# Victorian Population Health Survey 2005

Selected findings

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## Selected findings

Department of Human Services

## Contact details

# Foreword

The Victorian Population Health Survey is an important component of the population health surveillance capacity of the Department of Human Services. The department initiated this surveillance program in 1998 after a rigorous process of technical evaluation and review. The first major survey of adult Victorians was conducted in 2001.

The Victorian Population Health Survey is based on a core set of question modules that are critical to informing decisions about public health priorities. The survey findings fill a significant void in the accessible data that are required to ensure public health programs are relevant and responsive to current and emerging health issues.

This report contains the key findings from the Victorian Population Health Survey 2005 (the fifth in an ongoing annual series). Information is presented on health and lifestyle including asthma, diabetes, alcohol and tobacco consumption, fruit and vegetable consumption, physical activity, adult obesity, psychological distress and social networks.

The value of the Victorian Population Health Survey data is increasing over time as it becomes possible to comment on trends in selected survey estimates. Five years of time series data are presented in this report showing trends for selected health conditions. Future reports will continue to present time series data, allowing for comment on trends in aspects of population health.

The findings of this report have a direct bearing on State Government policies such as Growing Victoria Together and A Fairer Victoria – Creating Opportunity and Addressing Disadvantage which are both aimed at tackling social inequalities in health. They also provide important insights into the determinants of chronic disease and opportunities for improved targeting of public health interventions.

The survey series is an ongoing source of high quality information on the health of Victorians. The latest data from the 2005 survey continue to underpin our public health efforts especially in controlling chronic diseases.
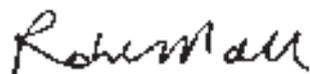
Dr Robert Hall
Director, Public Health and Chief Health Officer
Rural and Regional Health and Aged Care Services
Department of Human Services

# Contents

# 1. Summary

## 1.1 Background

The Victorian Population Health Survey is an important component of the population health surveillance capacity of the Department of Human Services. The annual survey series is an ongoing source of high quality information on the health of Victorians. Information in the report is presented on health and lifestyle, including physical activity, smoking, alcohol consumption, intake of fruit and vegetables, selected health screening, adult obesity, asthma and diabetes prevalence, psychological distress and social networks.

## 1.2 Purpose

The aim of this report is to provide high quality, timely indicators of population health that are intended to have direct application to evidence-based policy development and strategic planning across the department and the wider community. The Victorian Population Health Survey is based on a core set of question modules that are critical to informing decisions about public health priorities. It fills a significant void in the accessible data that are required to ensure public health programs are relevant and responsive to current and emerging health issues.

## 1.3 Methods

Computer-assisted telephone interviewing was undertaken between August and December 2005. A representative statewide sample of adults aged 18 years or over was randomly selected from households in each of the eight departmental health regions. Approximately 7500 interviews were completed during the fieldwork period. The department determined the content of the survey after reviewing the determinants of chronic disease states that are most likely to have an impact on Victorians. Priority has been given to areas in which a public health response is likely to be effective in improving health and, importantly, reducing inequalities in health for all Victorians.

Refer to Appendix A for a more detailed description of methods.

## 1.4 Key results

This report on the 2005 survey presents information that is compared with selected data items from the 2001–04 surveys. Future survey reports will continue to present time series information, along with changes over time in the health of Victorians including the determinants of that health, such as obesity patterns among adult Victorians. In the section on health and lifestyle, the report contains information on the prevalence of major risk-taking behaviours across the Victorian population–for example, the prevalence of

smoking, nutrition, alcohol consumption and levels of physical activity. Data on self-reported height and weight are now collected as core items. These data will be vital for targeting public health interventions and evaluating outcomes.

Questions on asthma, diabetes, arthritis, muscolo-skeletal conditions and cardio-vascular disease provide indicators for the selected national health priority areas, which are the subject of public health programs in Victoria and nationwide. These data complement the department's Victorian Burden of Disease Study updated in 2005 (see www.health.vic.gov.au/healthstatus/bod/bod_vic.htm), and they describe aspects of clinical management and prevention that are amenable to public health interventions. Of particular interest is the module of questions on the social determinants of health. New information presented in the report is based on measures of the extent and diversity of social networks in the Victorian population. Policy makers now have Victorian data that link preventable risk-taking behaviours, their *upstream* determinants (such as levels of social networks) and health status.

The Victorian Population Health Survey 2005 collected a wide range of information relating to the health of the adult Victorian population and the determinants of that health. The following table presents the key results from the survey–that is, the health and lifestyle of Victorians in 2005.

# Summary of results

**At a glance: the health and lifestyle of Victorians, 2005–selected findings**

| Lifestyle related | Measure | Males (%)* | Females (%)* | Persons (%)* |
|---|---|---|---|---|
| Fruit intake | *Proportion meeting recommended intake levels* | 48.3 | 53.3 | 51.0 |
| Vegetable intake | *Proportion meeting recommended intake levels* | 6.0 | 12.9 | 9.5 |
| Alcohol intake | *Proportion drinking weekly at levels for short term risk from alcohol consumption* | 13.3 | 6.4 | 9.8 |
| Abstainers from alcohol | *Persons who had not had an alcoholic drink in the past 12 months or who no longer drink* | 15.0 | 22.3 | 18.8 |
| Smoking | *Prevalence of current smokers* | 21.9 | 18.9 | 20.4 |
| Smoking in the home | *Proportion of smoke free homes* | | | 88.4 |
| Physical activity | *Adequacy of physical activity–sufficient time and sessions* | 64.3 | 63.3 | 63.8 |
| **Health status** | | | | |
| Self-rated health | *Proportion reporting excellent/very good/good health* | 81.9 | 83.1 | 82.5 |
| Obesity/overweight | *Proportion of persons obese/overweight according to body mass index* | 54.2 | 41.9 | 47.9 |
| Asthma | *Current asthma prevalence* | 9.5 | 13.0 | 11.3 |
| Diabetes | *Diabetes prevalence* | 4.8 | 5.1 | 4.6 |
| Psychological distress | *Proportion having high scores (>22 on Kessler 10 score; see section 7 of this report)* | 9.8 | 13.8 | 11.9 |
| **Screening** | | | | |
| Blood pressure check | *Proportion aged 50 years or over having a test in the past two years* | 93.2 | 93.9 | 93.6 |
| Cholesterol check | *Proportion aged 50 years or over having a test in the past two years* | 78.6 | 74.2 | 76.3 |
| Blood sugar test | *Proportion aged 50 years or over having a test in the past two years* | 67.6 | 64.9 | 66.2 |
| **Social networks and participation** | | | | |
| Attended a local community event in the past six months | | 52.2 | 56.2 | 54.2 |
| Member of a sports group | | 33.4 | 21.7 | 27.4 |
| Member of a church group | | 16.1 | 19.8 | 18.0 |
| Member of a school group | | 11.9 | 19.0 | 15.5 |
| Member of community or action group | | 25.6 | 20.3 | 22.9 |
| Member of a professional group or academic society | | 18.8 | 20.4 | 19.7 |
| Help out a local group as a volunteer** | | 34.3 | 36.0 | 35.1 |
| Can get help from friends when needed** | | 93.4 | 93.0 | 93.2 |
| Can get help from neighbours when needed** | | 71.6 | 71.0 | 71.3 |
| Can get help from family when needed** | | 93.6 | 92.9 | 93.3 |
| Enjoy living among people of different lifestyles** | | 90.6 | 90.2 | 90.4 |
| Feel multiculturalism makes life in area better** | | 78.8 | 81.0 | 79.9 |
| Feel valued by society** | | 81.5 | 83.8 | 82.6 |
| Feel they have an opportunity to have a say on issues that are important to them** | | 70.4 | 74.9 | 72.7 |
| Ability to raise $2000 within two days in an emergency | | 86.0 | 81.6 | 83.7 |

*\* Aged 18 years or over unless otherwise specified*

*\*\* Aggregated responses Yes, definitely and Sometimes*

# 2. Health and lifestyle

## 2.1 Introduction

A range of lifestyle behaviours influences the health status and health risk profile of individuals. Lifestyle related risk factors contribute significantly to the burden of disease in Australia via their effect on the onset, maintenance and prognosis of a variety of diseases and health conditions and their complications. The risk factors associated with health and lifestyle behaviours are largely avoidable or modifiable. As a result, there is considerable scope for health gain through early prevention or appropriate management.

This section presents information on four lifestyle related risk factors (poor nutrition, alcohol consumption, tobacco smoking and physical inactivity) and preventive health behaviours (screening and eye health checks). The 2005 survey is the first in which information relating to folate consumption among females aged 18–50 years has been collected.

Measuring and reporting on indicators of health and lifestyle behaviours provides an important platform for planning and evaluating public health programs that seek to reduce the risk profile of the population as a whole and/or segments of the population that are at higher risk. Because certain health and lifestyle behaviours can contribute to the development of various chronic diseases and their complications, the surveillance of risk factors helps predict levels and trends, and gives impetus to opportunities for early intervention.

## 2.2 Fruit and vegetable intake

Plant foods have been found to be protective in a range of health problems, including coronary heart disease, hypertension, some forms of cancer (including colon, lung and gastrointestinal cancers), obesity and non-insulin dependent diabetes.[1] Inadequate consumption of fruit and vegetables has been identified as a risk factor in the development of a number of chronic diseases, including coronary heart disease, stroke and many types of cancer, including cancers of the mouth, pharynx, oesophagus, stomach and lungs.

Evidence regarding the protective effect of vegetables is stronger than that for fruit, although this may be due to the limited range of fruit available in some populations and/or the greater amount of vegetables in most diets.[2] Nutritional needs differ at different stages of life. In particular, the intake of fruit and vegetables required for good nutrition varies slightly according to body size and physical activity level. Current Australian guidelines recommend a daily vegetable intake of three serves for persons aged 12–18 years and five serves for persons aged 19 years or over. The recommended daily fruit intake is three serves for persons aged 12–18 years and two serves for persons aged 19 years or over. The recommended number of fruit and vegetable servings is higher for pregnant and breastfeeding women.[3]

**Table 2.1: Recommended daily intake of fruit and vegetables**

| Consumption | Age group* | Recommended daily intake |
|---|---|---|
| Fruit | Persons aged 12–18 years | Three serves |
| | Persons aged 19 years or over | Two serves |
| Vegetables | Persons aged 12–18 years | Three serves |
| | Persons aged 19 years or over | Five serves |

*Excludes pregnant and breastfeeding women*

## Survey results

### Fruit and vegetable intake at a glance

In 2005:

- More than nine in 10 persons (90.1 per cent) in Victoria did not meet the healthy eating guidelines for vegetable intake.

- More than half of all Victorians (54.2 per cent) consumed only one or two serves of vegetables per day.

- A greater proportion of females (12.9 per cent) than males (6 per cent) consumed the recommended minimum daily five serves of vegetables.

- More persons living in non-metropolitan areas (11.7 per cent) met the recommended daily intake of vegetables than those living in metropolitan areas (8.7 per cent).

- Almost six in 10 females (58.3 per cent) consumed two or more serves of fruit each day.

- The proportion of females who consumed at least two serves of fruit per day was highest among females aged 55 years or over.

- Over half of all males aged 18 years or over consumed less than two serves of fruit per day.

- Less than five in 100 males (4.4 per cent) compared with 10.2 per cent of females, consumed the minimum recommended quantities of both fruit and vegetables each day.

### Vegetable consumption

Of all persons aged 18 years or over, 9.5 per cent usually consumed five or more serves of vegetables each day (table 2.2). A greater proportion of females than males consumed the recommended number of daily serves of vegetables (12.9 per cent and 6 per cent respectively). Persons aged 55–64 years were found to be the largest consumers of vegetables, with 19.1 per cent of females and 8.6 per cent of males in this age group consuming five or more serves daily (tables 2.4 and 2.5). The majority of males aged 18–64 years consumed only one or two serves of vegetables daily. Males aged 18–24 years were found to be the least likely to consume five or more serves of vegetables daily, with only 3.1 per cent doing so (table 2.4). Among females, 5.4 per cent of those aged 18–24 years reported eating the recommended quantity of vegetables each day (figure 2.2). The majority of females aged 45 years or over reported consuming three or more serves of vegetables each day.

**Figure 2.1: Daily vegetable consumption, 2002–05**
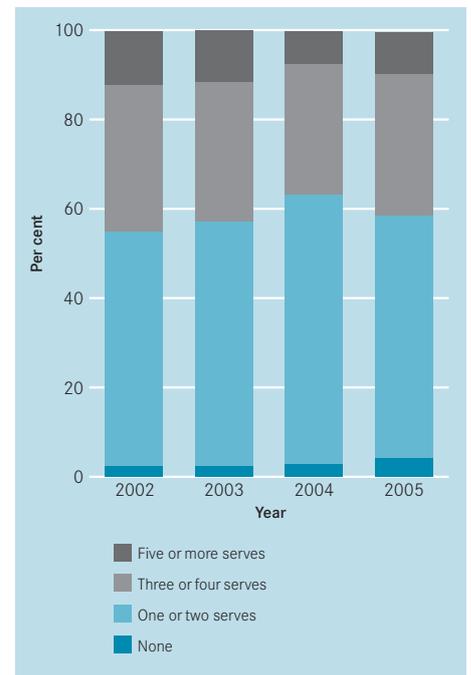


**Table 2.2: Daily vegetable consumption, 2002–05**

| Serves* | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| None | 2.4 | 0.2 | 2.4 | 0.2 | 2.7 | 0.3 | 4.2 | 0.3 |
| One or two serves | 52.5 | 0.8 | 54.6 | 0.8 | 60.4 | 0.8 | 54.2 | 0.8 |
| Three or four serves | 32.6 | 0.7 | 31.4 | 0.7 | 29.2 | 0.7 | 31.7 | 0.7 |
| Five or more serves | 12.2 | 0.5 | 11.4 | 0.5 | 7.0 | 0.4 | 9.5 | 0.4 |

*A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Table 2.3: Daily vegetable consumption, by sex**

| Serves* | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) |
| None | 5.1 | 0.5 | 3.3 | 0.4 | 4.2 | 0.3 |
| One or two serves | 63.5 | 1.2 | 45.4 | 1.0 | 54.2 | 0.8 |
| Three or four serves | 24.9 | 1.1 | 38.2 | 1.0 | 31.7 | 0.7 |
| Five or more serves | 6.0 | 0.6 | 12.9 | 0.6 | 9.5 | 0.4 |

*\* A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Table 2.4: Daily vegetable consumption, by age–males**

| Age group (years) | Serves* | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | None | | 1–2 | | 3–4 | | 5+ | |
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 5.7 | 1.6 | 69.5 | 3.6 | 20.2 | 3.2 | 3.1 | 1.1 |
| 25–34 | 4.6 | 1.4 | 69.9 | 3.5 | 19.6 | 2.9 | 5.9 | 2.1 |
| 35–44 | 5.7 | 1.4 | 68.8 | 2.5 | 19.5 | 2.1 | 5.4 | 1.3 |
| 45–54 | 5.5 | 1.1 | 60.7 | 2.5 | 27.5 | 2.3 | 5.7 | 1.1 |
| 55–64 | 3.9 | 1.2 | 55.3 | 2.7 | 32.2 | 2.6 | 8.6 | 1.5 |
| 65+ | 5.0 | 1.1 | 54.1 | 2.4 | 32.8 | 2.2 | 7.7 | 1.3 |

*\* A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Table 2.5: Daily vegetable consumption, by age–females**

| Age group (years) | Serves* | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | None | | 1–2 | | 3–4 | | 5+ | |
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 6.1 | 2.1 | 48.5 | 3.8 | 39.5 | 3.8 | 5.4 | 1.6 |
| 25–34 | 2.1 | 0.8 | 60.1 | 2.6 | 28.3 | 2.3 | 9.2 | 1.5 |
| 35–44 | 3.2 | 0.9 | 47.7 | 2.1 | 37.5 | 2.0 | 11.6 | 1.3 |
| 45–54 | 2.9 | 0.7 | 41.2 | 2.1 | 41.0 | 2.1 | 14.8 | 1.5 |
| 55–64 | 3.4 | 0.9 | 34.9 | 2.2 | 42.6 | 2.2 | 19.1 | 1.7 |
| 65+ | 2.8 | 0.6 | 37.8 | 2.0 | 42.0 | 2.0 | 16.6 | 1.5 |

*\* A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Figure 2.2: Daily vegetable consumption, by age–males**
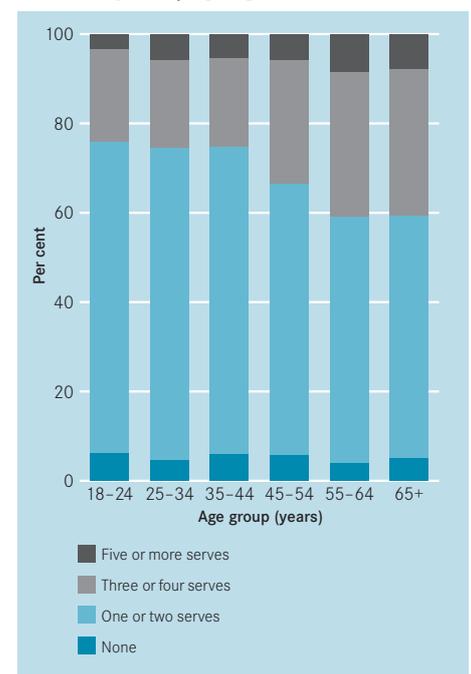


**Figure 2.3: Daily vegetable consumption, by age–females**
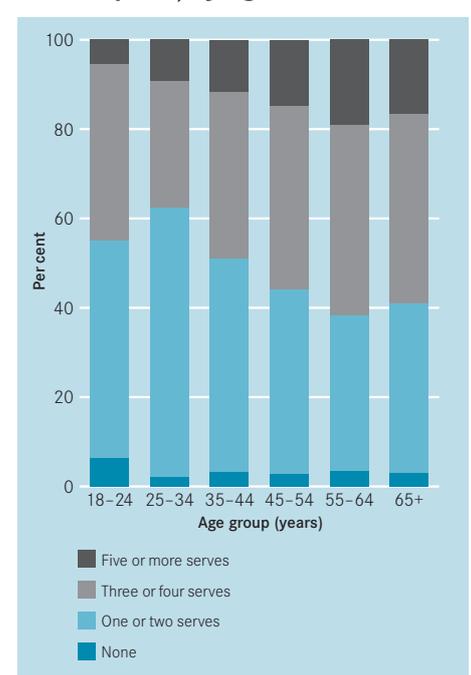
**Table 2.6: Daily vegetable consumption, by area of Victoria**

| | Serves* | | | | | | | |
| | None | | 1–2 | | 3–4 | | 5+ | |
| Area | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
|---|---|---|---|---|---|---|---|---|
| Metropolitan | 4.6 | 0.4 | 55.5 | 1.0 | 30.7 | 0.9 | 8.7 | 0.6 |
| Non-metropolitan | 2.9 | 0.3 | 50.7 | 0.9 | 34.5 | 0.8 | 11.7 | 0.5 |

*A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Table 2.7: Daily fruit consumption, 2002–05**

| | 2002 | | 2003 | | 2004 | | 2005 | |
| Serves* | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
|---|---|---|---|---|---|---|---|---|
| None | 10.6 | 0.5 | 12.3 | 0.6 | 11.5 | 0.5 | 13.5 | 0.5 |
| One serve | 34.4 | 0.8 | 36.6 | 0.9 | 36.2 | 0.8 | 35.4 | 0.8 |
| Two or more serves | 54.8 | 0.8 | 50.9 | 1.0 | 51.6 | 0.8 | 51.0 | 0.8 |

*A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Table 2.8: Daily fruit consumption, by sex**

| | Males | | Females | | Persons | |
| Serves* | % | SE (%) | % | SE (%) | % | SE (%) |
|---|---|---|---|---|---|---|
| None | 17.2 | 0.9 | 10.0 | 0.6 | 13.5 | 0.5 |
| One serve | 39.4 | 1.2 | 31.6 | 0.9 | 35.4 | 0.8 |
| Two or more serves | 43.3 | 1.3 | 58.3 | 1.0 | 51.0 | 0.8 |

*A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Fruit consumption**

Over half (51.0 per cent) of all persons aged 18 years or over consumed two or more serves of fruit daily (table 2.7). The proportion who met the recommended level of fruit consumption each day was greater among females (58.3 per cent) than among males (43.3 per cent) and this pattern was evident in every age group (tables 2.8–2.10).

Among males, those aged 65 years or over were most likely to consume the recommended level, with 45.0 per cent having two or more serves each day (table 2.9). The consumption of fruit equal to the recommended two serves or more per day was highest (66.5 per cent) among females aged 55–64 years (table 2.10). The proportion of individuals who did not consume fruit was highest in the age group 18–24 years for males (20.8 per cent) and in the 35–44 year age group for females (11.1 per cent).

**Figure 2.4: Daily fruit consumption, 2002–05**
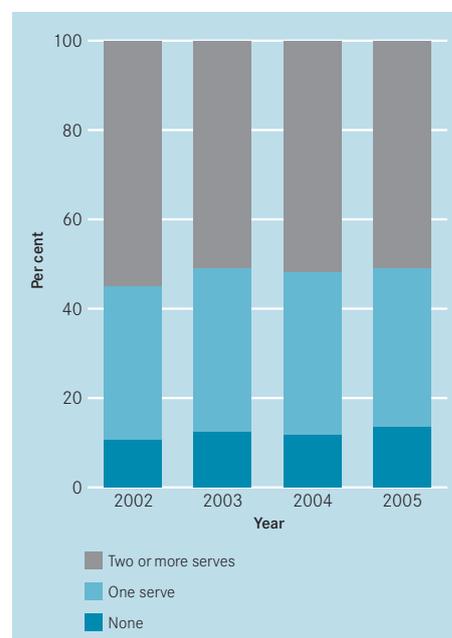
**Table 2.9: Daily fruit consumption, by age–males**

| Age group (years) | Serves* | | | | | |
| | None | | One serve | | Two or more serves | |
| | % | SE (%) | % | SE (%) | % | SE (%) |
|---|---|---|---|---|---|---|
| 18–24 | 20.8 | 3.0 | 35.4 | 3.9 | 43.3 | 4.0 |
| 25–34 | 13.8 | 2.2 | 43.9 | 3.7 | 42.4 | 3.8 |
| 35–44 | 19.9 | 2.2 | 37.2 | 2.7 | 43.0 | 2.8 |
| 45–54 | 18.1 | 1.9 | 39.6 | 2.5 | 42.2 | 2.5 |
| 55–64 | 19.4 | 2.1 | 36.0 | 2.6 | 44.6 | 2.7 |
| 65+ | 11.8 | 1.5 | 43.1 | 2.3 | 45.0 | 2.3 |

*A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Table 2.10: Daily fruit consumption, by age–females**

| Age group (years) | Serves* | | | | | |
| | None | | One serve | | Two or more serves | |
| | % | SE (%) | % | SE (%) | % | SE (%) |
|---|---|---|---|---|---|---|
| 18–24 | 10.9 | 2.3 | 32.4 | 3.5 | 56.6 | 3.7 |
| 25–34 | 10.5 | 1.5 | 36.2 | 2.6 | 53.3 | 2.7 |
| 35–44 | 11.1 | 1.3 | 34.7 | 2.0 | 54.2 | 2.1 |
| 45–54 | 10.5 | 1.3 | 30.0 | 2.0 | 59.4 | 2.1 |
| 55–64 | 8.9 | 1.2 | 24.5 | 2.0 | 66.5 | 2.2 |
| 65+ | 8.1 | 1.1 | 29.9 | 2.0 | 62.0 | 2.0 |

*A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Table 2.11: Daily fruit consumption, by area of Victoria**

| Area | Serves* | | | | | |
| | None | | One serve | | Two or more serves | |
| | % | SE (%) | % | SE (%) | % | SE (%) |
|---|---|---|---|---|---|---|
| Metropolitan | 12.8 | 0.7 | 35.2 | 1.0 | 52.0 | 1.1 |
| Non-metropolitan | 15.3 | 0.7 | 36.1 | 0.9 | 48.4 | 0.9 |

*A serve is half a cup of cooked vegetables or a cup of salad vegetables*
*SE = standard error*

**Figure 2.5: Daily fruit consumption, by age–males**
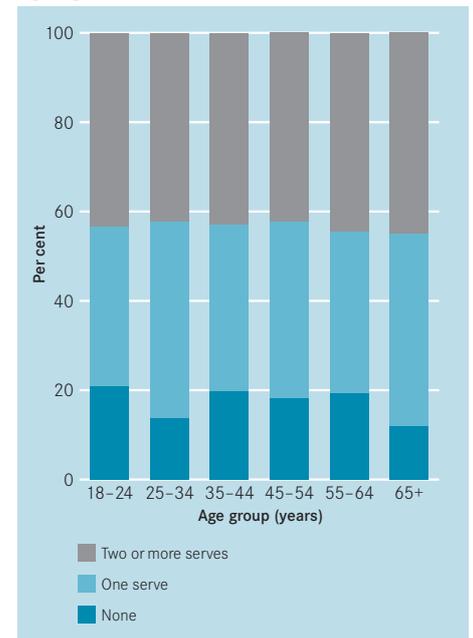


**Figure 2.6: Daily fruit consumption, by age–females**

**Combined fruit and vegetable consumption**

The proportion of persons aged 18 years or over in Victoria who met the dietary guidelines for both fruit and vegetable intake was low: 4.4 per cent of males and 10.2 per cent of females (table 2.12). The extent to which respondents met recommended fruit and vegetable consumption was higher among females than among males in all age groups. More than half of all males aged 18 years or over (54.7 per cent) did not consume the recommended number of servings of either fruit or vegetables.

**Factors associated with not consuming fruit and vegetables**

After adjusting for differences in age and sex (table 2.13) those persons most likely to be classified as not consuming the recommended number of daily serves of fruit and vegetables were those with lower levels of education, smokers, those born overseas, those with lower household incomes, those having poorer self-rated health and those categorised as being sedentary or having insufficient physical activity levels.

**Table 2.12: Meeting guidelines for consumption of fruit and/or vegetables**

| Age group (years) | Fruit and vegetables | | Vegetables only, not fruit | | Fruit only, not vegetables | | Neither fruit nor vegetables | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Males** | | | | | | | | |
| 18–24 | 2.6 | 1.1 | 0.5 | 0.3 | 39.8 | 4.0 | 55.5 | 4.0 |
| 25–34 | 5.4 | 2.0 | 0.5 | 0.3 | 37.0 | 3.7 | 57.1 | 3.8 |
| 35–44 | 3.6 | 1.1 | 1.8 | 0.7 | 39.1 | 2.7 | 54.9 | 2.8 |
| 45–54 | 3.6 | 0.9 | 2.2 | 0.6 | 38.5 | 2.5 | 55.0 | 2.5 |
| 55–64 | 6.1 | 1.3 | 2.5 | 0.8 | 38.5 | 2.7 | 52.9 | 2.7 |
| 65+ | 4.9 | 1.0 | 2.8 | 0.8 | 39.7 | 2.3 | 52.1 | 2.4 |
| Total | 4.4 | 0.6 | 1.7 | 0.3 | 38.7 | 1.2 | 54.7 | 1.3 |
| **Females** | | | | | | | | |
| 18–24 | 3.5 | 1.2 | 1.9 | 1.1 | 53.2 | 3.8 | 41.0 | 3.7 |
| 25–34 | 7.0 | 1.4 | 2.2 | 0.6 | 46.4 | 2.7 | 44.2 | 2.7 |
| 35–44 | 9.4 | 1.2 | 2.2 | 0.5 | 44.8 | 2.1 | 43.6 | 2.1 |
| 45–54 | 12.6 | 1.5 | 2.1 | 0.5 | 46.6 | 2.2 | 38.4 | 2.1 |
| 55–64 | 14.1 | 1.5 | 4.9 | 0.9 | 52.4 | 2.3 | 28.4 | 2.1 |
| 65+ | 13.5 | 1.3 | 3.1 | 0.6 | 48.1 | 2.0 | 34.6 | 2.0 |
| Total | 10.2 | 0.6 | 2.7 | 0.3 | 48.1 | 1.0 | 38.8 | 1.0 |
| **Persons** | | | | | | | | |
| 18–24 | 3.1 | 0.8 | 1.2 | 0.5 | 46.4 | 2.8 | 48.3 | 2.8 |
| 25–34 | 6.2 | 1.2 | 1.3 | 0.3 | 41.7 | 2.3 | 50.6 | 2.3 |
| 35–44 | 6.5 | 0.8 | 2.0 | 0.4 | 41.9 | 1.7 | 49.2 | 1.7 |
| 45–54 | 8.2 | 0.9 | 2.2 | 0.4 | 42.6 | 1.7 | 46.6 | 1.7 |
| 55–64 | 10.1 | 1.0 | 3.7 | 0.6 | 45.5 | 1.8 | 40.6 | 1.8 |
| 65+ | 9.7 | 0.9 | 3.0 | 0.5 | 44.4 | 1.5 | 42.3 | 1.5 |
| Total | 7.3 | 0.4 | 2.2 | 0.2 | 43.5 | 0.8 | 46.6 | 0.8 |

*SE = standard error*

**Table 2.13: Non–consumption of recommended daily intake of fruit and vegetables, by selected variables**

| Area of Victoria | Odds ratio | 95% confidence interval | | p value |
| --- | --- | --- | --- | --- |
| | | Lower level | Upper level | |
| Metropolitan | 1.00 | – | – | – |
| Non-metropolitan | 0.88 | 0.72 | 1.07 | 0.200 |
| **Country of birth** | | | | |
| Australia | 1.00 | – | – | – |
| Overseas | 1.44 | 1.06 | 1.97 | 0.019 |
| **Education level** | | | | |
| Tertiary | 1.00 | – | – | – |
| Secondary | 1.39 | 1.10 | 1.76 | 0.005 |
| Primary | 2.96 | 1.59 | 5.53 | 0.001 |
| **Occupation** | | | | |
| Professional | 1.00 | – | – | – |
| Non-professional | 1.27 | 0.90 | 1.80 | 0.180 |
| **Employment status** | | | | |
| Employed | 1.00 | – | – | – |
| Unemployed | 1.76 | 0.76 | 4.08 | 0.189 |
| Not in the labour force | 1.16 | 0.90 | 1.51 | 0.234 |
| **Household income per year** | | | | |
| Greater than or equal to $60,000 | 1.00 | – | – | – |
| From $40,000 to less than $60,000 | 1.38 | 0.96 | 1.99 | 0.079 |
| From $20,000 to less than $40,000 | 1.30 | 0.95 | 1.77 | 0.104 |
| Less than $20,000 | 1.84 | 1.34 | 2.52 | <0.001 |
| **Private health insurance** | | | | |
| Yes | 1.00 | – | – | – |
| No | 1.54 | 1.23 | 1.96 | <0.001 |
| **Dwelling ownership** | | | | |
| Owned | 1.00 | – | – | – |
| Rented | 1.37 | 0.94 | 2.01 | 0.104 |
| **Smoking status** | | | | |
| Non-smoker | 1.00 | – | – | – |
| Ex-smoker | 0.85 | 0.64 | 1.13 | 0.265 |
| Smoker | 1.79 | 1.21 | 2.66 | 0.004 |
| **Physical Activity** | | | | |
| Sufficient | 1.00 | – | – | – |
| Sedentary/insufficient | 2.03 | 1.52 | 2.74 | <0.001 |
| **Self-rated health** | | | | |
| Excellent/very good | 1.00 | – | – | – |
| Good | 1.76 | 1.35 | 2.29 | <0.001 |
| Fair/poor | 1.64 | 1.22 | 2.21 | 0.001 |

*– Not applicable*

**Figure 2.7: Usual daily consumption of fruit and vegetables in relation to recommended serves, by age–males**



Fruit and vegetables
Vegetables only, not fruit
Fruit only, not vegetables
Neither fruit nor vegetables
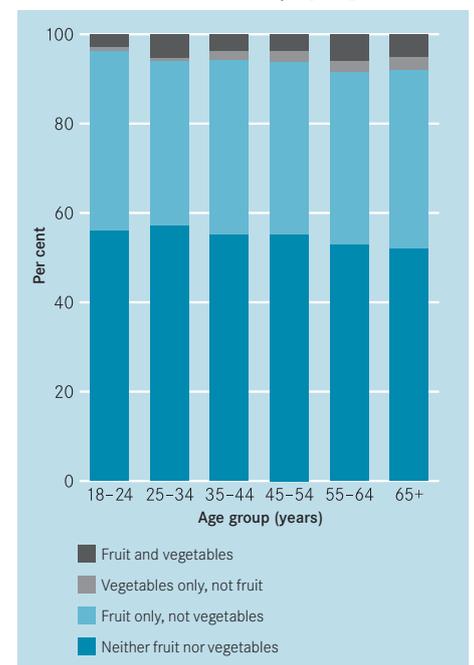
**Figure 2.8: Usual daily consumption of fruit and vegetables in relation to recommended serves, by age–females**



Fruit and vegetables
Vegetables only, not fruit
Fruit only, not vegetables
Neither fruit nor vegetables
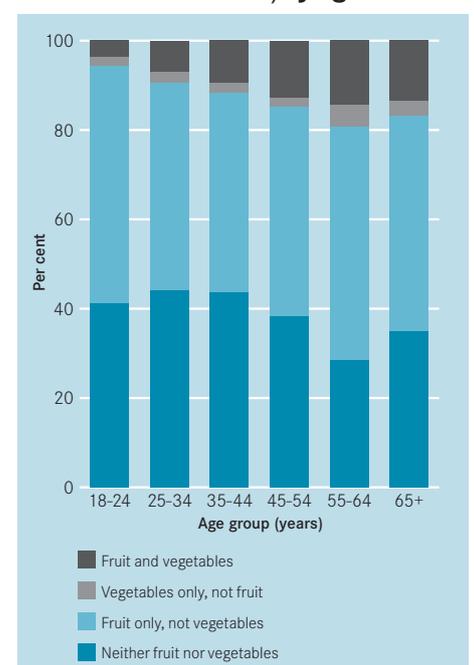
## 2.3 Milk consumption

Choosing a low fat or reduced fat milk or yoghurt or calcium fortified soy beverage is recommended for healthy eating.[6]

### Survey results

Over half (56.5 per cent) of all persons consumed low fat, skim or soy milk , with 37.9 per cent consuming low or reduced fat milk (table 2.14). A higher proportion of males (43.7 per cent) than females (29.8 per cent) usually consumed whole milk. A similar proportion of males and females reported they did not drink milk (5.5 per cent and 5 per cent respectively).

**Figure 2.9: Type of milk consumed, by sex**



## 2.4 Consumption of breads and cereals

Cereal grains are generally an excellent source of carbohydrates and dietary fibre, as well as an important source of protein. In addition, they are low in fat and are good sources of B–group vitamins, vitamin E and many minerals including iron, zinc, magnesium and phosphorus. Cereal grains form the basis of diets in many cultures and cuisines. Enough cereal foods help ensure an adequate nutritional intake. The frequency with which individuals eat pasta, rice, noodles or other cooked cereals (not including cooked breakfast cereals) is an indicator of the consumption of carbohydrates and dietary fibre.

### Survey results

Approximately 5 per cent of males and females (4.6 per cent and 5.1 per cent respectively) reported that they ate pasta, rice, noodles or other cooked cereals (excluding breakfast cereals) either rarely or never. The proportion of males and females who indicated that they ate rice, pasta, or other cooked cereals between one and three times per week was similar (see figure 2.10).

**Table 2.14: Type of milk usually consumed**

| | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| Type of milk | % | SE (%) | % | SE (%) | % | SE (%) |
| Whole fat | 43.7 | 1.3 | 29.8 | 0.9 | 36.6 | 0.8 |
| Low or reduced fat | 34.5 | 1.2 | 41.1 | 1.0 | 37.9 | 0.8 |
| Skim | 10.8 | 0.8 | 16.2 | 0.7 | 13.6 | 0.5 |
| Soya | 3.8 | 0.5 | 6.1 | 0.5 | 5.0 | 0.4 |
| Other* | 1.4 | 0.3 | 1.3 | 0.2 | 1.4 | 0.2 |
| Don't drink milk | 5.5 | 0.6 | 5.0 | 0.5 | 5.3 | 0.4 |

*\* Includes lactose free milk*
*SE = standard error*

**Figure 2.10: Weekly intake of pasta/ rice, by sex**
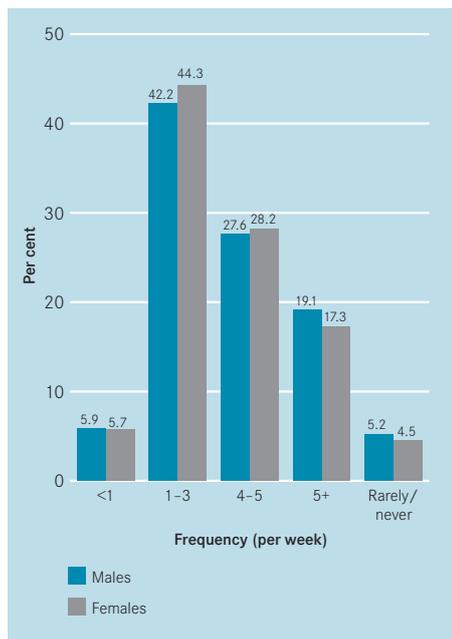


## 2.5 Alcohol consumption

At low or moderate levels, the consumption of alcohol yields health benefits for some people. In particular, it may help reduce the risk of heart disease from middle age. Regular excessive consumption of alcohol over time, however, places people at increased risk of chronic ill health and premature death, and episodes of heavy drinking may place the drinker (and others) at risk of injury or death. The consequences of heavy, regular use of alcohol may include cirrhosis of the liver, cognitive impairment, heart and blood disorders, ulcers, cancers and damage to the pancreas. Intoxication and acute alcohol related problems include violence, risky behaviour, road trauma and injury. Significant psychosocial and economic consequences also arise from such patterns of drinking, not only for the individuals concerned but also for their families and the wider community.[7]

Excessive alcohol consumption accounts for an estimated 4.9 per cent of the total burden of disease for Australia. Allowing for the beneficial effects of low to moderate levels of alcohol, the net harm associated with alcohol consumption accounts for around 2.2 per cent of the total burden of disease.[8] *The Australian alcohol guidelines: health risks and benefits*[9] emphasise patterns of drinking as opposed to levels of consumption (the average amount consumed). The concept

of drinking patterns refers to aspects of drinking behaviour other than the level of drinking, including the context or circumstances of drinking (when, where and with whom the drinking behaviour occurs), the types of drink consumed, the number of heavy drinking occasions and their characteristics, and the norms associated with drinking behaviour. Two main patterns of drinking have been identified as creating a risk to an individual's health:

1. excessive alcohol intake on a particular occasion; and

2. consistent high level intake over months and years.

The guidelines specify the risks for various drinking levels for males and females of average or larger than average body size (60+ kilograms for males and 50+ kilograms for females) in the short term and the long term for the whole population (table 2.15). Risk is categorised according to three levels:

1. low risk–a level of drinking at which the risk of harm is minimal and there are possible benefits for some of the population;

2. risky–a level of drinking at which the risk of harm outweighs any possible benefit; and

3. high risk–a level of drinking at which there is substantial risk of serious harm and above which risk increases rapidly.

## Survey results

### Alcohol consumption at a glance

- A higher proportion of females (22.3 per cent) than males (15 per cent) were categorised as recent or longer term abstainers (table 2.16).

- A higher proportion of males (13.3 per cent) than females (6.4 per cent) were categorised as consuming alcohol at least weekly at risky or high risk levels (table 2.17).

- Almost one quarter of males (24 per cent) and more than one fifth (20.3 per cent) of females drank alcohol at risky or high risk levels on at least one occasion per year (table 2.17).

### Abstainers from alcohol

Persons who had not had an alcoholic drink of any kind in the 12 months before the survey were classified as abstainers. Persons who had had an alcoholic drink during the previous year but who indicated they no longer drink were classified as recent abstainers. A lower proportion of males than females were categorised as recent or longer term abstainers (table 2.16). The proportion of females who abstained from alcohol increased with age, from a low of 12.5 per cent among those aged 18–24 years to a high of 28.2 per cent among those aged 65 years or over. Almost one in five males aged 65 years or over (19.5 per cent) were classified as recent or long term abstainers from alcohol.

**Table 2.15: Australian alcohol guidelines for risk to health in the short term***

|  | Low risk | Risky | High risk |
|---|---|---|---|
| Males | Up to six on any one day; no more than three days per week | Seven to 10 on any one day | 11 or more on any one day |
| Females | Up to four on any one day; no more than three days per week | Five to six on any one day | Seven or more on any one day |

*\* Quantities in standard drinks*

**Table 2.16: Total abstainers from alcohol consumption*, by age**

| Age group (years) | Males % | SE (%) | Females % | SE (%) | Persons % | SE (%) |
|---|---|---|---|---|---|---|
| 18–24 | 14.2 | 3.0 | 10.8 | 2.5 | 12.5 | 1.9 |
| 25–34 | 16.8 | 3.0 | 21.0 | 2.2 | 18.9 | 1.9 |
| 35–44 | 15.0 | 2.2 | 19.3 | 1.7 | 17.2 | 1.4 |
| 45–54 | 10.5 | 1.5 | 18.7 | 1.7 | 14.7 | 1.1 |
| 55–64 | 14.0 | 2.0 | 25.7 | 2.1 | 19.9 | 1.5 |
| 65+ | 19.5 | 1.8 | 35.2 | 2.0 | 28.2 | 1.4 |
| Total | 15.0 | 1.0 | 22.3 | 0.8 | 18.8 | 0.6 |

*\* Includes those who had had a drink in the previous 12 months but who no longer drink (recent abstainers)*
*SE = standard error*

**Table 2.17: Frequency of drinking alcohol at above short-term risk level, by sex 2002–05**

|  | 2002 % | SE (%) | 2003 % | SE (%) | 2004 % | SE (%) | 2005 % | SE (%) |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| *Low risk* | 30.1 | 1.1 | 30.8 | 1.1 | 31.0 | 1.1 | 31.2 | 1.1 |
| *Risky and high risk* | | | | | | | | |
| At least yearly | 25.8 | 1.1 | 24.4 | 1.1 | 24.4 | 1.1 | 24.0 | 1.1 |
| At least monthly | 17.8 | 0.9 | 17.7 | 0.9 | 15.1 | 0.9 | 16.2 | 1.0 |
| At least weekly | 14.3 | 0.9 | 14.6 | 0.8 | 16.4 | 0.9 | 13.3 | 0.9 |
| **Females** | | | | | | | | |
| *Low risk* | 40.2 | 1.0 | 40.0 | 1.0 | 37.6 | 0.9 | 39.8 | 1.0 |
| *Risky and high risk* | | | | | | | | |
| At least yearly | 20.7 | 0.8 | 19.6 | 0.8 | 22.5 | 0.8 | 20.3 | 0.8 |
| At least monthly | 11.1 | 0.7 | 11.4 | 0.7 | 10.2 | 0.6 | 10.8 | 0.7 |
| At least weekly | 6.0 | 0.5 | 6.2 | 0.5 | 7.2 | 0.5 | 6.4 | 0.6 |

## Short-term risk from alcohol consumption

For the purpose of determining the risk of alcohol related harm, the short-term risk is defined in terms of the number of standard drinks consumed per drinking occasion (table 2.15). The guidelines for the whole population indicate that males who drink up to six standard drinks and females who drink up to four standard drinks are at *low risk* of alcohol related harm in the short term. Males who drink 11 or more drinks and females who consume seven or more drinks when they consume alcohol are categorised as being at *high risk*. Between these levels, alcohol consumption behaviour is classified as risky in the short term. In specifying these short-term risks, it is assumed that heavier drinking days occur on a maximum of three occasions per week and remain within the levels of long-term harm.[9] The term binge drinking has been identified with a pattern of behaviour that involves drinking too much alcohol on infrequent occasions.

## Survey results

Table 2.18 shows the frequency at which persons consumed alcohol above the recommended short-term risk levels. A higher proportion of males than females (13.3 per cent and 6.4 per cent respectively) were categorised as consuming alcohol at least weekly at risky or high risk levels. The prevalence of drinking alcohol at least weekly at risky or high risk levels was greatest among males and females aged 18–24 years (21.5 per cent and 17.1 per cent respectively). For the age group 65 years or over, 3.8 per cent of males and 1.7 per cent of females drank at least weekly at risky or high risk levels.

**Table 2.18: Frequency of drinking alcohol at above short-term risk levels, by age and sex**

| Age group (years) | | | Risky or high risk | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Low risk | | At least yearly | | At least monthly | | At least weekly | |
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Males** | | | | | | | | |
| 18–24 | 13.5 | 2.8 | 23.9 | 3.5 | 27.0 | 3.6 | 21.5 | 3.1 |
| 25–34 | 19.6 | 3.1 | 28.3 | 3.4 | 20.6 | 2.9 | 14.6 | 2.5 |
| 35–44 | 21.7 | 2.2 | 30.6 | 2.5 | 17.8 | 2.0 | 14.5 | 2.0 |
| 45–54 | 35.5 | 2.5 | 25.5 | 2.2 | 12.4 | 1.6 | 15.8 | 1.9 |
| 55–64 | 42.8 | 2.7 | 20.5 | 2.2 | 12.8 | 1.8 | 9.1 | 1.5 |
| 65+ | 57.7 | 2.3 | 11.6 | 1.4 | 7.0 | 1.2 | 3.8 | 0.7 |
| *Total* | 31.2 | 1.1 | 24.0 | 1.1 | 16.2 | 1.0 | 13.3 | 0.9 |
| **Females** | | | | | | | | |
| 18–24 | 21.0 | 3.2 | 24.8 | 3.2 | 26.3 | 3.4 | 17.1 | 2.8 |
| 25–34 | 29.8 | 2.4 | 27.6 | 2.3 | 10.8 | 1.6 | 10.7 | 1.8 |
| 35–44 | 37.9 | 2.0 | 26.7 | 1.8 | 10.4 | 1.2 | 5.1 | 0.9 |
| 45–54 | 44.8 | 2.2 | 20.9 | 1.8 | 11.0 | 1.5 | 4.1 | 0.9 |
| 55–64 | 51.3 | 2.3 | 13.2 | 1.5 | 7.4 | 1.2 | 2.2 | 0.5 |
| 65+ | 51.4 | 2.0 | 8.0 | 1.2 | 3.4 | 0.8 | 1.7 | 0.5 |
| *Total* | 39.8 | 1.0 | 20.3 | 0.8 | 10.8 | 0.7 | 6.4 | 0.6 |
| **Persons** | | | | | | | | |
| 18–24 | 17.2 | 2.1 | 24.3 | 2.4 | 26.6 | 2.5 | 19.3 | 2.1 |
| 25–34 | 24.8 | 2.0 | 28.0 | 2.0 | 15.7 | 1.7 | 12.6 | 1.5 |
| 35–44 | 29.9 | 1.5 | 28.7 | 1.5 | 14.1 | 1.2 | 9.8 | 1.1 |
| 45–54 | 40.2 | 1.7 | 23.2 | 1.4 | 11.7 | 1.1 | 9.9 | 1.0 |
| 55–64 | 47.0 | 1.8 | 16.8 | 1.3 | 10.1 | 1.1 | 5.6 | 0.8 |
| 65+ | 54.2 | 1.5 | 9.6 | 0.9 | 5.0 | 0.7 | 2.6 | 0.4 |
| *Total* | 35.6 | 0.7 | 22.1 | 0.7 | 13.4 | 0.6 | 9.8 | 0.5 |

*Risk levels are defined in terms of the number of standard drinks per drinking occasion (subject to qualifications for specific population groups) and differ for males and females. For males, the risk categories are: low risk–less than six standard drinks per day, risky–seven to 10 standard drinks per day, and high risk–11 or more standard drinks per day. For females, the corresponding thresholds are: low risk–less than four standard drinks per day, risky–five to six standard drinks per day, and high risk–seven or more standard drinks per day.*

*SE = standard error*

The proportion of males who drank at least yearly at above short-term risk levels ranged from a high of 30.6 per cent in the age group 35–44 years to a low of 11.6 per cent of those aged 65 years or over. Among females, 27.6 per cent of those aged 25–34 years drank at least yearly at above low risk levels. The proportion of females aged 65 years or over who drank at least yearly at short-term risky or high risk levels was 8 per cent.

## Long-term risk from alcohol consumption

Long-term risk of poor health outcomes due to alcohol consumption is associated with regular daily patterns of drinking, defined in terms of the amount of alcohol typically consumed each week. *The Australian alcohol guidelines* indicate that males are at high risk of long-term alcohol related health problems if they consume seven or more drinks on an average day or more than 43 standard drinks per week (table 2.19). For females, high risk of long-term problems is associated with the consumption of five or more standard drinks on an average day or more than 29 drinks per week. Alcohol consumption is classified as risky in the long term if males consume five to six drinks on an average day (29–42 per week) and if females consume more than three to four drinks daily (15–28 per week).

**Table 2.19: Australian alcohol guidelines for long–term drinking and the level of risk to health**

| | Risk of harm in the long term* | | |
| | Low risk | Risky | High risk |
|---|---|---|---|
| **Males** | | | |
| On an average day | Up to four per day | Five to six per day | Seven or more per day |
| Overall weekly level | Up to 28 per week | 29–42 per week | 43 or more per week |
| **Females** | | | |
| On an average day | Up to two per day | Three to four per day | Five or more per day |
| Overall weekly level | Up to 14 per week | 15–28 per week | 29 or more per week |

*\* Based on a standard drink containing 10 grams or 12.5 milliliters of alcohol*
*Source: National Health and Medical Research Council 2001, Australian alcohol guidelines: health risks and benefits, Canberra.*

**Table 2.20: Long term risk of alcohol related harm, by age and sex**

| | Low risk | | Risky | | High risk | |
| Age group (years) | % | SE (%) | % | SE (%) | % | SE (%) |
|---|---|---|---|---|---|---|
| **Males** | | | | | | |
| 18–24 | 83.0 | 3.1 | 1.4 | 0.6 | 1.4 | 0.7 |
| 25–34 | 79.1 | 3.1 | 2.8 | 0.9 | 0.7 | 0.3 |
| 35–44 | 79.3 | 2.4 | 4.5 | 1.2 | 0.7 | 0.5 |
| 45–54 | 83.4 | 1.8 | 4.7 | 1.1 | 1.1 | 0.4 |
| 55–64 | 81.2 | 2.2 | 2.3 | 0.7 | 1.7 | 0.7 |
| 65+ | 76.4 | 2.0 | 3.0 | 0.8 | 0.7 | 0.4 |
| *Total* | 80.3 | 1.0 | 3.3 | 0.4 | 1.0 | 0.2 |
| **Females** | | | | | | |
| 18–24 | 86.3 | 2.6 | 1.3 | 0.7 | 1.2 | 0.7 |
| 25–34 | 74.2 | 2.4 | 3.6 | 1.2 | 0.8 | 0.5 |
| 35–44 | 77.6 | 1.8 | 2.4 | 0.6 | 0.4 | 0.2 |
| 45–54 | 77.7 | 1.8 | 2.0 | 0.5 | 0.9 | 0.3 |
| 55–64 | 70.5 | 2.1 | 2.9 | 0.7 | 0.6 | 0.3 |
| 65+ | 62.0 | 2.0 | 2.3 | 0.6 | 0.1 | 0.0 |
| *Total* | 74.2 | 0.9 | 2.5 | 0.3 | 0.6 | 0.2 |
| **Persons** | | | | | | |
| 18–24 | 84.6 | 2.0 | 1.4 | 0.5 | 1.3 | 0.5 |
| 25–34 | 76.6 | 2.0 | 3.2 | 0.7 | 0.8 | 0.3 |
| 35–44 | 78.4 | 1.5 | 3.5 | 0.7 | 0.6 | 0.3 |
| 45–54 | 80.5 | 1.3 | 3.3 | 0.6 | 1.0 | 0.3 |
| 55–64 | 75.9 | 1.5 | 2.6 | 0.5 | 1.2 | 0.4 |
| 65+ | 68.3 | 1.4 | 2.6 | 0.5 | 0.4 | 0.2 |
| *Total* | 77.1 | 0.7 | 2.9 | 0.3 | 0.8 | 0.1 |

*SE = standard error*

## Survey results

The quantity/frequency method was used to estimate the proportion of the population drinking at long-term risky or high risk levels. This method combines the data on how often respondents usually had an alcoholic drink of any kind with data on the number of standard drinks that respondents usually had on a day when consuming an alcoholic drink. More than 5 per cent of males aged 35–54 years engaged in drinking at levels considered to be risky or high risk in terms of long-term health consequences. Among females, about 4.4 per cent of those aged 25–34 years reported drinking at levels associated with risky or high risk in the long term (table 2.20).

## 2.6 Smoking

Smoking tobacco is a major risk factor for coronary heart disease, stroke, peripheral vascular disease, numerous cancers and a range of other diseases and conditions. Smoking is also of concern during pregnancy, when a strong effect of smoking on foetal growth has been observed. Evidence links maternal smoking during pregnancy with an increased risk of sudden infant death syndrome, while household exposure to tobacco smoke has an independent additive effect.[9]

**Table 2.21: Smoking status, by age and sex**

|  | Current smoker* | | Ex-smoker | | Non-smoker | |
|---|---|---|---|---|---|---|
| Males | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 23.6 | 3.3 | 3.4 | 1.2 | 73.0 | 3.4 |
| 25–34 | 31.5 | 3.5 | 16.4 | 2.8 | 52.2 | 3.7 |
| 35–44 | 26.3 | 2.4 | 24.8 | 2.3 | 48.9 | 2.8 |
| 45–54 | 22.0 | 2.1 | 30.9 | 2.3 | 46.9 | 2.6 |
| 55–64 | 17.5 | 2.0 | 40.6 | 2.7 | 42.0 | 2.7 |
| 65+ | 7.0 | 1.1 | 56.2 | 2.3 | 36.4 | 2.3 |
| *Total* | 21.9 | 1.1 | 28.5 | 1.1 | 49.5 | 1.3 |
| Females | | | | | | |
| 18–24 | 27.1 | 3.4 | 11.6 | 2.4 | 61.3 | 3.7 |
| 25–34 | 26.5 | 2.4 | 17.6 | 2.0 | 55.7 | 2.6 |
| 35–44 | 23.7 | 1.8 | 23.0 | 1.7 | 53.2 | 2.1 |
| 45–54 | 18.7 | 1.6 | 22.5 | 1.8 | 58.6 | 2.1 |
| 55–64 | 12.9 | 1.5 | 24.6 | 1.9 | 62.3 | 2.2 |
| 65+ | 5.3 | 0.9 | 24.2 | 1.7 | 70.2 | 1.8 |
| *Total* | 18.9 | 0.8 | 20.9 | 0.8 | 60.0 | 1.0 |
| Persons | | | | | | |
| 18–24 | 25.3 | 2.4 | 7.4 | 1.4 | 67.3 | 2.6 |
| 25–34 | 29.0 | 2.1 | 17.0 | 1.7 | 54.0 | 2.3 |
| 35–44 | 25.0 | 1.5 | 23.9 | 1.5 | 51.0 | 1.7 |
| 45–54 | 20.3 | 1.3 | 26.6 | 1.5 | 52.9 | 1.7 |
| 55–64 | 15.2 | 1.3 | 32.6 | 1.7 | 52.1 | 1.8 |
| 65+ | 6.1 | 0.7 | 38.3 | 1.5 | 55.3 | 1.5 |
| *Total* | 20.4 | 0.7 | 24.6 | 0.7 | 54.9 | 0.8 |

*\* A person who smokes daily or occasionally is categorised as a current smoker*
*SE = standard error*

## Survey results

### Smoking at a glance

- Over one in five persons (20.4 per cent) aged 18 years or over were categorised as current smokers.

- More males (21.9 per cent) than females (18.9 per cent) were categorised as current smokers.

- The proportion of current smokers was highest in younger age groups for both males and females, and decreased with increasing age.

- For males, 18.1 per cent were categorised as daily smokers and 3.8 were occasional smokers.

- For females, 15.7 per cent were categorised as daily smokers and 3.1 were occasional smokers.

- Among the current smoker population, the proportion who stated that their home was smoke free was greater in households with dependent children than in those with no dependent children.

**Figure 2.11: Smoking status, by age–males**
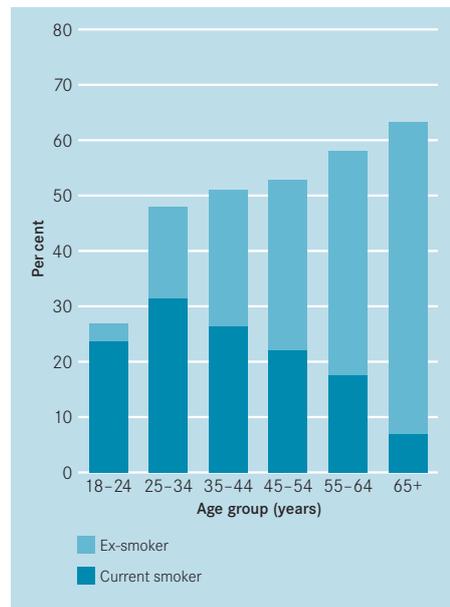


**Figure 2.12: Smoking status, by age–females**
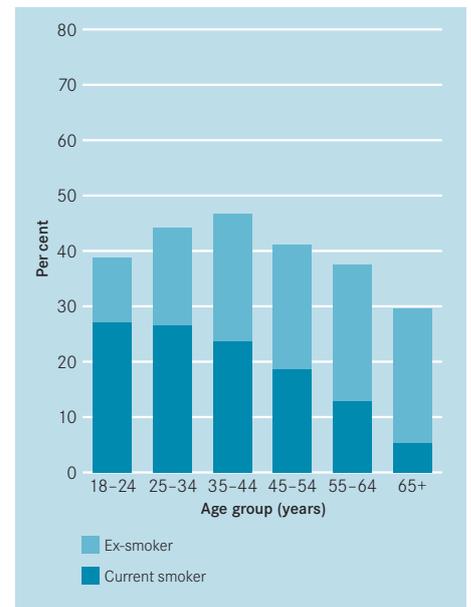


**Figure 2.13: Current smoking behaviour, by age–males**
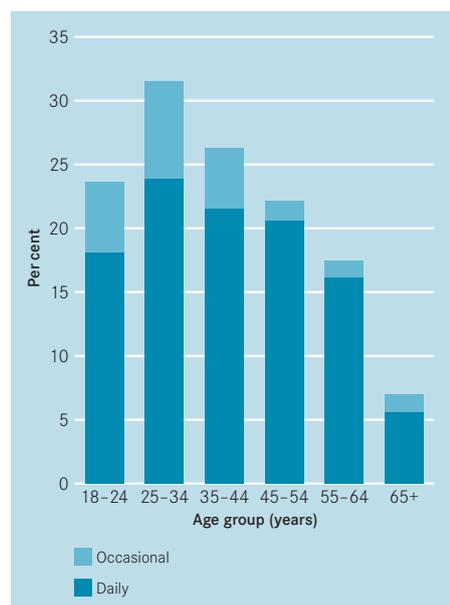


**Figure 2.14: Current smoking behaviour, by age–females**
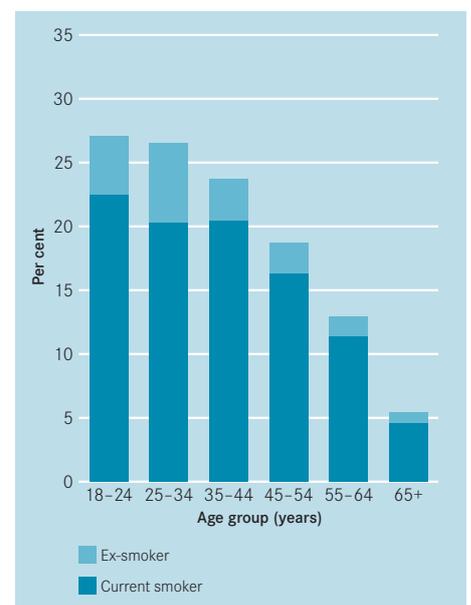
**Table 2.22: Frequency of current* smoking behaviour, by age and sex**

| | Daily | | Occasional** | |
|---|---|---|---|---|
| Males | % | SE (%) | % | SE (%) |
| 18–24 | 18.1 | 2.8 | 5.5 | 2.0 |
| 25–34 | 23.9 | 3.2 | 7.6 | 2.0 |
| 35–44 | 21.5 | 2.3 | 4.8 | 1.1 |
| 45–54 | 20.6 | 2.0 | 1.5 | 0.6 |
| 55–64 | 16.1 | 2.0 | 1.4 | 0.6 |
| 65+ | 5.6 | 0.9 | 1.4 | 0.7 |
| Total | 18.1 | 1.0 | 3.8 | 0.6 |
| Females | | | | |
| 18–24 | 22.5 | 3.3 | 4.6 | 1.4 |
| 25–34 | 20.3 | 2.2 | 6.2 | 1.3 |
| 35–44 | 20.4 | 1.7 | 3.3 | 0.7 |
| 45–54 | 16.3 | 1.6 | 2.4 | 0.6 |
| 55–64 | 11.4 | 1.4 | 1.5 | 0.6 |
| 65+ | 4.6 | 0.8 | 0.8 | 0.3 |
| Total | 15.7 | 0.8 | 3.1 | 0.4 |
| Persons | | | | |
| 18–24 | 20.3 | 2.2 | 5.0 | 1.2 |
| 25–34 | 22.1 | 1.9 | 6.9 | 1.2 |
| 35–44 | 20.9 | 1.4 | 4.0 | 0.6 |
| 45–54 | 18.4 | 1.3 | 1.9 | 0.4 |
| 55–64 | 13.7 | 1.2 | 1.5 | 0.4 |
| 65+ | 5.0 | 0.6 | 1.0 | 0.3 |
| Total | 16.9 | 0.6 | 3.5 | 0.3 |

*A person who smokes daily or occasionally is categorised as a current smoker*
*** The term occasional does not refer to a specific frequency. It is defined by the respondent who chooses the response option 'I smoke occasionally' when asked which of a number of alternative response options (including 'I smoke daily') best describes their smoking status.*
*SE = standard error*

Over one in five males (21.9 per cent) and almost one in five females (18.9 per cent) identified themselves as current smokers. The highest prevalence of smoking among females was for those aged 18–24 years (27.1 per cent). Across age groups, the proportion of males who were current smokers ranged from a high of 31.5 per cent (males aged 25–34 years) to a low of 7 per cent (males aged 65 years or over).

Current smokers are those who have smoked at least 100 cigarettes (or an equivalent amount of tobacco) and who smoke daily or occasionally. The proportion of females aged 18–24 years smoking daily (22.5 per cent) was higher than that for males in the same age group (18.1 per cent). Overall, 18.1 per cent of males and 15.7 per cent of females smoked daily, and 3.8 per cent of males and 3.1 per cent of females smoked occasionally (table 2.22).

**Figure 2.15: Current smokers\* 2001–05**
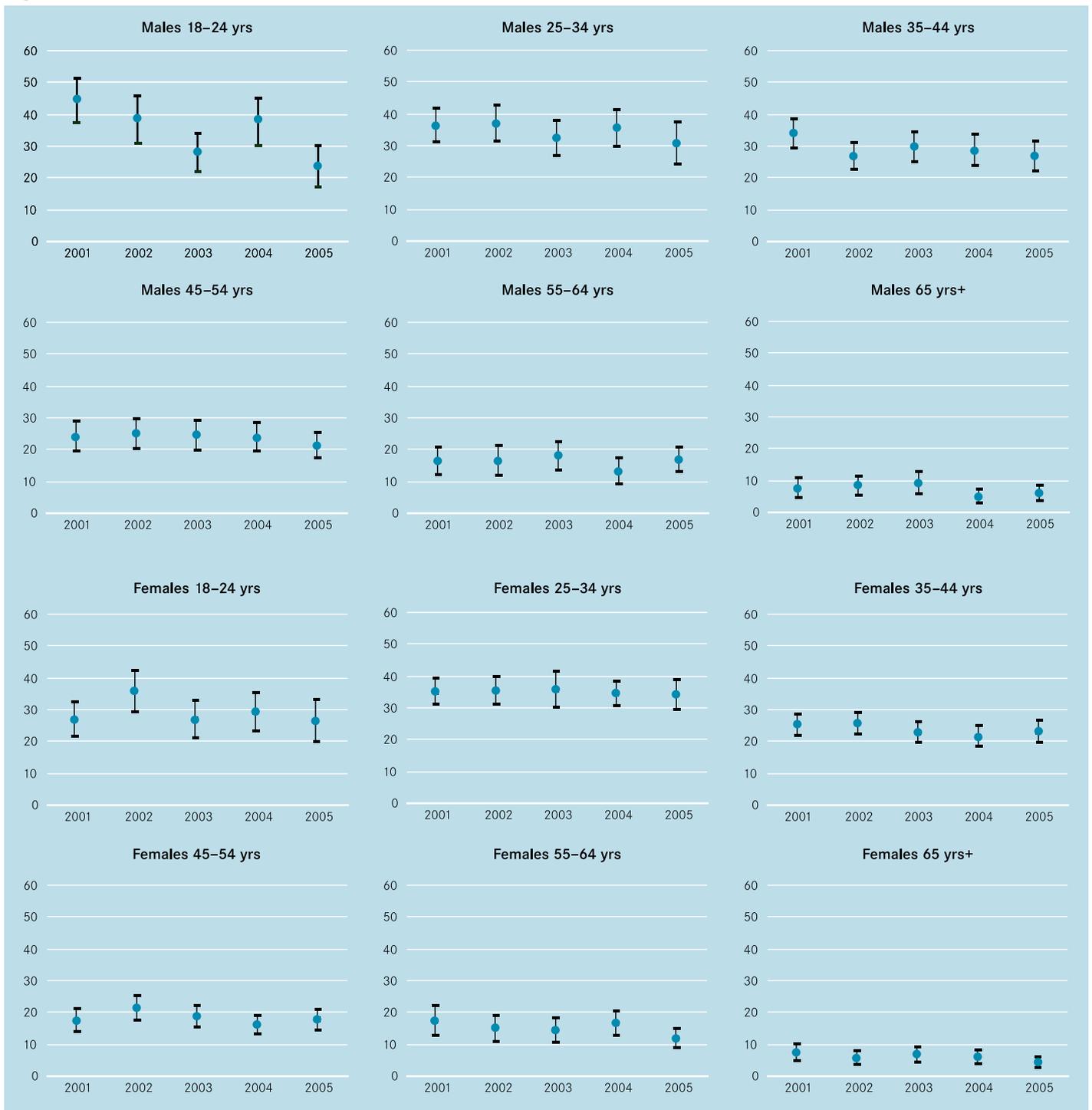


*\* A person who smokes daily or occasionally is categorised as a current smoker*

**Environmental tobacco smoke in the home**

Tobacco smoke is a significant environmental contaminant of indoor air. Exposure to environmental tobacco smoke is associated with increased health risks. Children who live in households with smokers have an increased risk of respiratory disease and are more likely to experience symptoms of asthma.[10,11] Household exposure to tobacco smoke is also an independent risk factor for sudden infant death syndrome. Further, passive smoking increases a non-smoker's risk of developing lung cancer[12] and ischaemic heart disease. It is also associated with an increased risk of respiratory disease among adults.[13]

## Survey results

Overall, 88.4 per cent of persons reported their home was smoke free, with the proportion ranging from 94.2 per cent of non-smokers to 66.6 per cent of current smokers (table 2.23). Among current smokers, the proportion whose homes were smoke free was greater when the household included dependent children (77.4 per cent) than when it did not (57.9 per cent) (table 2.24 and figures 2.16 and 2.17).

**Table 2.23: Smoking in the home and current smoking status**

| | Current smoker | | Ex-smoker | | Non-smoker | | All households | |
|---|---|---|---|---|---|---|---|---|
| Smoking status in the home | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| My home is smoke free | 66.6 | 1.7 | 93.6 | 0.7 | 94.2 | 0.6 | 88.4 | 0.5 |
| People occasionally smoke inside the house | 13.1 | 1.2 | 4.2 | 0.5 | 3.6 | 0.5 | 5.7 | 0.4 |
| People frequently smoke inside the house | 20.3 | 1.5 | 2.0 | 0.4 | 2.2 | 0.4 | 5.8 | 0.4 |

*SE = standard error*

**Table 2.24: Smoking in the home by household type**

| Households with dependent children | Current smoker | | Ex-smoker | | Non-smoker | |
|---|---|---|---|---|---|---|
| *Smoking status in the home* | % | SE (%) | % | SE (%) | % | SE (%) |
| My home is smoke free | 77.4 | 2.1 | 96.1 | 0.9 | 94.1 | 1.0 |
| People occasionally smoke inside the house | 10.8 | 1.6 | 2.1 | 0.6 | 3.2 | 0.8 |
| People frequently smoke inside the house | 11.8 | 1.6 | 1.4 | 0.6 | 2.6 | 0.7 |
| **Households without dependent children** | | | | | | |
| *Smoking status in the home* | | | | | | |
| My home is smoke free | 57.9 | 2.5 | 92.2 | 0.9 | 94.3 | 0.8 |
| People occasionally smoke inside the house | 15.0 | 1.7 | 5.4 | 0.8 | 3.8 | 0.7 |
| People frequently smoke inside the house | 27.1 | 2.2 | 2.4 | 0.5 | 1.9 | 0.4 |

*SE = standard error*

**Figure 2.16: Smoking in households with dependent children, by smoking status**



People who frequently smoke inside the house
People who occasionally smoke inside the house
People whose home is smoke free
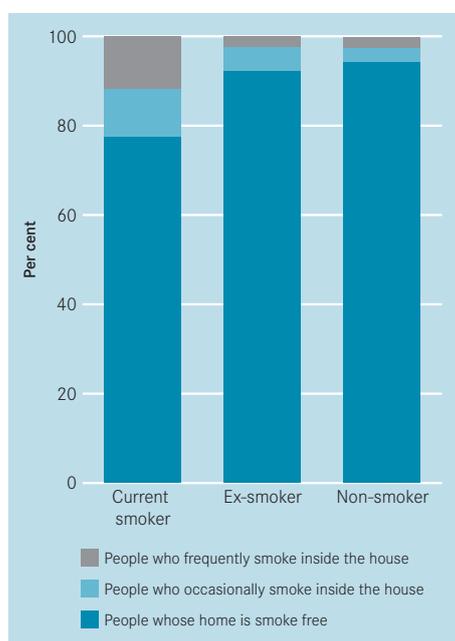
**Figure 2.17: Smoking in households without dependent children, by smoking status**



People who frequently smoke inside the house
People who occasionally smoke inside the house
People whose home is smoke free
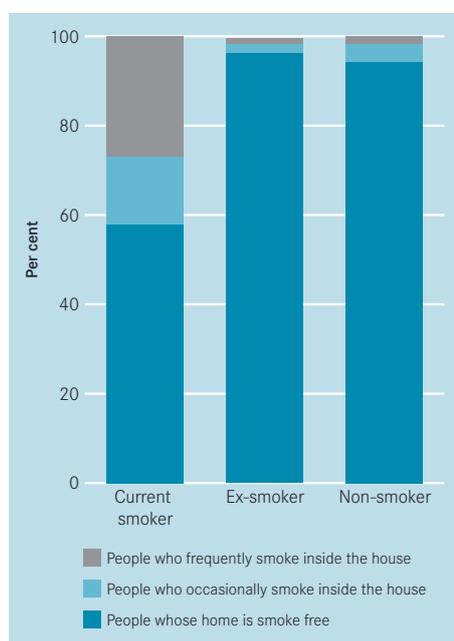
## 2.7 Physical activity/inactivity

Physical inactivity is a major modifiable risk factor for a range of diseases and conditions, including cardiovascular disease, diabetes, some cancers, obesity and falls among the elderly.[14–18]

Together with evidence that more health benefits accrue with more physical activity,[14, 16] and that the protective effect of physical activity occurs even if adopted in middle and later life,[19, 21] this suggests physical activity is an obvious target for health promotion. Monitoring physical activity at the population level is relevant for investigating the outcomes of such promotion efforts.

## Survey results

### Physical activity at a glance:

- Almost one in every 15 males (6.4 per cent) and 5.3 per cent of females did not participate in physical activity during the previous week.

- Almost six out of ten persons (59.8 per cent) participated in both moderate and vigorously intense physical activity.

- Over one in four males (27.5 per cent) and almost three in 10 females (29.1 per cent) were categorised as having insufficient physical activity levels (table 2.27).

- After adjusting for differences in age and sex (table 2.29), those persons most likely to be classified as sedentary or insufficiently active (using the sufficient time and sessions definition of physical activity) were those who were born overseas, those with lower levels of education, in non-professional occupations, not in the labour force, those persons living in households with lower incomes, without private health insurance and those having poorer self–reported health.

**Table 2.25: Types of physical activity undertaken during the previous week, by age group and sex**

|         | No physical activity | | Walking only | | Vigorous activity only | | Walking and vigorous activity | |
|---------|------|--------|------|--------|------|--------|------|--------|
| **Males** | **%** | **SE (%)** | **%** | **SE (%)** | **%** | **SE (%)** | **%** | **SE (%)** |
| 18–24 | 3.2 | 1.2 | 14.9 | 2.8 | 8.6 | 2.4 | 72.9 | 3.5 |
| 25–34 | 6.7 | 2.0 | 17.1 | 2.7 | 6.8 | 1.8 | 69.2 | 3.4 |
| 35–44 | 4.8 | 1.2 | 24.1 | 2.3 | 9.3 | 1.6 | 59.0 | 2.7 |
| 45–54 | 4.6 | 1.0 | 28.8 | 2.4 | 7.0 | 1.2 | 58.4 | 2.5 |
| 55–64 | 5.8 | 1.2 | 35.9 | 2.7 | 4.8 | 1.1 | 51.0 | 2.7 |
| 65+ | 12.9 | 1.5 | 39.6 | 2.3 | 6.4 | 1.3 | 36.6 | 2.2 |
| All | 6.4 | 0.6 | 26.4 | 1.1 | 7.2 | 0.7 | 58.1 | 1.2 |
| **Females** | | | | | | | | |
| 18–24 | 1.6 | 0.7 | 16.1 | 2.8 | 3.7 | 1.6 | 78.0 | 3.2 |
| 25–34 | 2.5 | 0.8 | 19.6 | 2.2 | 6.2 | 1.2 | 69.9 | 2.4 |
| 35–44 | 4.4 | 0.8 | 21.5 | 1.8 | 5.0 | 0.9 | 67.3 | 2.0 |
| 45–54 | 4.3 | 0.8 | 23.4 | 1.8 | 5.5 | 1.0 | 64.5 | 2.1 |
| 55–64 | 5.7 | 1.0 | 33.6 | 2.2 | 4.9 | 0.9 | 53.4 | 2.3 |
| 65+ | 11.9 | 1.3 | 39.4 | 1.9 | 6.0 | 0.9 | 38.6 | 2.0 |
| All | 5.3 | 0.4 | 25.8 | 0.9 | 5.3 | 0.4 | 61.3 | 1.0 |
| **Persons** | | | | | | | | |
| 18–24 | 2.4 | 0.7 | 15.5 | 2.0 | 6.2 | 1.5 | 75.4 | 2.4 |
| 25–34 | 4.6 | 1.1 | 18.4 | 1.7 | 6.5 | 1.1 | 69.6 | 2.1 |
| 35–44 | 4.6 | 0.7 | 22.8 | 1.5 | 7.2 | 0.9 | 63.2 | 1.7 |
| 45–54 | 4.5 | 0.6 | 26.1 | 1.5 | 6.2 | 0.8 | 61.5 | 1.6 |
| 55–64 | 5.8 | 0.8 | 34.7 | 1.7 | 4.9 | 0.7 | 52.2 | 1.8 |
| 65+ | 12.3 | 1.0 | 39.5 | 1.5 | 6.2 | 0.8 | 37.7 | 1.5 |
| All | 5.8 | 0.4 | 26.1 | 0.7 | 6.2 | 0.4 | 59.8 | 0.8 |

*SE = standard error*

**Fig 2.18: Type of physical activity by age group–males**



Legend:
- Walking and vigorous activity
- Vigorous activity only
- Walking only
- No physical activity
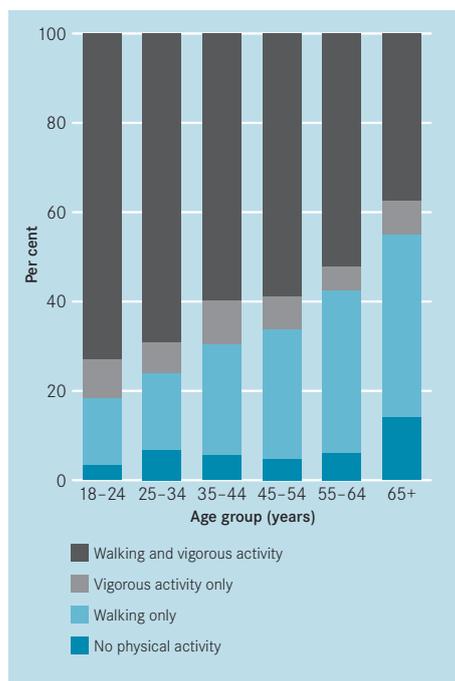
**Fig 2.19: Type of physical activity by age group–females**



Legend:
- Walking and vigorous activity
- Vigorous activity only
- Walking only
- No physical activity
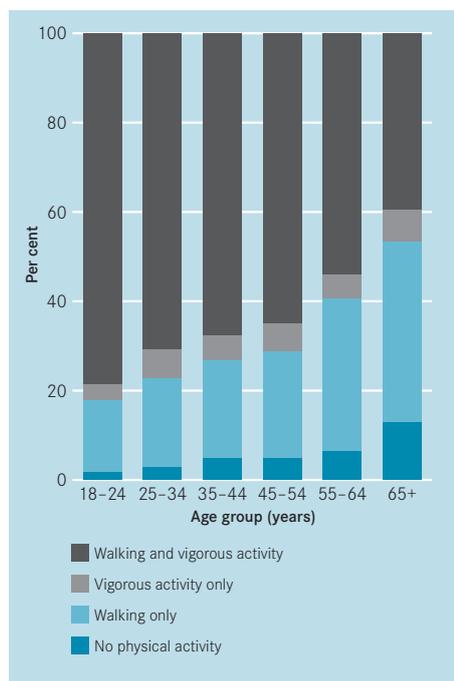
Information was collected on three types of physical activity:

1. time spent walking (for more than 10 minutes at a time) for recreation or exercise, or to get to and from places;

2. time spent doing vigorous household chores (excluding gardening); and

3. time spent doing vigorous activities other than household chores and gardening (for example, tennis, jogging, cycling or keep-fit exercises).

Data were collected on the number of sessions and the duration of each type of physical activity. Almost six out of 100 persons (5.8 per cent) aged 18 years or over did not undertake any physical activity during the week before the survey (table 2.25). Among both males and females who were physically active, walking was the most prevalent type of physical activity undertaken during the previous week, with 26.4 per cent of males and 25.8 per cent of females indicating that this was their only form of physical activity. A further 58.1 per cent of males and 61.3 per cent of females participated in both walking and some form of vigorous activity in the week before the survey.

The level of health benefit achieved from physical activity depends partly on the intensity of the activity. In general, obtaining a health benefit from physical activity requires participation in moderate intensity activities (at least). Accruing 150 or more minutes of moderate intensity physical activity (such as walking) on a regular basis over one week is believed to be *sufficient* for health benefits and is the recommended threshold of physical activity according to the *National physical activity guidelines for Australians*.[23] For those who achieve an adequate baseline level of fitness, extra health benefits may be gained by undertaking at least 30 minutes of regular vigorous exercise on three to four days per week.[21,22]

The sum of the proportions of adults who undertake only vigorous physical activity or walking and vigorous activity (table 2.25) sets the upper limit for the proportion of the population who may satisfy both the health benefit *and* health fitness related guidelines on physical activity. The actual proportion of adults who fulfill the criteria for both guidelines is reduced to the extent that individuals do not spend sufficient time on physical activity and/or do not participate in physical activity regularly.

The *sufficient time and sessions* measure of physical activity is regarded as the preferred indicator of the adequacy of physical activity for health benefit because it addresses the regularity of the activity undertaken.[23] Under this measure, the requirement to participate in physical activity regularly (that is, on five– preferably seven–days per week) is an accrued 150 or more minutes of at least moderate intensity physical activity.[24, 25]

The number of minutes spent on physical activity is calculated by adding the minutes of moderate intensity activity to two times the minutes of vigorous activity (that is, the minutes of vigorous intensity activity are weighted by a factor of two). A person who satisfies both criteria (time and number of sessions) is classified as doing *sufficient physical activity* to achieve health benefits (table 2.26).

Individuals are classified as doing *insufficient* physical activity if they reported undertaking physical activity during the week before the survey, but did not accrue 150 minutes and/or did fewer than five sessions. Individuals are considered to be sedentary if they reported no physical activity for the relevant time period. Individuals classified as *sedentary* or *insufficient* are referred to as doing an inadequate amount of physical activity to achieve health benefits.

**Table 2.26 Definition of sufficient physical activity time and sessions per week**

| Time | Physical activity |
| --- | --- |
| 0 minutes | Sedentary |
| Less than 150 minutes or 150 or more minutes but fewer than five sessions | Insufficient |
| 150 minutes or more and five or more sessions | Sufficient |

**Table 2.27: Adequacy of physical activity by sex 2002–05**

| | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|
| Adequacy of physical activity undertaken during the previous week | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Males** | | | | | | | | |
| Sedentary | 9.0 | 0.7 | 8.4 | 0.7 | 6.2 | 0.6 | 6.4 | 0.6 |
| Insufficient time and/or sessions | 29.9 | 1.1 | 28.7 | 1.1 | 30.2 | 1.1 | 27.5 | 1.1 |
| Sufficient time and sessions | 59.8 | 1.2 | 61.4 | 1.2 | 58.6 | 1.2 | 64.3 | 1.2 |
| **Females** | | | | | | | | |
| Sedentary | 8.1 | 0.5 | 7.6 | 0.5 | 7.7 | 0.6 | 5.3 | 0.4 |
| Insufficient time and/or sessions | 36.4 | 1.0 | 31.8 | 0.9 | 31.9 | 0.9 | 29.1 | 0.9 |
| Sufficient time and sessions | 54.3 | 1.0 | 57.6 | 1.0 | 55.1 | 1.0 | 63.3 | 1.0 |
| **Persons** | | | | | | | | |
| Sedentary | 8.5 | 0.4 | 8.0 | 0.4 | 7.0 | 0.4 | 5.8 | 0.4 |
| Insufficient time and/or sessions | 33.2 | 0.7 | 30.3 | 0.7 | 31.1 | 0.7 | 28.3 | 0.7 |
| Sufficient time and sessions | 57.0 | 0.8 | 59.5 | 0.8 | 56.8 | 0.8 | 63.8 | 0.8 |

In 2005, the proportion of persons reporting no physical activity was greatest in the oldest age groups, with 12.3 per cent of those aged 65 years or over not undertaking any physical activity (that is, *sedentary*) in the week before the survey (table 2.28). Within this age group, a higher proportion of males than females (12.9 per cent and 11.9 per cent respectively) had not participated in physical activity in the previous week. Persons aged 55–64 years ranked second in terms of those classified as sedentary, with 5.8 per cent having done no physical activity in the previous week.

Under the *sufficient* time and sessions measure of physical activity, the proportion of persons whose physical activity in the previous week was

*adequate* was similar for most age groups (except those aged 65 years or over). More than one half of all individuals aged between 18 years and 64 years undertook sufficient physical activity in the week before the survey. The proportion of those who engaged in a sufficient amount of regular physical activity ranged between 72.9 per cent and 47.6 per cent for those aged 18–24 years and 65 years and older respectively. The proportions of males and females who were sufficiently active on most days of the week were similar for all age groups (except 65 years or over) (table 2.28).

Overall, 64.3 per cent of males and 63.3 per cent of females attained the threshold for physical activity to provide health benefits as per the national guidelines.

**Table 2.28: Adequacy of physical activity undertaken during the previous week, by age and sex**

| | Sedentary | | Insufficient time and/or sessions | | Sufficient time and sessions | |
|---|---|---|---|---|---|---|
| Males | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 3.2 | 1.2 | 20.9 | 3.3 | 75.6 | 3.5 |
| 25–34 | 6.7 | 2.0 | 26.0 | 3.3 | 67.1 | 3.6 |
| 35–44 | 4.8 | 1.2 | 26.0 | 2.4 | 66.4 | 2.6 |
| 45–54 | 4.6 | 1.0 | 28.9 | 2.3 | 65.3 | 2.4 |
| 55–64 | 5.8 | 1.2 | 27.6 | 2.5 | 64.1 | 2.6 |
| 65+ | 12.9 | 1.5 | 35.1 | 2.3 | 47.5 | 2.3 |
| All | 6.4 | 0.6 | 27.5 | 1.1 | 64.3 | 1.2 |
| Females | | | | | | |
| 18–24 | 1.6 | 0.7 | 27.7 | 3.5 | 70.1 | 3.5 |
| 25–34 | 2.5 | 0.8 | 25.9 | 2.3 | 69.7 | 2.4 |
| 35–44 | 4.4 | 0.8 | 26.7 | 1.8 | 67.1 | 2.0 |
| 45–54 | 4.3 | 0.8 | 26.9 | 1.9 | 66.4 | 2.0 |
| 55–64 | 5.7 | 1.0 | 31.1 | 2.1 | 60.8 | 2.2 |
| 65+ | 11.9 | 1.3 | 36.2 | 1.9 | 47.8 | 2.0 |
| All | 5.3 | 0.4 | 29.1 | 0.9 | 63.3 | 1.0 |
| Persons | | | | | | |
| 18–24 | 2.4 | 0.7 | 24.2 | 2.4 | 72.9 | 2.5 |
| 25–34 | 4.6 | 1.1 | 26.0 | 2.0 | 68.4 | 2.2 |
| 35–44 | 4.6 | 0.7 | 26.4 | 1.5 | 66.7 | 1.6 |
| 45–54 | 4.5 | 0.6 | 27.9 | 1.5 | 65.9 | 1.6 |
| 55–64 | 5.8 | 0.8 | 29.4 | 1.6 | 62.4 | 1.7 |
| 65+ | 12.3 | 1.0 | 35.7 | 1.5 | 47.6 | 1.5 |
| All | 5.8 | 0.4 | 28.3 | 0.7 | 63.8 | 0.8 |

*SE = standard error*

**Fig 2.20: Level of physical activity by age group–males**
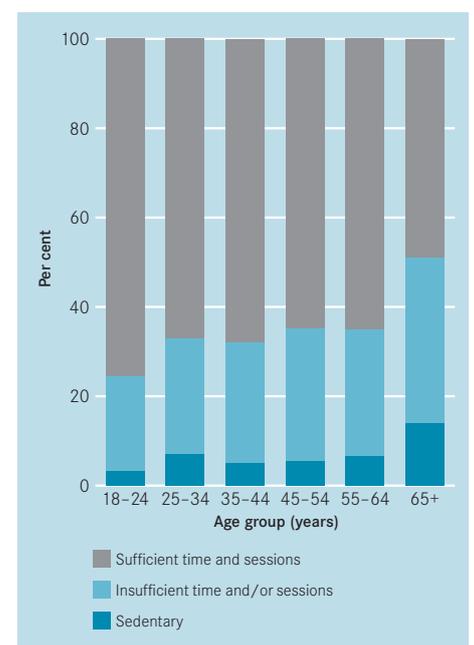


**Fig 2.21: Level of physical activity by age group–females**
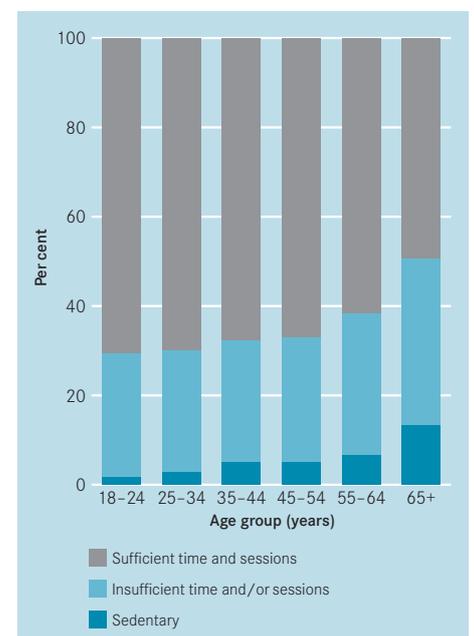
## Factors associated with inadequate physical activity behaviour

After adjusting for differences in age and sex (table 2.29), those persons most likely to be classified as sedentary or insufficiently active (using the sufficient time and sessions definition of physical activity) were those who were born overseas, those with lower levels of education, in non-professional occupations, not in the labour force, those persons living in households with lower incomes, without private health insurance and those having poorer self-reported health.

Over three quarters (77.3 per cent) of those who rated their health as excellent undertook a sufficient level of physical activity on most days of the week, compared with 41.9 per cent of those who rated their health as poor (table 2.30). Correspondingly, whereas only 2.9 per cent of those who rated their health as excellent were physically inactive or sedentary, 16.7 per cent of those who regarded themselves as being in poor health did not engage in any physical activity in the week before the survey.

**Table 2.29: Sedentary/insufficiently active behaviour, by selected variables**

| Area of Victoria | Odds ratio | 95% confidence interval | | p value |
| --- | --- | --- | --- | --- |
| | | Lower level | Upper level | |
| Metropolitan | 1.00 | – | – | – |
| Non-metropolitan | 0.94 | 0.84 | 1.05 | 0.256 |
| **Country of birth** | | | | |
| Australia | 1.00 | – | – | – |
| Overseas | 1.25 | 1.08 | 1.47 | 0.004 |
| **Education level** | | | | |
| Tertiary | 1.00 | – | – | – |
| Secondary | 1.15 | 1.01 | 1.32 | 0.038 |
| Primary | 1.92 | 1.35 | 2.75 | <0.001 |
| **Occupation** | | | | |
| Professional | 1.00 | – | – | – |
| Non-professional | 1.22 | 1.01 | 1.47 | 0.035 |
| **Employment status** | | | | |
| Employed | 1.00 | – | – | – |
| Unemployed | 1.19 | 0.79 | 1.80 | 0.405 |
| Not in the labour force | 1.33 | 1.15 | 1.55 | <0.001 |
| **Household income per year** | | | | |
| Greater than or equal to $60,000 | 1.00 | – | – | – |
| From $40,000 to less than $60,000 | 1.20 | 0.97 | 1.48 | 0.078 |
| From $20,000 to less than $40,000 | 1.33 | 1.10 | 1.63 | 0.004 |
| Less than $20,000 | 1.54 | 1.26 | 1.87 | <0.001 |
| **Private health insurance** | | | | |
| Yes | 1.00 | – | – | – |
| No | 1.30 | 1.14 | 1.49 | <0.001 |
| **Dwelling ownership** | | | | |
| Owned | 1.00 | – | – | – |
| Rented | 1.16 | 0.96 | 1.41 | 0.116 |
| **Smoking status** | | | | |
| Non-smoker | 1.00 | – | – | – |
| Ex-smoker | 0.90 | 0.77 | 1.04 | 0.162 |
| Smoker | 1.13 | 0.94 | 1.35 | 0.189 |
| **Self-rated health** | | | | |
| Excellent/very good | 1.00 | – | – | – |
| Good | 1.91 | 1.65 | 2.23 | <0.001 |
| Fair/poor | 2.21 | 1.84 | 2.65 | <0.001 |

*SE = standard error*
*– Not applicable*

**Table 2.30: Persons achieving sufficient physical activity time and sessions in the previous week, by self–reported health status**

| | Excellent | | Very good | | Good | | Fair | | Poor | |
|---|---|---|---|---|---|---|---|---|---|---|
| Activity level | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Sedentary | 2.9 | 0.6 | 3.8 | 0.5 | 6.2 | 0.6 | 9.1 | 1.2 | 16.7 | 3.3 |
| Insufficient time and/or sessions | 18.6 | 1.7 | 23.9 | 1.2 | 33.3 | 1.2 | 31.7 | 1.9 | 36.9 | 4.2 |
| Sufficient time and sessions | 77.3 | 1.8 | 70.8 | 1.3 | 58.1 | 1.3 | 56.4 | 2.1 | 41.9 | 4.3 |

*SE = standard error*

**Fig 2.22: Level of physical activity by self-rated health**
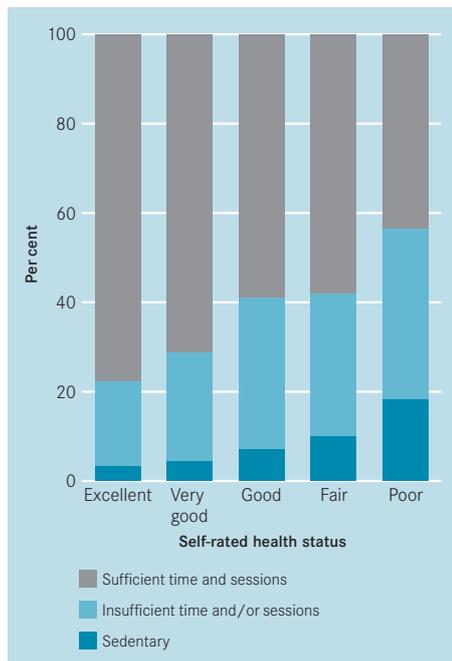


## 2.8 Selected health screening and checks

The survey collected information on selected routine checks or screening tests that may be performed to detect the presence of risk factors for the development of a disease condition or to detect a disease before its symptoms are manifest. Specifically, the survey collected information on:

- a blood pressure check
- a blood test for cholesterol
- a test for diabetes or high blood sugar levels
- a bowel examination (of any type).

## Health checks at a glance

- Over three quarters of all persons (78.9 per cent) reported having had their blood pressure checked in the two years before the survey. Those aged 50 years or over were more likely than the younger age groups to have had the test done.

- Over half of all persons (50.7 per cent) aged 18 years or over reported having had a cholesterol check in the previous two years, with those aged 50 years or over more likely to have done so than the younger age groups.

- More than 47 per cent of persons aged 18 years or over reported having had a test for diabetes or high blood sugar levels in the previous two years.

- Of persons aged 18 years or over, 13.7 per cent had a bowel examination for the purposes of detecting bowel cancer in the previous two years.

**Table 2:31: Health checks**

| Type of screening | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) |
| A blood pressure check | 75.3 | 1.2 | 82.3 | 0.8 | 78.9 | 0.7 |
| A blood test for cholesterol | 52.2 | 1.3 | 49.3 | 1.0 | 50.7 | 0.8 |
| A test for diabetes or high blood sugar levels | 44.8 | 1.2 | 49.7 | 1.0 | 47.3 | 0.8 |
| A bowel examination to detect bowel cancer | 15.2 | 0.8 | 12.2 | 0.6 | 13.7 | 0.5 |
|    Colonoscopy | 10.8 | 0.7 | 9.4 | 0.5 | 10.1 | 0.4 |
|    Faecal Occult Blood Test (FOBT) | 3.1 | 0.3 | 2.6 | 0.3 | 2.8 | 0.2 |
|    Flexible Sigmoidoscopy | 1.0 | 0.2 | 0.6 | 0.1 | 0.8 | 0.1 |
|    Barium Enema | 0.9 | 0.2 | 0.7 | 0.1 | 0.8 | 0.1 |

*SE = standard error*

## Blood pressure check

It is recommended that all adults have their blood pressure checked regularly, primarily to identify high blood pressure or hypertension.[26]

### Survey results

In total, 78.9 per cent of persons reported having had their blood pressure checked in the two years before the survey. Those aged 50 years or over were more likely than others to have had the test recently, with 93.2 per cent of males and 93.9 per cent of females in this age group having done so (figure 2.23). Among persons aged 18–49 years, 67.7 per cent had had their blood pressure checked in the previous two years, with females being more likely than males (74.5 per cent and 63.8 per cent respectively) to have been tested.

## Cholesterol check

Elevated blood cholesterol is an important risk factor for coronary heart disease. Cholesterol checks are recommended for persons potentially at high risk, such as smokers, those with a significant family history of coronary heart disease (a first degree relative affected at an age under 60 years), those who are overweight or obese, those who have hypertension and those aged 45 years or over.[6]

### Survey results

In total, 50.7 per cent of persons indicated they had had a cholesterol check in the two years before the survey. Screening for elevated blood cholesterol levels was found to be higher among those aged 50 years or over, with 78.6 per cent of males and 74.2 per cent of females in this age group reporting that they had undergone a recent cholesterol check (figure 2.24). For those aged under 50 years, males were more likely than females (35.1 per cent and 32.4 per cent respectively) to have had their cholesterol checked.

## Blood sugar test

Blood glucose tests are used primarily to detect the development of, or a predisposition to, diabetes mellitus. While the screening of asymptomatic individuals is generally not considered to be justified, at-risk individuals are advised to have their blood glucose levels checked periodically. At-risk groups include persons aged 55 years or over, overweight persons, those with a first-degree relative with diabetes, and females with a history of gestational diabetes.

## Survey results

Overall, 47.3 per cent of persons reported having had a test for diabetes or high blood sugar levels in the two years before the survey. This proportion was greatest for males aged 50 years or over (67.8 per cent), followed by females in the same age group (64.9 per cent) (figure 2.25). Among persons aged under 50 years, this sex difference was reversed, with females being more likely than males to have had their blood glucose levels tested (39.4 per cent and 30.1 per cent respectively).

**Figure 2.23: Blood pressure check in previous two years, by age and sex**
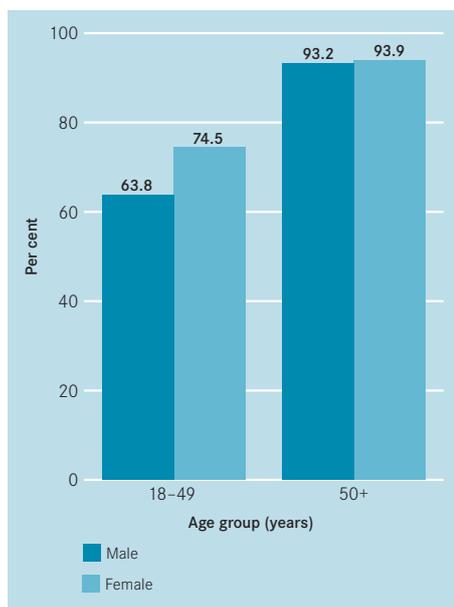


**Figure 2.24: Cholesterol check in previous two years, by age and sex**
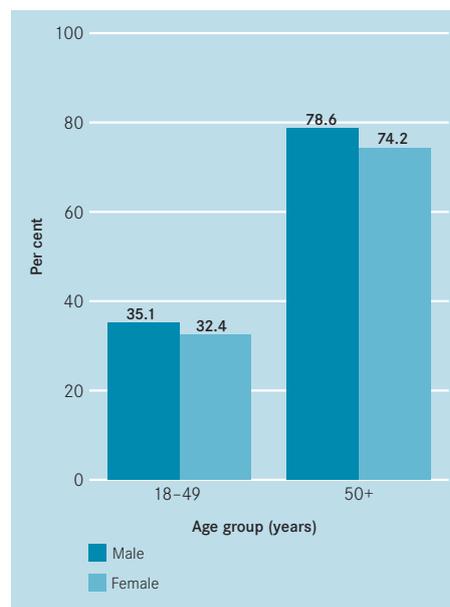


**Figure 2.25: Glucose check in previous two years, by age and sex**
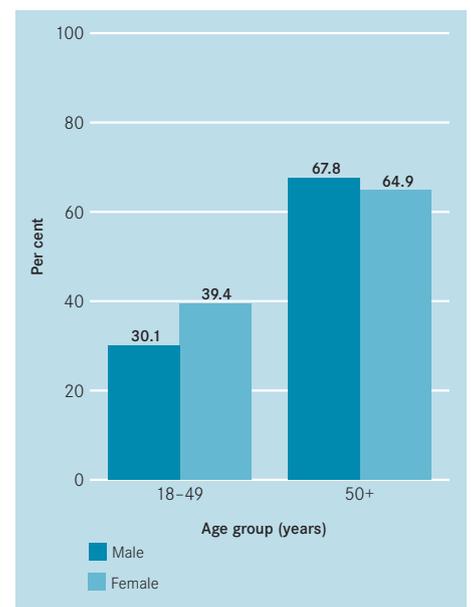


The use of health check-ups was found to not vary greatly between non-metropolitan and metropolitan Victoria (table 2.32).

**Table 2.32: Use of health checks and screening test in previous two years, by age and area of Victoria**

| | Metropolitan | | | | Non-metropolitan | | | |
| | 18–49 years | | 50+ years | | 18–49 years | | 50+ years | |
| Type of screening | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
|---|---|---|---|---|---|---|---|---|
| A blood pressure check | 69.5 | 1.4 | 93.6 | 0.7 | 68.3 | 1.3 | 93.5 | 0.5 |
| A blood test for cholesterol | 34.9 | 1.4 | 77.6 | 1.2 | 30.0 | 1.2 | 73.5 | 1.0 |
| A test for diabetes or high blood sugar levels | 34.7 | 1.3 | 66.5 | 1.3 | 35.2 | 1.2 | 65.5 | 1.1 |
| A bowel examination to detect bowel cancer | 6.3 | 0.6 | 25.4 | 1.2 | 6.0 | 0.6 | 23.6 | 1.0 |

*SE = standard error*

## 2.9 Eye health

Clear sight is important for daily living, employment, education and leisure activities. Vision loss is a significant contributor to changes in physical and mental wellbeing, and is associated with poorer levels of social independence, an increased risk of falls among the elderly, and an increased need for community and health care services. It is estimated that at least half of the vision loss or impairment that many thousands of Victorians experience is correctable and that one quarter is preventable.[29] Given the correlation between ageing and vision loss, the number of Victorians who are needlessly blind or vision impaired is forecast to double in the next two decades. With the ageing of the population, preventing avoidable blindness and reducing the impact of visual impairment have emerged as increasingly important public health issues. Identifying preventable causes of blindness and treating or mitigating the impact of vision loss depends on community awareness of the importance of eye health and eye care, and of the treatments and services available.

*Vision 2020: The Right to Sight Australia* is the peak national eye health body, comprising organisations from the areas of eye health, research, education, low vision, rehabilitation, peer support and community services. It recommends that people aged 50 years or over should have their eyes checked every five years unless they are in a high risk group. Those at high risk of vision impairment include those who smoke, have diabetes, have a family history of eye conditions, are elderly, identify themselves an Aboriginal or Torres Strait Islander, or experience a change in vision or a high degree of exposure to sunlight.[27,28]

The survey collected data on whether respondents had ever seen an eye specialist, the recency of their last visit and whether they usually wear a hat and sunglasses when they go out in the sun.

### Survey results

**Eye health at a glance**

- More than 60 per cent of males and 70.5 per cent of females aged 45–54 years reported having noticed a change in their vision in the past 12 months.

- A higher proportion of females than males of all ages had consulted an eye care specialist or attended an eye clinic.

- A higher proportion of males than females reported they usually wear a hat when they go out in the sun.

- More than seven in 10 adults (71.7 per cent) reported they usually wear sunglasses when they go out into the sun.

- Approximately one in seven males reported not wearing a hat and sunglasses when going out into the sun.

- The majority of persons of both sexes reported usually wearing sunglasses when going out in the sun.

- The proportion of persons who usually wear sunglasses when going out in the sun was lowest among males aged 65 years or over. Slightly less than one in two males in this age group reported usually wearing sunglasses to protect their eyes from sun exposure.

**Change in vision in the past 12 months**

The proportion of individuals who indicated their vision had changed in the past 12 months followed a consistent age-related pattern for males and females (table 2.33). Between the ages of 18 and 44 years, approximately 30 per cent of individuals had noticed a change in their vision. The proportion of males who had observed a change in their vision between the ages of 45 and 54 increased more than two-fold to 61.5 per cent. Similarly, the proportion of females who indicated that their vision had changed increased from 32.8 per cent for those aged 35–44 years to 70.5 per cent for those aged 45–54 years. Overall, a higher proportion of females (42.8 per cent) than males (35.2 per cent) reported that they had noticed a change in their vision in the past 12 months.

**Eye health protection**

A higher proportion of males than females in each age group reported they usually wear a hat when they go out in the sun. Overall, 65.1 per cent of males and 48.7 per cent of females indicated they usually wear a hat in the sun (table 2.35). A large majority of adults (71.7 per cent) reported they usually wear sunglasses when going

out in the sun. The proportion of adults who usually wear sunglasses was highest in the age group 45–54 years for males (73.1 per cent) and in the age group 45–54 years for females (84.7 per cent).

The proportion of females who reported being usually protected from sun exposure by a hat and sunglasses was 39.7 per cent, while 13.5 per cent reported they usually wear neither a hat nor sunglasses when going out in the sun (figure 2.27). Among males, approximately one in seven (14.4 per cent) reported not wearing a hat and sunglasses when out in the sun (figure 2.26).

**Table 2.33: Noticed change in vision in past 12 months**

| Age group (years) | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 16.1 | 3.1 | 30.9 | 3.6 | 23.4 | 2.4 |
| 25–34 | 21.1 | 3.1 | 24.8 | 2.3 | 23.0 | 1.9 |
| 35–44 | 26.5 | 2.4 | 32.8 | 1.9 | 29.6 | 1.5 |
| 45–54 | 61.5 | 2.5 | 70.5 | 2.0 | 66.1 | 1.6 |
| 55–64 | 44.2 | 2.7 | 45.7 | 2.3 | 45.0 | 1.8 |
| 65+ | 41.8 | 2.3 | 51.2 | 2.0 | 47.0 | 1.5 |
| Total | 35.2 | 1.2 | 42.8 | 1.0 | 39.1 | 0.8 |

*SE= standard error*

**Table 2.34: Consultation with an eye care specialist or attendance at an eye clinic**

| Age group (years) | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 59.0 | 3.9 | 71.3 | 3.4 | 65.0 | 2.6 |
| 25–34 | 61.4 | 3.6 | 67.9 | 2.5 | 64.7 | 2.2 |
| 35–44 | 65.8 | 2.6 | 69.3 | 1.9 | 67.6 | 1.6 |
| 45–54 | 81.9 | 1.9 | 88.6 | 1.4 | 85.3 | 1.2 |
| 55–64 | 90.9 | 1.7 | 96.4 | 0.8 | 93.7 | 0.9 |
| 65+ | 96.6 | 0.9 | 97.7 | 0.6 | 97.2 | 0.5 |
| Total | 75.2 | 1.1 | 81.6 | 0.8 | 78.5 | 0.7 |

*SE= standard error*

**Table 2.35: Eye health-related sun behaviour, by age and sex**

| Age group (years) | Usually wear a hat | | Usually wear sunglasses | |
|---|---|---|---|---|
| Males | % | SE (%) | % | SE (%) |
| 18–24 | 44.7 | 4.0 | 53.2 | 4.0 |
| 25–34 | 53.8 | 3.8 | 70.7 | 3.4 |
| 35–44 | 66.9 | 2.6 | 71.8 | 2.6 |
| 45–54 | 70.2 | 2.4 | 73.1 | 2.3 |
| 55–64 | 75.0 | 2.3 | 61.8 | 2.7 |
| 65+ | 79.5 | 2.0 | 56.8 | 2.3 |
| Total | 65.1 | 1.3 | 65.6 | 1.2 |
| Females | | | | |
| 18–24 | 32.9 | 3.5 | 75.2 | 3.3 |
| 25–34 | 43.2 | 2.6 | 74.0 | 2.5 |
| 35–44 | 46.6 | 2.1 | 80.9 | 1.6 |
| 45–54 | 53.5 | 2.2 | 84.7 | 1.5 |
| 55–64 | 58.3 | 2.2 | 76.8 | 1.9 |
| 65+ | 55.5 | 2.0 | 72.4 | 1.8 |
| Total | 48.7 | 1.0 | 77.4 | 0.9 |
| Persons | | | | |
| 18–24 | 38.9 | 2.7 | 64.1 | 2.7 |
| 25–34 | 48.5 | 2.3 | 72.4 | 2.1 |
| 35–44 | 56.7 | 1.7 | 76.4 | 1.5 |
| 45–54 | 61.8 | 1.6 | 79.0 | 1.4 |
| 55–64 | 66.6 | 1.6 | 69.3 | 1.6 |
| 65+ | 66.1 | 1.4 | 65.5 | 1.5 |
| Total | 56.7 | 0.8 | 71.7 | 0.7 |

*SE= standard error*

**Figure 2.26: Eye-related sun protection–males**



Hat only
Sunglasses only
Hat and sunglases
Neither
Not known
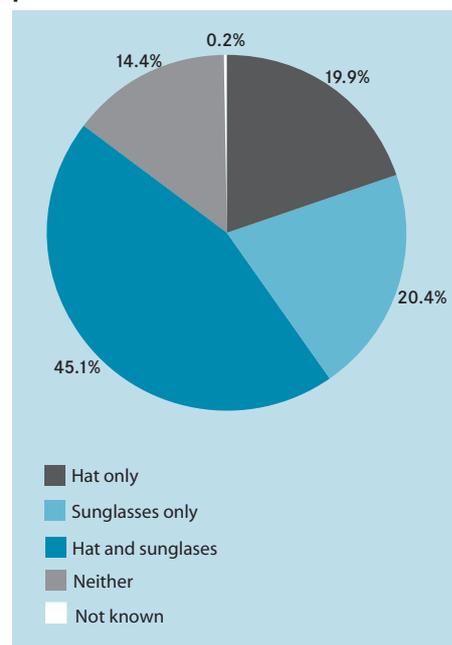
**Figure 2.27 Eye-related sun protection–females**



Hat only
Sunglasses only
Hat and sunglases
Neither
Not known
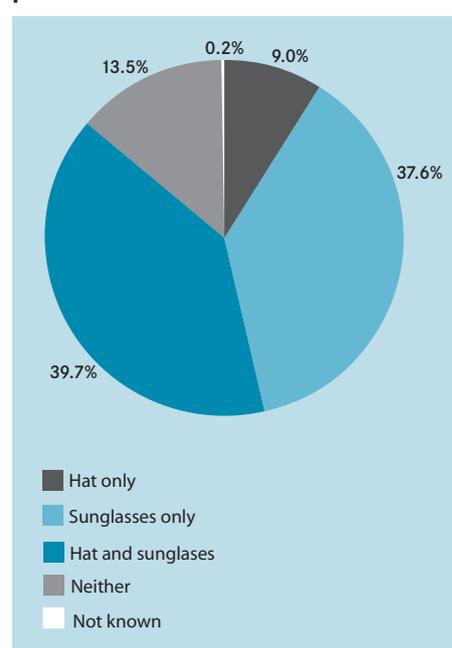
## 2.10 Folate consumption

A set of questions relating to knowledge and consumption of folate was introduced into the Victorian Population Health Survey in 2005. Females in the survey sample aged 18–50 years were asked about current consumption of folate supplements or multivitamins containing folate, the main reasons why women in their age group may be advised to take folate or folic acid, the main reason for consuming or not consuming folate and main source of information about folate or folic acid.

### Folate consumption at a glance

- Over three quarters of females aged 18–50 years (77 per cent) were not consuming folate supplements or any multivitamins containing folate.

- Over one in five females aged 25–34 years (21.5 per cent) were taking folate daily.

- Most females aged 18–24 years (67.1 per cent) did not know the main reason that women in their age group might be advised to take folate or folic acid.

- Over 40 per cent of females aged 25–34 years knew folate consumption was a pregnancy related issue.

- Among those females taking folate, 46.7 per cent of those aged 18–24 years stated the reason for taking the supplement was for their general health. Of those aged 25–34 years, 29.1 per cent were talking it because they were pregnant.

**Table 2.36: Female consumption of folate**

| Currently taking a folate supplement or a multivitamin containing folate | 18–24 years | | 25–34 years | | 35–50 years | | All (18–50 years) | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| No | 81.3 | 2.8 | 73.8 | 2.2 | 77.3 | 1.4 | 77.0 | 1.1 |
| Yes, daily | 12.3 | 2.3 | 21.5 | 2.0 | 17.5 | 1.3 | 17.7 | 1.0 |
| Yes, 1–3 times per week | 1.3 | 0.8 | 1.8 | 0.6 | 1.9 | 0.4 | 1.7 | 0.3 |
| Yes, 4–6 times per week | 1.0 | 0.7 | 0.5 | 0.3 | 0.6 | 0.3 | 0.7 | 0.2 |
| Yes, less often | 0.2 | 0.2 | 0.4 | 0.4 | 0.3 | 0.2 | 0.3 | 0.1 |
| Don't know | 3.8 | 1.3 | 1.9 | 0.7 | 2.4 | 0.5 | 2.5 | 0.4 |

*SE= standard error*

**Table 2.37: Female knowledge of reasons for taking folate/folic acid**

| Know main reason that women in age group might be advised to take folate or folic acid | 18–24 years | | 25–34 years | | 35–50 years | | All (18–50 years) | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| No | 67.1 | 3.6 | 35.4 | 2.6 | 37.3 | 1.6 | 42.7 | 1.4 |
| Yes, to help prevent birth defects | 7.2 | 1.9 | 10.1 | 1.5 | 8.3 | 0.9 | 8.6 | 0.7 |
| Yes, to improve general health | 1.6 | 0.8 | 2.9 | 0.9 | 5.7 | 0.8 | 4.0 | 0.5 |
| Yes, to balance the diet | 1.0 | 0.5 | 0.6 | 0.3 | 3.0 | 0.6 | 1.9 | 0.3 |
| Yes, pregnancy related issue | 15.5 | 2.8 | 41.4 | 2.6 | 22.2 | 1.3 | 26.7 | 1.2 |
| Yes, menopause/other ageing related issue | 0.0 | 0.0 | 0.5 | 0.4 | 2.2 | 0.5 | 1.2 | 0.3 |
| Yes, anaemia/iron deficiency/other blood related issues | 2.3 | 1.1 | 5.2 | 1.2 | 10.0 | 1.0 | 7.0 | 0.7 |
| Yes, osteoporosis/arthritis/other bone related issues | 2.8 | 1.2 | 2.8 | 0.8 | 6.8 | 0.9 | 4.8 | 0.5 |
| Other | 1.2 | 1.0 | 0.0 | 0.0 | 1.9 | 0.5 | 1.2 | 0.3 |
| Don't know | 1.2 | 1.1 | 1.0 | 0.5 | 2.6 | 0.5 | 1.8 | 0.4 |

*SE= standard error*

**Table 2.38: Main reason for taking folate (for those females currently taking a folate supplement or a multivitamin containing folic acid)**

| Main reason for taking folate | 18–24 years | | 25–34 years | | 35–50 years | | All (18–50 years) | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Because I could become pregnant | 0.2 | 0.2 | 3.4 | 1.5 | 4.4 | 1.4 | 3.4 | 0.9 |
| Because I'm trying to become pregnant | 1.0 | 1.0 | 11.7 | 3.0 | 7.4 | 1.9 | 8.0 | 1.5 |
| Because I am pregnant | 8.1 | 4.0 | 29.1 | 4.5 | 2.6 | 1.2 | 13.1 | 2.0 |
| For my general health | 46.7 | 9.0 | 23.2 | 4.0 | 37.4 | 3.5 | 33.6 | 2.7 |
| It's part of a multivitamin | 30.9 | 8.4 | 12.7 | 3.1 | 29.4 | 3.4 | 23.5 | 2.4 |
| Other | 13.1 | 6.4 | 18.8 | 3.9 | 17.4 | 2.9 | 17.3 | 2.2 |

*SE= standard error*

**Table 2.39: Reasons for females not taking folate**

| Reason for females not taking folate | 18–24 years | | 25–34 years | | 35–50 years | | All (18–50 years) | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| No reason/do not know anything about folate | 73.2 | 3.9 | 49.1 | 3.2 | 51.0 | 1.9 | 55.2 | 1.6 |
| Because I'm healthy/don't think I need it | 7.4 | 2.3 | 8.5 | 1.9 | 12.2 | 1.2 | 10.1 | 1.0 |
| Because I'm not planning to become pregnant | 7.6 | 2.4 | 17.1 | 2.3 | 12.9 | 1.3 | 13.0 | 1.0 |
| Because I'm not pregnant | 4.6 | 1.9 | 12.4 | 2.0 | 6.3 | 0.9 | 7.7 | 0.9 |
| Because it's too expensive | 0.5 | 0.5 | 0.2 | 0.2 | 0.8 | 0.4 | 0.6 | 0.2 |
| Because it's too much trouble | 1.3 | 1.1 | 4.2 | 1.3 | 2.8 | 0.6 | 2.9 | 0.6 |
| Because I obtain enough from food | 2.5 | 1.0 | 5.2 | 1.3 | 9.5 | 1.1 | 6.7 | 0.7 |
| Because I'm on other medication | 0.7 | 0.7 | 0.6 | 0.5 | 0.6 | 0.3 | 0.6 | 0.2 |
| Other | 0.4 | 0.3 | 2.7 | 0.9 | 2.8 | 0.7 | 2.2 | 0.5 |

*SE= standard error*

**Table 2.40: Females' main source of information about folate or folic acid**

| Main source of information about folate or folic acid | 18–24 years | | 25–34 years | | 35–50 years | | All (18–50 years) | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Radio | 0.0 | 0.0 | 0.0 | 0.0 | 0.4 | 0.2 | 0.2 | 0.1 |
| Television | 14.6 | 4.5 | 6.6 | 1.7 | 7.9 | 1.1 | 8.3 | 1.0 |
| Magazines and newspapers | 5.0 | 2.9 | 6.6 | 1.6 | 14.7 | 1.6 | 10.6 | 1.1 |
| Internet | 0.0 | 0.0 | 1.1 | 0.6 | 1.7 | 0.6 | 1.2 | 0.4 |
| Brochure | 0.9 | 0.5 | 3.7 | 1.2 | 5.2 | 1.0 | 4.1 | 0.7 |
| Family and friends | 14.5 | 4.4 | 8.8 | 1.9 | 5.4 | 1.0 | 7.8 | 1.0 |
| General practitioner/doctor | 5.5 | 2.3 | 37.4 | 3.1 | 30.2 | 2.0 | 29.4 | 1.6 |
| Other health professional | 7.0 | 3.3 | 10.8 | 1.9 | 10.4 | 1.3 | 10.1 | 1.1 |
| Other | 27.3 | 5.2 | 13.5 | 2.2 | 12.3 | 1.4 | 14.7 | 1.3 |
| Don't know | 25.3 | 5.8 | 11.4 | 2.4 | 11.8 | 1.4 | 13.5 | 1.4 |

*SE= standard error*

## 2.11 Water consumption

**Table 2.41: Water consumption**

| Usually drink when thirsty | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| | % | SE(%) | % | SE(%) | % | SE(%) |
| Water | 66.0 | 1.2 | 77.2 | 0.8 | 71.8 | 0.7 |
| Soft drink | 15.2 | 0.9 | 8.2 | 0.6 | 11.6 | 0.5 |
| Tea/coffee | 1.6 | 0.7 | 11.2 | 0.6 | 11.4 | 0.5 |
| Fruit juice | 3.6 | 0.5 | 2.3 | 0.3 | 3.0 | 0.3 |
| Milk | 1.7 | 0.3 | 0.7 | 0.2 | 1.2 | 0.2 |
| Alcohol | 1.6 | 0.3 | 0.1 | 0.1 | 0.8 | 0.1 |
| Sports/energy drink | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 |

*SE is the standard error*

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# 3. Self-reported health and selected health conditions

## 3.1 Introduction

Respondents to the Victorian Population Health Surveys were asked to summarise their perceptions of their health status by indicating whether, in general, they would say their health was *excellent*, *very good*, *good*, *fair* or *poor*. This measure of health status is simple and global. It has been increasingly used in studies that seek to understand the factors that contribute to the level of health achieved and health inequalities, including differences that occur by gender, race or ethnicity, education or income, disability and geographic location.[1–3] Self-rated health assessments have been found to be a powerful predictor of future health care use and mortality, independent of other medical, behavioural or psychosocial risk factors.[4,5] The survey also collected information on arthritis, heart disease, stroke, cancer, osteoporosis and anxiety/depression.

## 3.2 Survey results

### Self-reported health findings at a glance

• Most respondents reported their health as either excellent or very good, a pattern consistent over the years 2001–05.

• Six out of 10 females (60 per cent) aged 65 years or over reported that they had been told by a doctor that they had arthritis. Over four in 10 males (43.3 per cent) aged 65 years or over had been diagnosed with arthritis by a doctor.

• Over one in five females (22.2 per cent) aged 65 years or over reported they had been told by a doctor that they had osteoporosis.

• More than one in four males (27.5 per cent) aged 65 years or over reported

they had been told by a doctor they had been diagnosed with heart disease. A lower proportion of females (17.6 per cent) in the same age group had also been diagnosed with heart disease.

• The prevalence of stroke among those aged 65 years or over was 7.1 per cent.

• Almost one in five males (19 per cent) aged 65 years or over and 17.1 per cent of females in the same age group had been told by a doctor that they had some form of cancer.

• A higher proportion of females (22.3 per cent) than males (13.1 per cent) had been diagnosed with depression or anxiety. Among those aged 65 years or over, 18.2 per cent of females and 9.2 per cent of males had been diagnosed with depression or anxiety.

**Table 3.1: Self-reported health**

| | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Males** | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Excellent | 14.2 | 0.9 | 13.4 | 0.9 | 11.2 | 0.8 | 12.4 | 0.8 | 11.5 | 0.8 |
| Very good | 32.8 | 1.1 | 31.6 | 1.1 | 31.9 | 1.1 | 30.9 | 1.1 | 33.3 | 1.2 |
| Good | 35.1 | 1.2 | 36.4 | 1.2 | 40.8 | 1.2 | 39.3 | 1.2 | 37.0 | 1.2 |
| Fair | 15.0 | 0.9 | 15.2 | 0.8 | 13.4 | 0.8 | 14.6 | 0.9 | 14.6 | 0.9 |
| Poor | 2.8 | 0.4 | 3.5 | 0.4 | 2.6 | 0.4 | 2.7 | 0.4 | 3.5 | 0.4 |
| **Females** | | | | | | | | | | |
| Excellent | 14.5 | 0.7 | 13.5 | 0.7 | 13.2 | 0.7 | 13.5 | 0.7 | 11.5 | 0.6 |
| Very good | 35.0 | 1.0 | 35.7 | 1.0 | 35.4 | 1.0 | 33.6 | 0.9 | 34.3 | 1.0 |
| Good | 32.6 | 1.0 | 34.7 | 1.0 | 36.8 | 1.0 | 36.5 | 0.9 | 37.0 | 1.0 |
| Fair | 14.1 | 0.7 | 13.5 | 0.7 | 12.1 | 0.7 | 12.7 | 0.7 | 13.7 | 0.7 |
| Poor | 3.8 | 0.4 | 2.7 | 0.3 | 2.5 | 0.3 | 3.7 | 0.4 | 3.3 | 0.4 |
| **Persons** | | | | | | | | | | |
| Excellent | 14.4 | 0.5 | 13.4 | 0.6 | 12.3 | 0.5 | 13.0 | 0.5 | 11.5 | 0.5 |
| Very good | 33.9 | 0.7 | 33.7 | 0.7 | 33.7 | 0.7 | 32.3 | 0.7 | 33.8 | 0.8 |
| Good | 33.8 | 0.8 | 35.5 | 0.8 | 38.7 | 0.8 | 37.9 | 0.8 | 37.0 | 0.8 |
| Fair | 14.6 | 0.5 | 14.3 | 0.5 | 12.7 | 0.5 | 13.6 | 0.5 | 14.1 | 0.6 |
| Poor | 3.3 | 0.3 | 3.1 | 0.3 | 2.6 | 0.2 | 3.2 | 0.3 | 3.4 | 0.3 |

*SE= standard error*

**Figure 3.1: Self-reported health**



## Self-reported health

**Table 3.2: Self-reported health, by age group and sex**

| Age group (years) | Excellent | | Very good | | Good | | Fair | | Poor | |
|---|---|---|---|---|---|---|---|---|---|---|
| Males | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 14.1 | 2.9 | 37.9 | 3.9 | 33.7 | 3.8 | 13.7 | 2.5 | 0.7 | 0.4 |
| 25–34 | 11.7 | 2.6 | 39.2 | 3.7 | 33.0 | 3.5 | 12.2 | 2.4 | 3.8 | 1.5 |
| 35–44 | 10.0 | 1.7 | 31.4 | 2.6 | 43.6 | 2.7 | 13.1 | 1.9 | 1.9 | 0.8 |
| 45–54 | 9.9 | 1.5 | 29.7 | 2.3 | 41.4 | 2.5 | 15.6 | 2.0 | 3.1 | 0.8 |
| 55–64 | 13.0 | 1.9 | 32.1 | 2.5 | 30.9 | 2.5 | 18.2 | 2.2 | 5.6 | 1.3 |
| 65+ | 11.6 | 1.5 | 29.4 | 2.2 | 36.8 | 2.3 | 16.2 | 1.7 | 6.0 | 1.1 |
| *Total* | 11.5 | 0.8 | 33.3 | 1.2 | 37.0 | 1.2 | 14.6 | 0.9 | 3.5 | 0.4 |
| **Females** | | | | | | | | | | |
| 18–24 | 6.2 | 1.7 | 33.2 | 3.5 | 41.7 | 3.8 | 14.1 | 2.8 | 4.8 | 1.7 |
| 25–34 | 9.5 | 1.6 | 34.2 | 2.5 | 41.3 | 2.7 | 13.2 | 1.7 | 1.8 | 0.7 |
| 35–44 | 12.6 | 1.4 | 38.2 | 2.0 | 35.5 | 2.0 | 10.7 | 1.3 | 2.9 | 0.8 |
| 45–54 | 15.0 | 1.5 | 36.7 | 2.1 | 32.9 | 2.1 | 11.9 | 1.4 | 3.3 | 0.7 |
| 55–64 | 12.8 | 1.4 | 32.6 | 2.1 | 35.4 | 2.2 | 14.8 | 1.7 | 4.2 | 0.9 |
| 65+ | 11.6 | 1.2 | 30.2 | 1.9 | 36.2 | 1.9 | 17.7 | 1.5 | 3.4 | 0.7 |
| *Total* | 11.5 | 0.6 | 34.3 | 1.0 | 37.0 | 1.0 | 13.7 | 0.7 | 3.3 | 0.4 |
| **Persons** | | | | | | | | | | |
| 18–24 | 10.2 | 1.7 | 35.6 | 2.7 | 37.6 | 2.7 | 13.9 | 1.9 | 2.7 | 0.9 |
| 25–34 | 10.6 | 1.5 | 36.7 | 2.2 | 37.2 | 2.2 | 12.7 | 1.5 | 2.8 | 0.8 |
| 35–44 | 11.3 | 1.1 | 34.8 | 1.6 | 39.5 | 1.7 | 11.9 | 1.1 | 2.5 | 0.6 |
| 45–54 | 12.5 | 1.1 | 33.3 | 1.6 | 37.1 | 1.6 | 13.8 | 1.2 | 3.2 | 0.6 |
| 55–64 | 12.9 | 1.2 | 32.3 | 1.6 | 33.2 | 1.7 | 16.5 | 1.4 | 4.9 | 0.8 |
| 65+ | 11.6 | 1.0 | 29.8 | 1.4 | 36.5 | 1.5 | 17.0 | 1.1 | 4.6 | 0.6 |
| *Total* | 11.5 | 0.5 | 33.8 | 0.8 | 37.0 | 0.8 | 14.1 | 0.6 | 3.4 | 0.3 |

*SE= standard error*

**Figure 3.2: Self-reported health, 2005**

**Figure 3.3: Self-reported health, by age group–males**
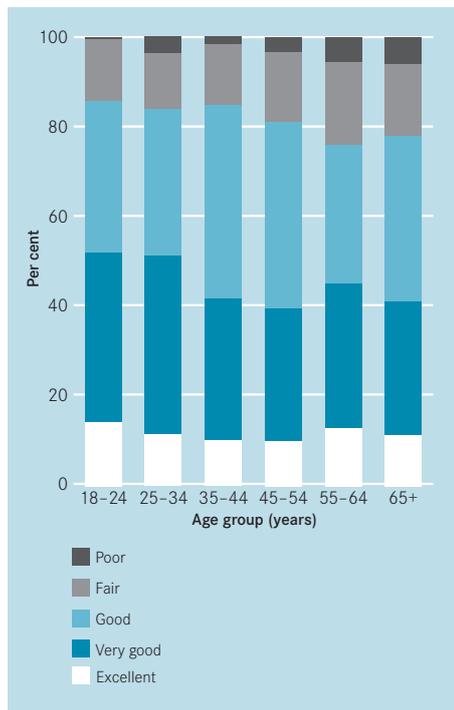


**Figure 3.4: Self-reported health, by age group–females**
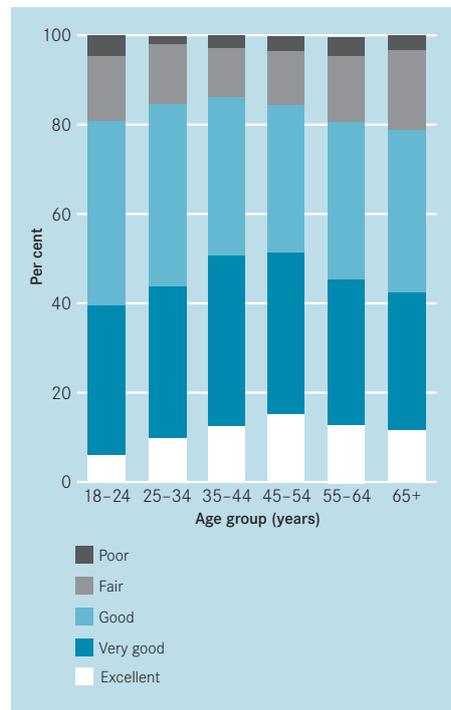


## Self-reported health and risk factors

After adjusting for age and sex, those persons most likely to report fair/poor health were those with lower education levels, in non-professional occupations, unemployed or not in the labour force, living in rented dwellings, on lower household incomes, smokers, those overweight or obese, and those not having sufficient levels of physical activity (table 3.3).

**Table 3.3: Fair/poor self-reported health and risk factors**

| Area of Victoria | Odds ratio | 95% confidence interval | | p value |
|---|---|---|---|---|
| | | Lower level | Upper level | |
| Metropolitan | 1.00 | – | – | – |
| Non-metropolitan | 1.02 | 0.89 | 1.17 | 0.766 |
| **Country of birth** | | | | |
| Australia | 1.00 | – | – | – |
| Overseas | 0.91 | 0.75 | 1.10 | 0.330 |
| **Education level** | | | | |
| Tertiary | 1.00 | – | – | – |
| Secondary | 1.63 | 1.37 | 1.94 | <0.001 |
| Primary | 2.53 | 1.69 | 3.79 | <0.001 |
| **Occupation** | | | | |
| Professional | 1.00 | – | – | – |
| Non-professional | 1.73 | 1.34 | 2.22 | <0.001 |
| **Employment status** | | | | |
| Employed | 1.00 | – | – | – |
| Unemployed | 1.83 | 1.20 | 2.81 | 0.005 |
| Not in the labour force | 1.77 | 1.46 | 2.15 | <0.001 |
| **Household income per year** | | | | |
| Greater than or equal to $60,000 | 1.00 | – | – | – |
| From $40,000 to less than $60,000 | 1.34 | 1.02 | 1.79 | 0.037 |
| From $20,000 to less than $40,000 | 1.89 | 1.47 | 2.44 | <0.001 |
| Less than $20,000 | 2.48 | 1.94 | 3.16 | <0.001 |
| **Private health insurance** | | | | |
| Yes | 1.00 | – | – | – |
| No | 1.65 | 1.39 | 1.95 | <0.001 |
| **Dwelling ownership** | | | | |
| Owned | 1.00 | – | – | – |
| Rented | 1.65 | 1.32 | 2.07 | <0.001 |
| **Smoking status** | | | | |
| Non-smoker | 1.00 | – | – | – |
| Ex-smoker | 1.37 | 1.13 | 1.66 | 0.001 |
| Smoker | 2.20 | 1.78 | 2.73 | <0.001 |
| **Body mass index** | | | | |
| Not overweight | 1.00 | – | – | – |
| Overweight | 1.68 | 1.41 | 2.02 | <0.001 |
| **Physical activity** | | | | |
| Sufficient | 1.00 | – | – | – |
| Sedentary/insufficient | 1.60 | 1.25 | 2.91 | 0.003 |

*– Not applicable*

## Selected health conditions

The survey collected information on doctor-diagnosed heart disease, stroke, cancer, arthritis, depression/anxiety and arthritis.

- *Heart disease*: over one quarter of males aged 65 years or over (27.5 per cent) reported they had been diagnosed with heart disease. Of females in this age group, 17.6 per cent had been diagnosed with heart disease.

- *Stroke*: of males aged 65 years or over, 7.7 per cent reported they had experienced a stroke, a similar proportion to females (6.6 per cent) in this age group.

- *Cancer*: almost one in five males aged 65 years or over (19 per cent) and 17.1 per cent of females in the same age group reported having some form of cancer.

- *Osteoporosis*: of females aged 65 years or over, 22.2 per cent had osteoporosis.

- *Depression or anxiety*: almost one quarter of females (24 per cent) aged 55–64 years reported having depression or anxiety.

- *Arthritis*: six out of ten females (60 per cent) aged 65 years or over reported having arthritis. More than four in ten males (43.3 per cent) also reported having the condition.

**Table 3.4: Selected health conditions, by sex**

| | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Males** | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Heart disease | 7.5 | 0.6 | 6.7 | 0.5 | 7.2 | 0.6 | 6.7 | 0.5 | 8.1 | 0.6 |
| Stroke | 2.3 | 0.3 | 1.8 | 0.3 | 1.5 | 0.2 | 2.7 | 0.4 | 2.3 | 0.3 |
| Cancer | 6.3 | 0.5 | 5.9 | 0.5 | 5.6 | 0.5 | 5.0 | 0.5 | 6.2 | 0.5 |
| Osteoporosis* | – | – | – | – | 1.2 | 0.2 | 1.8 | 0.3 | 1.8 | 0.3 |
| Depression or anxiety | 12.7 | 0.8 | 12.7 | 0.8 | 10.9 | 0.7 | 13.7 | 0.8 | 13.1 | 0.9 |
| Arthritis | 18.5 | 0.9 | 20.0 | 0.9 | 15.7 | 0.8 | 16.2 | 0.8 | 15.0 | 0.7 |
| **Females** | | | | | | | | | | |
| Heart disease | 5.5 | 0.5 | 5.2 | 0.4 | 4.7 | 0.4 | 4.0 | 0.4 | 6.0 | 0.5 |
| Stroke | 1.8 | 0.3 | 1.8 | 0.2 | 1.8 | 0.2 | 2.2 | 0.3 | 1.7 | 0.2 |
| Cancer | 7.5 | 0.5 | 6.5 | 0.4 | 6.4 | 0.5 | 6.5 | 0.5 | 6.9 | 0.4 |
| Osteoporosis* | 5.8 | 0.5 | 6.1 | 0.5 | 6.3 | 0.5 | 6.9 | 0.5 | 7.0 | 0.4 |
| Depression or anxiety | 20.6 | 0.8 | 19.4 | 0.8 | 18.7 | 0.8 | 23.5 | 0.8 | 22.3 | 0.8 |
| Arthritis | 26.1 | 0.9 | 25.9 | 0.9 | 23.5 | 0.8 | 23.4 | 0.8 | 24.3 | 0.8 |
| **Persons** | | | | | | | | | | |
| Heart disease | 6.5 | 0.4 | 5.9 | 0.3 | 5.9 | 0.3 | 5.3 | 0.3 | 7.0 | 0.4 |
| Stroke | 2.0 | 0.2 | 1.8 | 0.2 | 1.6 | 0.2 | 2.4 | 0.2 | 2.0 | 0.2 |
| Cancer | 6.9 | 0.4 | 6.2 | 0.3 | 6.0 | 0.3 | 5.7 | 0.3 | 6.6 | 0.3 |
| Osteoporosis* | – | – | – | – | 3.8 | 0.3 | 4.4 | 0.3 | 4.5 | 0.3 |
| Depression or anxiety | 16.7 | 0.6 | 16.1 | 0.5 | 14.9 | 0.5 | 18.7 | 0.6 | 17.9 | 0.6 |
| Arthritis | 22.4 | 0.6 | 23.0 | 0.6 | 19.7 | 0.6 | 19.9 | 0.6 | 19.8 | 0.6 |

*\* Only collected for females for 2001, 2002*

*– Not available*

*SE = standard error*

**Table 3.5: Selected health conditions, by sex and age group**

| | Heart disease | | Stroke | | Cancer | | Osteoporosis | | Depression or anxiety | | Arthritis | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Males | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–54 years | 2.3 | 0.4 | 0.7 | 0.3 | 2.5 | 0.5 | 0.8 | 0.4 | 13.3 | 1.1 | 7.1 | 0.7 |
| 55–64 years | 15.6 | 2.1 | 3.8 | 1.0 | 10.6 | 1.8 | 2.8 | 0.8 | 16.7 | 1.9 | 23.4 | 2.2 |
| 65 years or over | 27.5 | 2.1 | 7.7 | 1.2 | 19.0 | 1.8 | 5.3 | 1.0 | 9.2 | 1.3 | 43.3 | 2.3 |
| Females | | | | | | | | | | | | |
| 18–54 years | 2.4 | 0.4 | 0.4 | 0.1 | 2.9 | 0.4 | 2.0 | 0.3 | 23.2 | 1.1 | 10.7 | 0.7 |
| 55–64 years | 7.7 | 1.2 | 2.1 | 0.4 | 12.6 | 1.5 | 11.3 | 1.3 | 24.0 | 1.8 | 42.8 | 2.2 |
| 65 years or over | 17.6 | 1.7 | 6.6 | 0.9 | 17.1 | 1.5 | 22.2 | 1.6 | 18.2 | 1.5 | 60.0 | 2.0 |
| Persons | | | | | | | | | | | | |
| 18–54 years | 2.4 | 0.3 | 0.6 | 0.1 | 2.7 | 0.3 | 1.4 | 0.2 | 18.3 | 0.8 | 8.9 | 0.5 |
| 55–64 years | 11.7 | 1.2 | 2.9 | 0.5 | 11.6 | 1.2 | 7.0 | 0.8 | 20.4 | 1.3 | 33.1 | 1.6 |
| 65 years or over | 22.0 | 1.3 | 7.1 | 0.8 | 17.9 | 1.1 | 14.8 | 1.0 | 14.2 | 1.0 | 52.6 | 1.5 |

*SE = standard error*

**Figure 3.5: Reported health conditions, by age group– males**
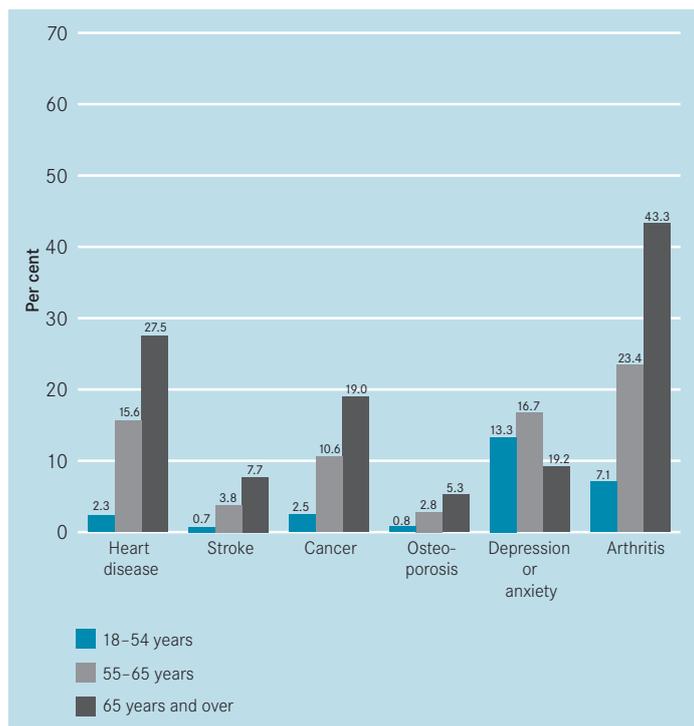


**Figure 3.6: Reported health conditions, by age group– females**
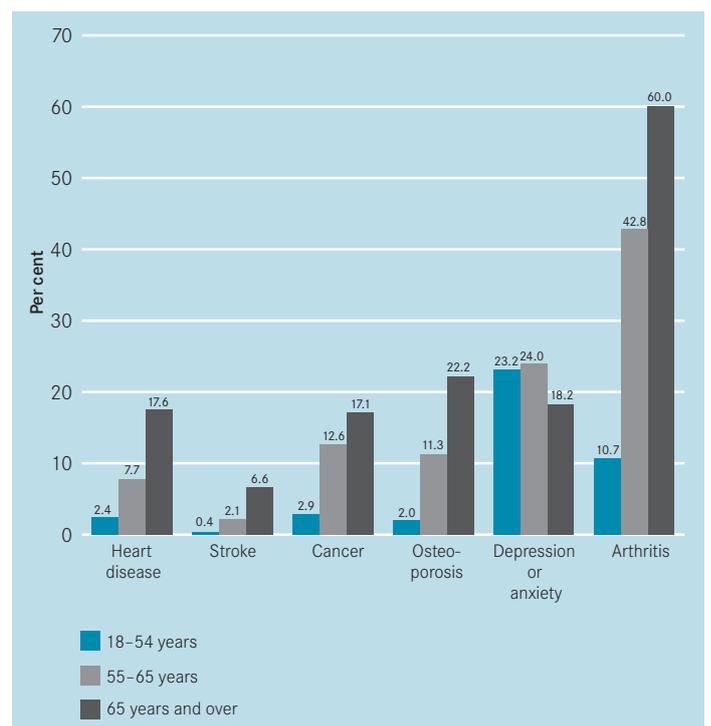
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# 4. Obesity among adults

## 4.1 Introduction

The body mass index (BMI) is a measurement that is widely used by researchers studying obesity. It uses a formula that accounts for both a person's height and their weight:

$$BMI = weight\ (kilograms)/height\ (in\ metres)\ squared\ (m^2).$$

The Victorian Population Health Survey 2005 collected self-reported height and weight from respondents. The prevalence of obesity is known to be underestimated in data from self-reported telephone surveys, compared with data from measurement surveys. The true prevalence of obesity, therefore, is likely to be underestimated. Self-reported data still have a place in health monitoring, however, because such data are relatively inexpensive and easy to collect, and may be used for reporting trends over time.[1] A further note is that BMI calculations fail to consider lean body mass, such that the BMI formula may classify a healthy, muscular individual with very low body fat as being obese. Table 4.1 shows the weight classifications according to the BMI for the period 2002–05.[2,3]

## 4.2 Survey results

### Obesity findings at a glance

- In 2005, 47.9 per cent of all persons aged 18 years or over were categorised as being either overweight or obese (32.3 per cent were categorised as overweight and 15.6 per cent were categorised as obese).

- Almost four in 10 males (38.9 per cent) aged 18 years or over were categorised as overweight, with a further 15.2 per cent categorised as obese.

- 26 per cent of females aged 18 years or over were categorised as being overweight, with a further 16 per cent categorised as obese.

- Males in the age group 45–54 years had the highest proportion categorised as overweight or obese, at 67.4 per cent (figure 4.4).

- For females, those in the age group 55–64 years had the highest proportion categorised as overweight or obese, at 56.2 per cent.

- After adjusting for age and sex, those persons most likely to be categorised as being overweight/obese were those living in non-metropolitan areas, those without private health insurance, smokers and ex-smokers, those who have had doctor diagnosed high blood pressure and those with fair/poor self-rated health.

**Figure 4.1: Overweight/obese males**



**Figure 4.2: Overweight/obese females**



**Table 4.1: Body mass index, 2002–05**

| BMI category | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Underweight | 3.4 | 0.3 | 3.3 | 0.3 | 3.5 | 0.3 | 2.5 | 0.3 |
| Normal weight | 48.2 | 0.8 | 46.9 | 0.8 | 44.4 | 0.8 | 45.0 | 0.8 |
| Overweight | 30.9 | 0.7 | 31.7 | 0.7 | 32.3 | 0.7 | 32.3 | 0.7 |
| Obese | 14.6 | 0.6 | 14.1 | 0.5 | 14.5 | 0.5 | 15.6 | 0.6 |

*SE = standard error*
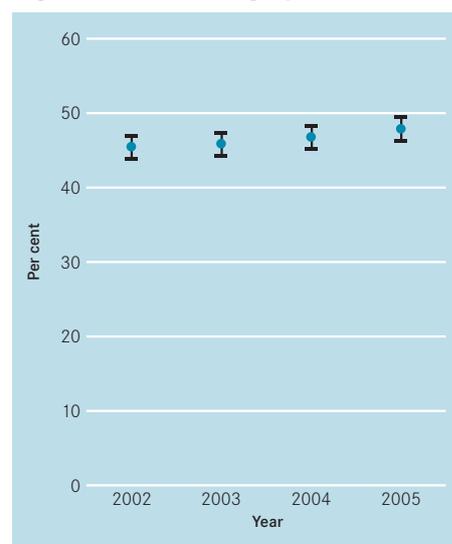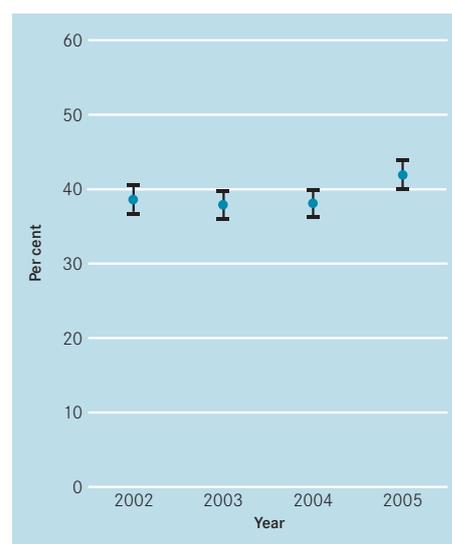
**Figure 4.3: Overweight/obese persons**
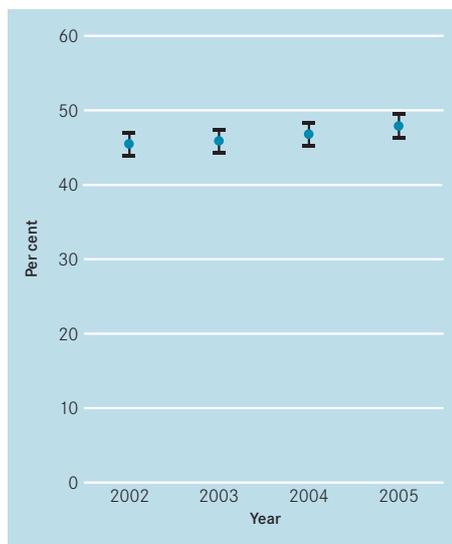


## Overweight/obese adults

The proportion of both males and females categorised as being either overweight or obese rose steadily with age until the age group 55–64 years (table 4.2). The highest proportion of overweight/obese males was in the age group 45–54 years (67.4 per cent) and the highest proportion of overweight/ obese females was in the age group 55–64 years (56.1 per cent) (figure 4.4).

**Table 4.2: Overweight/obese adults, by age and sex**

| | BMI | | | | | | | |
| | Underweight | | Normal weight | | Overweight | | Obese | |
| Males | % | SE (%) | % | SE (%) | | SE (%) | % | SE (%) |
|---|---|---|---|---|---|---|---|---|
| 18–24 | 4.7 | 1.6 | 65.2 | 3.8 | 19.2 | 3.1 | 5.0 | 1.5 |
| 25–34 | 0.8 | 0.6 | 47.2 | 3.8 | 34.5 | 3.4 | 15.4 | 2.7 |
| 35–44 | 0.8 | 0.6 | 35.7 | 2.7 | 43.2 | 2.7 | 17.5 | 2.1 |
| 45–54 | 1.0 | 0.5 | 29.1 | 2.3 | 47.1 | 2.6 | 20.3 | 2.0 |
| 55–64 | 1.0 | 0.5 | 35.4 | 2.6 | 42.7 | 2.7 | 19.3 | 2.1 |
| 65+ | 1.6 | 0.5 | 40.0 | 2.3 | 43.3 | 2.3 | 11.6 | 1.5 |
| Total | 1.5 | 0.3 | 41.3 | 1.3 | 38.9 | 1.2 | 15.2 | 0.9 |
| Females | | | | | | | | |
| 18–24 | 6.6 | 2.1 | 62.7 | 3.7 | 16.3 | 2.9 | 6.7 | 1.6 |
| 35–34 | 4.8 | 1.2 | 51.5 | 2.7 | 24.9 | 2.3 | 13.6 | 1.7 |
| 35–44 | 4.1 | 0.9 | 53.7 | 2.1 | 23.0 | 1.7 | 13.9 | 1.5 |
| 45–54 | 2.2 | 0.6 | 47.9 | 2.2 | 27.9 | 2.0 | 16.2 | 1.5 |
| 55–64 | 0.5 | 0.3 | 38.2 | 2.2 | 32.0 | 2.1 | 24.2 | 2.0 |
| 65+ | 3.0 | 0.7 | 38.2 | 1.9 | 30.2 | 1.8 | 20.6 | 1.8 |
| Total | 3.5 | 0.4 | 48.4 | 1.0 | 26.0 | 0.9 | 16.0 | 0.7 |
| Persons | | | | | | | | |
| 18–24 | 5.6 | 1.3 | 64.0 | 2.6 | 17.7 | 2.1 | 5.8 | 1.1 |
| 25–34 | 2.8 | 0.7 | 49.4 | 2.3 | 29.7 | 2.1 | 14.5 | 1.6 |
| 35–44 | 2.5 | 0.5 | 44.8 | 1.7 | 33.0 | 1.6 | 15.7 | 1.3 |
| 45–54 | 1.6 | 0.4 | 38.6 | 1.6 | 37.4 | 1.6 | 18.2 | 1.3 |
| 55–64 | 0.7 | 0.3 | 36.8 | 1.7 | 37.3 | 1.7 | 21.7 | 1.5 |
| 65+ | 2.4 | 0.4 | 39.0 | 1.5 | 36.0 | 1.5 | 16.7 | 1.2 |
| All persons | 2.5 | 0.3 | 45.0 | 0.8 | 32.3 | 0.7 | 15.6 | 0.6 |

*SE = standard error*

**Figure 4.4: Overweight/obese persons by age group**
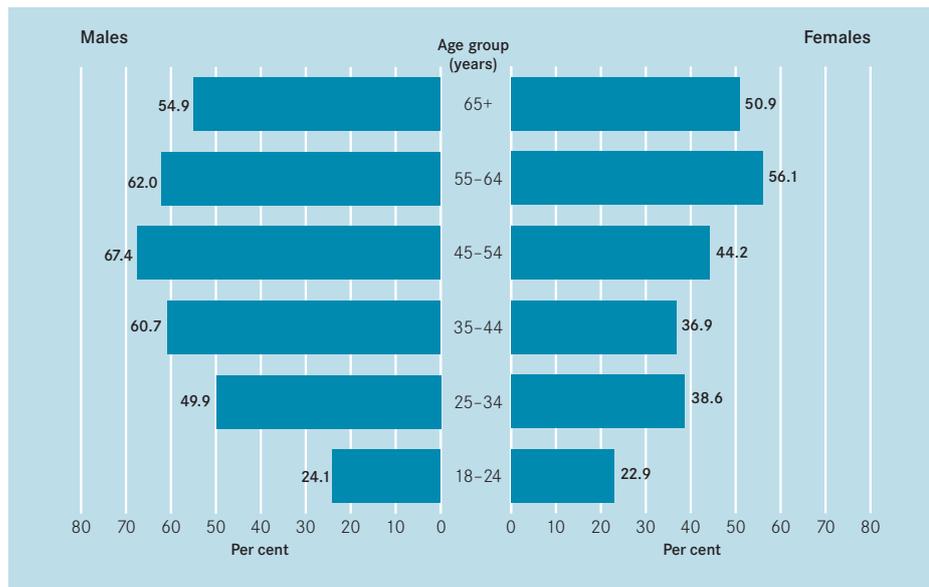


| Males | Age group (years) | Females |
|---|---|---|
| 54.9 | 65+ | 50.9 |
| 62.0 | 55–64 | 56.1 |
| 67.4 | 45–54 | 44.2 |
| 60.7 | 35–44 | 36.9 |
| 49.9 | 25–34 | 38.6 |
| 24.1 | 18–24 | 22.9 |

## Overweight/obesity and risk factors

After adjusting for age and sex, those persons most likely to be categorised as being overweight/obese were those living in non-metropolitan areas, those without private health insurance, smokers and ex-smokers, those who have had doctor diagnosed high blood pressure and those with fair/poor self-rated health (table 4.3).

**Table 4.3: Overweight/obesity and risk factors**

| Area of Victoria | Odds ratio | 95% confidence interval | | p value |
|---|---|---|---|---|
| | | Lower level | Upper level | |
| Metropolitan | 1.00 | – | – | – |
| Non-metropolitan | 1.25 | 1.12 | 1.39 | <0.001 |
| **Country of birth** | | | | |
| Australia | 1.00 | – | – | – |
| Overseas | 0.87 | 0.75 | 1.01 | 0.086 |
| **Education level** | | | | |
| Tertiary | 1.00 | – | – | – |
| Secondary | 0.99 | 0.86 | 1.12 | 0.823 |
| Primary | 1.03 | 0.73 | 1.47 | 0.845 |
| **Occupation** | | | | |
| Professional | 1.00 | – | – | – |
| Non-professional | 1.13 | 0.95 | 1.34 | 0.176 |
| **Employment status** | | | | |
| Employed | 1.00 | – | – | – |
| Unemployed | 1.35 | 0.89 | 2.08 | 0.155 |
| Not in the labour force | 0.72 | 0.62 | 0.83 | <0.001 |
| **Household income per year** | | | | |
| Greater than or equal to $60,000 | 1.00 | – | – | – |
| From $40,000 to less than $60,000 | 1.33 | 1.09 | 1.62 | 0.004 |
| From $20,000 to less than $40,000 | 1.07 | 0.89 | 1.30 | 0.467 |
| Less than $20,000 | 0.89 | 0.74 | 1.08 | 0.238 |
| **Private health insurance** | | | | |
| Yes | 1.00 | – | – | – |
| No | 1.13 | 1.00 | 1.30 | 0.049 |
| **Dwelling ownership** | | | | |
| Owned | 1.00 | – | – | – |
| Rented | 1.02 | 0.85 | 1.23 | 0.810 |
| **Smoking status** | | | | |
| Non-smoker | 1.00 | – | – | – |
| Ex-smoker | 1.32 | 1.13 | 1.54 | <0.001 |
| Smoker | 1.27 | 1.07 | 1.51 | 0.006 |
| **High blood pressure ever** | | | | |
| No | 1.00 | – | – | – |
| Yes | 1.99 | 1.73 | 2.30 | <0.001 |
| **Level of psychological distress** | | | | |
| <16 (none) | 1.00 | – | – | – |
| 16–21 (low) | 1.07 | 0.91 | 1.25 | 0.425 |
| 22–29 (mild) | 1.06 | 0.83 | 1.34 | 0.660 |
| 30 or over (high to severe) | 1.18 | 0.82 | 1.72 | 0.257 |
| **Physical activity** | | | | |
| Sufficient | 1.00 | – | – | – |
| Sedentary/insufficient | 1.02 | 0.89 | 1.16 | 0.807 |
| **Self-rated health** | | | | |
| Excellent/very good | 1.00 | – | – | – |
| Good | 1.48 | 1.28 | 1.70 | <0.001 |
| Fair/poor | 1.77 | 1.47 | 2.12 | <0.001 |

*– Not applicable*

## References

1. Flood V, Webb K, Lazarus R & Panf G 1999, 'Use of self-report to monitor overweight and obesity in populations: some issues for consideration', *Australian and New Zealand Journal of Public Health*, vol. 24, pp. 96–9.

2. Australian Institute of Health and Welfare & Australian Department of Health and Family Services 1997, *First report on national health priority areas 1996*, Canberra.

3. World Health Organisation 1997, *Obesity: preventing and managing the global epidemic*, Geneva.

# 5. Asthma

## 5.1 Introduction

Asthma is a common, chronic disorder affecting the airways of the lungs. Narrowing of these air passages (caused by the inflammation and swelling of the airway lining, and the overproduction of mucus) results in airway obstruction and difficulty with breathing, which may be reversed either spontaneously or with medical treatment. The disease affects all age groups, but particularly young persons, and ranges in severity from intermittent mild symptoms to a severe, incapacitating and life threatening disorder.

Asthma was designated as a national health priority in 1999, in recognition that it is one of Australia's most serious chronic health problems. Across Australia, 314 deaths from asthma and status asthmaticus occurred in 2003.[2]

Asthma prevalence may be measured in terms of different definitions of the condition. Self-reported measures, such as those collected by the survey, typically report prevalence in Australia at around 27 per cent in children and 17–29 per cent in adults.[3] These proportions are quite different from those found via objective measures of lung function, which typically observe the prevalence of current or persistent asthma (wheezing episodes with abnormal airway function between episodes) at 9–11 per cent in children and 5–6 per cent in adults.[3]

## 5.2 Survey results

### Asthma at a glance

- Over one in five persons aged 18 years or over (21.1 per cent) had asthma ever and 11.3 per cent reported having current asthma.

- Overall, 13 per cent per cent of females and 9.5 per cent of males reported having current asthma.

- Current asthma prevalence was higher among females than males across all age groups.

- After adjusting for age and sex (table 5.4), those persons most likely to have been diagnosed with asthma ever were those born in Australia, those living in non-metropolitan areas, those not in the labour force and those categorised as overweight.

Respondents were asked whether a doctor had ever told them that they have asthma and, if so, whether they had had asthma symptoms (wheezing, coughing, shortness of breath, chest tightness) in the 12 months before the survey. Those persons who responded yes to the first question are referred to as the population with asthma ever. Those persons who responded yes to the question about still getting asthma at the time of the survey are referred to as the population with current asthma. Over one in five persons aged 18 years or over (21.1 per cent) had asthma ever and 11.3 per cent reported having current asthma.

**Table 5.1: Asthma prevalence**

|  | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Asthma ever | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Males | 20.2 | 1.0 | 20.1 | 1.0 | 18.5 | 0.9 | 18.6 | 1.0 | 19.9 | 1.0 |
| Females | 23.7 | 0.9 | 23.7 | 0.8 | 22.1 | 0.8 | 21.8 | 0.8 | 22.2 | 0.8 |
| Persons | 22.0 | 0.6 | 21.9 | 0.7 | 20.4 | 0.6 | 20.2 | 0.6 | 21.1 | 0.7 |
| Current asthma | | | | | | | | | | |
| Males | 10.0 | 0.7 | 9.7 | 0.8 | 9.5 | 0.7 | 8.7 | 0.7 | 9.5 | 0.8 |
| Females | 14.5 | 0.7 | 15.3 | 0.7 | 13.8 | 0.7 | 12.2 | 0.6 | 13.0 | 0.7 |
| Persons | 12.3 | 0.5 | 12.6 | 0.5 | 11.7 | 0.5 | 10.5 | 0.5 | 11.3 | 0.5 |

*SE = standard error*

**Figure 5.1: Persons with asthma, 2001–05**
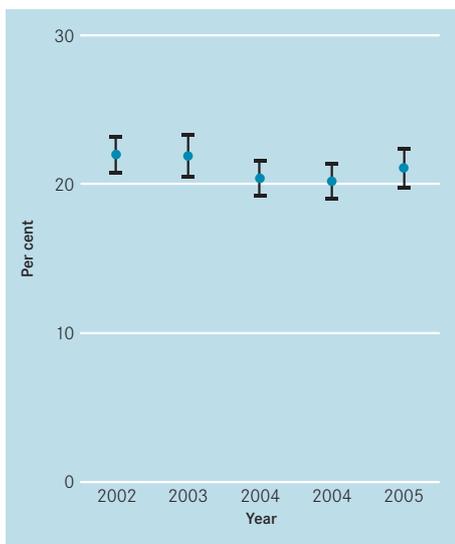


**Figure 5.2: Males with asthma, 2001–05**
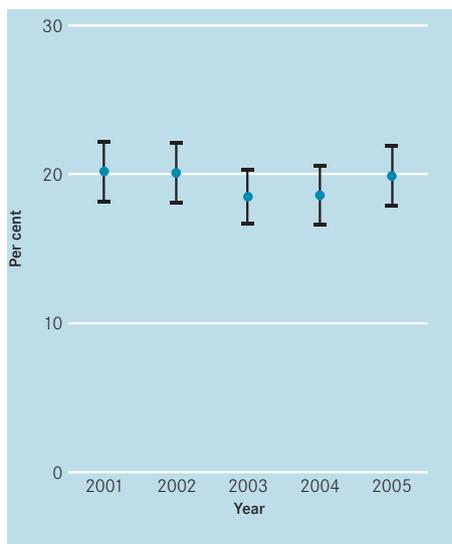


**Figure 5.3: Females with asthma, 2001–05**
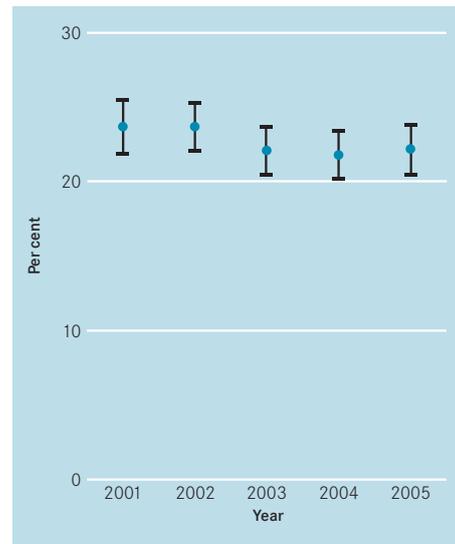


**Figure 5.4: Asthma prevalence, by age group–males**
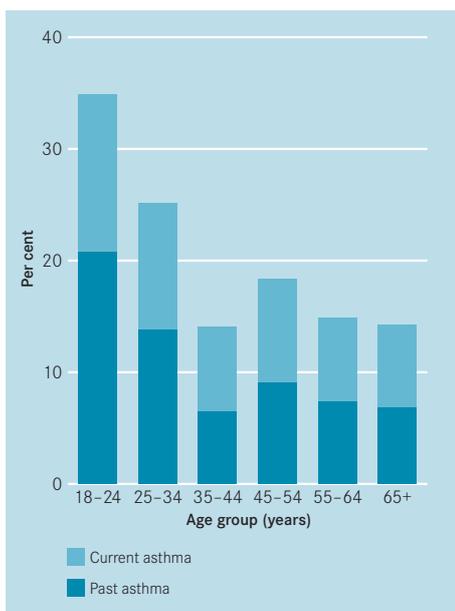


**Figure 5.5: Asthma prevalence, by age group–females**
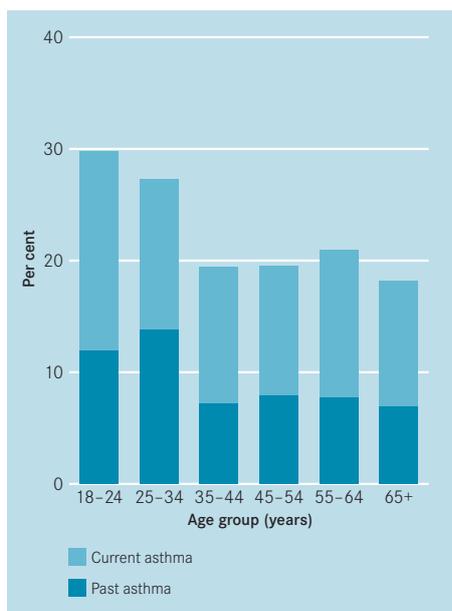
## Asthma ever

Younger age groups were most likely to have been diagnosed with asthma ever, with 32.4 per cent of persons aged 18–24 years reporting they had been told by a doctor that they had the condition (table 5.2). Overall, 22.2 per cent of females and 19.9 per cent of males reported they had been diagnosed with asthma ever (table 5.2). Asthma prevalence was higher among females in all age groups, except for the younger age group of 18–24 years.

**Figure 5.6: Asthma ever, by age and sex**



## Current asthma

Overall, 9.5 per cent of males and 13 per cent of females reported having current asthma (table 5.3). The highest prevalence was among females aged 18–24 years–at 17.9 per cent–followed by males in the same age group, at 14.1 per cent.

**Figure 5.7: Current asthma ever, by age and sex**
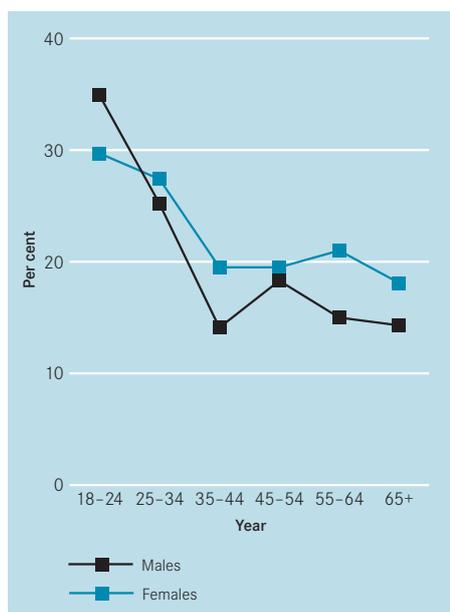


**Table 5.2: Prevalence of asthma ever, by age and sex**

| | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| Age group (years) | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 34.9 | 3.8 | 29.7 | 3.5 | 32.4 | 2.6 |
| 25–34 | 25.2 | 3.2 | 27.4 | 2.4 | 26.3 | 2.0 |
| 35–44 | 14.1 | 1.9 | 19.5 | 1.6 | 16.8 | 1.2 |
| 45–54 | 18.3 | 1.9 | 19.5 | 1.6 | 18.9 | 1.3 |
| 55–64 | 15.0 | 1.9 | 21.0 | 1.9 | 18.0 | 1.4 |
| 65+ | 14.3 | 1.6 | 18.1 | 1.5 | 16.4 | 1.1 |
| All | 19.9 | 1.0 | 22.2 | 0.8 | 21.1 | 0.7 |

*SE = standard error*

**Table 5.3: Prevalence of current asthma, by age and sex**

| | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| Age group (years) | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 14.1 | 2.9 | 17.9 | 3.1 | 16.0 | 2.1 |
| 25–34 | 11.4 | 2.4 | 13.5 | 1.9 | 12.5 | 1.5 |
| 35–44 | 7.6 | 1.5 | 12.2 | 1.3 | 10.0 | 1.0 |
| 45–54 | 9.2 | 1.4 | 11.6 | 1.3 | 10.4 | 0.9 |
| 55–64 | 7.5 | 1.5 | 13.3 | 1.5 | 10.4 | 1.1 |
| 65+ | 7.5 | 1.3 | 11.3 | 1.2 | 9.6 | 0.9 |
| All | 9.5 | 0.8 | 13.0 | 0.7 | 11.3 | 0.5 |

*SE = standard error*

## Asthma and risk factors

After adjusting for age and sex (table 5.4) those persons most likely to have been diagnosed with asthma ever were those born in Australia, those living in non-metropolitan areas, those not in the labour force and those categorised as overweight.

**Table 5.4: Doctor diagnosed asthma ever, by risk factors**

| Area of Victoria | Odds ratio | 95% confidence interval Lower level | 95% confidence interval Upper level | p value |
|---|---|---|---|---|
| Metropolitan | 1.00 | – | – | – |
| Non-metropolitan | 1.15 | 1.00 | 1.31 | 0.045 |
| **Country of birth** | | | | |
| Australia | 1.00 | – | – | – |
| Overseas | 0.54 | 0.44 | 0.66 | <0.001 |
| **Education level** | | | | |
| Tertiary | 1.00 | – | – | – |
| Secondary | 1.06 | 0.90 | 1.25 | 0.481 |
| Primary | 0.84 | 0.55 | 1.27 | 0.396 |
| **Occupation** | | | | |
| Professional | 1.00 | – | – | – |
| Non-professional | 0.93 | 0.75 | 1.15 | 0.497 |
| **Employment status** | | | | |
| Employed | 1.00 | – | – | – |
| Unemployed | 1.06 | 0.66 | 1.71 | 0.808 |
| Not in the labour force | 1.20 | 1.00 | 1.43 | 0.048 |
| **Household income per year** | | | | |
| Greater than or equal to $60,000 | 1.00 | – | – | – |
| From $40,000 to less than $60,000 | 1.08 | 0.85 | 1.38 | 0.512 |
| From $20,000 to less than $40,000 | 0.95 | 0.76 | 1.18 | 0.639 |
| Less than $20,000 | 1.03 | 0.82 | 1.29 | 0.794 |
| **Private health insurance** | | | | |
| Yes | 1.00 | – | – | – |
| No | 0.96 | 0.82 | 1.13 | 0.626 |
| **Dwelling ownership** | | | | |
| Owned | 1.00 | – | – | – |
| Rented | 1.02 | 0.83 | 1.26 | 0.856 |
| **Smoking status** | | | | |
| Non-smoker | 1.00 | – | – | – |
| Ex-smoker | 1.10 | 0.91 | 1.32 | 0.316 |
| Smoker | 1.14 | 0.93 | 1.41 | 0.210 |
| **High blood pressure ever** | | | | |
| No | 1.00 | – | – | – |
| Yes | 1.41 | 1.18 | 1.67 | <0.001 |
| **Body mass index** | | | | |
| Not overweight | 1.00 | – | – | – |
| Overweight | 1.29 | 1.09 | 1.52 | 0.003 |
| **Physical activity** | | | | |
| Sufficient | 1.00 | – | – | – |
| Sedentary/insufficient | 0.92 | 0.77 | 1.09 | 0.318 |

*– Not applicable*

## Asthma action plans

Those persons aged 18 years or over who had had symptoms of asthma in the 12 months before the survey were asked, 'Has your doctor given you written instructions or an asthma action plan, telling you what to do when you have asthma symptoms?'. Over half (50.9 per cent) had been given written instructions or an asthma action plan by their doctor. These respondents were then asked, 'In the past 12 months, how often have you used the written instructions?'. Over half (55.2 per cent) reported they had referred to their asthma action plan (either sometimes or frequently) (table 5.5). Those respondents who had used the written instructions were asked how they have been helpful. Table 5.6 shows the breakdown of respondents according to how they used their asthma action plans.

## References

1. Australian Institute of Health and Welfare 1999, *National health priority areas*, Canberra.

2. Australian Bureau of Statistics 2000, *Causes of death*, Canberra.

3. Woolcock B, Marks GB & Keena VA 2001, 'The burden of asthma in Australia', *Electronic Medical Journal of Australia,* www.mja.com.au/public/ issues/175_03_060801/woolcock/ woolcock.html, Accessed [insert date].

**Table 5.5: Frequency of using asthma action plans**

|  | % | SE (%) |
|---|---|---|
| Never | 19.1 | 2.9 |
| Rarely | 24.7 | 2.7 |
| Sometimes | 25.0 | 2.9 |
| Frequently | 30.2 | 3.1 |

*SE = standard error*

**Table 5.6: Uses of asthma action plans**

|  | % | SE (%) |
|---|---|---|
| Helpful for managing an acute attack | 83.7 | 2.3 |
| Helpful for knowing when to seek medical advice | 92.7 | 2.1 |
| Helpful with day to day management | 95.8 | 1.2 |

*SE = standard error*

# 6. Diabetes

## 6.1 Introduction

Diabetes mellitus is a common, chronic condition characterised by high blood glucose (sugar) levels. The two main types of diabetes are type 1 (insulin dependent) diabetes and type 2 (non-insulin dependent) diabetes. A third form is gestational diabetes, a condition that affects women during pregnancy. Type 1 diabetes develops when the pancreas fails to effectively produce the hormone *insulin*, which stimulates the body's cells to use glucose as energy. Persons having type 1 diabetes mellitus require insulin injections to regulate their blood sugar levels. This type of the disease occurs most frequently in those aged less than 30 years and may be referred to as juvenile-onset diabetes. Type 2 diabetes usually occurs in adults who are overweight or have a family history of the condition. Accounting for around 85 per cent of all cases of diabetes, it is caused by the body becoming resistant to high glucose levels in the blood. Appropriate diet and exercise can control type 2 diabetes in most cases. Left untreated, diabetes can cause kidney, eye and nerve damage, heart disease, stroke and impotence.

## 6.2 Survey results

### Diabetes at a glance

- Excluding females diagnosed with diabetes during pregnancy, 4.6 per cent of persons aged 18 years or over reported they had been told by a doctor that they have diabetes.

- Overall, the prevalence of diabetes among respondents increased with age, and respondents aged 65 years or over reported the highest prevalence rate (12.3 per cent).

- Those respondents who had diabetes were asked about their condition related visits to health professionals in the 12 months before the survey. Most (91.4 per cent) reported they had visited their general practitioner/doctor, and over six in 10 persons (60.6 per cent) had visited an optometrist or ophthalmologist. Only 29 per cent had visited a nutritionist or dietician.

- Overall, 47.3 per cent of respondents reported having had a test for diabetes in the previous two years, with a higher proportion of females (49.7 per cent) than males (44.8 per cent) having done so.

**Table 6.1: Prevalence of doctor diagnosed diabetes\* 2001–05**

|  | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
|  | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Males | 6.6 | 0.6 | 4.7 | 0.5 | 4.5 | 0.5 | 5.3 | 0.5 | 4.8 | 0.3 |
| Females | 4.8 | 0.4 | 4.3 | 0.4 | 3.8 | 0.3 | 4.1 | 0.4 | 5.1 | 0.5 |
| Persons | 5.7 | 0.3 | 4.5 | 0.3 | 4.2 | 0.3 | 4.7 | 0.3 | 4.6 | 0.4 |

*SE = standard error*
*\* Excludes females diagnosed with gestational diabetes during pregnancy only*

**Figure 6.1: Diabetes prevalence– males**
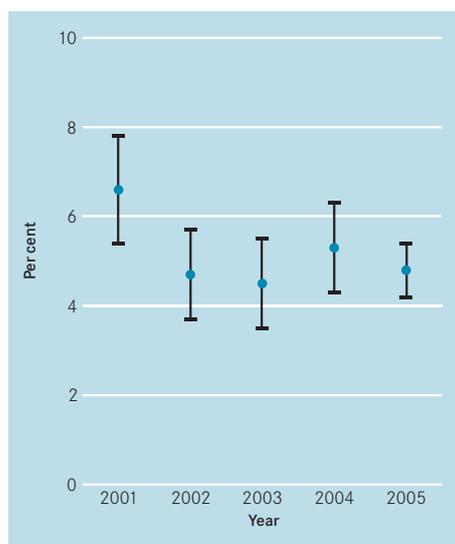


**Figure 6.2: Diabetes prevalence– females**
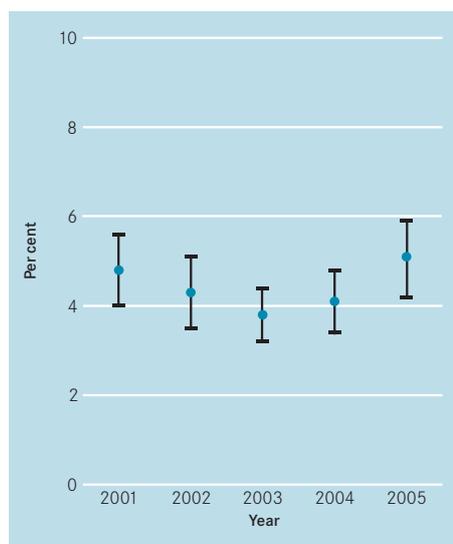


**Figure 6.3: Diabetes prevalence– persons**
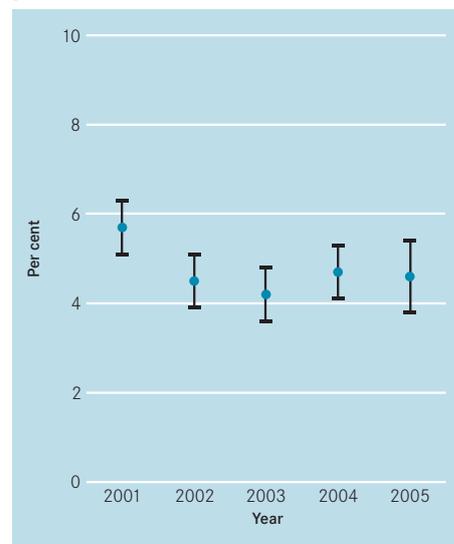


**Table 6.2: Type of diabetes**

|  | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
|  | % | SE (%) |  | SE (%) | % | SE (%) |
| Type 1 | 0.9 | 0.2 | 0.5 | 0.1 | 0.7 | 0.1 |
| Type 2 | 3.8 | 0.4 | 3.8 | 0.4 | 3.8 | 0.3 |

*SE = standard error*

**Table 6.3: Prevalence of doctor diagnosed diabetes**

| Age group (years) | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
|  | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 0.0 | 0.0 | 0.4 | 0.3 | 0.2 | 0.2 |
| 25–34 | 0.0 | 0.0 | 1.3 | 0.6 | 0.7 | 0.3 |
| 35–44 | 2.4 | 0.9 | 1.4 | 0.4 | 1.9 | 0.5 |
| 45–54 | 6.6 | 1.3 | 3.7 | 0.8 | 5.1 | 0.7 |
| 55–64 | 10.4 | 1.7 | 8.0 | 1.2 | 9.2 | 1.1 |
| 65+ | 12.5 | 1.4 | 12.1 | 1.6 | 12.3 | 1.1 |

*SE = standard error*

**Figure 6.4: Prevalence of doctor diagnosed diabetes, by age group and sex**
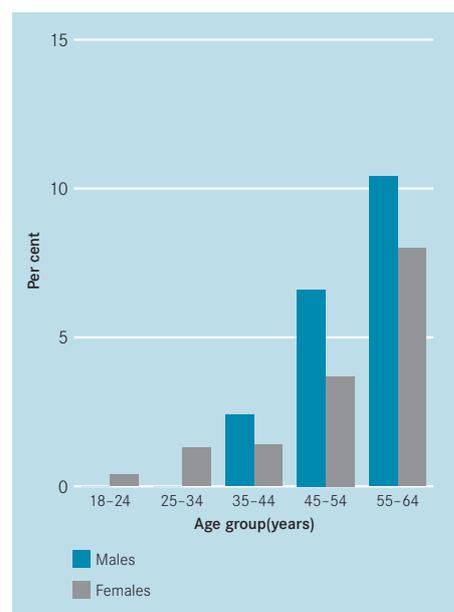


The reported prevalence of diagnosed type 2 (non-insulin dependent) diabetes among respondents was 3.8 per cent (table 6.2).

## Diabetes and risk factors

After adjusting for differences in age and sex, those persons most likely to have been diagnosed with diabetes or high blood sugar levels were those with lower levels of education, not having private health insurance, those with doctor diagnosed high blood pressure, and those categorised as overweight.

**Table 6.4: Doctor diagnosed diabetes, by risk factors**

| | | 95% confidence interval | | |
| --- | --- | --- | --- | --- |
| Area of Victoria | Odds ratio | Lower level | Upper level | p value |
| Metropolitan | 1.00 | – | – | – |
| Non-metropolitan | 1.25 | 0.99 | 1.58 | 0.052 |
| **Country of birth** | | | | |
| Australia | 1.00 | – | – | – |
| Overseas | 1.30 | 0.98 | 1.72 | 0.075 |
| **Education level** | | | | |
| Tertiary | 1.00 | – | – | – |
| Secondary | 1.22 | 0.93 | 1.60 | 0.151 |
| Primary | 1.77 | 1.08 | 2.89 | 0.023 |
| **Occupation** | | | | |
| Professional | 1.00 | – | – | – |
| Non-professional | 1.23 | 0.78 | 1.93 | 0.368 |
| **Employment status** | | | | |
| Employed | 1.00 | – | – | – |
| Unemployed | 0.94 | 0.31 | 2.86 | 0.915 |
| Not in the labour force | 1.25 | 0.93 | 1.67 | 0.137 |
| **Household income per year** | | | | |
| Greater than or equal to $60,000 | 1.00 | – | – | – |
| From $40,000 to less than $60,000 | 1.30 | 0.81 | 2.10 | 0.279 |
| From $20,000 to less than $40,000 | 1.18 | 0.76 | 1.81 | 0.433 |
| Less than $20,000 | 1.35 | 0.87 | 2.09 | 0.185 |
| **Private health insurance** | | | | |
| Yes | 1.00 | – | – | – |
| No | 1.35 | 1.04 | 1.77 | 0.026 |
| **Dwelling ownership** | | | | |
| Owned | 1.00 | – | – | – |
| Rented | 1.21 | 0.83 | 1.76 | 0.326 |
| **Smoking status** | | | | |
| Non-smoker | 1.00 | – | – | – |
| Ex-smoker | 1.08 | 0.81 | 1.44 | 0.584 |
| Smoker | 1.08 | 0.71 | 1.63 | 0.733 |
| **High blood pressure ever** | | | | |
| No | 1.00 | – | – | – |
| Yes | 3.23 | 2.41 | 4.33 | <0.001 |
| **Body mass index** | | | | |
| Not overweight | 1.00 | – | – | – |
| Overweight | 3.00 | 2.18 | 4.12 | <0.001 |
| **Physical activity** | | | | |
| Sufficient | 1.00 | – | – | – |
| Sedentary/insufficient | 0.92 | 0.70 | 1.20 | 0.524 |

*– Not applicable*

## Visits to health professionals

Those respondents who had diabetes were asked about their condition related visits to health professionals in the 12 months before the survey. Most (91.4 per cent) reported they had visited their general practitioner/doctor, and 60.6 per cent had visited an optometrist or ophthalmologist (table 6.5). Only 39.6 per cent had visited a podiatrist or chiropodist.

**Table 6.5: Visiting health professionals for diabetes in the previous 12 months**

| | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| Type of health professional | % | SE (%) | % | SE (%) | % | SE (%) |
| General practitioner/doctor | 89.1 | 2.7 | 93.8 | 1.9 | 91.4 | 1.7 |
| Podiatrist or chiropodist | 37.5 | 4.2 | 41.8 | 4.7 | 39.6 | 3.2 |
| Diabetes educator or nurse | 44.4 | 4.4 | 40.1 | 4.2 | 42.3 | 3.0 |
| Optometrist or ophthalmologist | 59.8 | 4.5 | 61.5 | 4.8 | 60.6 | 3.3 |
| Nutritionist or dietician | 30.1 | 3.9 | 27.8 | 3.6 | 29.0 | 2.7 |
| Specialist | 23.9 | 4.0 | 22.1 | 3.4 | 23.1 | 2.6 |
| None of the above | 5.5 | 1.9 | 2.3 | 1.0 | 3.9 | 1.1 |

*SE = standard error*

## Checking of feet

It is important for persons with diabetes to have their feet checked because they are prone to infection, delayed healing and nerve damage. Persons with diabetes who had visited a health professional in the past 12 months were asked how often their feet were checked for any sores or irritations (see table 6.6).

Most had their feet checked once or twice, with 43.0 per cent having this done three times or more.

All persons with diabetes were asked how often they themselves spent time caring for their feet.

Most persons (51.6 per cent) cared for their feet once a week or more (see table 6.7).

**Table 6.6: Persons with diabetes: checking of feet by a health professional**

| Number of times feet were checked by health professional* | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) |
| Once | 40.6 | 5.4 | 30.4 | 5.3 | 35.8 | 3.8 |
| Twice | 24.6 | 4.8 | 17.3 | 4.0 | 21.2 | 3.2 |
| Three times or more | 34.9 | 5.2 | 52.3 | 6.4 | 43.0 | 4.3 |

*\* Persons who had visited a health professional for their diabetes in the past 12 months*

**Table 6.7: Persons with diabetes: frequency of caring for own feet**

| Frequency of caring for own feet | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) |
| Once a week or more | 48.7 | 4.5 | 54.8 | 4.7 | 51.6 | 3.2 |
| Once every two weeks | 6.1 | 1.7 | 6.6 | 1.9 | 6.3 | 1.3 |
| Once a month | 11.6 | 3.2 | 7.8 | 2.0 | 9.8 | 1.9 |
| Less than once a month | 9.4 | 2.6 | 16.3 | 5.0 | 12.8 | 2.8 |

**Table 6.8: Diabetes screening**

| Age group (years) | Males | | Females | | Persons | |
|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 10.0 | 2.1 | 20.9 | 3.0 | 15.4 | 1.9 |
| 25–34 | 27.2 | 3.3 | 43.7 | 2.6 | 35.5 | 2.2 |
| 35–44 | 38.2 | 2.7 | 43.3 | 2.1 | 40.8 | 1.7 |
| 45–54 | 55.5 | 2.5 | 52.7 | 2.2 | 54.1 | 1.7 |
| 55–64 | 67.6 | 2.6 | 64.9 | 2.1 | 66.2 | 1.7 |
| 65+ | 72.5 | 2.0 | 67.3 | 1.9 | 69.6 | 1.4 |
| All | 44.8 | 1.2 | 49.7 | 1.0 | 47.3 | 0.8 |

*SE = standard error*

## Diabetes screening

Survey respondents were asked whether they had had a check or test for diabetes or high blood sugar levels in the two years before the survey. Overall, 47.3 per cent of respondents reported having had a test in the previous two years, with a higher proportion of females (49.7 per cent) than males (44.8 per cent) having done so (table 6.8).

## References

1. Australian Institute of Health and Welfare 2002, *Australia's health 2002*, Canberra.

2. Department of Human Services, 'Diabetes explained', Better Health Channel website, www.betterhealth.vic. gov.au.

# 7. Psychological distress

## 7.1 Introduction

Mental health problems and mental illness are a major cause of poor health in Australia. Almost one in five adults experience a mental disorder at some time in their lives.[1] The World Health Organisation and the World Bank estimate that the burden of disease associated with depression is increasing globally and will become the major cause of the disease burden in the next 20 years. In recognition of the importance of these issues, mental health has been designated one of seven national health priorities for Australia and is the subject of a national strategy and action plan.[2]

Given the significance of mental health issues in Victoria, a measure of psychological distress–the Kessler 10 (K10)–is included in the survey. The K10 is a set of 10 questions designed to categorise the level of psychological distress over a four week period. It cannot be used to determine major mental illnesses (such as psychoses), but it has been validated as a simple measure of anxiety, depression and worry (psychological distress).[3] The K10 scale was developed for use in the United States National Health Interview Survey and formed part of the national Survey of Mental Health and Well Being conducted by the Australian Bureau of Statistics in 1997 and 2001.

## 7.2 Method

The K10 covers the dimensions of depression and anxiety, such as nervousness, hopelessness, restlessness, sadness and worthlessness. It consists of 10 questions that have the same response categories: all of the time, most of the time, some of the time, a little of the time and none of the time (which are scored from 1 to 5). To calculate a K10 score, the ordering of these values is reversed before being assigned to the responses given for each question, and the 10 items are summed to yield scores ranging from 10 to 50. Subject to qualifications about the use of the K10 as a screening tool, the maximum score of 50 indicates severe distress and the minimum score of 10 indicates no distress. In general, the higher the K10 score, the greater is the likelihood that a person may be affected by psychological distress.

## 7.3 Survey results

| K10 score | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| <16 | 56.1 | 0.7 | 67.5 | 0.7 | 66.4 | 0.7 | 65.1 | 0.8 | 61.2 | 0.8 |
| 16–21 | 28.2 | 0.7 | 21.2 | 0.7 | 20.8 | 0.6 | 20.5 | 0.6 | 24.4 | 0.7 |
| 22–29 | 11.7 | 0.5 | 8.6 | 0.4 | 8.5 | 0.4 | 8.8 | 0.5 | 8.7 | 0.5 |
| >= 30 | 4.0 | 0.3 | 2.7 | 0.2 | 2.6 | 0.2 | 3.3 | 0.3 | 3.1 | 0.3 |

*SE = standard error*

**Figure 7.1: Distribution of K10 scores, 2001–05**
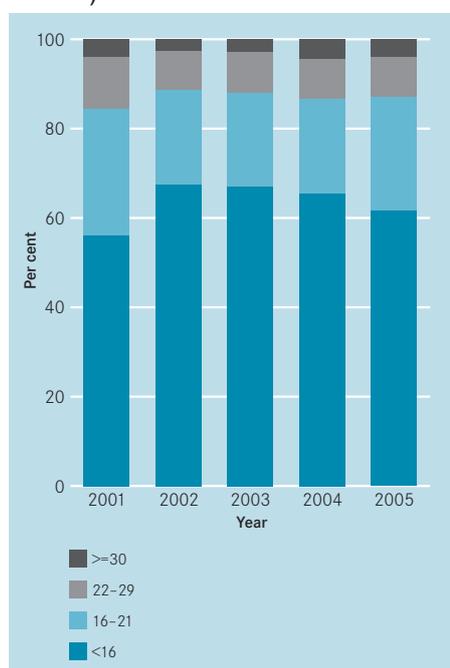
## Psychological distress at a glance

- Over 3 per cent of persons aged 18 years or over had scores of 30 or greater on the K10 and were classified as likely to be at high risk of psychological distress.

- For both males and females, the prevalence of higher K10 scores was generally lower among persons in older age groups. Persons aged 65 years or over were also most likely to have K10 scores in the low risk category (scores less than 22) with 88.1 per cent of males and 86.8 per cent of females in this age group achieving such scores.

- Similar proportions of males (2.9 per cent) and females (3.4 per cent) had high scores (>=30).

Approximately 3 per cent of persons aged 18 years or over had scores of 30 or greater on the K10 and were classified as likely to be at high risk of psychological distress (figure 7.1). For reporting purposes, the middle risk level was divided into a lower range (K10 scores of 16–21) and an upper range (scores of 22–29). Almost 9 per cent of respondents had scores in the upper range of the middle risk category and 24.4 per cent had scores in the lower range. More than six out of 10 persons (61.2 per cent) had low K10 scores and were regarded as being at low risk of psychological distress.

The proportion of females with scores in the high risk category was greatest in the age groups 18–24 years and 45–54 years (both 4.4 per cent). Males aged 55-64 years had the highest proportion categorised as high risk (4.0 per cent). Overall, a higher proportion of females (3.4 per cent) than males (2.9 per cent) had scores greater than 30 on the K10 scale.

**Table 7.1: K10 scores**

| | <16 | | 16–21 | | 22–29 | | >= 30 | |
|---|---|---|---|---|---|---|---|---|
| Males | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| 18–24 | 58.6 | 3.9 | 28.6 | 3.6 | 9.0 | 2.2 | 1.6 | 0.9 |
| 25–34 | 57.0 | 3.8 | 29.1 | 3.5 | 9.5 | 2.3 | 3.6 | 1.5 |
| 35–44 | 64.3 | 2.7 | 23.2 | 2.3 | 7.1 | 1.6 | 2.5 | 1.0 |
| 45–54 | 66.3 | 2.4 | 22.0 | 2.2 | 6.1 | 1.1 | 2.9 | 0.7 |
| 55–64 | 69.6 | 2.5 | 18.1 | 2.2 | 5.0 | 1.1 | 4.0 | 1.0 |
| 65+ | 70.6 | 2.2 | 17.5 | 1.8 | 4.4 | 1.0 | 2.7 | 0.8 |
| Total | 64.2 | 1.2 | 23.3 | 1.1 | 6.9 | 0.7 | 2.9 | 0.4 |
| Females | | | | | | | | |
| 18–24 | 40.6 | 3.8 | 36.7 | 3.7 | 18.1 | 3.0 | 4.4 | 1.4 |
| 25–34 | 53.0 | 2.7 | 28.3 | 2.4 | 14.1 | 2.0 | 3.6 | 0.9 |
| 35–44 | 61.5 | 2.0 | 24.0 | 1.8 | 9.0 | 1.2 | 3.8 | 0.9 |
| 45–54 | 59.6 | 2.1 | 22.8 | 1.8 | 10.1 | 1.3 | 4.4 | 0.9 |
| 55–64 | 66.9 | 2.1 | 21.7 | 1.8 | 5.8 | 1.0 | 2.5 | 0.7 |
| 65+ | 64.5 | 2.0 | 22.3 | 1.9 | 6.9 | 1.0 | 1.8 | 0.6 |
| Total | 58.3 | 1.0 | 25.5 | 0.9 | 10.4 | 0.7 | 3.4 | 0.4 |
| Persons | | | | | | | | |
| 18–24 | 49.8 | 2.8 | 32.6 | 2.6 | 13.5 | 1.9 | 3.0 | 0.8 |
| 25–34 | 55.0 | 2.3 | 28.7 | 2.1 | 11.8 | 1.5 | 3.6 | 0.9 |
| 35–44 | 62.9 | 1.7 | 23.6 | 1.4 | 8.1 | 1.0 | 3.2 | 0.6 |
| 45–54 | 62.9 | 1.6 | 22.4 | 1.4 | 8.1 | 0.9 | 3.7 | 0.6 |
| 55–64 | 68.2 | 1.6 | 19.9 | 1.4 | 5.4 | 0.8 | 3.2 | 0.6 |
| 65+ | 67.2 | 1.5 | 20.2 | 1.3 | 5.8 | 0.7 | 2.2 | 0.5 |
| Total | 61.2 | 0.8 | 24.4 | 0.7 | 8.7 | 0.5 | 3.1 | 0.3 |

*SE = standard error*

## Psychological distress and risk factors

After adjusting for age and sex (table 7.2), those persons most likely to be categorised as experiencing psychological distress (K10 scores greater than or equal to 22) were those persons with lower education levels, those unemployed or not in the labour force, those in non-professional occupations, smokers, those with doctor diagnosed high blood pressure, those told by a doctor that they had depression or anxiety, those self-reporting poor health status, those not having private health insurance and those in households having lower income levels.

The survey also collected information on whether a person had ever been told by a doctor that they had depression or an anxiety disorder. Overall, 13.1 per cent of males and 23.3 per cent of females had been told by a doctor that they had depression or anxiety.

**Table 7.2: Psychological distress, by risk factors**

| Area of Victoria | Odds ratio | 95% confidence interval | | p value |
|---|---|---|---|---|
| | | Lower level | Upper level | |
| Metropolitan | 1.00 | – | – | – |
| Non-metropolitan | 0.82 | 0.69 | 0.97 | 0.020 |
| **Country of birth** | | | | |
| Australia | 1.00 | – | – | – |
| Overseas | 1.06 | 0.84 | 1.34 | 0.619 |
| **Education level** | | | | |
| Tertiary | 1.00 | – | – | – |
| Secondary | 1.53 | 1.23 | 1.89 | <0.001 |
| Primary | 2.97 | 1.86 | 4.74 | <0.001 |
| **Occupation** | | | | |
| Professional | 1.00 | – | – | – |
| Non-professional | 1.36 | 1.00 | 1.85 | 0.053 |
| **Employment status** | | | | |
| Employed | 1.00 | – | – | – |
| Unemployed | 2.58 | 1.59 | 4.17 | <0.001 |
| Not in the labour force | 1.69 | 1.35 | 2.12 | <0.001 |
| **Household income per year** | | | | |
| Greater than or equal to $60,000 | 1.00 | – | – | – |
| From $40,000 to less than $60,000 | 1.15 | 0.81 | 1.65 | 0.432 |
| From $20,000 to less than $40,000 | 1.87 | 1.37 | 2.54 | <0.001 |
| Less than $20,000 | 2.53 | 1.89 | 3.38 | <0.001 |
| **Private health insurance** | | | | |
| Yes | 1.00 | – | – | – |
| No | 1.52 | 1.23 | 1.87 | <0.001 |
| **Dwelling ownership** | | | | |
| Owned | 1.00 | – | – | – |
| Rented | 1.31 | 0.48 | 1.92 | 0.898 |
| **Smoking status** | | | | |
| Non-smoker | 1.00 | – | – | – |
| Ex-smoker | 1.03 | 0.80 | 1.33 | 0.798 |
| Smoker | 2.08 | 1.62 | 2.66 | <0.001 |
| **High blood pressure ever** | | | | |
| No | 1.00 | – | – | – |
| Yes | 1.64 | 1.31 | 2.06 | <0.001 |
| **Body Mass Index** | | | | |
| Not overweight | 1.00 | – | – | – |
| Overweight | 1.10 | 0.89 | 1.37 | 0.345 |
| **Physical Activity** | | | | |
| Sufficient | 1.00 | – | – | – |
| Sedentary/insufficient | 1.21 | 0.98 | 1.51 | 0.080 |
| **Self-rated health** | | | | |
| Excellent/very good | 1.00 | – | – | – |
| Good | 1.81 | 1.38 | 2.37 | <0.001 |
| Fair/poor | 5.76 | 4.42 | 7.50 | <0.001 |
| **Told by a doctor they had depression or anxiety** | | | | |
| No | 1.00 | – | – | – |
| Yes | 6.64 | 5.34 | 8.25 | <0.001 |

*– Not applicable*

## 7.4 Seeking professional help for mental health related problems

The survey also included a question on the use of mental health services, specifically: 'In the last year, have you sought professional help for a mental health related problem?'. An estimated 9.4 per cent of respondents had accessed professional help for a mental health related problem at some point during the year before the survey interview (table 7.3).

Of those who had sought professional help for a mental health related problem, 55.6 per cent sought help from a general practitioner (table 7.4). A further 30.2 per cent had had contact with a private counselling service or psychologist, and 22.2 per cent had made one or more visits to a private psychiatrist.

## References

1. Australian Bureau of Statistics 1999, *National Survey of Mental Health and Wellbeing of Adults*, Canberra.

2. Australian Institute of Health and Welfare 1996, *First report on national health priority areas*, Canberra.

3. Andrews G & Slade T 2001, 'Interpreting scores on the Kessler psychological distress scale (K10)', *Australian and New Zealand Journal of Public Health*, vol. 26, no. 6, pp. 494–7.

**Table 7.3: Seeking help for a mental health related problem**

|  | % | SE (%) |
|---|---|---|
| Males | 8.0 | 0.7 |
| Females | 10.8 | 0.6 |
| Persons | 9.4 | 0.5 |

*SE = standard error*

**Table 7.4: Seeking help for a mental health problem**

| Sought help from | % | SE (%) |
|---|---|---|
| General practitioner | 55.6 | 2.8 |
| Private counselling service/psychologist | 30.2 | 2.5 |
| Private psychiatrist | 22.2 | 2.4 |
| Community health service | 4.9 | 1.2 |

*SE = standard error*

# 8. Social support, community participation and attitudes

## 8.2 Social support through social networks

The Victorian Population Health Survey incorporated a suite of questions relating to social support, connectedness and participation for the first time in 2001. Although there has been some evolution in the makeup of the questions, a core set has been retained in the past five annual surveys. The reader should refer to previous reports in this series for information on the development and rationale for inclusion of these questions in the survey. The 2005 survey continued to collect information on informal social contacts (friends, family and neighbours) and membership or involvement with broader organisations such as sporting clubs, professional associations and community groups.

### Survey results

#### Help when needed

Most persons felt they could get help from friends and family members when needed (table 8.1). Overall, 9.6 per cent of males and 7.8 per cent of females reported they might not be able to get help from family or friends when needed, with 14.6 per cent of males aged 55–64 years being unable to get help (figure 8.1).

**Table 8.1: Ability to get help when needed**

| Social network questions | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Can you get help from friends when you need it?** | | | | | | | | | | |
| Yes, definitely | 79.7 | 0.6 | 79.9 | 0.6 | 80.2 | 0.6 | 80.8 | 0.6 | 78.8 | 0.7 |
| Sometimes | 14.9 | 0.6 | 14.1 | 0.6 | 14.1 | 0.5 | 12.7 | 0.5 | 14.3 | 0.6 |
| Not often | 2.5 | 0.2 | 3.0 | 0.3 | 2.5 | 0.2 | 2.5 | 0.2 | 3.1 | 0.3 |
| Not at all | 2.9 | 0.3 | 2.9 | 0.3 | 3.1 | 0.3 | 3.7 | 0.3 | 2.9 | 0.2 |
| **Can you get help from family members when you need it?** | | | | | | | | | | |
| Yes, definitely | 81.8 | 0.6 | 82.8 | 0.6 | 83.5 | 0.6 | 83.9 | 0.5 | 81.9 | 0.6 |
| Sometimes | 10.8 | 0.5 | 10.0 | 0.5 | 10.5 | 0.5 | 9.1 | 0.4 | 11.4 | 0.5 |
| Not often | 3.1 | 0.3 | 2.9 | 0.3 | 2.2 | 0.2 | 2.5 | 0.2 | 2.7 | 0.3 |
| Not at all | 4.3 | 0.3 | 4.2 | 0.3 | 3.8 | 0.3 | 4.3 | 0.3 | 3.8 | 0.3 |
| **Can you get help from neighbours when you need it?** | | | | | | | | | | |
| Yes, definitely | 50.7 | 0.8 | 51.7 | 0.8 | 51.5 | 0.8 | 49.4 | 0.7 | 50.0 | 0.8 |
| Sometimes | 27.3 | 0.7 | 20.1 | 0.6 | 19.8 | 0.6 | 18.5 | 0.6 | 21.3 | 0.7 |
| Not often | 9.1 | 0.5 | 9.4 | 0.5 | 7.9 | 0.4 | 8.7 | 0.5 | 8.8 | 0.5 |
| Not at all | 12.9 | 0.5 | 18.8 | 0.7 | 20.7 | 0.7 | 21.9 | 0.7 | 15.9 | 0.6 |

*SE = standard error*

**Figure 8.1: Persons who could not get help from friends or family when needed, by age group and sex**
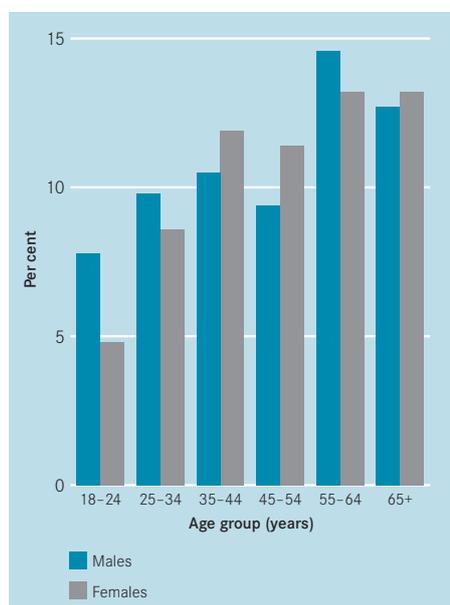
**Raising $2000 within two days in an emergency**

This question more specifically described the availability of economic support. Most persons (83.7 per cent) could raise $2000 within two days in an emergency (table 8.2). Overall, 12.9 per cent could not raise $2000 within two days in an emergency.

## 8.3 Community participation

Questions about community participation have been asked in the survey since 2001. In the 2005 survey, questions were asked about volunteering (table 8.3) and group membership (table 8.9).

### Survey results

**Volunteering**

Over one in three persons (35.1 per cent) aged 18 years or over helped out a local group as a volunteer (table 8.3).

**Membership of groups**

Most persons (73.4 per cent) aged 18 years or over were members of a group (a sports, school, church, community or action, or professional group, or an academic society) (table 8.9).

**Table 8.2: Ability to raise $2000 within two days in an emergency**

| | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Could you raise $2000 within two days in an emergency? | | | | | | | | |
| Yes | 78.6 | 0.7 | 80.0 | 0.6 | 82.0 | 0.6 | 83.7 | 0.6 |
| No | 16.6 | 0.6 | 15.9 | 0.6 | 14.8 | 0.6 | 12.9 | 0.5 |
| Don't know | 3.9 | 0.3 | 3.5 | 0.3 | 2.4 | 0.3 | 2.2 | 0.3 |

*SE = standard error*
*Note: this question was first included in the 2002 survey*

**Table 8.3: Volunteering**

| | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Do you help out a local group as a volunteer? | | | | | | | | | | |
| Yes, definitely | 21.2 | 0.6 | 24.4 | 0.6 | 24.1 | 0.6 | 23.0 | 0.6 | 23.6 | 0.6 |
| Sometimes | 10.8 | 0.5 | 9.6 | 0.5 | 10.3 | 0.5 | 8.0 | 0.4 | 11.5 | 0.5 |
| Not often | 4.5 | 0.3 | 3.3 | 0.3 | 6.3 | 0.4 | 6.0 | 0.4 | 5.4 | 0.4 |
| Not at all | 63.5 | 0.7 | 62.7 | 0.7 | 59.2 | 0.8 | 63.0 | 0.7 | 59.3 | 0.8 |

*SE = standard error*

**Figure 8.2: Volunteering, by age group and sex**
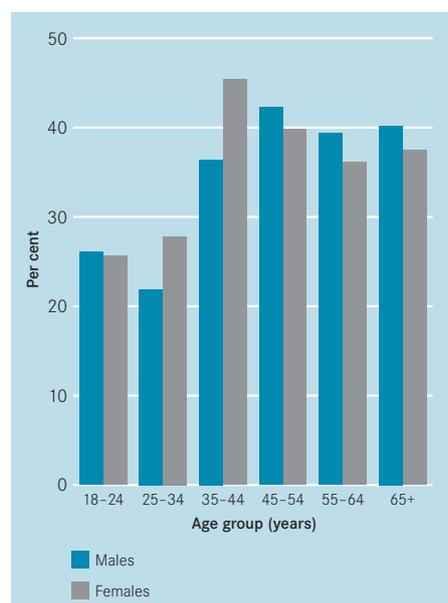
## 8.4 Attitudes

A number of questions related to community participation have been asked in the survey since 2001 (tables 8.4–8.8). These include questions on feelings of safety, trust, tolerance of diversity, feeling valued by society and being able to have a say on issues that are important to the respondent.

**Table 8.4: Feelings of safety**

|  | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
|  | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Do you feel safe walking alone down your street after dark?** | | | | | | | | | | |
| Yes, definitely | 55.2 | 0.8 | 56.0 | 0.8 | 59.0 | 0..8 | 60.8 | 0.4 | 60.4 | 0.8 |
| Sometimes | 17.5 | 0.6 | 16.1 | 0.6 | 15.6 | 0.6 | 13.5 | 0.5 | 14.5 | 0.6 |
| Not often | 5.9 | 0.4 | 5.0 | 0.3 | 5.1 | 0.3 | 5.1 | 0.3 | 5.7 | 0.4 |
| Not at all | 21.4 | 0.6 | 22.6 | 0.7 | 16.9 | 0.6 | 17.3 | 0.6 | 16.6 | 0.6 |

*SE = standard error*

**Table 8.5: Feelings of trust**

|  | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
|  | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Do you agree that most people can be trusted?** | | | | | | | | | | |
| Yes, definitely | 28.0 | 0.7 | 31.7 | 0.7 | 35.7 | 0.5 | 36.6 | 0.7 | 36.4 | 0.8 |
| Sometimes | 43.5 | 0.8 | 43.3 | 0.8 | 43.6 | 0.8 | 39.5 | 0.8 | 44.4 | 0.8 |
| Not often | 12.0 | 0.5 | 8.5 | 0.4 | 9.1 | 0.5 | 11.5 | 0.5 | 8.8 | 0.5 |
| Not at all | 16.5 | 0.6 | 16.4 | 0.6 | 11.6 | 0.5 | 11.9 | 0.5 | 9.2 | 0.5 |

*SE = standard error*

**Table 8.6: Tolerance of diversity**

|  | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
|  | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Do you enjoy living among people of different lifestyles?** | | | | | | | | | | |
| Yes, definitely | 69.5 | 0.7 | 71.2 | 0.7 | 73.3 | 0.7 | 74.4 | 0.6 | 71.2 | 0.7 |
| Sometimes | 22.0 | 0.7 | 20.9 | 0.6 | 18.5 | 0.6 | 17.4 | 0.6 | 19.2 | 0.6 |
| Not often | 2.9 | 0.2 | 3.1 | 0.3 | 2.2 | 0.2 | 2.4 | 2.7 | 1.8 | 0.2 |
| Not at all | 5.6 | 0.4 | 4.5 | 0.3 | 3.4 | 0.2 | 2.8 | 2.4 | 3.1 | 0.3 |

*SE = standard error*

|  | 2001 | | 2002 | | 2003 | | 2004 | | 2005 | |
|---|---|---|---|---|---|---|---|---|---|---|
|  | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Do you think that multiculturalism makes life in your area better?** | | | | | | | | | | |
| Yes, definitely | 57.0 | 0.8 | 59.4 | 0.8 | 64.2 | 0.7 | 66.4 | 0.7 | 57.1 | 0.8 |
| Sometimes | 28.7 | 0.7 | 27.6 | 0.7 | 22.0 | 0.6 | 19.5 | 0.6 | 22.8 | 0.7 |
| Not often | 5.6 | 0.4 | 4.5 | 0.3 | 2.6 | 0.2 | 2.9 | 0.2 | 3.3 | 0.3 |
| Not at all | 8.7 | 0.4 | 7.7 | 0.4 | 5.3 | 0.3 | 5.2 | 0.3 | 5.5 | 0.3 |

*SE = standard error*

**Table 8.7: Feeling valued by society**

|  | 2001 |  | 2002 |  | 2003 |  | 2004 |  | 2005 |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Do you feel valued by society?** |  |  |  |  |  |  |  |  |  |  |
| Yes, definitely | 42.1 | 0.8 | 51.6 | 0.8 | 55.4 | 0.8 | 52.7 | 0.8 | 51.2 | 0.8 |
| Sometimes | 36.6 | 0.8 | 32.2 | 0.7 | 30.2 | 0.7 | 26.7 | 0.7 | 31.5 | 0.8 |
| Not often | 9.0 | 0.5 | 6.6 | 0.4 | 5.4 | 0.3 | 6.1 | 0.4 | 5.4 | 0.4 |
| Not at all | 12.4 | 0.5 | 8.6 | 0.4 | 9.0 | 0.4 | 8.5 | 0.5 | 7.0 | 0.4 |

*SE = standard error*

**Table 8.8: Opportunities to have a say**

|  | 2001 |  | 2002 |  | 2003 |  | 2004 |  | 2005 |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| **Do you feel there are opportunities to have a real say on issues that are important to you?** |  |  |  |  |  |  |  |  |  |  |
| Yes, definitely | 36.1 | 0.7 | 39.3 | 0.8 | 42.2 | 0.7 | 45.9 | 0.8 | 39.1 | 0.8 |
| Sometimes | 34.2 | 0.7 | 34.1 | 0.8 | 33.0 | 0.7 | 26.7 | 0.7 | 33.6 | 0.8 |
| Not often | 14.9 | 0.6 | 12.7 | 0.5 | 10.6 | 0.5 | 11.4 | 0.5 | 12.4 | 0.6 |
| Not at all | 14.7 | 0.6 | 13.6 | 0.5 | 14.3 | 0.5 | 13.7 | 0.6 | 12.7 | 0.5 |

*SE = standard error*

## 8.5 Social networks, social support, community participation and attitude questions

**Table 8.9: Social network questions from the Victorian Population Health Survey 2005**

| Social network questions | Yes | |
|---|---|---|
| | % | SE (%) |
| Are you a member of a sports group? | 27.4 | 0.7 |
| Are you a member of a church group? | 18.0 | 0.6 |
| Are you a member of a school group? | 15.5 | 0.6 |
| Are you a member of a professional group or academic society? | 22.9 | 0.7 |
| Are you a member of any other community group? | 19.7 | 0.6 |
| Member of one or more groups above | 73.4 | 0.7 |

| | None at all | | Less than five | | five or more | | Many, at least 10 | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| How many people did you talk to yesterday? | 2.1 | 0.3 | 18.2 | 0.6 | 28.4 | 0.7 | 51.1 | 0.8 |

| Social support questions | No, not at all | | Not often | | Sometimes | | Yes, definitely | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Can you get help from friends when you need it? | 2.9 | 0.2 | 3.1 | 0.3 | 14.3 | 0.6 | 78.8 | 0.7 |
| Can you get help from family members when you need it? | 3.8 | 0.3 | 2.7 | 0.3 | 11.4 | 0.5 | 81.9 | 0.6 |
| Can you get help from neighbours when you need it? | 15.9 | 0.6 | 8.8 | 0.5 | 21.3 | 0.7 | 50.0 | 0.8 |
| Can you get access to community services or resources when you need them? | 3.2 | 0.3 | 1.4 | 0.2 | 6.9 | 0.5 | 86.6 | 0.6 |

| | Yes | | No | | Don't know | |
|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) |
| Could you raise $2000 within 2 days in an emergency? | 83.7 | 0.6 | 12.9 | 0.5 | 2.2 | 0.3 |
| If you needed to find a job, could you get one through a contact in one of these groups? (Of persons who belonged to any groups) | 55.9 | 1.1 | 33.1 | 1.1 | 10.9 | 0.7 |
| Do you get any help from volunteer based organisations? | 4.4 | 0.3 | 95.2 | 0.3 | 0.2 | 0.1 |
| Could one of your relatives or friends care for you or your children in an emergency? | 90.6 | 0.5 | 7.6 | 0.4 | 1.7 | 0.2 |
| If you needed to find a job, could you get one through a relative or a friend? | 55.5 | 0.1 | 35.2 | 0.9 | 9.2 | 0.5 |

| Community participation questions | No, not at all | | Not often | | Sometimes | | Yes, definitely | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Do you help out a local group as a volunteer? | 59.3 | 0.8 | 5.4 | 0.4 | 11.5 | 0.5 | 23.6 | 0.6 |

| | Yes | | No | | Don't know | |
|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) |
| (Of persons who belong to any of the groups) Have any of these groups you are involved with taken any local action on behalf of your community in the last 12 months? | 39.8 | 1.2 | 55.3 | 1.3 | 4.9 | 0.6 |
| Have you been to any support group meetings over the last two years? | 9.5 | 0.4 | 90.4 | 0.4 | 0.1 | 0.1 |
| Have you attended a local community event in the past 6 months (eg church fete, school concert, craft exhibition)? | 54.2 | 0.8 | 45.5 | 0.8 | 0.3 | 0.1 |

| Attitude questions | No, not at all | | Not often | | Sometimes | | Yes, definitely | |
|---|---|---|---|---|---|---|---|---|
| | % | SE (%) | % | SE (%) | % | SE (%) | % | SE (%) |
| Do you feel safe walking alone down your street after dark? | 16.6 | 0.6 | 5.7 | 0.4 | 14.5 | 0.6 | 60.4 | 0.8 |
| Do you agree that most people can be trusted? | 9.2 | 0.5 | 8.8 | 0.5 | 44.4 | 0.8 | 36.4 | 0.8 |
| Do you enjoy living among people of different lifestyles? | 3.1 | 0.3 | 1.8 | 0.2 | 19.2 | 0.6 | 71.2 | 0.7 |
| Do you think that multiculturalism makes life in your area better? | 5.5 | 0.3 | 3.3 | 0.3 | 22.8 | 0.7 | 57.1 | 0.8 |
| Do you feel valued by society? | 7.0 | 0.4 | 5.4 | 0.4 | 31.5 | 0.8 | 51.2 | 0.8 |
| Do you feel there are opportunities to have a real say on issues that are important to you? | 12.7 | 0.5 | 12.4 | 0.6 | 33.6 | 0.8 | 39.1 | 0.8 |

*SE=standard error*

# Appendix A

## Background

The Victorian Population Health Survey is an important component of the population health surveillance capacity of the Department of Human Services. The annual survey series is an ongoing source of high quality information on the health of Victorians. Information in the report is presented on health and lifestyle, including physical activity, smoking, alcohol consumption, intake of fruit and vegetables, selected health screening, adult obesity, asthma and diabetes prevalence, psychological distress and social networks.

## Purpose

The aim of this report is to provide high quality, timely indicators of population health that are intended to have direct application to evidence-based policy development and strategic planning across the department and the wider community. The Victorian Population Health Survey is based on a core set of question modules that are critical to informing decisions about public health priorities. It fills a significant void in the accessible data that are required to ensure public health programs are relevant and responsive to current and emerging health issues.

## Methods

Computer-assisted telephone interviewing was undertaken between August and December 2005. A representative statewide sample of adults aged 18 years or over was randomly selected from households in each of the eight departmental health regions. Approximately 7500 interviews were completed during the fieldwork period. The department determined the content of the survey after reviewing the determinants of chronic disease states that are most likely to have an impact on Victorians. Priority has been given to areas in which a public health response is likely to be effective in improving health and, importantly, reducing inequalities in health for all Victorians.

## Key results

This report presents information that is compared with selected data items since inception of the survey (2001). Future survey reports will continue to present time series information, along with changes over time in the health of Victorians and the determinants of that health, such as obesity patterns among adult Victorians. In the section on health and lifestyle, the report contains information on the prevalence of major risk-taking behaviours across the Victorian population–for example, the prevalence of smoking, nutrition, alcohol consumption and levels of physical activity. Data on self-reported height and weight are now collected as core items. These data will be vital for targeting public health interventions and evaluating outcomes.

Questions on asthma, diabetes, arthritis, muscolo-skeletal conditions and cardio-vascular disease provide indicators for the selected national health priority areas, which are the subject of public health programs in Victoria and nationwide. These data complement the department's Victorian Burden of Disease Study updated in 2005 (see www.health.vic.gov.au/healthstatus/bod/bod_vic.htm), and they describe aspects of clinical management and prevention that are amenable to public health interventions. Of particular interest is the module of questions on the social determinants of health. New information presented in the report is based on measures of the extent and diversity of social networks in the Victorian population. Policy makers now have Victorian data that link preventable risk-taking behaviours, their *upstream* determinants (such as levels of social networks) and health status.

## The Victorian Population Health Survey 2005

### Background

Population health surveys based on computer-assisted telephone interviews (CATI) are used to collect key population health surveillance data because they provide time series data, use collection procedures that are acceptable to respondents, use an adequate sample size, use current technology and provide high quality data (especially through greater supervision of interviewers, computer data entry and question sequencing). Further, they allow for data collection that is timely, cost-effective and adaptable to changing and emerging information needs. CATI surveys also fill strategic information gaps–that is, they can be used to gather information not available from other sources–and provide data for further analysis and interpretation.

### Method

The Victorian Population Health Survey 2005 followed a method developed over several years to collect relevant, timely and valid health information for policy, planning and decision making.

The survey team administered CATI on a representative sample of persons aged 18 years or over who resided in private dwellings in Victoria. The Department of Human Services Human Research Ethics Committee approved the survey method and questionnaire content. The department outsourced the fieldwork data collection to a market research organisation, which department staff supervised. All data were self-reported and stored directly in the CATI system.

## Survey design

Random digit dialling was used to generate a sample of telephone numbers that formed the household sample for CATI. All residential households with landline telephone connections were considered in-scope for the survey. A telephonic mode of survey delivery excludes various population groups, such as people who are homeless or itinerant, people in hospitals or institutions, the frail and aged, and people with disabilities who cannot participate in an interview.

## Stratification

Victoria encompasses five non-metropolitan and three metropolitan Department of Human Services regions. The survey sample included a total of 7500 households and was stratified by departmental region. The non-metropolitan regions were over-sampled because inequalities in health between metropolitan and non-metropolitan Victoria are a major interest.

## Sampling frame

The department generated an electronic listing of Victorian six-digit telephone exchange prefixes and localities to form the basis of the sampling frame. It

**Non-metropolitan regions, Victoria**



**Metropolitan regions, Victoria**

mapped exchange localities to one of the nine departmental regions, then divided the sampling frame into two groups:

1. telephone numbers belonging to a block of 100 numbers without a prefix match in an electronic directory of Victorian household telephone numbers (referred to as empty blocks)

2. telephone numbers belonging to blocks with one or more prefix matches in the directory.

## Sample generation

The no empty blocks approach excluded from the sampling frame those blocks of 100 consecutive telephone numbers known to be less likely than other blocks of 100 consecutive telephone numbers to result in private dwelling contact. This approach maximised fieldwork efficiency and minimised costs. That means blocks that were likely to be less productive than others were excluded, so as to prevent the costs of pure random digit dialling from being prohibitive. The department appended randomly generated suffixes to current eligible six-digit telephone number prefixes. It washed these numbers against current electronic business listings to remove known business numbers. Matching the randomly generated telephone numbers to an electronic directory produced a file of matched telephone numbers, names and addresses. The department used that file to produce the primary approach letters.

## Primary approach letter

Primary approach letters were mailed to all households where the randomly selected telephone number matched a listing in an electronic directory of

Victorian household telephone numbers. Approximately 13,200 primary approach letters were mailed. The letter informed the households that the department was conducting the Victorian Population Health Survey to collect information about health, lifestyle and wellbeing in the community, and outlined the importance of the survey. It also introduced market research company The Social Research Centre as the agency appointed to conduct the survey. After contacting a household, an interviewer would select for interview the person (usually a resident) aged 18 years or over with the most recent birthday.

## Data collection

The interviewers achieved over two thirds of completed interviews within the first three calls. This proportion is consistent with national experience on similar projects. More experienced interviewers were chosen to work on refusal conversions, to increase the participation of selected respondents in the survey. This effort ensured respondents were a more representative sample of the population.

## Call routine

The interviewers made up to six call attempts to establish contact with a household and up to another nine call attempts to complete an interview where required. Further attempts were made only when there was a clear opportunity for interview at the end of the fifteenth call. Over two thirds of interviews were achieved within the first three calls. Call attempts were spread over different times of the day and different days of the week, and were controlled by a customised

call algorithm in the survey management system. Except for engaged numbers at the first call attempt, a non-contact in any specific time block was automatically scheduled for call back in a different time block as per the call back routine. A scripted message was left at the first and second calls to an answering machine, encouraging respondents to contact the 1800 number. After establishing contact, interviewers could make calls, by appointment, outside the time block hours.

## Interviewing in languages other than English

The interviewing used six community languages. An external agency translated questionnaires into Mandarin, Cantonese, Vietnamese, Italian, Greek and Macedonian. CATI interviewers were recruited to undertake the interviews in these other languages as required. Respondents who received a primary approach letter, which was also translated into these languages, could nominate to be interviewed in their preferred language.

## Fieldwork period

The main interviewing occurred during August–November 2005 over 11 weeks. This followed two pilot tests of the questionnaire during June–July 2005, a debriefing of interviewers and the modification of the questionnaire as required.

## Participation

The participation rate, defined as the proportion of households where contact was made and an interview was then completed, was 69 per cent.

## Weighting

The survey data was weighted to reflect the probability of selection of the respondent within the household, and the age/sex/geographic distribution of the population. Although a single respondent was randomly selected from within a household, the size of any household can vary upwards from one person. To account for this variation, the project team treated each respondent as representing the whole household, so his or her weight factor included a multiplier of the number of persons in the household. Further, a household may have more than one telephone line (that is, landlines used primarily for contact with the household), which would increase that household's probability of selection over those households with only one telephone line. To ensure the probability of contacting any household was the same, the project team divided the weight factor by the number of telephone lines connected to the household. The formula for this component is nah/npl, where: nah = the number of adults aged 18 years or over in the household, and npl = the number of telephone lines in the household.

## Population benchmark components

Further to the selection weight component, the project team applied a population benchmark component to ensure the adjusted sample distribution matched the population distribution for the combined cross cells of age group and gender by region (for example, males aged 18–24 years in Barwon South West). The categories used for each of the variables were:

- *age groups*: 18–24 years, 25–34 years, 35–44 years, 45–54 years, 55–64 years and 65 years or over
- *sex*: male and female
- *region*: Barwon South West, Grampians, Loddon–Mallee, Hume, Gippsland, Eastern Metropolitan, North-Western Metropolitan and Southern Metropolitan.

The population benchmark component is calculated by dividing the population of each cross-cell by the sum of the selection weight components for all the respondents in the sample within that cross-cell. For each cross-cell, the formula for this component is:

*pbmarki = Ni/Σswij*

where:

*i* = the *i*th cross-cell

*j* = the *j*th person in the cross cell

*Ni* = the population of the *i*th cross-cell

*Σswij* = the sum of selection weights

for all respondents (1 to *j*) in the *i*th cross-cell.

## Calculating the person weight to be applied

The project team-assigned respondent records a weight factor (pwt) by multiplying the selection weight (sw) value by the population benchmark value (pbmark):

*pwtij = swij * pb*mark

where:

*i* = the ith cross-cell

*j* = the jth person in the cross-cell.

## Profile of survey respondents

Known population benchmarks for selected data items may be used to assess the representativeness of the sample. Table A.1 shows the benchmark data and weighted and unweighted estimates obtained from the survey. A comparison between benchmark and survey data indicates the following:

- Females were more likely than males to participate in the survey.
- Persons younger than 65 years were less likely to participate than persons aged 65 years or over.
- Persons born in Australia were more likely to participate than those born overseas, perhaps as a result of those who do not speak English or any of the six languages offered for interview.
- The survey included a higher proportion of persons not in the labour force.

A small proportion of respondents (0.7 per cent) identified themselves as being Aboriginal or Torres Strait Islander.

**Table A.1: Profile of respondents in the Victorian Population Health Survey 2005**

| Selected characteristics | Benchmark data (%) | Survey outcome (%) | Survey estimate using probability of selection weights (%) | 95% confidence interval (%) | |
|---|---|---|---|---|---|
| Sex | | | | Lower limit | Upper limit |
| Male | 48.8 | 38.7 | 48.8 | 47.2 | 50.4 |
| Female | 51.2 | 61.3 | 51.2 | 49.6 | 52.8 |
| Age group (years) | | | | | |
| 18–24 | 12.8 | 6.6 | 12.8 | 11.6 | 14.1 |
| 25–34 | 19.1 | 11.7 | 19.1 | 17.6 | 20.5 |
| 35–44 | 19.6 | 18.6 | 19.6 | 18.4 | 20.8 |
| 45–54 | 17.7 | 20.0 | 17.7 | 16.6 | 18.7 |
| 55–64 | 13.4 | 18.3 | 13.4 | 12.5 | 14.3 |
| 65 or over | 17.4 | 24.8 | 17.4 | 16.4 | 18.4 |
| Marital status | | | | | |
| Married | 52.0 | 55.2 | 58.2** | 56.7 | 59.8 |
| Widowed | 6.4 | 10.9 | 5.4* | 4.9 | 6.0 |
| Divorced | 6.8 | 8.3 | 4.8* | 4.3 | 5.3 |
| Separated | 3.2 | 4.2 | 2.6* | 2.2 | 3.0 |
| Never married | 31.7 | 14.4 | 20.5** | 19.0 | 22.0 |
| Living with a partner | n.a. | 6.6 | 8.1 | 7.2 | 9.0 |
| Country of birth | | | | | |
| Australia | 75.3 | 78.9 | 72.8* | 71.3 | 74.2 |
| Labour force status | | | | | |
| Employed | 60.7 | 53.4 | 60.5 | 59.0 | 62.0 |
| Unemployed | 3.5 | 2.7 | 2.7* | 2.2 | 3.3 |
| Not in the labour force | 35.8 | 43.8 | 36.5 | 35.1 | 38.0 |
| Private health insurance | | | | | |
| Yes | 42.2 | 50.0 | 52.8** | 51.3 | 54.4 |

*Notes to table 1.1*
i   Persons aged 18 years or over. Australian Bureau of Statistics 2001 census, Canberra.
ii   Australian Bureau of Statistics 2001 census, Canberra. (The 'never married' category is not directly comparable between the census and the Victorian Population Health Survey 2005 because the survey collected an extra category–'living with a partner'.)
iii   Australian Bureau of Statistics 2001 census, Canberra.
iv   Persons aged 15 years or over. Australian Bureau of Statistics 2001, Labour force, Victoria, cat. no. 6202.0, Feb 2006, Canberra.
v   Private Health Insurance Administration Council, www.phiac.gov.au. (Vic estimate 30 Sep 2005)
n.a. Not available.
*   Survey estimate was significantly lower than benchmark estimate (p<0.05).
**   Survey estimate was significantly higher than benchmark estimate (p<0.05).

*Notes: 95 per cent confidence intervals are provided for benchmark data where available.*
*The survey sample was allocated a 60 per cent/40 per cent Non-Metropolitan/Metropolitan split respectively, and selected benchmark characteristics are for the whole of Victoria.*

# Appendix B

## Data items for the Victorian Population Health Survey 2004

### Demographics

Age
Sex
Marital status
Country of birth
Main language spoken at home
Country of birth of mother
Country of birth of father
Highest level of education
Employment status
Main field of occupation
Household income
Housing tenure
Whether has private health insurance
Indigenous status
Area of state (Department of Human Services region)
Silent telephone number status
Number of adults aged 18 years or over in household

### Screening

Blood pressure screening
Cholesterol screening
Diabetes/high blood sugar level screening
Bowel cancer screening

### Health care use

Use of and level of satisfaction with:
• public hospital
• kindergarten or pre-school
• maternal and child health centre
• community health centre.

### Self-reported height and weight

Nutrition
Number of serves of vegetables eaten each day
Number of serves of fruit eaten each day
Breakfast cereal consumption
Type of milk consumed
Consumption of pasta/rice/noodles/other cooked cereals
Water consumption
Consumption of folate and folate awareness (females age 18–50 years)

### Alcohol

Whether had an alcoholic drink of any kind in previous 12 months
Frequency of having an alcoholic drink of any kind
Amount of standard drinks consumed when drinking
Level of frequency of high risk drinking

### Smoking

Smoking status
Frequency of smoking

### Asthma

Asthma status
Asthma action plans

### Blood pressure

High blood pressure status
Management of high blood pressure

### Diabetes

Diabetes status
Type of diabetes

### Social capital measures

Social networks and support structures
Social and community participation
Civic involvement and empowerment
Trust in people and social institutions
Tolerance of diversity

### Physical activity

Whether walked continuously for at least 10 minutes in previous week
Amount of time spent walking continuously in previous week
Whether did any vigorous physical activity in previous week
Amount of time spent doing vigorous activity

### Self-reported health status

### Kessler 10 measure of psychological distress

### Health conditions

Arthritis
Heart disease
Stroke
Cancer
Osteoporosis
Depression or anxiety

### Eye care

Visits to eye specialists
Eye problems