the direction of causation between family composition and health status, and it is possible that health selection may play some part here also, in that members of couples who share risk factors such as smoking may be more likely to end up as single older people.

Despite the lack of differences in reported health status or numbers of illness conditions, single older women reported significantly more doctor visits and other health professional visits. Single older men reported fewer doctor and dental visits.

Magaziner et al. (1988) examined health and living arrangements among a group of US women aged 65 years and over and concluded that there were not large differences in health status according to whether these women lived alone or not. The most impaired were those living with persons other than their husbands. The reason for this was that those who were sickest chose to live with others because of health problems, not that poor health results from living arrangements. The Australian results reported in this chapter also indicate that there are few differences in reported health status according to living arrangements for older people living at home, but do not provide any support for the proposition that the health status of single people living with others is lower.

References

Benzeval M, Judge K, Solomon M (1992). The health status of Londoners. Kings Fund Institute, London.

Blaxter M (1990). Health and lifestyle. Routledge, London.

Korenman S, Goldman N, Hu Y (1990). Health and mortality differentials by marital status at older ages: economics and gender. Paper presented at the annual meeting of the Population Association of America, Toronto, May 1990.

Magaziner J, Cadigan DA, Hebel JR, Parry RE (1988). Health and living arrangements among older women: does living alone increase the risk of illness? J Gerontol 43:M127–133.

Mathers CD (1994). Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

Seeman TE, Kaplan GA, Knudsen L, Cohen R, Guralnik J (1987). Social network ties and mortality among the elderly in the Alameda County Study. Am J Epidemiol 126:714–723.

Steinbach U (1992). Social networks, institutionalisation, and mortality among elderly people in the United States. J Gerontol 47:S183–S190.

Umberson D (1992). Gender, marital status and social control of health behaviour. Soc Sci Med 34:907–917.

Wyke S, Ford G (1992). Competing explanations for associations between marital status and health. Soc Sci Med 34:523–532.

Table 3.1: *Health indicators—age-standardised[(a)] rates and rate ratios by family composition and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ family composition	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Health status indicators						
Fair/poor health						
Couple	42.80	1.59	1.00	44.45	2.11	1.00
Single, with others	53.59	6.61	1.25	48.28	3.45	1.09
Single living alone	43.21	3.40	1.01	39.70	1.80	0.89
Severe handicap						
Couple	11.73	0.88	1.00	19.58	1.24	1.00
Single, with others	10.54	4.25	0.81	17.65	3.10	0.90
Single living alone	8.10	1.35	0.69 *	13.98	0.97	0.71 ***
Handicap						
Couple	40.61	1.24	1.00	37.84	1.45	1.00
Single, with others	34.82	7.50	0.86	35.41	4.58	0.94
Single living alone	50.00	2.55	1.23 ***	42.39	1.44	1.12 *
Disability						
Couple	50.49	1.26	1.00	43.58	1.48	1.00
Single, with others	49.17	8.33	0.97	39.11	4.88	0.90
Single living alone	62.53	2.47	1.24 ***	50.71	1.48	1.16 ***
Serious chronic illnesses						
Couple	0.68	0.02	1.00	0.54	0.02	1.00
Single, with others	0.73	0.07	1.07	0.51	0.03	0.94
Single living alone	0.73	0.04	1.07	0.58	0.02	1.06
Chronic illnesses						
Couple	2.28	0.04	1.00	2.23	0.05	1.00
Single, with others	2.29	0.13	1.00	2.22	0.08	0.99
Single living alone	2.30	0.08	1.01	2.30	0.05	1.03
Recent illnesses						
Couple	1.46	0.03	1.00	1.59	0.04	1.00
Single, with others	1.40	0.10	0.96	1.69	0.07	1.06
Single living alone	1.46	0.06	1.00	1.60	0.04	1.00
Minor illnesses						
Couple	0.89	0.03	1.00	1.11	0.03	1.00
Single, with others	1.04	0.09	1.17	1.10	0.05	0.99
Single living alone	0.82	0.05	0.92	1.19	0.03	1.06
Dental problems						
Couple	4.04	0.51	1.00	3.57	0.55	1.00
Single, with others	3.64	1.72	0.90	2.58	0.92	0.72
Single living alone	2.28	0.82	0.56	3.34	0.56	0.94
Reduced activity						
Couple	39.85	0.36	1.00	40.98	0.49	1.00
Single, with others	31.61	1.24	0.79 ***	43.82	0.85	1.07 **
Single living alone	40.51	0.83	1.02	43.80	0.47	1.07 ***
Unhappiness						
Couple	4.19	0.54	1.00	4.14	0.64	1.00
Single, with others	13.39	3.16	3.20 ***	9.13	1.53	2.21 ***
Single living alone	13.96	1.97	3.33 ***	9.67	0.97	2.34 ***

(continued)

Table 3.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by family composition and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ family composition	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Risk factors						
Overweight and obesity						
Couple	43.38	1.57	1.00	36.56	1.86	1.00
Single, with others	37.47	5.84	0.86	42.61	3.55	1.17
Single living alone	45.98	3.58	1.06	36.49	1.88	1.00
Inactivity						
Couple	37.41	1.54	1.00	48.32	2.26	1.00
Single, with others	43.70	5.97	1.17	52.44	3.52	1.09
Single living alone	37.02	3.13	0.99	40.25	1.78	0.83 **
Smoking						
Couple	13.80	0.91	1.00	8.66	0.84	1.00
Single, with others	16.71	3.79	1.21	13.92	2.06	1.61 **
Single living alone	25.09	2.65	1.82 ***	13.12	1.13	1.52 **
Alcohol risk						
Couple	5.30	0.55	1.00	4.70	0.61	1.00
Single, with others	11.05	3.10	2.09 *	4.29	1.11	0.91
Single living alone	11.01	1.79	2.08 ***	4.05	0.64	0.86
Health service use						
Hospital episodes						
Couple	0.41	0.06	1.00	0.28	0.07	1.00
Single, with others	0.50	0.21	1.22	0.32	0.11	1.15
Single living alone	0.40	0.11	0.99	0.33	0.07	1.16
Doctor visits						
Couple	11.57	0.25	1.00	11.18	0.32	1.00
Single, with others	9.68	0.92	0.84	12.94	0.54	1.16 **
Single living alone	9.27	0.50	0.80 ***	12.18	0.30	1.09 *
Outpatient visits						
Couple	1.67	0.13	1.00	1.61	0.18	1.00
Single, with others	1.98	0.47	1.19	1.46	0.27	0.91
Single living alone	1.35	0.23	0.81	1.04	0.14	0.65 *
Dental visits						
Couple	1.40	0.06	1.00	1.18	0.09	1.00
Single, with others	0.93	0.16	0.67 *	0.88	0.16	0.74
Single living alone	0.43	0.07	0.31 ***	1.06	0.10	0.89
Other health professional visits						
Couple	5.11	0.35	1.00	4.86	0.62	1.00
Single, with others	6.75	1.37	1.32	8.28	1.38	1.70 *
Single living alone	7.10	0.82	1.39 *	6.89	0.84	1.42 *
Major chronic illness groups						
Neoplasms						
Couple	6.99	0.69	1.00	5.45	0.84	1.00
Single, with others	8.84	2.47	1.26	3.94	0.96	0.72
Single living alone	9.50	1.64	1.36	4.75	0.67	0.87
Endocrine, metabolic, nutritional						
Couple	14.24	0.94	1.00	15.27	1.22	1.00
Single, with others	9.04	2.58	0.63	13.40	1.93	0.88
Single living alone	13.25	1.95	0.93	16.06	1.24	1.05

(continued)

Table 3.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by family composition and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ family composition	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Mental disorders						
Couple	1.16	0.28	1.00	2.40	0.56	1.00
Single, with others	2.18	1.14	1.87	2.83	0.81	1.18
Single living alone	2.11	0.77	1.81	1.06	0.32	0.44 *
Nervous system, sense organs						
Couple	34.72	1.51	1.00	26.11	1.71	1.00
Single, with others	36.39	5.32	1.05	25.51	2.48	0.98
Single living alone	30.94	2.88	0.89	26.93	1.47	1.03
Circulatory system						
Couple	37.78	1.52	1.00	47.03	2.17	1.00
Single, with others	35.08	5.41	0.93	49.00	3.51	1.04
Single living alone	41.42	3.35	1.10	45.92	1.93	0.98
Respiratory system						
Couple	19.45	1.10	1.00	14.58	1.19	1.00
Single, with others	20.26	3.97	1.04	14.75	2.00	1.01
Single living alone	20.96	2.41	1.08	18.09	1.29	1.24 *
Digestive system						
Couple	14.72	0.98	1.00	12.25	1.15	1.00
Single, with others	18.73	3.79	1.27	10.84	1.67	0.88
Single living alone	12.40	1.86	0.84	12.22	1.07	1.00
Genito-urinary system						
Couple	4.03	0.54	1.00	4.94	0.68	1.00
Single, with others	2.19	1.21	0.54	5.07	1.09	1.03
Single living alone	4.34	1.07	1.08	5.48	0.72	1.11
Skin and subcutaneous tissue						
Couple	6.34	0.65	1.00	2.68	0.50	1.00
Single, with others	4.61	1.84	0.73	6.01	1.28	2.24 **
Single living alone	6.63	1.33	1.05	5.16	0.68	1.92 **
Musculoskeletal system						
Couple	49.68	1.71	1.00	57.43	2.38	1.00
Single, with others	43.99	5.83	0.89	56.47	3.75	0.98
Single living alone	49.20	3.61	0.99	57.38	2.14	1.00
Injury and poisoning						
Couple	1.68	0.35	1.00	1.37	0.46	1.00
Single, with others	4.94	1.91	2.94 *	1.32	0.50	0.96
Single living alone	1.88	0.67	1.12	1.63	0.37	1.19
Other						
Couple	3.79	0.52	1.00	2.58	0.55	1.00
Single, with others	6.52	2.21	1.72	3.25	0.76	1.26
Single living alone	3.12	0.88	0.82	2.83	0.48	1.10
All causes						
Couple	86.31	2.18	1.00	86.48	2.81	1.00
Single, with others	82.65	8.09	0.96	85.19	4.55	0.99
Single living alone	86.85	4.71	1.01	88.59	2.59	1.02
Selected chronic conditions						
Arthritis						
Couple	32.25	1.41	1.00	43.58	2.11	1.00
Single, with others	29.66	4.84	0.92	44.11	3.33	1.01
Single living alone	33.87	3.02	1.05	44.37	1.90	1.02
Hypertension						
Couple	23.34	1.20	1.00	32.67	1.81	1.00
Single, with others	18.91	4.01	0.81	35.10	3.05	1.07
Single living alone	25.90	2.69	1.11	29.11	1.57	0.89

(continued)

Table 3.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by family composition and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ family composition	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Deafness (complete/partial)						
Couple	20.30	1.18	1.00	8.86	1.08	1.00
Single, with others	20.30	3.95	1.00	11.48	1.62	1.30
Single living alone	17.05	2.15	0.84	9.96	0.91	1.12
Back problems						
Couple	13.72	0.90	1.00	9.49	1.00	1.00
Single, with others	9.41	2.68	0.69	5.77	1.31	0.61 *
Single living alone	11.83	1.82	0.86	9.57	0.96	1.01
Heart disease						
Couple	11.49	0.89	1.00	7.87	0.92	1.00
Single, with others	9.45	2.55	0.82	9.82	1.55	1.25
Single living alone	9.95	1.63	0.87	8.23	0.82	1.05
Hay fever						
Couple	6.89	0.66	1.00	6.66	0.82	1.00
Single, with others	3.45	1.52	0.50	4.43	1.07	0.66
Single living alone	6.62	1.36	0.96	7.58	0.85	1.14
Bronchitis/emphysema						
Couple	8.10	0.72	1.00	4.16	0.70	1.00
Single, with others	9.58	2.60	1.18	5.05	1.13	1.21
Single living alone	9.89	1.64	1.22	6.43	0.78	1.54 *
Varicose veins						
Couple	3.62	0.50	1.00	6.06	0.79	1.00
Single, with others	2.49	1.19	0.69	6.01	1.30	0.99
Single living alone	3.88	1.02	1.07	7.90	0.87	1.30
Asthma						
Couple	5.03	0.58	1.00	4.71	0.62	1.00
Single, with others	5.97	2.23	1.19	5.16	1.21	1.10
Single living alone	6.02	1.28	1.20	5.98	0.78	1.27
Hernia						
Couple	5.82	0.62	1.00	4.38	0.74	1.00
Single, with others	9.07	2.61	1.56	3.26	0.92	0.74
Single living alone	6.17	1.32	1.06	4.92	0.67	1.12
Diabetes mellitus						
Couple	5.43	0.60	1.00	4.50	0.72	1.00
Single, with others	4.64	1.82	0.85	4.33	1.07	0.96
Single living alone	3.48	0.96	0.64	5.06	0.71	1.12
High cholesterol						
Couple	2.90	0.41	1.00	5.71	0.69	1.00
Single, with others	0.85	0.84	0.29	4.17	1.13	0.73
Single living alone	3.28	0.98	1.13	4.79	0.72	0.84
Selected minor conditions						
Insomnia						
Couple	10.96	0.90	1.00	16.28	1.33	1.00
Single, with others	14.16	3.36	1.29	13.95	1.86	0.86
Single living alone	9.65	1.63	0.88	17.65	1.21	1.08
Headache (excluding migraine)						
Couple	6.80	0.67	1.00	13.04	1.11	1.00
Single, with others	1.93	1.11	0.28 *	12.79	1.88	0.98
Single living alone	6.92	1.37	1.02	12.70	1.09	0.97

(continued)

Table 3.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by family composition and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ family composition	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Constipation						
Couple	4.85	0.61	1.00	9.40	1.08	1.00
Single, with others	6.22	2.08	1.28	7.18	1.36	0.76
Single living alone	6.17	1.27	1.27	9.97	0.93	1.06
Nerves/tension/emotional problems, etc.						
Couple	3.97	0.52	1.00	9.93	1.04	1.00
Single, with others	3.31	1.46	0.83	8.54	1.57	0.86
Single living alone	7.11	1.40	1.79 *	9.27	0.93	0.93
Ill-defined heart symptoms						
Couple	6.74	0.74	1.00	4.98	0.80	1.00
Single, with others	6.78	2.31	1.01	6.95	1.25	1.40
Single living alone	5.99	1.27	0.89	6.99	0.76	1.40
Skin rash, eczema, dermatitis						
Couple	5.62	0.59	1.00	6.64	0.84	1.00
Single, with others	8.00	2.34	1.42	4.87	1.16	0.73
Single living alone	5.31	1.18	0.95	6.29	0.76	0.95
Common cold						
Couple	6.34	0.63	1.00	4.88	0.70	1.00
Single, with others	8.92	2.63	1.41	5.16	1.19	1.06
Single living alone	4.56	1.15	0.72	6.59	0.79	1.35
Minor injuries						
Couple	4.92	0.59	1.00	4.90	0.69	1.00
Single, with others	5.63	2.10	1.14	5.78	1.24	1.18
Single living alone	3.87	1.03	0.79	4.52	0.63	0.92

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4 Family income differentials

Although average life expectancy has increased substantially in developed countries (Australian Institute of Health and Welfare 1994), socioeconomic differences in mortality and health have persisted and even widened (Australian Institute of Health and Welfare 1992, chapter 4; Townsend & Davidson 1982; Smith 1990). Despite this, socioeconomic differentials in mortality and health status for older people have been surprisingly neglected (Victor 1989; House et al. 1990), with most studies concentrating on the population of working age. Socioeconomic differentials in mortality in Australia have generally focused on occupation-based measures of socioeconomic status (Taylor, Herman & Preston 1983; McMichael 1985), although Siskind, Najman & Copeman (1987) used measures of socioeconomic deprivation based on area of residence to demonstrate mortality gradients for people aged under 75 years. The neglect of older age groups has partly resulted from the use of occupation-based measures of social class and partly from an assumption that later life is a time of universal ill-health which will obscure the health differentials apparent at earlier ages (Victor 1989).

Scattered evidence suggests that socioeconomic differences in mortality, and also possibly in morbidity and functional limitations, are greatest in the middle years of life. However, there is some evidence that socioeconomic differences in mortality persist to quite advanced ages (Lynge & Jeune 1983; Fox, Goldblatt & Jones 1985; House et al. 1990; Olausson 1991; Wilkins, Adams & Brancker 1994). Substantial socieconomic differentials in chronic illness, morbidity, disability and perceived health status have also been observed for people over retirement age in Britain (Victor 1989).

Because the prevalence and incidence of most health conditions increases with age, the maximum possible health differential must decrease with age. For example, if the disability prevalence in the most advantaged group at younger ages is 5%, then the maximum observable rate ratio is 20. If disability prevalence at older ages rises to 25% for the most advantaged group, then the maximum observable rate ratio is 4. Wilkins, Adams & Brancker (1994) showed that differentials in mortality rates between income quintiles persist into older age groups in Canada, although they diminish with age and largely disappear above age 85 years. It is also possible that the higher mortality rates of disadvantaged groups at younger ages result in the selective survival of healthy, very old people in the disadvantaged group and hence a reduction, or indeed a cross-over, of mortality differentials. Such a cross-over is observed above age 75 years for black/white mortality differentials in the United States (Markides & Machalek 1984).

Apart from health surveys, such as the ABS National Health Survey, information about socioeconomic status is not generally collected with health-related data in Australia. For example, death registration forms provide only for the recording of occupation and, as discussed in Mathers (1994), the quality of this information is poor, particularly for women. Although death certificates contain information on occupation prior to retirement, this information is of variable quality and it is not possible to calculate death rates by principal pre-retirement occupation for older people in Australia because of the lack of information on the numbers of older people in such occupation groups. For this reason, information on socio-economic differentials in mortality rates for older people in this report is restricted to that presented in chapter 6 according to the index of socioeconomic disadvantage of area of usual residence.

For the ABS population surveys, information provided by respondents about gross annual income for all people aged 15 years or older has been used to estimate gross annual family income and 'equivalent' family income adjusted for family composition (see Box 4).

This adjustment takes account of the fact that the more adults or children in a family, the greater the income required to achieve an equivalent purchasing power at the individual level.

Family income is generally lower for older people than for working-age adults: around 75% of older adults had an equivalent family income of less than $20,000 per annum compared with less than one-third of working-age adults. Additionally, the range of variation in income is much lower, with the majority of older adults having an income between $10,000 and $20,000 per annum. For older adults, the vast majority of whom are retired, higher levels of family income will usually be an indicator of greater wealth (resulting from higher income during working life) or of access to employer-funded superannuation (often associated with white-collar and higher income occupations). Thus income for older adults is likely be a marker of socioeconomic advantage in earlier life.

Older men and women with low family income were significantly more likely to report fair/poor health (39% higher for men and 26% higher for women) and unhappiness (127% higher for men and 115% higher for women), although these differentials are substantially smaller than those for working age adults (Mathers 1994). Older women but not men with low family income had higher levels of handicap and disability (Table 4.1). In contrast to working-age adults, older adults with low family income did not report significantly more chronic or recent illness.

The only specific chronic condition reported as occurring significantly more frequently by older adults with low family income than by those with high family income was arthritis: 31% more often for low-income men (but not women). Ill-defined heart symptoms were reported over twice as frequently by low-income men and women. However, high serum cholesterol was reported more frequently by high-income women. It is possible that there is a reporting effect here, with low-income men and women less likely to report specific conditions as opposed to ill-defined symptoms.

Hay fever was reported about 35–45% more frequently by older men and women with high family income, a similar differential to that found for working-age adults (Mathers 1994).

There were significant differentials in risk factors between older adults with low and high income, with the exception of overweight and obesity (Table 4.1). Low-income older women, but not men, were substantially less likely to be risk drinkers (51% lower for low-income women). Older adults with low income were substantially more likely to be smokers (117% higher for men and 55% higher for women) and inactive (35% higher for men and 17% higher for women).

Evidence from previous Australian and overseas studies have consistently shown that lower socioeconomic groups use more health services such as doctor and hospital services, are more likely to delay seeking treatment and use fewer preventive services, fewer early intervention and screening services, and fewer rehabilitation and after-care services (Mathers 1994, chapter 4). Working-age men and women with low family income reported substantially more hospital episodes, outpatient visits and doctor visits, but fewer dental visits. Although older women with low income reported more hospital episodes (not significant), and doctor and outpatient visits, older men with low income reported fewer hospital episodes and outpatient visits than their high-income counterparts. Both men and women with low income reported substantially fewer dental visits (65% fewer for men and 47% fewer for women).

Olausson (1991), in a study of mortality differences among the elderly in Sweden, found evident social class differences in mortality among people aged 65–83 years; these were largest in areas with a high degree of urbanisation. Olausson found increasing class gradients with age for women, so that there were larger differentials for older women than for pre-retirement women.

The opposite was true for men, where class gradients decreased with age. In contrast, Wilkins, Adams & Brancker (1994) found that mortality differentials by income quintile decreased with age for both men and women. Olausson argued that health selection effects operating for working-age men could explain their larger social class gradient at younger ages. Health selection effects at working ages are likely to be an important factor in the greater differentials for disability and handicap by income for working-age Australian men than women, whereas the gradient is larger for older women than for older men.

Box 4: Family income categories

No information on mortality rates by individual or family income level is available for Australia. The ABS National Health Survey and Survey of Disabled and Aged Persons collected information on gross annual income for families (or income units) with a maximum of two adults. Income units are defined as one non-dependent adult (nominally termed the head of the household) plus persons normally living in the same household assumed to be dependent on the head. The latter may include spouse (if married) or de facto, all children aged less than 15 years in the same family, and unmarried full-time students aged 15 to 25 years without dependents of their own and who are living with their parents (ABS 1991).

Gross family income is not necessarily a good indicator of economic purchasing power since families of different compositions require different amounts of income to reach the same capacity to pay for necessities of daily living. The concept of equivalent income enables the statistical adjustment of income to account for differences in family composition and size. The gross family income has been divided by the relevant equivalence factor shown in Table A (below) to obtain 'equivalent family income' for each individual. Equivalent family income has been classified into three categories, shown in Table B (below), defined in terms of 1990 dollars (calculated using the Consumer Price Index as inflator). The income boundaries for the National Health Survey were chosen so that there were approximately equal numbers of persons in low and high categories with about half the sample in the medium income category (see Appendix B). The income boundaries for the Survey of Disabled and Aged Persons are identical to those used for adults aged 25–64 years (Mathers 1994).

Table A: ***Henderson simplified equivalence scales (Whiteford 1985)***

Income unit composition		Equivalence factor	
Number of adults	**Number of children**	**Either adult working**	**Neither adult working**
1	–	0.75	0.61
1	1	0.96	0.82
1	[(a)]2	1.16	1.02
2	–	1.00	0.86
2	1	1.20	1.06
2	[(a)]2	1.40	1.26

(a) For each subsequent child, add 0.20 to relevant factor.

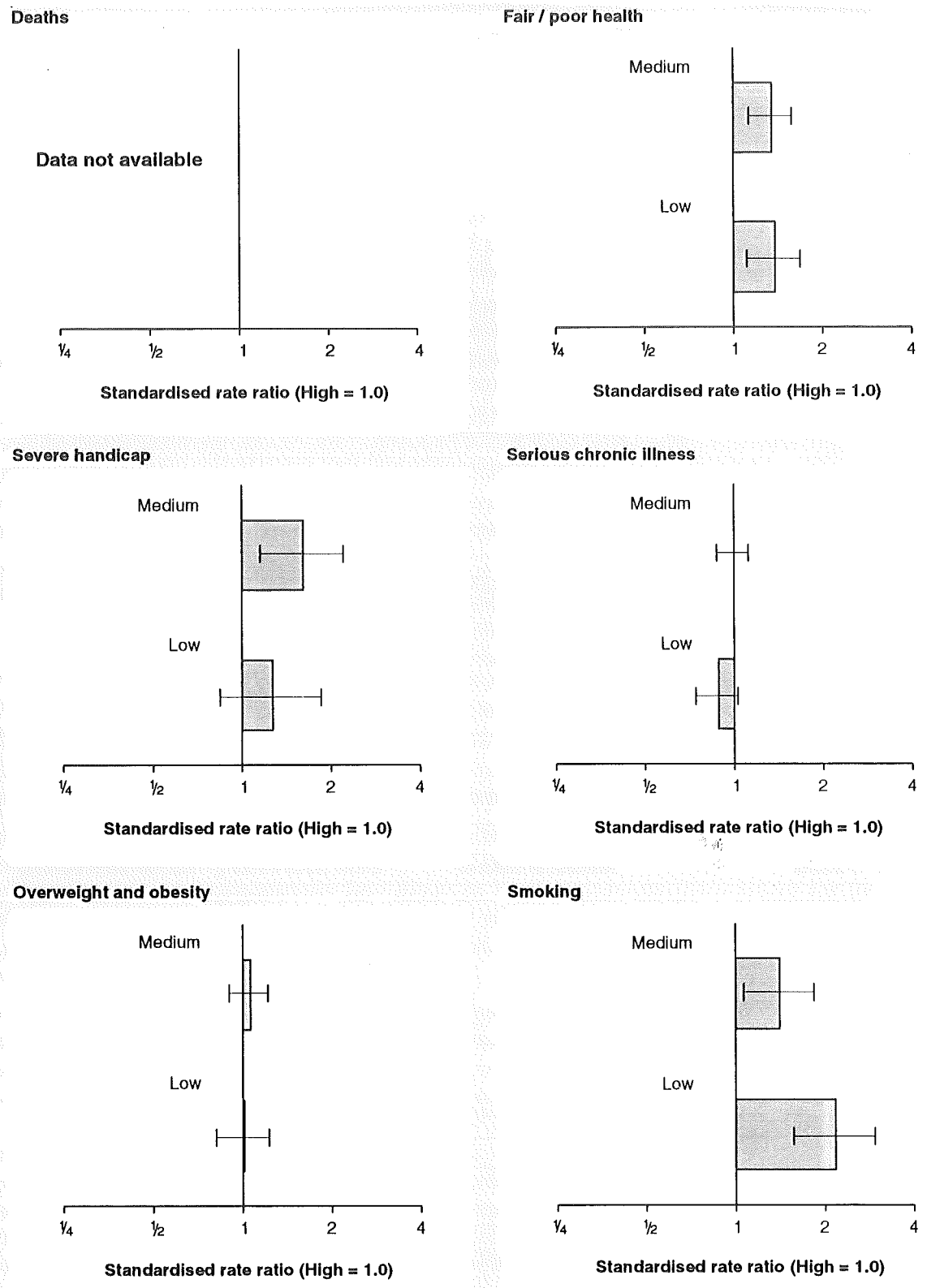
Table B: ***Lower boundaries for equivalent family income categories ($ per year)***

Data source	Low	Medium	High
ABS 1988 Survey of Disabled and Aged Persons	–	20,858	35,261
ABS 1989–90 National Health Survey (NHS)	–	12,150	18,980

Family income was not known for 4.5% of persons aged 65 years and over in the National Health Survey and for 0.2% of persons aged 65 years and over in households in the Survey of Disabled and Aged Persons. These persons were excluded from the analysis of differentials by family income.

Note that income information was collected for persons in households but not for those in institutions in the 1988 Survey of Disabled and Aged Persons. Disability and handicap differentials shown in this chapter relate only to persons in households.

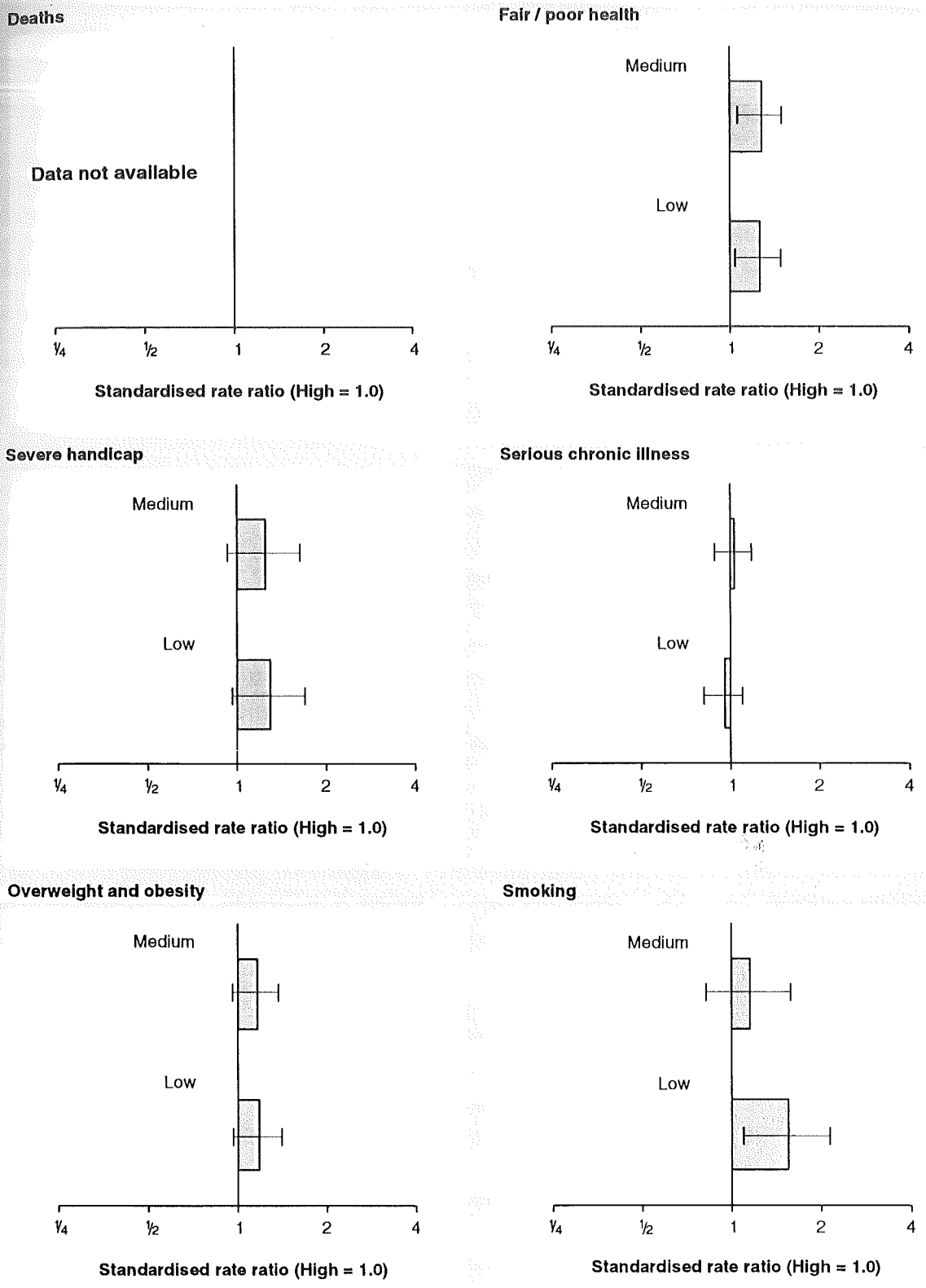
4 Family income — Males 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 4.1: ***Health status differentials by family income, Australian males aged 65 years and over, late 1980s***

4 Family income — Females 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 4.2: ***Health status differentials by family income, Australian females aged 65 years and over, late 1980s***

The persistence of health differentials into older age may reflect the cumulative effects of a lifetime of disadvantage; the decreasing magnitude of those differentials with age may reflect the increasing prevalence of ill-health with age, the lessening influence of health selection, or the selective survival of healthier people in the disadvantaged groups.

The results presented in this chapter suggest that family income is associated with significant differentials in health status in older adults, although these differentials are smaller than those for working-age adults. These results underline the fact that old age is not a time of mass ill-health irrespective of social circumstances. Reduction of socioeconomic differentials in health in middle and early old age should be an essential component of any effort to further postpone morbidity, disability and mortality in order to improve the health of older Australians.

References

Australian Bureau of Statistics (1991). 1989–90 National Health Survey. Users' guide. ABS Cat. No. 4363.0, Canberra.

Australian Institute of Health and Welfare (1992). Australia's health 1992. AGPS, Canberra.

Australian Institute of Health and Welfare (1994). Australia's health 1994. AGPS, Canberra.

Fox AJ, Goldblatt PO, Jones DR (1985). Social class mortality differentials: artefact, selection or life circumstances? J Epidemiol Comm Health 39:1–8.

House JS, Kessler RC, Herzog AR, Mero RP, Kinney AM and Breslow MJ (1990). Age, socioeconomic status and health. The Milbank Quarterly 68 (3): 383–411.

Lynge E, Jeune B (1983). Excess mortality among male unskilled and semi-skilled workers—a negative slope with age. Scand J Soc Med 11:37–40.

Markides KS, Machalek R (1984). Selective survival, aging and society. Arch Gerontol Geriatr 3(3):207–222.

Mathers CD (1994). Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

McMichael AJ (1985). Social class (as estimated by occupational prestige) and mortality in Australian males in the 1970s. Community Health Studies 9(3):220–230.

Olausson PO (1991). Mortality among the elderly in Sweden by social class. Soc Sci Med 32(4): 437–440.

Siskind V, Najman J, Copeman R (1987). Socioeconomic status and mortality: a Brisbane area analysis. Community Health Studies 11(1):15–23.

Smith A (1990). Poverty and health in the 1990s. BMJ 301:349–350.

Taylor R, Herman H, Preston G (1983). Occupation and mortality in Australian working age males, 1975–77. Health Commission of Victoria and Department of Social and Preventative Medicine, Monash University, Melbourne.

Townsend P, Davidson N (eds) (1982). Inequalities in health: the Black Report. Penguin, Harmondsworth.

Victor CR (1989). Inequalities in health in later life. Age and Ageing 18:387–391.

Whiteford P (1985). A family's needs: equivalence scales, poverty and social security. DSS Research Paper No. 27, Department of Social Security, Canberra.

Wilkins R, Adams O, Brancker A (1994). Changes in mortality by income in urban Canada from 1971 to 1986. Health Reports 1(2):137–174.

Table 4.1: *Health indicators—age-standardised[(a)] rates and rate ratios by family income and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ income	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Health status indicators						
Fair/poor health						
High	35.18	2.53	1.00	35.55	2.70	1.00
Medium	47.61	2.07	1.35 ***	45.51	1.90	1.28 **
Low	48.78	3.75	1.39 **	44.77	2.14	1.26 *
Severe handicap						
High	8.08	1.18	1.00	13.77	1.78	1.00
Medium	13.01	0.99	1.61 **	17.16	1.06	1.25
Low	10.23	1.40	1.27	17.79	1.07	1.29
Handicap						
High	38.14	2.00	1.00	34.35	2.11	1.00
Medium	43.80	1.37	1.15 *	41.56	1.31	1.21 **
Low	41.53	2.30	1.09	42.04	1.43	1.22 **
Disability						
High	49.74	2.05	1.00	41.82	2.19	1.00
Medium	53.46	1.37	1.07	47.17	1.32	1.13 *
Low	50.93	2.33	1.02	48.91	1.47	1.17 **
Serious chronic illnesses						
High	0.73	0.04	1.00	0.55	0.03	1.00
Medium	0.73	0.03	1.00	0.57	0.02	1.03
Low	0.65	0.04	0.89	0.53	0.02	0.96
Chronic illnesses						
High	2.34	0.07	1.00	2.33	0.07	1.00
Medium	2.37	0.05	1.01	2.31	0.05	0.99
Low	2.12	0.08	0.91 *	2.20	0.05	0.95
Recent illnesses						
High	1.46	0.05	1.00	1.57	0.06	1.00
Medium	1.55	0.04	1.06	1.69	0.04	1.08
Low	1.27	0.06	0.87 *	1.58	0.04	1.00
Minor illnesses						
High	0.80	0.04	1.00	1.11	0.05	1.00
Medium	0.94	0.03	1.17 **	1.13	0.03	1.01
Low	0.84	0.05	1.05	1.18	0.04	1.06
Dental problems						
High	5.32	1.02	1.00	3.92	0.81	1.00
Medium	2.89	0.52	0.54 *	3.72	0.56	0.95
Low	3.59	1.00	0.67	2.23	0.52	0.57
Reduced activity						
High	36.53	0.63	1.00	37.59	0.70	1.00
Medium	44.79	0.47	1.23 ***	39.95	0.43	1.06 **
Low	29.91	0.74	0.82 ***	48.15	0.55	1.28 ***
Unhappiness						
High	4.71	0.98	1.00	4.76	1.02	1.00
Medium	5.82	0.77	1.23	5.40	0.68	1.13
Low	10.70	1.73	2.27 **	10.21	1.09	2.15 **

(continued)

Table 4.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by family income and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ income	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Risk factors						
Overweight and obesity						
High	42.17	2.61	1.00	33.66	2.62	1.00
Medium	44.74	2.00	1.06	39.17	1.84	1.16
Low	42.62	3.60	1.01	39.68	2.22	1.18
Inactivity						
High	31.26	2.42	1.00	39.50	2.88	1.00
Medium	39.78	1.95	1.27 **	47.98	1.97	1.21 *
Low	42.18	3.48	1.35 **	46.30	2.14	1.17
Smoking						
High	11.20	1.29	1.00	9.06	1.28	1.00
Medium	15.90	1.23	1.42 *	10.45	0.92	1.15
Low	24.37	2.72	2.17 ***	14.01	1.34	1.55 *
Alcohol risk						
High	7.42	1.03	1.00	7.43	1.12	1.00
Medium	5.64	0.72	0.76	3.50	0.54	0.47 ***
Low	8.52	1.64	1.15	3.68	0.69	0.49 **
Health service use						
Hospital episodes						
High	0.42	0.10	1.00	0.26	0.10	1.00
Medium	0.43	0.07	1.02	0.30	0.06	1.14
Low	0.35	0.11	0.84	0.37	0.08	1.41
Doctor visits						
High	10.05	0.40	1.00	10.20	0.42	1.00
Medium	12.65	0.33	1.26 ***	12.44	0.30	1.22 ***
Low	8.44	0.48	0.84 *	11.74	0.33	1.15 **
Outpatient visits						
High	1.06	0.18	1.00	0.62	0.16	1.00
Medium	2.18	0.18	2.06 ***	1.57	0.17	2.54 ***
Low	1.21	0.22	1.14	1.62	0.20	2.62 ***
Dental visits						
High	1.77	0.10	1.00	1.28	0.14	1.00
Medium	1.14	0.06	0.65 ***	1.23	0.10	0.96
Low	0.61	0.08	0.35 ***	0.68	0.09	0.53 ***
Other health professional visits						
High	5.14	0.65	1.00	6.94	1.05	1.00
Medium	6.20	0.47	1.20	6.61	0.72	0.95
Low	5.56	0.74	1.08	6.28	0.88	0.91
Major chronic illness groups						
Neoplasms						
High	9.54	1.29	1.00	3.88	0.85	1.00
Medium	6.94	0.85	0.73	4.80	0.66	1.24
Low	6.65	1.38	0.70	4.50	0.72	1.16
Endocrine, metabolic, nutritional						
High	13.73	1.61	1.00	16.62	1.75	1.00
Medium	15.60	1.22	1.14	14.42	1.10	0.87
Low	11.27	1.85	0.82	14.76	1.33	0.89
Mental disorders						
High	1.36	0.44	1.00	1.71	0.57	1.00
Medium	1.63	0.41	1.20	1.81	0.42	1.06
Low	0.64	0.41	0.47	2.12	0.50	1.24

(continued)

Table 4.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by family income and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ income	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Nervous system, sense organs						
High	33.56	2.58	1.00	25.83	2.38	1.00
Medium	36.72	1.89	1.09	29.22	1.58	1.13
Low	28.34	2.86	0.84	24.78	1.60	0.96
Circulatory system						
High	42.28	2.81	1.00	48.32	3.15	1.00
Medium	37.23	1.86	0.88	47.13	1.93	0.98
Low	35.28	3.21	0.83	47.30	2.22	0.98
Respiratory system						
High	20.18	1.86	1.00	16.72	1.81	1.00
Medium	21.00	1.44	1.04	16.03	1.16	0.96
Low	18.51	2.34	0.92	15.88	1.35	0.95
Digestive system						
High	12.94	1.61	1.00	10.62	1.46	1.00
Medium	16.71	1.28	1.29	13.41	1.09	1.26
Low	13.59	2.00	1.05	11.81	1.18	1.11
Genito-urinary system						
High	4.78	1.00	1.00	4.90	0.96	1.00
Medium	3.95	0.64	0.83	6.02	0.73	1.23
Low	2.83	0.89	0.59	4.39	0.69	0.89
Skin and subcutaneous tissue						
High	8.75	1.30	1.00	5.28	1.05	1.00
Medium	5.40	0.74	0.62 *	3.93	0.59	0.74
Low	4.54	1.14	0.52 *	4.54	0.73	0.86
Musculoskeletal system						
High	45.16	2.80	1.00	58.32	3.41	1.00
Medium	51.64	2.18	1.14	57.34	2.10	0.98
Low	52.01	3.84	1.15	56.88	2.40	0.98
Injury and poisoning						
High	1.71	0.62	1.00	1.52	0.60	1.00
Medium	1.88	0.43	1.10	1.66	0.39	1.09
Low	2.04	0.74	1.19	1.63	0.44	1.07
Other						
High	5.44	1.04	1.00	2.98	0.75	1.00
Medium	3.39	0.60	0.62	2.72	0.51	0.91
Low	3.15	0.92	0.58	3.07	0.54	1.03
All causes						
High	88.39	3.89	1.00	87.65	4.08	1.00
Medium	86.99	2.73	0.98	86.98	2.52	0.99
Low	83.69	4.81	0.95	87.93	2.92	1.00
Selected chronic conditions						
Arthritis						
High	27.86	2.23	1.00	42.01	2.91	1.00
Medium	34.65	1.82	1.24 *	44.72	1.88	1.06
Low	36.37	3.23	1.31 *	44.22	2.13	1.05
Hypertension						
High	25.33	2.16	1.00	33.35	2.61	1.00
Medium	22.70	1.45	0.90	31.34	1.60	0.94
Low	22.07	2.56	0.87	31.92	1.86	0.96
Deafness (complete/partial)						
High	17.51	1.84	1.00	9.67	1.48	1.00
Medium	22.22	1.50	1.27	10.57	1.00	1.09
Low	16.43	2.21	0.94	9.26	0.99	0.96

(continued)

Table 4.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by family income and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ income	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Back problems						
High	13.30	1.42	1.00	8.01	1.21	1.00
Medium	13.63	1.14	1.03	9.27	0.90	1.16
Low	11.25	1.83	0.85	8.29	1.02	1.04
Heart disease						
High	13.54	1.74	1.00	9.20	1.43	1.00
Medium	11.27	1.06	0.83	9.03	0.90	0.98
Low	9.50	1.66	0.70	8.44	0.94	0.92
Hay fever						
High	9.74	1.27	1.00	8.53	1.27	1.00
Medium	5.33	0.73	0.55 **	6.46	0.75	0.76
Low	5.25	1.22	0.54 *	5.52	0.80	0.65 *
Bronchitis/emphysema						
High	7.73	1.20	1.00	4.67	0.99	1.00
Medium	9.93	1.00	1.29	5.26	0.69	1.13
Low	8.38	1.56	1.08	5.43	0.80	1.16
Varicose veins						
High	3.55	0.78	1.00	7.54	1.23	1.00
Medium	4.19	0.66	1.18	5.88	0.73	0.78
Low	2.46	0.86	0.69	7.42	0.95	0.98
Asthma						
High	5.20	0.91	1.00	3.84	0.80	1.00
Medium	5.79	0.78	1.11	5.75	0.70	1.50
Low	5.24	1.25	1.01	5.48	0.82	1.42
Hernia						
High	5.87	1.00	1.00	4.05	0.92	1.00
Medium	6.66	0.83	1.14	4.68	0.65	1.16
Low	5.22	1.22	0.89	4.29	0.70	1.06
Diabetes mellitus						
High	5.23	1.05	1.00	4.16	0.94	1.00
Medium	5.55	0.73	1.06	4.29	0.61	1.03
Low	4.48	1.13	0.86	5.32	0.80	1.28
High cholesterol						
High	2.47	0.62	1.00	7.63	1.12	1.00
Medium	3.33	0.55	1.35	3.92	0.57	0.51 **
Low	2.86	0.93	1.16	4.44	0.77	0.58 *
Selected minor conditions						
Insomnia						
High	9.21	1.40	1.00	16.41	1.90	1.00
Medium	12.49	1.15	1.36	17.64	1.24	1.07
Low	9.24	1.63	1.00	16.68	1.32	1.02
Headache (excluding migraine)						
High	5.97	1.01	1.00	11.60	1.55	1.00
Medium	7.12	0.83	1.19	13.48	1.07	1.16
Low	5.47	1.22	0.92	13.76	1.29	1.19
Constipation						
High	5.06	1.05	1.00	7.09	1.20	1.00
Medium	5.26	0.76	1.04	9.74	0.94	1.37
Low	5.00	1.17	0.99	9.44	1.00	1.33
Nerves/tension/emotional problems, etc.						
High	4.66	0.90	1.00	7.54	1.22	1.00
Medium	3.97	0.63	0.85	9.76	0.92	1.29
Low	5.75	1.28	1.23	8.74	1.02	1.16

(continued)

Table 4.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by family income and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ income	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Ill-defined heart symptoms						
High	3.66	0.86	1.00	3.51	0.87	1.00
Medium	6.98	0.87	1.91 *	5.41	0.71	1.54
Low	7.76	1.52	2.12 *	8.40	0.92	2.39 **
Skin rash, eczema, dermatitis						
High	6.03	1.02	1.00	6.39	1.17	1.00
Medium	5.86	0.76	0.97	6.37	0.75	1.00
Low	5.98	1.30	0.99	6.29	0.87	0.98
Common cold						
High	6.55	1.07	1.00	5.90	1.06	1.00
Medium	5.82	0.76	0.89	5.28	0.68	0.90
Low	6.14	1.35	0.94	5.60	0.82	0.95
Minor injuries						
High	4.70	1.02	1.00	5.36	1.01	1.00
Medium	5.33	0.74	1.13	5.62	0.71	1.05
Low	3.48	1.01	0.74	3.45	0.61	0.64

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5 Education differentials

The previous chapter documented health differentials among older people according to family income level. This chapter documents differentials in health indicators according to education level. For older people, education level may better reflect lifetime wealth and socioeconomic status than current income does. Education can also indicate capacity to assimilate information and access to health services, and health economists have argued that the better educated are better producers of health (Grossman 1982; Wagstaff 1986).

Differentials in mortality by education level have been demonstrated in working age adults in Britain and other European countries (Valkonen 1989, 1993; Goldblatt 1990). There have been few studies of mortality by education level at older ages. Feldman et al. (1989) examined mortality in white US men and women aged 65–84 by years of school completed and found substantial differentials between the lowest and highest education groups for all causes of death (72% higher for low-education men and 51% higher for low-education women). Cardiovascular mortality differentials were even greater (124% higher for low-education men and 86% higher for low-education women). Valkonen, Sohvonen & Lahelma (1994) have shown similar differentials in mortality rate by education level for older men and women in Finland.

Education is a strong predictor of morbidity for working-age men and women in Australia (Mathers 1994). Apart from health surveys, such as the ABS National Health Survey, information about education level is not, however, generally collected with health-related data in Australia, and in particular is not collected in death registrations. Education level has here been defined in terms of the age at which the person left school and qualifications gained since leaving school (see Box 5).

As with income level, men and women classified as having low education level were significantly more likely to report fair/poor health (44% higher for men and 48% higher for women) and reduced activity (6% higher for men and 20% higher for women) than those with high education, although these differentials are substantially smaller than those for working-age adults (Mathers 1994). In contrast to working-age adults, older adults with low education level did not report significantly more chronic or recent illness than those with high education level. Older men and women with low education level reported significantly fewer dental problems (around 70% less for both men and women).

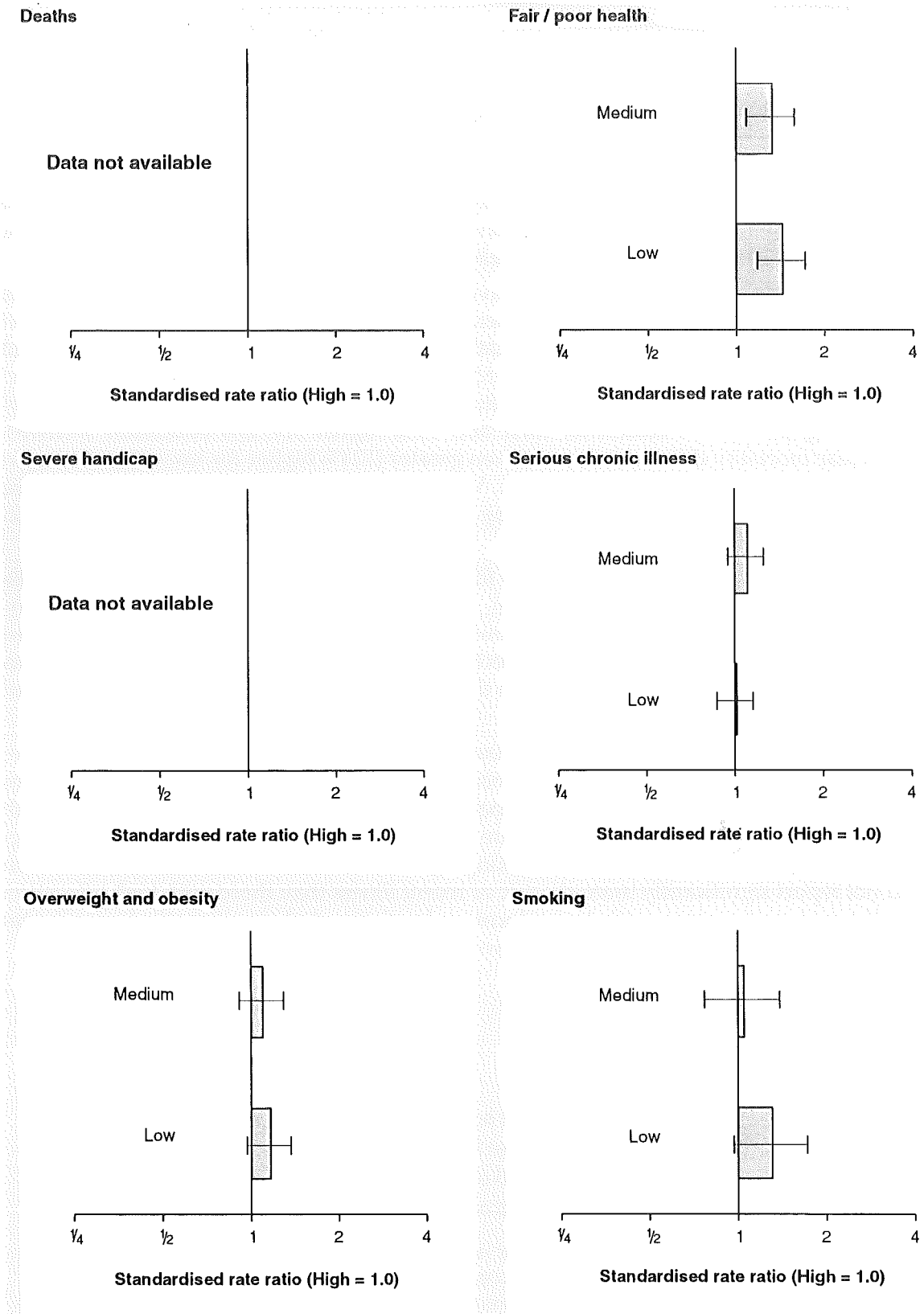
Box 5: Education categories

ABS 1989–90 National Health Survey (NHS)

Low:	*No schooling or left before age 15, no qualifications since*
Medium:	*Left school before age 15, qualifications since, or*
	Left school at age 15 or more, no qualifications since
High:	*Left school at age 15 or more, qualifications since*

Education level was ascertained for all respondents in the National Health Survey. Education level was not collected for respondents aged 65 years and over in the ABS 1988 Survey of Disabled and Aged Persons and hence no information is available on disability and handicap differentials according to education level.

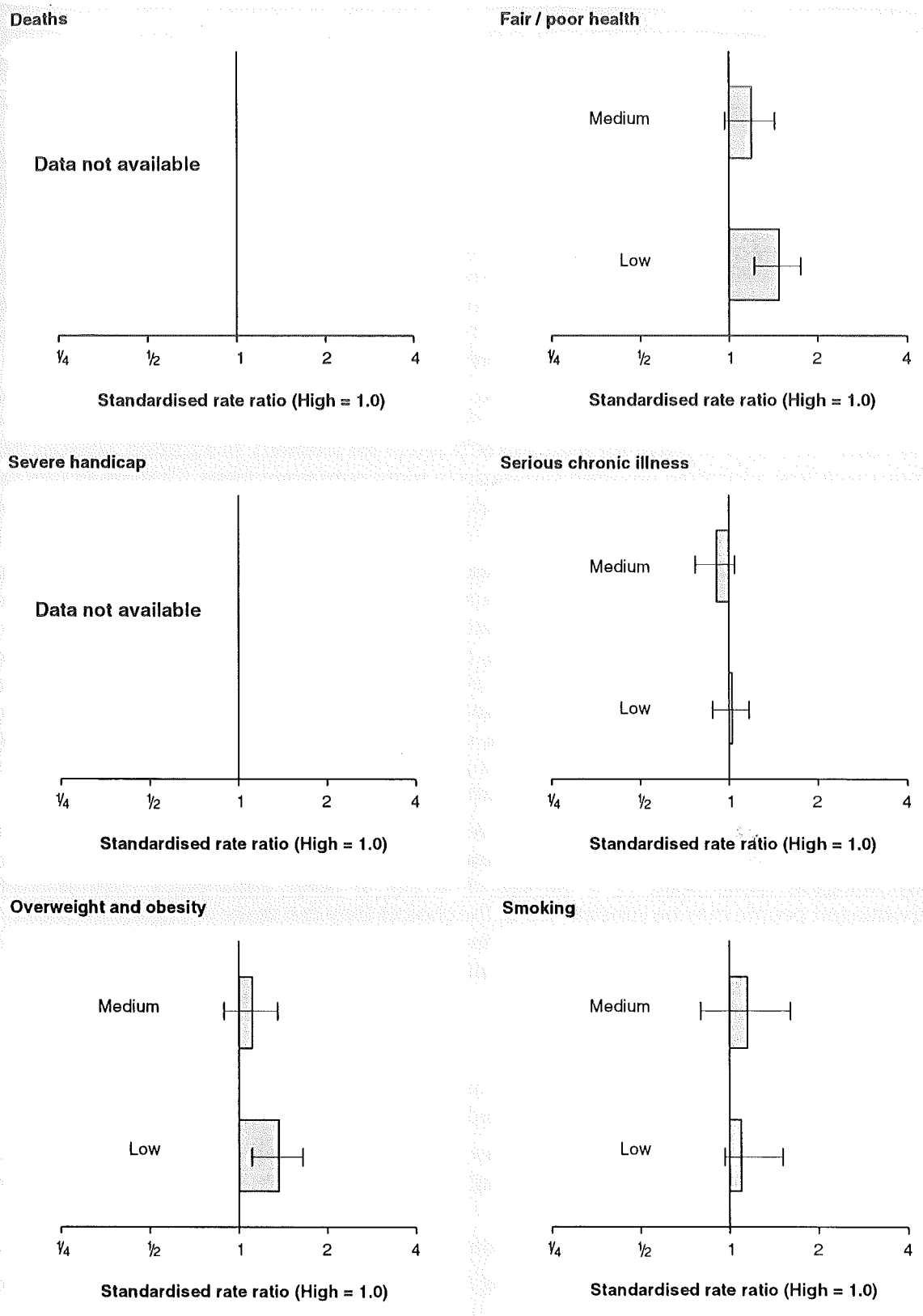
5 Education — Males 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 5.1: *Health status differentials by education, Australian males aged 65 years and over, late 1980s*

5 Education — Females 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 5.2: *Health status differentials by education, Australian females aged 65 years and over, late 1980s*

The only specific chronic condition reported as occurring significantly more frequently by older adults with low education level than by those with high education level was arthritis: 27% more often for low-income men (but not women). No minor conditions were reported significantly more often by those with low education. Hay fever was reported about 40% more frequently by older men (but not women) with medium or high education level.

These differentials are generally of a similar magnitude to the income differentials reported in chapter 4, except for dental problems, where the education differentials are about double those for income.

The differentials in risk factors between education groups are somewhat different from those for income. Older women with low education were significantly more likely to be overweight or obese (unlike women with low income), and both men and women with low education were significantly more likely to be inactive. Unlike low-income older men and women, those with low education were not significantly more likely to be smokers.

Men and women with low education reported more hospital episodes (though these did not reach statistical significance), and around 12% more doctor visits, but significantly fewer dental visits (around 80% fewer for men and 60% fewer for women). In addition, women (but not men) with low education reported significantly more outpatient visits. Older men (but not women) with medium education level reported around 40% more doctor visits than their counterparts with high education level.

By the available measures of socioeconomic status (education, equivalent family income and socioeconomic disadvantage of area), there is a consistent relationship in Australia between socioeconomic status and health which continues into older ages. These differences are generally greatest for people of working age, and decrease with increasing age. Older men and women with low family income or low education level reported that their health was worse, were generally more likely to be inactive, overweight and/or smokers, and reported higher levels of health service use. However, unlike working-age adults in Australia, older people with low education or income did not generally report significantly more chronic or recent illness than their more advantaged counterparts.

Whether the relationship between education level and health is direct and causal is open to question. Education may be a surrogate for other factors, such as time preference, motivation or psychological adjustment, or a marker of access to other advantages. Educationally disadvantaged people may be constrained in the choices they can make to engage in a healthy lifestyle. These constraints may be economic and/or cultural, and they may relate to the need to compensate for and cope with a relatively difficult, unrewarding or stressful life.

References

Feldman JJ, MaKuc DM, Kleinman JC, Cornoni-Huntley J (1989). National trends in educational differentials in mortality. Am J Epidemiol 129:919–933.

Goldblatt P (1990). Mortality and alternative social classifications. In: Goldblatt P (ed.). Longitudinal study: mortality and social organisation. Office of Population Census and Surveys Series L.S. No.6, HMSO, London.

Grossman M (1982). The demand for health after a decade. Journal of Health Economics 1:1–3.

Mathers CD (1994). Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

Valkonen, T (1989). Adult mortality and level of education—a comparison of six countries. In: Fox J (ed.). Health inequalities in European countries. Gower, Aldershot.

Valkonen T (1993). Problems in the measurement and international comparisons of socio-economic differences in mortality. Soc Sci Med 36(4):409–418.

Valkonen T, Sohvonen A-P, Lahelma E (1994). Disability-free life expectancy by level of education in Finland. In: Mathers C, McCallum J, Robine JM (eds). Advances in health expectancies: proceedings of the 7th meeting of the International Network on Health Expectancy, Canberra, Australia. Australian Institute of Health and Welfare, Canberra.

Wagstaff A (1986). The demand for health: theory and applications. J Epidemiol Comm Health 40:1–11.

Table 5.1: *Health indicators—age-standardised*[(a)] *rates and rate ratios by education and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ education	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Health status indicators						
Fair/poor health						
High	33.56	2.73	1.00	32.83	2.80	1.00
Medium	44.68	2.30	1.33 **	39.13	1.96	1.19
Low	48.49	2.38	1.44 ***	48.53	1.72	1.48 ***
Serious chronic illnesses						
High	0.67	0.04	1.00	0.55	0.03	1.00
Medium	0.74	0.03	1.11	0.50	0.02	0.91
Low	0.68	0.03	1.01	0.56	0.02	1.02
Chronic illnesses						
High	2.24	0.07	1.00	2.27	0.08	1.00
Medium	2.45	0.06	1.09 *	2.21	0.05	0.97
Low	2.18	0.05	0.97	2.28	0.04	1.01
Recent illnesses						
High	1.43	0.06	1.00	1.54	0.06	1.00
Medium	1.53	0.04	1.07	1.57	0.04	1.02
Low	1.41	0.04	0.99	1.66	0.03	1.08
Minor illnesses						
High	0.83	0.04	1.00	1.14	0.05	1.00
Medium	0.92	0.03	1.11	1.11	0.03	0.98
Low	0.87	0.03	1.05	1.17	0.03	1.03
Dental problems						
High	6.55	1.18	1.00	6.60	1.23	1.00
Medium	3.81	0.70	0.58 *	3.72	0.62	0.56 *
Low	1.88	0.47	0.29 ***	2.06	0.39	0.31 ***
Reduced activity						
High	35.59	0.68	1.00	38.91	0.76	1.00
Medium	41.83	0.52	1.18 ***	36.00	0.46	0.93 ***
Low	37.70	0.50	1.06 *	46.76	0.41	1.20 ***
Unhappiness						
High	5.22	1.11	1.00	5.99	1.19	1.00
Medium	6.62	0.93	1.27	6.87	0.86	1.15
Low	7.47	0.99	1.43	7.80	0.74	1.30
Risk factors						
Overweight and obesity						
High	39.54	2.83	1.00	30.78	2.84	1.00
Medium	43.42	2.27	1.10	34.24	1.91	1.11
Low	46.02	2.32	1.16	42.08	1.71	1.37 **
Inactivity						
High	28.74	2.62	1.00	33.30	2.88	1.00
Medium	36.01	2.14	1.25 *	43.19	2.05	1.30 **
Low	44.92	2.31	1.56 ***	51.51	1.76	1.55 ***
Smoking						
High	13.94	1.69	1.00	10.02	1.51	1.00
Medium	14.66	1.32	1.05	11.51	1.10	1.15
Low	18.26	1.49	1.31	10.97	0.88	1.09
Alcohol risk						
High	6.37	1.07	1.00	7.32	1.28	1.00
Medium	6.67	0.89	1.05	5.54	0.77	0.76
Low	6.31	0.86	0.99	2.79	0.45	0.38 ***

(continued)

Table 5.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by education and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ education	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Health service use						
Hospital episodes						
High	0.36	0.10	1.00	0.31	0.12	1.00
Medium	0.42	0.08	1.15	0.25	0.06	0.78
Low	0.43	0.08	1.20	0.34	0.06	1.08
Doctor visits						
High	9.17	0.42	1.00	10.97	0.48	1.00
Medium	12.63	0.37	1.38 ***	11.51	0.32	1.05
Low	10.40	0.34	1.13 *	12.31	0.26	1.12 *
Outpatient visits						
High	1.44	0.26	1.00	0.77	0.19	1.00
Medium	1.80	0.19	1.25	1.51	0.19	1.94 *
Low	1.67	0.17	1.16	1.59	0.15	2.06 **
Dental visits						
High	2.30	0.13	1.00	1.84	0.20	1.00
Medium	1.26	0.07	0.54 ***	1.42	0.12	0.77
Low	0.48	0.05	0.21 ***	0.71	0.07	0.39 ***
Other health professional visits						
High	4.45	0.68	1.00	9.65	1.40	1.00
Medium	5.48	0.52	1.23	5.78	0.80	0.60 *
Low	7.02	0.55	1.58 **	6.30	0.63	0.65 *
Major chronic illness groups						
Neoplasms						
High	6.55	1.23	1.00	5.70	1.14	1.00
Medium	9.05	1.08	1.38	4.27	0.67	0.75
Low	6.72	0.93	1.03	4.47	0.56	0.79
Endocrine, metabolic, nutritional						
High	12.42	1.63	1.00	14.23	1.77	1.00
Medium	14.95	1.37	1.20	13.93	1.21	0.98
Low	13.54	1.30	1.09	15.70	1.04	1.10
Mental disorders						
High	0.96	0.42	1.00	1.88	0.62	1.00
Medium	1.70	0.48	1.77	1.57	0.40	0.83
Low	1.33	0.39	1.39	1.77	0.35	0.94
Nervous system, sense organs						
High	33.17	2.85	1.00	25.64	2.56	1.00
Medium	36.55	2.16	1.10	27.02	1.65	1.05
Low	32.75	2.02	0.99	26.87	1.31	1.05
Circulatory system						
High	40.34	3.01	1.00	43.67	3.21	1.00
Medium	38.61	2.17	0.96	45.95	2.10	1.05
Low	35.87	2.07	0.89	48.21	1.71	1.10
Respiratory system						
High	21.57	2.22	1.00	16.11	1.94	1.00
Medium	22.37	1.67	1.04	14.73	1.24	0.91
Low	16.99	1.47	0.79	16.95	1.07	1.05
Digestive system						
High	13.59	1.81	1.00	9.80	1.56	1.00
Medium	16.35	1.45	1.20	11.78	1.12	1.20
Low	13.99	1.33	1.03	12.47	0.93	1.27

(continued)

Table 5.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by education and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ education	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Genito-urinary system						
High	4.65	1.06	1.00	6.10	1.24	1.00
Medium	4.06	0.72	0.87	5.13	0.74	0.84
Low	3.45	0.67	0.74	5.29	0.61	0.87
Skin and subcutaneous tissue						
High	7.56	1.30	1.00	5.58	1.18	1.00
Medium	7.56	1.01	1.00	3.90	0.64	0.70
Low	4.59	0.75	0.61 *	4.31	0.56	0.77
Musculoskeletal system						
High	47.74	3.25	1.00	58.80	3.69	1.00
Medium	50.61	2.45	1.06	57.45	2.33	0.98
Low	50.30	2.43	1.05	56.35	1.84	0.96
Injury and poisoning						
High	0.77	0.43	1.00	1.52	0.60	1.00
Medium	2.07	0.53	2.70	1.72	0.42	1.14
Low	2.45	0.55	3.20	1.23	0.29	0.81
Other						
High	4.47	1.11	1.00	4.15	1.03	1.00
Medium	4.71	0.77	1.05	3.41	0.61	0.82
Low	2.77	0.59	0.62	2.53	0.42	0.61
All causes						
High	86.72	4.30	1.00	87.62	4.42	1.00
Medium	87.75	3.15	1.01	87.05	2.79	0.99
Low	85.05	3.07	0.98	86.87	2.21	0.99
Selected chronic conditions						
Arthritis						
High	27.37	2.51	1.00	43.14	3.21	1.00
Medium	33.80	2.05	1.24	43.27	2.05	1.00
Low	34.74	2.05	1.27 *	44.73	1.66	1.04
Hypertension						
High	24.35	2.28	1.00	27.47	2.58	1.00
Medium	23.40	1.70	0.96	31.39	1.76	1.14
Low	22.15	1.63	0.91	32.85	1.45	1.20
Deafness (complete/partial)						
High	17.82	2.14	1.00	9.86	1.61	1.00
Medium	22.31	1.73	1.25	10.29	1.04	1.04
Low	19.15	1.56	1.08	9.46	0.80	0.96
Back problems						
High	15.23	1.79	1.00	9.50	1.46	1.00
Medium	14.07	1.32	0.92	7.98	0.92	0.84
Low	11.48	1.18	0.75	8.68	0.78	0.91
Heart disease						
High	13.01	1.81	1.00	9.46	1.51	1.00
Medium	11.02	1.20	0.85	7.45	0.88	0.79
Low	10.53	1.17	0.81	9.08	0.79	0.96
Hay fever						
High	7.90	1.27	1.00	7.76	1.35	1.00
Medium	7.85	0.99	0.99	6.99	0.87	0.90
Low	4.88	0.80	0.62 *	6.29	0.67	0.81
Bronchitis/emphysema						
High	9.05	1.48	1.00	4.67	1.06	1.00
Medium	9.48	1.10	1.05	3.68	0.62	0.79
Low	7.96	1.00	0.88	6.13	0.66	1.31

(continued)

Table 5.1 (continued): *Health indicators—age-standardised*[a] *rates and rate ratios by education and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ education	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Varicose veins						
High	4.03	1.01	1.00	6.75	1.25	1.00
Medium	3.98	0.72	0.99	6.29	0.82	0.93
Low	3.16	0.62	0.79	6.88	0.70	1.02
Asthma						
High	4.99	1.02	1.00	4.95	1.04	1.00
Medium	5.73	0.86	1.15	4.86	0.72	0.98
Low	4.94	0.79	0.99	5.57	0.63	1.12
Hernia						
High	6.06	1.18	1.00	3.54	0.93	1.00
Medium	6.13	0.90	1.01	4.16	0.67	1.17
Low	6.24	0.89	1.03	4.54	0.57	1.28
Diabetes mellitus						
High	4.04	0.97	1.00	3.19	0.84	1.00
Medium	4.85	0.79	1.20	4.23	0.67	1.33
Low	6.03	0.88	1.49	4.77	0.58	1.50
High cholesterol						
High	2.95	0.73	1.00	5.66	1.11	1.00
Medium	3.02	0.61	1.03	5.00	0.73	0.88
Low	2.55	0.55	0.87	4.74	0.59	0.84
Selected minor conditions						
Insomnia						
High	9.37	1.55	1.00	15.48	1.97	1.00
Medium	11.48	1.25	1.22	16.73	1.31	1.08
Low	11.14	1.22	1.19	17.47	1.08	1.13
Headache (excluding migraine)						
High	6.59	1.23	1.00	10.99	1.61	1.00
Medium	6.60	0.89	1.00	12.55	1.14	1.14
Low	6.49	0.91	0.98	13.82	0.98	1.26
Constipation						
High	4.89	1.10	1.00	8.72	1.43	1.00
Medium	5.17	0.85	1.06	8.95	0.98	1.03
Low	5.53	0.86	1.13	9.21	0.80	1.06
Nerves/tension/emotional problems, etc.						
High	3.60	0.85	1.00	7.12	1.24	1.00
Medium	4.82	0.79	1.34	7.77	0.91	1.09
Low	4.41	0.73	1.22	10.21	0.85	1.43
Ill-defined heart symptoms						
High	5.83	1.28	1.00	5.83	1.22	1.00
Medium	5.80	0.90	0.99	5.98	0.80	1.03
Low	7.40	1.00	1.27	6.64	0.68	1.14
Skin rash, eczema, dermatitis						
High	5.53	1.03	1.00	5.69	1.19	1.00
Medium	6.59	0.91	1.19	6.03	0.80	1.06
Low	5.43	0.84	0.98	6.28	0.67	1.10
Common cold						
High	6.47	1.23	1.00	5.16	1.14	1.00
Medium	6.69	0.92	1.03	6.36	0.83	1.23
Low	5.78	0.85	0.89	5.29	0.61	1.03
Minor injuries						
High	5.61	1.12	1.00	7.14	1.31	1.00
Medium	4.99	0.82	0.89	4.77	0.71	0.67
Low	3.77	0.68	0.67	4.39	0.56	0.62 *

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

6 Socioeconomic area differentials

There has been considerable focus in Australia and overseas on the association between socioeconomic disadvantage and health status. These analyses have usually concentrated on working-age adults and often used occupation-based measures of social class (see Mathers 1994, chapters 8 and 9). An alternative approach is to look at variations in mortality rates by grouping residential localities according to socioeconomic criteria. In Australia, a number of such studies have documented variations in infant and adult mortality (McNeil et al. 1990; Siskind, Najman & Copeman 1987). Hume & Womersley (1985) found substantial variations by postcode sector for the death rates in the population aged 60 years and over of Glasgow, with the postcode sectors with highest death rates being entirely concentrated in the more disadvantaged areas of the city.

Aggregate socioeconomic characteristics of the populations of defined geographical areas can be used as a proxy for individual socioeconomic status, though they are most usefully thought of as a measure of the economic and social characteristics of a person's local environment. The value of such geographical indexes decreases as the size of the areas increase, as larger areas are likely to be more heterogeneous than smaller ones.

The Australian Bureau of Statistics has constructed a number of socioeconomic indexes designed to categorise areas on the basis of social and economic information collected in the 1986 Population Census (ABS 1990). The indexes are compiled at small geographic levels known as collection districts and then aggregated to larger geographic areas such as postcodes or statistical local areas (SLAs). A collection district is roughly equivalent to a small group of suburban blocks in urban areas. In most cases, SLAs correspond to local government areas' defined council boundaries.

Box 6: Socioeconomic disadvantage of area categories

Mortality data supplied by ABS contains the statistical local area (SLA) of usual residence of the deceased person. Quintile of socioeconomic disadvantage of the SLA of residence was provided by ABS for the National Health Survey respondents. Data on socioeconomic disadvantage of area was not available for the ABS 1988 Survey of Aged and Disabled Persons.

For both these data sources, men and women aged 65 years and over were classified into quintiles of socioeconomic disadvantage according to the value of the Index of Relative Socioeconomic Disadvantage (IRSD) for their SLA of usual residence (ABS 1990) as follows:

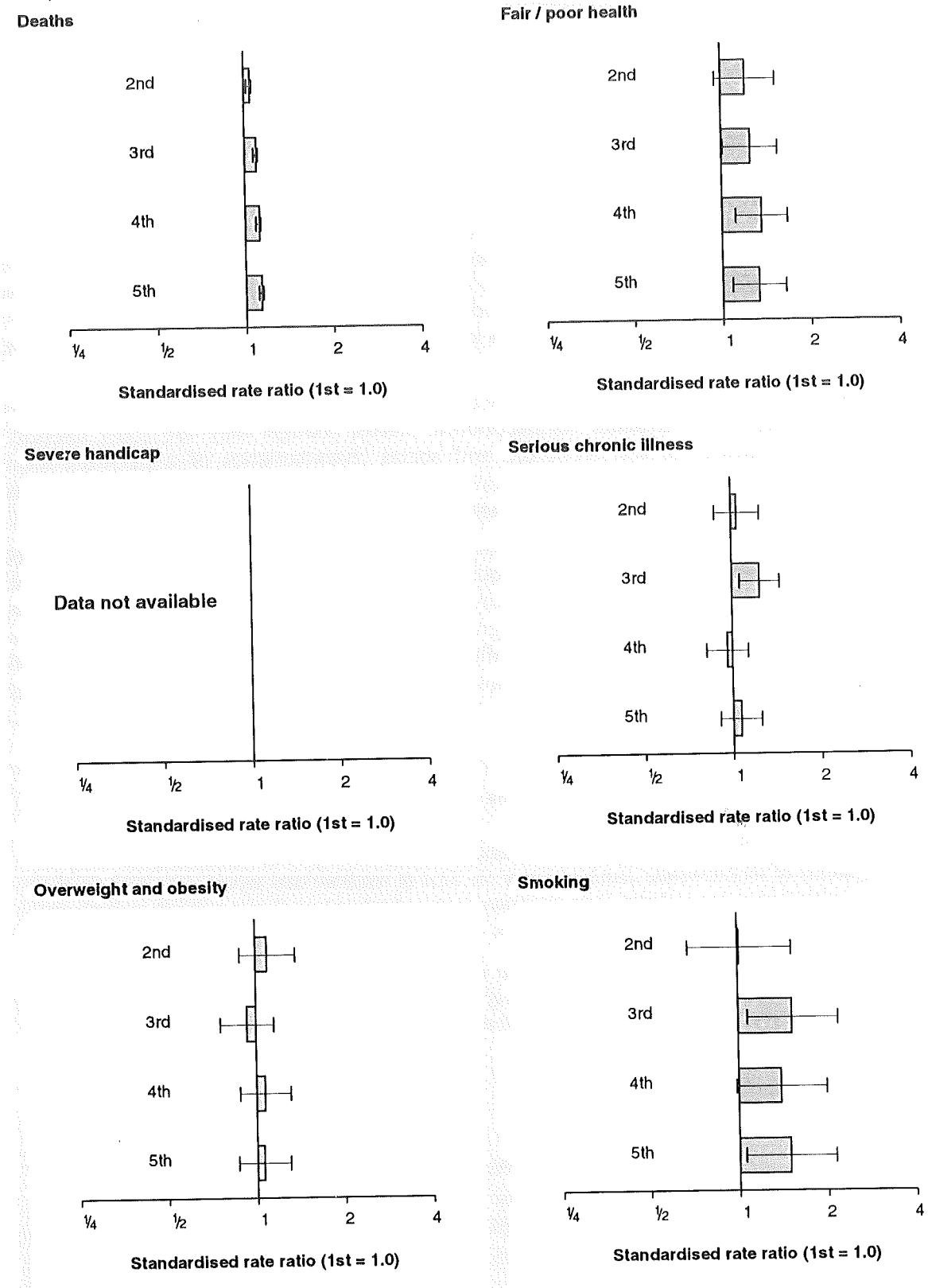
ABS 1985–87 mortality data

ABS 1989–90 National Health Survey (NHS)

1st quintile:	$1066.0 \leq IRSD$
2nd quintile:	$1021.6 \leq IRSD < 1066.0$
3rd quintile:	$990.1 \leq IRSD < 1021.6$
4th quintile:	$963.0 \leq IRSD < 990.1$
5th quintile:	$IRSD < 963.0$

Quintile of socioeconomic disadvantage was ascertained for all respondents in the National Health Survey. SLA of usual residence was either missing or could not be mapped to an IRSD value for 2.2% of deaths for both males and females. These deaths were excluded from analysis of mortality differentials.

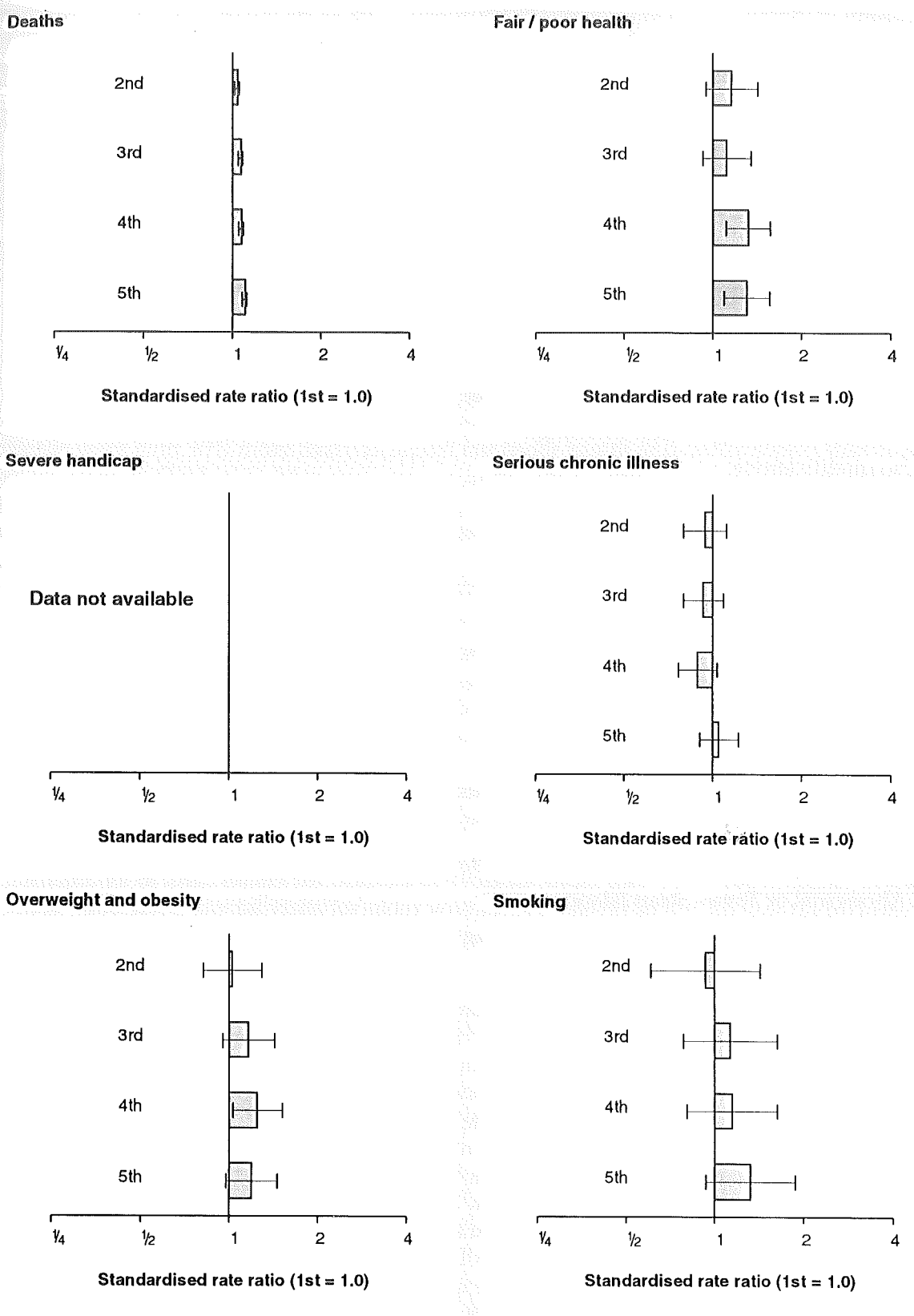
6 Socioeconomic area — Males 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 6.1: ***Health status differentials by quintile of socioeconomic disadvantage of area, Australian males aged 65 years and over, late 1980s***

6 Socioeconomic area — Females 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 6.2: *Health status differentials by quintile of socioeconomic disadvantage of area, Australian females aged 65 years and over, late 1980s*

6 Socioeconomic area — 65 years and over

The Index of Relative Socioeconomic Disadvantage (IRSD) is constructed by summarising information from a number of underlying social and economic variables relating to socio-economic disadvantage, such as low income, relatively low educational attainment levels and high unemployment. It is designed so that the collection districts have a mean index value of 1,000 with a standard deviation of 100. An area has a low value of this index if it contains a large proportion of comparatively disadvantaged households and/or individuals.

The Index of Relative Socioeconomic Disadvantage is compiled from the following set of variables (in all cases expressed as ratios or percentages of the relevant population):

- family income of less than $12,000
- households with no motor cars
- households with one or no bedrooms
- households renting (non-government)
- households renting (government authority)
- households in improvised dwellings
- no qualifications
- left school less than 15 years of age
- never at school
- employed males classified in trades
- employed females classified in trades
- employed females classified in sales/personal
- employed persons classified as labourer or related
- males unemployed
- females unemployed
- families consisting of head and dependents
- Aged 15+ separated or divorced
- Occupied dwellings with 2 or more families
- Aboriginal or Torres Strait Islanders
- recent migrant from non-English-speaking country
- lacking English fluency.

This chapter reports health differentials among older adults by quintile of socioeconomic disadvantage of local area, using the IRSD at the SLA level (see Box 6). For both men and women, there is a clear gradient of increasing mortality with increasing level of socioeconomic disadvantage of area of residence (Figures 6.1 and 6.2). Men aged 65 years and over living in areas classified into the quintile of greatest socioeconomic disadvantage had death rates 14% higher than men living in areas in the quintile of least disadvantage. For women aged 65 years and over, there was a slightly smaller differential (11%). These differentials are statistically highly significant, although they are smaller in magnitude than those for adults aged 25–64 years (68% for men and 50% for women). However, because death rates are much higher in older people than in working-age adults, these differentials by socioeconomic disadvantage of area are larger in absolute terms for the older adults:

- for every 1,000 men and women aged 65 years and older in the 5th quintile of socioeconomic disadvantage, there are 6 deaths per year more than if those men and women experienced the death rates of those in the 1st quintile
- in comparison, there are an excess of 1.6 deaths per year for every 1,000 men and women

aged 25–64 years in the 5th quintile of socioeconomic disadvantage.

Persons in disadvantaged areas had significantly higher death rates for all major causes of death except for mental disorders, cancers in women and injuries in men. Some of the strongest differentials between 5th and 1st quintiles for selected causes of death were:

- pneumonia/influenza—53% higher for men and 16% higher for women
- diabetes—32% higher for women and 15% higher for men
- lung cancer—28% higher for men
- bronchitis, emphysema, asthma—18% higher for men
- ischaemic heart disease—10% higher for men and 15% higher for women
- cerebrovascular disease—16% higher for men and 6% higher for women
- suicide—44% lower for women.

There was also a clear gradient of increasing prevalence of fair/poor health for both men and women with increasing index of disadvantage, so that both men and women in the 5th quintile were over 30% more likely to report fair/poor health and unhappiness than those in the 1st quintile (Table 6.1). Men and women in the 5th quintile were also significantly more likely to report reduced activity, and women to report minor illness. Apart from the latter, there were no clear gradients of chronic, recent or minor illness with level of socioeconomic disadvantage. In contrast with working-age adults (Mathers 1994), apart from digestive system conditions for men, no specific chronic illnesses or minor illnesses were reported more frequently by those in the 5th quintile compared with those in the 1st quintile.

There were significant differentials for risk factors across quintiles of socioeconomic disadvantage of area for inactivity and smoking but not for overweight and obesity or risk drinking (Table 6.1). Men and women in the 5th quintile were substantially more likely to be smokers (49% more likely for men and 32% for women) and inactive (26% more likely for men and 29% for women). Interestingly, there was an apparent increasing prevalence of overweight or obesity with increasing disadvantage for women but not for men. This parallels the finding for working-age adults (Mathers 1994).

There was not a clear pattern of health service use differentials by socioeconomic disadvantage of area, except for outpatient visits for older men (over 200% higher in the 5th quintile) and fewer dental visits for older women (44% fewer in the 5th quintile). There were no differentials in hospital episodes. Older women (but not men) in the 5th quintile reported more doctor visits, in contrast to working-age adults, where men, but not women, in the 5th quintile reported more doctor visits (Mathers 1994).

It is important to remember that the differentials reported above relate the health or mortality of all people living in a geographic area to the overall level of socioeconomic disadvantage of that area. Most areas will contain varying levels of individual socioeconomic disadvantage and, to the extent that poorer health is associated with individual economic circumstances and living conditions rather than communal environment, the differentials will understate the true differences in health status according to socioeconomic disadvantage. On the other hand, it is possible that these differentials may relate to aspects of individual socioeconomic disadvantage not captured by available individual variables such as income and education, or may point to an effect of the local socioeconomic or physical environment relating to the area rather than the individual. Additionally, there is considerable internal migration at older ages, particularly among the old old (85 years and over), as some older people move to retirement villages, hostels or nursing homes. Hostels and nursing homes are often located in less socioeconomically disadvantaged areas, and this may also contribute to reduced health differentials for older people by disadvantage of area, compared with working-age adults.

References

Australian Bureau of Statistics (1990). Socioeconomic indexes for areas. ABS Cat. No. 1356.0, Canberra.

Hume D, Womersley J (1985). Analysis of death rates in the population aged 60 years and over of Greater Glasgow by postcode sector of residence. J Epidemiol Comm Health 39:357–363.

Mathers CD (1994). Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

McNeil J, King R, Jennings G, Powles J (eds) (1990). A textbook of preventive medicine. Edward Arnold, Melbourne.

Siskind V, Najman J, Copeman R (1987) Socioeconomic status and mortality: a Brisbane area analysis. Community Health Studies 11(1):15–23.

Table 6.1: *Health indicators—age-standardised[(a)] rates and rate ratios by socioeconomic disadvantage of area and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ socioeconomic area	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Health status indicators						
Mortality						
1st quintile	59.58	0.44	1.00	37.88	0.26	1.00
2nd quintile	62.49	0.43	1.05 ***	39.50	0.26	1.04 ***
3rd quintile	65.48	0.41	1.10 ***	40.60	0.25	1.07 ***
4th quintile	66.60	0.43	1.12 ***	40.78	0.26	1.08 ***
5th quintile	67.68	0.42	1.14 ***	41.94	0.26	1.11 ***
Fair/poor health						
1st quintile	35.42	2.88	1.00	36.15	2.47	1.00
2nd quintile	42.64	3.74	1.20	41.79	3.14	1.16
3rd quintile	44.22	3.26	1.25 *	40.27	2.66	1.11
4th quintile	48.18	3.25	1.36 **	47.53	2.65	1.31 **
5th quintile	47.09	3.31	1.33 **	47.00	2.80	1.30 **
Serious chronic illnesses						
1st quintile	0.66	0.04	1.00	0.56	0.03	1.00
2nd quintile	0.68	0.05	1.04	0.53	0.03	0.94
3rd quintile	0.81	0.04	1.24 **	0.52	0.03	0.93
4th quintile	0.63	0.04	0.96	0.50	0.03	0.89
5th quintile	0.70	0.04	1.06	0.59	0.03	1.05
Chronic illnesses						
1st quintile	2.40	0.08	1.00	2.31	0.07	1.00
2nd quintile	2.28	0.09	0.95	2.27	0.08	0.98
3rd quintile	2.45	0.08	1.02	2.17	0.06	0.94
4th quintile	2.08	0.07	0.87 **	2.17	0.06	0.94
5th quintile	2.21	0.07	0.92	2.35	0.07	1.02
Recent illnesses						
1st quintile	1.42	0.06	1.00	1.58	0.05	1.00
2nd quintile	1.53	0.07	1.08	1.59	0.06	1.00
3rd quintile	1.50	0.06	1.06	1.59	0.05	1.00
4th quintile	1.40	0.06	0.99	1.69	0.05	1.07
5th quintile	1.44	0.06	1.02	1.61	0.05	1.02
Minor illnesses						
1st quintile	0.90	0.05	1.00	1.11	0.04	1.00
2nd quintile	0.82	0.05	0.91	1.17	0.05	1.06
3rd quintile	0.80	0.04	0.89	1.06	0.04	0.96
4th quintile	0.96	0.05	1.06	1.14	0.04	1.04
5th quintile	0.89	0.05	0.98	1.23	0.05	1.11 *
Dental problems						
1st quintile	4.57	1.06	1.00	4.51	0.89	1.00
2nd quintile	3.57	1.03	0.78	4.29	1.04	0.95
3rd quintile	3.01	0.88	0.66	2.70	0.72	0.60
4th quintile	2.53	0.73	0.55	2.68	0.66	0.59
5th quintile	4.57	1.02	1.00	2.86	0.70	0.63
Reduced activity						
1st quintile	37.93	0.72	1.00	38.46	0.63	1.00
2nd quintile	27.16	0.70	0.72 ***	35.48	0.74	0.92 **
3rd quintile	47.27	0.81	1.25 ***	48.38	0.72	1.26 ***
4th quintile	38.14	0.69	1.01	38.84	0.60	1.01
5th quintile	40.50	0.73	1.07 *	46.85	0.69	1.22 ***
Unhappiness						
1st quintile	5.26	1.14	1.00	6.71	1.08	1.00
2nd quintile	8.42	1.74	1.60	7.16	1.33	1.07
3rd quintile	4.63	1.08	0.88	5.85	1.03	0.87
4th quintile	8.28	1.38	1.57	7.06	1.06	1.05
5th quintile	7.16	1.29	1.36	9.05	1.28	1.35

(continued)

Table 6.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by socioeconomic disadvantage of area and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ socioeconomic area	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Risk factors						
Overweight and obesity						
1st quintile	42.36	3.12	1.00	33.08	2.48	1.00
2nd quintile	46.34	3.87	1.09	33.87	3.02	1.02
3rd quintile	39.33	3.04	0.93	38.49	2.73	1.16
4th quintile	45.32	3.15	1.07	41.19	2.59	1.25 *
5th quintile	44.76	3.18	1.06	39.29	2.68	1.19
Inactivity						
1st quintile	29.81	2.70	1.00	38.14	2.53	1.00
2nd quintile	39.32	3.67	1.32 *	41.58	3.18	1.09
3rd quintile	37.90	3.06	1.27 *	50.03	2.94	1.31 **
4th quintile	44.21	3.17	1.48 ***	49.39	2.70	1.29 **
5th quintile	37.59	3.05	1.26	49.04	2.87	1.29 **
Smoking						
1st quintile	12.06	1.68	1.00	9.75	1.31	1.00
2nd quintile	12.22	1.88	1.01	9.05	1.54	0.93
3rd quintile	18.39	2.11	1.53 *	10.98	1.42	1.13
4th quintile	16.84	1.91	1.40	11.14	1.33	1.14
5th quintile	18.01	2.03	1.49 *	12.83	1.49	1.32
Alcohol risk						
1st quintile	6.79	1.20	1.00	5.21	0.95	1.00
2nd quintile	6.09	1.36	0.90	4.32	1.05	0.83
3rd quintile	5.58	1.10	0.82	4.23	0.88	0.81
4th quintile	6.22	1.13	0.92	3.03	0.70	0.58
5th quintile	7.74	1.28	1.14	5.60	0.99	1.07
Health service use						
Hospital episodes						
1st quintile	0.38	0.11	1.00	0.26	0.09	1.00
2nd quintile	0.33	0.11	0.87	0.31	0.11	1.21
3rd quintile	0.45	0.12	1.19	0.32	0.10	1.23
4th quintile	0.43	0.11	1.14	0.32	0.09	1.25
5th quintile	0.46	0.11	1.21	0.32	0.10	1.24
Doctor visits						
1st quintile	11.72	0.51	1.00	10.69	0.40	1.00
2nd quintile	10.60	0.57	0.90	11.07	0.49	1.04
3rd quintile	11.69	0.51	1.00	12.65	0.45	1.18 **
4th quintile	10.43	0.47	0.89	11.10	0.39	1.04
5th quintile	10.55	0.48	0.90	13.88	0.45	1.30 ***
Outpatient visits						
1st quintile	0.89	0.17	1.00	1.72	0.26	1.00
2nd quintile	0.97	0.21	1.09	1.21	0.26	0.70
3rd quintile	2.21	0.28	2.48 ***	1.67	0.24	0.97
4th quintile	1.40	0.21	1.57	0.93	0.17	0.54 *
5th quintile	2.69	0.35	3.03 ***	1.65	0.24	0.96
Dental visits						
1st quintile	1.29	0.10	1.00	1.73	0.17	1.00
2nd quintile	1.05	0.11	0.82	1.54	0.19	0.89
3rd quintile	0.91	0.09	0.71 **	0.87	0.12	0.50 ***
4th quintile	0.79	0.08	0.61 ***	0.72	0.10	0.42 ***
5th quintile	1.73	0.12	1.35 **	0.97	0.12	0.56 ***

(continued)

Table 6.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by socioeconomic disadvantage of area and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ socioeconomic area	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Other health professional visits						
1st quintile	6.38	0.79	1.00	7.35	1.12	1.00
2nd quintile	5.56	0.80	0.87	6.42	1.18	0.87
3rd quintile	7.01	0.87	1.10	5.93	1.11	0.81
4th quintile	5.29	0.68	0.83	5.81	0.90	0.79
5th quintile	4.55	0.59	0.71	7.11	1.09	0.97
Major cause of death groups						
Cancers						
1st quintile	14.46	0.21	1.00	7.76	0.12	1.00
2nd quintile	15.36	0.20	1.06 **	7.99	0.12	1.03
3rd quintile	15.45	0.20	1.07 ***	7.76	0.11	1.00
4th quintile	15.29	0.20	1.06 **	7.85	0.12	1.01
5th quintile	15.83	0.20	1.09 ***	7.68	0.11	0.99
Endocrine, metabolic, nutritional						
1st quintile	1.15	0.06	1.00	0.88	0.04	1.00
2nd quintile	1.22	0.06	1.06	0.98	0.04	1.11
3rd quintile	1.29	0.06	1.12	1.08	0.04	1.23 ***
4th quintile	1.37	0.06	1.20 *	1.09	0.04	1.23 ***
5th quintile	1.38	0.06	1.21 **	1.17	0.04	1.33 ***
Mental disorders						
1st quintile	0.75	0.05	1.00	0.59	0.03	1.00
2nd quintile	0.74	0.05	0.99	0.59	0.03	1.00
3rd quintile	0.88	0.05	1.18	0.75	0.03	1.28 ***
4th quintile	0.97	0.05	1.30 **	0.78	0.03	1.33 ***
5th quintile	0.85	0.05	1.14	0.66	0.03	1.13
Nervous system, sense organs						
1st quintile	0.91	0.05	1.00	0.61	0.03	1.00
2nd quintile	0.95	0.05	1.05	0.68	0.03	1.12
3rd quintile	0.90	0.05	1.00	0.64	0.03	1.06
4th quintile	0.97	0.05	1.07	0.63	0.03	1.04
5th quintile	1.01	0.05	1.11	0.70	0.03	1.16 *
Circulatory system						
1st quintile	31.78	0.32	1.00	22.32	0.19	1.00
2nd quintile	32.61	0.31	1.03	23.20	0.20	1.04 **
3rd quintile	34.14	0.30	1.07 ***	23.94	0.19	1.07 ***
4th quintile	34.86	0.31	1.10 ***	23.80	0.20	1.07 ***
5th quintile	35.06	0.30	1.10 ***	24.70	0.20	1.11 ***
Respiratory system						
1st quintile	5.61	0.14	1.00	2.26	0.06	1.00
2nd quintile	6.55	0.14	1.17 ***	2.32	0.06	1.03
3rd quintile	7.37	0.14	1.31 ***	2.46	0.06	1.09 *
4th quintile	7.38	0.14	1.32 ***	2.57	0.06	1.14 ***
5th quintile	7.66	0.14	1.37 ***	2.55	0.06	1.13 **
Digestive system						
1st quintile	1.65	0.07	1.00	1.27	0.05	1.00
2nd quintile	1.68	0.07	1.02	1.38	0.05	1.08
3rd quintile	1.89	0.07	1.14 *	1.48	0.05	1.16 **
4th quintile	2.13	0.08	1.29 ***	1.51	0.05	1.19 ***
5th quintile	2.09	0.07	1.27 ***	1.62	0.05	1.27 ***

(continued)

Table 6.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by socioeconomic disadvantage of area and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ socioeconomic area	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Genito-urinary system						
1st quintile	1.05	0.06	1.00	0.66	0.03	1.00
2nd quintile	1.02	0.06	0.97	0.73	0.03	1.11
3rd quintile	1.18	0.06	1.12	0.80	0.04	1.22 **
4th quintile	1.20	0.06	1.14	0.86	0.04	1.32 ***
5th quintile	1.30	0.06	1.24 **	0.93	0.04	1.41 ***
Injury and poisoning						
1st quintile	1.31	0.06	1.00	0.80	0.04	1.00
2nd quintile	1.40	0.06	1.08	0.79	0.04	1.00
3rd quintile	1.35	0.06	1.03	0.88	0.04	1.11
4th quintile	1.38	0.06	1.06	0.85	0.04	1.06
5th quintile	1.48	0.06	1.13	0.93	0.04	1.17 *
Other						
1st quintile	0.93	0.06	1.00	0.74	0.04	1.00
2nd quintile	0.96	0.05	1.03	0.84	0.04	1.14 *
3rd quintile	1.04	0.05	1.12	0.81	0.04	1.10
4th quintile	1.06	0.06	1.14	0.82	0.04	1.12
5th quintile	1.01	0.05	1.09	0.99	0.04	1.35 ***
All causes						
1st quintile	59.58	0.44	1.00	37.88	0.26	1.00
2nd quintile	62.49	0.43	1.05 ***	39.50	0.26	1.04 ***
3rd quintile	65.48	0.41	1.10 ***	40.60	0.25	1.07 ***
4th quintile	66.60	0.43	1.12 ***	40.78	0.26	1.08 ***
5th quintile	67.68	0.42	1.14 ***	41.94	0.26	1.11 ***
Selected causes of death						
Stomach cancer						
1st quintile	0.84	0.05	1.00	0.37	0.03	1.00
2nd quintile	1.02	0.05	1.21 *	0.35	0.02	0.93
3rd quintile	0.86	0.05	1.02	0.38	0.02	1.01
4th quintile	0.91	0.05	1.08	0.37	0.02	1.00
5th quintile	0.91	0.05	1.08	0.41	0.03	1.09
Colorectal cancer						
1st quintile	2.09	0.08	1.00	1.39	0.05	1.00
2nd quintile	2.06	0.07	0.98	1.46	0.05	1.05
3rd quintile	1.98	0.07	0.94	1.41	0.05	1.01
4th quintile	1.86	0.07	0.89 *	1.43	0.05	1.02
5th quintile	1.93	0.07	0.92	1.32	0.05	0.95
Pancreatic cancer						
1st quintile	0.63	0.04	1.00	0.46	0.03	1.00
2nd quintile	0.62	0.04	1.00	0.52	0.03	1.13
3rd quintile	0.62	0.04	0.98	0.45	0.03	0.98
4th quintile	0.67	0.04	1.06	0.45	0.03	0.99
5th quintile	0.66	0.04	1.06	0.45	0.03	0.98
Lung cancer						
1st quintile	3.44	0.10	1.00	0.80	0.04	1.00
2nd quintile	3.86	0.10	1.12 **	0.87	0.04	1.08
3rd quintile	4.17	0.10	1.21 ***	0.84	0.04	1.05
4th quintile	4.22	0.10	1.23 ***	0.80	0.04	1.00
5th quintile	4.41	0.10	1.28 ***	0.83	0.04	1.03

(continued)

Table 6.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by socioeconomic disadvantage of area and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ socioeconomic area	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Breast/prostate cancer						
1st quintile	2.31	0.09	1.00	1.19	0.05	1.00
2nd quintile	2.32	0.08	1.00	1.22	0.05	1.03
3rd quintile	2.44	0.08	1.05	1.10	0.04	0.93
4th quintile	2.42	0.08	1.05	1.10	0.04	0.93
5th quintile	2.35	0.08	1.02	1.09	0.04	0.92
Brain cancer						
1st quintile	0.24	0.03	1.00	0.16	0.02	1.00
2nd quintile	0.29	0.03	1.17	0.12	0.01	0.72 *
3rd quintile	0.27	0.02	1.10	0.12	0.01	0.72 *
4th quintile	0.21	0.02	0.86	0.15	0.02	0.93
5th quintile	0.18	0.02	0.73 *	0.16	0.02	0.95
Diabetes mellitus						
1st quintile	0.98	0.06	1.00	0.72	0.04	1.00
2nd quintile	1.03	0.05	1.05	0.79	0.04	1.09
3rd quintile	1.08	0.05	1.10	0.93	0.04	1.28 ***
4th quintile	1.14	0.06	1.16	0.88	0.04	1.21 **
5th quintile	1.13	0.05	1.15	0.96	0.04	1.32 ***
Ischaemic heart disease						
1st quintile	19.25	0.25	1.00	11.01	0.14	1.00
2nd quintile	19.48	0.24	1.01	11.62	0.14	1.06 **
3rd quintile	20.70	0.23	1.08 ***	12.30	0.14	1.12 ***
4th quintile	20.76	0.24	1.08 ***	12.29	0.14	1.12 ***
5th quintile	21.12	0.23	1.10 ***	12.63	0.14	1.15 ***
Cerebrovascular disease						
1st quintile	6.45	0.15	1.00	6.46	0.10	1.00
2nd quintile	6.70	0.14	1.04	6.35	0.10	0.98
3rd quintile	6.77	0.14	1.05	6.56	0.10	1.02
4th quintile	7.21	0.14	1.12 ***	6.43	0.10	1.00
5th quintile	7.50	0.14	1.16 ***	6.86	0.10	1.06 **
Pneumonia/influenza						
1st quintile	0.84	0.05	1.00	0.68	0.03	1.00
2nd quintile	1.03	0.06	1.23 *	0.78	0.04	1.15 *
3rd quintile	1.17	0.06	1.39 ***	0.80	0.03	1.17 *
4th quintile	1.26	0.06	1.50 ***	0.89	0.04	1.31 ***
5th quintile	1.28	0.06	1.53 ***	0.79	0.03	1.16 *
Bronchitis/emphysema/asthma						
1st quintile	1.54	0.07	1.00	0.59	0.03	1.00
2nd quintile	1.65	0.07	1.07	0.57	0.03	0.96
3rd quintile	1.90	0.07	1.23 ***	0.57	0.03	0.96
4th quintile	1.55	0.06	1.01	0.53	0.03	0.89
5th quintile	1.82	0.07	1.18 **	0.61	0.03	1.03
MV traffic accident						
1st quintile	0.29	0.03	1.00	0.16	0.02	1.00
2nd quintile	0.36	0.03	1.27	0.17	0.02	1.05
3rd quintile	0.34	0.03	1.18	0.19	0.02	1.19
4th quintile	0.34	0.03	1.17	0.18	0.02	1.12
5th quintile	0.34	0.03	1.19	0.18	0.02	1.11
Suicide						
1st quintile	0.28	0.03	1.00	0.11	0.01	1.00
2nd quintile	0.33	0.03	1.18	0.07	0.01	0.65 *
3rd quintile	0.32	0.03	1.13	0.09	0.01	0.84
4th quintile	0.34	0.03	1.21	0.08	0.01	0.71
5th quintile	0.31	0.03	1.10	0.06	0.01	0.56 **

(continued)

Table 6.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by socioeconomic disadvantage of area and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ socioeconomic area	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Major chronic illness groups						
Neoplasms						
1st quintile	7.65	1.36	1.00	5.02	0.93	1.00
2nd quintile	8.41	1.60	1.10	5.83	1.19	1.16
3rd quintile	7.32	1.40	0.96	4.89	0.94	0.98
4th quintile	7.86	1.32	1.03	4.02	0.79	0.80
5th quintile	6.88	1.25	0.90	3.99	0.84	0.80
Endocrine, metabolic, nutritional						
1st quintile	14.14	1.85	1.00	14.62	1.60	1.00
2nd quintile	12.37	1.96	0.87	15.11	1.95	1.03
3rd quintile	15.18	1.89	1.07	13.93	1.60	0.95
4th quintile	13.54	1.75	0.96	15.63	1.57	1.07
5th quintile	13.36	1.79	0.94	15.49	1.65	1.06
Mental disorders						
1st quintile	1.45	0.54	1.00	1.77	0.54	1.00
2nd quintile	1.95	0.79	1.35	1.71	0.61	0.97
3rd quintile	1.07	0.46	0.74	1.42	0.48	0.80
4th quintile	0.54	0.34	0.37	1.62	0.49	0.91
5th quintile	2.07	0.71	1.43	2.31	0.62	1.31
Nervous system, sense organs						
1st quintile	39.52	3.11	1.00	28.16	2.19	1.00
2nd quintile	34.73	3.49	0.88	26.15	2.55	0.93
3rd quintile	34.43	2.97	0.87	24.48	2.10	0.87
4th quintile	30.41	2.68	0.77 *	27.07	2.04	0.96
5th quintile	31.62	2.79	0.80	27.51	2.18	0.98
Circulatory system						
1st quintile	41.04	3.12	1.00	47.21	2.80	1.00
2nd quintile	42.80	3.73	1.04	48.23	3.37	1.02
3rd quintile	38.52	3.07	0.94	45.93	2.83	0.97
4th quintile	35.78	2.79	0.87	45.13	2.59	0.96
5th quintile	31.88	2.75	0.78 *	47.93	2.83	1.02
Respiratory system						
1st quintile	20.49	2.20	1.00	16.21	1.68	1.00
2nd quintile	15.94	2.34	0.78	14.95	1.92	0.92
3rd quintile	20.89	2.25	1.02	16.50	1.74	1.02
4th quintile	18.43	2.10	0.90	15.47	1.56	0.95
5th quintile	24.15	2.43	1.18	16.92	1.71	1.04
Digestive system						
1st quintile	10.63	1.59	1.00	10.45	1.36	1.00
2nd quintile	13.82	2.15	1.30	13.22	1.83	1.26
3rd quintile	19.24	2.24	1.81 **	12.03	1.49	1.15
4th quintile	12.94	1.71	1.22	11.21	1.33	1.07
5th quintile	16.39	1.97	1.54 *	12.40	1.48	1.19
Genito-urinary system						
1st quintile	4.78	1.07	1.00	5.80	1.01	1.00
2nd quintile	1.80	0.70	0.38 *	4.50	1.04	0.78
3rd quintile	4.62	1.08	0.97	5.01	0.96	0.87
4th quintile	3.46	0.88	0.72	5.59	0.94	0.96
5th quintile	4.57	1.05	0.96	5.44	0.99	0.94
Skin and subcutaneous tissue						
1st quintile	7.81	1.35	1.00	4.56	0.89	1.00
2nd quintile	8.62	1.70	1.10	4.04	0.98	0.89
3rd quintile	8.97	1.49	1.15	3.85	0.84	0.84
4th quintile	3.40	0.87	0.44 **	4.19	0.81	0.92
5th quintile	4.19	1.03	0.54 *	5.01	0.94	1.10

(continued)

Table 6.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by socioeconomic disadvantage of area and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ socioeconomic area	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Musculoskeletal system						
1st quintile	52.30	3.43	1.00	57.99	3.07	1.00
2nd quintile	49.46	4.08	0.95	60.38	3.77	1.04
3rd quintile	51.99	3.51	0.99	55.30	3.09	0.95
4th quintile	46.51	3.23	0.89	53.72	2.80	0.93
5th quintile	47.13	3.36	0.90	57.84	3.08	1.00
Injury and poisoning						
1st quintile	2.27	0.74	1.00	1.92	0.56	1.00
2nd quintile	0.71	0.43	0.31	0.68	0.40	0.35
3rd quintile	2.06	0.75	0.91	1.49	0.50	0.78
4th quintile	1.42	0.61	0.63	0.58	0.29	0.30 *
5th quintile	2.97	0.78	1.31	2.32	0.63	1.21
Other						
1st quintile	2.90	0.80	1.00	2.98	0.71	1.00
2nd quintile	5.52	1.40	1.90	2.60	0.82	0.87
3rd quintile	4.46	1.11	1.54	2.17	0.61	0.73
4th quintile	3.35	0.88	1.16	4.16	0.80	1.40
5th quintile	3.69	0.88	1.27	3.08	0.73	1.04
All causes						
1st quintile	88.70	4.43	1.00	88.66	3.72	1.00
2nd quintile	83.66	5.19	0.94	89.94	4.54	1.01
3rd quintile	87.11	4.50	0.98	84.60	3.74	0.95
4th quintile	85.38	4.27	0.96	83.41	3.42	0.94
5th quintile	85.81	4.39	0.97	89.35	3.75	1.01
Selected chronic conditions						
Arthritis						
1st quintile	34.44	2.82	1.00	43.81	2.70	1.00
2nd quintile	32.87	3.41	0.95	43.11	3.21	0.98
3rd quintile	32.59	2.81	0.95	44.47	2.79	1.01
4th quintile	29.47	2.60	0.86	43.10	2.53	0.98
5th quintile	33.81	2.90	0.98	43.95	2.72	1.00
Hypertension						
1st quintile	25.02	2.43	1.00	31.48	2.31	1.00
2nd quintile	28.16	3.00	1.13	30.36	2.72	0.96
3rd quintile	22.61	2.29	0.90	33.59	2.45	1.07
4th quintile	23.23	2.25	0.93	31.82	2.20	1.01
5th quintile	17.50	2.05	0.70 *	29.78	2.26	0.95
Deafness (complete/partial)						
1st quintile	20.53	2.26	1.00	9.69	1.30	1.00
2nd quintile	22.15	2.79	1.08	10.48	1.61	1.08
3rd quintile	21.51	2.37	1.05	8.58	1.25	0.89
4th quintile	17.18	2.04	0.84	9.87	1.25	1.02
5th quintile	18.12	2.13	0.88	10.57	1.38	1.09
Back problems						
1st quintile	13.28	1.73	1.00	12.01	1.45	1.00
2nd quintile	12.34	1.98	0.93	9.05	1.49	0.75
3rd quintile	15.35	1.93	1.16	5.50	1.01	0.46 ***
4th quintile	12.05	1.61	0.91	7.78	1.11	0.65 *
5th quintile	11.96	1.62	0.90	8.39	1.22	0.70

(continued)

Table 6.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by socioeconomic disadvantage of area and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ socioeconomic area	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Heart disease						
1st quintile	11.32	1.70	1.00	9.25	1.28	1.00
2nd quintile	11.22	1.93	0.99	7.25	1.31	0.78
3rd quintile	14.11	1.92	1.25	7.06	1.14	0.76
4th quintile	9.66	1.48	0.85	8.96	1.19	0.97
5th quintile	9.81	1.52	0.87	10.45	1.36	1.13
Hay fever						
1st quintile	8.49	1.38	1.00	7.99	1.19	1.00
2nd quintile	3.37	1.03	0.40 **	6.88	1.30	0.86
3rd quintile	6.36	1.22	0.75	6.35	1.08	0.79
4th quintile	6.49	1.27	0.76	6.06	0.99	0.76
5th quintile	7.84	1.33	0.92	6.34	1.04	0.79
Bronchitis/emphysema						
1st quintile	9.33	1.51	1.00	4.40	0.87	1.00
2nd quintile	7.44	1.55	0.80	5.31	1.13	1.21
3rd quintile	9.48	1.50	1.02	5.73	1.03	1.30
4th quintile	7.12	1.27	0.76	4.47	0.84	1.02
5th quintile	10.60	1.62	1.14	5.72	1.00	1.30
Varicose veins						
1st quintile	3.10	0.82	1.00	8.56	1.23	1.00
2nd quintile	5.25	1.39	1.69	7.49	1.36	0.88
3rd quintile	3.38	0.90	1.09	5.42	0.99	0.63 *
4th quintile	3.68	0.92	1.19	4.19	0.82	0.49 **
5th quintile	2.74	0.74	0.88	7.88	1.17	0.92
Asthma						
1st quintile	3.96	0.93	1.00	5.04	0.93	1.00
2nd quintile	4.28	1.19	1.08	2.83	0.82	0.56
3rd quintile	5.75	1.15	1.45	5.50	1.01	1.09
4th quintile	5.94	1.18	1.50	5.89	0.97	1.17
5th quintile	6.17	1.24	1.56	6.25	1.04	1.24
Hernia						
1st quintile	4.19	0.99	1.00	4.42	0.88	1.00
2nd quintile	6.69	1.51	1.60	3.57	0.91	0.81
3rd quintile	6.84	1.31	1.63	4.00	0.85	0.91
4th quintile	5.26	1.08	1.26	4.27	0.82	0.97
5th quintile	7.20	1.31	1.72	4.65	0.90	1.05
Diabetes mellitus						
1st quintile	6.26	1.24	1.00	3.69	0.80	1.00
2nd quintile	3.57	1.04	0.57	5.00	1.10	1.36
3rd quintile	5.24	1.10	0.84	4.88	0.94	1.32
4th quintile	4.61	1.01	0.74	3.75	0.77	1.02
5th quintile	5.44	1.16	0.87	4.38	0.86	1.19
High cholesterol						
1st quintile	3.81	0.94	1.00	5.14	0.94	1.00
2nd quintile	2.15	0.78	0.57	4.72	1.09	0.92
3rd quintile	3.15	0.82	0.83	4.12	0.87	0.80
4th quintile	2.59	0.73	0.68	5.82	0.97	1.13
5th quintile	2.16	0.65	0.57	5.18	0.96	1.01

(continued)

Table 6.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by socioeconomic disadvantage of area and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ socioeconomic area	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Selected minor conditions						
Insomnia						
1st quintile	9.81	1.56	1.00	15.81	1.66	1.00
2nd quintile	7.08	1.45	0.72	18.19	2.08	1.15
3rd quintile	12.65	1.86	1.29	16.08	1.72	1.02
4th quintile	12.22	1.76	1.25	16.21	1.60	1.03
5th quintile	11.21	1.70	1.14	18.00	1.78	1.14
Headache (excluding migraine)						
1st quintile	5.86	1.21	1.00	12.18	1.46	1.00
2nd quintile	5.81	1.30	0.99	12.91	1.80	1.06
3rd quintile	5.39	1.12	0.92	12.22	1.50	1.00
4th quintile	7.28	1.27	1.24	14.04	1.49	1.15
5th quintile	7.56	1.32	1.29	13.17	1.52	1.08
Constipation						
1st quintile	5.00	1.12	1.00	8.05	1.19	1.00
2nd quintile	4.35	1.23	0.87	8.46	1.46	1.05
3rd quintile	5.49	1.22	1.10	9.49	1.32	1.18
4th quintile	5.35	1.15	1.07	10.03	1.26	1.25
5th quintile	5.61	1.15	1.12	9.38	1.30	1.17
Nerves/tension/emotional problems, etc.						
1st quintile	4.13	0.96	1.00	11.36	1.41	1.00
2nd quintile	5.42	1.33	1.31	6.81	1.29	0.60 *
3rd quintile	2.00	0.66	0.49	7.55	1.18	0.66 *
4th quintile	4.14	0.95	1.00	7.54	1.09	0.66 *
5th quintile	6.79	1.29	1.64	10.85	1.38	0.96
Ill-defined heart symptoms						
1st quintile	7.46	1.38	1.00	5.04	0.93	1.00
2nd quintile	5.78	1.53	0.77	6.18	1.21	1.23
3rd quintile	6.20	1.27	0.83	6.53	1.09	1.30
4th quintile	7.11	1.31	0.95	6.15	0.98	1.22
5th quintile	5.38	1.23	0.72	7.53	1.16	1.50
Skin rash, eczema, dermatitis						
1st quintile	6.54	1.21	1.00	6.44	1.07	1.00
2nd quintile	5.76	1.30	0.88	5.68	1.19	0.88
3rd quintile	4.99	1.10	0.76	5.43	0.99	0.84
4th quintile	5.50	1.11	0.84	5.85	0.96	0.91
5th quintile	6.04	1.20	0.92	7.08	1.11	1.10
Common cold						
1st quintile	8.02	1.35	1.00	5.62	0.99	1.00
2nd quintile	7.27	1.54	0.91	5.25	1.15	0.94
3rd quintile	5.95	1.19	0.74	6.14	1.07	1.09
4th quintile	5.70	1.15	0.71	5.99	0.97	1.07
5th quintile	4.41	1.01	0.55 *	4.57	0.89	0.81
Minor injuries						
1st quintile	5.90	1.20	1.00	5.83	1.01	1.00
2nd quintile	4.71	1.16	0.80	4.49	1.05	0.77
3rd quintile	4.63	1.02	0.78	5.77	1.03	0.99
4th quintile	3.98	0.97	0.67	4.48	0.84	0.77
5th quintile	4.32	1.06	0.73	3.85	0.81	0.66

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7 State/Territory differentials

Very detailed information on geographic differentials in socioeconomic status, health status and health service use have been published by Glover and Woollacott (1992) in *A social health atlas of Australia*. This atlas presents a large number of indicators drawn from the 1989–90 National Health Survey, 1985–1989 mortality data and a number of other sources, mapped predominantly at the local government area level. In addition, summary data for metropolitan, non-metropolitan and State/Territory populations are provided. Readers interested in more detailed analyses of health differentials by geographical region are referred to this atlas.

The results presented in this chapter give a profile of health status, risk factor and health service use differentials between older residents of the States and Territories of Australia in the late 1980s, in the same format as other chapters. Unlike other chapters, where one subgroup has been used as a reference group for the calculation of rate ratios, in this chapter rate ratios are calculated for each State and Territory in relation to the rate for all Australians (of the same sex). For both ABS surveys, sample numbers were small for the Northern Territory and the Australian Capital Territory, and in the case of the 1988 Survey of Disabled and Aged Persons, too small to enable the presentation of rates and differentials for disability and handicap in the Northern Territory. For indicators derived from the 1989–90 National Health Survey, estimates for the two Territories should be treated with caution due to the small sample size. Where no 'cases' were reported for the Territories, no rate ratio has been shown if zero cases could have been expected by chance due to small sample size.

There were significant differences between age-standardised death rates for older Australian men and women for most States and Territories in 1985–87. New South Wales and Tasmanian men and women had death rates significantly above the national average (for older Tasmanian women it was 12% higher). Although these differentials were not large in comparison with some of the other differentials reported here, they are very significant because they relate to the entire older population of a State. Older residents of Queensland, South Australia and Western Australia had deaths rates significantly lower than the national average. Age-standardised death rates for the Northern Territory were 12% and 25% higher than the national average for older men and women. This reflects the very high mortality rates experienced by Aboriginal people in the Northern Territory (Thomson & Briscoe 1991).

Box 7: State/Territory categories

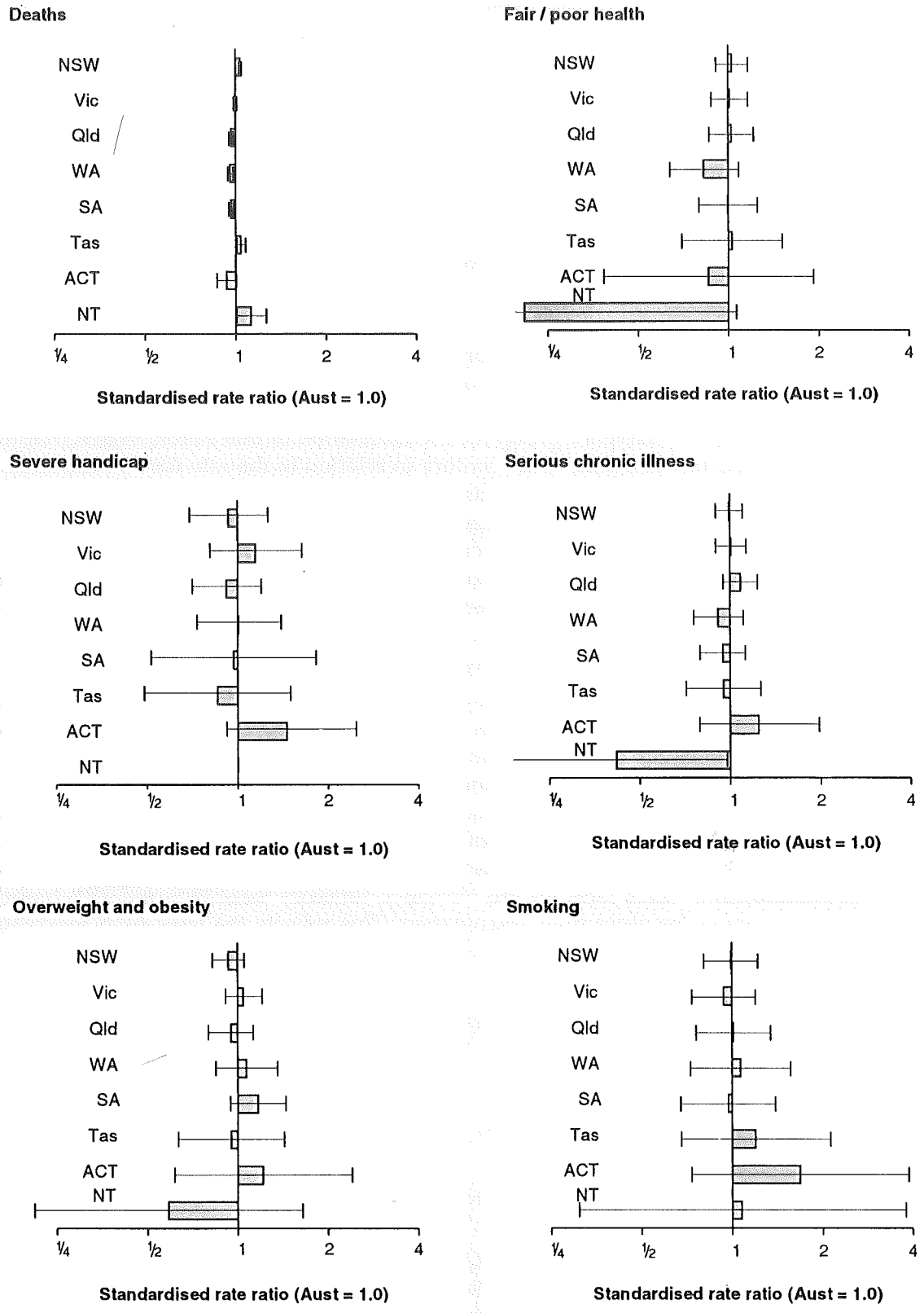
ABS 1985–87 mortality data

ABS 1988 Survey of Disabled and Aged Persons

ABS 1989–90 National Health Survey (NHS)

State or Territory of usual residence:	*New South Wales*
	Victoria
	Queensland
	Western Australia
	South Australia
	Tasmania
	Australian Capital Territory
	Northern Territory

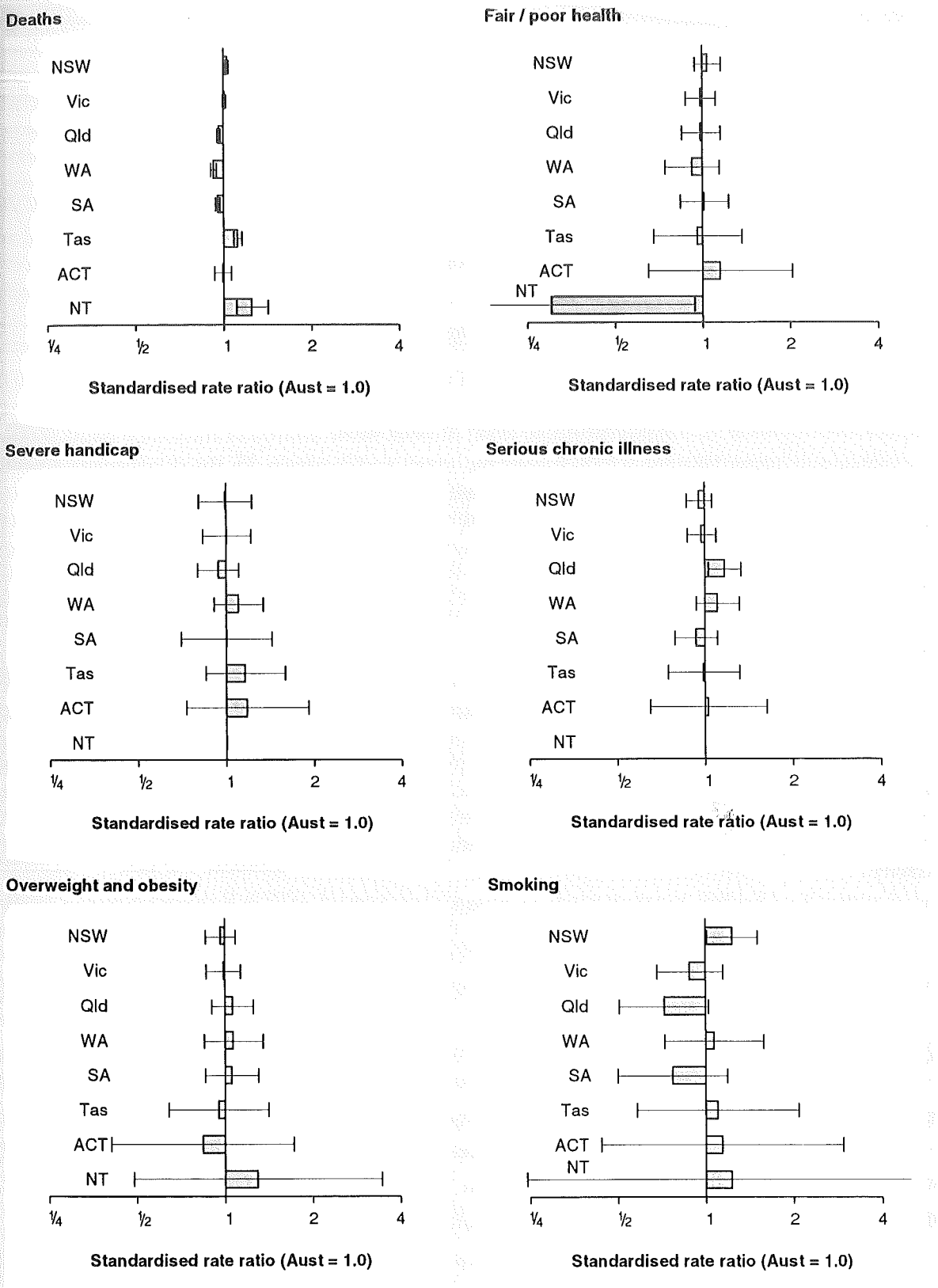
7 State/Territory — Males 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 7.1: ***Health status differentials by State/Territory, Australian males aged 65 years and over, late 1980s***

7 State/Territory — Females 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 7.2: ***Health status differentials by State/Territory, Australian females aged 65 years and over, late 1980s***

Some of the strongest differentials for selected causes of death were:

- pneumonia/influenza—around three times higher for men and women in the Northern Territory; over twice as high for men in the Australian Capital Territory; over 40% higher for men and women in South Australia
- bronchitis/emphysema/asthma—nearly three times higher for women in the Northern Territory; 25% higher for men and women in Victoria
- diabetes—2.4 times higher for women in the Northern Territory; over 30% higher for men and women in Victoria
- lung cancer—over two times higher for women in the Northern Territory
- cerebrovascular disease—51% lower for women in the Northern Territory
- stomach cancer—36% higher for men in Tasmania
- pancreatic cancer—36% lower for men in Tasmania; 25% lower for women in Queensland
- colorectal cancer—31% higher for women in Tasmania
- ischaemic heart disease—15% lower for men and women in the Australian Capital Territory; 47% lower for men in the Northern Territory
- traffic accidents—26% lower for men in South Australia; 29% lower for women in Queensland.

There were few significant disability or handicap differentials between the States and Territories. Older Tasmanian women were 21% more likely to be handicapped than the national average.

In contrast to the mortality differentials, there were no significant differences in self-reported health status between the States and Territories with the exception of Northern Territory, where 70% fewer women reported fair/poor health than the national average. However, as with working-age adults, older Queensland men and women reported significantly more serious chronic illness (women only), chronic illness, and minor illness. Older Northern Territorians reported substantially fewer illnesses and days of reduced activity. Australian Capital Territory men reported significantly more chronic illnesses but fewer days of reduced activity.

Chronic illnesses reported significantly more often than the national average included:

- diabetes—nearly four times more often for women in the Australian Capital Territory
- injuries—over twice as often for men and over three times as often for women in Queensland
- back problems—2.5 times more often for men in the Australian Capital Territory
- mental disorders—2.3 times more often for men in Queensland
- asthma—68% more often for men in South Australia
- hernia—56% more often for men in Queensland
- heart disease—44% more often for women in Queensland.

Minor conditions reported significantly more often than the national average included:

- minor injuries—82% more often for men in Queensland; 76% more often for women in Western Australia
- ill-defined heart symptoms—44% more often for men in Victoria
- constipation—40% more often for women in Queensland.

7 State/Territory 65 years and over

The only significant differential between the States and Territories in risk factor indicators for older people was for smoking, where the prevalence of smoking among older New South Wales women was 23% higher than the national average.

There were no significant differentials in reported hospital episodes, whereas there were some significant differentials in doctor visits (7% higher for New South Wales women, 7% lower for Victorian women, 23% lower for Western Australian men and 65% lower for Australian Capital Territory women), outpatient visits (higher in Queensland and lower in New South Wales) and dental visits (higher for Australian Capital Territory and Queensland men, lower for Western Australian men and women, Victorian men, Queensland women and Tasmanian women). Accurate health service use data are available by State/Territory from administrative sources and State/Territory health service use differentials have been discussed in detail elsewhere (Barer et al. 1990; National Health Strategy 1991, 1992; Australian Institute of Health and Welfare 1992; Gillett & Solon 1992).

Gillett, Liu & Solon (1992) found substantial variations in hospital separation rates by State and Territory for persons aged 65 years and over. For example, separation rates for older people from Victorian hospitals were around 30% below the national average, whereas for Queensland they were 7% above the national average and for South Australia and Western Australia they were over 10% above the national average. Although these data were based on location of hospital rather than place of usual residence of patient, it is likely that they represent real differences in the hospitalisation rate of older people, not captured in the National Health Survey due to the limitations of sample size. Glover & Woollacott (1992) also provide detailed tabulations of health service use indicators by State and Territory.

References

Australian Institute of Health and Welfare (1992). Australia's health 1992. AGPS, Canberra.

Barer M, Nicoll M, Diesendorf M, Harvey R (1990). Australian private medical care costs and use, 1976 and 1986. AGPS, for Australian Institute of Health, Canberra.

Gillett S, Solon R (1992). Hospital utilisation and costs study 1989–90—Volume 1: A survey of public hospitals and related data. Australian Institute of Health and Welfare: Health Services Series No. 3, AGPS, Canberra.

Gillett S, Liu Z, Solon R (1992). Hospital utilisation and costs study 1989–90—Volume 2: The use of acute hospitals—a summary of hospital morbidity. Australian Institute of Health and Welfare: Health Services Series No. 4, AGPS, Canberra.

Glover J, Woollacott T (1992). A social health atlas of Australia. Volumes 1 and 2. South Australian Health Commission. ABS Cat. No. 4385.0.

National Health Strategy (1991). Hospital services in Australia: access and financing. National Health Strategy Issues Paper No. 2, Melbourne.

National Health Strategy (1992). Improving dental health in Australia. National Health Strategy Background Paper No. 9, Melbourne.

Thomson N, Briscoe N (1991). Overview of Aborginal health status in Northern Territory. Australian Institute of Health: Aboriginal and Torres Strait Islander Health Series No. 2, AGPS, Canberra.

Table 7.1: *Health indicators—age-standardised[a] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Health status indicators						
Mortality						
Aust	64.49	0.19	1.00	40.10	0.11	1.00
NSW	66.78	0.32	1.04 ***	41.22	0.19	1.03 ***
Vic	64.26	0.36	1.00	40.44	0.22	1.01
Qld	62.20	0.45	0.96 ***	38.56	0.28	0.96 ***
WA	61.87	0.64	0.96 ***	37.08	0.39	0.92 ***
SA	62.26	0.59	0.97 ***	38.25	0.36	0.95 ***
Tas	67.12	1.12	1.04 *	44.73	0.71	1.12 ***
ACT	60.00	2.23	0.93	39.82	1.33	0.99
NT	72.43	4.24	1.12 *	50.04	3.17	1.25 ***
Fair/poor health						
Aust	43.50	1.34	1.00	42.88	1.11	1.00
NSW	44.83	2.40	1.03	44.65	2.01	1.04
Vic	44.03	2.84	1.01	42.27	2.32	0.99
QLD	44.63	3.62	1.03	42.31	3.09	0.99
WA	36.14	4.74	0.83	39.49	4.17	0.92
SA	43.44	4.80	1.00	43.40	4.05	1.01
Tas	44.77	8.69	1.03	41.14	7.24	0.96
ACT	37.37	15.27	0.86	49.25	14.23	1.15
NT	9.10	7.54	0.21	13.00	7.47	0.30 *
Severe handicap						
Aust	14.25	0.70	1.00	21.03	0.61	1.00
NSW	13.28	1.16	0.93	20.83	1.06	0.99
Vic	16.33	1.43	1.15	21.56	1.22	1.00
Qld	13.07	1.64	0.92	19.68	1.53	0.94
WA	14.36	2.26	1.01	23.11	2.18	1.10
SA	13.82	2.16	0.97	21.07	1.94	1.00
Tas	12.19	3.42	0.86	24.38	3.81	1.16
ACT	20.72	5.51	1.45	24.79	6.04	1.18
NT	–	–	–	–	–	–
Handicap						
Aust	44.10	0.94	1.00	43.29	0.76	1.00
NSW	42.08	1.63	0.95	41.71	1.33	0.96
Vic	48.89	1.91	1.11	46.57	1.57	1.08
Qld	42.19	2.40	0.96	38.94	2.00	0.90
WA	47.11	3.19	1.07	45.05	2.81	1.04
SA	39.24	3.09	0.89	43.12	2.56	1.00
Tas	45.98	5.41	1.04	52.55	4.76	1.21 *
ACT	32.49	7.71	0.74	48.33	7.25	1.12
NT	–	–	–	–	–	–
Disability						
Aust	53.94	0.93	1.00	49.49	0.77	1.00
NSW	52.60	1.65	0.98	49.39	1.37	1.00
Vic	57.24	1.88	1.06	51.30	1.56	1.04
Qld	52.69	2.42	0.98	44.95	2.06	0.91 *
WA	60.11	3.22	1.11	51.91	2.88	1.05
SA	46.51	3.18	0.86	47.18	2.63	0.95
Tas	54.89	5.50	1.02	57.35	4.69	1.16
ACT	45.11	8.83	0.84	58.18	7.53	1.18
NT	–	–	–	–	–	–

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Serious chronic illnesses						
Aust	0.70	0.02	1.00	0.54	0.01	1.00
NSW	0.69	0.03	0.99	0.51	0.02	0.96
Vic	0.70	0.04	1.01	0.52	0.03	0.97
QLD	0.75	0.05	1.08	0.62	0.04	1.16 *
WA	0.64	0.06	0.91	0.59	0.05	1.10
SA	0.66	0.05	0.95	0.50	0.04	0.93
Tas	0.66	0.09	0.95	0.53	0.07	0.99
ACT	0.87	0.20	1.25	0.55	0.13	1.03
NT	0.29	0.13	0.42 *	0.00	–	–
Chronic illnesses						
Aust	2.29	0.04	1.00	2.25	0.03	1.00
NSW	2.21	0.06	0.97	2.12	0.05	0.94 *
Vic	2.22	0.07	0.97	2.13	0.06	0.95
QLD	2.58	0.09	1.13 **	2.63	0.08	1.17 ***
WA	2.40	0.12	1.05	2.60	0.11	1.15 ***
SA	2.15	0.10	0.94	2.21	0.09	0.98
Tas	2.17	0.18	0.95	2.16	0.16	0.96
ACT	3.13	0.40	1.37 *	2.49	0.30	1.11
NT	0.73	0.21	0.32 ***	0.75	0.21	0.33 ***
Recent illnesses						
Aust	1.46	0.03	1.00	1.61	0.02	1.00
NSW	1.47	0.05	1.01	1.69	0.04	1.05
Vic	1.43	0.05	0.98	1.51	0.05	0.94
QLD	1.51	0.07	1.04	1.66	0.06	1.03
WA	1.35	0.09	0.93	1.60	0.08	0.99
SA	1.46	0.09	1.00	1.60	0.08	0.99
Tas	1.35	0.15	0.93	1.59	0.14	0.98
ACT	1.62	0.33	1.11	1.51	0.26	0.94
NT	0.74	0.24	0.51 *	0.48	0.18	0.30 ***
Minor illnesses						
Aust	0.88	0.02	1.00	1.14	0.02	1.00
NSW	0.84	0.03	0.95	1.14	0.03	1.00
Vic	0.85	0.04	0.96	1.09	0.04	0.95
QLD	1.00	0.06	1.13 *	1.32	0.05	1.16 **
WA	0.91	0.08	1.03	1.06	0.07	0.93
SA	0.89	0.07	1.01	1.11	0.06	0.98
Tas	0.91	0.12	1.03	1.17	0.12	1.03
ACT	0.97	0.25	1.10	1.03	0.22	0.91
NT	0.45	0.20	0.51	0.66	0.22	0.58
Dental problems						
Aust	3.73	0.42	1.00	3.36	0.34	1.00
NSW	3.73	0.72	1.00	3.56	0.60	1.06
Vic	2.78	0.72	0.74	3.81	0.72	1.13
QLD	4.49	1.13	1.20	2.74	0.78	0.82
WA	2.48	1.15	0.66	2.20	1.03	0.65
SA	4.43	1.46	1.19	3.88	1.23	1.15
Tas	3.64	2.65	0.97	1.16	1.24	0.35
ACT	13.10	9.44	3.51	5.85	5.97	1.74
NT	9.10	8.48	2.44	0.00	–	–

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ State/Territory	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Reduced activity						
Aust	38.50	0.29	1.00	41.76	0.26	1.00
NSW	37.91	0.52	0.98	37.57	0.45	0.90 ***
Vic	38.81	0.64	1.01	43.13	0.57	1.03 *
QLD	45.24	0.88	1.17 ***	43.07	0.78	1.03
WA	38.38	1.20	1.00	39.97	1.07	0.96
SA	33.85	1.03	0.88 ***	54.22	1.14	1.30 ***
Tas	36.28	1.98	0.94	41.63	1.97	1.00
ACT	0.64	0.38	0.02 ***	30.72	3.45	0.74 **
NT	2.08	0.88	0.05 ***	13.52	2.20	0.32 ***
Unhappiness						
Aust	6.66	0.58	1.00	7.22	0.50	1.00
NSW	7.19	1.03	1.08	7.48	0.87	1.04
Vic	6.02	1.08	0.90	7.24	1.00	1.00
QLD	6.74	1.42	1.01	5.97	1.17	0.83
WA	5.88	1.74	0.88	5.58	1.53	0.77
SA	7.32	1.91	1.10	8.53	1.78	1.18
Tas	5.50	2.82	0.83	6.91	2.86	0.96
ACT	3.81	4.63	0.57	8.93	5.18	1.24
NT	0.00	–	–	13.00	7.47	1.80
Risk factors						
Overweight and obesity						
Aust	43.58	1.33	1.00	37.43	1.09	1.00
NSW	40.52	2.22	0.93	36.09	1.89	0.96
Vic	45.54	2.90	1.04	36.87	2.28	0.99
QLD	41.25	3.42	0.95	39.65	3.09	1.06
WA	46.47	5.37	1.07	39.92	4.55	1.07
SA	50.76	5.28	1.16	39.35	4.04	1.05
Tas	41.24	8.45	0.95	35.53	7.00	0.95
ACT	52.78	18.21	1.21	31.31	11.40	0.84
NT	25.61	13.35	0.59	48.37	23.99	1.29
Inactivity						
Aust	37.66	1.28	1.00	45.85	1.14	1.00
NSW	33.47	2.12	0.89	47.17	2.06	1.03
Vic	36.76	2.65	0.98	42.92	2.33	0.94
QLD	40.21	3.55	1.07	48.03	3.28	1.05
WA	44.00	5.35	1.17	41.64	4.29	0.91
SA	44.41	4.83	1.18	48.86	4.24	1.07
Tas	45.57	8.81	1.21	47.64	7.89	1.04
ACT	34.16	15.52	0.91	39.58	13.37	0.86
NT	25.61	13.35	0.68	48.37	18.79	1.05
Smoking						
Aust	15.86	0.83	1.00	10.90	0.60	1.00
NSW	15.75	1.42	0.99	13.47	1.14	1.23 *
Vic	14.89	1.65	0.94	9.63	1.16	0.88
QLD	16.05	2.18	1.01	7.86	1.33	0.72
WA	16.96	3.19	1.07	11.65	2.23	1.07
SA	15.43	2.74	0.97	8.40	1.78	0.77
Tas	19.00	5.43	1.20	11.98	3.81	1.10
ACT	26.66	11.14	1.68	12.39	5.98	1.14
NT	17.09	10.83	1.08	13.36	10.95	1.23

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Alcohol risk						
Aust	6.47	0.53	1.00	4.44	0.40	1.00
NSW	6.91	0.93	1.07	4.77	0.69	1.07
Vic	5.40	0.98	0.83	4.49	0.79	1.01
QLD	7.83	1.44	1.21	3.17	0.84	0.71
WA	6.78	1.91	1.05	6.00	1.58	1.35
SA	6.78	1.75	1.05	3.64	1.18	0.82
Tas	2.51	1.76	0.39	3.54	1.97	0.80
ACT	2.45	2.72	0.38	4.93	3.74	1.11
NT	7.99	7.78	1.23	13.36	10.95	3.01
Health service use						
Hospital episodes						
Aust	0.41	0.05	1.00	0.30	0.04	1.00
NSW	0.48	0.09	1.16	0.28	0.07	0.94
Vic	0.34	0.09	0.83	0.30	0.08	0.99
QLD	0.45	0.13	1.10	0.33	0.11	1.10
WA	0.37	0.17	0.89	0.30	0.15	1.00
SA	0.37	0.16	0.90	0.36	0.15	1.19
Tas	0.34	0.26	0.82	0.33	0.27	1.08
ACT	0.24	0.40	0.57	0.18	0.33	0.59
NT	0.00	–	–	0.00	–	–
Doctor visits						
Aust	10.96	0.21	1.00	11.83	0.17	1.00
NSW	11.59	0.37	1.06	12.64	0.32	1.07 *
Vic	11.10	0.44	1.01	10.98	0.35	0.93 *
QLD	10.76	0.54	0.98	12.05	0.49	1.02
WA	8.41	0.69	0.77 **	10.78	0.66	0.91
SA	10.65	0.72	0.97	12.08	0.64	1.02
Tas	9.44	1.23	0.86	11.65	1.16	0.98
ACT	12.90	2.63	1.18	4.15	1.07	0.35 ***
NT	14.24	3.33	1.30	10.23	2.29	0.86
Outpatient visits						
Aust	1.64	0.11	1.00	1.44	0.10	1.00
NSW	1.00	0.15	0.61 **	0.91	0.14	0.63 **
Vic	1.48	0.21	0.90	1.88	0.23	1.31
QLD	3.73	0.44	2.28 ***	2.05	0.32	1.42 *
WA	1.98	0.38	1.21	1.27	0.33	0.88
SA	1.06	0.27	0.65	1.69	0.34	1.17
Tas	0.72	0.36	0.44	0.52	0.33	0.36
ACT	0.00	–	–	1.27	1.25	0.88
NT	0.00	–	–	0.00	–	–
Dental visits						
Aust	1.20	0.04	1.00	1.13	0.06	1.00
NSW	1.18	0.07	0.99	1.32	0.11	1.16
Vic	0.89	0.07	0.75 **	1.23	0.13	1.08
QLD	1.76	0.13	1.48 ***	0.74	0.12	0.65 *
WA	0.79	0.12	0.66 **	0.66	0.16	0.58 *
SA	0.98	0.13	0.82	1.44	0.23	1.27
Tas	1.48	0.27	1.24	0.22	0.14	0.20 *
ACT	4.98	1.00	4.17 ***	1.52	0.78	1.34
NT	0.00	–	–	0.00	–	–

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Other health professional visits						
Aust	5.82	0.32	1.00	6.56	0.45	1.00
NSW	5.37	0.53	0.92	5.44	0.72	0.83
Vic	5.35	0.59	0.92	5.86	0.82	0.89
QLD	6.52	0.85	1.12	9.87	1.47	1.50 *
WA	9.53	1.69	1.64 **	4.91	1.58	0.75
SA	4.91	1.05	0.84	6.45	1.54	0.98
Tas	4.58	1.68	0.79	9.83	3.64	1.50
ACT	8.97	4.20	1.54	14.30	8.85	2.18
NT	2.08	2.62	0.36	10.23	9.79	1.56
Major cause of death groups						
Cancers						
Aust	15.28	0.09	1.00	7.78	0.05	1.00
NSW	15.60	0.15	1.02	7.76	0.08	1.00
Vic	15.62	0.17	1.02	8.27	0.10	1.06 ***
Qld	14.59	0.21	0.95 **	7.01	0.12	0.90 ***
WA	15.58	0.31	1.02	7.77	0.18	1.00
SA	14.43	0.28	0.94 **	7.38	0.16	0.95 *
Tas	14.58	0.51	0.95	8.58	0.32	1.10 **
ACT	13.62	1.01	0.89	8.97	0.63	1.15 *
NT	15.18	1.82	0.99	7.94	1.20	1.02
Endocrine, metabolic, nutritional						
Aust	1.29	0.03	1.00	1.04	0.02	1.00
NSW	1.17	0.04	0.91 *	0.86	0.03	0.83 ***
Vic	1.60	0.06	1.25 ***	1.35	0.04	1.29 ***
Qld	1.12	0.06	0.87 *	0.94	0.04	0.90 *
WA	1.07	0.09	0.83 *	0.97	0.06	0.93
SA	1.25	0.08	0.97	1.06	0.06	1.02
Tas	1.45	0.16	1.13	0.92	0.10	0.88
ACT	1.35	0.35	1.05	1.07	0.22	1.02
NT	2.55	0.80	1.98 *	4.04	0.86	3.87 ***
Mental disorders						
Aust	0.85	0.02	1.00	0.67	0.01	1.00
NSW	0.66	0.03	0.79 ***	0.59	0.02	0.88 **
Vic	0.99	0.05	1.17 **	0.75	0.03	1.11 *
Qld	0.95	0.06	1.12	0.73	0.04	1.09
WA	0.76	0.07	0.90	0.54	0.05	0.81 *
SA	0.78	0.07	0.92	0.64	0.04	0.95
Tas	1.52	0.18	1.80 ***	1.12	0.11	1.67 ***
ACT	0.81	0.30	0.96	0.54	0.16	0.80
NT	0.87	0.40	1.03	0.78	0.40	1.16
Nervous system, sense organs						
Aust	0.95	0.02	1.00	0.65	0.01	1.00
NSW	0.91	0.04	0.96	0.59	0.02	0.91 *
Vic	1.07	0.05	1.12 *	0.68	0.03	1.06
Qld	0.85	0.05	0.90	0.56	0.03	0.87 *
WA	1.19	0.09	1.25 **	0.97	0.06	1.50 ***
SA	0.75	0.07	0.79 *	0.65	0.05	1.00
Tas	0.94	0.13	0.99	0.72	0.09	1.11
ACT	0.32	0.13	0.34 **	0.44	0.14	0.68

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Circulatory system						
Aust	33.74	0.14	1.00	23.59	0.09	1.00
NSW	35.77	0.24	1.06 ***	24.81	0.15	1.05 ***
Vic	32.55	0.26	0.96 ***	23.14	0.16	0.98 *
Qld	32.46	0.33	0.96 ***	22.83	0.22	0.97 **
WA	31.61	0.46	0.94 ***	21.01	0.29	0.89 ***
SA	33.79	0.44	1.00	22.86	0.27	0.97 *
Tas	35.01	0.81	1.04	26.63	0.54	1.13 ***
ACT	29.73	1.56	0.88 *	21.36	0.97	0.91 *
NT	23.54	2.44	0.70 ***	20.30	2.07	0.86
Respiratory system						
Aust	6.94	0.06	1.00	2.43	0.03	1.00
NSW	6.98	0.11	1.00	2.50	0.05	1.03
Vic	7.10	0.12	1.02	2.53	0.05	1.04
Qld	6.71	0.15	0.97	2.29	0.07	0.94
WA	6.55	0.21	0.94	2.09	0.09	0.86 **
SA	6.35	0.19	0.91 **	2.16	0.08	0.89 **
Tas	8.14	0.40	1.17 **	2.64	0.17	1.09
ACT	8.59	0.87	1.24 *	3.14	0.37	1.29 *
NT	17.78	2.14	2.56 ***	9.34	1.38	3.84 ***
Digestive system						
Aust	1.90	0.03	1.00	1.45	0.02	1.00
NSW	1.93	0.06	1.01	1.46	0.04	1.01
Vic	1.85	0.06	0.97	1.44	0.04	0.99
Qld	1.85	0.08	0.97	1.40	0.05	0.96
WA	1.96	0.11	1.03	1.57	0.08	1.08
SA	1.99	0.11	1.04	1.38	0.07	0.95
Tas	1.95	0.19	1.02	1.77	0.14	1.22 *
ACT	2.18	0.45	1.14	1.11	0.22	0.77
NT	1.80	0.66	0.95	1.28	0.49	0.88
Genito-urinary system						
Aust	1.15	0.03	1.00	0.80	0.02	1.00
NSW	1.32	0.05	1.15 **	0.98	0.03	1.22 ***
Vic	1.00	0.05	0.86 **	0.61	0.03	0.76 ***
Qld	1.24	0.07	1.08	0.90	0.04	1.13 *
WA	1.10	0.09	0.96	0.63	0.05	0.78 **
SA	0.97	0.08	0.84 *	0.69	0.05	0.86 *
Tas	0.88	0.13	0.77	0.61	0.08	0.76 *
ACT	0.91	0.29	0.79	0.99	0.21	1.23
NT	1.24	0.58	1.08	1.15	0.48	1.43
Injury and poisoning						
Aust	1.39	0.03	1.00	0.85	0.02	1.00
NSW	1.39	0.05	1.00	0.83	0.03	0.98
Vic	1.52	0.06	1.09 *	0.87	0.03	1.03
Qld	1.45	0.07	1.04	0.91	0.04	1.08
WA	1.08	0.08	0.78 **	0.76	0.06	0.90
SA	1.14	0.08	0.82 **	0.73	0.05	0.86 *
Tas	1.59	0.17	1.14	0.96	0.10	1.13
ACT	1.24	0.34	0.90	1.20	0.23	1.42
NT	1.70	0.64	1.22	1.68	0.57	1.99 *

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Other						
Aust	1.00	0.02	1.00	0.84	0.02	1.00
NSW	1.06	0.04	1.06	0.84	0.03	1.01
Vic	0.97	0.05	0.97	0.80	0.03	0.96
Qld	0.97	0.06	0.97	0.97	0.05	1.16 **
WA	0.96	0.08	0.96	0.78	0.06	0.93
SA	0.80	0.07	0.80 *	0.71	0.05	0.85 *
Tas	1.05	0.14	1.05	0.77	0.09	0.92
ACT	1.23	0.34	1.23	1.00	0.21	1.19
NT	7.06	1.41	7.05 ***	3.53	0.87	4.21 ***
All causes						
Aust	64.49	0.19	1.00	40.10	0.11	1.00
NSW	66.78	0.32	1.04 ***	41.22	0.19	1.03 ***
Vic	64.26	0.36	1.00	40.44	0.22	1.01
Qld	62.20	0.45	0.96 ***	38.56	0.28	0.96 ***
WA	61.87	0.64	0.96 ***	37.08	0.39	0.92 ***
SA	62.26	0.59	0.97 ***	38.25	0.36	0.95 ***
Tas	67.12	1.12	1.04 *	44.73	0.71	1.12 ***
ACT	60.00	2.23	0.93	39.82	1.33	0.99
NT	72.43	4.24	1.12 *	50.04	3.17	1.25 ***
Selected causes of death						
Stomach cancer						
Aust	0.90	0.02	1.00	0.38	0.01	1.00
NSW	0.82	0.04	0.91	0.39	0.02	1.02
Vic	0.95	0.04	1.05	0.40	0.02	1.06
Qld	0.83	0.05	0.92	0.34	0.03	0.89
WA	1.06	0.08	1.17	0.37	0.04	0.97
SA	1.00	0.07	1.10	0.33	0.03	0.87
Tas	1.23	0.15	1.36 *	0.47	0.07	1.23
ACT	0.92	0.25	1.02	0.44	0.14	1.17
Colorectal cancer						
Aust	1.97	0.03	1.00	1.40	0.02	1.00
NSW	1.90	0.05	0.97	1.33	0.03	0.95
Vic	2.17	0.07	1.10 **	1.55	0.04	1.11 **
Qld	1.80	0.07	0.91 *	1.31	0.05	0.93
WA	2.17	0.12	1.10	1.45	0.08	1.04
SA	1.82	0.10	0.92	1.19	0.06	0.85 **
Tas	1.96	0.19	0.99	1.84	0.15	1.31 ***
ACT	1.93	0.39	0.98	1.60	0.26	1.14
NT	2.15	0.73	1.09	0.51	0.30	0.36
Pancreatic cancer						
Aust	0.64	0.02	1.00	0.47	0.01	1.00
NSW	0.64	0.03	1.01	0.47	0.02	1.02
Vic	0.68	0.04	1.07	0.51	0.03	1.10
Qld	0.58	0.04	0.91	0.35	0.03	0.75 ***
WA	0.62	0.06	0.98	0.46	0.04	0.99
SA	0.65	0.06	1.03	0.47	0.04	1.01
Tas	0.41	0.08	0.64 *	0.53	0.08	1.13
ACT	0.75	0.25	1.18	0.57	0.16	1.21
NT	0.32	0.23	0.51	0.84	0.43	1.81

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Lung cancer						
Aust	4.05	0.04	1.00	0.83	0.02	1.00
NSW	4.14	0.08	1.02	0.84	0.03	1.01
Vic	4.09	0.09	1.01	0.90	0.03	1.08
Qld	3.97	0.11	0.98	0.66	0.04	0.79 ***
WA	4.30	0.16	1.06	0.97	0.07	1.16 *
SA	3.56	0.14	0.88 **	0.75	0.05	0.90
Tas	3.82	0.25	0.94	0.81	0.10	0.97
ACT	3.74	0.51	0.92	0.97	0.21	1.17
NT	5.35	0.97	1.32	1.76	0.57	2.11 *
Breast/prostate cancer						
Aust	2.37	0.04	1.00	1.13	0.02	1.00
NSW	2.50	0.06	1.06	1.11	0.03	0.98
Vic	2.31	0.07	0.97	1.25	0.04	1.11 **
Qld	2.34	0.09	0.99	0.97	0.05	0.85 **
WA	2.11	0.12	0.89 *	1.14	0.07	1.01
SA	2.32	0.12	0.98	1.13	0.06	1.00
Tas	2.61	0.22	1.10	1.04	0.11	0.92
ACT	1.55	0.37	0.66	1.46	0.26	1.30
NT	1.52	0.65	0.64	0.87	0.39	0.77
Brain cancer						
Aust	0.24	0.01	1.00	0.14	0.01	1.00
NSW	0.22	0.02	0.93	0.14	0.01	0.96
Vic	0.27	0.02	1.14	0.15	0.01	1.07
Qld	0.22	0.02	0.93	0.13	0.02	0.93
WA	0.25	0.04	1.04	0.17	0.03	1.21
SA	0.25	0.03	1.06	0.15	0.02	1.04
Tas	0.24	0.06	1.02	0.10	0.03	0.68
ACT	0.00	–	–	0.08	0.06	0.59
NT	0.00	–	–	0.14	0.14	0.99
Diabetes mellitus						
Aust	1.07	0.02	1.00	0.86	0.02	1.00
NSW	0.92	0.04	0.86 ***	0.69	0.02	0.80 ***
Vic	1.42	0.05	1.32 ***	1.17	0.04	1.36 ***
Qld	0.87	0.05	0.81 **	0.70	0.04	0.81 ***
WA	0.97	0.08	0.91	0.84	0.06	0.98
SA	1.06	0.08	0.99	0.89	0.06	1.04
Tas	1.21	0.15	1.13	0.74	0.09	0.86
ACT	1.22	0.34	1.13	1.03	0.21	1.20
NT	1.76	0.63	1.64	2.07	0.61	2.42 **
Ischaemic heart disease						
Aust	20.29	0.10	1.00	11.98	0.06	1.00
NSW	21.20	0.18	1.04 ***	12.46	0.11	1.04 ***
Vic	19.49	0.20	0.96 ***	11.45	0.12	0.96 ***
Qld	20.17	0.25	0.99	12.15	0.16	1.01
WA	19.56	0.36	0.96	11.19	0.21	0.93 ***
SA	20.19	0.34	1.00	12.04	0.20	1.01
Tas	20.90	0.62	1.03	12.54	0.38	1.05
ACT	17.14	1.16	0.85 *	10.02	0.67	0.84 **
NT	10.75	1.53	0.53 ***	9.02	1.38	0.75

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Cerebrovascular disease						
Aust	6.94	0.06	1.00	6.52	0.05	1.00
NSW	7.84	0.11	1.13 ***	7.10	0.08	1.09 ***
Vic	6.31	0.12	0.91 ***	6.29	0.08	0.96 *
Qld	6.64	0.15	0.96	6.34	0.11	0.97
WA	6.09	0.20	0.88 ***	5.39	0.15	0.83 ***
SA	6.79	0.20	0.98	6.09	0.14	0.93 **
Tas	6.80	0.36	0.98	7.46	0.29	1.14 ***
ACT	6.41	0.76	0.92	5.61	0.50	0.86
NT	4.76	1.08	0.69	3.19	0.79	0.49 **
Pneumonia/influenza						
Aust	1.12	0.03	1.00	0.78	0.02	1.00
NSW	1.03	0.04	0.92	0.73	0.02	0.93
Vic	1.01	0.05	0.90 *	0.77	0.03	0.98
Qld	1.06	0.06	0.94	0.76	0.04	0.97
WA	1.13	0.09	1.01	0.65	0.05	0.83 *
SA	1.67	0.10	1.48 ***	1.10	0.06	1.41 ***
Tas	1.35	0.17	1.20	0.84	0.09	1.07
ACT	2.35	0.50	2.09 ***	1.10	0.22	1.41
NT	3.08	0.83	2.74 ***	2.73	0.77	3.49 ***
Bronchitis/emphysema/asthma						
Aust	1.69	0.03	1.00	0.57	0.01	1.00
NSW	1.61	0.05	0.95	0.56	0.02	0.98
Vic	2.11	0.07	1.25 ***	0.71	0.03	1.24 ***
Qld	1.50	0.07	0.89 *	0.51	0.03	0.89
WA	1.51	0.10	0.89	0.52	0.05	0.90
SA	1.37	0.09	0.81 **	0.38	0.04	0.66 ***
Tas	1.52	0.17	0.90	0.53	0.08	0.92
ACT	1.91	0.39	1.13	0.49	0.15	0.85
NT	1.99	0.71	1.18	1.61	0.55	2.80 **
MV traffic accident						
Aust	0.34	0.01	1.00	0.18	0.01	1.00
NSW	0.33	0.02	0.97	0.16	0.01	0.92
Vic	0.40	0.03	1.18 *	0.20	0.02	1.11
Qld	0.31	0.03	0.92	0.13	0.02	0.71 *
WA	0.31	0.04	0.92	0.22	0.03	1.26
SA	0.25	0.04	0.74 *	0.20	0.03	1.12
Tas	0.36	0.08	1.06	0.20	0.05	1.14
ACT	0.45	0.18	1.33	0.26	0.11	1.49
NT	0.42	0.25	1.25	0.36	0.25	2.05
Suicide						
Aust	0.32	0.01	1.00	0.08	0.01	1.00
NSW	0.30	0.02	0.96	0.08	0.01	1.01
Vic	0.33	0.03	1.06	0.08	0.01	0.94
Qld	0.31	0.03	1.00	0.07	0.01	0.92
WA	0.31	0.04	0.99	0.07	0.02	0.85
SA	0.30	0.04	0.94	0.11	0.02	1.38
Tas	0.37	0.08	1.18	0.08	0.03	1.03
ACT	0.32	0.17	1.02	0.10	0.07	1.18
NT	0.49	0.37	1.56	0.00	–	–

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Major chronic illness groups						
Neoplasms						
Aust	7.57	0.61	1.00	4.61	0.40	1.00
NSW	7.28	1.01	0.96	3.76	0.61	0.81
Vic	7.42	1.19	0.98	4.68	0.80	1.01
QLD	8.70	1.60	1.15	6.60	1.23	1.43
WA	11.00	2.64	1.45	5.29	1.51	1.15
SA	5.82	1.66	0.77	5.25	1.42	1.14
Tas	6.36	3.14	0.84	3.27	1.87	0.71
ACT	0.00	–	–	2.03	2.25	0.44
NT	0.00	–	–	0.00	–	–
Endocrine, metabolic, nutritional						
Aust	13.84	0.79	1.00	14.95	0.70	1.00
NSW	13.90	1.36	1.00	16.07	1.25	1.07
Vic	14.21	1.63	1.03	13.70	1.37	0.92
QLD	13.98	2.07	1.01	16.08	1.92	1.08
WA	12.93	2.63	0.93	18.28	2.82	1.22
SA	12.76	2.59	0.92	10.75	2.02	0.72
Tas	11.66	4.27	0.84	9.99	3.46	0.67
ACT	24.30	11.92	1.76	24.39	9.63	1.63
NT	9.10	7.54	0.66	0.00	–	–
Mental disorders						
Aust	1.36	0.26	1.00	1.75	0.25	1.00
NSW	0.30	0.19	0.22 *	1.47	0.38	0.84
Vic	1.91	0.58	1.41	1.00	0.35	0.57
QLD	3.15	0.99	2.31 *	2.61	0.75	1.49
WA	0.94	0.78	0.69	2.72	1.04	1.55
SA	1.81	0.96	1.33	3.15	1.06	1.80
Tas	0.85	1.01	0.62	0.67	0.76	0.38
ACT	0.00	–	–	0.00	–	–
NT	0.00	–	–	0.00	–	–
Nervous system, sense organs						
Aust	34.21	1.24	1.00	26.69	0.90	1.00
NSW	30.48	2.06	0.89	22.37	1.46	0.84 *
Vic	32.63	2.54	0.95	25.91	1.83	0.97
QLD	42.68	3.60	1.25 *	34.13	2.81	1.28 **
WA	39.42	5.05	1.15	32.33	3.78	1.21
SA	32.33	4.24	0.95	29.25	3.33	1.10
Tas	33.37	7.53	0.98	29.27	6.30	1.10
ACT	36.74	14.21	1.07	29.69	10.94	1.11
NT	9.10	7.54	0.27	0.00	–	–
Circulatory system						
Aust	37.89	1.27	1.00	46.70	1.15	1.00
NSW	37.70	2.24	1.00	44.49	2.00	0.95
Vic	40.12	2.72	1.06	49.16	2.48	1.05
QLD	35.05	3.17	0.93	50.21	3.33	1.08
WA	39.10	4.93	1.03	50.33	4.66	1.08
SA	35.47	4.30	0.94	39.90	3.86	0.85
Tas	36.54	7.76	0.96	45.44	7.68	0.97
ACT	48.48	16.92	1.28	36.31	11.88	0.78
NT	29.20	14.48	0.77	21.65	9.81	0.46

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Respiratory system						
Aust	20.07	0.95	1.00	16.05	0.72	1.00
NSW	18.88	1.58	0.94	14.71	1.20	0.92
Vic	19.26	1.93	0.96	14.38	1.40	0.90
QLD	22.44	2.68	1.12	17.97	2.02	1.12
WA	20.56	3.51	1.02	20.39	3.01	1.27
SA	24.38	3.65	1.21	19.95	2.76	1.24
Tas	14.91	4.79	0.74	14.56	4.18	0.91
ACT	24.60	11.15	1.23	14.89	7.15	0.93
NT	0.00	–	–	0.00	–	–
Digestive system						
Aust	14.62	0.83	1.00	11.75	0.63	1.00
NSW	13.99	1.41	0.96	10.37	1.02	0.88
Vic	12.90	1.55	0.88	11.14	1.24	0.95
QLD	20.37	2.47	1.39 *	15.37	1.87	1.31 *
WA	13.26	2.97	0.91	13.14	2.41	1.12
SA	11.99	2.42	0.82	10.92	2.05	0.93
Tas	17.60	5.24	1.20	14.88	4.37	1.27
ACT	17.95	10.07	1.23	11.20	6.38	0.95
NT	0.00	–	–	13.36	10.95	1.14
Genito-urinary system						
Aust	3.96	0.45	1.00	5.30	0.43	1.00
NSW	3.74	0.74	0.94	4.27	0.65	0.80
Vic	3.38	0.82	0.85	4.53	0.79	0.86
QLD	6.40	1.36	1.61 *	7.36	1.29	1.39
WA	0.90	0.65	0.23 *	6.39	1.65	1.21
SA	4.88	1.53	1.23	7.14	1.62	1.35
Tas	2.99	1.96	0.75	3.61	1.98	0.68
ACT	5.73	5.86	1.45	10.37	6.32	1.96
NT	0.00	–	–	0.00	–	–
Skin and subcutaneous tissue						
Aust	6.44	0.56	1.00	4.33	0.39	1.00
NSW	7.01	1.00	1.09	4.59	0.68	1.06
Vic	7.59	1.23	1.18	4.02	0.74	0.93
QLD	5.77	1.33	0.90	3.89	0.93	0.90
WA	5.35	1.63	0.83	4.71	1.40	1.09
SA	3.94	1.43	0.61	4.80	1.33	1.11
Tas	5.05	2.62	0.78	5.34	2.58	1.23
ACT	8.49	5.48	1.32	1.84	2.14	0.43
NT	0.00	–	–	0.00	–	–
Musculoskeletal system						
Aust	49.70	1.43	1.00	57.02	1.25	1.00
NSW	47.11	2.48	0.95	56.97	2.24	1.00
Vic	49.18	2.99	0.99	54.56	2.60	0.96
QLD	50.66	3.86	1.02	58.15	3.58	1.02
WA	57.13	5.95	1.15	62.40	5.20	1.09
SA	50.43	5.15	1.01	56.39	4.58	0.99
Tas	53.61	9.51	1.08	55.96	8.53	0.98
ACT	71.45	21.22	1.44	84.58	19.03	1.48
NT	25.61	13.35	0.52	26.36	13.25	0.46

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Injury and poisoning						
Aust	1.92	0.32	1.00	1.42	0.23	1.00
NSW	1.91	0.56	0.99	0.41	0.20	0.29 *
Vic	1.33	0.49	0.69	1.16	0.38	0.82
QLD	4.24	1.04	2.20 **	4.81	1.03	3.39 ***
WA	0.71	0.54	0.37	0.65	0.48	0.46
SA	0.67	0.64	0.35	0.95	0.54	0.67
Tas	0.87	1.14	0.45	1.50	1.20	1.06
ACT	0.00	–	–	0.00	–	–
NT	0.00	–	–	0.00	–	–
Other						
Aust	3.83	0.44	1.00	3.06	0.33	1.00
NSW	4.47	0.80	1.17	3.10	0.56	1.01
Vic	2.53	0.69	0.66	2.23	0.54	0.73
QLD	5.24	1.30	1.37	3.73	0.92	1.22
WA	3.48	1.31	0.91	5.06	1.48	1.65
SA	3.39	1.26	0.89	2.51	0.93	0.82
Tas	3.33	2.12	0.87	2.84	1.73	0.93
ACT	2.45	2.72	0.64	3.87	3.11	1.27
NT	0.00	–	–	0.00	–	–
All causes						
Aust	86.39	1.81	1.00	87.02	1.49	1.00
NSW	85.56	3.25	0.99	84.89	2.67	0.98
Vic	86.54	3.89	1.00	88.29	3.23	1.01
QLD	86.70	4.94	1.00	89.05	4.34	1.02
WA	89.04	7.36	1.03	92.07	6.24	1.06
SA	84.68	6.59	0.98	84.00	5.52	0.97
Tas	88.72	12.35	1.03	86.92	10.64	1.00
ACT	90.00	23.44	1.04	97.51	20.68	1.12
NT	46.28	18.67	0.54	35.01	14.70	0.40 *
Selected chronic conditions						
Arthritis						
Aust	32.63	1.19	1.00	43.89	1.12	1.00
NSW	30.33	2.03	0.93	43.76	1.99	1.00
Vic	31.00	2.41	0.95	42.15	2.31	0.96
QLD	35.02	3.25	1.07	43.75	3.13	1.00
WA	37.31	4.81	1.14	46.02	4.49	1.05
SA	36.05	4.42	1.10	45.72	4.12	1.04
Tas	38.66	8.04	1.18	45.20	7.65	1.03
ACT	39.30	15.42	1.20	62.58	16.68	1.43
NT	8.53	7.27	0.26	26.36	13.25	0.60
Hypertension						
Aust	23.15	1.00	1.00	31.41	0.97	1.00
NSW	23.21	1.77	1.00	29.10	1.65	0.93
Vic	24.77	2.10	1.07	33.25	2.07	1.06
QLD	21.55	2.45	0.93	32.33	2.69	1.03
WA	23.39	3.74	1.01	36.26	3.97	1.15
SA	21.50	3.35	0.93	29.37	3.33	0.94
Tas	19.03	5.44	0.82	28.25	5.93	0.90
ACT	28.33	12.55	1.22	23.93	9.50	0.76
NT	9.10	7.54	0.39	21.65	9.81	0.69

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Deafness (complete/partial)						
Aust	19.91	0.97	1.00	9.77	0.57	1.00
NSW	17.83	1.59	0.90	7.99	0.89	0.82
Vic	19.87	2.02	1.00	9.98	1.14	1.02
QLD	23.01	2.67	1.16	11.45	1.66	1.17
WA	19.70	3.51	0.99	10.18	2.11	1.04
SA	20.83	3.39	1.05	12.91	2.24	1.32
Tas	21.40	5.94	1.07	12.02	3.92	1.23
ACT	29.62	12.60	1.49	9.01	5.98	0.92
NT	0.00	–	–	0.00	–	–
Back problems						
Aust	13.30	0.77	1.00	8.61	0.54	1.00
NSW	12.76	1.30	0.96	8.76	0.94	1.02
Vic	11.60	1.44	0.87	7.89	1.04	0.92
QLD	16.49	2.18	1.24	9.21	1.46	1.07
WA	14.26	2.94	1.07	8.99	1.98	1.04
SA	11.14	2.27	0.84	8.61	1.84	1.00
Tas	13.47	4.52	1.01	7.73	2.97	0.90
ACT	32.73	13.13	2.46 *	14.41	7.04	1.67
NT	17.09	10.83	1.28	13.36	10.95	1.55
Heart disease						
Aust	11.19	0.74	1.00	8.64	0.54	1.00
NSW	12.91	1.34	1.15	9.28	0.96	1.07
Vic	11.30	1.52	1.01	7.68	1.01	0.89
QLD	9.03	1.63	0.81	12.46	1.72	1.44 *
WA	9.28	2.43	0.83	6.39	1.62	0.74
SA	9.35	2.22	0.83	5.26	1.36	0.61
Tas	9.23	3.75	0.82	8.39	3.20	0.97
ACT	16.35	9.56	1.46	7.56	4.55	0.88
NT	20.10	12.03	1.80	0.00	–	–
Hay fever						
Aust	6.75	0.56	1.00	6.73	0.48	1.00
NSW	6.01	0.88	0.89	6.80	0.83	1.01
Vic	6.63	1.11	0.98	5.14	0.84	0.76
QLD	6.08	1.34	0.90	7.21	1.30	1.07
WA	10.21	2.38	1.51	7.58	1.81	1.13
SA	7.79	2.08	1.15	10.00	1.92	1.49
Tas	4.96	2.66	0.73	4.52	2.16	0.67
ACT	17.01	8.91	2.52	7.40	4.52	1.10
NT	0.00	–	–	0.00	–	–
Bronchitis/emphysema						
Aust	8.74	0.65	1.00	5.06	0.42	1.00
NSW	8.95	1.10	1.02	4.47	0.67	0.88
Vic	9.18	1.36	1.05	4.62	0.79	0.91
QLD	8.99	1.59	1.03	5.84	1.16	1.15
WA	8.00	2.25	0.92	8.12	1.85	1.60
SA	7.81	1.99	0.89	5.24	1.41	1.03
Tas	7.66	3.30	0.88	5.48	2.46	1.08
ACT	6.57	5.71	0.75	3.95	4.40	0.78
NT	0.00	–	–	0.00	–	–

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Varicose veins						
Aust	3.61	0.43	1.00	6.67	0.48	1.00
NSW	2.94	0.65	0.81	4.67	0.68	0.70 *
Vic	4.47	0.92	1.24	8.36	1.07	1.25
QLD	2.77	0.83	0.77	8.39	1.39	1.26
WA	5.15	1.79	1.43	9.34	2.00	1.40
SA	2.88	1.18	0.80	3.66	1.14	0.55
Tas	6.74	3.14	1.87	7.67	3.16	1.15
ACT	12.38	9.45	3.43	9.74	5.27	1.46
NT	0.00	–	–	0.00	–	–
Asthma						
Aust	5.24	0.50	1.00	5.23	0.43	1.00
NSW	5.53	0.88	1.05	4.67	0.68	0.89
Vic	4.05	0.85	0.77	5.45	0.87	1.04
QLD	5.31	1.32	1.01	5.54	1.10	1.06
WA	3.87	1.43	0.74	5.22	1.47	1.00
SA	8.80	2.06	1.68 *	6.62	1.56	1.27
Tas	4.55	2.51	0.87	4.36	2.16	0.83
ACT	5.91	4.49	1.13	3.55	3.11	0.68
NT	0.00	–	–	0.00	–	–
Hernia						
Aust	6.11	0.55	1.00	4.21	0.39	1.00
NSW	5.08	0.83	0.83	3.05	0.55	0.73
Vic	5.43	1.00	0.89	5.06	0.84	1.20
QLD	9.56	1.70	1.56 *	5.43	1.10	1.29
WA	2.38	1.28	0.39	4.98	1.44	1.19
SA	6.32	1.76	1.03	3.73	1.14	0.89
Tas	11.19	4.13	1.83	5.97	2.61	1.42
ACT	17.95	10.07	2.94	0.00	–	–
NT	0.00	–	–	0.00	–	–
Diabetes mellitus						
Aust	5.11	0.50	1.00	4.37	0.39	1.00
NSW	4.62	0.81	0.90	4.35	0.66	1.00
Vic	6.58	1.10	1.29	4.65	0.80	1.06
QLD	4.40	1.19	0.86	3.23	0.84	0.74
WA	3.10	1.33	0.61	5.76	1.54	1.32
SA	5.85	1.71	1.15	3.96	1.20	0.91
Tas	4.76	2.60	0.93	3.34	1.96	0.76
ACT	6.21	6.35	1.22	17.30	8.36	3.96 **
NT	9.10	7.54	1.78	0.00	–	–
High cholesterol						
Aust	2.81	0.36	1.00	5.00	0.42	1.00
NSW	3.52	0.67	1.25	6.21	0.79	1.24
Vic	2.61	0.67	0.93	4.23	0.77	0.85
QLD	2.06	0.72	0.73	4.88	1.06	0.98
WA	2.59	1.11	0.92	6.11	1.61	1.22
SA	2.04	0.92	0.73	2.61	0.97	0.52
Tas	2.36	1.79	0.84	3.02	1.79	0.60
ACT	3.46	3.33	1.23	3.55	3.11	0.71
NT	0.00	–	–	0.00	–	–

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Selected minor conditions						
Insomnia						
Aust	10.85	0.74	1.00	16.85	0.74	1.00
NSW	10.04	1.24	0.93	14.71	1.20	0.87
Vic	10.28	1.43	0.95	19.00	1.58	1.13
QLD	12.63	2.03	1.16	19.13	2.10	1.14
WA	6.42	1.96	0.59	14.01	2.50	0.83
SA	15.49	2.86	1.43	16.31	2.48	0.97
Tas	16.17	5.04	1.49	21.60	5.24	1.28
ACT	4.12	5.01	0.38	12.85	7.57	0.76
NT	0.00	–	–	13.00	7.47	0.77
Headache (excluding migraine)						
Aust	6.52	0.56	1.00	12.96	0.65	1.00
NSW	6.98	0.98	1.07	13.53	1.15	1.04
Vic	5.08	0.98	0.78	11.99	1.28	0.92
QLD	8.40	1.57	1.29	15.57	1.89	1.20
WA	5.75	1.77	0.88	9.56	2.04	0.74
SA	6.64	1.81	1.02	11.63	2.13	0.90
Tas	5.08	2.66	0.78	10.95	3.59	0.85
ACT	10.83	7.48	1.66	12.89	6.54	0.99
NT	0.00	–	–	26.36	13.25	2.03
Constipation						
Aust	5.25	0.53	1.00	9.09	0.56	1.00
NSW	5.47	0.90	1.04	7.86	0.88	0.86
Vic	4.43	0.93	0.84	7.19	0.99	0.79
QLD	3.72	1.10	0.71	12.73	1.74	1.40 *
WA	9.17	2.46	1.75	11.73	2.29	1.29
SA	6.03	1.84	1.15	11.08	2.02	1.22
Tas	4.71	2.74	0.90	10.82	3.64	1.19
ACT	9.54	7.82	1.82	9.80	6.09	1.08
NT	0.00	–	–	0.00	–	–
Nerves/tension/emotional problems, etc.						
Aust	4.44	0.46	1.00	8.91	0.55	1.00
NSW	5.23	0.83	1.18	9.58	0.97	1.08
Vic	3.22	0.77	0.73	9.17	1.13	1.03
QLD	5.74	1.33	1.29	9.57	1.50	1.07
WA	4.53	1.75	1.02	8.37	1.88	0.94
SA	3.04	1.14	0.69	6.74	1.56	0.76
Tas	4.31	2.41	0.97	8.36	3.08	0.94
ACT	0.00	–	–	1.84	2.14	0.21
NT	0.00	–	–	0.00	–	–
Ill-defined heart symptoms						
Aust	6.40	0.59	1.00	6.28	0.47	1.00
NSW	4.75	0.86	0.74	6.56	0.81	1.05
Vic	9.23	1.37	1.44 *	6.36	0.92	1.01
QLD	5.37	1.34	0.84	5.46	1.11	0.87
WA	5.18	1.95	0.81	6.18	1.62	0.98
SA	7.98	2.07	1.25	7.15	1.63	1.14
Tas	6.95	3.32	1.09	4.98	2.30	0.79
ACT	7.93	6.82	1.24	7.88	5.41	1.25
NT	0.00	–	–	0.00	–	–

(continued)

Table 7.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by State/Territory and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ State/Territory	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Skin rash, eczema, dermatitis						
Aust	5.93	0.53	1.00	6.10	0.46	1.00
NSW	6.11	0.91	1.03	5.69	0.76	0.93
Vic	6.51	1.09	1.10	6.04	0.91	0.99
QLD	4.10	1.02	0.69	7.42	1.32	1.22
WA	5.82	1.92	0.98	3.91	1.29	0.64
SA	5.39	1.61	0.91	8.68	1.83	1.42
Tas	8.21	3.59	1.38	7.17	2.94	1.17
ACT	16.86	9.33	2.84	0.00	–	–
NT	0.00	–	–	0.00	–	–
Common cold						
Aust	6.20	0.54	1.00	5.57	0.44	1.00
NSW	6.39	0.96	1.03	6.40	0.80	1.15
Vic	7.26	1.14	1.17	5.14	0.84	0.92
QLD	5.47	1.25	0.88	4.21	0.99	0.76
WA	4.45	1.49	0.72	6.78	1.68	1.22
SA	5.59	1.66	0.90	4.94	1.36	0.89
Tas	5.58	2.85	0.90	5.08	2.32	0.91
ACT	10.69	7.94	1.72	7.09	4.57	1.27
NT	7.99	7.78	1.29	0.00	–	–
Minor injuries						
Aust	4.67	0.48	1.00	4.94	0.42	1.00
NSW	4.45	0.77	0.95	5.06	0.71	1.02
Vic	3.09	0.75	0.66	4.24	0.76	0.86
QLD	8.49	1.68	1.82 **	5.56	1.12	1.12
WA	5.68	1.74	1.22	8.71	1.93	1.76 *
SA	2.27	1.03	0.49	1.87	0.76	0.38 *
Tas	4.90	2.59	1.05	6.21	2.69	1.26
ACT	0.00	–	–	3.99	4.43	0.81
NT	9.10	7.54	1.95	0.00	–	–

(a) Refer to pages 1–5 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

8 Metropolitan/non-metropolitan differentials

About 37% of older Australians live outside capital cities, of whom about half live in major centres outside the capital cities and the other half in more rural and remote areas. There is considerable diversity in the health status of these Australians and in their use of and access to health services. On the one hand, many living in major centres have similar health status and service use to that of capital city residents. On the other hand is the appallingly bad health status of many rural Aboriginal communities with life expectancies from 15 years to 20 years below that of non-Aboriginal Australians (Australian Institute of Health and Welfare 1994).

Defining what is meant by rural is not a simple task (Humphries 1990). The Australian Bureau of Statistics has defined a set of categories identifying metropolitan, major urban, urban, rural and remote regions. However, the geographical information included in the 1989–90 National Health Survey unit record data is limited and, in relation to this classification, it is only possible to distinguish capital city residents from other residents (see Box 8). For this reason, analyses of all the data sets reported here were restricted to a comparison of metropolitan and non-metropolitan residents. A more detailed examination of regional differences—comparing rural residents with urban residents, rather than just capital city residents with all other Australians—may well find larger health differentials.

There have been a number of studies of health differentials between rural and urban Australians. These have been reviewed by Humphries (1990) and Clarke (1990). Humphreys & Rolley (1991) concluded that rural Australians experience significantly more ill-health than do urban people and have higher death rates from some causes, particularly bronchitis and asthma and injuries. They also identified older people as a rural population group faced with particular health problems, concluding that older people, and those with chronic illnesses, are often over-represented in rural areas. The results presented in this chapter give a detailed profile of health status, risk factor and health service use differentials between residents of metropolitan and non-metropolitan areas aged 65 years and over in Australia in the late 1980s.

Box 8: Metropolitan/non-metropolitan categories

In terms of an urban/rural classification, it is possible to distinguish only capital city residents from others using information released on the unit record data file for the 1989–90 National Health Survey. Hence, these categories were used for the analysis of regional differences for all data sets.

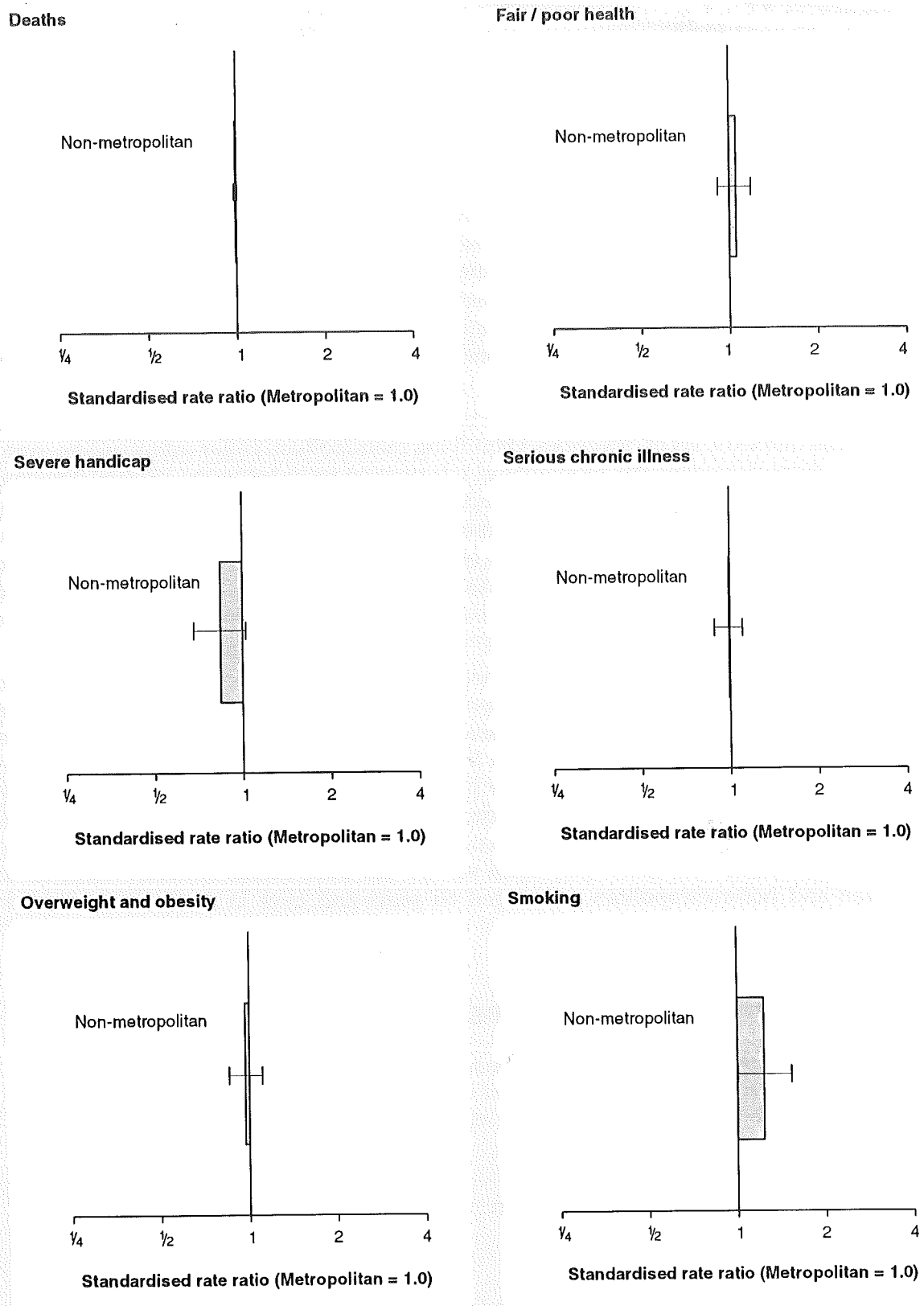
ABS 1985–87 mortality data

ABS 1988 Survey of Disabled and Aged Persons

ABS 1989–90 National Health Survey

Metropolitan:	*Capital city statistical divisions for the six States; All of the Australian Capital Territory*
Non-metropolitan:	*Other (including all of the Northern Territory)*

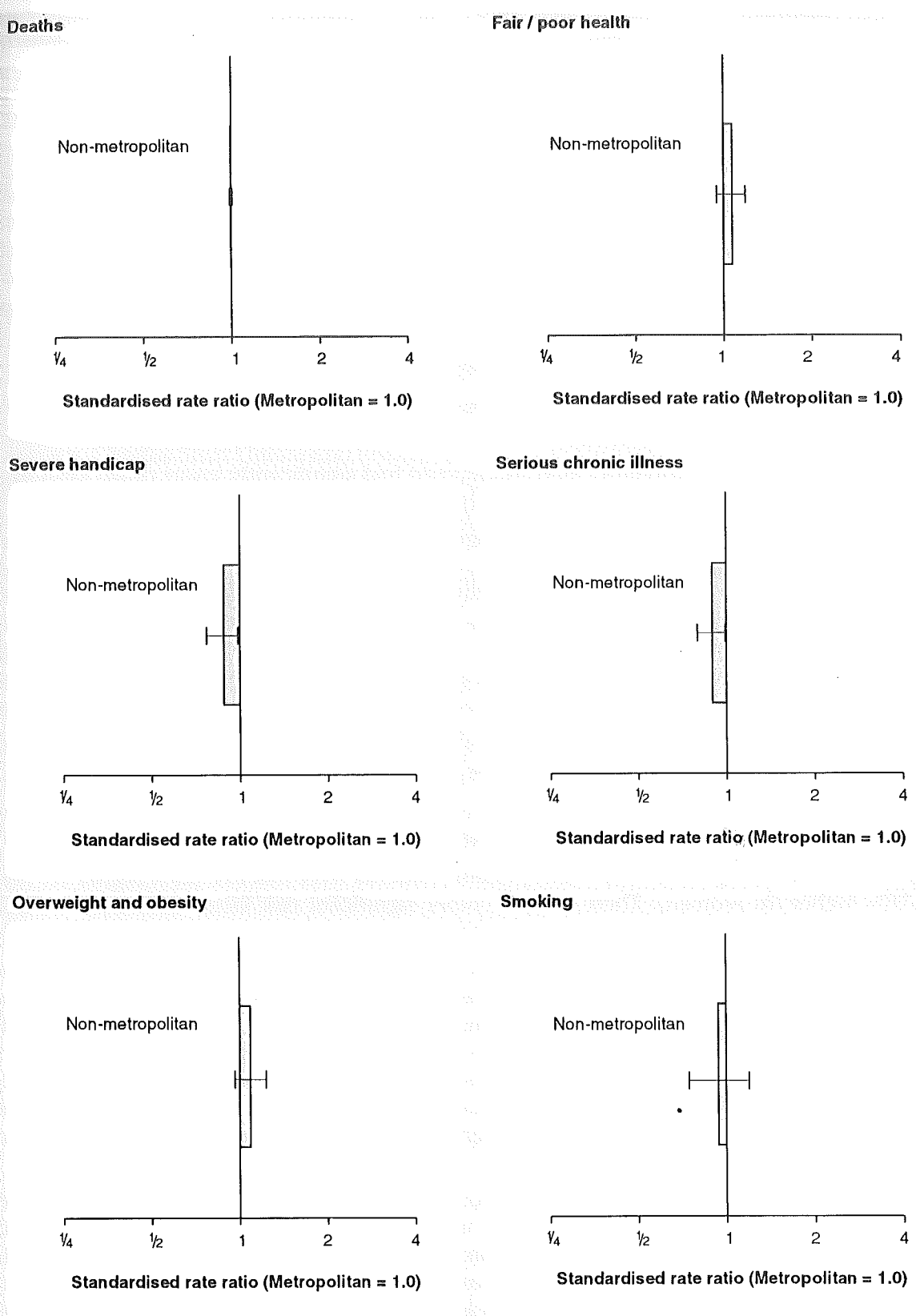
8 Metropolitan/non-metropolitan — Males 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 8.1: *Health status differentials by metropolitan / non-metropolitan region, Australian males aged 65 years and over, late 1980s*

8 Metropolitan/non-metropolitan — Females 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 8.2: *Health status differentials by metropolitan / non-metropolitan region, Australian females aged 65 years and over, late 1980s*

8 Metropolitan/non-metropolitan 65 years and over

For older Australian men and women there was no difference in overall mortality rates between metropolitan and non-metropolitan residents. This is in contrast to the situation for working-age adults, where non-metropolitan residents experienced significantly higher mortality than metropolitan residents (Mathers 1994). Non-metropolitan residents aged 65 years and over did have higher death rates for some major causes of death:

- respiratory diseases—9% higher for men
- digestive system diseases—14% higher for women
- genito-urinary system diseases—10% higher for men.

Cancer death rates were around 6–8% lower for non-metropolitan residents.

The only selected causes of death for which older non-metropolitan residents had significantly higher death rates were:

- pneumonia/influenza—15% higher for women
- bronchitis/emphysema/asthma—16% higher for men
- diabetes—11% higher for women.

In contrast, older non-metropolitan men and women had significantly lower death rates from lung cancer, brain cancer (men), breast cancer (women) and suicide (women).

Working-age non-metropolitan men had a significantly higher prevalence of handicap and disability whereas there were no differences for women. In contrast, there were no significant differences for older men, but older non-metropolitan women had significantly lower levels of disability, handicap and severe handicap. Older non-metropolitan men and women reported fair/poor health slightly more often than their metropolitan counterparts (although this did not reach statistical significance), but were significantly less likely to report chronic illness, recent illness (women) and minor illness (men). The only specific chronic and minor conditions reported significantly less often by older non-metropolitan residents were:

- hypertension—25% less often for men and 13% for women
- hay fever—34% less often for women
- skin rash, eczema, dermatitis—45% less often for men.

More older non-metropolitan than metropolitan residents were inactive (28% higher for men and 16% higher for women). There were no other significant risk factor differentials (Table 8.1).

A focus of attention over recent years has been on the unequal distribution of health services between urban and rural areas, in particular the recruitment and retention of doctors in small country towns (National Rural Health Conference Organising Committee 1991). The health service use differentials shown in Table 8.1 are consistent with the more detailed analysis of health service provision carried out by Mathers & Harvey (1988) and Reid & Solomon (1992). Non-metropolitan older residents reported around 20% more hospital episodes (though this does not reach statistical significance) and significantly fewer doctor and dental visits than their metropolitan counterparts.

In recent years there has been increasing recognition that rural Australians suffer poorer health than city dwellers and, additionally, have significant problems of access to health services (Reid & Solomon 1992; Davenport, Mant & Flishie 1989; Humphreys & Rolley 1993). This recognition has resulted in some important national initiatives (Australian Institute of Health and Welfare 1994, section 1.3.4) aimed at improving access to health services in rural and remote areas.

References

Australian Bureau of Statistics. Australian standard geographic classification (ASGC). ABS Cat. No. 1216.0, Canberra.

Australian Institute of Health and Welfare (1994). Australia's health 1994. AGPS, Canberra.

Clarke L (1990). An analysis of the health status of rural people. In: Cullen T, Dunn P, Lawrence G (eds). Rural health and welfare in Australia. Proceedings of the Tenth National Student Initiatives in Community Health Conference. Centre for Rural Welfare Research, Charles Sturt University, 1990:132–147.

Davenport PG, Mant A, Flishie JR (1989). Review of NSW rural health and aged care services. PA Consulting Group, Sydney.

Humphreys J (1990). Health care in rural Australia: geographical implications. In: Cullen T, Dunn P, Lawrence G (eds). Rural health and welfare in Australia. Proceedings of the Tenth National Student Initiatives in Community Health Conference. Centre for Rural Welfare Research, Charles Sturt University, 1990:10–27.

Humphreys J, Rolley F (1991). Health and health care in rural Australia. Department of Geography and Planning, University of New England, Armidale.

Humphreys J, Rolley F (1993). Health and health care behaviour and service provision in rural Australia. Department of Geography and Planning, University of New England, Armidale.

Mathers C, Harvey R (1988). Hospital utilisation and costs study. Volume 2: Survey of public hospitals and related data. AGPS, Canberra.

Mathers CD (1994). Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

National Rural Health Conference Organising Committee (1991). A fair go for rural health. National Rural Health Conference Discussion Paper, Toowoomba, 14–16 February 1991.

Reid M, Solomon S (1992). Improving Australia's rural health and aged care services. National Health Strategy Background Paper No. 11, Melbourne.

Table 8.1: *Health indicators—age-standardised[(a)] rates and rate ratios by metropolitan/non-metropolitan region and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ metro/non-metro	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Health status indicators						
Mortality						
Metropolitan	64.75	0.24	1.00	40.25	0.14	1.00
Non-metropolitan	64.21	0.30	0.99	39.97	0.19	0.99
Fair/poor health						
Metropolitan	42.60	1.75	1.00	41.79	1.41	1.00
Non-metropolitan	44.82	2.30	1.05	44.71	2.00	1.07
Severe handicap						
Metropolitan	15.21	0.93	1.00	21.94	0.79	1.00
Non-metropolitan	12.77	1.07	0.84	19.34	1.02	0.88 *
Handicap						
Metropolitan	44.97	1.22	1.00	45.06	0.98	1.00
Non-metropolitan	42.73	1.54	0.95	40.05	1.32	0.89 **
Disability						
Metropolitan	54.49	1.23	1.00	51.20	0.99	1.00
Non-metropolitan	53.05	1.55	0.97	46.37	1.36	0.91 **
Serious chronic illnesses						
Metropolitan	0.70	0.02	1.00	0.56	0.02	1.00
Non-metropolitan	0.69	0.03	0.99	0.50	0.02	0.90 *
Chronic illnesses						
Metropolitan	2.35	0.05	1.00	2.36	0.04	1.00
Non-metropolitan	2.19	0.06	0.93 *	2.06	0.05	0.88 ***
Recent illnesses						
Metropolitan	1.50	0.04	1.00	1.66	0.03	1.00
Non-metropolitan	1.39	0.04	0.93	1.54	0.04	0.93 *
Minor illnesses						
Metropolitan	0.94	0.03	1.00	1.16	0.03	1.00
Non-metropolitan	0.79	0.03	0.85 ***	1.11	0.03	0.96
Dental problems						
Metropolitan	4.64	0.59	1.00	4.00	0.47	1.00
Non-metropolitan	2.35	0.55	0.51 *	2.21	0.47	0.55 *
Reduced activity						
Metropolitan	38.26	0.38	1.00	44.52	0.35	1.00
Non-metropolitan	39.04	0.51	1.02	37.03	0.45	0.83 ***
Unhappiness						
Metropolitan	7.16	0.77	1.00	8.17	0.67	1.00
Non-metropolitan	5.88	0.90	0.82	5.50	0.74	0.67 *
Risk factors						
Overweight and obesity						
Metropolitan	44.14	1.76	1.00	36.25	1.39	1.00
Non-metropolitan	42.76	2.24	0.97	39.38	1.96	1.09
Inactivity						
Metropolitan	33.96	1.61	1.00	43.36	1.44	1.00
Non-metropolitan	43.44	2.31	1.28 ***	50.39	2.12	1.16 **
Smoking						
Metropolitan	14.49	1.04	1.00	11.16	0.78	1.00
Non-metropolitan	17.91	1.46	1.24	10.49	1.01	0.94
Alcohol risk						
Metropolitan	6.30	0.67	1.00	4.43	0.50	1.00
Non-metropolitan	6.70	0.87	1.06	4.47	0.67	1.01

(continued)

Table 8.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by metropolitan/non-metropolitan region and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ metro/non-metro	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Health service use						
Hospital episodes						
Metropolitan	0.38	0.06	1.00	0.28	0.05	1.00
Non-metropolitan	0.46	0.08	1.19	0.34	0.07	1.23
Doctor visits						
Metropolitan	11.72	0.28	1.00	12.55	0.23	1.00
Non-metropolitan	9.76	0.33	0.83 ***	10.54	0.29	0.84 ***
Outpatient visits						
Metropolitan	2.00	0.16	1.00	1.46	0.13	1.00
Non-metropolitan	1.07	0.15	0.54 ***	1.44	0.17	0.99
Dental visits						
Metropolitan	1.36	0.06	1.00	1.39	0.09	1.00
Non-metropolitan	0.95	0.06	0.70 ***	0.69	0.08	0.50 ***
Other health professional visits						
Metropolitan	5.52	0.39	1.00	6.50	0.56	1.00
Non-metropolitan	6.38	0.58	1.15	6.69	0.80	1.03
Major cause of death groups						
Cancers						
Metropolitan	15.80	0.12	1.00	7.97	0.06	1.00
Non-metropolitan	14.52	0.14	0.92 ***	7.48	0.08	0.94 ***
Endocrine, metabolic, nutritional						
Metropolitan	1.27	0.03	1.00	1.01	0.02	1.00
Non-metropolitan	1.32	0.04	1.04	1.11	0.03	1.10 **
Mental disorders						
Metropolitan	0.86	0.03	1.00	0.67	0.02	1.00
Non-metropolitan	0.82	0.04	0.95	0.68	0.02	1.00
Nervous system, sense organs						
Metropolitan	0.98	0.03	1.00	0.66	0.02	1.00
Non-metropolitan	0.90	0.04	0.92	0.63	0.02	0.95
Circulatory system						
Metropolitan	33.80	0.18	1.00	23.70	0.11	1.00
Non-metropolitan	33.69	0.22	1.00	23.43	0.15	0.99
Respiratory system						
Metropolitan	6.70	0.08	1.00	2.41	0.03	1.00
Non-metropolitan	7.31	0.10	1.09 ***	2.48	0.05	1.03
Digestive system						
Metropolitan	1.88	0.04	1.00	1.39	0.03	1.00
Non-metropolitan	1.95	0.05	1.04	1.58	0.04	1.14 ***
Genito-urinary system						
Metropolitan	1.11	0.03	1.00	0.78	0.02	1.00
Non-metropolitan	1.22	0.04	1.10 *	0.84	0.03	1.07
Injury and poisoning						
Metropolitan	1.38	0.04	1.00	0.85	0.02	1.00
Non-metropolitan	1.41	0.04	1.02	0.85	0.03	1.00
Other						
Metropolitan	0.96	0.03	1.00	0.81	0.02	1.00
Non-metropolitan	1.07	0.04	1.12 *	0.90	0.03	1.11 **
All causes						
Metropolitan	64.75	0.24	1.00	40.25	0.14	1.00
Non-metropolitan	64.21	0.30	0.99	39.97	0.19	0.99

(continued)

Table 8.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by metropolitan/non-metropolitan region and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ metro/non-metro	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Selected causes of death						
Stomach cancer						
Metropolitan	0.94	0.03	1.00	0.39	0.01	1.00
Non-metropolitan	0.84	0.03	0.89 *	0.36	0.02	0.94
Colorectal cancer						
Metropolitan	2.05	0.04	1.00	1.40	0.03	1.00
Non-metropolitan	1.85	0.05	0.90 **	1.40	0.04	1.00
Pancreatic cancer						
Metropolitan	0.65	0.02	1.00	0.49	0.02	1.00
Non-metropolitan	0.62	0.03	0.97	0.43	0.02	0.90
Lung cancer						
Metropolitan	4.19	0.06	1.00	0.88	0.02	1.00
Non-metropolitan	3.85	0.07	0.92 ***	0.75	0.03	0.85 ***
Breast/prostate cancer						
Metropolitan	2.33	0.05	1.00	1.17	0.02	1.00
Non-metropolitan	2.43	0.06	1.04	1.07	0.03	0.92 *
Brain cancer						
Metropolitan	0.26	0.01	1.00	0.15	0.01	1.00
Non-metropolitan	0.20	0.02	0.77 **	0.13	0.01	0.86
Diabetes mellitus						
Metropolitan	1.05	0.03	1.00	0.83	0.02	1.00
Non-metropolitan	1.11	0.04	1.06	0.91	0.03	1.11 *
Ischaemic heart disease						
Metropolitan	20.39	0.14	1.00	12.08	0.08	1.00
Non-metropolitan	20.15	0.16	0.99	11.81	0.10	0.98 *
Cerebrovascular disease						
Metropolitan	7.04	0.08	1.00	6.62	0.06	1.00
Non-metropolitan	6.80	0.10	0.97	6.35	0.08	0.96 **
Pneumonia/influenza						
Metropolitan	1.09	0.03	1.00	0.74	0.02	1.00
Non-metropolitan	1.17	0.04	1.07	0.86	0.03	1.15 ***
Bronchitis/emphysema/asthma						
Metropolitan	1.59	0.04	1.00	0.59	0.02	1.00
Non-metropolitan	1.84	0.05	1.16 ***	0.55	0.02	0.93
MV traffic accident						
Metropolitan	0.35	0.02	1.00	0.18	0.01	1.00
Non-metropolitan	0.32	0.02	0.94	0.17	0.01	0.93
Suicide						
Metropolitan	0.31	0.02	1.00	0.09	0.01	1.00
Non-metropolitan	0.33	0.02	1.07	0.07	0.01	0.75 *
Major chronic illness groups						
Neoplasms						
Metropolitan	7.65	0.79	1.00	4.57	0.50	1.00
Non-metropolitan	7.39	0.97	0.97	4.69	0.69	1.02
Endocrine, metabolic, nutritional						
Metropolitan	14.46	1.04	1.00	15.29	0.90	1.00
Non-metropolitan	13.03	1.31	0.90	14.47	1.19	0.95
Mental disorders						
Metropolitan	1.31	0.32	1.00	1.57	0.30	1.00
Non-metropolitan	1.43	0.42	1.09	2.13	0.46	1.36
Nervous system, sense organs						
Metropolitan	35.39	1.65	1.00	28.67	1.19	1.00
Non-metropolitan	32.34	2.04	0.91	23.14	1.49	0.81 **

(continued)

Table 8.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by metropolitan/non-metropolitan region and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ metro/non-metro	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Circulatory system						
Metropolitan	40.54	1.72	1.00	48.89	1.51	1.00
Non-metropolitan	33.65	2.01	0.83 *	42.81	1.96	0.88 *
Respiratory system						
Metropolitan	20.44	1.26	1.00	17.58	0.96	1.00
Non-metropolitan	19.38	1.55	0.95	13.30	1.14	0.76 **
Digestive system						
Metropolitan	14.33	1.06	1.00	12.01	0.81	1.00
Non-metropolitan	15.24	1.40	1.06	11.32	1.06	0.94
Genito-urinary system						
Metropolitan	3.91	0.57	1.00	5.61	0.56	1.00
Non-metropolitan	4.06	0.74	1.04	4.72	0.68	0.84
Skin and subcutaneous tissue						
Metropolitan	7.46	0.79	1.00	4.63	0.51	1.00
Non-metropolitan	4.85	0.78	0.65 *	3.79	0.61	0.82
Musculoskeletal system						
Metropolitan	49.25	1.87	1.00	58.35	1.63	1.00
Non-metropolitan	50.33	2.44	1.02	54.68	2.19	0.94
Injury and poisoning						
Metropolitan	2.03	0.42	1.00	1.22	0.26	1.00
Non-metropolitan	1.72	0.45	0.85	1.82	0.42	1.49
Other						
Metropolitan	3.55	0.54	1.00	3.65	0.45	1.00
Non-metropolitan	4.30	0.77	1.21	2.01	0.45	0.55 *
All causes						
Metropolitan	87.58	2.41	1.00	89.19	1.96	1.00
Non-metropolitan	84.52	3.09	0.97	83.24	2.64	0.93
Selected chronic conditions						
Arthritis						
Metropolitan	32.27	1.56	1.00	45.21	1.46	1.00
Non-metropolitan	33.20	2.02	1.03	41.63	1.94	0.92
Hypertension						
Metropolitan	25.63	1.38	1.00	32.97	1.27	1.00
Non-metropolitan	19.25	1.52	0.75 **	28.65	1.63	0.87 *
Deafness (complete/partial)						
Metropolitan	19.31	1.25	1.00	10.52	0.75	1.00
Non-metropolitan	20.75	1.65	1.07	8.38	0.92	0.80
Back problems						
Metropolitan	12.91	0.97	1.00	9.18	0.71	1.00
Non-metropolitan	13.94	1.31	1.08	7.53	0.86	0.82
Heart disease						
Metropolitan	12.00	1.00	1.00	9.34	0.71	1.00
Non-metropolitan	9.90	1.12	0.83	7.47	0.87	0.80
Hay fever						
Metropolitan	7.35	0.76	1.00	7.69	0.65	1.00
Non-metropolitan	5.83	0.85	0.79	5.04	0.71	0.66 *
Bronchitis/emphysema						
Metropolitan	8.84	0.85	1.00	4.95	0.52	1.00
Non-metropolitan	8.46	1.01	0.96	5.18	0.72	1.05
Varicose veins						
Metropolitan	3.76	0.57	1.00	7.16	0.63	1.00
Non-metropolitan	3.30	0.62	0.88	5.78	0.76	0.81

(continued)

Table 8.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by metropolitan/non-metropolitan region and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ metro/non-metro	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Asthma						
Metropolitan	5.06	0.63	1.00	5.85	0.57	1.00
Non-metropolitan	5.55	0.85	1.10	4.16	0.64	0.71
Hernia						
Metropolitan	5.39	0.67	1.00	4.41	0.50	1.00
Non-metropolitan	7.28	0.96	1.35	3.89	0.62	0.88
Diabetes mellitus						
Metropolitan	5.56	0.68	1.00	4.33	0.50	1.00
Non-metropolitan	4.43	0.76	0.80	4.49	0.67	1.04
High cholesterol						
Metropolitan	3.25	0.50	1.00	5.32	0.55	1.00
Non-metropolitan	2.11	0.48	0.65	4.39	0.66	0.83
Selected minor conditions						
Insomnia						
Metropolitan	11.11	0.97	1.00	17.40	0.95	1.00
Non-metropolitan	10.42	1.21	0.94	15.90	1.25	0.91
Headache (excluding migraine)						
Metropolitan	6.62	0.72	1.00	13.74	0.86	1.00
Non-metropolitan	6.42	0.91	0.97	11.54	1.06	0.84
Constipation						
Metropolitan	5.76	0.72	1.00	9.08	0.71	1.00
Non-metropolitan	4.31	0.73	0.75	9.19	0.96	1.01
Nerves/tension/emotional problems, etc.						
Metropolitan	4.95	0.63	1.00	8.63	0.69	1.00
Non-metropolitan	3.65	0.68	0.74	9.43	0.96	1.09
Ill-defined heart symptoms						
Metropolitan	6.51	0.76	1.00	6.14	0.58	1.00
Non-metropolitan	6.23	0.95	0.96	6.48	0.81	1.06
Skin rash, eczema, dermatitis						
Metropolitan	7.19	0.76	1.00	6.11	0.59	1.00
Non-metropolitan	3.93	0.68	0.55 **	6.11	0.78	1.00
Common cold						
Metropolitan	6.85	0.74	1.00	5.80	0.57	1.00
Non-metropolitan	5.23	0.81	0.76	5.14	0.72	0.89
Minor injuries						
Metropolitan	4.29	0.59	1.00	5.14	0.54	1.00
Non-metropolitan	5.32	0.84	1.24	4.64	0.68	0.90

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

9 Country of birth differentials

Australian residents born overseas have lower mortality rates than those born in Australia, but their rates rise with length of residence in Australia so that, after around 15 to 20 years, the mortality rates of most groups approximate those of Australian-born people (Young 1986; Lee et al. 1987; Powles & Gifford 1990; Young 1992). Migrants are highly selected by health status, both explicitly by health criteria applied by the Australian Government to people seeking to migrate to Australia and also because people who are in poor health are less likely to have the ability and economic resources to migrate. Refugees and some specific migrant groups have particular health problems but form a small fraction of the overall immigrant population.

There are a large number of other factors possibly involved in the explanation of differentials in health among immigrant groups, including:

- differential access to health facilities
- differences in reporting due to language limitations
- differences in reporting due to cultural factors
- differences in socioeconomic status, working conditions and environment
- differences in diet, lifestyle and habits
- differences in body constitution and genetic differences (Bennett 1992, 1993).

Box 9: Country of birth categories

Country of birth categories are defined in terms of country groups used in the Australian Standard Classification of Countries for Social Statistics (ABS 1990) as follows:

ABS 1989–90 National Health Survey (NHS)

Australia	
UK, Ireland:	*United Kingdom and Ireland (Eire)*
Other Europe:	*Includes Eastern Europe, USSR and Baltic States*
Asia:	*Middle East, South-East Asia, Southern Asia*
Other:	*North-East Asia (including China, Hong Kong, Japan, Korea), Northern and Southern Africa, the Americas, New Zealand and the Pacific region*

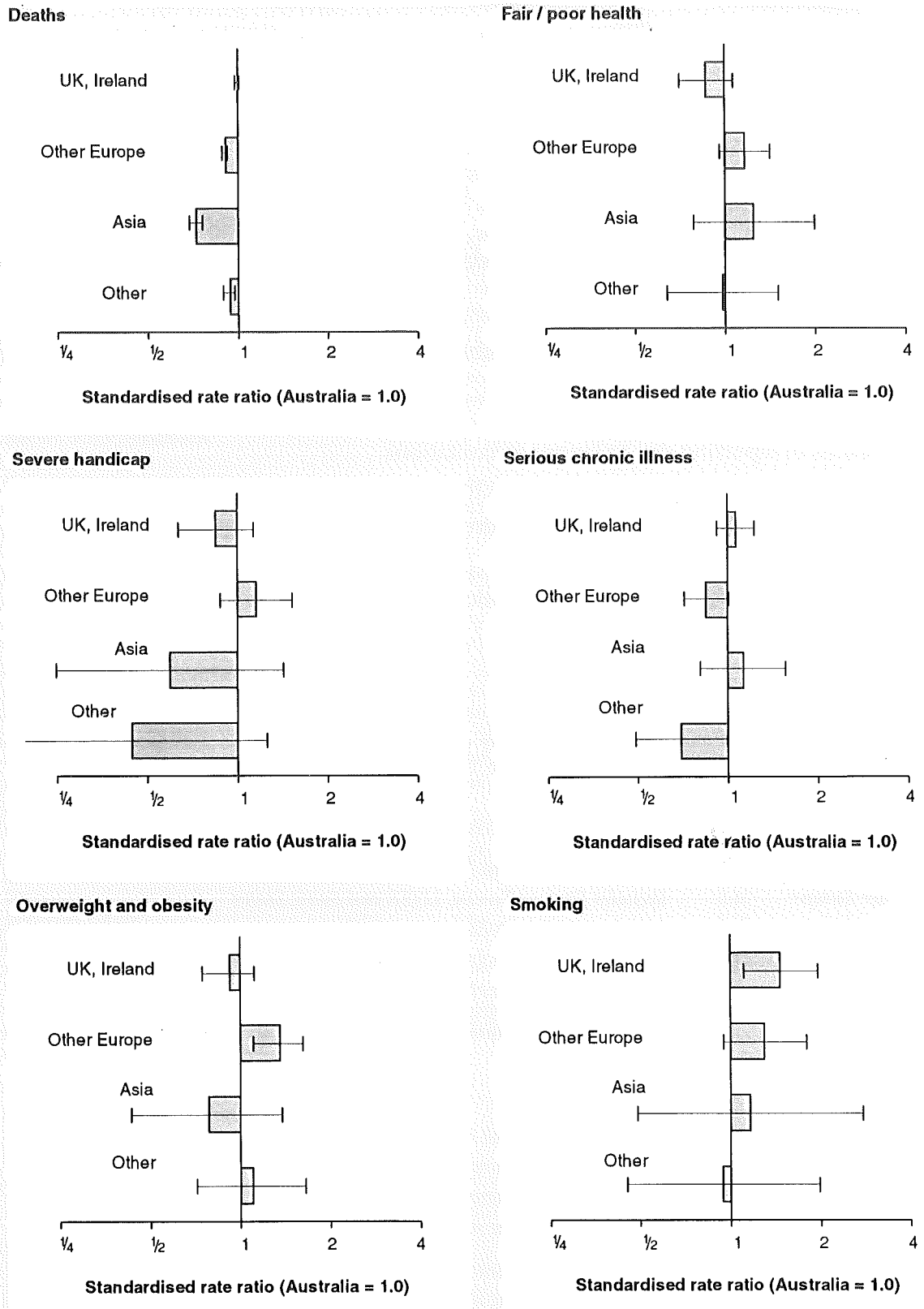
ABS 1988 Survey of Disabled and Aged Persons

ABS 1985–87 mortality data

Australia	
UK, Ireland:	*United Kingdom and Ireland (Eire)*
Other Europe:	*Includes Eastern Europe, USSR and Baltic States*
Asia:	*Middle East, Northern Africa and Asia*
Other:	*Southern Africa, the Americas,New Zealand and the Pacific region*

Country of birth was ascertained for all respondents in the National Health Survey and almost all respondents in the Survey of Disability and Ageing (less than 0.2% unknown or not stated). For deaths occurring in 1985 to 1987, there were a total of 0.9% or 2,232 deaths (1,169 male, 1,063 female) where country of birth was 'not stated'. The 'not stated' deaths were excluded from analysis.

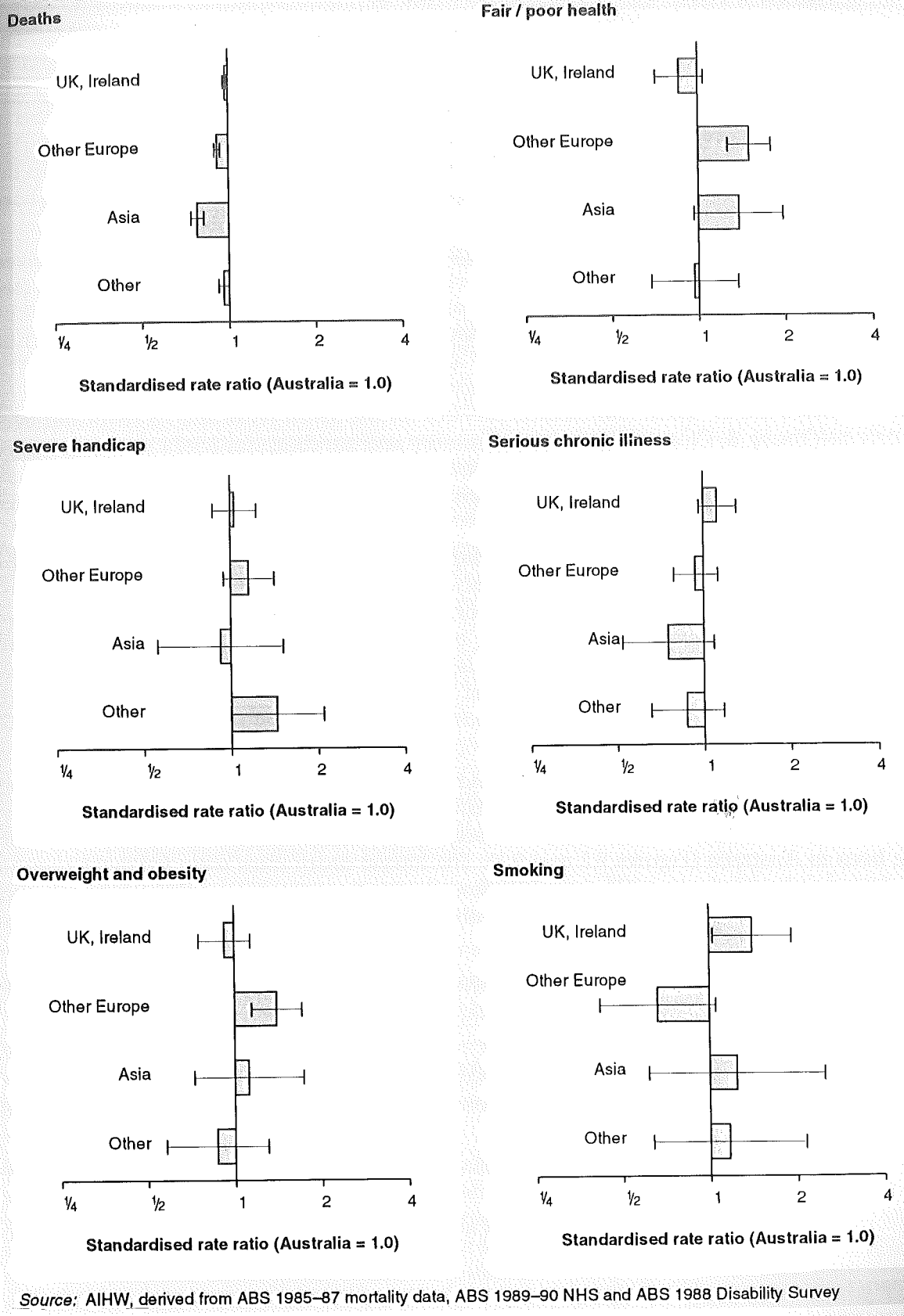
9 Country of birth — Males 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 9.1: *Health status differentials by country of birth, Australian males aged 65 years and over, late 1980s*

9 Country of birth — Females 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 9.2: *Health status differentials by country of birth, Australian females aged 65 years and over, late 1980s*

9 Country of birth — 65 years and over

Although selection effects are dominant for many immigrant groups, health differentials involve complex interaction between social, cultural, environmental, biological and genetic factors. The social and cultural context of migrant health in Australia has been explored by Reid and Trompf (1990). The National Health Strategy (1993) examined the health status and service use of migrants with particular attention to language and cultural barriers to use of health services. The principal objective of this chapter is to document observed and reported differentials between birthplace groups in Australia for people aged 65 years and over. In the late 1980s, around 27% of the Australian population aged 65 years and over were foreign-born (Appendix B).

Due to sample size limitations in the survey data, and the small numbers of deaths involved for some individual countries, countries of birth were grouped into five broad groups (see Box 9). More detailed analyses of death rates and population survey data for older immigrants by individual countries of birth have been published by the Australian Institute of Health and Welfare (Donovan et al. 1992) and the National Health Strategy (1993). The former includes detailed analyses of mortality rates for the 65–74 year age range (Young 1992), women's use of health and medical services for the 55–74 years and 75 years and over age groups (Young & Coles 1992) and the disability and handicap for 15–74 years age range (d'Espaignet & van Ommeren 1992). The National Health Strategy report provides age-standardised health status, risk factor and service use differentials for the 15–74 years age group.

The summary differentials reported in this chapter relate to broader country of birth groups and to people aged 65 years and over. They include a more extensive set of health indicators, in the same format as the differentials reported in other chapters for social and socio-economic population groups. The grouping of older people from a number of different birthplaces may conceal health and service use differences for migrant groups from some specific countries. All differentials based on self-reported data should be treated with particular caution in this chapter due to the possibility of reporting biases related to cultural and linguistic differences.

Australian residents aged 65 years and over and born in the United Kingdom and Ireland had mortality rates very similar to those born in Australia, except for a 15% higher death rate from cancer for both men and women. Other overseas-born Australians had lower mortality than those born in Australia (Figures 9.1 and 9.2). The lowest death rates were for those born in Asia (age-standardised rates 27% and 22% lower than those for Australian-born men and women respectively). These differentials are substantially smaller than those for working-age men and women (Mathers 1994, chapter 12).

Australians born in other European countries and Asia had lower death rates than those born in Australia for all major cause of death groups except the following:

- endocrine, metabolic, nutritional diseases—around 50% higher for men and 100% higher for women from continental Europe and Asia
- injury and poisoning—24% higher for men and 17% higher for women from continental Europe.

There were some individual causes for which some overseas-born people had significantly higher death rates (Table 9.1), including:

- stomach cancer—50–60% higher for men and women born in United Kingdom, Ireland and other European countries
- pancreatic cancer—23% higher for women born in United Kingdom and Ireland; 20% higher for men and 30% higher for women born in other European countries

- lung cancer—45% higher for men and 74% higher for women born in United Kingdom and Ireland
- breast cancer—13% higher for women born in United Kingdom and Ireland
- brain cancer—52% higher for men born in the United Kingdom and Ireland
- diabetes—over 50% higher for men and over 120% higher for women born in continental Europe and Asia
- motor vehicle accidents—47% higher for men born in continental Europe; 80–90% higher for men and women born in Asia
- suicide—47% higher for men and over three times higher for women born in continental Europe.

Compared with those born in Australia, the prevalence of reported disability and handicap was significantly lower for older men and women born in Asia (Table 9.1) and also for older men born in 'Other' countries. Severe handicap levels were also lower for these groups, but the differences did not reach statistical significance.

In general, older people born overseas reported somewhat lower levels of serious chronic, chronic, recent and minor illness than did those born in Australia (Table 9.1), although these differences only reached statistical significance in a number of cases, mainly for men from continental Europe and Asia. In contrast, men and women born in continental Europe and Asia were more likely to report fair or poor health, although this only reached significance for women born in continental Europe (49% more likely to report fair/poor health). These women were over four times more likely to report unhappiness as Australian-born women. Men born in continental Europe and women born in Asia also were significantly more likely to say they were unhappy. No Asian-born men at all reported unhappiness. Older men born in continental Europe, but not those born in Asia, reported significantly more days of reduced activity, as did all overseas-born older women.

Overseas-born older Australians generally reported fewer illness conditions than those born in Australia for most major chronic illness groups (except endocrine/metabolic/nutritional problems, which were reported 36% more frequently by women born in the United Kingdom and Ireland), but there were some individual illnesses for which some overseas-born older people had higher rates (Table 9.1), including:

- diabetes—around 2.5 times more often for women born in continental Europe and 'Other' countries, 89% more often for women born in the United Kingdom and Ireland
- heart disease—2.2 times more often for men born in Asia
- high cholesterol—70% more often for women born in the United Kingdom and Ireland.

As for working-age Australians, there were similar significant differentials in risk factors by country of birth group for older Australians. Men and women born in continental Europe were significantly more likely to be overweight. Both men and women born in the United Kingdom and Ireland were more likely to be smokers (47% higher for men and 40% higher for women).

Kliewer & Butler (1994) have analysed hospital utilisation rates for immigrants in Australia in great detail, and found that older overseas-born Australians have significantly fewer hospital episodes than their Australian-born counterparts. The results shown in Table 9.1 are not inconsistent with these findings, although the self-reported hospital episode differentials did not reach statistical significance. Unlike their younger counterparts, older men born overseas generally reported fewer doctor visits (significantly fewer for men born in the United Kingdom and Ireland and 'Other' countries). Older women born overseas generally reported more doctor visits, although this only reached statistical significance for women born in Asia

(28% more visits). Asian-born men and women reported significantly more dental visits (51% more for men and 157% more for women) as did all other overseas-born women (84% more for those born in the United Kingdom and Ireland, 44% more for those born in continental Europe and over three times more for those born in 'Other' countries. Older men born in continental Europe report 45% fewer dental visits.

Individual behaviour can affect health, and differences in patterns of behaviour between country of birth groups may contribute to observed differences in health. In addition, it is possible that differences in the distribution of length of residence in Australia may account for some of the apparent differences in health between immigrant groups. Older people who did not speak English at home, when compared with those who did, reported fewer chronic illnesses, but were much more likely to report their health as fair or poor (see chapter 10). It may be that non-English-speaking older people had more difficulties in reporting specific illnesses than English-speaking older people, and that some of the apparent differences between country of birth groups may be due to differences in the proportion who did not speak English well.

Although it is known that death rates and levels of reported disability, illness and reduced activity due to illness approach those of Australian-born people with increasing length of residence in Australia (Young 1992; Australian Institute of Health and Welfare 1992, Table 4.13), the results presented in this chapter show that older overseas-born Australians still tend to retain a health advantage. However, there is some evidence that particular health problems including a number of cancers, diabetes mellitus and fatal injuries are more prevalent among some groups of overseas-born older Australians.

References

Australian Bureau of Statistics (1990). Australian standard classification of countries for social statistics. ABS Cat. No. 1269.0, Canberra.

Australian Institute of Health and Welfare (1992). Australia's health 1992. AGPS, Canberra.

Bennett S (1992). Risk factor differentials among immigrant groups. In: Donovan J, d'Espaignet E, Merton C, van Ommeren M (eds). Immigrants in Australia: a health profile. Australian Institute of Health and Welfare, Ethnic Series No. 1, AGPS, Canberra:192–213.

Bennett S (1993). Inequalities in risk factors and cardiovascular mortality among Australia's immigrants. Aust J Public Health 17:251-261.

Donovan J, d'Espaignet E, Merton C, van Ommeren M (1992). Immigrants in Australia: a health profile. Australian Institute of Health and Welfare, Ethnic Series No. 1, AGPS, Canberra.

d'Espaignet E, van Ommeren M (1992). Differences in levels and types of disabilities. In: Donovan J, d'Espaignet E, Merton C, van Ommeren M (eds). Immigrants in Australia: a health profile. Australian Institute of Health and Welfare, Ethnic Series No. 1, AGPS, Canberra, 1992:192–213.

Kliewer E, Butler J (1994). Hospital utilisation by immigrants in Australia. Summary report. Bureau of Immigration Research, AGPS, Canberra.

Lee SH, Smith L, d'Espaignet E, Thomson N (1987). Health differentials for working age Australians. Australian Institute of Health, Canberra.

Mathers CD (1994). Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

National Health Strategy (1993). Removing cultural and language barriers to health. Issues Paper No.6, National Health Strategy, Melbourne.

Powles J, Gifford S (1990). How healthy are Australia's immigrants? In: Reid J, Trompf P (eds) (1990). The health of immigrant Australia: a social perspective. Harcourt Brace Jovanovich, Marrickville, 1990.

Reid J, Trompf P (1990). The health of immigrant Australia: a social perspective. Harcourt Brace Jovanovich, Marrickville.

Young C (1986). Selection and survival: immigrant mortality in Australia. Department of Immigration and Ethnic Affairs. AGPS, Canberra.

Young C (1992). Mortality: the ultimate indicator of survival: the differential experience between birthplace groups. In: Donovan J, d'Espaignet E, Merton C, van Ommeren M (eds). Immigrants in Australia: a health profile. Australian Institute of Health and Welfare, Ethnic Series No. 1, AGPS, Canberra: 34–70.

Young C, Coles A (1992) Women's health, use of medical services, medication, lifestyle and chronic illness. Some findings from the 1989–90 National Health Survey. In: Donovan J, d'Espaignet E, Merton C, van Ommeren M (eds). Immigrants in Australia: a health profile. Australian Institute of Health and Welfare, Ethnic Series No. 1, AGPS, Canberra: 122–191.

Table 9.1: *Health indicators—age-standardised[a] rates and rate ratios by country of birth and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ country of birth	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Health status indicators						
Mortality						
Australia	64.90	0.22	1.00	40.35	0.13	1.00
UK, Ireland	64.81	0.49	1.00	39.42	0.31	0.98 **
Other Europe	59.01	0.57	0.91 ***	36.90	0.41	0.91 ***
Asia	47.09	1.21	0.73 ***	31.46	0.79	0.78 ***
Other	60.91	1.35	0.94 **	38.69	0.85	0.96
Fair/poor health						
Australia	43.36	1.63	1.00	41.48	1.29	1.00
UK, Ireland	37.55	3.67	0.87	35.64	3.31	0.86
Other Europe	50.51	4.69	1.17	61.99	5.15	1.49 ***
Asia	54.06	12.63	1.25	56.96	10.24	1.37
Other	42.50	9.14	0.98	40.00	6.93	0.96
Severe handicap						
Australia	14.36	0.85	1.00	20.38	0.71	1.00
UK, Ireland	12.14	1.62	0.85	21.04	1.70	1.03
Other Europe	16.54	2.11	1.15	23.51	2.23	1.15
Asia	8.55	3.75	0.60	18.72	4.71	0.92
Other	6.38	3.33	0.44	29.33	5.44	1.44
Handicap						
Australia	45.42	1.15	1.00	43.46	0.90	1.00
UK, Ireland	43.40	2.57	0.96	42.83	2.20	0.99
Other Europe	42.33	2.82	0.93	43.48	2.75	1.00
Asia	23.15	5.38	0.51 **	28.57	5.52	0.66 *
Other	22.97	5.53	0.51 **	47.33	6.18	1.09
Disability						
Australia	55.93	1.14	1.00	49.75	0.92	1.00
UK, Ireland	52.25	2.61	0.93	49.35	2.27	0.99
Other Europe	50.31	2.85	0.90	50.28	2.79	1.01
Asia	34.79	6.56	0.67 *	30.14	5.61	0.61 **
Other	39.84	5.97	0.76	52.29	6.34	1.05
Serious chronic illnesses						
Australia	0.70	0.02	1.00	0.54	0.02	1.00
UK, Ireland	0.75	0.05	1.06	0.60	0.04	1.11
Other Europe	0.60	0.05	0.85	0.50	0.04	0.93
Asia	0.79	0.13	1.12	0.40	0.07	0.75
Other	0.49	0.09	0.70 *	0.47	0.07	0.87
Chronic illnesses						
Australia	2.39	0.04	1.00	2.26	0.04	1.00
UK, Ireland	2.26	0.09	0.95	2.37	0.09	1.05
Other Europe	1.73	0.09	0.72 ***	2.07	0.09	0.91
Asia	2.14	0.24	0.89	2.21	0.19	0.98
Other	2.02	0.19	0.84	1.99	0.15	0.88
Recent illnesses						
Australia	1.55	0.03	1.00	1.62	0.03	1.00
UK, Ireland	1.32	0.07	0.85 **	1.64	0.07	1.01
Other Europe	1.07	0.07	0.69 ***	1.55	0.08	0.96
Asia	1.58	0.22	1.02	1.83	0.18	1.13
Other	1.26	0.16	0.81	1.51	0.13	0.93
Minor illnesses						
Australia	0.92	0.03	1.00	1.15	0.02	1.00
UK, Ireland	0.82	0.05	0.89	1.13	0.06	0.98
Other Europe	0.73	0.06	0.79 **	1.13	0.07	0.98
Asia	0.92	0.17	1.00	1.06	0.14	0.92
Other	0.84	0.13	0.91	1.06	0.11	0.93

(continued)

Table 9.1 (continued): *Health indicators—age-standardised*[(a)] *rates and rate ratios by country of birth and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ country of birth	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Dental problems						
Australia	3.94	0.51	1.00	2.90	0.37	1.00
UK, Ireland	3.76	1.18	0.96	3.85	1.15	1.33
Other Europe	2.69	1.11	0.68	3.50	1.26	1.21
Asia	4.96	3.55	1.26	8.70	3.83	3.00 *
Other	1.37	1.85	0.35	9.18	3.47	3.16 **
Reduced activity						
Australia	38.56	0.36	1.00	39.68	0.30	1.00
UK, Ireland	34.04	0.86	0.88 ***	46.19	0.95	1.16 ***
Other Europe	44.49	1.07	1.15 ***	48.87	1.14	1.23 ***
Asia	28.99	2.31	0.75 ***	45.49	2.41	1.15 *
Other	51.26	2.57	1.33 ***	48.28	2.02	1.22 ***
Unhappiness						
Australia	6.46	0.70	1.00	5.33	0.51	1.00
UK, Ireland	5.03	1.29	0.78	6.83	1.45	1.28
Other Europe	11.19	2.20	1.73 *	21.93	3.04	4.11 ***
Asia	0.00	–	–	13.18	4.51	2.47 *
Other	6.81	3.46	1.05	6.18	2.67	1.16
Risk factors						
Overweight and obesity						
Australia	42.50	1.60	1.00	36.46	1.27	1.00
UK, Ireland	39.22	3.72	0.92	33.61	3.35	0.92
Other Europe	57.58	5.15	1.35 **	50.89	4.90	1.40 **
Asia	33.29	9.72	0.78	40.70	8.89	1.12
Other	46.68	9.77	1.10	31.59	6.42	0.87
Inactivity						
Australia	38.28	1.57	1.00	45.87	1.35	1.00
UK, Ireland	31.04	3.34	0.81	40.53	3.50	0.88
Other Europe	45.67	4.57	1.19	54.70	4.80	1.19
Asia	25.89	8.95	0.68	51.08	9.75	1.11
Other	28.76	7.65	0.75	31.32	6.12	0.68
Smoking						
Australia	14.35	0.95	1.00	10.59	0.70	1.00
UK, Ireland	21.10	2.73	1.47 **	14.86	2.17	1.40 *
Other Europe	18.69	2.78	1.30	7.00	1.58	0.66
Asia	16.70	7.30	1.16	13.08	4.57	1.24
Other	13.52	4.99	0.94	12.32	3.72	1.16
Alcohol risk						
Australia	7.26	0.67	1.00	4.93	0.49	1.00
UK, Ireland	6.76	1.48	0.93	5.11	1.24	1.04
Other Europe	3.18	1.06	0.44 *	0.72	0.46	0.15 **
Asia	0.00	0.00	0.00 *	0.00	0.00	0.00 *
Other	1.22	1.30	0.17	4.02	2.04	0.82
Health service use						
Hospital episodes						
Australia	0.42	0.06	1.00	0.31	0.05	1.00
UK, Ireland	0.46	0.14	1.08	0.32	0.13	1.06
Other Europe	0.29	0.13	0.68	0.27	0.14	0.89
Asia	0.39	0.37	0.92	0.38	0.34	1.24
Other	0.41	0.31	0.97	0.21	0.20	0.70

(continued)

Table 9.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by country of birth and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ country of birth	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Doctor visits						
Australia	11.40	0.26	1.00	11.64	0.20	1.00
UK, Ireland	10.04	0.58	0.88 *	12.33	0.58	1.06
Other Europe	10.32	0.64	0.91	12.49	0.71	1.07
Asia	10.57	1.54	0.93	14.93	1.57	1.28 *
Other	7.45	1.17	0.65 **	10.91	1.10	0.94
Outpatient visits						
Australia	1.80	0.14	1.00	1.48	0.12	1.00
UK, Ireland	1.82	0.30	1.01	1.56	0.30	1.06
Other Europe	0.98	0.24	0.55 *	1.54	0.36	1.04
Asia	0.69	0.43	0.39	0.94	0.56	0.64
Other	0.00	0.00	0.00 *	0.44	0.35	0.30
Dental visits						
Australia	1.27	0.05	1.00	0.91	0.06	1.00
UK, Ireland	1.28	0.13	1.01	1.68	0.22	1.84 ***
Other Europe	0.70	0.10	0.55 ***	1.32	0.22	1.44 *
Asia	1.92	0.38	1.51 *	2.34	0.59	2.57 ***
Other	0.36	0.15	0.28 **	2.93	0.57	3.20 ***
Other health professional visits						
Australia	5.81	0.39	1.00	6.88	0.55	1.00
UK, Ireland	6.00	0.89	1.03	6.58	1.37	0.96
Other Europe	6.54	1.04	1.13	3.10	1.02	0.45 *
Asia	4.77	2.29	0.82	6.15	3.30	0.89
Other	1.43	0.90	0.25 *	8.43	2.43	1.23
Major cause of death groups						
Cancers						
Australia	14.93	0.10	1.00	7.66	0.06	1.00
UK, Ireland	17.27	0.25	1.16 ***	8.79	0.15	1.15 ***
Other Europe	15.10	0.28	1.01	7.17	0.18	0.93 *
Asia	10.46	0.54	0.70 ***	6.18	0.34	0.81 ***
Other	13.56	0.63	0.91 *	7.81	0.38	1.02
Endocrine, metabolic, nutritional						
Australia	1.20	0.03	1.00	0.95	0.02	1.00
UK, Ireland	1.20	0.07	1.00	0.90	0.05	0.95
Other Europe	1.82	0.10	1.52 ***	1.92	0.09	2.02 ***
Asia	1.76	0.23	1.47 **	1.92	0.19	2.02 ***
Other	1.12	0.17	0.93	1.22	0.15	1.29 *
Mental disorders						
Australia	0.84	0.03	1.00	0.68	0.02	1.00
UK, Ireland	0.86	0.06	1.03	0.66	0.04	0.96
Other Europe	0.78	0.07	0.93	0.53	0.05	0.77 **
Asia	0.49	0.13	0.59 *	0.37	0.09	0.55 **
Other	0.56	0.14	0.67	0.72	0.12	1.06
Nervous system, sense organs						
Australia	0.95	0.03	1.00	0.65	0.02	1.00
UK, Ireland	1.05	0.06	1.10	0.67	0.04	1.03
Other Europe	0.71	0.06	0.74 **	0.55	0.05	0.84
Asia	0.49	0.12	0.51 **	0.40	0.09	0.61 *
Other	0.95	0.16	0.99	0.53	0.10	0.81
Circulatory system						
Australia	34.34	0.16	1.00	23.94	0.10	1.00
UK, Ireland	32.09	0.34	0.93 ***	22.10	0.23	0.92 ***
Other Europe	30.67	0.42	0.89 ***	21.49	0.32	0.90 ***
Asia	24.54	0.88	0.71 ***	17.73	0.60	0.74 ***
Other	32.19	0.98	0.94 *	22.23	0.64	0.93 *

(continued)

Table 9.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by country of birth and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ country of birth	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Respiratory system						
Australia	7.17	0.07	1.00	2.48	0.03	1.00
UK, Ireland	7.26	0.16	1.01	2.59	0.08	1.05
Other Europe	4.57	0.17	0.64 ***	1.66	0.09	0.67 ***
Asia	4.70	0.40	0.66 ***	1.45	0.17	0.58 ***
Other	6.77	0.47	0.94	2.09	0.20	0.84
Digestive system						
Australia	1.94	0.04	1.00	1.45	0.02	1.00
UK, Ireland	1.78	0.08	0.92	1.44	0.06	1.00
Other Europe	1.78	0.10	0.92	1.30	0.08	0.90
Asia	1.44	0.21	0.74 *	1.34	0.16	0.92
Other	1.79	0.23	0.92	1.71	0.18	1.18
Genito-urinary system						
Australia	1.17	0.03	1.00	0.83	0.02	1.00
UK, Ireland	1.02	0.06	0.88 *	0.68	0.04	0.82 **
Other Europe	1.13	0.09	0.97	0.65	0.05	0.78 **
Asia	0.77	0.16	0.66	0.70	0.12	0.84
Other	1.42	0.23	1.22	0.83	0.12	1.00
Injury and poisoning						
Australia	1.33	0.03	1.00	0.83	0.02	1.00
UK, Ireland	1.33	0.07	1.01	0.82	0.05	0.99
Other Europe	1.64	0.09	1.24 ***	0.97	0.07	1.17 *
Asia	1.46	0.21	1.10	0.92	0.13	1.11
Other	1.44	0.20	1.09	0.90	0.13	1.09
Other						
Australia	1.03	0.03	1.00	0.87	0.02	1.00
UK, Ireland	0.94	0.06	0.91	0.77	0.04	0.88 *
Other Europe	0.80	0.07	0.77 **	0.68	0.06	0.78 **
Asia	0.97	0.18	0.94	0.45	0.10	0.52 **
Other	1.11	0.19	1.08	0.63	0.11	0.72
All causes						
Australia	64.90	0.22	1.00	40.35	0.13	1.00
UK, Ireland	64.81	0.49	1.00	39.42	0.31	0.98 **
Other Europe	59.01	0.57	0.91 ***	36.90	0.41	0.91 ***
Asia	47.09	1.21	0.73 ***	31.46	0.79	0.78 ***
Other	60.91	1.35	0.94 **	38.69	0.85	0.96
Selected causes of death						
Stomach cancer						
Australia	0.80	0.02	1.00	0.34	0.01	1.00
UK, Ireland	1.27	0.07	1.59 ***	0.52	0.04	1.54 ***
Other Europe	1.20	0.08	1.50 ***	0.54	0.05	1.60 ***
Asia	0.55	0.12	0.69	0.22	0.07	0.64
Other	0.65	0.13	0.81	0.30	0.07	0.87
Colorectal cancer						
Australia	2.02	0.04	1.00	1.44	0.03	1.00
UK, Ireland	1.96	0.08	0.97	1.44	0.06	1.00
Other Europe	1.72	0.10	0.85 **	1.01	0.07	0.71 ***
Asia	1.13	0.19	0.56 ***	1.01	0.14	0.70 *
Other	1.94	0.24	0.96	0.86	0.13	0.60 ***
Pancreatic cancer						
Australia	0.62	0.02	1.00	0.44	0.01	1.00
UK, Ireland	0.65	0.05	1.05	0.54	0.04	1.23 **
Other Europe	0.74	0.06	1.20 *	0.57	0.05	1.30 **
Asia	0.59	0.12	0.96	0.43	0.09	0.97
Other	0.58	0.12	0.94	0.54	0.10	1.22

(continued)

Table 9.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by country of birth and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ country of birth	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Lung cancer						
Australia	3.73	0.05	1.00	0.77	0.02	1.00
UK, Ireland	5.40	0.14	1.45 ***	1.33	0.06	1.74 ***
Other Europe	4.39	0.15	1.18 ***	0.64	0.05	0.84 *
Asia	3.15	0.29	0.85	0.92	0.13	1.20
Other	3.20	0.30	0.86	0.80	0.12	1.04
Breast/prostate cancer						
Australia	2.50	0.04	1.00	1.12	0.02	1.00
UK, Ireland	2.32	0.09	0.93	1.26	0.06	1.13 *
Other Europe	1.75	0.10	0.70 ***	1.00	0.07	0.89
Asia	0.99	0.18	0.40 ***	0.84	0.13	0.76
Other	1.92	0.24	0.77 *	1.40	0.16	1.25
Brain cancer						
Australia	0.22	0.01	1.00	0.14	0.01	1.00
UK, Ireland	0.34	0.03	1.52 ***	0.15	0.02	1.03
Other Europe	0.25	0.03	1.11	0.11	0.02	0.78
Asia	0.07	0.04	0.31 *	0.11	0.04	0.76
Other	0.12	0.05	0.53	0.15	0.05	1.03
Diabetes mellitus						
Australia	0.99	0.03	1.00	0.76	0.02	1.00
UK, Ireland	1.00	0.06	1.01	0.76	0.04	0.99
Other Europe	1.62	0.10	1.63 ***	1.70	0.09	2.24 ***
Asia	1.52	0.21	1.54 **	1.72	0.18	2.26 ***
Other	0.87	0.15	0.87	0.98	0.14	1.29
Ischaemic heart disease						
Australia	20.56	0.12	1.00	12.10	0.07	1.00
UK, Ireland	19.51	0.27	0.95 ***	11.43	0.17	0.94 ***
Other Europe	18.74	0.32	0.91 ***	10.99	0.23	0.91 ***
Asia	15.26	0.68	0.74 ***	9.60	0.44	0.79 ***
Other	19.66	0.75	0.96	11.51	0.46	0.95
Cerebrovascular disease						
Australia	7.14	0.08	1.00	6.70	0.05	1.00
UK, Ireland	6.14	0.15	0.86 ***	5.77	0.11	0.86 ***
Other Europe	6.45	0.20	0.90 **	5.77	0.16	0.86 ***
Asia	5.22	0.41	0.73 ***	4.85	0.32	0.72 ***
Other	6.41	0.46	0.90	5.90	0.33	0.88 *
Pneumonia/influenza						
Australia	1.15	0.03	1.00	0.80	0.02	1.00
UK, Ireland	1.09	0.07	0.95	0.77	0.04	0.95
Other Europe	0.83	0.08	0.73 ***	0.59	0.05	0.73 ***
Asia	1.28	0.23	1.11	0.46	0.10	0.58 **
Other	1.04	0.19	0.90	0.51	0.10	0.63 *
Bronchitis/emphysema/asthma						
Australia	1.79	0.04	1.00	0.57	0.02	1.00
UK, Ireland	1.68	0.08	0.94	0.66	0.04	1.15 *
Other Europe	0.98	0.08	0.55 ***	0.40	0.04	0.70 **
Asia	1.27	0.20	0.71 *	0.34	0.08	0.59 *
Other	1.74	0.23	0.97	0.56	0.10	0.98
MV traffic accident						
Australia	0.30	0.01	1.00	0.17	0.01	1.00
UK, Ireland	0.36	0.04	1.18	0.17	0.02	0.99
Other Europe	0.45	0.05	1.47 ***	0.20	0.03	1.17
Asia	0.54	0.12	1.79 *	0.32	0.08	1.90 **
Other	0.39	0.10	1.30	0.21	0.06	1.23

(continued)

Table 9.1 (continued): *Health indicators—age-standardised*[(a)] *rates and rate ratios by country of birth and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ country of birth	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Suicide						
Australia	0.30	0.01	1.00	0.07	0.01	1.00
UK, Ireland	0.27	0.03	0.92	0.08	0.02	1.20
Other Europe	0.44	0.05	1.47 **	0.21	0.03	3.10 ***
Asia	0.27	0.08	0.90	0.09	0.04	1.39
Other	0.25	0.08	0.85	0.10	0.04	1.40
Major chronic illness groups						
Neoplasms						
Australia	8.53	0.76	1.00	5.12	0.49	1.00
UK, Ireland	8.42	1.76	0.99	4.20	1.09	0.82
Other Europe	2.32	0.93	0.27 **	1.77	0.78	0.34 *
Asia	2.89	3.24	0.34	0.00	0.00	0.00 *
Other	1.70	1.57	0.20	4.15	2.15	0.81
Endocrine, metabolic, nutritional						
Australia	14.23	0.98	1.00	14.03	0.80	1.00
UK, Ireland	11.97	2.04	0.84	19.13	2.49	1.36 *
Other Europe	13.61	2.42	0.96	18.48	2.73	1.32
Asia	19.73	6.63	1.39	11.05	4.22	0.79
Other	8.37	3.77	0.59	15.68	4.31	1.12
Mental disorders						
Australia	1.38	0.31	1.00	1.69	0.28	1.00
UK, Ireland	0.99	0.56	0.71	1.37	0.62	0.81
Other Europe	1.83	0.81	1.32	3.02	1.11	1.79
Asia	0.00	0.00	0.00	0.00	0.00	0.00
Other	1.55	1.72	1.12	2.49	1.62	1.48
Nervous system, sense organs						
Australia	35.57	1.54	1.00	26.48	1.06	1.00
UK, Ireland	37.19	3.68	1.05	30.63	3.04	1.16
Other Europe	22.62	3.26	0.64 **	20.99	3.03	0.79
Asia	22.98	8.48	0.65	28.73	7.10	1.08
Other	37.30	8.61	1.05	26.99	5.67	1.02
Circulatory system						
Australia	38.54	1.56	1.00	46.37	1.36	1.00
UK, Ireland	35.52	3.55	0.92	46.57	3.73	1.00
Other Europe	34.20	3.89	0.89	47.60	4.47	1.03
Asia	45.91	10.97	1.19	51.73	9.80	1.12
Other	43.58	9.41	1.13	45.13	7.42	0.97
Respiratory system						
Australia	19.79	1.13	1.00	16.81	0.87	1.00
UK, Ireland	22.70	2.86	1.15	16.10	2.25	0.96
Other Europe	16.96	2.83	0.86	10.13	2.01	0.60 *
Asia	20.73	7.93	1.05	15.73	5.28	0.94
Other	21.40	6.35	1.08	14.86	4.12	0.88
Digestive system						
Australia	14.65	1.00	1.00	12.22	0.75	1.00
UK, Ireland	16.25	2.42	1.11	10.83	1.86	0.89
Other Europe	11.83	2.17	0.81	8.46	1.88	0.69
Asia	21.40	7.94	1.46	7.01	3.19	0.57
Other	11.31	4.45	0.77	16.18	4.24	1.32
Genito-urinary system						
Australia	3.78	0.52	1.00	5.40	0.51	1.00
UK, Ireland	5.54	1.40	1.47	5.37	1.30	1.00
Other Europe	2.41	1.00	0.64	4.67	1.34	0.86
Asia	6.31	4.26	1.67	4.19	2.53	0.78
Other	4.82	3.06	1.28	4.89	2.34	0.91

(continued)

Table 9.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by country of birth and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ country of birth	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Skin and subcutaneous tissue						
Australia	7.63	0.74	1.00	4.54	0.47	1.00
UK, Ireland	5.64	1.39	0.74	3.60	1.04	0.79
Other Europe	1.58	0.74	0.21 **	5.51	1.52	1.21
Asia	4.87	4.36	0.64	1.88	1.98	0.41
Other	1.95	1.69	0.26	1.71	1.40	0.38
Musculoskeletal system						
Australia	51.76	1.77	1.00	57.01	1.48	1.00
UK, Ireland	44.94	3.98	0.87	59.24	4.23	1.04
Other Europe	46.56	4.54	0.90	59.94	5.04	1.05
Asia	35.66	10.76	0.69	61.79	10.84	1.08
Other	37.53	8.58	0.73	40.34	7.02	0.71 *
Injury and poisoning						
Australia	2.10	0.41	1.00	1.50	0.27	1.00
UK, Ireland	2.37	0.91	1.13	0.82	0.49	0.55
Other Europe	1.10	0.63	0.52	1.28	0.79	0.85
Asia	0.00	0.00	0.00	1.57	1.53	1.04
Other	2.25	2.13	1.07	2.86	1.72	1.90
Other						
Australia	4.24	0.56	1.00	3.03	0.38	1.00
UK, Ireland	4.91	1.30	1.16	3.92	1.05	1.29
Other Europe	0.63	0.45	0.15 **	0.91	0.60	0.30
Asia	2.47	2.30	0.58	9.78	4.03	3.23 **
Other	3.38	2.39	0.80	1.45	1.28	0.48
All causes						
Australia	87.21	2.23	1.00	86.93	1.77	1.00
UK, Ireland	88.94	5.48	1.02	88.07	5.08	1.01
Other Europe	78.71	5.86	0.90	86.43	5.95	0.99
Asia	81.77	15.32	0.94	91.13	13.00	1.05
Other	83.66	13.10	0.96	82.42	10.07	0.95
Selected chronic conditions						
Arthritis						
Australia	34.89	1.49	1.00	43.54	1.32	1.00
UK, Ireland	28.70	3.22	0.82	46.47	3.76	1.07
Other Europe	27.40	3.58	0.79	48.12	4.52	1.10
Asia	8.86	4.73	0.25 *	46.26	9.29	1.06
Other	27.05	7.24	0.78	29.49	6.00	0.68
Hypertension						
Australia	23.85	1.23	1.00	31.06	1.14	1.00
UK, Ireland	19.42	2.61	0.81	28.91	2.96	0.93
Other Europe	20.08	2.90	0.84	33.52	3.74	1.08
Asia	26.75	8.18	1.12	43.40	8.88	1.40
Other	32.79	8.12	1.37	32.82	6.33	1.06
Deafness (complete/partial)						
Australia	20.20	1.19	1.00	9.97	0.68	1.00
UK, Ireland	23.54	2.93	1.17	11.57	1.85	1.16
Other Europe	14.16	2.58	0.70	6.09	1.64	0.61
Asia	7.11	5.40	0.35	9.33	4.22	0.94
Other	22.92	6.57	1.13	7.67	2.92	0.77
Back problems						
Australia	13.82	0.94	1.00	9.14	0.65	1.00
UK, Ireland	13.62	2.18	0.99	8.80	1.66	0.96
Other Europe	9.61	1.90	0.70	5.34	1.38	0.58 *
Asia	14.75	6.36	1.07	2.50	1.88	0.27
Other	9.49	4.18	0.69	7.48	2.83	0.82

(continued)

Table 9.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by country of birth and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ country of birth	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Heart disease						
Australia	10.41	0.86	1.00	8.32	0.62	1.00
UK, Ireland	12.05	2.11	1.16	11.65	1.91	1.40
Other Europe	12.06	2.33	1.16	8.84	1.92	1.06
Asia	22.87	7.14	2.20 *	5.87	2.87	0.71
Other	13.76	5.09	1.32	4.71	2.18	0.57
Hay fever						
Australia	7.62	0.72	1.00	7.68	0.60	1.00
UK, Ireland	5.65	1.41	0.74	4.50	1.17	0.59 *
Other Europe	3.41	1.23	0.45 *	2.33	0.90	0.30 **
Asia	4.37	3.17	0.57	3.32	2.50	0.43
Other	7.10	3.60	0.93	7.20	2.81	0.94
Bronchitis/emphysema						
Australia	8.11	0.73	1.00	4.97	0.49	1.00
UK, Ireland	11.29	2.02	1.39	6.68	1.43	1.34
Other Europe	8.28	1.96	1.02	4.62	1.40	0.93
Asia	13.89	6.75	1.71	6.54	3.33	1.31
Other	6.69	3.32	0.82	1.83	1.29	0.37
Varicose veins						
Australia	3.63	0.51	1.00	6.87	0.57	1.00
UK, Ireland	4.87	1.30	1.34	8.32	1.61	1.21
Other Europe	2.03	0.91	0.56	3.55	1.15	0.52 *
Asia	4.23	4.03	1.16	3.21	2.10	0.47
Other	4.67	3.04	1.29	5.38	2.39	0.78
Asthma						
Australia	5.20	0.60	1.00	5.25	0.50	1.00
UK, Ireland	5.51	1.35	1.06	6.01	1.39	1.15
Other Europe	5.37	1.52	1.03	3.99	1.20	0.76
Asia	0.00	0.00	0.00	4.73	2.56	0.90
Other	6.61	3.52	1.27	5.75	2.44	1.10
Hernia						
Australia	6.29	0.66	1.00	4.57	0.47	1.00
UK, Ireland	7.79	1.67	1.24	4.66	1.18	1.02
Other Europe	3.81	1.20	0.61	1.54	0.71	0.34 *
Asia	2.72	2.25	0.43	0.00	0.00	0.00
Other	1.55	1.64	0.25	3.28	1.84	0.72
Diabetes mellitus						
Australia	4.73	0.59	1.00	3.34	0.40	1.00
UK, Ireland	5.37	1.35	1.13	6.33	1.39	1.89 *
Other Europe	6.70	1.71	1.42	8.25	1.79	2.47 ***
Asia	9.81	4.50	2.07	5.98	2.98	1.79
Other	5.07	2.89	1.07	9.06	3.27	2.71 **
High cholesterol						
Australia	2.88	0.43	1.00	4.63	0.47	1.00
UK, Ireland	1.81	0.77	0.63	7.87	1.62	1.70 *
Other Europe	2.87	0.99	1.00	6.53	1.62	1.41
Asia	6.02	3.54	2.09	2.97	2.16	0.64
Other	2.22	1.79	0.77	2.65	1.65	0.57

(continued)

Table 9.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by country of birth and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ country of birth	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Selected minor conditions						
Insomnia						
Australia	11.81	0.93	1.00	17.14	0.87	1.00
UK, Ireland	8.32	1.73	0.70	15.88	2.17	0.93
Other Europe	7.35	1.85	0.62	14.93	2.55	0.87
Asia	14.53	7.55	1.23	17.49	5.58	1.02
Other	11.83	4.63	1.00	15.12	4.12	0.88
Headache (excluding migraine)						
Australia	6.25	0.66	1.00	12.76	0.76	1.00
UK, Ireland	7.46	1.61	1.19	8.57	1.63	0.67 *
Other Europe	8.18	1.90	1.31	19.01	2.80	1.49 *
Asia	6.83	3.73	1.09	19.12	5.71	1.50
Other	2.11	1.75	0.34	12.71	3.83	1.00
Constipation						
Australia	5.24	0.64	1.00	9.14	0.65	1.00
UK, Ireland	4.46	1.23	0.85	11.02	1.84	1.21
Other Europe	5.82	1.62	1.11	7.18	1.75	0.79
Asia	6.17	4.46	1.18	10.32	4.14	1.13
Other	5.76	3.17	1.10	5.52	2.52	0.60
Nerves/tension/emotional problems, etc.						
Australia	5.53	0.62	1.00	8.98	0.65	1.00
UK, Ireland	1.60	0.70	0.29 **	7.37	1.53	0.82
Other Europe	2.71	1.09	0.49	11.64	2.18	1.30
Asia	0.00	0.00	0.00	1.34	1.38	0.15
Other	0.00	0.00	0.00 *	9.38	3.23	1.05
Ill-defined heart symptoms						
Australia	6.59	0.72	1.00	6.32	0.55	1.00
UK, Ireland	5.81	1.44	0.88	6.44	1.35	1.02
Other Europe	5.17	1.57	0.78	6.36	1.76	1.01
Asia	10.11	5.46	1.53	7.32	3.49	1.16
Other	6.23	3.52	0.95	4.34	2.16	0.69
Skin rash, eczema, dermatitis						
Australia	6.76	0.69	1.00	6.53	0.56	1.00
UK, Ireland	4.88	1.31	0.72	4.59	1.19	0.70
Other Europe	2.46	0.96	0.36 *	5.29	1.43	0.81
Asia	7.81	4.70	1.15	1.39	1.30	0.21
Other	6.10	3.15	0.90	7.17	2.85	1.10
Common cold						
Australia	6.33	0.67	1.00	5.25	0.50	1.00
UK, Ireland	6.85	1.51	1.08	5.18	1.27	0.99
Other Europe	4.13	1.26	0.65	7.37	1.69	1.41
Asia	8.85	4.37	1.40	8.66	3.59	1.65
Other	6.00	3.30	0.95	6.57	2.71	1.25
Minor injuries						
Australia	5.02	0.60	1.00	5.32	0.51	1.00
UK, Ireland	4.74	1.25	0.95	4.99	1.23	0.94
Other Europe	3.61	1.21	0.72	3.23	1.09	0.61
Asia	0.00	0.00	0.00	0.00	0.00	0.00 *
Other	1.96	1.87	0.39	3.66	2.13	0.69

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

10 Language spoken differentials

About 9% of Australians aged 65 years and over in the late 1980s were born outside Australia and spoke a language other than English at home (see Appendix B). There is considerable diversity in the health status of older overseas-born Australians (see chapter 9) which is also related to their length of residence in Australia. The National Health Strategy (1993) identified structural barriers for access to and problems with quality of health service provision for Australians of non-English-speaking background.

Although there have been previous analyses of immigrant health according to language of country of birth (Donovan et al. 1992; National Health Strategy 1993) in which persons are classified as 'non-English-speaking background', there have been few population-based analyses of health status according to language spoken at home (Mathers 1994, chapter 14). Of the available population data sources, only the 1989–90 National Health Survey contained information on language used (see Box 10). From this data, it was not possible to identify Aboriginal and Torres Strait Islander people who used an indigenous language at home. All Aboriginal and Torres Strait Islander people have been included in the language category 'English'. Aboriginal and Torres Strait Islander health differentials have been examined in more detail elsewhere (Australian Institute of Health and Welfare 1994).

Older men and women who did not speak English at home were more likely to report fair/poor health (51% more likely for women and 21% more likely for men—the latter figure was not statistically significant), unhappiness in men (but not women), and reported more days of reduced activity, but both men and women reported significantly fewer serious chronic, chronic and recent illness conditions (Table 10.1). The unhappiness differentials were particularly noteworthy, with a nearly threefold differential for older women, a similar differential to that for working-age women (Mathers 1994). Older men who did not speak English at home were 66% more likely to report unhappiness, compared with a nearly two-fold differential for working-age men. The only specific chronic illness reported more frequently by those who did not speak English at home was:

- diabetes—2.3 times more often for older women.

Older women who did not speak English at home were also 78% more likely to report headache (excluding migraine).

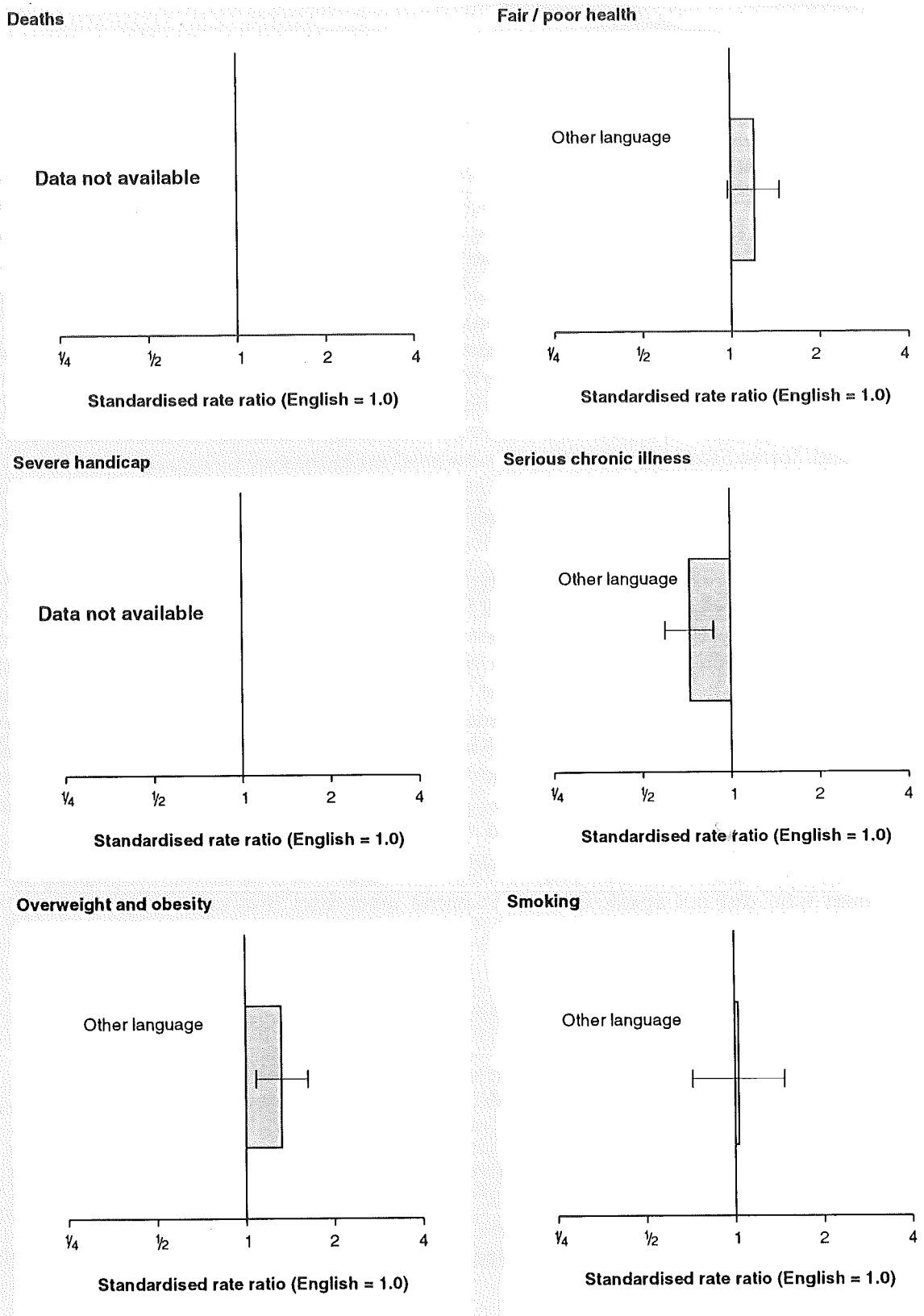
Box 10: Language spoken categories

In the 1989–90 National Health Survey, language other than English spoken at home was asked of respondents who were born overseas in countries other than the United Kingdom and New Zealand.

1989–90 National Health Survey (NHS)

English:	*English spoken at home or person born in Australia, United Kingdom or New Zealand*
Other:	*Language other than English spoken at home (and person born overseas in countries other than United Kingdom and New Zealand)*

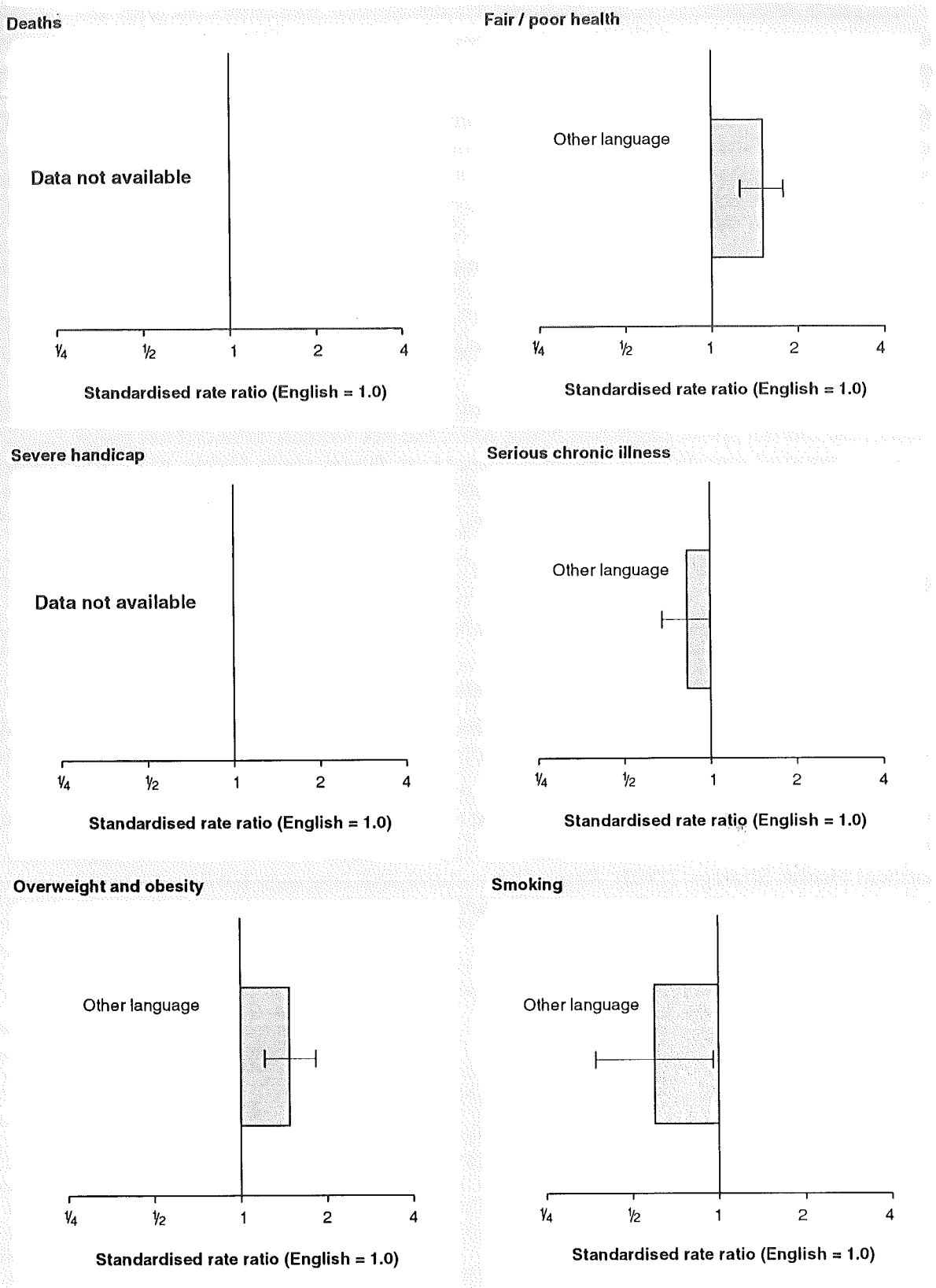
10 Language spoken — Males 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 10.1: *Health status differentials by language spoken at home, Australian males aged 65 years and over, late 1980s*

10 Language spoken — Females 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 10.2: *Health status differentials by language spoken at home, Australian females aged 65 years and over, late 1980s*

10 Language spoken — 65 years and over

Where adult respondents in the National Health Survey had difficulty with the English language, another person in the household may have interpreted if this was suggested by the respondent. If not, arrangements were made for the interview to be conducted either by an ABS interviewer fluent in the respondent's own language or with an ABS interpreter (Australian Bureau of Statistics 1991). Despite this, it remains possible that non-English-speaking people had more difficulties in reporting specific illnesses than English-speaking people, so that self-reporting did not provide as accurate a representation of the health experience of non-English-speaking older migrants. It is also possible that cultural differences influence reporting of illnesses generally, and of specific illnesses.

Older men and women who did not speak English at home were significantly more likely to be overweight or obese (32% higher for men and 48% higher for women) and more likely to be inactive (significant only for women at 31% higher) but very much less likely to be risk drinkers. Older women who did not speak English at home were 40% less likely to be smokers (Table 10.1).

There were no significant differentials in hospital inpatient use or doctor visit rates for older adults who did not speak English at home. Men, but not women, who did not speak English at home reported significantly fewer outpatient or dental visits (Table 10.1). In contrast, working-age men and women who did not speak English at home both reported significantly more doctor and dental visits (Mathers 1994).

References

Australian Bureau of Statistics (1991). 1989–90 National Health Survey. Users' guide. ABS Cat. No. 4363.0, Canberra.

Australian Institute of Health and Welfare (1994). Australia's health 1994. AGPS, Canberra.

Donovan J, d'Espaignet E, Merton C, van Ommeren M (1992). Immigrants in Australia: a health profile. Australian Institute of Health and Welfare, Ethnic Series No. 1, AGPS, Canberra.

Mathers CD (1994). Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

National Health Strategy (1993). Removing cultural and language barriers to health. Issues Paper No.6, National Health Strategy, Melbourne.

10 Language spoken — 65 years and over

Table 10.1: *Health indicators—age-standardised[(a)] rates and rate ratios by language spoken at home and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ language spoken	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Health status indicators						
Fair/poor health						
English	42.65	1.41	1.00	41.11	1.14	1.00
Other language	51.47	5.07	1.21	61.97	5.26	1.51 ***
Serious chronic illnesses						
English	0.71	0.02	1.00	0.54	0.02	1.00
Other language	0.52	0.05	0.73 ***	0.45	0.04	0.83 *
Chronic illnesses						
English	2.36	0.04	1.00	2.27	0.03	1.00
Other language	1.64	0.09	0.70 ***	1.99	0.09	0.88 **
Recent illnesses						
English	1.50	0.03	1.00	1.62	0.03	1.00
Other language	1.07	0.07	0.71 ***	1.57	0.08	0.97
Minor illnesses						
English	0.90	0.02	1.00	1.15	0.02	1.00
Other language	0.75	0.06	0.84 *	1.10	0.07	0.96
Dental problems						
English	3.92	0.45	1.00	3.35	0.36	1.00
Other language	1.97	1.02	0.50	3.36	1.22	1.00
Reduced activity						
English	38.20	0.31	1.00	41.71	0.27	1.00
Other language	41.55	1.11	1.09 **	41.75	1.10	1.00
Unhappiness						
English	6.27	0.60	1.00	6.22	0.49	1.00
Other language	10.40	2.28	1.66 *	18.32	2.89	2.95 ***
Risk factors						
Overweight and obesity						
English	42.30	1.39	1.00	36.07	1.13	1.00
Other language	55.93	5.48	1.32 **	53.40	5.29	1.48 ***
Inactivity						
English	36.99	1.34	1.00	44.71	1.19	1.00
Other language	43.95	4.81	1.19	58.66	5.15	1.31 **
Smoking						
English	15.79	0.87	1.00	11.21	0.64	1.00
Other language	16.26	2.84	1.03	6.71	1.57	0.60 *
Alcohol risk						
English	6.86	0.57	1.00	4.80	0.43	1.00
Other language	2.85	1.10	0.42 *	0.58	0.43	0.12 **
Health service use						
Hospital episodes						
English	0.42	0.05	1.00	0.31	0.04	1.00
Other language	0.30	0.14	0.71	0.28	0.15	0.92
Doctor visits						
English	10.91	0.22	1.00	11.86	0.18	1.00
Other language	11.44	0.73	1.05	11.27	0.68	0.95
Outpatient visits						
English	1.71	0.12	1.00	1.45	0.11	1.00
Other language	0.96	0.26	0.56 *	1.45	0.38	1.00
Dental visits						
English	1.27	0.05	1.00	1.10	0.06	1.00
Other language	0.50	0.09	0.39 ***	1.39	0.23	1.26

(continued)

Table 10.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by language spoken at home and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ language spoken	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Other health professional visits						
English	5.80	0.34	1.00	6.75	0.48	1.00
Other language	6.04	1.05	1.04	4.44	1.15	0.66
Major chronic illness groups						
Neoplasms						
English	8.18	0.66	1.00	4.79	0.43	1.00
Other language	1.79	0.86	0.22 **	2.96	1.16	0.62
Endocrine, metabolic, nutritional						
English	14.10	0.85	1.00	14.80	0.73	1.00
Other language	11.33	2.34	0.80	17.06	2.76	1.15
Mental disorders						
English	1.28	0.27	1.00	1.70	0.26	1.00
Other language	2.21	0.97	1.73	2.33	0.99	1.37
Nervous system, sense organs						
English	35.49	1.33	1.00	27.34	0.96	1.00
Other language	22.29	3.48	0.63 **	18.50	2.90	0.68 *
Circulatory system						
English	37.89	1.34	1.00	46.56	1.21	1.00
Other language	37.99	4.41	1.00	47.65	4.62	1.02
Respiratory system						
English	20.37	1.01	1.00	16.57	0.77	1.00
Other language	17.22	3.02	0.85	10.46	2.15	0.63 *
Digestive system						
English	15.30	0.89	1.00	12.15	0.67	1.00
Other language	8.28	1.95	0.54 *	7.54	1.82	0.62
Genito-urinary system						
English	4.21	0.48	1.00	5.49	0.46	1.00
Other language	1.69	1.01	0.40	3.12	1.11	0.57
Skin and subcutaneous tissue						
English	6.93	0.62	1.00	4.39	0.41	1.00
Other language	1.90	0.91	0.27 **	3.81	1.29	0.87
Musculoskeletal system						
English	50.44	1.52	1.00	56.96	1.31	1.00
Other language	42.47	4.67	0.84	58.23	5.12	1.02
Injury and poisoning						
English	2.00	0.34	1.00	1.44	0.24	1.00
Other language	1.30	0.74	0.65	1.21	0.74	0.84
Other						
English	4.24	0.49	1.00	3.23	0.36	1.00
Other language	0.00	0.00	0.00 ***	0.95	0.60	0.30
All causes						
English	86.95	1.92	1.00	87.05	1.57	1.00
Other language	81.19	6.42	0.93	86.46	6.13	0.99

(continued)

Table 10.1 (continued): *Health indicators—age-standardised[a] rates and rate ratios by language spoken at home and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ language spoken	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Selected chronic conditions						
Arthritis						
English	33.45	1.27	1.00	43.74	1.17	1.00
Other language	24.88	3.66	0.74	45.76	4.57	1.05
Hypertension						
English	23.05	1.06	1.00	30.94	1.01	1.00
Other language	24.23	3.48	1.05	36.99	4.11	1.20
Deafness (complete/partial)						
English	20.50	1.04	1.00	10.01	0.61	1.00
Other language	14.34	2.80	0.70	6.71	1.72	0.67
Back problems						
English	13.62	0.82	1.00	8.93	0.58	1.00
Other language	10.15	2.15	0.75	4.91	1.38	0.55 *
Heart disease						
English	11.06	0.78	1.00	8.68	0.57	1.00
Other language	12.57	2.50	1.14	7.58	1.81	0.87
Hay fever						
English	7.16	0.61	1.00	7.12	0.52	1.00
Other language	2.94	1.14	0.41 *	2.44	0.95	0.34 **
Bronchitis/emphysema						
English	8.78	0.68	1.00	5.13	0.44	1.00
Other language	8.31	2.07	0.95	4.23	1.35	0.82
Varicose veins						
English	3.77	0.46	1.00	7.12	0.52	1.00
Other language	2.10	1.02	0.56	1.74	0.79	0.24 **
Asthma						
English	5.16	0.52	1.00	5.36	0.45	1.00
Other language	5.99	1.75	1.16	3.82	1.25	0.71
Hernia						
English	6.53	0.60	1.00	4.51	0.42	1.00
Other language	2.24	0.97	0.34 *	0.60	0.43	0.13 **
Diabetes mellitus						
English	4.92	0.52	1.00	3.93	0.39	1.00
Other language	6.84	1.83	1.39	9.11	1.99	2.32 ***
High cholesterol						
English	2.81	0.38	1.00	5.01	0.44	1.00
Other language	2.82	1.10	1.01	5.91	1.63	1.18
Selected minor conditions						
Insomnia						
English	11.20	0.80	1.00	17.05	0.78	1.00
Other language	7.52	2.00	0.67	13.37	2.40	0.78
Headache (excluding migraine)						
English	6.40	0.58	1.00	12.21	0.67	1.00
Other language	7.44	1.94	1.16	21.72	3.15	1.78 ***
Constipation						
English	5.30	0.56	1.00	9.46	0.59	1.00
Other language	4.89	1.62	0.92	4.76	1.42	0.50 *
Nerves/tension/emotional problems, etc.						
English	4.64	0.50	1.00	8.82	0.57	1.00
Other language	2.49	1.09	0.54	9.82	2.06	1.11
Ill-defined heart symptoms						
English	6.45	0.62	1.00	6.22	0.48	1.00
Other language	6.03	1.81	0.94	7.28	1.86	1.17

(continued)

Table 10.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by language spoken at home and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ language spoken	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Skin rash, eczema, dermatitis						
English	6.26	0.58	1.00	6.14	0.49	1.00
Other language	2.84	1.10	0.45 *	5.73	1.55	0.93
Common cold						
English	6.34	0.58	1.00	5.36	0.46	1.00
Other language	4.96	1.48	0.78	7.53	1.76	1.40
Minor injuries						
English	4.83	0.52	1.00	5.07	0.44	1.00
Other language	3.24	1.23	0.67	3.49	1.20	0.69

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

11 Lifestyle differentials

The association of so-called lifestyle risk factors such as overweight and obesity, physical exercise, tobacco smoking and alcohol consumption with a wide range of diseases is well established and documented for people of working age (Australian Institute of Health and Welfare 1992). The medical and epidemiological literature also contains papers linking these risk factors with specific diseases and adverse outcomes among older people. Previous chapters in this report have documented differentials in levels of these risk factors in subgroups of the Australian adult population aged 65 years and over classified by a variety of sociodemographic and socioeconomic variables. This chapter takes a converse view and presents detailed tabulations of differentials in health indicators between older population groups defined by lifestyle risk factor categories. Thus, for example, Table 11.1 compares the health status and service use of overweight or obese older people with those who were not overweight.

Box 11: Lifestyle categories

Overweight and obesity

Not overweight or obese:	*Body mass index not greater than 25.0 kg/m^2*
Overweight or obese:	*Body mass index greater than 25.0 kg/m^2*

Body mass index was calculated from self-reported height and weight in the 1989–90 ABS National Health Survey. The classification of body mass index is based on recommendations of the National Health and Medical Research Council (1984, 1985). Body mass index data was missing for 2.8% of men and 8.2% of women aged 65 years and over in the National Health Survey. These people were excluded from analysis.

Inactivity

Active:	*Persons who reported undertaking any physical exercise for recreation, sport or health/fitness reasons in the last two weeks. Physical exercise included walking, moderate exercise and vigorous exercise*
Inactive:	*Persons who reported undertaking no physical exercise for recreation, sport or health/fitness reasons in the last two weeks*

Smoking

Non-smoker:	*Persons not currently a smoker (never smoked or ex-smoker)*
Smoker:	*Current smoker*

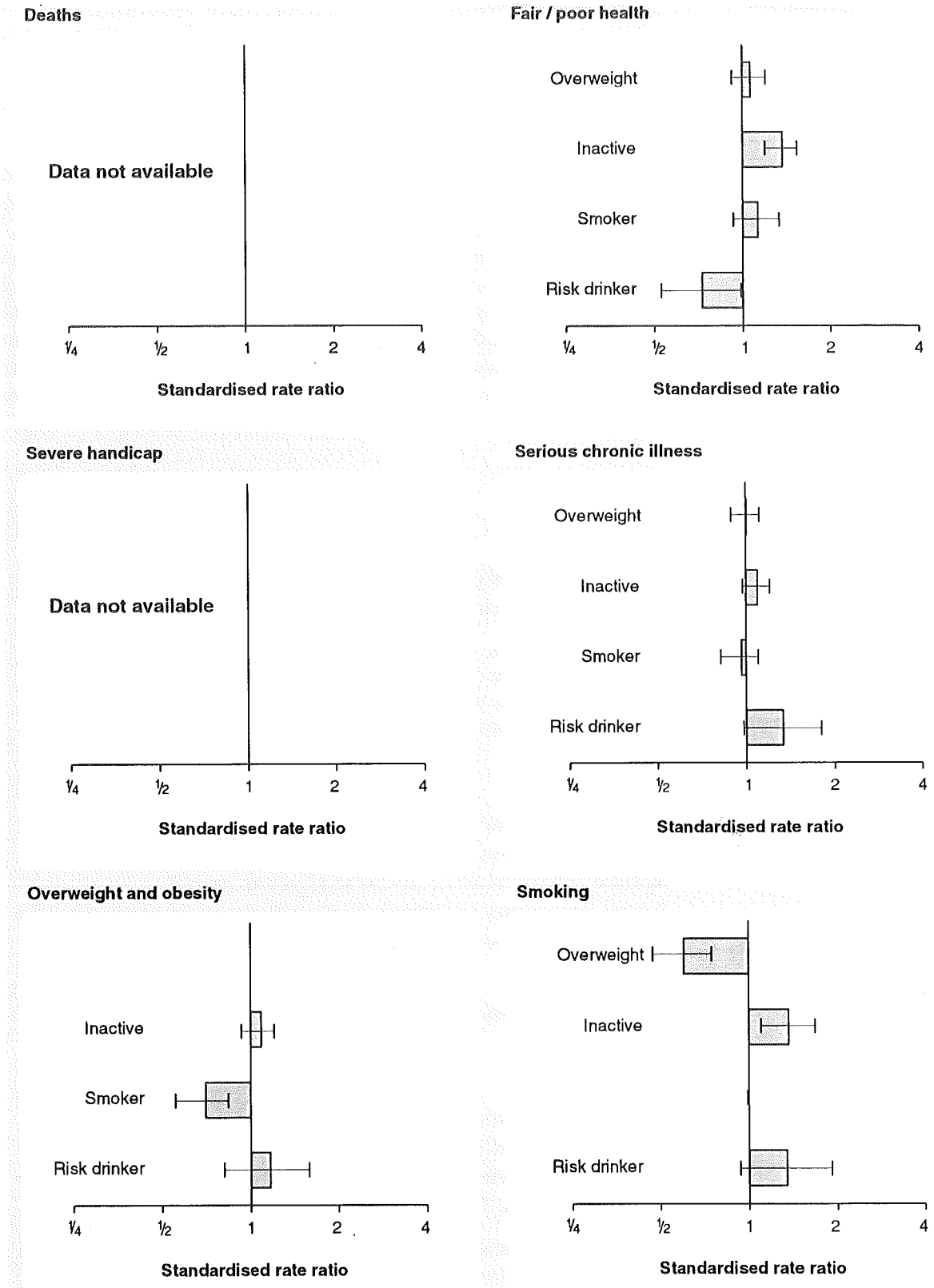
Alcohol risk

Low risk:	*Men and women whose reported average daily consumption of ethanol did not exceed 50 mL and 25 mL respectively*
Mod/high risk:	*Men and women whose reported average daily consumption of ethanol exceeded 50 mL and 25 mL respectively*

Alcohol risk was calculated from self-reported alcohol consumption on each of the last seven days for respondents in the 1989–90 ABS National Health Survey. The alcohol risk categories are defined in terms of the recommendations of the National Health and Medical Research Council (1987).

11 Lifestyle

65 years and over

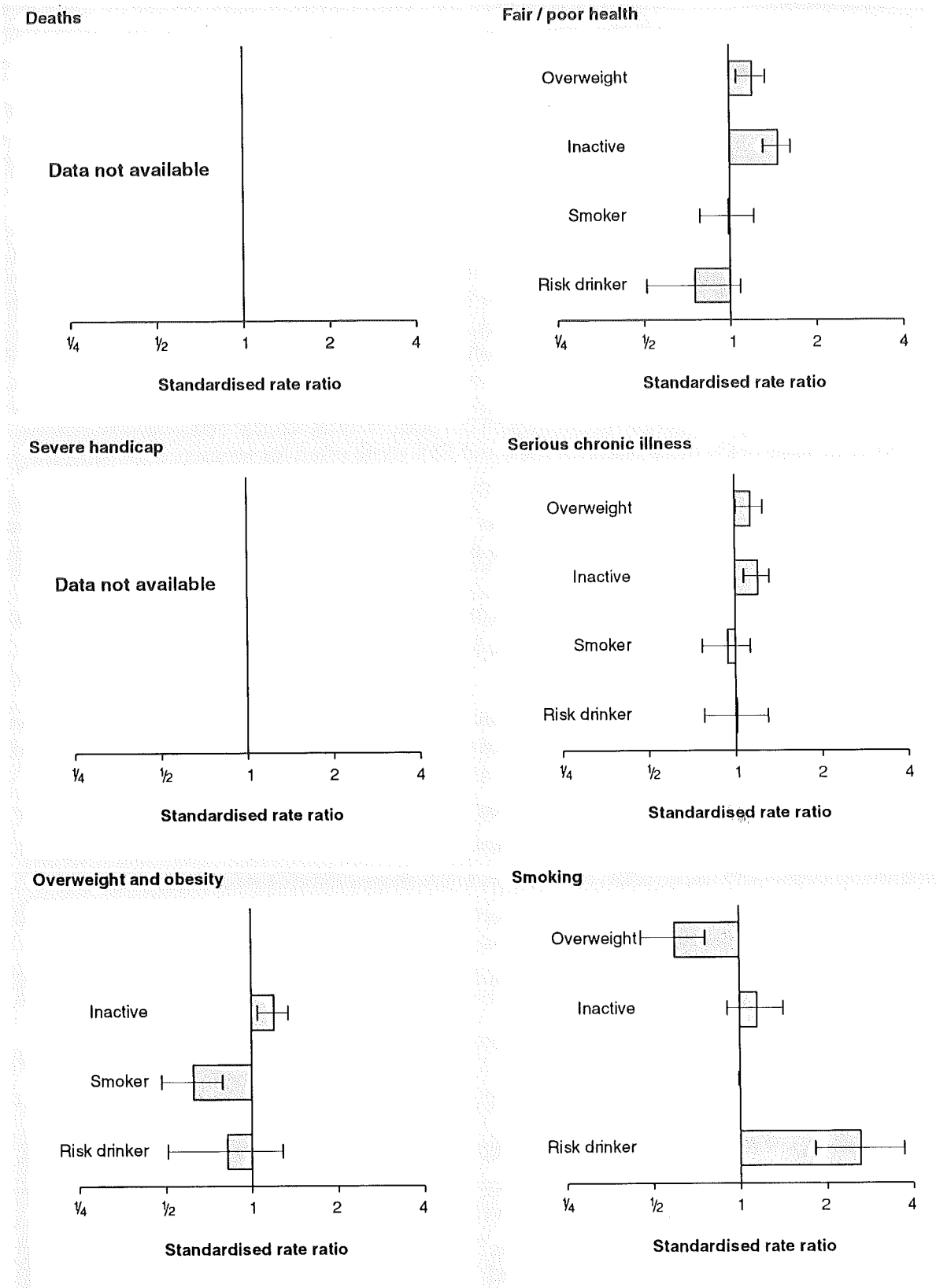


Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 11.1: ***Health status differentials by lifestyle factors, Australian males aged 65 years and over, late 1980s***

11 Lifestyle

Females 65 years and over



Source: AIHW, derived from ABS 1985–87 mortality data, ABS 1989–90 NHS and ABS 1988 Disability Survey

Figure 11.2: *Health status differentials by lifestyle factors, Australian females aged 65 years and over, late 1980s*

The only population data source which enables the classification of older people by these risk factor categories (see Box 11) is the 1989–90 ABS National Health Survey. Health differentials for older people classified by categories of the four risk factors are summarised in Figures 11.1 and 11.2. Note that, unlike the figures in other chapters, the categories shown on these graphs are not disjoint categories of a single classifying variable. Thus the bar labelled 'overweight' indicates the rate ratio for overweight or obese persons compared with persons not overweight or obese; the bar labelled 'smoker' on the same graph indicates the rate ratio for smokers compared with non-smokers.

Overweight or obesity

Overweight or obese older men and women reported significantly more chronic and recent illness (Table 11.1). Overweight or obese older women, but not men, were significantly more likely to report fair/poor health, more serious chronic illness and more days of reduced activity. Specific chronic illness reported significantly more frequently by the overweight or obese were:

- diabetes—73% more often for men and over twice as often for women
- hypertension—64% more often for men and 52% more often for women
- arthritis—34% more often for men and 18% more often for women.

Overweight or obese older men and women were significantly less likely to be smokers. Overweight or obese older women were also more likely to be inactive and less likely to be risk drinkers.

Overweight or obese older women (but not men) reported significantly more doctor visits and significantly fewer dental visits.

Inactivity

Inactive older men and women were significantly much more likely to report fair/poor health, unhappiness and days of reduced activity (Table 11.2). Compared with their active counterparts, inactive older men and women reported:

- fair/poor health—37% more often for men and 47% more often for women
- reduced activity—twice as often for men and 83% more often for women
- unhappiness—48% more often for men and 55% more often for women.

Inactive older women (but not men) also reported significantly more serious chronic, chronic and recent illness conditions.

The only specific chronic and minor illnesses reported significantly more frequently by the inactive were:

- arthritis—22% more often for men and 15% more often for women
- hernia—46% more often for women
- constipation—52% more often for men.

Hay fever and varicose veins were reported significantly less often by inactive older women.

Inactive older men and women were significantly more likely to smoke and inactive older women were significantly more likely to be overweight and obese (Table 11.2).

Inactive older men and women reported over 30% more hospital inpatient episodes (though this did not reach statistical significance) and both men and women reported significantly more doctor visits (12% more for men and 28% more for women). Older inactive women reported significantly more hospital outpatient visits whereas older inactive men reported fewer dental visits.

Smoking

Unlike working-age smokers, older smokers were not more likely to report fair/poor health or unhappiness and reported significantly fewer days of reduced activity (Table 11.3). Male and female older smokers also reported significantly fewer chronic and recent illnesses, in contrast to working-age smokers (Mathers 1994, chapter 15). The only specific chronic or minor illness reported significantly more frequently by smokers was:

- bronchitis/emphysema—52% more often for men and 74% for women.

Hypertension, hay fever (men only) and diabetes (men only) were reported significantly less often by older smokers.

As with their working-age counterparts, older smokers were significantly less likely to be overweight and obese, but significantly much more likely to be risk drinkers and, if male, to be inactive (Table 11.3).

Older male smokers reported significantly fewer doctor visits, hospital outpatient visits, dental visits and other health professional visits (Table 11.3). Older female smokers also reported significantly fewer dental visits, but differences for other service use were not significant.

Alcohol risk

Older male risk drinkers were significantly less likely to report fair/poor health and reduced activity but reported significantly more chronic illness, in contrast to their working-age counterparts (Mathers 1994, chapter 15). In contrast, older female risk drinkers were more likely to report days of reduced activity, although they reported fewer recent illnesses (Table 11.4). Specific chronic illnesses reported significantly more frequently by older risk drinkers included:

- hernia—124% more often for women.
- bronchitis/emphysema—97% more often for women
- hypertension—76% more often for men

Older risk drinkers reported significantly less diabetes (women), heart disease (women), constipation (men), headache (women) and ill-defined heart symptoms (women).

Older female risk drinkers were more likely to be smokers, older male risk drinkers less likely to be inactive (Table 11.4).

There were few significant differentials in health service use for risk drinkers (Table 11.4), although male risk drinkers reported significantly many more outpatient visits (this includes casualty attendances) and female risk drinkers reported fewer doctor visits.

References

Australian Institute of Health and Welfare (1992). Australia's health 1992. AGPS, Canberra.

Mathers CD (1994). Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

National Health and Medical Research Council (1984). Report of the ninety-eighth session. AGPS, Canberra.

National Health and Medical Research Council (1985). Report of the one hundredth session. AGPS, Canberra.

National Health and Medical Research Council (1987). Is there a safe level of daily consumption of alcohol for men and women? Recommendations regarding responsible drinking behaviour. AGPS, Canberra.

Table 11.1: *Health indicators—age-standardised[(a)] rates and rate ratios by body mass index and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ body mass index	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Health status indicators						
Fair/poor health						
Not overweight or obese	42.15	1.85	1.00	39.08	1.46	1.00
Overweight or obese	45.03	2.35	1.07	46.80	2.14	1.20 **
Serious chronic illnesses						
Not overweight or obese	0.70	0.03	1.00	0.51	0.02	1.00
Overweight or obese	0.71	0.03	1.01	0.58	0.02	1.14 *
Chronic illnesses						
Not overweight or obese	2.21	0.05	1.00	2.17	0.04	1.00
Overweight or obese	2.46	0.06	1.11 **	2.42	0.05	1.12 ***
Recent illnesses						
Not overweight or obese	1.36	0.04	1.00	1.50	0.03	1.00
Overweight or obese	1.58	0.05	1.16 ***	1.85	0.04	1.23 ***
Minor illnesses						
Not overweight or obese	0.87	0.03	1.00	1.12	0.03	1.00
Overweight or obese	0.90	0.03	1.03	1.17	0.04	1.04
Dental problems						
Not overweight or obese	3.85	0.59	1.00	3.90	0.49	1.00
Overweight or obese	3.53	0.59	0.92	2.92	0.56	0.75
Reduced activity						
Not overweight or obese	41.63	0.43	1.00	39.70	0.35	1.00
Overweight or obese	35.57	0.51	0.85 ***	41.88	0.49	1.05 ***
Unhappiness						
Not overweight or obese	7.20	0.81	1.00	5.77	0.60	1.00
Overweight or obese	5.98	0.91	0.83	7.59	0.89	1.32
Risk factors						
Inactivity						
Not overweight or obese	35.63	1.73	1.00	42.21	1.50	1.00
Overweight or obese	39.34	2.31	1.10	49.04	2.21	1.16 **
Smoking						
Not overweight or obese	19.16	1.28	1.00	12.69	0.88	1.00
Overweight or obese	11.55	1.12	0.60 ***	7.57	0.85	0.60 ***
Alcohol risk						
Not overweight or obese	6.14	0.74	1.00	5.37	0.59	1.00
Overweight or obese	6.97	0.83	1.14	3.04	0.56	0.57 **
Health service use						
Hospital episodes						
Not overweight or obese	0.43	0.07	1.00	0.32	0.05	1.00
Overweight or obese	0.40	0.08	0.92	0.28	0.07	0.87
Doctor visits						
Not overweight or obese	11.04	0.29	1.00	11.50	0.24	1.00
Overweight or obese	11.05	0.35	1.00	12.69	0.34	1.10 **
Outpatient visits						
Not overweight or obese	1.62	0.15	1.00	1.39	0.14	1.00
Overweight or obese	1.93	0.24	1.19	1.46	0.18	1.05
Dental visits						
Not overweight or obese	1.25	0.06	1.00	1.43	0.09	1.00
Overweight or obese	1.10	0.06	0.88	0.83	0.09	0.58 ***
Other health professional visits						
Not overweight or obese	6.04	0.43	1.00	5.90	0.57	1.00
Overweight or obese	4.96	0.50	0.82	6.91	0.80	1.17

(continued)

Table 11.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by body mass index and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ body mass index	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Major chronic illness groups						
Neoplasms						
Not overweight or obese	8.08	0.86	1.00	4.70	0.54	1.00
Overweight or obese	6.79	0.92	0.84	5.07	0.75	1.08
Endocrine, metabolic, nutritional						
Not overweight or obese	10.82	0.99	1.00	13.39	0.90	1.00
Overweight or obese	18.20	1.53	1.68 ***	18.10	1.36	1.35 **
Mental disorders						
Not overweight or obese	1.41	0.36	1.00	2.47	0.39	1.00
Overweight or obese	1.10	0.35	0.78	0.72	0.27	0.29 **
Nervous system, sense organs						
Not overweight or obese	35.64	1.73	1.00	27.76	1.24	1.00
Overweight or obese	34.35	2.24	0.96	23.94	1.60	0.86
Circulatory system						
Not overweight or obese	34.02	1.68	1.00	42.20	1.50	1.00
Overweight or obese	43.36	2.35	1.27 ***	55.29	2.31	1.31 ***
Respiratory system						
Not overweight or obese	21.06	1.35	1.00	17.26	1.01	1.00
Overweight or obese	19.00	1.57	0.90	14.71	1.23	0.85
Digestive system						
Not overweight or obese	14.76	1.15	1.00	10.77	0.81	1.00
Overweight or obese	14.42	1.37	0.98	13.43	1.20	1.25
Genito-urinary system						
Not overweight or obese	4.56	0.65	1.00	4.89	0.55	1.00
Overweight or obese	3.56	0.73	0.78	5.62	0.79	1.15
Skin and subcutaneous tissue						
Not overweight or obese	7.43	0.82	1.00	4.24	0.52	1.00
Overweight or obese	5.05	0.77	0.68 *	4.46	0.69	1.05
Musculoskeletal system						
Not overweight or obese	46.30	1.94	1.00	55.46	1.70	1.00
Overweight or obese	55.10	2.63	1.19 **	61.19	2.42	1.10 *
Injury and poisoning						
Not overweight or obese	1.67	0.39	1.00	1.53	0.30	1.00
Overweight or obese	2.07	0.55	1.24	1.53	0.41	1.00
Other						
Not overweight or obese	4.10	0.62	1.00	3.48	0.47	1.00
Overweight or obese	3.55	0.67	0.87	2.17	0.51	0.62
All causes						
Not overweight or obese	85.08	2.53	1.00	85.91	2.05	1.00
Overweight or obese	88.79	3.26	1.04	89.34	2.85	1.04
Selected chronic conditions						
Arthritis						
Not overweight or obese	28.77	1.56	1.00	41.52	1.50	1.00
Overweight or obese	38.58	2.28	1.34 ***	49.14	2.20	1.18 **
Hypertension						
Not overweight or obese	18.38	1.26	1.00	26.57	1.23	1.00
Overweight or obese	30.11	1.98	1.64 ***	40.28	1.99	1.52 ***
Deafness (complete/partial)						
Not overweight or obese	20.16	1.34	1.00	9.77	0.76	1.00
Overweight or obese	21.19	1.80	1.05	8.64	0.98	0.88
Back problems						
Not overweight or obese	14.17	1.12	1.00	8.61	0.73	1.00
Overweight or obese	11.86	1.08	0.84	9.29	0.98	1.08

(continued)

Table 11.1 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by body mass index and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ body mass index	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Heart disease						
Not overweight or obese	11.38	1.01	1.00	8.65	0.72	1.00
Overweight or obese	11.69	1.31	1.03	8.67	0.96	1.00
Hay fever						
Not overweight or obese	6.23	0.75	1.00	7.82	0.70	1.00
Overweight or obese	7.38	0.97	1.18	5.45	0.74	0.70 *
Bronchitis/emphysema						
Not overweight or obese	10.01	0.95	1.00	5.37	0.58	1.00
Overweight or obese	7.22	0.95	0.72 *	4.89	0.73	0.91
Varicose veins						
Not overweight or obese	3.09	0.53	1.00	6.23	0.62	1.00
Overweight or obese	4.65	0.81	1.51	7.72	0.89	1.24
Asthma						
Not overweight or obese	5.46	0.71	1.00	5.38	0.59	1.00
Overweight or obese	5.22	0.84	0.96	5.22	0.73	0.97
Hernia						
Not overweight or obese	6.35	0.76	1.00	3.73	0.48	1.00
Overweight or obese	5.97	0.88	0.94	4.64	0.70	1.25
Diabetes mellitus						
Not overweight or obese	3.83	0.60	1.00	3.06	0.44	1.00
Overweight or obese	6.63	0.93	1.73 **	6.62	0.84	2.16 ***
High cholesterol						
Not overweight or obese	2.65	0.49	1.00	5.59	0.60	1.00
Overweight or obese	3.12	0.58	1.18	4.40	0.67	0.79
Selected minor conditions						
Insomnia						
Not overweight or obese	11.33	1.02	1.00	17.25	1.00	1.00
Overweight or obese	9.17	1.13	0.81	16.07	1.32	0.93
Headache (excluding migraine)						
Not overweight or obese	5.91	0.73	1.00	12.27	0.86	1.00
Overweight or obese	7.63	1.01	1.29	13.59	1.20	1.11
Constipation						
Not overweight or obese	4.57	0.65	1.00	8.61	0.72	1.00
Overweight or obese	6.25	0.99	1.37	9.54	1.02	1.11
Nerves/tension/emotional problems, etc.						
Not overweight or obese	4.50	0.64	1.00	8.02	0.70	1.00
Overweight or obese	4.05	0.67	0.90	9.74	1.01	1.21
Ill-defined heart symptoms						
Not overweight or obese	6.90	0.80	1.00	6.95	0.65	1.00
Overweight or obese	4.86	0.83	0.70	5.34	0.80	0.77
Skin rash, eczema, dermatitis						
Not overweight or obese	5.21	0.69	1.00	6.28	0.63	1.00
Overweight or obese	7.28	0.97	1.40	6.37	0.83	1.01
Common cold						
Not overweight or obese	6.14	0.75	1.00	4.87	0.56	1.00
Overweight or obese	6.10	0.81	0.99	6.46	0.83	1.32
Minor injuries						
Not overweight or obese	5.23	0.69	1.00	5.18	0.57	1.00
Overweight or obese	4.44	0.80	0.85	4.84	0.73	0.93

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11.2: *Health indicators—age-standardised[(a)] rates and rate ratios by health or recreational exercise level and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ exercise level	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Health status indicators						
Fair/poor health						
Active	37.93	1.64	1.00	35.28	1.48	1.00
Inactive	52.13	2.50	1.37 ***	51.99	1.91	1.47 ***
Serious chronic illnesses						
Active	0.67	0.02	1.00	0.49	0.02	1.00
Inactive	0.74	0.03	1.10	0.59	0.02	1.20 ***
Chronic illnesses						
Active	2.26	0.05	1.00	2.16	0.04	1.00
Inactive	2.32	0.06	1.03	2.33	0.05	1.08 **
Recent illnesses						
Active	1.42	0.03	1.00	1.52	0.03	1.00
Inactive	1.50	0.04	1.06	1.72	0.04	1.14 ***
Minor illnesses						
Active	0.87	0.03	1.00	1.12	0.03	1.00
Inactive	0.89	0.03	1.03	1.19	0.03	1.06
Dental problems						
Active	4.31	0.56	1.00	3.51	0.48	1.00
Inactive	2.65	0.59	0.62	3.28	0.53	0.93
Reduced activity						
Active	27.66	0.33	1.00	30.46	0.34	1.00
Inactive	55.32	0.59	2.00 ***	55.63	0.48	1.83 ***
Unhappiness						
Active	5.67	0.71	1.00	5.79	0.64	1.00
Inactive	8.42	1.05	1.48 *	8.97	0.86	1.55 **
Risk factors						
Overweight and obesity						
Active	42.20	1.70	1.00	34.75	1.51	1.00
Inactive	45.95	2.38	1.09	41.67	1.87	1.20 **
Smoking						
Active	13.98	1.01	1.00	10.30	0.79	1.00
Inactive	19.25	1.55	1.38 **	11.85	1.01	1.15
Alcohol risk						
Active	6.96	0.69	1.00	4.67	0.54	1.00
Inactive	5.71	0.85	0.82	4.05	0.59	0.87
Health service use						
Hospital episodes						
Active	0.36	0.06	1.00	0.25	0.05	1.00
Inactive	0.49	0.08	1.34	0.37	0.07	1.48
Doctor visits						
Active	10.55	0.26	1.00	10.48	0.24	1.00
Inactive	11.83	0.37	1.12 **	13.42	0.29	1.28 ***
Outpatient visits						
Active	1.50	0.14	1.00	1.17	0.13	1.00
Inactive	1.93	0.19	1.29	1.76	0.18	1.50 **
Dental visits						
Active	1.41	0.06	1.00	1.20	0.08	1.00
Inactive	0.77	0.06	0.55 ***	1.08	0.10	0.90
Other health professional visits						
Active	5.55	0.42	1.00	5.40	0.56	1.00
Inactive	6.30	0.54	1.14	7.91	0.81	1.46 **

(continued)

Table 11.2 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by health or recreational exercise level and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ exercise level	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Major chronic illness groups						
Neoplasms						
Active	8.30	0.83	1.00	4.18	0.53	1.00
Inactive	6.46	0.92	0.78	5.03	0.64	1.20
Endocrine, metabolic, nutritional						
Active	13.69	1.01	1.00	14.72	0.96	1.00
Inactive	13.75	1.34	1.00	14.96	1.11	1.02
Mental disorders						
Active	1.07	0.28	1.00	1.51	0.31	1.00
Inactive	1.74	0.47	1.62	1.86	0.37	1.23
Nervous system, sense organs						
Active	34.76	1.65	1.00	26.00	1.32	1.00
Inactive	33.17	2.05	0.95	27.16	1.40	1.04
Circulatory system						
Active	38.20	1.67	1.00	46.10	1.66	1.00
Inactive	37.31	2.14	0.98	47.10	1.83	1.02
Respiratory system						
Active	18.42	1.18	1.00	15.99	1.02	1.00
Inactive	22.33	1.69	1.21	16.35	1.15	1.02
Digestive system						
Active	15.02	1.10	1.00	10.45	0.83	1.00
Inactive	14.15	1.35	0.94	12.86	1.01	1.23
Genito-urinary system						
Active	4.16	0.59	1.00	4.74	0.57	1.00
Inactive	3.60	0.69	0.86	5.89	0.69	1.24
Skin and subcutaneous tissue						
Active	7.22	0.77	1.00	4.94	0.57	1.00
Inactive	5.12	0.82	0.71	3.48	0.53	0.70
Musculoskeletal system						
Active	47.66	1.84	1.00	54.34	1.78	1.00
Inactive	52.71	2.52	1.11	59.52	2.03	1.10
Injury and poisoning						
Active	1.89	0.42	1.00	1.57	0.33	1.00
Inactive	2.10	0.51	1.11	1.17	0.29	0.75
Other						
Active	3.68	0.54	1.00	2.92	0.47	1.00
Inactive	3.91	0.72	1.06	3.12	0.48	1.07
All causes						
Active	86.30	2.40	1.00	86.07	2.18	1.00
Inactive	86.33	3.13	1.00	87.69	2.40	1.02
Selected chronic conditions						
Arthritis						
Active	30.14	1.51	1.00	40.95	1.58	1.00
Inactive	36.73	2.13	1.22 **	47.06	1.82	1.15 *
Hypertension						
Active	23.98	1.32	1.00	31.04	1.38	1.00
Inactive	21.71	1.65	0.91	31.81	1.54	1.03
Deafness (complete/partial)						
Active	19.40	1.27	1.00	9.81	0.85	1.00
Inactive	20.69	1.64	1.07	9.88	0.86	1.01
Back problems						
Active	14.06	1.00	1.00	8.79	0.75	1.00
Inactive	11.81	1.23	0.84	8.31	0.84	0.95

(continued)

Table 11.2 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by health or recreational exercise level and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ exercise level	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Heart disease						
Active	10.24	0.91	1.00	7.80	0.74	1.00
Inactive	12.62	1.29	1.23	9.51	0.85	1.22
Hay fever						
Active	6.97	0.72	1.00	7.90	0.74	1.00
Inactive	6.11	0.90	0.88	5.45	0.68	0.69 *
Bronchitis/emphysema						
Active	7.71	0.78	1.00	4.55	0.55	1.00
Inactive	10.31	1.16	1.34	5.67	0.69	1.25
Varicose veins						
Active	3.84	0.55	1.00	7.88	0.73	1.00
Inactive	3.12	0.64	0.81	5.44	0.68	0.69 *
Asthma						
Active	4.64	0.60	1.00	4.52	0.53	1.00
Inactive	6.24	0.90	1.34	5.98	0.72	1.32
Hernia						
Active	6.46	0.72	1.00	3.34	0.46	1.00
Inactive	5.43	0.85	0.84	4.88	0.62	1.46 *
Diabetes mellitus						
Active	4.43	0.60	1.00	4.30	0.54	1.00
Inactive	6.16	0.90	1.39	4.39	0.60	1.02
High cholesterol						
Active	3.30	0.48	1.00	5.04	0.55	1.00
Inactive	1.87	0.48	0.57	4.78	0.65	0.95
Selected minor conditions						
Insomnia						
Active	10.16	0.94	1.00	15.89	1.05	1.00
Inactive	11.79	1.26	1.16	18.03	1.17	1.13
Headache (excluding migraine)						
Active	6.51	0.69	1.00	13.11	0.92	1.00
Inactive	6.30	0.91	0.97	12.89	1.03	0.98
Constipation						
Active	4.43	0.65	1.00	8.75	0.80	1.00
Inactive	6.73	0.95	1.52 *	9.83	0.88	1.12
Nerves/tension/emotional problems, etc.						
Active	4.68	0.60	1.00	8.41	0.74	1.00
Inactive	3.88	0.71	0.83	9.42	0.88	1.12
Ill-defined heart symptoms						
Active	6.02	0.74	1.00	5.89	0.67	1.00
Inactive	6.89	0.97	1.14	6.75	0.71	1.15
Skin rash, eczema, dermatitis						
Active	6.24	0.70	1.00	6.10	0.65	1.00
Inactive	5.41	0.84	0.87	6.04	0.70	0.99
Common cold						
Active	6.64	0.72	1.00	6.19	0.65	1.00
Inactive	5.42	0.84	0.82	4.89	0.63	0.79
Minor injuries						
Active	4.32	0.60	1.00	4.68	0.58	1.00
Inactive	5.33	0.83	1.23	5.29	0.65	1.13

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11.3: *Health indicators—age-standardised[(a)] rates and rate ratios by smoking status and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ smoking status	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Health status indicators						
Fair/poor health						
Non-smoker	42.52	1.46	1.00	42.89	1.18	1.00
Smoker	48.00	4.13	1.13	42.28	4.44	0.99
Serious chronic illnesses						
Non-smoker	0.70	0.02	1.00	0.54	0.02	1.00
Smoker	0.67	0.05	0.96	0.51	0.05	0.94
Chronic illnesses						
Non-smoker	2.32	0.04	1.00	2.29	0.03	1.00
Smoker	2.10	0.09	0.91 *	1.99	0.10	0.87 **
Recent illnesses						
Non-smoker	1.49	0.03	1.00	1.65	0.03	1.00
Smoker	1.26	0.07	0.85 **	1.33	0.08	0.80 ***
Minor illnesses						
Non-smoker	0.88	0.02	1.00	1.14	0.02	1.00
Smoker	0.87	0.06	1.00	1.24	0.08	1.10
Dental problems						
Non-smoker	3.77	0.46	1.00	3.49	0.37	1.00
Smoker	3.76	1.18	1.00	2.31	0.84	0.66
Reduced activity						
Non-smoker	40.03	0.32	1.00	42.24	0.28	1.00
Smoker	28.58	0.76	0.71 ***	32.55	0.83	0.77 ***
Unhappiness						
Non-smoker	6.42	0.62	1.00	7.39	0.54	1.00
Smoker	8.22	1.82	1.28	4.89	1.19	0.66
Risk factors						
Overweight and obesity						
Non-smoker	45.81	1.50	1.00	38.77	1.19	1.00
Smoker	32.17	3.22	0.70 ***	24.28	2.89	0.63 ***
Inactivity						
Non-smoker	36.17	1.38	1.00	45.43	1.21	1.00
Smoker	44.65	4.04	1.23 *	49.11	5.11	1.08
Alcohol risk						
Non-smoker	5.79	0.56	1.00	3.55	0.38	1.00
Smoker	9.26	1.50	1.60 *	10.27	1.70	2.89 ***
Health service use						
Hospital episodes						
Non-smoker	0.42	0.05	1.00	0.30	0.04	1.00
Smoker	0.36	0.13	0.85	0.28	0.14	0.92
Doctor visits						
Non-smoker	11.27	0.23	1.00	11.96	0.19	1.00
Smoker	8.75	0.51	0.78 ***	10.86	0.70	0.91
Outpatient visits						
Non-smoker	1.79	0.13	1.00	1.47	0.11	1.00
Smoker	0.61	0.14	0.34 ***	1.49	0.40	1.01
Dental visits						
Non-smoker	1.25	0.05	1.00	1.18	0.07	1.00
Smoker	0.90	0.10	0.72 **	0.79	0.14	0.67 *
Other health professional visits						
Non-smoker	6.02	0.35	1.00	6.55	0.48	1.00
Smoker	3.93	0.60	0.65 **	9.87	1.94	1.51

(continued)

Table 11.3 (continued): *Health indicators—age-standardised[a] rates and rate ratios by smoking status and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ smoking status	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Major chronic illness groups						
Neoplasms						
Non-smoker	7.36	0.65	1.00	4.71	0.43	1.00
Smoker	8.08	1.61	1.10	4.10	1.39	0.87
Endocrine, metabolic, nutritional						
Non-smoker	14.81	0.90	1.00	15.41	0.76	1.00
Smoker	8.86	1.64	0.60 **	11.28	2.01	0.73
Mental disorders						
Non-smoker	1.30	0.27	1.00	1.68	0.26	1.00
Smoker	1.60	0.70	1.23	2.93	1.34	1.75
Nervous system, sense organs						
Non-smoker	34.71	1.36	1.00	27.28	0.97	1.00
Smoker	30.53	3.45	0.88	23.78	3.91	0.87
Circulatory system						
Non-smoker	39.07	1.41	1.00	47.89	1.24	1.00
Smoker	29.98	3.09	0.77 *	37.85	4.29	0.79 *
Respiratory system						
Non-smoker	19.72	1.03	1.00	15.51	0.76	1.00
Smoker	23.30	3.09	1.18	21.78	3.30	1.40 *
Digestive system						
Non-smoker	14.51	0.90	1.00	12.06	0.68	1.00
Smoker	16.29	2.58	1.12	8.60	1.81	0.71
Genito-urinary system						
Non-smoker	4.28	0.51	1.00	5.26	0.46	1.00
Smoker	2.37	0.83	0.55	6.34	1.75	1.20
Skin and subcutaneous tissue						
Non-smoker	6.43	0.61	1.00	4.46	0.42	1.00
Smoker	6.52	1.56	1.01	5.06	1.96	1.13
Musculoskeletal system						
Non-smoker	49.47	1.56	1.00	57.57	1.34	1.00
Smoker	51.16	4.32	1.03	52.31	4.95	0.91
Injury and poisoning						
Non-smoker	1.90	0.34	1.00	1.38	0.23	1.00
Smoker	1.51	0.58	0.80	1.22	0.54	0.88
Other						
Non-smoker	4.06	0.50	1.00	3.04	0.35	1.00
Smoker	2.27	0.76	0.56	3.32	1.39	1.09
All causes						
Non-smoker	87.04	1.99	1.00	87.70	1.60	1.00
Smoker	82.86	5.43	0.95	82.21	6.20	0.94
Selected chronic conditions						
Arthritis						
Non-smoker	32.69	1.31	1.00	44.38	1.20	1.00
Smoker	31.99	3.39	0.98	38.93	4.27	0.88
Hypertension						
Non-smoker	24.41	1.13	1.00	32.80	1.05	1.00
Smoker	16.36	2.22	0.67 **	19.65	2.82	0.60 ***
Deafness (complete/partial)						
Non-smoker	19.87	1.06	1.00	9.84	0.61	1.00
Smoker	19.66	2.76	0.99	8.24	2.06	0.84
Back problems						
Non-smoker	13.28	0.84	1.00	8.54	0.58	1.00
Smoker	14.02	2.20	1.06	8.09	1.50	0.95

(continued)

Table 11.3 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by smoking status and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ smoking status	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Heart disease						
Non-smoker	11.32	0.81	1.00	8.52	0.57	1.00
Smoker	9.48	1.83	0.84	10.72	2.57	1.26
Hay fever						
Non-smoker	7.31	0.64	1.00	6.74	0.52	1.00
Smoker	4.15	1.14	0.57 *	7.89	2.07	1.17
Bronchitis/emphysema						
Non-smoker	8.02	0.68	1.00	4.60	0.43	1.00
Smoker	12.21	2.09	1.52 *	8.00	1.74	1.74 *
Varicose veins						
Non-smoker	3.68	0.47	1.00	6.89	0.52	1.00
Smoker	3.16	0.97	0.86	5.19	1.53	0.75
Asthma						
Non-smoker	5.10	0.54	1.00	5.34	0.46	1.00
Smoker	6.38	1.55	1.25	5.50	1.69	1.03
Hernia						
Non-smoker	6.34	0.61	1.00	4.34	0.42	1.00
Smoker	5.79	1.53	0.91	2.74	0.88	0.63
Diabetes mellitus						
Non-smoker	5.53	0.57	1.00	4.56	0.43	1.00
Smoker	2.70	0.87	0.49 *	2.62	0.85	0.57
High cholesterol						
Non-smoker	3.01	0.41	1.00	5.04	0.45	1.00
Smoker	2.22	0.89	0.74	4.49	1.11	0.89
Selected minor conditions						
Insomnia						
Non-smoker	10.29	0.79	1.00	16.52	0.77	1.00
Smoker	13.45	2.30	1.31	19.49	3.18	1.18
Headache (excluding migraine)						
Non-smoker	6.25	0.60	1.00	12.79	0.69	1.00
Smoker	7.30	1.49	1.17	12.33	1.85	0.96
Constipation						
Non-smoker	5.03	0.56	1.00	8.80	0.58	1.00
Smoker	5.91	1.41	1.17	11.12	2.31	1.26
Nerves/tension/emotional problems, etc.						
Non-smoker	4.38	0.50	1.00	8.83	0.59	1.00
Smoker	4.67	1.25	1.07	9.85	1.98	1.12
Ill-defined heart symptoms						
Non-smoker	6.74	0.65	1.00	6.45	0.50	1.00
Smoker	5.23	1.61	0.78	5.83	2.18	0.90
Skin rash, eczema, dermatitis						
Non-smoker	6.02	0.59	1.00	6.13	0.49	1.00
Smoker	5.43	1.29	0.90	7.01	2.04	1.14
Common cold						
Non-smoker	6.35	0.60	1.00	5.50	0.47	1.00
Smoker	5.22	1.22	0.82	6.51	1.67	1.18
Minor injuries						
Non-smoker	4.79	0.53	1.00	4.78	0.44	1.00
Smoker	4.32	1.29	0.90	7.30	2.00	1.53

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11.4: *Health indicators—age-standardised[(a)] rates and rate ratios by alcohol risk and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ alcohol risk	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Health status indicators						
Fair/poor health						
Low risk	44.01	1.39	1.00	43.38	1.14	1.00
Mod/high risk	32.12	5.00	0.73 *	32.66	6.16	0.75
Serious chronic illnesses						
Low risk	0.69	0.02	1.00	0.54	0.01	1.00
Mod/high risk	0.93	0.14	1.34	0.54	0.07	1.02
Chronic illnesses						
Low risk	2.29	0.04	1.00	2.26	0.03	1.00
Mod/high risk	2.69	0.24	1.18	2.13	0.15	0.94
Recent illnesses						
Low risk	1.45	0.03	1.00	1.62	0.03	1.00
Mod/high risk	1.86	0.22	1.29 *	1.34	0.12	0.83 *
Minor illnesses						
Low risk	0.88	0.02	1.00	1.14	0.02	1.00
Mod/high risk	0.68	0.07	0.78 *	1.12	0.11	0.98
Dental problems						
Low risk	3.68	0.43	1.00	3.30	0.35	1.00
Mod/high risk	3.56	1.39	0.97	4.55	1.94	1.38
Reduced activity						
Low risk	39.43	0.30	1.00	41.48	0.26	1.00
Mod/high risk	14.74	0.72	0.37 ***	48.88	1.92	1.18 ***
Unhappiness						
Low risk	6.76	0.60	1.00	7.35	0.52	1.00
Mod/high risk	3.27	1.25	0.48	6.41	2.90	0.87
Risk factors						
Overweight and obesity						
Low risk	43.38	1.38	1.00	38.04	1.13	1.00
Mod/high risk	50.61	8.43	1.17	31.08	7.21	0.82
Inactivity						
Low risk	37.97	1.33	1.00	46.00	1.17	1.00
Mod/high risk	24.84	4.00	0.65 *	43.31	7.15	0.94
Smoking						
Low risk	15.25	0.85	1.00	10.09	0.60	1.00
Mod/high risk	20.60	3.60	1.35	26.43	4.51	2.62 ***
Health service use						
Hospital episodes						
Low risk	0.42	0.05	1.00	0.30	0.04	1.00
Mod/high risk	0.27	0.17	0.64	0.32	0.30	1.06
Doctor visits						
Low risk	11.03	0.21	1.00	11.91	0.18	1.00
Mod/high risk	9.92	1.23	0.90	9.58	0.94	0.80 *
Outpatient visits						
Low risk	1.58	0.11	1.00	1.43	0.11	1.00
Mod/high risk	4.59	1.85	2.91 **	1.57	0.56	1.10
Dental visits						
Low risk	1.19	0.05	1.00	1.12	0.06	1.00
Mod/high risk	1.03	0.14	0.87	1.35	0.29	1.20
Other health professional visits						
Low risk	5.91	0.33	1.00	6.59	0.46	1.00
Mod/high risk	4.68	2.08	0.79	5.01	1.96	0.76

(continued)

Table 11.4 (continued): *Health indicators—age-standardised[(a)] rates and rate ratios by alcohol risk and sex, Australians aged 65 years and over, late 1980s*

	Males			Females		
Health indicator/ alcohol risk	**Rate**	**SE (rate)**	**Rate ratio**	**Rate**	**SE (rate)**	**Rate ratio**
Major chronic illness groups						
Neoplasms						
Low risk	7.57	0.63	1.00	4.53	0.41	1.00
Mod/high risk	10.74	5.79	1.42	4.89	1.71	1.08
Endocrine, metabolic, nutritional						
Low risk	13.62	0.82	1.00	15.48	0.73	1.00
Mod/high risk	22.44	7.19	1.65	3.64	1.47	0.24 ***
Mental disorders						
Low risk	1.42	0.27	1.00	1.83	0.26	1.00
Mod/high risk	0.64	0.59	0.45	0.00	0.00	0.00
Nervous system, sense organs						
Low risk	34.23	1.28	1.00	26.55	0.92	1.00
Mod/high risk	37.72	10.01	1.10	29.76	5.82	1.12
Circulatory system						
Low risk	37.46	1.30	1.00	46.90	1.18	1.00
Mod/high risk	52.10	10.67	1.39	43.25	6.90	0.92
Respiratory system						
Low risk	19.90	0.98	1.00	15.89	0.74	1.00
Mod/high risk	17.21	3.18	0.86	17.86	3.83	1.12
Digestive system						
Low risk	14.85	0.86	1.00	11.59	0.64	1.00
Mod/high risk	13.47	6.27	0.91	15.87	3.95	1.37
Genito-urinary system						
Low risk	4.12	0.47	1.00	5.37	0.44	1.00
Mod/high risk	1.80	1.22	0.44	4.21	2.23	0.79
Skin and subcutaneous tissue						
Low risk	6.39	0.58	1.00	4.26	0.40	1.00
Mod/high risk	6.11	2.05	0.96	7.39	3.05	1.73
Musculoskeletal system						
Low risk	49.68	1.48	1.00	57.20	1.28	1.00
Mod/high risk	61.44	12.41	1.24	54.69	7.79	0.96
Injury and poisoning						
Low risk	1.70	0.31	1.00	1.37	0.23	1.00
Mod/high risk	3.31	1.25	1.95	1.69	0.96	1.23
Other						
Low risk	3.84	0.46	1.00	3.17	0.34	1.00
Mod/high risk	2.62	1.15	0.68	0.00	0.00	0.00 **
All causes						
Low risk	86.22	1.87	1.00	87.35	1.53	1.00
Mod/high risk	90.40	13.08	1.05	79.49	9.09	0.91
Selected chronic conditions						
Arthritis						
Low risk	32.32	1.23	1.00	44.16	1.15	1.00
Mod/high risk	49.08	11.97	1.52	39.38	6.63	0.89
Hypertension						
Low risk	22.75	1.03	1.00	31.59	1.00	1.00
Mod/high risk	40.02	10.22	1.76 *	27.03	4.96	0.86
Deafness (complete/partial)						
Low risk	20.06	1.01	1.00	9.58	0.58	1.00
Mod/high risk	18.54	6.66	0.92	16.49	4.81	1.72
Back problems						
Low risk	13.38	0.80	1.00	8.62	0.56	1.00
Mod/high risk	12.00	3.00	0.90	7.53	2.25	0.87

(continued)

Table 11.4 (continued): *Health indicators—age-standardised[a] rates and rate ratios by alcohol risk and sex, Australians aged 65 years and over, late 1980s*

Health indicator/ alcohol risk	Males			Females		
	Rate	SE (rate)	Rate ratio	Rate	SE (rate)	Rate ratio
Heart disease						
Low risk	11.29	0.77	1.00	8.83	0.56	1.00
Mod/high risk	8.85	2.75	0.78	2.73	1.25	0.31 *
Hay fever						
Low risk	6.88	0.59	1.00	6.73	0.50	1.00
Mod/high risk	3.45	1.19	0.50	5.94	2.01	0.88
Bronchitis/emphysema						
Low risk	8.57	0.66	1.00	4.86	0.42	1.00
Mod/high risk	9.45	2.55	1.10	9.56	3.07	1.97 *
Varicose veins						
Low risk	3.59	0.44	1.00	6.58	0.49	1.00
Mod/high risk	4.28	1.89	1.19	8.60	2.86	1.31
Asthma						
Low risk	5.01	0.51	1.00	5.24	0.44	1.00
Mod/high risk	6.27	1.76	1.25	6.00	2.59	1.14
Hernia						
Low risk	6.15	0.57	1.00	4.02	0.39	1.00
Mod/high risk	9.78	6.14	1.59	8.99	3.06	2.24 *
Diabetes mellitus						
Low risk	5.18	0.52	1.00	4.51	0.41	1.00
Mod/high risk	9.38	6.34	1.81	1.08	0.78	0.24 *
High cholesterol						
Low risk	2.96	0.38	1.00	5.18	0.44	1.00
Mod/high risk	1.14	0.74	0.39	1.55	0.95	0.30
Selected minor conditions						
Insomnia						
Low risk	10.94	0.77	1.00	16.61	0.75	1.00
Mod/high risk	6.06	1.83	0.55	24.58	5.73	1.48
Headache (excluding migraine)						
Low risk	6.56	0.58	1.00	13.28	0.68	1.00
Mod/high risk	4.52	1.54	0.69	5.12	1.76	0.39 **
Constipation						
Low risk	5.41	0.55	1.00	9.12	0.57	1.00
Mod/high risk	1.33	0.77	0.25 *	7.80	2.57	0.86
Nerves/tension/emotional problems, etc.						
Low risk	4.34	0.48	1.00	8.90	0.56	1.00
Mod/high risk	5.43	1.97	1.25	11.75	3.85	1.32
Ill-defined heart symptoms						
Low risk	6.44	0.60	1.00	6.37	0.48	1.00
Mod/high risk	2.87	1.16	0.44	2.44	1.18	0.38 *
Skin rash, eczema, dermatitis						
Low risk	5.64	0.54	1.00	6.15	0.48	1.00
Mod/high risk	9.92	2.85	1.76	4.99	2.10	0.81
Common cold						
Low risk	6.31	0.57	1.00	5.64	0.46	1.00
Mod/high risk	4.89	2.06	0.78	3.83	1.67	0.68
Minor injuries						
Low risk	4.42	0.49	1.00	4.87	0.42	1.00
Mod/high risk	6.40	1.98	1.45	7.58	2.93	1.56

(a) Refer to pages 1–6 for methods and data sources and pages 7–15 for definitions of health indicators.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix A Development of summary indicators for self-reported illness

The ABS 1989–90 National Health Survey (NHS) collected data on chronic and recent illness conditions reported by respondents. These illness conditions were classified into 105 categories using a classification broadly based on the International Classification of Diseases, 9th revision (ICD-9) (WHO 1977). Many of the ICD-9 categories were collapsed into broader groupings of conditions which reflect the type and level of information provided in a household survey. Some special categories were added to cover commonly reported conditions and 'healthy' reasons for health service contact (ABS 1991a).

The NHS found that 73% of the population reported experiencing one or more illness conditions in the two weeks prior to interview. The two most common conditions reported were headache due to unspecified cause and common cold (ABS 1991b). Summary indicators for self-reported illness would thus be dominated by relatively minor health conditions if constructed to take all reported illness conditions into account. The possibility of weighting illness conditions according to some measure of severity or impact was investigated, but the only available information in the 1989–90 NHS related to health actions, such as reduced activity, doctor visits and hospitalisation. Although health actions correlate to some degree with illness severity, this information was not generally sufficient to allow categorisation of severity.

The Royal College of General Practitioners (RCGP) in the United Kingdom has developed a three-level severity classification of diseases defined according to ICD-9 three-digit (and in some cases four-digit codes) (McCormick & Rosenbaum 1990). The criteria for this classification are as follows:

Serious diseases and conditions

Those which at the time are invariably serious. Those which require surgical intervention. Those which carry a high probability of serious complications or significant recurring disability.

Intermediate diseases and conditions

Those which, although sometimes potentially serious, span a wide range of severity or are embraced by a diagnostic term which is used with widely disparate meaning by general practitioners. Those which, although not often serious, are usually brought to the attention of the GP.

Trivial diseases and conditions

Illnesses commonly treated without recourse to medical advice. Minor self-limiting illnesses which require no specific treatment. Diseases which are not included above.

The illness codes used in the National Health Survey were classified using the RCGP classification scheme as far as possible (see Mathers 1994, Appendix A). Some illness codes spanned one or more of the RCGP categories; these included 'Injury' and many of the 'Other' categories for disease groups. Other information collected in the NHS was used to distinguish levels of severity for 'Injury' and other such unclassifiable conditions as follows:

Appendix A

- non-minor *if* chronic *or* one or more days in bed in last two weeks.

Table A1 shows the proportions of recent illness conditions which fall into these categories for each of the 'unclassifiable' illness codes.

Table A1: ***Characteristics of 'unclassifiable' recent illness codes for persons aged 65 years or more in the 1989–90 National Health Survey***

Code condition	Per cent chronic	Non-chronic per cent with days in bed
006 Other mental disorders	66	–
008 Other diseases of the eye and adnexa	65	7
023 Other diseases of the respiratory system	60	8
024 Diarrhoea, enteritis	65	33
030 Other diseases of the digestive system	56	9
033 Other diseases of the genital system	52	14
035 Eczema, dermatitis	58	–
037 Other diseases of the skin and subcutaneous tissue	51	3
042 Other diseases of the musculosketetal system and connective tissue	59	8
043 Herpes	17	–
045 Other infectious and parasitic diseases	45	10
046 Diseases of blood and blood-forming organs	64	2
049 Injuries	39	8
112 Musculoskeletal deformities	81	52

Chronic conditions have been classified as minor and non-minor on the same basis as recent conditions, so that all unclassifiable chronic conditions are considered intermediate. Thus, illnesses reported in the National Health Survey were classified into three categories: Serious, Intermediate and Minor, as shown in Table A2 (page 163). Note also that six chapters were combined into a single category 'Other'. These were chapters I (Infectious and parasitic diseases), IV (Diseases of blood and blood-forming organs), XI (Pregnancy and birth), XIV (Congenital anomalies), XV (Certain conditions originating in the perinatal period) and XVI (Symptoms, signs and ill-defined conditions).

Appendix A

Table A2: *Summary of illness classification schemes*

ICD–9 chapter	Minor	Intermediate	Serious
Neoplasms			All
Endocrine, metabolic, nutritional	Obesity	High blood sugar, high cholesterol	Thyroid disease, gout, diabetes mellitus
Mental disorders	Nerves, tension, emotional	Depression, other[a]	Psychoses, mental retardation problems
Nervous system and sense organs	Disorders of refraction and accommodation	Blindness (complete/part) *not* corrected by glasses, other eye diseases[a], otitis media, deafness (complete/partial), ear pain, other ear diseases, migraine	Epilepsy, paralysis, other hereditary congenital degenerative disorders
Circulatory system	Ill-defined signs and symptoms of heart disease	Hypertension, varicose veins, haemorrhoids, fluid problems	Atherosclerosis, heart disease, cerebrovascular disease, stroke after-effects, other
Respiratory system	Common cold, influenza, sinusitis, cough/sore throat	Hay fever, other[a], asthma	Bronchitis, emphysema
Digestive system	Constipation	Diarrhoea, colitis, enteritis[a], dental problems, other[a]	Ulcer, hernia
Genito-urinary system	Menstrual disorders	Other urinary tract, other genital[a]	Kidney diseases
Skin and subcutaneous	Skin rash NOS	Eczema, dermatitis[a], acne, other[a]	
Musculoskeletal and connective tissue		Arthritis, sciatica, back trouble, absence of limbs or parts of limbs[a], musculoskeletal deformities[a], incomplete use of arms or fingers or legs or toes[a], other[a]	Rheumatism
Injury and poisoning		Injuries[a], complications of surgical and medical care	
Other	Virus NOS, infection NOS, allergy NOS, insomnia, pyrexia, localised swelling, difficulty breathing, chest pain, abdominal pain, heartburn, dizziness, hangover, headache (excl. migraine), other	Herpes, tinea, other infectious diseases[a], all diseases of blood and blood-forming organs[a], incomplete use of arms or fingers unspecified[a], incomplete use of feet or legs unspecified[a], missing organs NEC, disability NEC[a], speech impediment unspecified, blackouts, fits or loss of consciousness unspecified	Congenital anomalies[b], complications of pregnancy and childbirth[c]

(a) Recent illness: classified as serious/intermediate only if a chronic condition and/or resulted in one or more days of reduced activity in last two weeks.
(b) Includes only chromosomal anomalies, e.g. sex chromosome anomalies, Down's syndrome. Other congenital malformations are classified to the relevant body system.
(c) Normal pregnancy and normal childbirth are not classified as illness conditions.

References

Australian Bureau of Statistics (1991a). 1989–90 National Health Survey. Users' guide. ABS Cat. No. 4363.0, Canberra.

Australian Bureau of Statistics (1991b). 1989–90 National Health Survey. Summary of results, Australia. ABS Cat. No. 4364.0, Canberra.

Mathers CD (1994). Health differentials among adult Australians aged 25–64 years. Australian Institute of Health and Welfare, Canberra.

McCormick A, Rosenbaum M (1990). Morbidity statistics from general practice 1981–82. Third national study: socio-economic analyses. RCGP, OPCS and Department Health series MB5 no. 2. HMSO, London.

World Health Organization (1977) Manual of the international statistical classification of diseases, injuries and causes of death. 9th revision, volumes 1 and 2. WHO, Geneva.

Appendix B Population estimates

Estimated resident population 1985–87

Age-specific death rates by sex, State/Territory, marital status and country of birth were calculated using numbers of deaths occurring in the calendar years 1985, 1986 and 1987 and the sum of the estimated resident populations for 30 June 1985, 30 June 1986 and 30 June 1987 (ABS Cat. Nos. 3201.0, 3220.0, 3221.0). Population estimates for statistical local areas (SLAs) supplied by the ABS from the 1986 Census were used to estimate the resident population for metropolitan/non-metropolitan areas and for SLAs grouped into quintiles of socioeconomic disadvantage (see chapter 6, Box 6).

Special problems with the calculation of mortality differentials arise from the fact that the numerators and denominators for the calculation of death rates are derived from different sources: death registrations and the population census respectively. The definitions and methods used for ascertaining sociodemographic characteristics vary between the census and the death registration data and this may give rise to misclassification errors. To the extent that the deaths attributed to a particular census sub-population are not in fact drawn from that sub-population, the calculated rates will be in error. This type of error is not readily quantifiable but is assumed to be small for sex, marital status, place of residence and birthplace (Lee et al. 1987).

Population surveys

Similar problems do not occur in the calculation of rates from population surveys, since estimates for both the numerator and denominator are derived from the survey population. Overall estimates of the numbers of Australian men and women aged 65 years and over from the three population data sources used in this report are shown in Table B1:

Table B1: *Estimated numbers of Australians aged 65 years and over used in analysis ('000)*

	Men	Women
Estimated annual resident population 1985–87	709.0	972.6
ABS 1988 Survey of Disability and Ageing	727.1	957.0
ABS 1989–90 National Health Survey	790.5	1,060.0

Estimated numbers of men and women in the population subgroups examined in this report are shown in Table B2 for the estimated annual resident population 1985–87 and the ABS 1989–90 National Health Survey. The distribution of the population between the various subgroups in the ABS Survey of Disability and Ageing was similar to that for the National Health Survey and is not shown in Table B2.

Appendix B

Table B2: *Estimated numbers of Australians aged 65 years and over used in analysis ('000)*

Variable / population subgroup	Estimated annual resident population 1985–87		National Health Survey 1989–90	
	Males	Females	Males	Females
Sex				
Male / Female	709.0	972.6	790.5	1,060.0
Marital status				
Never married	49.7	66.6	38.1	43.6
Married[a]	532.8	404.8	608.1	460.1
Divorced / widowed	126.5	501.2	144.2	556.4
Family composition				
Couple	–	–	600.2	450.9
Single, with others	–	–	49.0	166.9
Single living alone	–	–	141.2	442.3
Equivalent family income				
High	–	–	238.4	208.9
Medium	–	–	385.8	439.4
Low	–	–	132.0	363.0
Education level				
High	–	–	184.5	163.7
Medium	–	–	301.1	358.7
Low	–	–	304.9	537.6
Socioeconomic area index				
1st quintile	117.0	174.6	162.1	217.2
2nd quintile	134.9	187.0	119.4	155.2
3rd quintile	148.8	200.6	158.5	207.7
4th quintile	141.3	192.8	170.7	240.6
5th quintile	150.2	194.8	164.5	217.1
State / Territory				
NSW	252.9	353.5	281.8	380.7
Vic	184.7	260.0	202.1	280.3
Qld	117.8	151.9	134.0	167.2
WA	57.6	76.3	65.9	86.9
SA	68.1	93.3	75.4	101.4
Tas	20.7	27.9	22.6	30.2
ACT	5.5	7.7	6.5	9.4
NT	1.9	1.9	2.2	3.9
Region				
Metropolitan	422.1	616.7	481.5	677.3
Non-metropolitan	286.7	355.2	308.0	382.7
Country of birth				
Australia	508.9	739.5	557.8	787.6
UK, Ireland	95.4	120.2	109.7	125.0
Other Europe	77.2	75.7	89.7	94.6
Asia	13.9	18.9	14.4	21.5
Other	13.5	17.6	18.8	31.3

(continued)

Appendix B

Table B2 (continued): *Estimated numbers of Australians aged 65 years and over used in analysis ('000)*

Variable / population subgroup	Estimated annual resident population 1985–87		National Health Survey 1989–90	
	Males	Females	Males	Females
Language spoken at home				
English	–	–	714.3	971.6
Other language	–	–	76.2	88.5
Body mass index				
Not overweight or obese	–	–	421.0	608.3
Overweight or obese	–	–	347.3	364.7
Exercise level				
Active	–	–	498.0	573.1
Inactive	–	–	292.5	487.0
Smoking status				
Non-smoker	–	–	660.6	944.6
Smoker	–	–	129.9	115.4
Alcohol risk				
Low risk	–	–	735.2	1,013.2
Medium / high risk	–	–	55.3	46.8

(a) Includes separated persons for estimated resident population only. Separated persons are included in the divorced/widowed category for the population surveys.

References

Australian Bureau of Statistics. Estimated resident population by country of birth, age and sex. Australia. ABS Cat. No. 3221.0, Canberra.

Australian Bureau of Statistics. Estimated resident population by marital status, age and sex. Australia. ABS Cat. No. 3220.0, Canberra.

Australian Bureau of Statistics. Estimated resident population by sex and age. States and Territories of Australia. ABS Cat. No. 3201.0, Canberra.

Lee SH, Smith L, d'Espaignet E, Thomson N (1987). Health differentials among working age Australians. Australian Institute of Health, Canberra.