

# Victorian Population Health Survey 2011-12

## Survey findings

*Revised December 2014*





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# Foreword

The Victorian Population Health Survey is an important component of the population health surveillance capacity of Victoria's Department of Health. The department initiated the surveillance program in 1998 and the first survey of adult Victorians was conducted in 2001. This year, for the second time only, the sample size has been expanded to approximately 32,000 participants to allow for the reporting of analysed data at the local government area (LGA) level. The department conducted the first LGA survey in 2008.

The Victorian Population Health Survey is based on core question modules that are critical to informing decisions about public health policies and programs. The findings from the survey fill a significant information gap by providing analysed data that are needed to ensure that public health programs remain relevant and responsive to current and emerging health issues.

Data from the Victorian Population Health Survey are used extensively across the government and non-government sectors of Victoria. The survey provides quality data for a range of indicators of public health importance at state and LGA levels. The survey findings are used to: provide evidence to inform decisions about local priorities for municipal public health and wellbeing plans; inform planning in non-government health organisations; inform planning, reporting and decision-making in the department; and measure trends over time for key health indicators such as diabetes, smoking prevalence and overweight and obesity.

The value of the survey data is increasing over time as it becomes possible to comment on trends for selected survey estimates. As our population ages, the number of people with a chronic disease is expected to rise, greatly affecting the health and wellbeing of the population. The survey findings give us important insights into the determinants of chronic disease and how we might better target public health interventions.

The survey series provides an ongoing source of quality information on the health and wellbeing of our community, and these latest findings from the Victorian Population Health Survey 2011–12 will underpin Victoria's public health efforts into the future.



**Hon David Davis MP**  
**Minister for Health**



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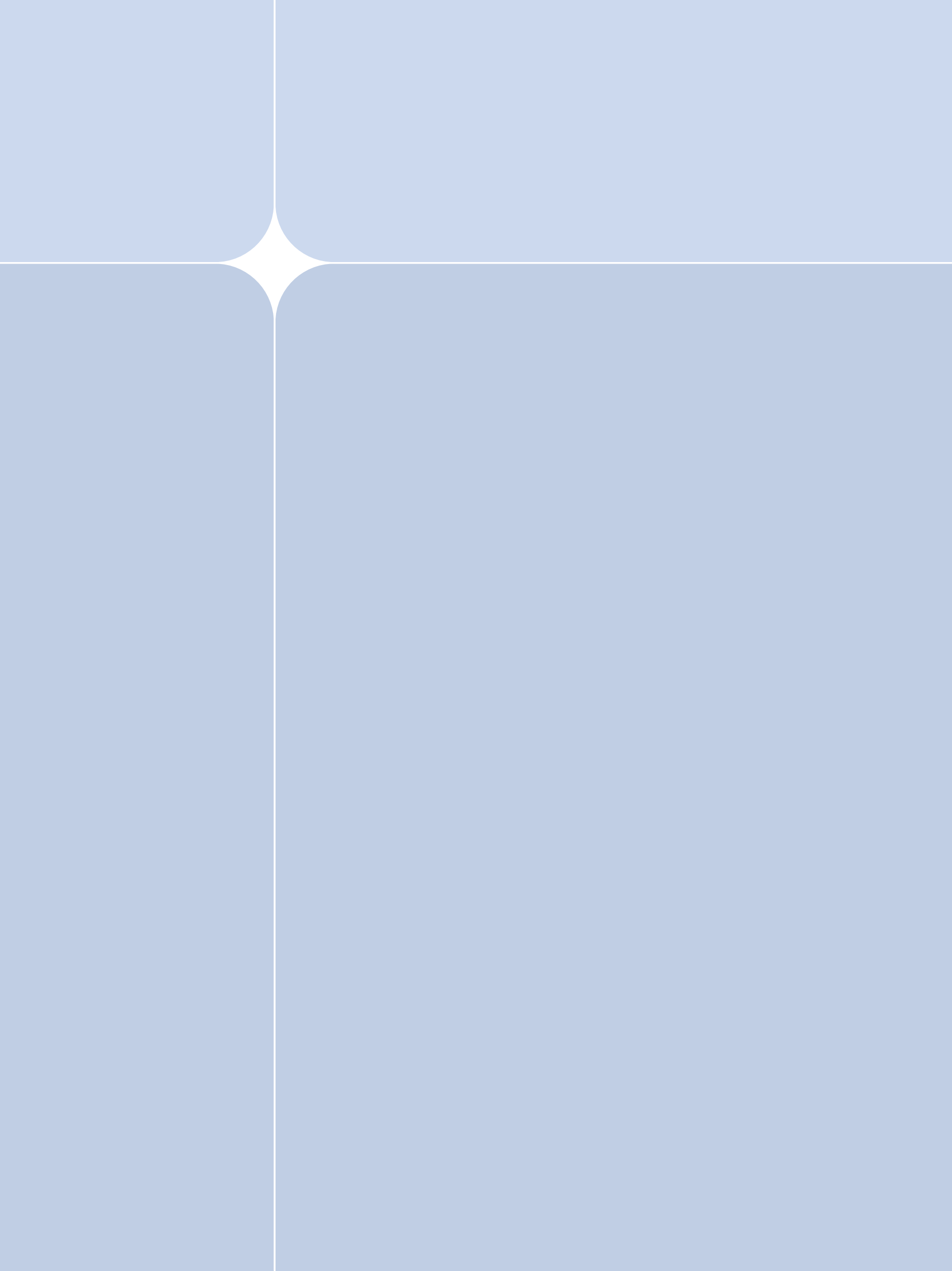
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# Introduction

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK





# Introduction

## About the survey

The Victorian Population Health Survey is an important component of the Department of Health's population health surveillance work. The annual survey series is an ongoing source of quality information on the health of adult Victorians.

The Victorian Population Health Survey has been conducted each year since 2001 and is based on a sample of 7,500 adults aged 18 years or over, who are randomly selected from households from each of the eight Department of Health regions in the state. In 2008 and again in 2011–12, the sample size for the survey was expanded to include the 79 local government areas (LGAs) in the state (Tables i–iii and Maps i–ii).

The aim of the survey is to provide quality, timely indicators of population health that directly apply to evidence-based policy development and strategic planning across the department and the wider community. The survey is based on core question modules to report on trends over time and to inform decisions about public health priorities. The survey findings fill a significant gap in population health data and provide information to ensure that public health programs remain relevant and responsive to current and emerging health issues.

The impact of the use of data from the Victorian Population Health Survey is extensive across the government and non-government sectors of Victoria. The survey provides quality data for a range of indicators of public health importance at a state and LGA level.

## What's new?

- The sample size for the Victorian Population Health Survey was expanded to 33,673 respondents in 2011–12 so information could be analysed and presented at the LGA level.
- Estimates have been age-standardised throughout the report to eliminate the effect that differences in age structure may have on estimates from different population groups.
- Notes to the tables and figures indicate the statistical significance of differences between estimates. Significance has been determined by comparing 95 per cent confidence intervals and testing trends over time using ordinary least squares regression.
- The reliability of estimates has been determined using relative standard errors, and the tables and figures indicate the degree of reliability.

## How to interpret a table

- Time trends tables: estimates are presented for each year in which the survey was run where exactly the same question has been asked each time. Where a question about a health topic has changed over time, the period reported reflects the period from where the question change occurred. Ordinary least squares regression was used to test trends over time.
- Other tables: individual estimates have been compared with the total Victorian estimate. Where subgroups of the population are presented (for example, males and females), the estimates have been compared with the total Victorian estimate for that population subgroup (all Victorian males, all Victorian females). The significance of differences in estimates has been determined by comparing the 95 per cent confidence intervals of the estimates.

Sample table: Smoking status, by LGA, Victoria, 2011–12 (Excerpt from Table 2.7)

	Current smoker			Ex-smoker			Non-smoker		
	%	95%CI		%	95%CI		%	95%CI	
		LL	UL		LL	UL		LL	UL
Darebin (C)	21.9	16.7	28.1	23.2	19.3	27.7	54.4	48.1	60.6
East Gippsland (S)	19.7	14.2	26.7	30.5	25.7	35.8	49.6	43.1	56.2
Frankston (C)	17.4	13.2	22.5	28.4	24.0	33.2	54.0	48.5	59.5
Gannawarra (S)	9.8	6.2	14.9	25.0	20.1	30.5	65.3	58.7	71.4
Glen Eira (C)	9.3	6.4	13.2	29.4	24.1	35.4	61.0	54.8	66.9
<b>Victoria</b>	<b>15.7</b>	<b>14.9</b>	<b>16.5</b>	<b>25.2</b>	<b>24.4</b>	<b>25.9</b>	<b>58.6</b>	<b>57.7</b>	<b>59.6</b>

If the estimate of the LGA is coloured **red**, this indicates that it is (statistically) significantly **HIGHER** than the state estimate.

For example, the proportion of current smokers in the City of Darebin is 21.9 per cent and this is higher than the state estimate, which is 15.7 per cent.

If the estimate of the LGA is coloured **blue**, this indicates that it is (statistically) significantly **LOWER** than the state estimate.

For example, the proportion of current smokers for the City of Glen Eira is 9.3 per cent and this is lower than the state estimate, which is 15.7 per cent.

## How is local government involved in public health?

Encouraging people to lead healthier lives – and creating environments that help them to do so – is challenging. The Victorian Government has long developed policies, programs and resources that encourage preventive health practices across all levels of government, non-government agencies and the private sector. For local government, the *Public Health and Wellbeing Act 2008* specifies the various functions of councils with regard to their role in protecting, improving and promoting public health and wellbeing within the municipality. These include creating an environment which supports the health of members of the local community and strengthens the capacity of the community and individuals to achieve better health. These functions need to be underpinned by quality information on the health status and needs of the local population to support the public health planning process, and policy and program implementation.

The *Victorian Health Priorities Framework 2012–2022*, which sets out the government's aspirations for the future of Victoria's health system, identifies the major challenges facing Victoria's health system, especially the demand on health resources due to population growth, demographic ageing, and the rise of chronic and complex conditions. The framework highlights the need for greater capacity to deliver prevention, primary care and early intervention.

The *Victorian Public Health and Wellbeing Plan 2011–2015* complements the *Health Priorities Framework*. The overall aim of the Plan is to improve the health and wellbeing of Victorians by engaging communities and strengthening systems for health protection, health promotion and preventive healthcare across all sectors and levels of government. The Plan outlines a number of opportunities to further strengthen and expand the role of local government in promoting health and wellbeing, in the context of building a more effective prevention system in Victoria. One of the most significant of these is the *Healthy Together Victoria* initiative which is building new approaches to prevention based on evidence that illustrates how to most effectively mitigate many of the challenges facing the health system, and strengthening collaboration between local government and community partners to maximise the potential of preventive health interventions.

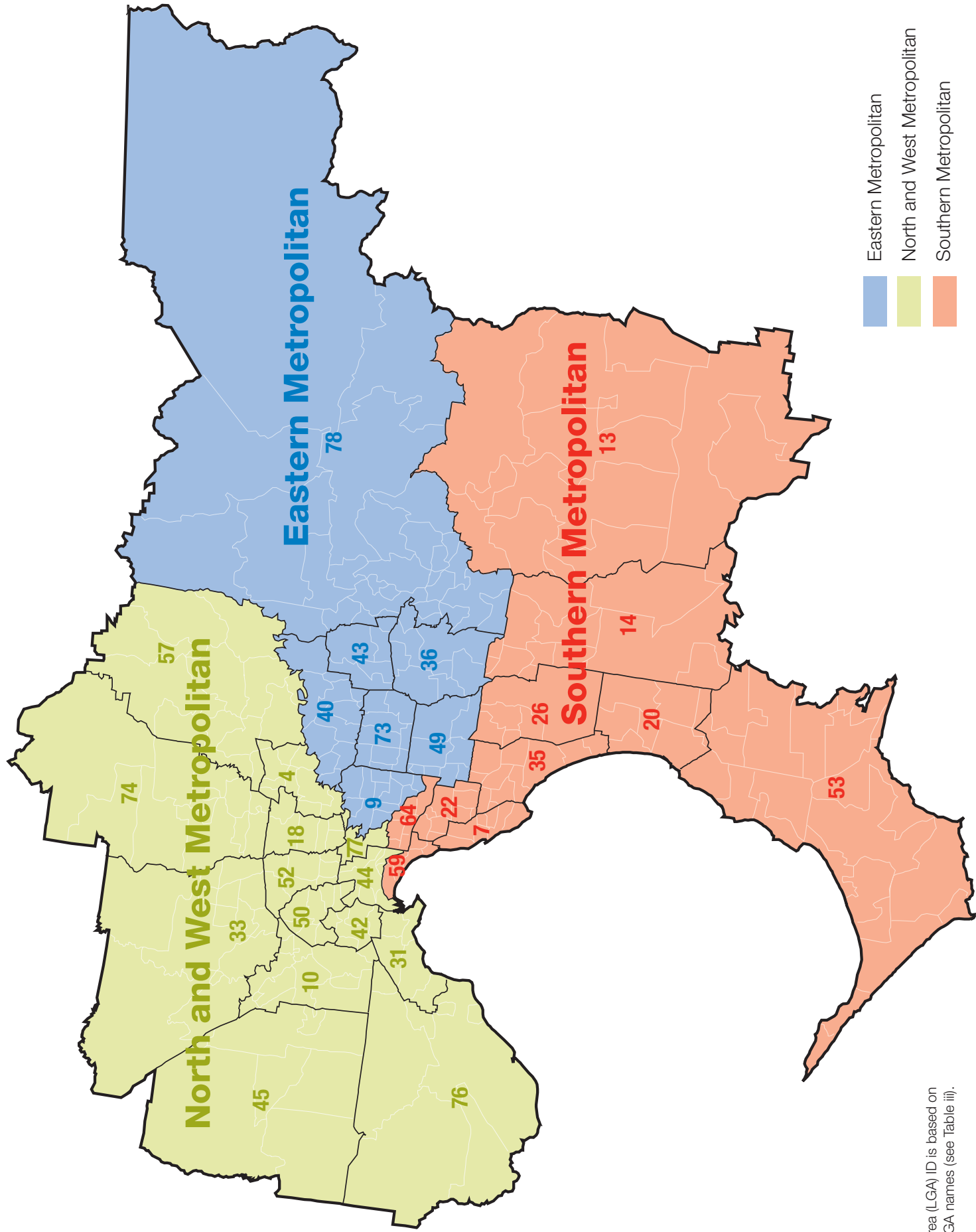
## How can this survey help local government?

Local government is ideally placed to lead local policies, programs and infrastructure development that can influence health through its work in a range of areas including transport, roads, parks, waste, land use, urban planning, recreation, cultural activities and in creating safer public places. The availability of data from this second LGA level Victorian Population Health Survey, providing a breakdown of particular risk factors and conditions across municipalities, can enable councils to confidently plan the steps needed to improve public health and wellbeing in their communities.



# Introduction

Map i: Metropolitan local government areas, by Department of Health region



Note: Local government area (LGA) ID is based on the alphabetical order of LGA names (see Table iii).

Table i: Metropolitan local government areas, by Department of Health region

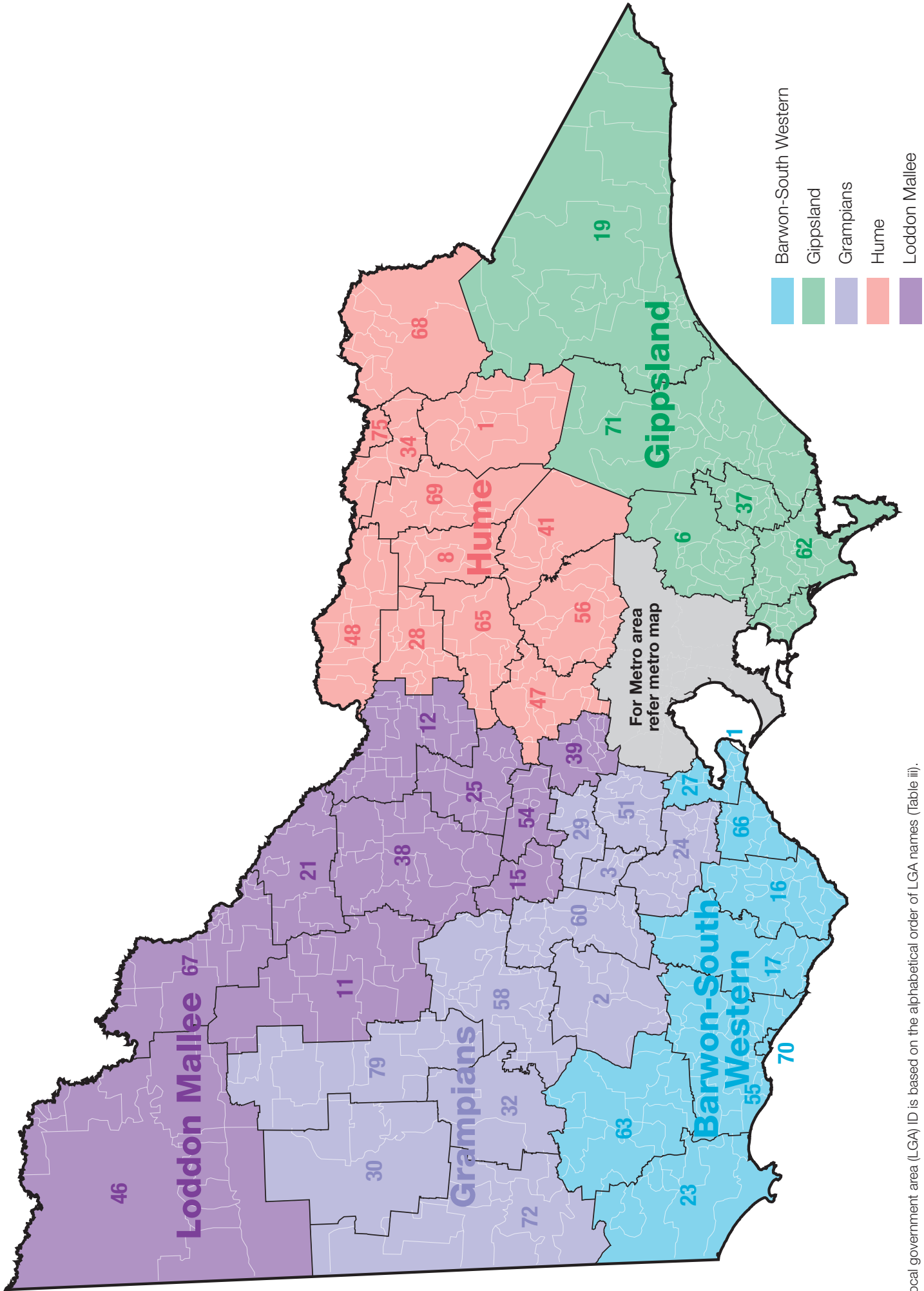
Region	LGA ID number <sup>a</sup>	LGA name
North & West Metropolitan	4	Banyule
	10	Brimbank
	18	Darebin
	31	Hobsons Bay
	33	Hume
	42	Maribyrnong
	44	Melbourne
	45	Melton
	50	Moonee Valley
	52	Moreland
	57	Nillumbik
	74	Whittlesea
	76	Wyndham
77	Yarra	

Region	LGA ID number <sup>a</sup>	LGA name
Southern Metropolitan	7	Bayside
	13	Cardinia
	14	Casey
	20	Frankston
	22	Glen Eira
	26	Greater Dandenong
	35	Kingston
	53	Mornington Peninsula
	59	Port Phillip
	64	Stonnington

Region	LGA ID number <sup>a</sup>	LGA name
Eastern Metropolitan	9	Boroondara
	36	Knox
	40	Manningham
	43	Maroondah
	49	Monash
	73	Whitehorse
	78	Yarra Ranges

a. Local government area (LGA) ID number is based on the alphabetical order of LGA names (see Table iii).

Map ii: Rural local government areas, by Department of Health region



Note: Local government area (LGA) ID is based on the alphabetical order of LGA names (Table iii).

Table ii: Rural local government areas, by Department of Health region

Region	LGA ID number <sup>a</sup>	LGA name
Barwon-South Western	16	Colac Otway
	17	Corangamite
	23	Glenelg
	27	Greater Geelong
	55	Moyne
	61	Queenscliffe
	63	Southern Grampians
	66	Surf Coast
	70	Warrnambool

Region	LGA ID number <sup>a</sup>	LGA name
Grampians	2	Ararat
	3	Ballarat
	24	Golden Plains
	29	Hepburn
	30	Hindmarsh
	32	Horsham
	51	Moorabool
	58	Northern Grampians
	60	Pyrenees
	72	West Wimmera
	79	Yarriambiack

Region	LGA ID number <sup>a</sup>	LGA name
Loddon Mallee	11	Buloke
	12	Campaspe
	15	Central Goldfields
	21	Gannawarra
	25	Greater Bendigo
	38	Loddon
	39	Macedon Ranges
	46	Mildura
	54	Mount Alexander
	67	Swan Hill

Region	LGA ID number <sup>a</sup>	LGA name
Hume	1	Alpine
	8	Benalla
	28	Greater Shepparton
	34	Indigo
	41	Mansfield
	47	Mitchell
	48	Moira
	56	Murrindindi
	65	Strathbogie
	68	Towong
	69	Wangaratta
75	Wodonga	

Region	LGA ID number <sup>a</sup>	LGA name
Gippsland	5	Bass Coast
	6	Baw Baw
	19	East Gippsland
	37	Latrobe
	62	South Gippsland
	71	Wellington

a. Local government area (LGA) ID number is based on the alphabetical order of LGA names (Table iii).

Table iii: Local government area names and Department of Health regions

LGA name	Region	LGA ID no. <sup>a</sup>	LGA name	Region	LGA ID no. <sup>a</sup>
Alpine (S)	Hume	1	Mansfield (S)	Hume	41
Ararat (RC)	Grampians	2	Maribyrnong (C)	North & West Metropolitan	42
Ballarat (C)	Grampians	3	Maroondah (C)	Eastern Metropolitan	43
Banyule (C)	North & West Metropolitan	4	Melbourne (C)	North & West Metropolitan	44
Bass Coast (S)	Gippsland	5	Melton (S)	North & West Metropolitan	45
Baw Baw (S)	Gippsland	6	Mildura (RC)	Loddon Mallee	46
Bayside (C)	Southern Metropolitan	7	Mitchell (S)	Hume	47
Benalla (RC)	Hume	8	Moira (S)	Hume	48
Boroondara (C)	Eastern Metropolitan	9	Monash (C)	Eastern Metropolitan	49
Brimbank (C)	North & West Metropolitan	10	Moonee Valley (C)	North & West Metropolitan	50
Buloke (S)	Loddon Mallee	11	Moorabool (S)	Grampians	51
Campaspe (S)	Loddon Mallee	12	Moreland (C)	North & West Metropolitan	52
Cardinia (S)	Southern Metropolitan	13	Mornington Peninsula (S)	Southern Metropolitan	53
Casey (C)	Southern Metropolitan	14	Mount Alexander (S)	Loddon Mallee	54
Central Goldfields (S)	Loddon Mallee	15	Moyne (S)	Barwon-South Western	55
Colac Otway (S)	Barwon-South Western	16	Murrindindi (S)	Hume	56
Corangamite (S)	Barwon-South Western	17	Nillumbik (S)	North & West Metropolitan	57
Darebin (C)	North & West Metropolitan	18	Northern Grampians (S)	Grampians	58
East Gippsland (S)	Gippsland	19	Port Phillip (C)	Southern Metropolitan	59
Frankston (C)	Southern Metropolitan	20	Pyrenees (S)	Grampians	60
Gannawarra (S)	Loddon Mallee	21	Queenscliffe (B)	Barwon-South Western	61
Glen Eira (C)	Southern Metropolitan	22	South Gippsland (S)	Gippsland	62
Glenelg (S)	Barwon-South Western	23	Southern Grampians (S)	Barwon-South Western	63
Golden Plains (S)	Grampians	24	Stonnington (C)	Southern Metropolitan	64
Greater Bendigo (C)	Loddon Mallee	25	Strathbogie (S)	Hume	65
Greater Dandenong (C)	Southern Metropolitan	26	Surf Coast (S)	Barwon-South Western	66
Greater Geelong (C)	Barwon-South Western	27	Swan Hill (RC)	Loddon Mallee	67
Greater Shepparton (C)	Hume	28	Towong (S)	Hume	68
Hepburn (S)	Grampians	29	Wangaratta (RC)	Hume	69
Hindmarsh (S)	Grampians	30	Warrnambool (C)	Barwon-South Western	70
Hobsons Bay (C)	North & West Metropolitan	31	Wellington (S)	Gippsland	71
Horsham (RC)	Grampians	32	West Wimmera (S)	Grampians	72
Hume (C)	North & West Metropolitan	33	Whitehorse (C)	Eastern Metropolitan	73
Indigo (S)	Hume	34	Whittlesea (C)	North & West Metropolitan	74
Kingston (C)	Southern Metropolitan	35	Wodonga (RC)	Hume	75
Knox (C)	Eastern Metropolitan	36	Wyndham (C)	North & West Metropolitan	76
Latrobe (C)	Gippsland	37	Yarra (C)	North & West Metropolitan	77
Loddon (S)	Loddon Mallee	38	Yarra Ranges (S)	Eastern Metropolitan	78
Macedon Ranges (S)	Loddon Mallee	39	Yarriambiack (S)	Grampians	79
Manningham (C)	Eastern Metropolitan	40			

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

a. Local government area (LGA) ID number is based on the alphabetical order of LGA names.

B = Borough; C = City; S = Shire; RC = Rural City.

## Summary of findings

### Fruit intake

Less than half (45.5 per cent) of all persons surveyed met the recommended minimum daily intake levels for fruit (three or more serves for those aged 18 years and two or more serves for those aged 19 years or over).

### Vegetable intake

Less than one in 10 adults (7.2 per cent) in 2011–12 met the recommended minimum daily intake for vegetables (four or more serves for those aged 18 years and five or more serves for those aged 19 years or over).

### Sugar-sweetened drinks

More than one in five Victorian adults (22.6 per cent) reported consuming sugar-sweetened or diet soft drinks on a daily basis.

### Alcohol intake

The proportion of males and females drinking alcohol at levels for short-term risk of harm did not vary significantly over the period from 2003 to 2011–12. In 2011–12 approximately 12.7 per cent of males and 5.6 per cent of females reported drinking alcohol weekly at levels for short-term risk.

### Smoking

Approximately one in five adults aged 18 years or over (15.8 per cent) were current smokers in 2011–12, down from a high of 21.9 per cent in 2003.

### Physical activity

The proportion of persons undertaking adequate physical activity (measured in both sufficient time and sessions) to meet the national guidelines was 63.7 per cent in 2011–12. This figure has not changed significantly since 2005.

### Self-reported health

The proportion of persons reporting their health as excellent, very good or good was 83.8 per cent in 2011–12. This figure did not change significantly over the period from 2005 to 2011–12.

### Self-reported dental health

The proportion of persons reporting their dental health as excellent, very good or good was 75.0 per cent in 2011–12. Just over half (56.7 per cent) of Victorian adults had visited a dental professional within the 12 months preceding the survey.

### Body weight

Measures of height and weight were collected for the first time in 2002 to calculate body mass index (BMI). The proportion of persons categorised as obese according to their BMI increased from 13.9 per cent in 2003 to 17.5 per cent in 2011–12.

### Asthma

The prevalence of current asthma (experienced asthma symptoms in the previous 12 months) among adults was 10.9 per cent in 2011–12. The prevalence of current asthma did not significantly change between 2003 and 2011–12 in men, women or all Victorian adults.

### Diabetes

The prevalence of type 2 diabetes was 5.0 per cent in 2011–12. The prevalence of self-reported doctor-diagnosed type 2 diabetes significantly increased from 2003 to 2011–12 in both men and women.

### Psychological distress

The proportion of persons with high or very high levels of psychological stress, as determined using the Kessler 10 measure of psychological distress, remained steady at 10–13 per cent over the period from 2003 to 2011–12.

### Health checks and screening

In 2011–12 more than three-quarters (82.3 per cent) of all persons surveyed reported having had their blood pressure checked, more than half (60.8 per cent) reported having had a blood cholesterol test and more than half (56.1 per cent) reported having had a blood glucose test in the past two years.

More than half (61.2 per cent) of all persons aged 50 years or over who had received a faecal occult blood test (FOBT) kit from the national bowel cancer screening program in the mail had completed and returned the kit.

Among the female population, almost three-quarters (70.8 per cent) reported having had a Pap test in the preceding two years.

Among the female population, aged 50 years or over, less than three-quarters (69.7 per cent) reported having had a mammogram in the past two years.

### Social inequalities in health

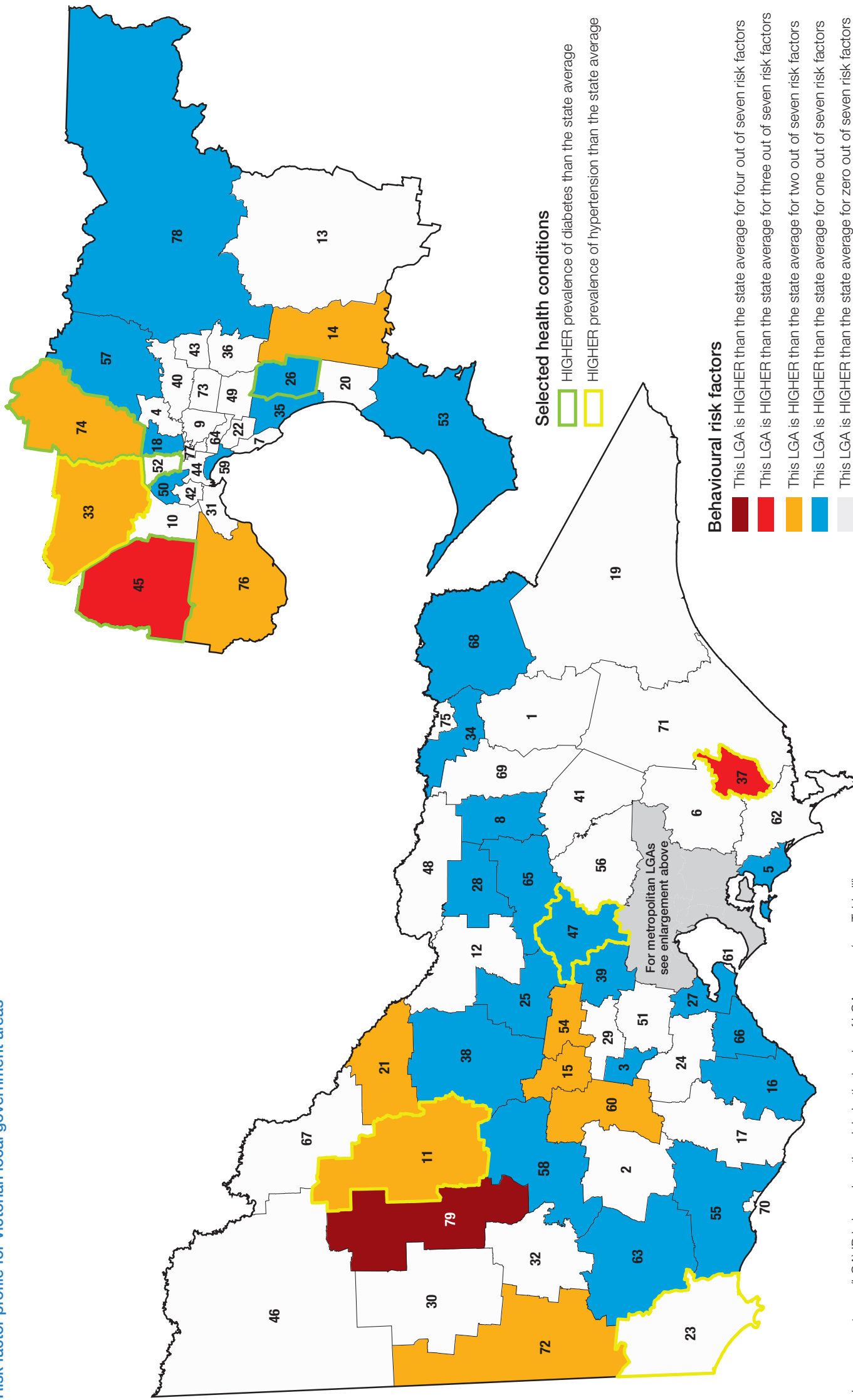
Overall, 4.6 per cent of Victorian adults reported that they had run out of food in the previous 12 months and had been unable to afford to buy more.

### LGA risk factor profile

The combined distribution of seven selected risk factors in each LGA is presented in Map iii. These risk factors are: obesity, inadequate physical activity, inadequate intake of fruit and vegetables, daily intake of sugar-sweetened soft drinks, smoking status (current smoker), alcohol-related harm (risky drinking) and high or very high levels of psychological distress. In conjunction with these risk factors, Map iii also highlights those LGAs where the prevalence of diabetes and hypertension among the adult population is higher than the state estimate.

Additional maps within this report separately describe the distribution of selected risk factors and chronic diseases in each LGA.

Map iii: Risk factor profile for Victorian local government areas



Note: Local government area (LGA) ID is based on the alphabetical order of LGA names (see Table iii).

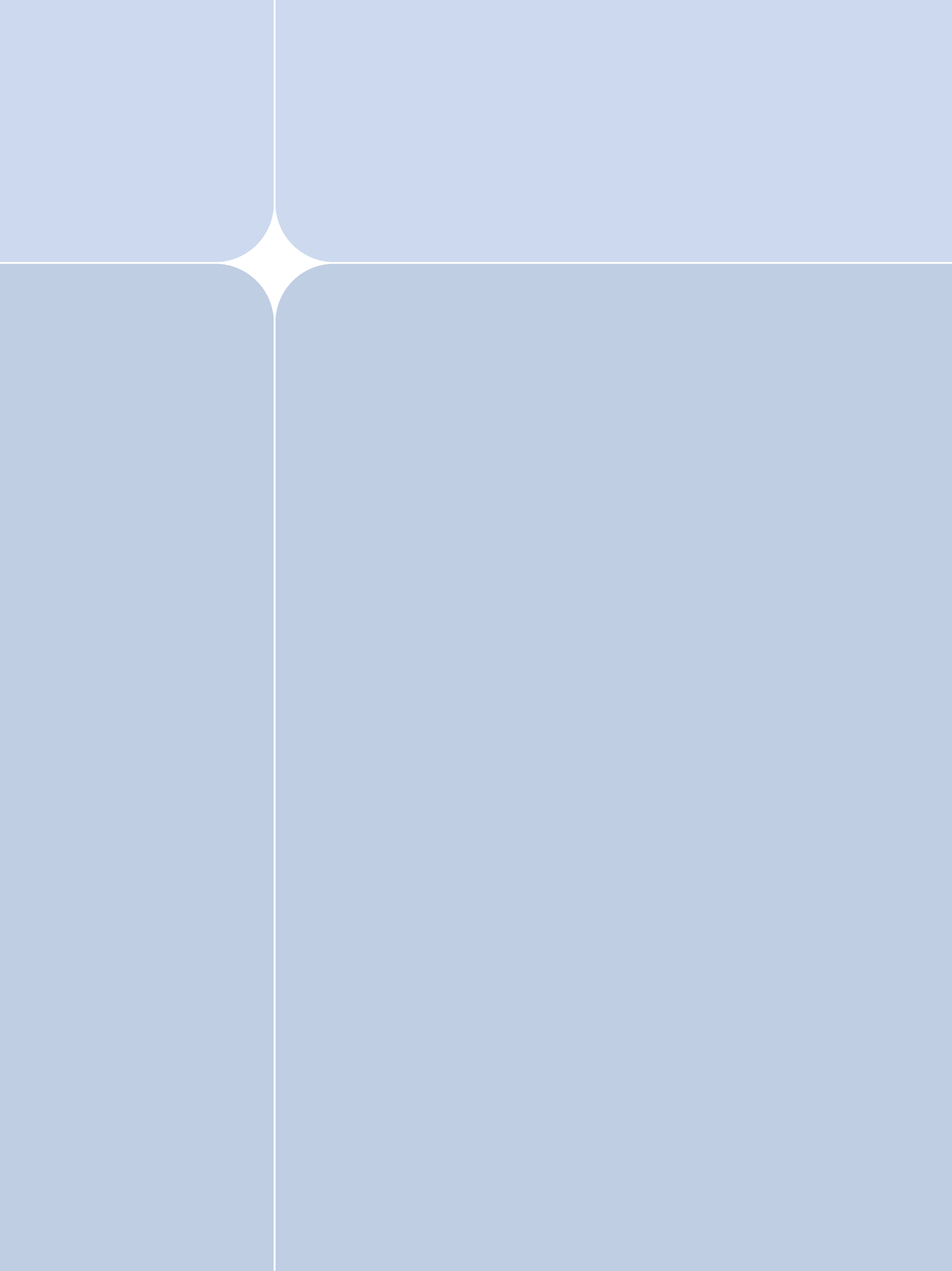
a. Risk factors are: obesity, inadequate physical activity, inadequate intake of fruit and vegetables, daily intake of sugar-sweetened soft drinks, smoking status (current smoker), alcohol-related harm (risky drinking), high or very high levels of psychological distress.



# 1. Methods

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMIACK





# 1. Methods

## 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, collection procedures that are acceptable to respondents, an adequate sample size, use current technology and provide 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 (especially in rural and metropolitan areas) 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 2011–12 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 Health 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.

## Stratification

There are five rural and three metropolitan Department of Health regions in Victoria that comprise 79 LGAs. The survey sample was stratified by LGA, with a target sample size of 426 respondents per LGA. A total of 33,673 interviews were completed, including 800 interviews in languages other than English.

## Sampling frame

Victorian Population Health Surveys up to and including 2009, used a 'list assisted' form of random digit dialling (RDD) for the sample frame. While list-assisted RDD approaches have provided a good contemporary coverage of households with a landline telephone connection, they tend to under-represent phone numbers in new exchanges and generate a relatively high proportion of non-working telephone numbers, which leads to some loss in fieldwork efficiency. An exchange-based approach to RDD was employed for the first time in 2010, using a commercial list provider to provide the RDD landline telephone sample.

The advantages of this exchange-based approach to random digit dialling sample generation include:

- improved coverage in areas where new telephone number ranges have been activated

- improved coverage in growth corridors, peri-urban areas and central business district developments
- representing each bank of phone numbers in the sampling frame in proportion to the current population of working landline numbers
- higher connection rates and therefore greater fieldwork efficiency.

## Sample generation

RDD 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. People who are homeless or itinerant were excluded from the survey, as were people in hospitals or institutions, the frail aged and people with disabilities who are unable to participate in an interview.

## Sample size

The sample size for each LGA for the Victorian Population Health Survey (conducted in 2008 and 2011–12) was 426. The sample size is based on the following formula assuming a prevalence of 7.5 per cent for a variable of interest, with a confidence interval of 2.5 per cent (7.5 (5.0, 10.0) per cent), all percentages being expressed as a proportion:

$$\text{Sample size } (n) = \frac{Z^2 * p * (1 - p)}{c^2} = 426$$

where:

- p = proportion (0.075)
- Z = 1.96 (Z-score of level of significance (alpha = 0.05))
- c = confidence interval (0.025)

## Statistically detectable difference between two estimates

While a sample size of  $n = 426$  in each LGA permitted the detection of a variable of interest with a population prevalence of 7.5 (95% CI: 5.0, 10.0) per cent and a statistical power of 80 per cent, the sample size required to determine a difference between two estimates is considerably higher. Figure 1.1 shows the estimated sample size required to detect a statistically significant difference of five to 15 per cent between two estimates. The two estimates could be, for example, two different geographic areas or the same estimate across two different points in time. Figure 1.1 also shows that the sample size required for any given absolute difference between two estimates varies according to the prevalence of the estimate. In general, larger sample sizes are needed to detect differences between estimates with a prevalence of 50 per cent compared with estimates that have a prevalence that is higher (e.g. 70 per cent) or lower (e.g. 10 per cent) than 50 per cent.

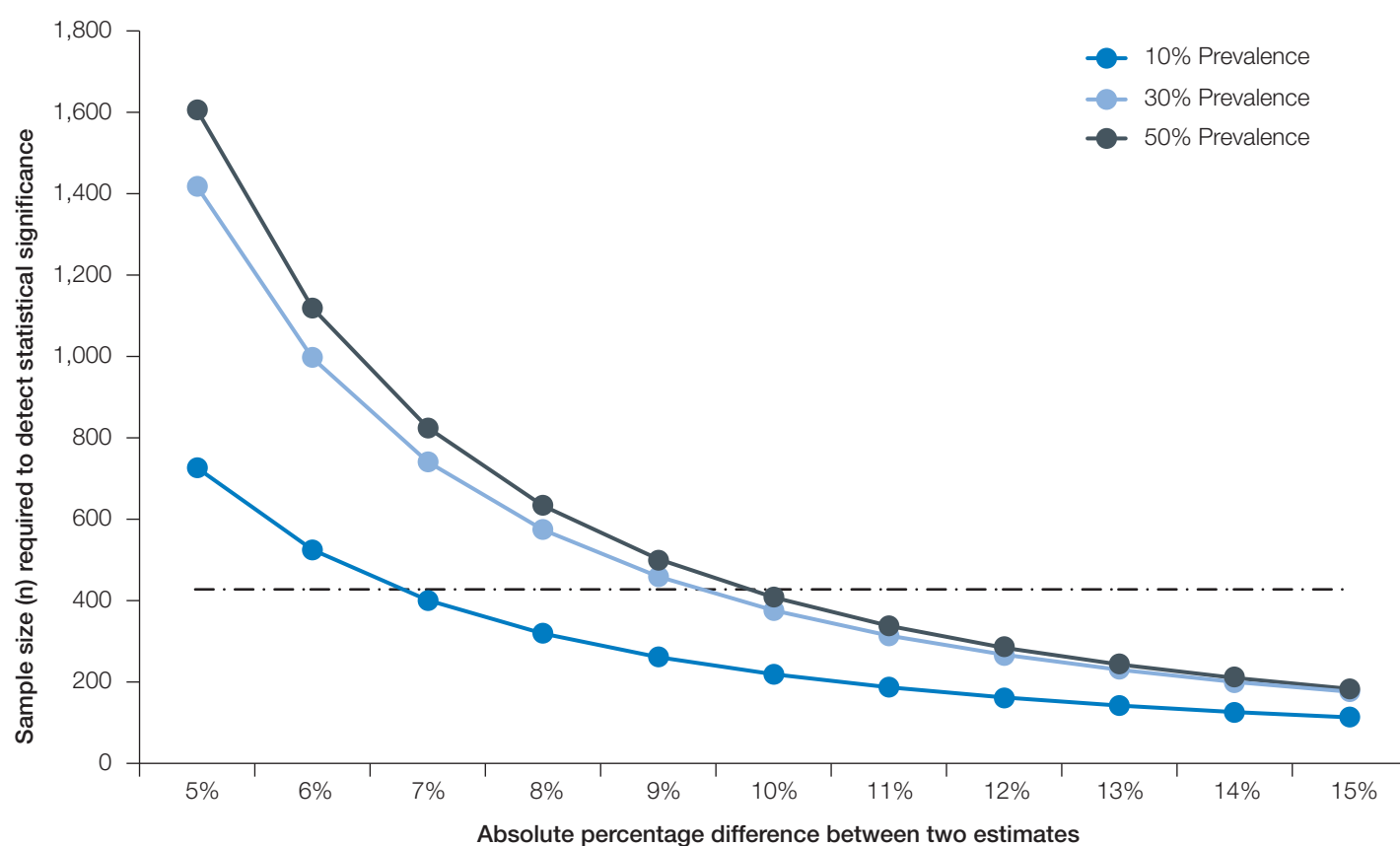
The figure shows that to be able to detect a five per cent difference across time or between two LGAs in a variable with a prevalence of approximately 50 per cent (for example, the proportion of adults in Victoria who met the recommended guidelines for daily fruit intake), a sample size of 1,600 people per LGA would be required.

The LGA-level Victorian Population Health Survey with an LGA sample size of 426 is only able to statistically detect true differences of 10 per cent or more where the prevalence of the estimate of interest is in the range of 10 to 50 per cent. Therefore, in response to a frequently asked question about whether the 2008 LGA-level Victorian Population Health Survey can be directly compared with the 2011–12 LGA-level Victorian Population Health Survey in order to be able to track changes over time, the answer is ‘yes’ but only if any observed difference in the variable of interest **exceeds** the range of **7–10 per cent** (depending on its prevalence). However, a difference in the range of seven to 10 per cent is a very large difference in public health terms and few health outcomes or risk factors have been observed to change by such large amounts, particularly over short periods of time. For example, while a much celebrated

and major public health intervention success story is the decline in the prevalence of smoking, the decline in men in Australia from 1998 to 2010 was only five per cent (27 per cent to 22 per cent). Therefore, for all practical purposes, comparing prevalence estimates for any given variable between the 2008 and 2011–12 surveys in order to look for changes over time is highly unlikely to yield any useful information.

However, at the statewide level, the Victorian Population Health Survey with a sample size of approximately 7,500 (statewide surveys) or 34,000 (LGA-level surveys) is powered to be able to detect very small differences of two per cent or more from year to year. This has enabled the time-series analyses that can be found throughout the report.

**Figure 1.1: Estimated sample size to detect statistically significant differences for prevalence at 10, 30 and 50 per cent**



Dotted black line indicates the sample size per LGA employed in the 2008 and 2011–12 LGA-level surveys.

## Data collection

Almost two-thirds of all completed interviews were achieved within the first three calls. This proportion is consistent with national experience on similar surveys.

## Call routine

The algorithm spreads call attempts over different times of day and days of the week. Other features of the call regime included:

- call initiation on weekday evenings and weekends only (since these are proven to be the best times to establish initial contact with households)
- appointments made for any time the call centre was operational
- appointments set for five days' time after leaving the first answering machine message and eight days' time after leaving the second answering machine message.

After establishing contact, interviewers could make calls, by appointment, outside the time block hours. After contacting a household, an interviewer would select for interview the person aged 18 years or over with the most recent birthday.

The department operated a survey hotline number during business hours throughout the data collection period to help establish survey bona fides and address sample member queries about the survey or survey process and arrange appointment times with respondents for their interview.

## Interviewing in languages other than English

Interviews were conducted in eight community languages. As for previous surveys in the series, the department provided translated survey questionnaires in Italian, Greek, Mandarin, Cantonese, Vietnamese, Arabic, Turkish and Serbo-Croatian, with a view to achieving a more representative sample in those areas with a relatively high proportion of speakers of these languages. CATI interviewers were recruited to undertake the interviews in these other languages, as required. The average interview length was 25.5 minutes.

## Participation

The response rate, defined as the proportion of households contacted that were not identified as out of scope and an interview completed, was 66.8 per cent. The response rate was higher in the rural LGAs (69.9 per cent) compared with metropolitan LGAs (62.8 per cent) and ranged from 53.7 per cent in Greater Dandenong (C) to 76.5 per cent in Indigo (S).

## Weighting

The survey data was weighted to reflect the following.

### (i) The probability of selecting the respondent within the household

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, each respondent was treated 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 the selection weight ( $sw$ ) component:

$$sw = nah/npl$$

where:

$nah$  = the number of adults aged 18 years or over in the household  
 $npl$  = the number of telephone lines in the household.

### (ii) The age/sex/geographic distribution of the population

The project team applied a population benchmark ( $pbmark$ ) component to ensure the adjusted sample distribution matched the population distribution for the combined cross-cells of age group and sex by LGA, based on the 2011 estimated resident population of Victoria. The categories used for each of the variables were:

- *Age group*: 18–24, 25–34, 35–44, 45–54, 55–64 and 65 years or over
- *Sex*: male, female
- *Geography*: 79 LGAs

The  $pbmark$  component was 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 was:

$$pbmark_i = Ni/\sum sw_{ij}$$

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  
 $\sum sw_{ij}$  = 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):

$$pwt_{ij} = sw_{ij} * pbmark_i$$

where:

$i$  = the  $i$  th cross-cell

$j$  = the  $j$  th person in the cross-cell.

## Statistical analysis

The survey data was analysed using the Stata statistical software package (Version 12.1, StatCorp LP, College Station Texas).

### Crude rates

A crude rate is an estimate of a proportion of a population that experiences a specific event over a specified period of time. It is calculated by dividing the number of events recorded for a given period by the number of people in the population. Crude rates (expressed as percentages) are only presented in the report where estimates are broken down by age group. Crude rates are useful for service planning purposes as they indicate the absolute estimate of the indicator of interest.

However, in making comparisons of estimates over time, crude rates can be difficult to interpret because the age distribution of the population is also changing over time. If one does *not* take into account changes in the age distribution, any observed increases, or decreases, in the prevalence of the indicator of interest may just reflect changes in the age distribution. For example, bearing in mind that the risk of heart disease increases with age, an increase in the crude rate of heart disease over time could be due to (a) more people developing heart disease due to a change in the prevalence of a predisposing factor or (b) an increase in the proportion of older people. There is no way to distinguish between the two possible explanations. However, if we take into account (adjust for) the changing age distribution and still see an increase in the prevalence of heart disease, we can rule out explanation (b). To adjust for age, we calculate an **age-standardised rate** (described below). Only age-standardised rates are reported for time-series data in this report. Similarly, only age-standardised rates are reported when making comparisons between different geographic areas. This is particularly pertinent for Victoria because rural LGAs tend to have populations characterised by larger proportions of older people compared with metropolitan LGAs.

### Age standardisation

Age-standardised rates, also known as age adjusted rates, were calculated using the direct method of standardisation. The direct age-standardised rates that are presented in this report are based on the weighted sum of age-specific rates applied to a standard population – the 2011 estimated resident population of Victoria. Five-year age groups were used to calculate the age-specific rates for data at the state and Department of Health region level. However, 10-year age groups were used to calculate the age-specific rates for data at the LGA level, due to small numbers in some of the smaller LGAs.

## Standard error

The standard error is a measure of the variation in an estimate produced by sampling a population. The standard error can be used to calculate confidence intervals and relative standard errors, providing the likely range of the true value of an estimate and an indication of the reliability of an estimate.

### Confidence interval (95 per cent)

A confidence interval is a range in which it is estimated that the true population value lies. A common confidence interval used in statistics is the 95 per cent confidence interval. This is interpreted as: if we were to draw several random samples from the same population, on average, 19 of every 20 (95 per cent) such confidence intervals would contain the true population estimate and one of every 20 (five per cent) would not. 95 per cent confidence intervals are reported for all estimates throughout the report and used to ascertain statistical significance (see below). The width of a confidence interval expresses the precision of an estimate; the wider the interval the less the precision.

$$95\% \text{ confidence interval} = \text{point estimate} \pm (\text{standard error} \times 1.96)$$

### Statistical significance

Only statistically significant trends and patterns are reported for the 2011–12 Victorian Population Health Survey. Statistical significance provides an indication of how likely a result is due to chance. With the exception of time trends over time (see below), statistically significant differences between estimates were deemed to exist where the 95 per cent confidence intervals for percentages did not overlap.

The term 'significance' is used to denote statistical significance. It is not used to describe clinical significance, the relative importance of a particular finding, or the actual magnitude of difference between two estimates.

### Relative standard error

A relative standard error (RSE) provides an indication of the reliability of an estimate. Estimates with RSEs less than 25 per cent are generally regarded as 'reliable' for general use. The percentages presented in tables and graphs in this report have RSEs less than 25 per cent, unless otherwise stated. Rates that have an RSE between 25 and 50 per cent have been marked with an asterisk (\*) and should be interpreted with caution. For the purposes of this report, percentages with RSEs over 50 per cent were not considered reliable estimates and have not been presented. A double asterisk (\*\*) has been included in tables and graphs where the percentage would otherwise appear, indicating the relevant RSE was greater than 50 per cent.

$$\text{Relative standard error (\%)} = \text{standard error} / \text{point estimate} \times 100$$

### Testing for trends across time

Ordinary least squares linear regression of the logarithms of the age-standardised rates was used to test for trends across time. Regression analysis to determine trends over time has the advantage of taking into consideration all the time points rather

than considering each time point separately. It calculates the line that best fits the data and the slope of the line is the average annual change over the period of time.

The 95 per cent confidence interval for the standard error of the slope is used to determine whether any observed increase or decrease over time is statistically significant at the  $p < 0.05$  level. This is ascertained if the 95 per cent confidence interval for the regression coefficient does not include the value 0.

Only data that were collected in an identical manner were included in time-series analyses. Therefore some time-series analyses go back to 2003, while others to 2005. This is because additional response options were included in 2005 for many of the survey questions.

## Profile of survey respondents

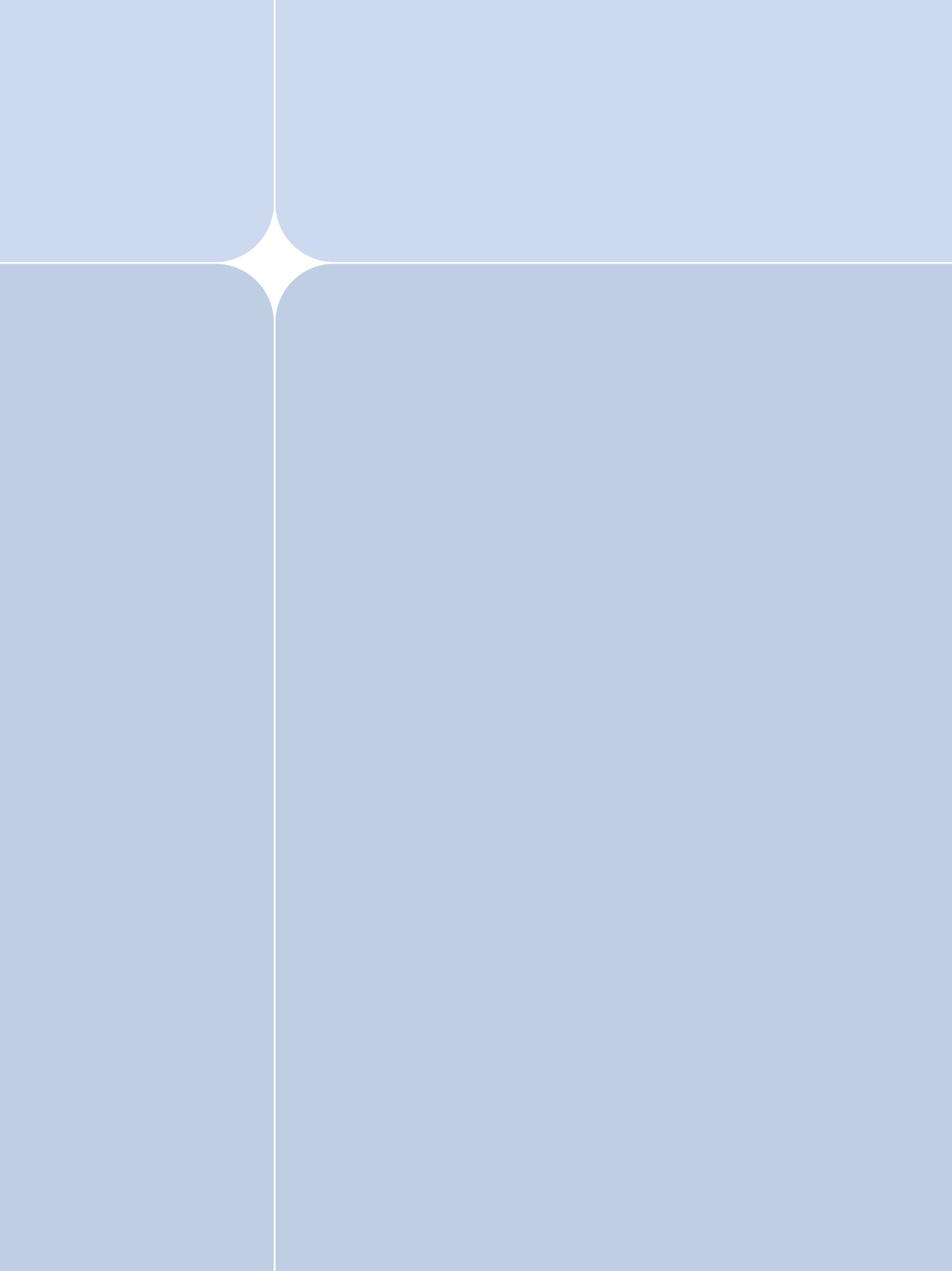
Known *pbmarks* for selected data items may be used to assess the representativeness of the sample. Table 1.1 shows the profile of respondents in the Victorian Population Health Survey 2011–12, and indicates the following:

- Females were more likely than males to participate in the survey.
- Adults aged 18–34 years were less likely to participate in the survey.
- Adults aged 55 years or over were more likely to participate in the survey.

**Table 1.1: Profile of respondents in the Victorian Population Health Survey, 2011–12**

	Benchmark data <sup>a</sup> (%)	Unweighted survey sample (%)	Weighted survey sample (%)
<b>Sex</b>			
Males	49	39	49
Females	51	61	51
<b>Age group (years)</b>			
18–24	13.0	3.4	14.2
25–34	18.9	6.2	19.1
35–44	18.4	14.6	17.9
45–54	17.3	19.5	16.7
55–64	14.5	22.6	13.6
65+	18.0	33.7	18.4

a. Service Planning, Department of Health, 2011, State Government of Victoria.

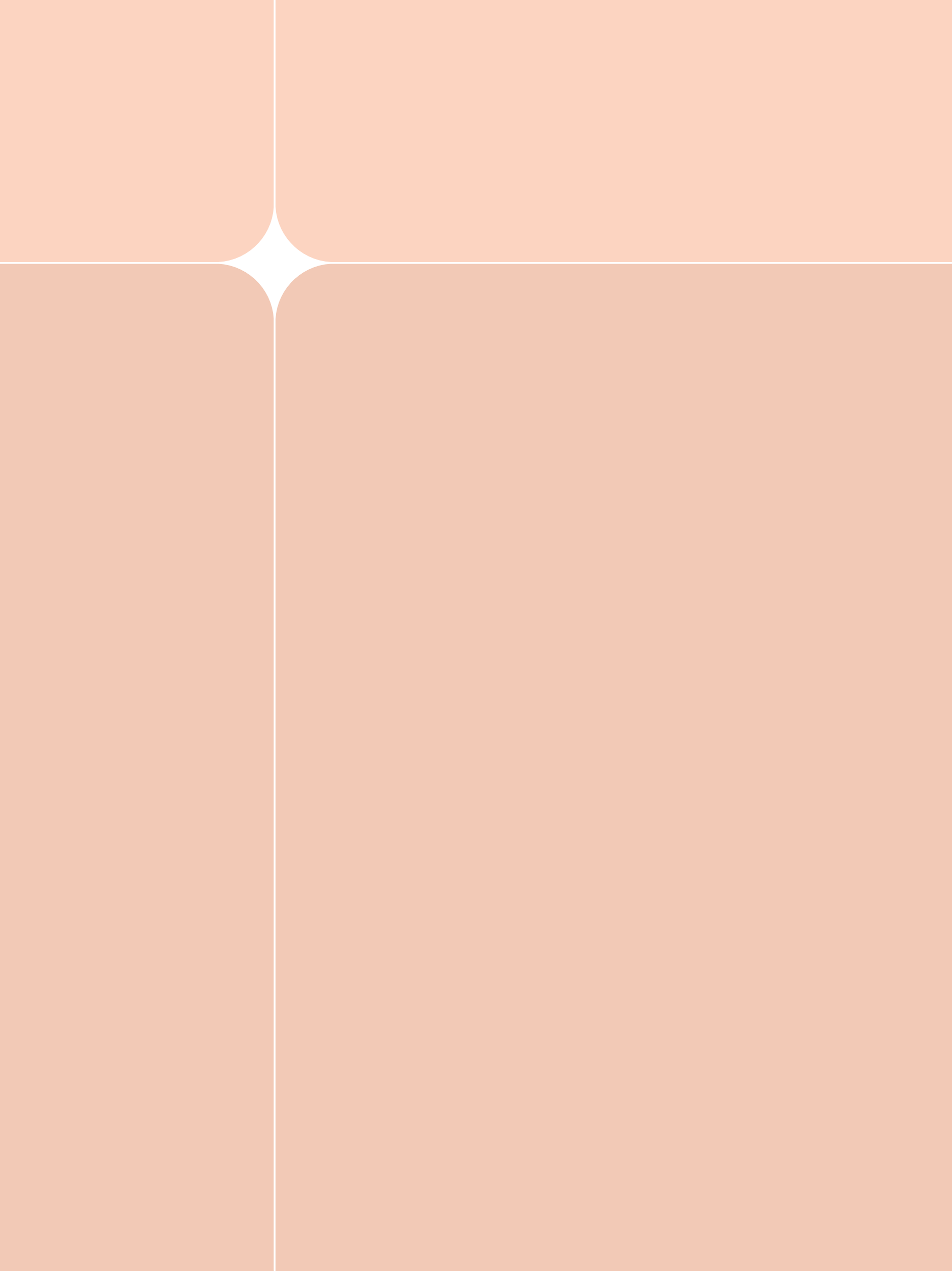




## 2. Modifiable health risk factors

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK





## 2. Modifiable health risk factors

### Introduction

Modifiable health risk factors are those that are potentially modifiable through changes in lifestyle and/or treatment. Some of these risk factors, such as smoking, excess consumption of alcohol, physical inactivity and unhealthy diet, are often referred to as 'lifestyle risk factors'. Much of the work done in health promotion is posited around attempting to effect a change in people's lifestyle choices and behaviours, where there is considerable scope for health gain.

In quantifying the relative contribution of various modifiable risk factors, Begg and colleagues determined that 14 selected risk factors accounted for 32.2 per cent of the total burden of death, disease and injury (Begg et al. 2008). Table 2.1 summarises the 14 risk factors and their relative contributions.

**Table 2.1: Health loss attributable to 14 selected risk factors, by all causes, Australia, 2003**

Risk factor	Per cent
Tobacco use	7.8
High blood pressure	7.6
High body mass	7.5
Physical activity	6.6
High blood cholesterol	6.2
Alcohol consumption	2.3
Low consumption of fruit and vegetables	2.1
Illicit drug use	2.0
Occupational exposures and hazards	2.0
Intimate partner violence	1.1
Child sexual abuse	0.9
Urban air pollution	0.7
Unsafe sex	0.6
Osteoporosis	0.2
<b>Total attributable health loss</b>	<b>32.2</b>

Source: Begg et al. 2008.

Conversely, 67.8 per cent of the total burden of disease is not accounted for by known modifiable risk factors. It is here that the underlying social determinants of health make their contribution to death, disease and injury.

This chapter presents information on modifiable risk factors that influence health including smoking, alcohol consumption, fruit and vegetable intake, water intake, consumption of sugar-sweetened beverages, physical activity, overweight and obesity, psychological distress and hypertension.

### Survey results

#### Smoking

- More than one-sixth (15.8 per cent) of Victorians aged 18 years or over were current smokers. On average, approximately one in five males (18.6 per cent) in Victoria reported that they smoked daily or occasionally compared with 12.9 per cent of females.
- Males in the 25–34 year age group were found to have the highest prevalence of current smoking (25.3 per cent). For females, the highest prevalence of current smoking was in the 45–54 year age group, at 16.0 per cent.
- Most persons who were current smokers smoked on a daily basis, as opposed to smoking occasionally. For females aged 18–24 years the prevalence of occasional smoking (7.9 per cent) was similar to the prevalence of daily smoking (6.7 per cent). For females the prevalence of occasional smoking (7.9 per cent) was highest for those aged 18–24 years.
- The proportion of persons who were current smokers was similar for rural (22.0 per cent) and metropolitan (21.2 per cent) areas of Victoria.
- The prevalence of current smoking in females was above the average for Victoria (16.2 per cent) in Hume Region, while the prevalence of current smoking in females was below the average for Victoria (9.7 per cent) in Eastern Metropolitan Region.
- The prevalence of current smoking was above the average for Victoria (15.7 per cent) in Darebin (C), Loddon (S), Melton (S), and Whittlesea (C). By contrast adults who lived in Gannawarra (S), Glen Eira (C), Melbourne (C), Monash (C) and Nillumbik (S) had a significantly lower prevalence of current smoking compared with all Victorian adults.

#### Alcohol consumption

- Less than one in five Victorians (18.6 per cent) aged 18 years or over were abstainers or non drinkers.
- A higher proportion of females (23.0 per cent) than males (14.0 per cent) were abstainers or non drinkers.

#### • Short-term risk of harm

- Less than half (45.2 per cent) of all respondents reported that they consumed alcohol (weekly, monthly or yearly) at levels regarded as risky or high risk for harm in the short-term (based on the National Health and Medical Research Council (NHMRC) 2001 guidelines).
- A higher proportion of males (52.5 per cent) than females (38.1 per cent) consumed alcohol (weekly, monthly or yearly) at levels that are risky or high risk for short term harm.
- Drinking alcohol at risky or high risk levels at least weekly was greatest among males and females aged 18–24 years (19.3 per cent and 10.8 per cent, respectively). The proportion of males who consumed alcohol at risky or high risk levels at least once each week was higher than for females across all age groups.

- The proportion of males at risk of short-term harm was greater for those living in rural areas compared with the metropolitan area (59.3 per cent and 50.4 per cent, respectively). Similarly, the proportion of females at risk of short-term harm from alcohol consumption was higher for those living in rural parts of Victoria (42.6 per cent) than for those living in the metropolitan area (36.8 per cent).
- The proportion of persons who were at risk of short-term harm was higher than the average for Victoria (45.3 per cent) in the LGAs of Ballarat (C), Bass Coast (S), Benalla (RC), Colac-Otway (S), Gannawarra (S), Greater Geelong (C), Indigo (S), Kingston (C), Latrobe (C), Macedon Ranges (S), Moonee Valley (C), Mornington Peninsula (S), Mount Alexander (S), Moyne (S), Murrindindi (S), Nillumbik (S), Port Phillip (C), Pyrenees (S), Queenscliffe (B), Southern Grampians (S), Strathbogie (S), Surf Coast (S), Towong (S), West Wimmera (S) and Yarriambiack (S) compared with all Victorian adults.
- The prevalence of abstinence, low-risk or short-term risk of alcohol-related harm remained unchanged from 2003 to 2011–12, for both men and women.

- **Long-term risk of harm**

- Most persons aged 18 years or over (95.8 per cent) were not at risk of long-term harm based on their frequency and volume of alcohol consumption. The proportion of persons aged 18 years or over whose pattern of alcohol consumption was associated with long-term risk of harm (based on the NHMRC 2001 guidelines) was low, at 3.4 per cent.
- The proportion of males who were at risk of long-term harm from alcohol consumption was higher than for females (4.2 per cent and 2.5 per cent respectively).
- There was a significantly higher prevalence of long-term risk of alcohol-related harm in adults aged 45–54 years and women aged 55–64 years compared with all Victorian adults and women, respectively.
- There was a significantly lower prevalence of long-term risk of alcohol-related harm in adults who lived in North & West Metropolitan Region compared with all Victorian adults.

## Nutrition

- **Vegetable consumption**

- Most Victorians (73.2 per cent) consumed one to three serves of vegetables per day. More than twice as many females (9.6 per cent) as males (4.3 per cent) consumed five or more serves of vegetables per day.
- The proportion of adults who consumed five or more serves of vegetables daily was similar across all age groups among men. A significantly higher proportion of women and people aged 55 years or over consumed 'five or more serves' of vegetables daily compared with all Victorian women and adults. By contrast a significantly lower proportion of adults who consumed 'five or more serves' of vegetables daily was observed among women and people aged 18–34 years compared with all Victorian women.

- The proportion of persons reporting that they consumed five or more serves of vegetables a day was higher for persons living in rural areas (7.9 per cent) compared with the metropolitan area (6.7 per cent).
- The proportion of adults who consumed 'none or less than one serve' of vegetables daily was significantly higher among adults who lived in the LGAs of Brimbank (C), Darebin (C), Melton (S) and Whittlesea (C) compared with all Victorian adults.
- The proportion of adults who consumed 'five or more serves' of vegetables daily was significantly higher among adults who lived in Indigo (S), Mornington Peninsula (S), Mount Alexander (S), Moyne (S), Queenscliffe (B), Strathbogie (S), Swan Hill (RC), Towong (S), Warrnambool (C), West Wimmera (S) and Wodonga (RC) compared with all Victorian adults.

- **Fruit consumption**

- Most persons (36.6 per cent) aged 18 years or over reported that they consumed one serve of fruit per day.
- Almost one in five males (19.6 per cent) consumed 'none or less than one serve' of fruit compared with approximately one in eight females (13.3 per cent). The proportion of adults who consumed 'none or less than one serve' of fruit daily was significantly lower among men, women and people aged 65 years or over, compared with all Victorian men, women and adults, respectively.
- The proportion of adults who consumed 'three or more serves' of fruit daily was significantly higher among women and people aged 65 years or over compared with all Victorian women and adults respectively. By contrast the proportion of adults who consumed 'three or more serves' of fruit daily was significantly lower among men, women and people aged 25–34 years, compared with all Victorian men, women and adults respectively.
- The proportion who consumed 'three or more serves' of fruit daily was significantly lower among men and adults who lived in Barwon-South Western Region compared with all Victorian men and adults, respectively.
- The proportion of adults who consumed 'three or more serves' of fruit daily was significantly lower in adults who lived in Cardinia (S), Casey (C), Central Goldfields (S), Greater Geelong (C), Horsham (RC), Loddon (S), Mitchell (S), Northern Grampians (S), Pyrenees (S), West Wimmera (S), Wyndham (C) and Yarriambiack (S) compared with all Victorian adults.

- **Fruit and vegetable guidelines**

- Less than one in 10 persons (7.2 per cent) aged 18 years or over met the guidelines for vegetable intake (four or more serves for those aged 18 years, and five or more serves daily for those aged 19 years or over) in 2011–12.
- A lower proportion of males (3.2 per cent) than females (7.0 per cent) met the guidelines for the number of daily serves of vegetables.
- Less than half (45.4 per cent) of persons aged 18 years or over met the guidelines for fruit intake (three or more serves per day for those aged 18 years and two or more serves daily for those aged 19 years or over).



- Almost half (50.5 per cent) of all females reported sufficient serves of fruit to meet the guidelines compared with 40.0 per cent of males. Persons from older age groups were more likely than younger persons to meet the guidelines.
- In 2011–12 less than one in 10 females (7.0 per cent) and 3.2 per cent of males met both the guidelines for fruit and vegetables.
- The proportion of adults who met the guidelines for fruit, vegetables or neither remained unchanged from 2003 to 2011–12 in both men and women.
- The proportion of adults who met both guidelines was significantly lower in adults who lived in Brimbank (C), Melton (S) and Wyndham (C) compared with all Victorian adults.

### Consumption of sugar-sweetened soft drinks

- More than one in five Victorian adults (22.6 per cent) reported consuming sugar-sweetened or diet soft drinks on a daily basis.
- More than one in five Victorian men (20.9 per cent) and one in 10 Victorian women (10.2 per cent) reported consuming sugar-sweetened soft drinks every day.
- The proportion of adults who drank sugar-sweetened soft drink every day was higher in men aged 18–24 years and women aged 18–34 years compared with all Victorian men and women, respectively.
- The prevalence of 'daily' consumption of sugar-sweetened soft drinks was significantly higher in men, but not women, who lived in rural Victoria compared with their metropolitan counterparts.
- Compared with all Victorian adults the prevalence of 'daily' consumption of sugar-sweetened soft drinks was significantly higher in adults who lived in Buloke (S), Casey (C), Gannawarra (S), Latrobe (C), Mount Alexander (S), Yarra Ranges (S) and Yarriambiack (S).

### Daily water consumption

- Mean daily water consumption was 1.25 litres per day in all Victorian adults.
- The mean daily water consumption was significantly higher in men (1.32 litres per day) compared with women (1.18 litres per day).
- Men, women and people aged 18–34 years had a significantly higher mean daily intake of water per day compared with all Victorian men, women and adults, respectively. By contrast the mean daily intake of water was significantly lower in men and women aged 55 years or over, and people aged 45 years or over compared with all Victorian men, women and adults, respectively.
- There were no significant differences in mean daily water intake by Department of Health region compared with Victoria, or between adults who lived in rural compared with metropolitan Victoria.
- Adults who lived in the LGAs of Cardinia (S), Central Goldfields (S), East Gippsland (S) and South Gippsland (S) had a significantly lower mean daily intake of water compared with all Victorian adults.

## Physical activity

### Physical activity for health benefits

- More than six in 10 persons (63.7 per cent) aged 18 years or over reported undertaking sufficient levels of physical activity to meet the national guidelines (Department of Health and Ageing (DoHA) 1999). In 2011–12 there was a significantly higher proportion of men who had engaged in sufficient physical activity (65.9 per cent) compared with women (61.7 per cent).
- A higher proportion of younger persons than older persons undertook sufficient physical activity. There was a significantly higher proportion of men aged 18–24 years who had engaged in sufficient physical activity compared with all Victorian men. There were significantly higher proportions of women aged 18–24 and 35–54 years who had engaged in sufficient physical activity compared with all Victorian women.
- The proportion of males who undertook a sufficient level of physical activity was similar for the rural (66.8 per cent) and metropolitan (65.4 per cent) areas of Victoria. For the female population, the proportion who did sufficient physical activity was significantly higher in rural (64.7 per cent) compared with metropolitan areas (60.8 per cent) of Victoria.
- There were 10 LGAs where the proportion of persons undertaking sufficient physical activity levels was above the average for Victoria. Seven of these LGAs were located in rural areas of the state: Mansfield (S), Moyne (S), Queenscliffe (B), Southern Grampians (S), Towong (S), Wellington (S) and Yarriambiack (S). The remaining three metropolitan LGAs were Bayside (C), Melbourne (C), and Stonnington (C).
- There were five LGAs where the proportion of persons who did sufficient physical activity was below the average for Victoria: Brimbank (C), Greater Dandenong (C), Hume (C), Melton (S) and Whittlesea (C).
- The proportions of men and women who engaged in sedentary behaviour, insufficient physical activity or sufficient physical activity remained unchanged between 2005 and 2011–12.

### Physical activity associated with occupation

- The majority of working respondents (67.0 per cent) reported mostly sitting or standing at work, while 19.0 per cent reported mostly walking and 12.5 per cent reported doing mostly heavy labour or physically demanding work. A significantly higher proportion of men engaged in heavy labour or physically demanding work compared with their female counterparts, particularly in those aged 18–24 years where more than one-third (36.1 per cent) of men reported doing mostly heavy labour or physically demanding work.
- There were significantly higher proportions of men and women who reported doing mostly heavy labour or physically demanding work that lived in rural Victoria compared with their metropolitan counterparts.

- There was a significantly higher proportion of men who lived in Eastern Metropolitan Region and women who lived in North & West Metropolitan Region who reported being physically inactive (mostly sitting) at work compared with all Victorian men and women, respectively.
- There were 20 LGAs where the proportion of persons who reported mostly doing heavy labour or physically demanding work was above the average for Victoria (12.5 per cent).

### Body weight status

- Almost half (50.2 per cent) of all persons aged 18 years or over were overweight or obese (32.7 per cent were overweight and 17.5 per cent were obese) in 2011–12.
- Between the sexes, the proportion of males (40.9 per cent) who were overweight was higher than the corresponding proportion of females (24.8 per cent); however, the proportion of females (3.5 per cent) who were underweight was higher than the proportion of underweight males (1.1 per cent).
- Overweight and obesity were more prevalent among persons aged 45 years or over. Persons in the youngest age group (18–24 years) had the lowest rates of overweight and obesity but had the highest rates of underweight body weight.
- There was a significantly higher prevalence of obesity in men and women who lived in rural Victoria (20.7 per cent) compared with metropolitan Victoria (16.5 per cent).
- Men and women who lived in Hume Region and men who lived in Loddon Mallee Region had a significantly higher prevalence of obesity compared with all Victorian men and women, respectively.
- Men who lived in the LGA of Bayside (C) had a significantly higher prevalence of overweight (57.1 per cent) compared with all Victorian men and this was the highest estimate in the state.
- Women who lived in the LGAs of Central Goldfields (S), Corangamite (S), East Gippsland (S), Melton (S), Mitchell (S) and Murrindindi (S) had a significantly higher prevalence of overweight compared with all Victorian women.
- There was a significantly higher prevalence of obesity in men who lived in the LGAs of Corangamite (S), Greater Bendigo (C), Hume (C), Melton (S), Mitchell (S), Wyndham (C) and Yarriambiack (S) compared with all Victorian men.
- A higher proportion of obese women lived in Frankston (C), Greater Shepparton (C), Hume (C), Melton (S), Mitchell (S), West Wimmera (S) and Wodonga (RC) compared with all Victorian women.

### Psychological distress

#### • Prevalence of psychological distress

- The majority (64.6 per cent) of persons aged 18 years or over experienced low levels (< 16) of psychological distress, based on their K10 scores, and a further 21.5 per cent experienced moderate levels (16–21) of psychological distress in the four weeks before the survey. High levels (22–29) of distress were reported by 8.4 per cent of persons and 2.6 per cent reported very high levels (30–50) of psychological distress.

- The prevalence of very high levels of psychological distress was higher for females (3.5 per cent) compared with males (1.7 per cent).
- There were significantly higher proportions of men and women aged 18–24 years with high levels of psychological distress compared with all Victorian men and women, respectively.
- The proportion of Victorians who experienced moderate, high or very high levels of psychological distress remained constant between 2003 and 2011–12, as did the proportion who experienced low levels of distress.
- There were no differences between metropolitan and rural areas of the state in the levels of psychological distress.
- Victorians in the LGAs of Hume (C) and Melton (S) were more likely to have high or very high levels of psychological distress compared with all Victorians adults.

#### • Impact of psychological distress (K10+ scale)

- The majority of adults (87.2 per cent) who had answered at least 'a little' to any of the K10 questions reported that they did not experience being totally unable to work, study or manage day-to-day activities in the four weeks prior to the survey.
- Compared with all Victorian women there was a significantly higher proportion of women aged 55–64 years who were totally unable to work study or manage day-to-day activities for a period of 15–28 days due to psychological distress.
- There were significantly higher proportions of people who had experienced a total inability to work, study or manage day-to-day activities, due to psychological distress for a period of one to seven days in the LGAs of Casey (C), Greater Dandenong (C) and Melton (S) compared with all Victorian adults.

#### • Number of visits to a health professional

- The majority of adults (88.0 per cent) had not visited a health professional about their psychological distress.
- There was a significantly higher proportion of women who visited a health professional about their psychological distress in the four weeks prior to the survey, either once, twice or more often compared with their male counterparts.
- There were no significant regional differences in Victoria in the proportion of men or women who visited a health professional about their psychological distress.
- There were significantly higher proportions of adults who had not visited a health professional about their psychological distress in the LGAs of Alpine (S), Golden Plains (S), Hepburn (S), Indigo (S), Mornington Peninsula (S), Towong (S) and Wodonga (RC) compared with all Victorian adults.

## Hypertension

- Almost one in four (24.7 per cent) of all persons aged 18 years or over have ever had hypertension.
- The prevalence of hypertension was age-related, increasing with age to 57.1 per cent of people aged 65 years or over compared with 3.3 per cent of people aged 18–24 years.
- The prevalence of hypertension was significantly higher in men who lived in Gippsland Region and people who lived in Gippsland Region and Hume Region.
- The prevalence of hypertension was significantly higher in people who lived in rural Victoria compared with metropolitan Victoria.
- Adults who lived in the LGAs of Buloke (S), Glenelg (S), Hume (C), Latrobe (C) and Mitchell (S) had a significantly higher prevalence of hypertension compared with all Victorian adults.
- More than half (52.9 per cent) of people responded that their hypertension was being treated with medication, and this was not significantly different between men and women.
- The most common adjustments to lifestyle to control hypertension were exercise (49.1 per cent), changes to dietary intake (42.2 per cent), weight reduction (39.5 per cent) and stress management (38.9 per cent).

## 2.1 Smoking

### Introduction

There are several different ways of classifying smoking status, depending on the question being asked. The Victorian Population Health Survey defines smokers as ‘daily’ or ‘occasional’ and combines the two to report on ‘current smokers’. A person is categorised as an ‘ex-smoker’ if he/she smoked at least 100 cigarettes or a similar amount of tobacco in their lifetime. By contrast Cancer Council Victoria defines smokers as ‘regular smokers’, if they smoke daily or at least weekly, and ‘irregular smokers’ if they smoke less than weekly (Alexander et al 2012). It defines ‘former smokers’ in the same way as the Victorian Population Health Survey defines ‘ex-smokers’. The Australian Bureau of Statistics (ABS) reports on both ‘current daily smokers’ and ‘current smokers’, which includes current daily, weekly and less than weekly smokers (ABS 2012; 2013a).

### Smoking status in Victoria

Table 2.2 shows the smoking status in Victoria, by age group and sex. In Victoria in 2011–12, 18.6 per cent of men, 12.9 per cent of women and 15.8 per cent of adults reported that they were current smokers. Compared with all Victorian men and women respectively, men aged 25–34 years and women aged 45–54 years had a significantly higher prevalence of current smoking. Overall the prevalence of smoking was significantly higher among men compared with women.

Table 2.2: Smoking status, by age group and sex, Victoria, 2011–12

Age group (years)	Current smoker			Ex-smoker			Non-smoker		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
18–24	21.8	17.2	27.2	5.9*	3.5	9.7	71.9	66.2	77.0
25–34	25.3	21.0	30.1	17.5	14.1	21.4	57.2	52.2	62.2
35–44	20.3	17.8	23.0	26.9	24.1	29.8	52.9	49.6	56.0
45–54	21.0	18.9	23.3	30.0	27.5	32.6	48.5	45.7	51.2
55–64	15.3	13.5	17.2	40.8	38.2	43.4	43.2	40.7	45.9
65+	7.5	6.4	8.6	49.7	47.6	51.8	41.8	39.7	43.9
<b>Total</b>	<b>18.6</b>	<b>17.3</b>	<b>20.0</b>	<b>29.0</b>	<b>27.8</b>	<b>30.2</b>	<b>51.9</b>	<b>50.4</b>	<b>53.5</b>
<b>Females</b>									
18–24	14.6	11.2	18.7	4.4*	2.5	7.5	81.0	76.5	84.9
25–34	15.0	12.6	17.8	19.9	17.2	22.8	64.8	61.3	68.2
35–44	13.9	12.3	15.6	25.6	23.6	27.7	60.2	57.8	62.5
45–54	16.0	14.5	17.7	29.1	27.1	31.2	54.5	52.3	56.7
55–64	12.1	10.8	13.5	27.1	25.2	29.1	60.4	58.2	62.4
65+	6.7	5.8	7.7	25.2	23.7	26.7	66.8	65.1	68.4
<b>Total</b>	<b>12.9</b>	<b>12.1</b>	<b>13.8</b>	<b>22.2</b>	<b>21.3</b>	<b>23.1</b>	<b>64.4</b>	<b>63.2</b>	<b>65.5</b>
<b>Persons</b>									
18–24	18.3	15.3	21.6	5.1	3.5	7.4	76.4	72.7	79.7
25–34	20.2	17.7	22.9	18.7	16.5	21.1	61.0	57.9	64.0
35–44	17.0	15.6	18.6	26.2	24.5	28.0	56.6	54.6	58.5
45–54	18.5	17.2	19.9	29.6	28.0	31.2	51.5	49.8	53.3
55–64	13.6	12.5	14.8	33.8	32.2	35.4	52.0	50.3	53.7
65+	7.0	6.4	7.8	36.3	35.0	37.6	55.5	54.1	56.8
<b>Total</b>	<b>15.8</b>	<b>15.0</b>	<b>16.7</b>	<b>25.4</b>	<b>24.6</b>	<b>26.1</b>	<b>58.3</b>	<b>57.3</b>	<b>59.3</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.



Some people who smoke only do so occasionally. For most purposes, the Victorian Population Health Survey combines daily and occasional smoking to report on 'current' smoking. However, Table 2.3 shows the prevalence of daily compared with occasional smoking, by age group and sex. The data show that the majority of current smoking was in fact 'daily' rather than 'occasional' smoking.

**Table 2.3: Frequency of current smoking behaviour, by age group and sex, Victoria, 2011–12**

Age group (years)	%	Daily		%	Occasional	
		95% CI			95% CI	
		LL	UL		LL	UL
<b>Males</b>						
18–24	16.2	12.1	21.4	5.6	3.6	8.7
25–34	18.6	14.8	23.1	6.7	4.6	9.6
35–44	15.5	13.4	18.0	4.7	3.6	6.3
45–54	16.4	14.5	18.6	4.6	3.6	5.8
55–64	12.4	10.8	14.2	2.9	2.1	4.0
65+	6.8	5.9	8.0	0.6	0.4	1.0
<b>Total</b>	<b>14.3</b>	<b>13.2</b>	<b>15.6</b>	<b>4.3</b>	<b>3.6</b>	<b>5.1</b>
<b>Females</b>						
18–24	6.7	4.8	9.2	7.9	5.3	11.7
25–34	11.1	9.1	13.5	3.9	2.6	5.7
35–44	10.8	9.4	12.3	3.1	2.4	4.1
45–54	12.6	11.2	14.1	3.4	2.7	4.4
55–64	10.3	9.1	11.6	1.8	1.3	2.4
65+	5.6	4.8	6.5	1.1	0.8	1.5
<b>Total</b>	<b>9.6</b>	<b>8.9</b>	<b>10.3</b>	<b>3.3</b>	<b>2.8</b>	<b>3.9</b>
<b>Persons</b>						
18–24	11.5	9.1	14.5	6.7	5.0	9.0
25–34	14.9	12.7	17.4	5.3	4.0	7.0
35–44	13.1	11.8	14.5	3.9	3.2	4.8
45–54	14.5	13.3	15.7	4.0	3.4	4.8
55–64	11.3	10.3	12.4	2.3	1.8	2.9
65+	6.2	5.5	6.9	0.9	0.7	1.2
<b>Total</b>	<b>12.0</b>	<b>11.3</b>	<b>12.7</b>	<b>3.8</b>	<b>3.4</b>	<b>4.3</b>

Data are age-specific estimates, except for 'Total', which represents the estimates for Victoria and were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

The trend over time of the age-adjusted prevalence of smoking was investigated (Table 2.4 and Figure 2.1). The prevalence of current smoking in Victoria continues to decline in both men and women. Between 2003 and 2012, the prevalence of current smoking declined by almost 28 per cent (3.6 per cent per year), representing an absolute percentage point reduction of 6.1 per cent over nine years. The decline in the prevalence of smoking was particularly marked among women, where the 2011–12

estimate was significantly lower than the estimate in 2010 and there was a relative decline of 35.8 per cent since 2003. There was a lower relative decline among men of 21.8 per cent.

Table 2.4: Prevalence of current smokers from 2003 to 2011–12, by sex, Victoria

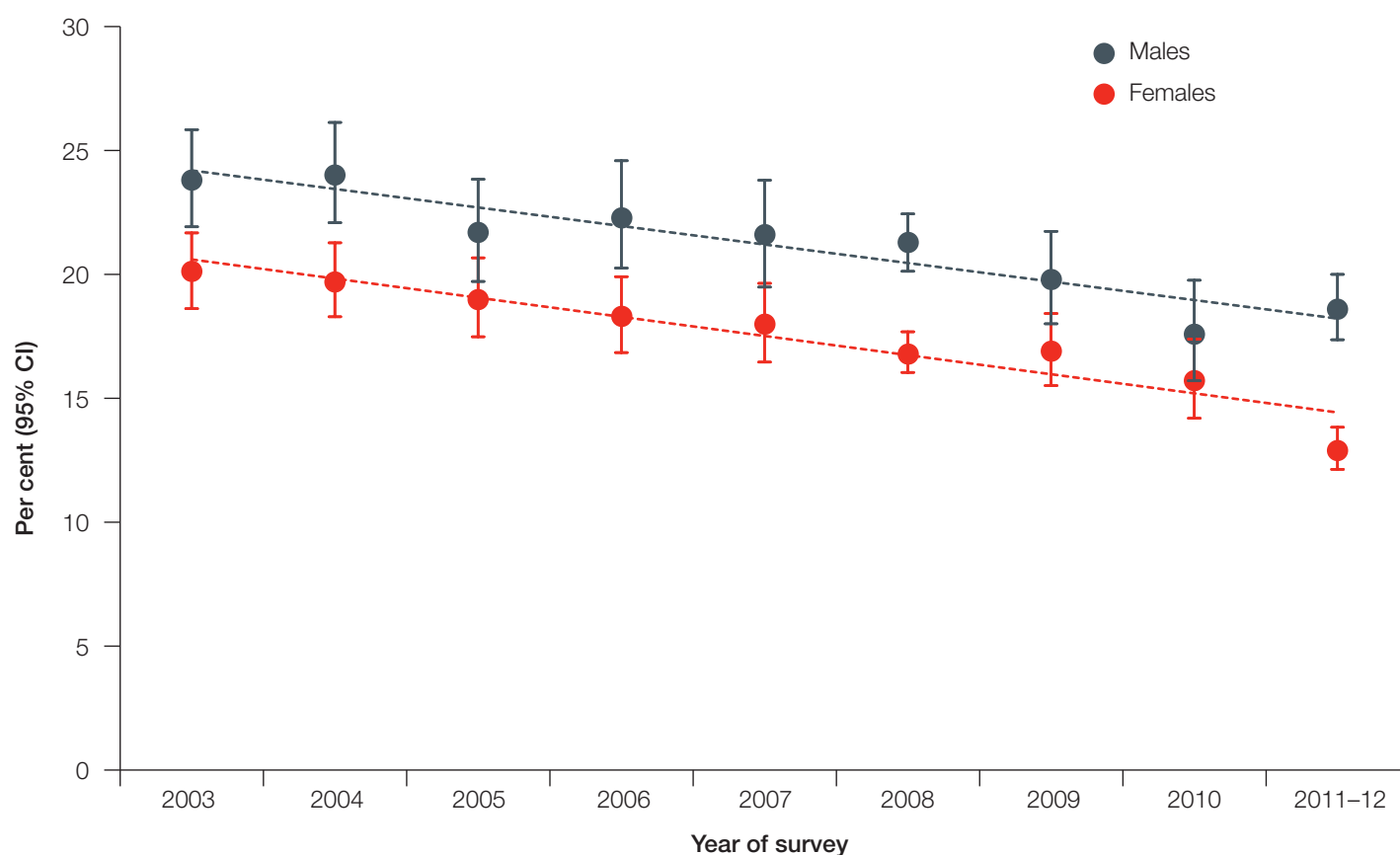
Year	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
2003	23.8	21.9	25.8	20.1	18.6	21.7	21.9	20.7	23.2
2004	24.0	22.1	26.1	19.7	18.3	21.3	21.9	20.7	23.2
2005	21.7	19.7	23.8	19.0	17.5	20.7	20.4	19.1	21.7
2006	22.3	20.2	24.6	18.3	16.8	19.9	20.4	19.0	21.7
2007	21.6	19.5	23.8	18.0	16.4	19.6	19.8	18.4	21.1
2008	21.3	20.1	22.4	16.8	16.0	17.7	19.0	18.3	19.7
2009	19.8	18.0	21.7	16.9	15.5	18.4	18.3	17.2	19.5
2010	17.6	15.7	19.8	15.7	14.2	17.4	16.7	15.4	18.0
<b>2011–12</b>	<b>18.6</b>	<b>17.3</b>	<b>20.0</b>	<b>12.9</b>	<b>12.1</b>	<b>13.8</b>	<b>15.8</b>	<b>15.0</b>	<b>16.7</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data were age-standardised to the 2011 Victorian population.

Ordinary least squares regression was used to test for trends over time.

Figure 2.1: Prevalence of current smokers from 2003 to 2011–12, by sex, Victoria



Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for statistical significance.

Table 2.5 shows the prevalence of current smoking by Department of Health region. There were no statistically significant differences in the prevalence of smoking among men across Department of Health regions or between rural and metropolitan Victoria. By contrast women who lived in Hume Region had a significantly higher prevalence of current smoking compared with all Victorian women, while those who lived in Eastern Metropolitan Region had a lower prevalence.

The prevalence of non-smoking was investigated and there was a significantly higher proportion of non-smokers in both men and women who lived in Eastern Metropolitan Region compared with all Victorian adults.

Table 2.5: Smoking status, by Department of Health region and sex, Victoria, 2011–12

Region	Current smoker			Ex-smoker			Non-smoker		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
Eastern Metropolitan	16.1	13.3	19.3	26.0	23.2	28.9	57.3	53.6	60.9
North & West Metropolitan	20.1	17.9	22.4	30.1	27.9	32.4	49.1	46.5	51.8
Southern Metropolitan	16.8	14.3	19.5	30.7	28.0	33.5	52.4	49.2	55.7
<b>Metropolitan males</b>	18.0	16.6	19.5	29.2	27.7	30.7	52.3	50.5	54.1
Barwon-South Western	24.7	18.6	32.0	24.6	21.4	28.2	50.5	43.4	57.7
Gippsland	21.0	17.3	25.1	30.7	27.1	34.6	48.1	43.7	52.5
Grampians	18.4	14.8	22.7	29.8	26.2	33.6	51.6	46.9	56.3
Hume	15.3	12.9	18.1	27.6	24.9	30.5	56.7	53.1	60.2
Loddon Mallee	21.0	16.9	25.7	29.9	26.3	33.7	49.0	44.3	53.7
<b>Rural males</b>	20.8	17.9	24.0	28.2	26.6	29.9	50.7	47.6	53.9
<b>Total</b>	<b>18.6</b>	<b>17.3</b>	<b>20.0</b>	<b>29.0</b>	<b>27.8</b>	<b>30.2</b>	<b>51.9</b>	<b>50.4</b>	<b>53.5</b>
<b>Females</b>									
Eastern Metropolitan	9.7	8.0	11.7	19.9	17.7	22.4	69.8	66.9	72.6
North & West Metropolitan	13.4	12.0	15.0	21.3	19.8	22.9	64.8	62.8	66.7
Southern Metropolitan	12.8	11.1	14.8	23.9	22.0	25.8	62.8	60.3	65.2
<b>Metropolitan females</b>	12.4	11.4	13.5	21.9	20.8	23.0	65.2	63.8	66.5
Barwon-South Western	14.6	11.2	18.8	20.2	17.4	23.4	64.7	60.2	69.0
Gippsland	15.9	13.3	18.8	27.6	24.4	31.0	56.1	52.4	59.7
Grampians	11.8	9.7	14.3	21.8	19.4	24.4	65.5	62.1	68.7
Hume	16.2	13.9	18.8	24.1	21.9	26.3	59.5	56.4	62.4
Loddon Mallee	15.3	12.7	18.5	23.7	20.0	27.9	60.4	55.8	64.8
<b>Rural females</b>	14.7	13.3	16.2	23.2	21.7	24.9	61.5	59.6	63.4
<b>Total</b>	<b>12.9</b>	<b>12.1</b>	<b>13.8</b>	<b>22.2</b>	<b>21.3</b>	<b>23.1</b>	<b>64.4</b>	<b>63.2</b>	<b>65.5</b>
<b>Persons</b>									
Eastern Metropolitan	13.1	11.4	15.1	22.5	20.7	24.3	63.7	61.4	66.1
North & West Metropolitan	16.7	15.4	18.1	25.5	24.1	26.9	57.2	55.5	58.8
Southern Metropolitan	14.8	13.3	16.4	27.1	25.4	28.8	57.8	55.8	59.9
<b>Metropolitan persons</b>	15.2	14.4	16.2	25.3	24.4	26.2	59.0	57.8	60.1
Barwon-South Western	19.2	14.7	24.7	22.6	20.4	25.1	57.8	52.5	63.0
Gippsland	18.3	16.0	20.8	29.1	26.6	31.7	52.2	49.3	55.1
Grampians	15.2	12.9	17.9	25.6	23.4	27.9	58.6	55.6	61.7
Hume	15.9	14.1	17.8	25.7	23.9	27.5	58.1	55.7	60.5
Loddon Mallee	18.5	15.6	21.7	27.0	24.1	30.0	54.3	50.7	57.8
<b>Rural persons</b>	17.8	16.0	19.7	25.6	24.5	26.8	56.2	54.3	58.2
<b>Total</b>	<b>15.8</b>	<b>15.0</b>	<b>16.7</b>	<b>25.4</b>	<b>24.6</b>	<b>26.1</b>	<b>58.3</b>	<b>57.3</b>	<b>59.3</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.6 reports the prevalence of daily and occasional smoking, by Department of Health region and sex. There was a significantly higher prevalence of 'daily' smoking among men who lived in Barwon-South Western Region compared with all Victorian men. By contrast there was a significantly higher

prevalence of 'daily' smoking among women who lived in Gippsland, Hume and Loddon Mallee regions compared with all Victorian women. Overall, there was a significantly higher prevalence of 'daily' smoking among women who lived in rural Victoria compared with their metropolitan counterparts.

**Table 2.6: Frequency of current smoking behaviour, by Department of Health region and sex, Victoria, 2011–12**

Region	Daily 95% CI			Occasional 95% CI		
	%	LL	UL	%	LL	UL
<b>Males</b>						
Eastern Metropolitan	12.1	9.6	15.1	4.0	2.7	5.8
North & West Metropolitan	14.8	13.0	16.8	5.3	4.0	6.9
Southern Metropolitan	12.7	10.5	15.3	4.1	3.0	5.5
<b>Metropolitan males</b>	<b>13.3</b>	<b>12.1</b>	<b>14.7</b>	<b>4.7</b>	<b>3.9</b>	<b>5.6</b>
Barwon-South Western	<b>22.6</b>	16.7	29.9	2.1*	1.1	3.9
Gippsland	17.1	13.8	21.0	3.8*	2.3	6.4
Grampians	14.3	11.0	18.4	4.1	2.6	6.3
Hume	13.1	10.8	15.8	<b>2.2</b>	1.5	3.1
Loddon Mallee	18.4	14.5	23.0	2.6*	1.5	4.4
<b>Rural males</b>	<b>18.0</b>	<b>15.1</b>	<b>21.2</b>	<b>2.8</b>	2.2	3.6
<b>Total</b>	<b>14.3</b>	<b>13.2</b>	<b>15.6</b>	<b>4.3</b>	<b>3.6</b>	<b>5.1</b>
<b>Females</b>						
Eastern Metropolitan	7.4	5.9	9.1	2.3	1.4	3.7
North & West Metropolitan	9.3	8.2	10.6	4.1	3.2	5.2
Southern Metropolitan	9.0	7.7	10.6	3.8	2.8	5.2
<b>Metropolitan females</b>	<b>8.7</b>	<b>8.0</b>	<b>9.6</b>	<b>3.7</b>	<b>3.0</b>	<b>4.4</b>
Barwon-South Western	12.0	9.0	15.9	2.6*	1.3	5.0
Gippsland	<b>14.3</b>	11.8	17.2	<b>1.6*</b>	0.9	2.5
Grampians	9.8	8.1	11.9	2.0*	1.0	3.9
Hume	<b>14.1</b>	11.9	16.6	2.1	1.5	3.1
Loddon Mallee	<b>12.8</b>	10.3	15.8	2.6	1.7	4.0
<b>Rural females</b>	<b>12.5</b>	<b>11.2</b>	<b>13.9</b>	<b>2.2</b>	1.7	2.9
<b>Total</b>	<b>9.6</b>	<b>8.9</b>	<b>10.3</b>	<b>3.3</b>	<b>2.8</b>	<b>3.9</b>
<b>Persons</b>						
Eastern Metropolitan	9.8	8.3	11.6	3.3	2.4	4.5
North & West Metropolitan	12.0	11.0	13.2	4.7	3.9	5.7
Southern Metropolitan	10.9	9.5	12.3	3.9	3.2	4.9
<b>Metropolitan persons</b>	<b>11.1</b>	<b>10.3</b>	<b>11.8</b>	<b>4.2</b>	<b>3.7</b>	<b>4.8</b>
Barwon-South Western	16.8	12.5	22.3	2.4*	1.4	3.9
Gippsland	<b>15.6</b>	13.5	18.0	2.7	1.8	4.0
Grampians	12.2	10.1	14.7	3.0	2.1	4.3
Hume	13.7	12.0	15.6	<b>2.2</b>	1.7	2.8
Loddon Mallee	<b>15.9</b>	13.2	19.1	2.6	1.8	3.6
<b>Rural persons</b>	<b>15.3</b>	<b>13.5</b>	<b>17.2</b>	<b>2.5</b>	2.1	3.0
<b>Total</b>	<b>12.0</b>	<b>11.3</b>	<b>12.7</b>	<b>3.8</b>	<b>3.4</b>	<b>4.3</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Victoria is made up of 79 LGAs. Table 2.7, Figure 2.2 and Map 2.1 show the prevalence of current smoking, by LGA. Adults who lived in the LGAs of Darebin (C), Loddon (S), Melton (S) and Whittlesea (C) had a significantly higher prevalence of current smoking compared with all Victorians. By contrast adults who lived in Gannawarra (S), Glen Eira (C), Melbourne (C), Monash (C) and Nillumbik (S) had a significantly lower prevalence of current smoking compared with all Victorian adults.

Table 2.7: Smoking status, by LGA, Victoria, 2011–12

LGA	Current smoker			Ex-smoker			Non-smoker		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	16.5*	9.8	26.3	24.6	19.8	30.1	58.8	49.6	67.3
Ararat (RC)	16.8	11.8	23.4	29.3	24.0	35.3	53.5	46.4	60.4
Ballarat (C)	15.6	11.0	21.6	23.3	19.3	27.9	61.0	54.8	66.9
Banyule (C)	16.9	12.4	22.6	25.9	21.8	30.5	56.4	50.7	61.9
Bass Coast (S)	20.8	14.7	28.6	<b>33.9</b>	27.4	41.0	<b>45.1</b>	37.2	53.3
Baw Baw (S)	14.8	10.8	19.9	27.1	22.2	32.6	57.9	51.9	63.8
Bayside (C)	13.3	8.5	20.3	25.5	19.2	33.0	60.7	52.7	68.3
Benalla (RC)	17.8	11.2	27.1	21.1	16.1	27.1	60.7	51.4	69.3
Boroondara (C)	9.4*	5.5	15.8	21.4	16.5	27.2	<b>69.1</b>	62.1	75.3
Brimbank (C)	14.3	10.7	18.7	25.3	20.9	30.2	59.7	54.1	65.0
Buloke (S)	20.2	14.7	27.1	21.1	17.6	25.0	58.2	51.5	64.6
Campaspe (S)	17.2	12.8	22.6	24.3	19.6	29.7	58.2	51.9	64.3
Cardinia (S)	16.2	12.5	20.7	<b>31.8</b>	27.1	36.9	<b>51.9</b>	46.6	57.2
Casey (C)	16.2	12.1	21.4	28.4	23.6	33.6	55.3	49.4	61.2
Central Goldfields (S)	15.1	10.9	20.6	27.7	22.7	33.4	56.5	50.0	62.8
Colac-Otway (S)	15.8	11.1	21.9	25.0	20.2	30.6	59.2	52.5	65.6
Corangamite (S)	17.5	12.4	24.1	25.9	19.5	33.6	55.9	48.0	63.5
Darebin (C)	<b>21.9</b>	16.7	28.1	23.2	19.3	27.7	54.4	48.1	60.6
East Gippsland (S)	19.7	14.2	26.7	30.5	25.7	35.8	<b>49.6</b>	43.1	56.2
Frankston (C)	17.4	13.2	22.5	28.4	24.0	33.2	54.0	48.5	59.5
Gannawarra (S)	<b>9.8</b>	6.2	14.9	25.0	20.1	30.5	65.3	58.7	71.4
Glen Eira (C)	<b>9.3</b>	6.4	13.2	29.4	24.1	35.4	61.0	54.8	66.9
Glenelg (S)	19.9	13.8	28.0	26.4	22.1	31.2	53.3	45.5	60.9
Golden Plains (S)	13.4	9.1	19.4	25.3	20.5	30.7	61.3	54.7	67.5
Greater Bendigo (C)	20.7	14.1	29.2	24.8	18.8	31.9	54.5	46.5	62.3
Greater Dandenong (C)	16.7	12.8	21.5	25.3	20.8	30.4	57.5	51.8	63.0
Greater Geelong (C)	20.8	14.7	28.4	<b>20.0</b>	16.3	24.3	59.1	51.4	66.4
Greater Shepparton (C)	14.0	10.0	19.1	<b>20.2</b>	16.6	24.4	<b>65.5</b>	59.8	70.8
Hepburn (S)	14.4	11.1	18.4	25.8	20.9	31.2	59.3	53.1	65.3
Hindmarsh (S)	19.8	14.0	27.2	21.0	17.2	25.3	57.9	50.4	65.1
Hobsons Bay (C)	21.5	16.2	28.0	26.9	22.4	32.0	<b>50.6</b>	44.2	57.0
Horsham (RC)	11.1	7.5	16.0	23.8	19.7	28.6	64.7	58.8	70.3
Hume (C)	19.2	15.0	24.3	25.2	20.3	30.9	54.4	48.4	60.3
Indigo (S)	14.9	10.5	20.8	27.6	22.0	33.9	57.4	50.3	64.3
Kingston (C)	15.6	11.0	21.5	24.2	19.9	29.0	59.8	53.5	65.8
Knox (C)	17.6	13.2	23.0	22.2	18.4	26.6	59.5	53.7	65.1
Latrobe (C)	19.8	15.4	25.1	25.5	20.5	31.2	53.8	47.7	59.8
Loddon (S)	<b>21.3</b>	16.8	26.6	23.0	18.1	28.6	55.6	49.2	61.9
Macedon Ranges (S)	15.3	10.7	21.4	27.9	23.6	32.8	56.3	49.9	62.5
Manningham (C)	12.4	8.0	18.7	20.3	16.7	24.5	<b>66.5</b>	60.1	72.3
Mansfield (S)	16.2	10.8	23.7	29.0	24.4	34.1	54.5	47.2	61.7
Maribyrnong (C)	16.0	11.5	21.9	26.2	19.8	33.7	57.6	50.5	64.5

Table 2.7: Smoking status, by LGA, Victoria, 2011–12 (continued)

LGA	Current smoker			Ex-smoker			Non-smoker		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Maroondah (C)	13.7	10.1	18.3	26.4	21.1	32.5	59.1	52.8	65.2
Melbourne (C)	9.5	6.4	13.9	24.3	20.1	29.2	65.4	59.8	70.6
Melton (S)	22.0	17.4	27.3	24.1	20.0	28.7	53.4	47.7	59.0
Mildura (RC)	16.2	11.8	21.9	30.7	25.4	36.7	52.7	45.9	59.4
Mitchell (S)	18.9	14.6	24.2	28.0	23.7	32.8	53.1	47.4	58.7
Moira (S)	17.6	11.9	25.1	26.8	22.7	31.4	55.4	48.1	62.4
Monash (C)	9.3	6.1	14.0	20.7	16.9	25.2	69.4	63.8	74.5
Moonee Valley (C)	16.4	11.5	22.9	25.6	21.0	30.9	57.3	50.6	63.8
Moorabool (S)	13.9	10.3	18.5	28.0	23.2	33.4	56.1	50.0	62.1
Moreland (C)	12.8	9.0	17.9	24.0	19.9	28.7	62.6	56.6	68.2
Mornington Peninsula (S)	15.5	11.4	20.7	26.7	22.1	32.0	57.2	51.0	63.2
Mount Alexander (S)	16.5	11.8	22.6	29.5	24.5	35.1	53.8	48.4	59.1
Moyne (S)	16.7	12.4	22.2	22.9	18.6	27.9	60.2	54.0	66.1
Murrindindi (S)	20.0	14.1	27.6	28.9	23.3	35.2	50.5	42.5	58.3
Nilumbik (S)	8.6*	5.2	14.0	24.3	19.6	29.8	66.9	60.5	72.8
Northern Grampians (S)	14.3	10.7	19.0	27.8	22.2	34.3	57.6	50.9	64.1
Port Phillip (C)	12.6	8.7	17.8	28.2	24.1	32.6	59.0	53.1	64.6
Pyrenees (S)	23.2	14.1	35.5	27.9	23.2	33.3	48.1	37.1	59.4
Queenscliffe (B)	16.6	10.3	25.5	27.5	21.0	35.1	55.1	46.1	63.9
South Gippsland (S)	14.1	10.0	19.5	29.2	23.1	36.1	56.4	49.1	63.5
Southern Grampians (S)	12.2	8.3	17.5	23.7	19.5	28.6	63.1	56.9	69.0
Stonnington (C)	12.6	8.4	18.5	26.0	21.6	31.0	61.2	54.8	67.2
Strathbogie (S)	15.5	10.3	22.8	22.7	18.5	27.5	61.1	53.7	67.9
Surf Coast (S)	14.1	9.0	21.5	31.5	25.7	37.9	53.8	45.7	61.7
Swan Hill (RC)	17.8	12.5	24.7	22.1	17.9	26.9	59.6	52.6	66.3
Towong (S)	14.3	9.9	20.4	27.7	20.8	36.0	57.6	49.5	65.3
Wangaratta (RC)	13.0	8.5	19.2	23.3	19.8	27.3	63.6	57.3	69.4
Warrnambool (C)	11.4	8.2	15.7	25.2	21.4	29.5	62.8	58.0	67.4
Wellington (S)	19.1	14.1	25.3	27.6	22.7	33.1	53.0	46.8	59.2
West Wimmera (S)	14.6	10.4	20.1	30.2	25.0	36.0	55.0	48.6	61.2
Whitehorse (C)	11.6	7.4	17.8	20.3	16.7	24.4	67.4	61.0	73.2
Whittlesea (C)	21.9	17.4	27.3	27.4	23.1	32.2	50.5	44.9	56.0
Wodonga (RC)	15.6	11.1	21.5	30.4	25.4	36.0	53.0	46.6	59.3
Wyndham (C)	17.7	13.5	22.8	29.0	24.6	33.9	52.3	46.7	57.8
Yarra (C)	14.7	9.4	22.1	28.5	21.4	36.8	56.5	48.4	64.3
Yarra Ranges (S)	19.5	14.6	25.7	25.9	21.5	30.8	53.6	47.1	60.0
Yarriambiack (S)	20.9	14.2	29.7	21.3	17.6	25.6	57.1	48.7	65.1
<b>Victoria</b>	<b>15.7</b>	<b>14.9</b>	<b>16.5</b>	<b>25.2</b>	<b>24.4</b>	<b>25.9</b>	<b>58.6</b>	<b>57.7</b>	<b>59.6</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

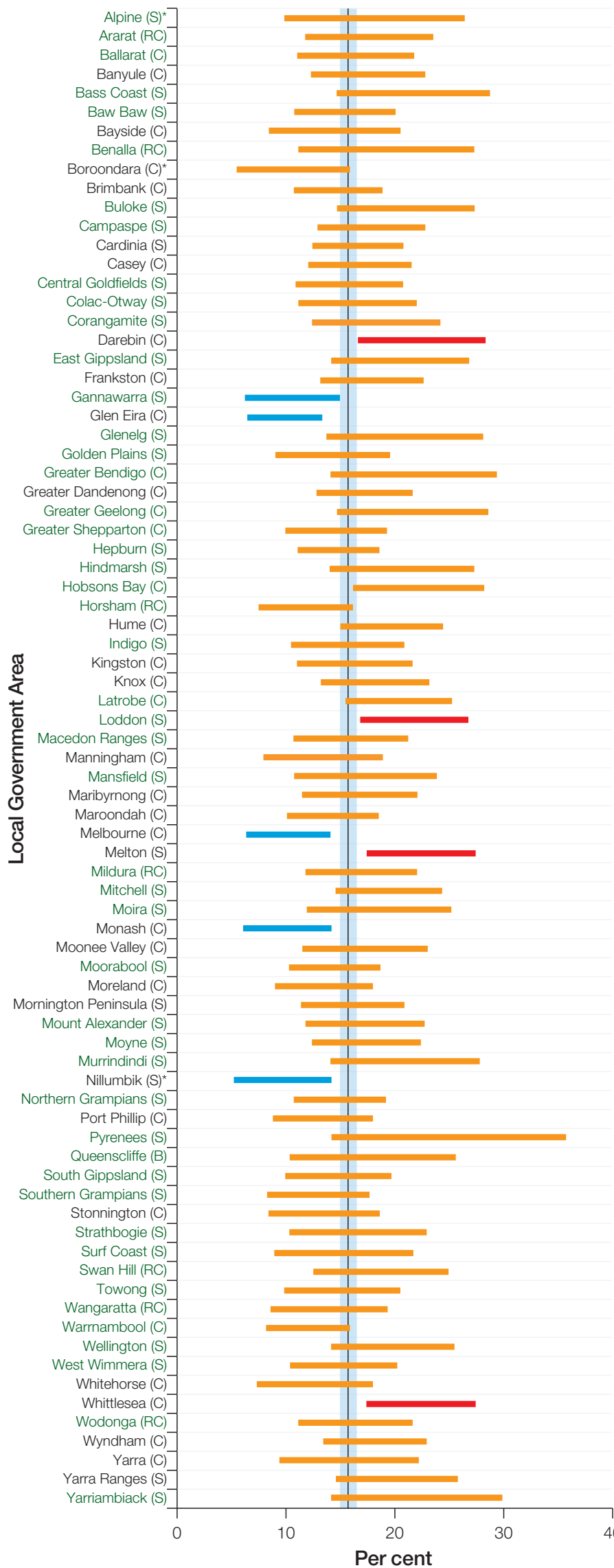
LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City. Metropolitan and rural LGAs are identified by colour as follows: metropolitan/ rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Figure 2.2: Prevalence of current smoking, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population, using 10 year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

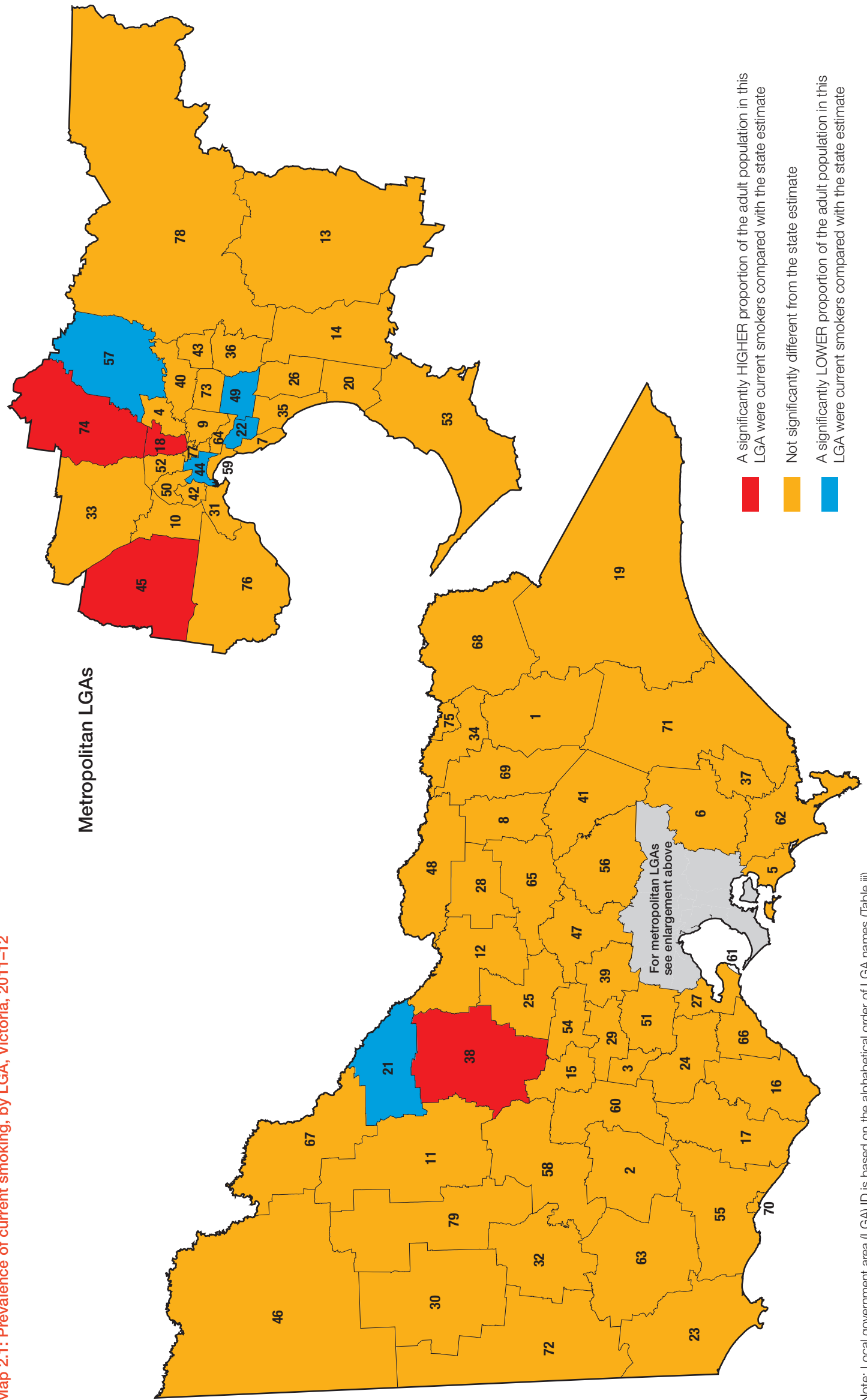
95% CI = 95 per cent confidence interval; LGA = local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.



Map 2.1: Prevalence of current smoking, by LGA, Victoria, 2011–12



Note: Local government area (LGA) ID is based on the alphabetical order of LGA names (Table iii).

# Modifiable health risk factors

Table 2.8 shows the frequency of smoking behaviour, by LGA. Adults who lived in the LGAs of Greater Geelong(C), Latrobe (C), Loddon (S), Melton (S), Mitchell (S), Whittlesea (C) and Yarriambiack (S) had a significantly higher prevalence of 'daily' smoking compared with all Victorian adults. By contrast adults who lived in the LGAs of Bayside (C), Gannawarra (S), Glen Eira (C), Manningham (C), Melbourne (C), Nillumbik (S) and Whitehorse (C) had a significantly lower prevalence of 'daily' smoking compared with all Victorian adults.

Figure 2.3 shows the prevalence of daily smoking, by LGA.

Table 2.8: Frequency of current smoking, by LGA, Victoria, 2011–12

LGA	%	Daily 95% CI		%	Occasional 95% CI	
		LL	UL		LL	UL
Alpine (S)	13.5*	7.4	23.5	2.9*	1.3	6.8
Ararat (RC)	15.2	10.4	21.7	**	**	**
Ballarat (C)	11.9	7.8	17.8	3.7*	2.0	6.7
Banyule (C)	10.6	7.3	15.2	6.3*	3.3	11.7
Bass Coast (S)	16.8	11.3	24.2	**	**	**
Baw Baw (S)	12.1	8.8	16.5	2.7*	1.0	6.9
Bayside (C)	5.2	3.2	8.3	8.1*	4.1	15.6
Benalla (RC)	15.4*	9.1	24.9	2.4*	1.2	4.5
Boroondara (C)	7.0*	3.6	13.4	2.4*	1.1	5.3
Brimbank (C)	11.7	8.6	15.9	2.5*	1.2	5.3
Buloke (S)	17.7	12.4	24.6	2.5*	1.2	5.5
Campaspe (S)	16.0	11.8	21.3	**	**	**
Cardinia (S)	14.3	10.9	18.7	1.8*	0.8	4.2
Casey (C)	12.7	9.1	17.5	3.5*	1.7	6.9
Central Goldfields (S)	14.2	10.0	19.7	0.9*	0.4	2.0
Colac-Otway (S)	13.2	9.3	18.3	**	**	**
Corangamite (S)	14.3	9.8	20.3	3.2*	1.4	7.3
Darebin (C)	11.7	8.2	16.4	10.2	6.2	16.3
East Gippsland (S)	16.7	11.5	23.5	3.0*	1.3	7.1
Frankston (C)	15.1	11.1	20.2	2.3*	1.1	4.7
Gannawarra (S)	7.4	5.1	10.8	**	**	**
Glen Eira (C)	7.1	4.6	10.8	2.2*	1.1	4.3
Glenelg (S)	15.5	10.4	22.6	**	**	**
Golden Plains (S)	12.3	8.1	18.4	1.1*	0.5	2.4
Greater Bendigo (C)	17.9	11.6	26.6	2.8*	1.5	5.1
Greater Dandenong (C)	11.9	8.8	15.9	4.9*	2.7	8.5
Greater Geelong (C)	18.5	12.7	26.0	2.3*	0.9	5.6
Greater Shepparton (C)	11.2	7.8	15.7	2.8*	1.2	6.6
Hepburn (S)	11.6	8.6	15.4	2.8*	1.5	5.1
Hindmarsh (S)	14.9	10.9	20.1	**	**	**
Hobsons Bay (C)	15.5	11.0	21.4	6.0*	3.1	11.3
Horsham (RC)	9.0	6.0	13.2	**	**	**
Hume (C)	15.5	11.8	20.0	3.8*	1.9	7.1
Indigo (S)	10.7	7.2	15.7	4.2*	2.0	8.6
Kingston (C)	12.4	8.4	18.0	3.1*	1.5	6.6
Knox (C)	14.0	10.1	19.0	3.6*	1.8	7.2
Latrobe (C)	17.8	13.6	22.9	2.1*	0.9	4.6
Loddon (S)	18.4	14.2	23.4	2.9*	1.5	5.6
Macedon Ranges (S)	11.0	7.2	16.3	4.3*	2.0	9.2
Manningham (C)	6.3*	3.6	10.9	6.1*	2.9	12.4
Mansfield (S)	10.7	7.7	14.8	**	**	**
Maribyrnong (C)	10.6	7.4	14.8	5.4*	2.6	10.9

Table 2.8: Frequency of current smoking, by LGA, Victoria, 2011–12 (continued)

LGA	%	Daily 95% CI		%	Occasional 95% CI	
		LL	UL		LL	UL
Maroondah (C)	11.6	8.4	15.9	2.1*	0.9	4.8
Melbourne (C)	5.2*	3.1	8.6	4.3*	2.2	8.1
Melton (S)	16.6	12.9	21.1	5.3*	2.8	9.8
Mildura (RC)	13.9	9.8	19.3	2.3*	1.0	5.2
Mitchell (S)	16.8	12.6	21.9	2.1*	1.0	4.5
Moira (S)	16.4	10.9	23.9	**	**	**
Monash (C)	7.9	4.9	12.6	1.4*	0.6	3.1
Moonee Valley (C)	11.5	7.5	17.2	4.9*	2.0	11.3
Moorabool (S)	11.5	8.3	15.6	2.4*	1.0	5.8
Moreland (C)	9.4	6.1	14.3	3.4*	1.8	6.2
Mornington Peninsula (S)	11.1	7.6	15.8	4.4*	2.5	7.7
Mount Alexander (S)	12.3	8.1	18.3	4.2*	1.8	9.1
Moyne (S)	14.0	10.0	19.4	2.7*	1.2	5.8
Murrindindi (S)	17.8	12.2	25.4	2.2*	1.0	4.8
Nilumbik (S)	4.8	3.1	7.4	**	**	**
Northern Grampians (S)	11.4	8.2	15.7	2.9*	1.4	6.2
Port Phillip (C)	8.1	5.0	12.9	4.5*	2.5	8.0
Pyrenees (S)	16.0	11.1	22.5	**	**	**
Queenscliffe (B)	11.4*	6.3	19.9	5.1*	2.1	12.0
South Gippsland (S)	11.3	7.6	16.4	2.8*	1.2	6.6
Southern Grampians (S)	8.6	5.4	13.4	3.6*	1.6	7.8
Stonnington (C)	6.9*	3.8	12.3	5.7*	3.1	10.1
Strathbogie (S)	13.1	8.2	20.2	2.5*	1.0	5.9
Surf Coast (S)	12.1*	7.2	19.6	2.0*	1.2	3.5
Swan Hill (RC)	16.6	11.4	23.6	**	**	**
Towong (S)	11.5	7.5	17.5	2.8*	1.4	5.5
Wangaratta (RC)	11.9	7.5	18.2	**	**	**
Warrnambool (C)	9.3	6.5	13.1	**	**	**
Wellington (S)	16.3	11.5	22.6	**	**	**
West Wimmera (S)	10.9	7.4	15.8	3.7*	1.7	7.6
Whitehorse (C)	6.6*	3.9	10.8	5.0*	2.1	11.5
Whittlesea (C)	17.8	13.7	22.8	4.1*	2.2	7.5
Wodonga (RC)	13.9	9.6	19.8	1.7*	0.9	3.5
Wyndham (C)	13.3	9.5	18.3	4.4*	2.5	7.6
Yarra (C)	10.5	6.6	16.1	**	**	**
Yarra Ranges (S)	15.6	11.1	21.4	4.0*	2.0	7.7
Yarriambiack (S)	19.6	13.0	28.4	1.3*	0.5	3.1
<b>Victoria</b>	<b>11.9</b>	<b>11.2</b>	<b>12.6</b>	<b>3.8</b>	<b>3.4</b>	<b>4.3</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

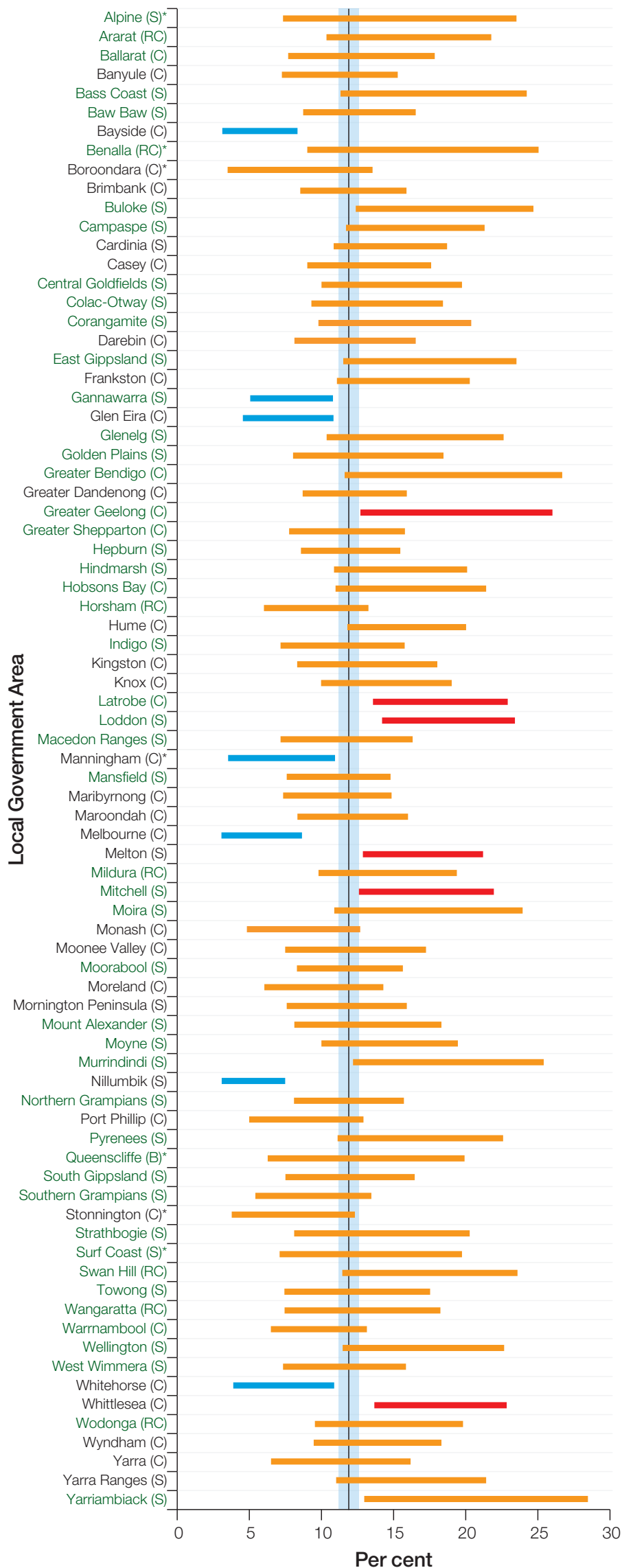
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a relative standard error (RSE) greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Figure 2.3: Prevalence of daily smoking, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population, using 10 year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA = local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Table 2.9 shows the prevalence of smoking among males and females and according to selected socioeconomic determinants, modifiable risk factors and health status.

When compared with all Victorian men and women, a significantly *higher* prevalence of smoking was reported among men and women with the following characteristics:

- did not start or complete a secondary school education
- unemployed
- total annual household income of less than \$40,000
- high or very high levels of psychological distress levels
- inadequate daily intake of fruit and vegetables
- engaged in risky drinking
- good, fair or poor health.

When compared with all Victorian men a significantly *higher* prevalence of smoking was reported among men who:

- were not in the labour force.

When compared with all Victorian women a significantly *higher* prevalence of smoking was reported among women who:

- were underweight.

When compared with all Victorian men and women a significantly *lower* prevalence of smoking was reported among men and women with the following characteristics:

- tertiary educated
- sufficient daily intake of fruit or both fruit and vegetables
- reported being in excellent or very good health.

When compared with all Victorian men a significantly *lower* prevalence of smoking was reported among men who:

- had a sufficient daily intake of vegetables.

When compared with all Victorian women a significantly *lower* prevalence of smoking was reported among women with the following characteristics:

- total annual household income of \$100,000 or more
- low level of psychological distress
- abstained from alcohol consumption.



Table 2.9: Smoking status, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12

	Current smoker			Ex-smoker			Non-smoker		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>	<b>18.6</b>	<b>17.3</b>	<b>20.0</b>	<b>29.0</b>	<b>27.8</b>	<b>30.2</b>	<b>51.9</b>	<b>50.4</b>	<b>53.5</b>
<i>Area of Victoria</i>									
Rural	20.8	17.9	24.0	28.2	26.6	29.9	50.7	47.6	53.9
Metropolitan	18.0	16.6	19.5	29.2	27.7	30.7	52.3	50.5	54.1
<i>Education level</i>									
Primary	<b>29.1</b>	26.0	32.4	32.6	30.0	35.4	<b>37.6</b>	34.8	40.5
Secondary	19.8	17.7	22.1	29.5	27.5	31.6	50.4	47.7	53.0
Tertiary	<b>10.2</b>	8.7	11.8	25.9	23.9	28.0	<b>63.7</b>	61.3	66.0
<i>Employment status (age &lt; 65 years)</i>									
Employed	19.6	17.8	21.5	<b>25.3</b>	23.7	26.9	55.0	52.8	57.1
Unemployed	<b>38.4</b>	31.5	45.8	<b>17.4</b>	12.8	23.2	43.2	36.2	50.5
Not in labour force	<b>38.2</b>	32.6	44.1	<b>21.0</b>	17.0	25.5	<b>40.5</b>	35.2	46.1
<i>Total annual household income</i>									
< \$40,000	<b>32.1</b>	27.9	36.7	25.3	22.6	28.2	<b>42.0</b>	37.6	46.5
\$40,000 to < \$100,000	18.8	16.6	21.3	29.3	27.4	31.3	51.7	49.1	54.4
≥ \$100,000	15.8	13.7	18.3	27.9	25.3	30.7	56.1	52.8	59.3
<i>Psychological distress<sup>a</sup></i>									
Low (< 16)	15.8	14.2	17.5	29.2	27.7	30.6	54.7	52.8	56.6
Moderate (16–21)	21.6	18.9	24.5	29.7	27.1	32.4	48.4	45.1	51.7
High (22–29)	<b>29.4</b>	24.8	34.4	27.1	23.2	31.5	<b>43.3</b>	38.1	48.6
Very high (≥ 30)	<b>44.1</b>	35.7	52.8	24.3	18.5	31.2	<b>27.5</b>	20.5	35.7
<i>Physical activity<sup>b</sup></i>									
Sedentary	26.6	19.4	35.4	30.6	25.3	36.6	<b>41.1</b>	34.0	48.6
Insufficient time and sessions	21.5	18.5	24.8	27.5	25.5	29.7	50.6	47.2	54.0
Sufficient time and sessions	17.1	15.6	18.6	29.0	27.6	30.5	53.6	51.7	55.4
<i>Met fruit / vegetable guidelines<sup>c</sup></i>									
Both guidelines	<b>10.8</b>	7.2	15.9	26.3	21.3	32.1	<b>62.7</b>	56.3	68.7
Vegetable guidelines <sup>d</sup>	<b>12.6</b>	9.3	17.0	28.7	24.0	33.9	58.5	52.7	64.0
Fruit guidelines <sup>d</sup>	<b>14.0</b>	12.1	16.0	28.1	26.2	30.2	<b>57.5</b>	55.0	60.0
Neither	<b>22.1</b>	20.3	24.0	29.3	27.8	30.9	<b>48.3</b>	46.2	50.3
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>									
Abstainer	14.8	11.9	18.4	<b>19.4</b>	16.7	22.5	<b>65.1</b>	61.0	68.9
Low risk	17.9	16.5	19.4	30.4	29.0	31.7	51.4	49.7	53.1
Risky or high risk	<b>40.2</b>	33.6	47.2	<b>38.1</b>	31.9	44.8	<b>21.5</b>	16.2	28.0
<i>Self-reported health</i>									
Excellent / very good	<b>12.4</b>	10.9	13.9	29.1	27.2	31.1	<b>58.1</b>	55.9	60.2
Good	<b>22.5</b>	20.2	24.9	28.1	26.4	29.8	49.0	46.5	51.6
Fair / poor	<b>28.3</b>	24.6	32.4	29.6	27.0	32.3	<b>41.7</b>	37.7	45.7
<i>Body weight status<sup>f</sup></i>									
Underweight	27.0	17.2	39.8	<b>17.4</b>	12.1	24.5	55.6	43.6	67.0
Normal	18.0	16.2	20.0	<b>24.3</b>	22.4	26.3	<b>57.4</b>	55.0	59.8
Overweight	19.0	16.8	21.5	30.7	28.9	32.5	49.9	47.2	52.5
Obese	21.6	18.0	25.8	32.7	29.8	35.8	<b>45.3</b>	41.3	49.4
<i>Diabetes (excluding gestational)</i>									
No diabetes	18.3	17.1	19.7	28.4	27.2	29.6	52.9	51.3	54.5
Diabetes	16.6	11.3	23.8	29.6	25.5	34.1	53.2	46.5	59.8

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003a).

d. Includes those meeting both guidelines.

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

**Table 2.9: Smoking status, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**  
(continued)

	Current smoker			Ex-smoker			Non-smoker		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Females</b>	<b>12.9</b>	<b>12.1</b>	<b>13.8</b>	<b>22.2</b>	<b>21.3</b>	<b>23.1</b>	<b>64.4</b>	<b>63.2</b>	<b>65.5</b>
<i>Area of Victoria</i>									
Rural	14.7	13.3	16.2	23.2	21.7	24.9	61.5	59.6	63.4
Metropolitan	12.4	11.4	13.5	21.9	20.8	23.0	65.2	63.8	66.5
<i>Education level</i>									
Primary	<b>23.0</b>	20.3	26.0	25.6	22.9	28.4	<b>51.0</b>	47.9	54.1
Secondary	14.1	12.7	15.6	23.3	21.8	24.9	62.0	60.0	63.9
Tertiary	<b>7.0</b>	6.1	8.1	21.2	19.8	22.7	<b>71.4</b>	69.6	73.0
<i>Employment status (age &lt; 65 years)</i>									
Employed	14.2	12.9	15.7	22.4	21.2	23.7	63.0	61.3	64.8
Unemployed	<b>20.9</b>	16.4	26.4	17.2	13.3	22.1	61.7	55.5	67.7
Not in labour force	15.4	13.5	17.5	20.4	18.4	22.6	64.0	61.4	66.5
<i>Total annual household income</i>									
< \$40,000	<b>20.6</b>	18.0	23.5	19.4	17.5	21.6	<b>59.3</b>	56.1	62.4
\$40,000 to < \$100,000	13.3	11.9	14.8	24.2	22.6	25.8	62.1	60.1	64.1
≥ \$100,000	<b>9.3</b>	7.7	11.2	<b>26.0</b>	23.4	28.8	64.6	61.5	67.6
<i>Psychological distress<sup>a</sup></i>									
Low (< 16)	<b>9.6</b>	8.7	10.6	22.1	21.1	23.2	<b>67.9</b>	66.5	69.2
Moderate (16–21)	15.2	13.5	17.1	22.2	20.5	23.9	62.1	59.8	64.3
High (22–29)	<b>21.5</b>	18.5	25.0	23.0	20.1	26.3	<b>55.1</b>	51.3	58.9
Very high (≥ 30)	<b>28.6</b>	23.5	34.4	22.0	17.2	27.7	<b>47.3</b>	41.1	53.6
<i>Physical activity<sup>b</sup></i>									
Sedentary	17.1	12.4	23.1	16.7	13.0	21.2	65.7	59.2	71.7
Insufficient time and sessions	12.4	10.9	14.2	19.8	18.3	21.5	67.4	65.2	69.4
Sufficient time and sessions	12.6	11.6	13.7	23.7	22.6	24.8	63.2	61.8	64.6
<i>Met fruit / vegetable guidelines<sup>c</sup></i>									
Both guidelines	<b>8.3</b>	5.7	11.9	23.8	20.6	27.3	67.9	63.5	72.0
Vegetable guidelines <sup>d</sup>	9.5	7.2	12.5	25.0	22.3	27.9	65.4	61.8	68.8
Fruit guidelines <sup>d</sup>	<b>9.3</b>	8.2	10.5	22.9	21.6	24.2	<b>67.3</b>	65.7	69.0
Neither	<b>17.1</b>	15.8	18.4	21.2	20.0	22.5	<b>61.1</b>	59.5	62.8
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>									
Abstainer	<b>9.9</b>	8.4	11.7	<b>13.4</b>	11.9	14.9	<b>76.4</b>	74.2	78.5
Low risk	13.1	12.1	14.1	<b>24.4</b>	23.4	25.5	<b>61.9</b>	60.6	63.2
Risky or high risk	<b>31.5</b>	25.2	38.5	<b>36.9</b>	30.7	43.6	<b>30.3</b>	24.8	36.5
<i>Self-reported health</i>									
Excellent / very good	<b>8.8</b>	7.8	9.9	22.9	21.7	24.2	<b>67.9</b>	66.3	69.4
Good	<b>15.7</b>	14.3	17.2	22.2	20.8	23.7	61.5	59.6	63.3
Fair / poor	<b>19.7</b>	17.0	22.6	20.4	18.1	23.0	<b>59.6</b>	56.2	62.9
<i>Body weight status<sup>f</sup></i>									
Underweight	<b>21.5</b>	16.8	27.1	<b>14.8</b>	11.1	19.6	62.9	56.8	68.6
Normal	11.6	10.5	12.8	21.1	19.8	22.4	66.8	65.2	68.4
Overweight	13.0	11.3	14.9	23.3	21.6	25.0	63.4	61.1	65.7
Obese	14.3	12.2	16.7	<b>26.7</b>	23.5	30.1	<b>58.6</b>	55.1	62.1
<i>Diabetes (excluding gestational)</i>									
No diabetes	12.9	12.1	13.8	22.2	21.3	23.1	64.4	63.2	65.5
Diabetes	10.4	6.9	15.4	23.1	18.1	28.9	66.3	60.5	71.6

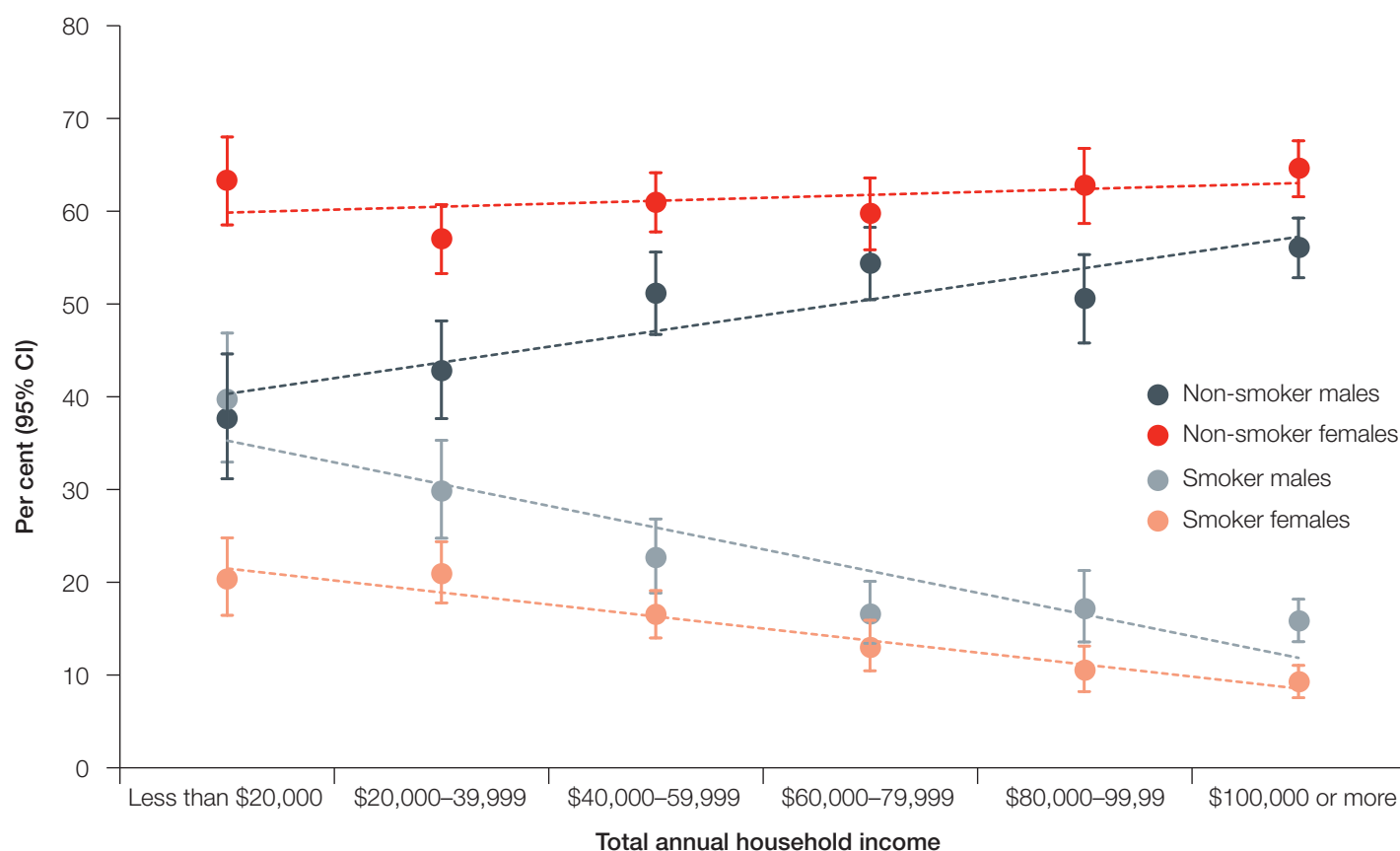
f. Based on body mass index (BMI).  
Data were age-standardised to the 2011 Victorian population.  
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.  
Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

The relationship, if any, was investigated between socioeconomic status (SES) and the age-adjusted prevalence of smoking status, using total annual household income as a measure of SES (Figure 2.4). The prevalence of current smoking

decreased with increasing total annual household income in both men and women. Conversely, the prevalence of non-smoking increased with increasing income among men but was not associated with SES among women.

**Figure 2.4: Prevalence of current smoking, by total annual household income, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.  
 Ordinary least squares linear regression was used to test for statistical significance.  
 95% CI = 95 per cent confidence interval.

## Discussion

### Interpretation of the findings

In 1945 approximately 72 per cent of Australian men aged 14 years or over smoked daily and this fell to approximately 16 per cent in 2010 (Scollo & Winstanley 2012). While women were less likely to smoke than men, with only 26 per cent smoking daily in 1945, this rose to a peak of 33 per cent in 1976. However, by 2010, the national daily smoking prevalence in females aged 14 years or over fell to approximately 14 per cent (Scollo & Winstanley 2012).

The decline in smoking in Australia is due to a sustained effort made by current and past governments over the past few decades. A variety of approaches have been and continue to be used, such as public health education, bans on advertising, smoke-free environment legislation and tobacco taxes. The Victorian Population Health Survey data show that the prevalence of smoking in Victoria also continues to decline. Between 2003 and 2012 the prevalence of current smoking declined by almost 28 per cent (3.6 per cent per year), representing an absolute percentage point reduction of 6.1 per cent over nine years. A greater decline in the prevalence

of current smoking among women compared with men was noted. Whether this greater rate of decline among women compared with men will be sustained remains to be seen.

The Victorian Population Health Survey data show that women, but not men, who lived in rural Victoria had a significantly higher prevalence of daily smoking compared with their metropolitan counterparts. This is consistent with the national and international literature showing that poorer health outcomes are often associated with those who live in rural compared with urban areas (Smith, Humphreys & Wilson 2008). The reasons for this are likely to be complex and multifactorial, reflecting rural–urban differentials in socioeconomic disadvantage, availability and access to healthcare services, higher levels of personal risk, and more hazardous environmental, occupational and transportation conditions (Ansari et al. 2003; Smith, Humphreys & Wilson 2008). Moreover, a higher prevalence of an important lifestyle risk factor such as smoking can also potentially contribute to the disparities in health outcomes between rural and metropolitan Victoria as reported in the chapter on health disparities.

The data show that adults who lived in four of the 79 LGAs of Victoria – Darebin (C), Loddon (S), Melton (S) and Whittlesea (C) – had a significantly higher prevalence of current smoking compared with all Victorian adults. The people who lived in another four LGAs – Greater Geelong (C), Latrobe (C), Mitchell (S) and Yarriambiack (S) – had a significantly higher prevalence of ‘daily’ smoking.

Seven of these eight LGAs – with the exception of Melton (S) – have populations that are considered to be socioeconomically disadvantaged, based on the Index of Relative Socio-Economic Disadvantage (IRSED)<sup>1</sup>. The finding from the Victorian Population Health Survey that seven of the eight LGAs with significantly higher smoking prevalence were considered to be socioeconomically disadvantaged, is consistent with the finding that smoking prevalence shows a strong and consistent relationship with SES, whereby its prevalence increases with decreasing SES. The high prevalence of smoking in seven LGAs – Darebin (C), Loddon (S), Whittlesea (C), Greater Geelong (C), Latrobe (C), Mitchell (S) and Yarriambiack (S) – may be explained, at least in part, by socioeconomic disadvantage.

By contrast adults who lived in the five LGAs of Gannawarra (S), Glen Eira (C), Melbourne (C), Monash (C) and Nillumbik (S) had a significantly lower prevalence of current smoking compared with all Victorian adults, while adults who lived in Bayside (C), Manningham (C) and Whitehorse (C) had a significantly lower prevalence of ‘daily’ smoking. With the exception of Gannawarra (S), these LGAs have high SES populations, consistent with having a lower prevalence of smoking.

The data show that adults who were current smokers were more likely to have low levels of educational attainment, be unemployed and/or report a low total annual household income. Similarly, smokers were more likely to have high levels of psychological distress, inadequate intake of fruit and vegetables, and/or to engage in risky drinking. Smokers were also more likely to report overall poorer health status than non- or ex-smokers. The association with psychological distress is noteworthy, as a high level of psychological distress is likely to be a significant barrier to smoking cessation efforts.

The literature shows that most health outcomes and risk factors tend to be strongly associated with SES. Usually ‘typical’ SES gradients are observed, where the lower the SES the poorer the health outcomes and the greater the prevalence of risk factors. Further detailed analysis was undertaken of the relationship between SES and smoking using total annual household income (before tax) as an indicator of SES. It was found that smoking was strongly associated with SES, where the prevalence decreased with increasing income in both men and women. Smoking cessation programs and policies therefore may need to take account of the importance of SES as a determinant of smoking behaviour.

## Other sources of data

The Cancer Council Victoria conducts its own annual survey and in 2011 reported that the prevalence of daily smoking in adults aged 18 years or over was 12.8 per cent (Alexander et al. 2012). The Victorian Population Health Survey 2010 (Department of Health 2012) reported a prevalence of daily smoking of 12.4 per cent (95% CI: 11.4–13.5) and this Victorian Population Health Survey reports a prevalence of 12.0 per cent (95% CI: 11.3–12.7).

The Australian Institute of Health and Welfare (AIHW) conducts the National Drug Strategy Household Survey (NDSHS) every three years with the most recent survey conducted in 2010 (AIHW 2013b). In 2010 the AIHW reported that the prevalence of daily smoking in Victoria was 15.5 per cent. This is considerably higher than the estimate reported for the Victorian Population Health Survey 2010 (12.4 per cent) (Department of Health 2012). The AIHW report does not provide 95 per cent confidence intervals for its estimates so it is unclear if this estimate for smoking prevalence is statistically significantly higher than the Victorian Population Health Survey estimate. It is unclear why the two estimates differ; however, there are significant methodological differences between the two surveys. The NDSHS is a postal survey and has a lower response rate (50.5 per cent) compared with the Victorian Population Health Survey (66.8 per cent).

The ABS conducts the National Health Survey approximately every three years. For the year 2011–12 (as part of the Australian Health Survey), the ABS reported that the prevalence of current smoking in Victoria was 18.7 per cent (ABS 2013a). This is considerably higher than the 15.8 per cent reported for the Victorian Population Health Survey for the same year. The ABS does not provide 95 per cent confidence intervals and so it is unclear if this estimate is statistically significantly higher than the Victorian Population Health Survey estimate. There are significant methodological differences between the two surveys as well. The National Health Survey is conducted using face-to-face interviews, whereas the Victorian Population Health Survey uses telephone interviews. The Victorian Population Health Survey has accumulated nine years of data to form a time series and real-time changes have been tracked for key risk factors and health outcomes, such as the decline in the prevalence of smoking in Victoria.

Table 2.10 summarises the major sources of smoking statistics for Victoria, with a brief description of the main methodological differences.

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1. The IRSED is based on the evaluation of various indicators of income, educational attainment and the unemployment rate. The IRSED was developed by the ABS, as one of its Socio-Economic Indexes for Areas (SEIFA), which ranks areas in Australia according to relative socioeconomic advantage and disadvantage (ABS 2013b).

**Table 2.10: Sources of statistical data on smoking prevalence for Victoria**

Survey	Methodological differences
<i>Smoking and Health Survey</i> (Cancer Council Victoria)	<ul style="list-style-type: none"> <li>• CATI – landline and dual-frame.</li> </ul>
	<ul style="list-style-type: none"> <li>• Excluded don't know and refused from denominator.</li> </ul>
	<ul style="list-style-type: none"> <li>• Did not appear to age-standardised estimates except where logistic and linear regression analyses were used to examine the changes in smoking prevalence from 1998 to 2011 where they controlled for respondents' age, sex and level of education.</li> </ul>
	<ul style="list-style-type: none"> <li>• Weighted by age and sex to the 2006 Victorian population.</li> </ul>
	<ul style="list-style-type: none"> <li>• Response rate not reported.</li> </ul>
	<ul style="list-style-type: none"> <li>• Primary indicator was regular smoking.</li> <li>• Adults aged 18 years or older.</li> </ul>
<i>Victorian Population Health Survey</i> (Department of Health)	<ul style="list-style-type: none"> <li>• CATI – landline only.</li> </ul>
	<ul style="list-style-type: none"> <li>• Included 'don't know' and 'refused' in denominator (0.2%).</li> </ul>
	<ul style="list-style-type: none"> <li>• Estimates were age-standardised.</li> </ul>
	<ul style="list-style-type: none"> <li>• Weighted by age, sex and DH region to the 2006 Victorian population, AND the probability of being selected.</li> </ul>
	<ul style="list-style-type: none"> <li>• Response rate of 66.8%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Primary indicator was current smoking.</li> <li>• Adults aged 18 years or older.</li> </ul>
<i>National Drug Strategy Household Survey</i> (AIHW)	<ul style="list-style-type: none"> <li>• CATI – landline only was dropped in 2010. A "drop and collect" survey only (randomly sampled).</li> </ul>
	<ul style="list-style-type: none"> <li>• Estimates were age-standardised.</li> </ul>
	<ul style="list-style-type: none"> <li>• Weighted by age, sex and geographic stratum to the 2010 ABS estimated population.</li> </ul>
	<ul style="list-style-type: none"> <li>• Response rate of 50.5%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Primary indicator was daily smoking.</li> <li>• Persons aged 12 years or older with smoking assessed in those aged 18 years and older.</li> </ul>
<i>National Health Survey</i> (ABS)	<ul style="list-style-type: none"> <li>• Face to face interview.</li> </ul>
	<ul style="list-style-type: none"> <li>• No indication that estimates were age-standardised, therefore assume that they are crude estimates.</li> </ul>
	<ul style="list-style-type: none"> <li>• Weighted by age, sex, geographic region, probability of selection and number of people in household.</li> </ul>
	<ul style="list-style-type: none"> <li>• Response rate of 84.8%.</li> </ul>
	<ul style="list-style-type: none"> <li>• Primary indicator was daily smoking.</li> <li>• Persons aged 15 years or older with smoking assessed in those aged 18 years and older.</li> </ul>

## 2.2 Alcohol consumption

### Introduction

Regular, excessive consumption of alcohol over time 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.

The 2001 *Australian alcohol guidelines: health risks and benefits* emphasise patterns of drinking as opposed to levels of consumption (the average amount consumed) (NHMRC 2001). The concept of drinking patterns refers to aspects of drinking behaviour other than the level of drinking, and includes when, where and with whom drinking behaviour occurs, the type of drinks consumed, the number of heavy drinking occasions undertaken and the norms associated with drinking behaviour. The 2001 guidelines identified two main patterns of drinking behaviour as creating a risk to an individual's health:

- excessive alcohol intake on a particular occasion
- consistent high-level intake over months and years.

The 2001 guidelines specified the risks for various drinking levels for males and females of average or larger than average body size ( $\geq 60$  kg for males and  $\geq 50$  kg for females) over the short and long-term. The guidelines categorised risk 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
3. high risk – a level of drinking at which there is substantial risk of serious harm and above which risk increases rapidly.

In March 2009 the NHMRC introduced a new set of guidelines for alcohol based on the best current evidence available. The 2009 guidelines were based on a process that included a systematic search and analysis of the research on the health effects and risks of alcohol consumption published between 2001 and 2007.

The Victorian Population Health Survey 2011–12 report discusses alcohol consumption according to the 2001 guidelines. Table 2.11 and Table 2.12 summarise the 2001 *Australian alcohol guidelines*.

The 2001 guidelines categorise risk into short-term and long-term risk in order to determine the risk of alcohol-related harm. Short-term risk is defined as the number of standard drinks consumed per drinking occasion and attempts to measure the risk associated with injury. The guidelines for the 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 standard drinks and females who consume seven or more standard drinks are categorised as being at *high risk* of alcohol-related harm. Between these levels, alcohol consumption behaviour is classified as *risky* in the short-term.

**Table 2.11: Australian alcohol guidelines (2001) for risk to health in the short term<sup>a</sup>**

	Low risk	Risky	High risk
<b>Males</b>	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
<b>Females</b>	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

a. Quantities based on a standard drink containing 10 grams or 12.5 millilitres of alcohol.  
Source: NHMRC 2001.



Based on the 2001 guidelines, long-term risk of harm due to alcohol consumption is associated with regular daily patterns of drinking alcohol, defined in terms of the amount typically consumed each week. The 2001 guidelines indicate that males are at high risk of long-term harm if they consume seven or more drinks on an average day, or more than 43 drinks per week (Table 2.12). Long-term risk attempts to measure the risk associated with diseases such as cirrhosis of the liver.

For females, high risk of long-term harm 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 considered 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 2.12: Australian alcohol guidelines (2001) for risk to health in the long term<sup>a</sup>**

		Low risk	Risky	High risk
<b>Males</b>	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
<b>Females</b>	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

a. Quantities based on a standard drink containing 10 grams or 12.5 millilitres of alcohol.

Source: NHMRC 2001.

### Short-term risk of alcohol-related harm

Table 2.13 shows the prevalence of short-term risk of alcohol-related harm, by frequency of drinking occasions, age group and sex. Short-term risk of alcohol-related harm refers to the acute effects of excess alcohol consumption that can result in death or injury due to road traffic accidents, falls, drowning, assault, suicide and acute alcohol toxicity. Overall, 52.5 per cent of men and 38.1 per cent of women consumed alcohol on at least one occasion in the past 12 months at levels that put them at risk of short-term alcohol-related harm. Short-term risk of alcohol-related harm was greatest in those who consumed alcohol at risky or high risk levels on a weekly basis: 12.7 per cent of men, 5.6 per cent of women and 9.1 per cent of adults overall.

The prevalence of short-term risk of alcohol-related harm, on a monthly or weekly basis, was significantly greater in males and females aged 18–24 years compared with all Victorian men and women, and declined with age. In all age groups, the prevalence of short-term risk of alcohol-related harm on a weekly basis was a significantly higher in men compared with women.

The trend over time was investigated of the age-adjusted prevalence of short-term risk of alcohol-related harm, by frequency of drinking occasions and sex (Table 2.14 and Figure 2.5). The prevalence of abstinence, low risk or short-term risk of alcohol-related harm remained unchanged from 2003 to 2011–12 for both men and women.



Table 2.13: Short-term risk of alcohol-related harm,<sup>a</sup> by age group and sex, Victoria, 2011–12

Age group (years)	Abstainer			Low risk			At least yearly			At least monthly			At least weekly		
	95% CI			95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>															
18–24	13.4	9.7	18.2	18.1	14.2	22.8	24.4	19.9	29.5	24.5	19.9	29.7	19.3	14.9	24.6
25–34	12.3	9.4	16.0	19.6	15.9	24.0	33.1	28.4	38.1	20.2	16.4	24.6	14.8	11.7	18.5
35–44	13.0	10.9	15.6	30.4	27.5	33.5	26.6	23.9	29.5	17.1	14.9	19.6	12.6	10.7	14.9
45–54	12.8	11.0	14.8	35.4	32.7	38.1	23.4	21.1	25.8	15.0	13.2	17.1	13.3	11.5	15.2
55–64	11.8	10.1	13.7	41.2	38.6	43.8	21.4	19.2	23.6	13.4	11.7	15.2	11.9	10.4	13.7
65+	19.2	17.5	20.9	53.2	51.1	55.3	14.7	13.3	16.3	7.0	6.0	8.0	5.5	4.7	6.5
<b>Total</b>	<b>14.0</b>	<b>12.9</b>	<b>15.1</b>	<b>33.4</b>	<b>32.0</b>	<b>34.7</b>	<b>24.0</b>	<b>22.6</b>	<b>25.4</b>	<b>15.8</b>	<b>14.7</b>	<b>17.1</b>	<b>12.7</b>	<b>11.6</b>	<b>13.8</b>
<b>Females</b>															
18–24	12.2	9.2	15.9	22.5	18.0	27.7	25.0	20.8	29.8	28.6	23.9	33.7	10.8	8.0	14.3
25–34	24.9	21.7	28.3	29.0	25.7	32.6	24.9	21.8	28.2	15.4	12.8	18.3	5.3	4.0	7.2
35–44	20.7	18.7	22.9	34.3	32.1	36.6	27.4	25.4	29.6	10.3	9.0	11.7	7.2	6.1	8.5
45–54	18.0	16.3	19.9	42.4	40.2	44.6	23.2	21.3	25.1	10.7	9.4	12.2	5.4	4.5	6.4
55–64	22.3	20.5	24.2	51.4	49.2	53.5	14.1	12.7	15.6	7.7	6.6	8.9	4.0	3.3	4.9
65+	35.1	33.4	36.8	51.6	49.9	53.4	7.5	6.6	8.5	3.4	2.8	4.0	2.0	1.6	2.7
<b>Total</b>	<b>23.0</b>	<b>22.0</b>	<b>24.1</b>	<b>38.5</b>	<b>37.3</b>	<b>39.7</b>	<b>20.3</b>	<b>19.3</b>	<b>21.4</b>	<b>12.1</b>	<b>11.2</b>	<b>13.1</b>	<b>5.6</b>	<b>5.0</b>	<b>6.2</b>
<b>Persons</b>															
18–24	12.8	10.3	15.7	20.2	17.2	23.7	24.7	21.5	28.1	26.5	23.2	30.1	15.1	12.4	18.3
25–34	18.6	16.3	21.0	24.3	21.7	27.1	29.0	26.2	32.0	17.8	15.4	20.4	10.1	8.3	12.2
35–44	17.0	15.4	18.6	32.4	30.6	34.3	27.0	25.3	28.8	13.7	12.4	15.0	9.9	8.7	11.1
45–54	15.5	14.2	16.8	38.9	37.2	40.7	23.3	21.8	24.8	12.9	11.7	14.1	9.3	8.3	10.3
55–64	17.2	15.9	18.5	46.4	44.7	48.1	17.6	16.4	19.0	10.5	9.5	11.6	7.9	7.1	8.8
65+	27.9	26.7	29.1	52.4	51.0	53.7	10.8	9.9	11.7	5.0	4.5	5.6	3.6	3.2	4.2
<b>Total</b>	<b>18.6</b>	<b>17.9</b>	<b>19.4</b>	<b>35.9</b>	<b>35.0</b>	<b>36.7</b>	<b>22.1</b>	<b>21.3</b>	<b>23.0</b>	<b>13.9</b>	<b>13.2</b>	<b>14.7</b>	<b>9.1</b>	<b>8.5</b>	<b>9.8</b>

a. Based on national guidelines (NHMRC 2001).

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 2.14: Short-term risk of alcohol-related harm<sup>a</sup> from 2003 to 2011–12, by sex, Victoria

Year	Abstainer				Low risk				Risky or high risk						
	95% CI		%	UL	95% CI		%	UL	At least yearly		At least monthly		At least weekly		
	LL	UL			LL	UL			LL	UL	LL	UL	LL	UL	LL
<b>Males</b>															
2003	12.9	11.3	14.7	32.0	29.9	34.2	23.7	21.8	25.8	17.1	15.4	19.0	14.2	12.7	15.9
2004	12.9	11.4	14.7	31.6	29.5	33.8	23.7	21.7	25.7	14.7	13.1	16.5	16.0	14.4	17.9
2005	15.6	13.8	17.6	31.8	29.8	33.9	23.5	21.5	25.7	15.8	14.0	17.7	13.0	11.4	14.8
2006	12.1	10.6	13.8	31.8	29.7	34.0	25.3	23.0	27.7	15.7	13.9	17.6	14.5	12.7	16.4
2007	13.8	12.1	15.7	34.7	32.4	37.1	22.7	20.6	24.9	14.5	12.8	16.4	13.5	11.8	15.4
2008	12.6	11.8	13.6	33.4	32.2	34.6	24.1	23.0	25.3	15.7	14.7	16.8	13.6	12.6	14.5
2009	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done
2010	14.7	12.9	16.6	33.0	30.9	35.2	23.2	21.1	25.4	15.2	13.4	17.3	13.3	11.6	15.2
<b>2011–12</b>	<b>14.0</b>	<b>12.9</b>	<b>15.1</b>	<b>33.4</b>	<b>32.0</b>	<b>34.7</b>	<b>24.0</b>	<b>22.6</b>	<b>25.4</b>	<b>15.8</b>	<b>14.7</b>	<b>17.1</b>	<b>12.7</b>	<b>11.6</b>	<b>13.8</b>
<b>Females</b>															
2003	23.1	21.5	24.8	40.0	38.2	41.9	19.3	17.9	20.9	11.3	10.1	12.6	6.3	5.4	7.4
2004	22.3	20.8	24.0	37.2	35.4	39.0	22.4	20.9	24.1	10.3	9.2	11.4	7.2	6.2	8.3
2005	22.4	20.7	24.1	39.6	37.7	41.5	20.2	18.6	21.8	11.0	9.7	12.4	6.7	5.6	7.9
2006	22.0	20.3	23.7	40.0	38.2	41.9	21.5	19.9	23.2	9.6	8.5	10.9	6.3	5.4	7.4
2007	23.0	21.3	24.8	39.5	37.6	41.4	20.9	19.3	22.7	9.1	7.9	10.4	6.7	5.6	8.0
2008	23.2	22.3	24.0	39.3	38.3	40.3	19.7	18.8	20.6	10.4	9.7	11.1	6.9	6.3	7.6
2009	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done
2010	22.8	21.2	24.5	38.7	36.9	40.6	20.1	18.4	21.9	11.4	10.0	13.0	6.5	5.4	7.6
<b>2011–12</b>	<b>23.0</b>	<b>22.0</b>	<b>24.1</b>	<b>38.5</b>	<b>37.3</b>	<b>39.7</b>	<b>20.3</b>	<b>19.3</b>	<b>21.4</b>	<b>12.1</b>	<b>11.2</b>	<b>13.1</b>	<b>5.6</b>	<b>5.0</b>	<b>6.2</b>
<b>Persons</b>															
2003	18.4	17.2	19.6	36.0	34.6	37.5	21.3	20.1	22.6	14.1	13.0	15.2	10.2	9.3	11.1
2004	17.8	16.6	18.9	34.5	33.1	35.9	22.9	21.6	24.2	12.4	11.5	13.5	11.6	10.6	12.7
2005	19.1	17.9	20.4	35.7	34.3	37.2	21.8	20.5	23.1	13.3	12.3	14.5	9.8	8.8	10.8
2006	17.3	16.1	18.5	36.0	34.5	37.4	23.3	21.9	24.7	12.6	11.5	13.7	10.3	9.3	11.5
2007	18.6	17.3	19.9	37.1	35.6	38.6	21.7	20.4	23.1	11.8	10.7	12.9	10.1	9.0	11.2
2008	18.1	17.5	18.7	36.4	35.6	37.1	21.8	21.1	22.6	13.0	12.4	13.7	10.2	9.6	10.8
2009	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done	not done
2010	19.0	17.7	20.3	35.8	34.4	37.3	21.6	20.2	23.0	13.3	12.1	14.5	9.8	8.8	10.9
<b>2011–12</b>	<b>18.6</b>	<b>17.9</b>	<b>19.4</b>	<b>35.9</b>	<b>35.0</b>	<b>36.7</b>	<b>22.1</b>	<b>21.3</b>	<b>23.0</b>	<b>13.9</b>	<b>13.2</b>	<b>14.7</b>	<b>9.1</b>	<b>8.5</b>	<b>9.8</b>

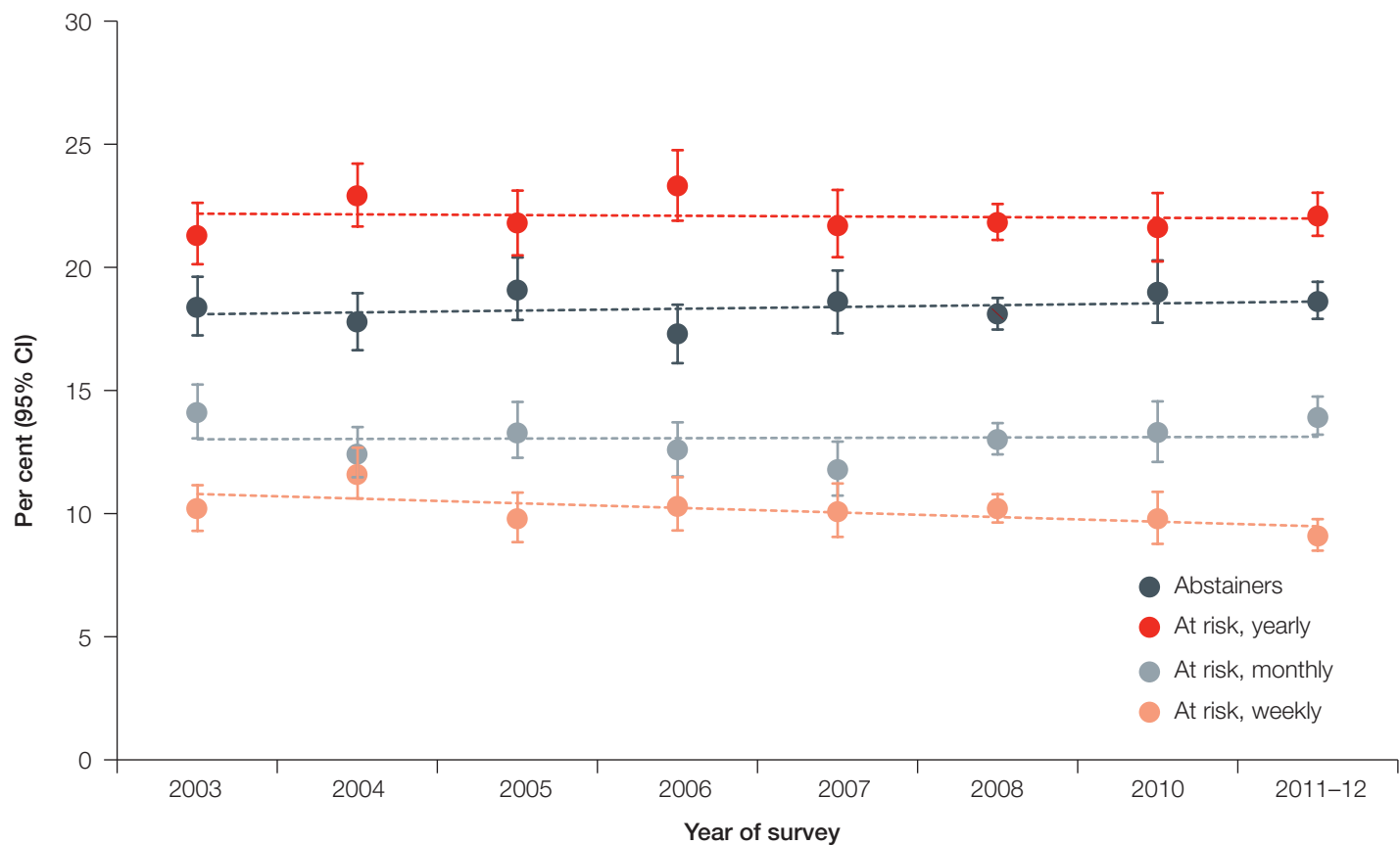
a. Based on national guidelines (NHMRC 2001).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for trends over time.

Figure 2.5: Short-term risk of alcohol-related harm<sup>a</sup> from 2003 to 2011–12, by sex, Victoria



a. Based on national guidelines (NHMRC 2001).  
 95% CI = 95 per cent confidence interval.  
 Data were age-standardised to the 2011 Victorian population.  
 Ordinary least squares linear regression was used to test for trends over time.

Table 2.15 shows the prevalence of short-term risk of alcohol-related harm on at least one occasion per year, by Department of Health region and sex. There was a significantly higher prevalence of short-term risk of alcohol-related harm among adults who lived in rural Victoria and all rural Department of Health regions compared with their metropolitan counterparts. By contrast there was a significantly lower prevalence of short-term risk of alcohol-related harm among adults who lived in Eastern Metropolitan Region or North & West Metropolitan Region compared with all Victorian adults.

Table 2.15: Short-term risk of alcohol-related harm,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12

Region	Abstainer			Low risk <sup>a</sup>			Risk or high risk <sup>a</sup>		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
Eastern Metropolitan	11.5	9.4	13.9	41.5	38.0	45.1	46.8	43.2	50.5
North & West Metropolitan	16.1	14.1	18.3	32.9	30.6	35.2	50.8	48.2	53.4
Southern Metropolitan	13.6	11.4	16.1	34.3	31.5	37.2	52.0	48.8	55.2
<b>Metropolitan males</b>	14.0	12.7	15.3	35.4	33.8	37.0	50.4	48.6	52.1
Barwon-South Western	14.6	10.0	20.9	23.5	19.4	28.0	61.8	55.1	68.0
Gippsland	12.1	9.8	14.9	28.5	25.0	32.3	58.9	54.8	62.8
Grampians	11.7	9.4	14.4	29.3	25.7	33.2	58.8	54.6	62.9
Hume	14.0	11.2	17.5	29.7	25.9	33.7	56.2	51.8	60.5
Loddon Mallee	15.2	12.1	18.9	25.9	22.8	29.3	58.7	54.3	63.0
<b>Rural males</b>	13.6	11.9	15.4	27.0	25.2	28.9	59.3	56.9	61.6
<b>Total</b>	<b>14.0</b>	<b>12.9</b>	<b>15.1</b>	<b>33.4</b>	<b>32.0</b>	<b>34.7</b>	<b>52.5</b>	<b>51.0</b>	<b>54.0</b>
<b>Females</b>									
Eastern Metropolitan	19.9	17.6	22.5	42.9	39.4	46.5	36.2	32.8	39.7
North & West Metropolitan	27.9	26.0	29.8	37.7	35.8	39.7	34.0	32.1	36.0
Southern Metropolitan	21.2	19.1	23.4	37.8	35.4	40.4	40.7	38.2	43.4
<b>Metropolitan females</b>	23.7	22.5	25.0	39.0	37.6	40.5	36.8	35.4	38.3
Barwon-South Western	19.0	15.7	22.8	36.1	32.2	40.1	44.6	40.2	49.0
Gippsland	18.2	16.1	20.6	38.4	35.0	42.0	42.5	39.0	46.2
Grampians	22.9	20.1	26.0	35.7	32.2	39.4	41.3	37.6	45.1
Hume	21.8	19.1	24.7	35.5	33.1	38.0	42.5	39.4	45.6
Loddon Mallee	22.0	18.8	25.7	36.0	32.8	39.4	41.5	37.6	45.6
<b>Rural females</b>	20.6	19.1	22.1	36.4	34.8	38.1	42.6	40.7	44.5
<b>Total</b>	<b>23.0</b>	<b>22.0</b>	<b>24.1</b>	<b>38.5</b>	<b>37.3</b>	<b>39.7</b>	<b>38.1</b>	<b>36.9</b>	<b>39.3</b>
<b>Persons</b>									
Eastern Metropolitan	16.0	14.4	17.8	41.7	39.3	44.2	41.6	39.1	44.2
North & West Metropolitan	22.1	20.7	23.6	35.3	33.8	36.8	42.3	40.6	43.9
Southern Metropolitan	17.5	16.0	19.2	36.0	34.1	37.9	46.3	44.3	48.4
<b>Metropolitan persons</b>	19.0	18.1	19.9	37.2	36.1	38.2	43.5	42.3	44.6
Barwon-South Western	16.7	13.8	20.0	30.0	27.1	33.1	53.0	49.2	56.8
Gippsland	15.4	13.8	17.2	33.5	31.0	36.2	50.4	47.7	53.2
Grampians	17.6	15.6	19.8	32.5	29.9	35.2	49.8	46.8	52.7
Hume	18.0	16.0	20.2	32.5	30.3	34.8	49.4	46.7	52.0
Loddon Mallee	18.6	16.2	21.3	30.8	28.4	33.2	50.3	47.1	53.6
<b>Rural persons</b>	17.1	16.0	18.3	31.7	30.5	33.0	50.8	49.3	52.4
<b>Total</b>	<b>18.6</b>	<b>17.9</b>	<b>19.4</b>	<b>35.9</b>	<b>35.0</b>	<b>36.7</b>	<b>45.2</b>	<b>44.2</b>	<b>46.2</b>

a. Based on national guidelines (NHMRC 2001).

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Table 2.16–Table 2.18, Figure 2.6 and Map 2.2 show the prevalence of short-term risk of alcohol-related harm, by LGA and sex. There was a significantly higher prevalence of short-term risk of alcohol-related harm in men who lived in the LGAs of Bass Coast (S), Gannawarra (S), Glenelg (S), Hindmarsh (S), Indigo (S), Moyne (S), Pyrenees (S), Southern Grampians (S) and Surf Coast (S) compared with all Victorian men.

There was a significantly higher prevalence of short-term risk of alcohol-related harm in women who lived in the LGAs of Alpine (S), Bayside (C), Benalla (RC), Kingston (C), Macedon Ranges (S), Mansfield (S), Moonee Valley (C), Mornington Peninsula (S), Murrindindi (S), Port Phillip (C) and Yarriambiack (S) compared with all Victorian women.

There was a significantly higher prevalence of short-term risk of alcohol-related harm in adults who lived in the LGAs of Ballarat (C), Bass Coast (S), Benalla (RC), Colac-Otway (S), Gannawarra (S), Greater Geelong (C), Indigo (S), Kingston (C), Latrobe (C), Macedon Ranges (S), Moonee Valley (C), Mornington Peninsula (S), Mount Alexander (S), Moyne (S), Murrindindi (S), Nillumbik (S), Port Phillip (C), Pyrenees (S), Queenscliffe (B), Southern Grampians (S), Strathbogie (S), Surf Coast (S), Towong (S), West Wimmera (S) and Yarriambiack (S) compared with all Victorian adults.

Table 2.16: Short-term risk of alcohol related harm<sup>a</sup> in males, by LGA, Victoria, 2011–12

LGA	Abstainer			Low risk <sup>b</sup>			Risky or high risk <sup>c</sup>		
	%	95% CI		%	95% CI		%	95% CI	
Males		LL	UL		LL	UL		LL	UL
Alpine (S)	12.0*	4.5	28.0	33.6	24.4	44.4	54.4	40.6	67.6
Ararat (RC)	13.8	8.9	20.7	25.0	17.3	34.7	59.7	49.3	69.2
Ballarat (C)	11.7	7.1	18.5	27.7	21.8	34.6	60.6	52.5	68.1
Banyule (C)	13.5*	7.6	22.8	33.1	24.8	42.7	53.4	43.5	63.1
Bass Coast (S)	6.2*	3.0	12.4	26.5	20.2	34.0	67.3	59.4	74.2
Baw Baw (S)	13.4*	8.0	21.4	31.5	22.8	41.6	55.2	44.7	65.2
Bayside (C)	9.9*	4.1	21.7	38.8	26.5	52.7	51.3	36.8	65.5
Benalla (RC)	17.0*	9.5	28.7	26.8	20.5	34.2	55.7	44.5	66.3
Boroondara (C)	6.4*	3.7	11.0	40.1	31.4	49.6	53.4	44.3	62.3
Brimbank (C)	22.9	16.1	31.6	33.5	26.3	41.4	43.2	35.0	51.9
Buloke (S)	21.5*	11.9	35.6	20.5	15.3	26.8	57.7	44.7	69.8
Campaspe (S)	13.3*	7.7	22.1	23.1	16.9	30.6	63.3	54.1	71.7
Cardinia (S)	12.0*	6.9	20.0	30.3	23.7	37.8	56.8	48.4	64.9
Casey (C)	21.0	14.2	29.8	32.5	26.0	39.7	46.5	38.3	55.0
Central Goldfields (S)	11.6	7.4	17.6	28.6	19.3	40.2	59.8	48.6	70.1
Colac-Otway (S)	6.1	4.2	8.8	27.6	18.9	38.5	66.1	55.7	75.2
Corangamite (S)	15.4*	7.8	28.1	23.9	16.3	33.7	60.5	49.0	71.0
Darebin (C)	13.4	8.5	20.4	30.5	24.6	37.1	56.1	48.8	63.1
East Gippsland (S)	11.4*	6.6	19.1	33.3	25.1	42.6	55.3	45.7	64.6
Frankston (C)	10.6*	6.2	17.7	34.2	26.8	42.5	55.2	46.4	63.6
Gannawarra (S)	10.6	7.1	15.6	24.0	16.6	33.4	65.3	56.7	73.0
Glen Eira (C)	5.2*	2.6	10.0	37.9	29.5	47.2	56.6	47.5	65.4
Glenelg (S)	8.1	5.2	12.2	25.4	20.6	30.9	65.3	59.9	70.4
Golden Plains (S)	12.0*	5.5	24.3	32.3	24.1	41.8	55.6	44.3	66.5
Greater Bendigo (C)	16.8	10.9	25.0	25.0	18.6	32.7	58.2	49.2	66.7
Greater Dandenong (C)	23.0	16.8	30.7	41.2	33.8	49.1	35.7	28.3	43.9
Greater Geelong (C)	16.3	10.2	25.0	22.3	15.1	31.7	61.4	51.0	70.8
Greater Shepparton (C)	16.5*	9.9	26.3	35.0	24.2	47.5	48.5	36.0	61.1
Hepburn (S)	6.2	3.9	9.9	35.8	23.3	50.6	58.0	43.8	71.0
Hindmarsh (S)	13.8	9.9	19.0	17.0	12.9	22.0	68.7	63.2	73.7
Hobsons Bay (C)	9.2	6.0	13.6	29.1	21.8	37.6	61.8	53.6	69.3
Horsham (RC)	10.8*	6.4	17.5	39.9	27.4	53.8	49.3	37.1	61.7
Hume (C)	24.1	18.0	31.5	35.8	27.2	45.5	39.3	30.6	48.6
Indigo (S)	11.8	7.3	18.5	20.2	15.2	26.3	68.0	60.7	74.6
Kingston (C)	12.7	7.9	20.0	26.5	19.7	34.7	60.7	52.0	68.9
Knox (C)	13.0	8.4	19.7	48.2	39.9	56.6	38.7	30.6	47.6
Latrobe (C)	14.5	10.2	20.3	24.5	17.5	33.2	59.8	51.4	67.7
Loddon (S)	21.6*	10.1	40.5	19.5	14.8	25.3	58.8	42.8	73.2
Macedon Ranges (S)	10.7*	6.0	18.3	31.4	23.4	40.7	57.9	48.3	66.9
Manningham (C)	16.1	10.1	24.5	42.1	33.1	51.6	41.9	32.3	52.1
Mansfield (S)	6.1*	3.5	10.4	32.6	21.8	45.7	61.2	48.5	72.5
Maribyrnong (C)	14.1	8.8	21.8	23.7	17.9	30.6	62.2	54.0	69.8



Table 2.16: Short-term risk of alcohol related harm<sup>a</sup> in males, by LGA, Victoria, 2011–12 (continued)

LGA	Abstainer			Low risk <sup>b</sup>			Risky or high risk <sup>c</sup>		
	95% CI	95% CI		95% CI	95% CI		95% CI	95% CI	
Males	%	LL	UL	%	LL	UL	%	LL	UL
Maroondah (C)	9.8*	5.7	16.4	31.4	25.2	38.3	58.1	50.5	65.4
Melbourne (C)	13.7*	8.0	22.6	37.5	29.5	46.3	47.9	39.1	56.9
Melton (S)	19.4	13.8	26.7	31.1	24.7	38.3	48.2	41.6	54.9
Mildura (RC)	12.3	7.5	19.6	29.2	19.9	40.8	57.7	46.1	68.5
Mitchell (S)	12.4*	6.6	22.0	32.1	24.1	41.2	55.6	45.8	64.9
Moira (S)	21.2*	12.4	34.0	20.8	16.1	26.4	57.7	45.9	68.7
Monash (C)	14.8	9.2	22.9	49.7	40.3	59.1	35.4	26.5	45.4
Moonee Valley (C)	8.9*	4.8	15.9	33.6	26.8	41.1	57.6	49.3	65.4
Moorabool (S)	12.9	8.5	19.3	31.2	24.2	39.2	55.9	47.6	63.9
Moreland (C)	15.0	10.0	22.1	28.8	22.5	36.1	55.7	47.7	63.4
Mornington Peninsula (S)	9.6*	5.5	16.2	28.7	21.3	37.5	61.7	53.1	69.7
Mount Alexander (S)	16.5	10.8	24.3	20.2	13.5	29.2	63.3	53.4	72.2
Moyne (S)	11.1*	6.6	18.0	21.8	15.6	29.6	65.2	56.5	72.9
Murrindindi (S)	7.6	4.8	11.9	29.3	22.6	37.1	61.6	53.4	69.2
Nillumbik (S)	5.7*	2.9	11.0	33.4	25.9	41.8	60.7	51.8	68.9
Northern Grampians (S)	22.2	13.8	33.7	22.4	16.1	30.2	54.9	43.5	65.8
Port Phillip (C)	8.5*	3.9	17.7	35.7	26.0	46.7	55.8	44.9	66.1
Pyrenees (S)	8.9	5.4	14.3	25.3	18.9	32.8	65.5	57.9	72.5
Queenscliffe (B)	6.3*	3.4	11.3	23.1	15.9	32.4	70.6	61.5	78.3
South Gippsland (S)	14.1	8.5	22.4	26.9	21.4	33.3	58.7	50.5	66.4
Southern Grampians (S)	9.0	5.7	13.9	21.8	15.1	30.4	68.6	59.8	76.2
Stonnington (C)	11.6*	6.7	19.4	31.6	24.3	40.0	56.1	46.9	64.9
Strathbogie (S)	12.0*	6.6	20.7	23.2	15.3	33.4	64.8	53.7	74.4
Surf Coast (S)	4.7*	2.8	7.8	24.2	19.7	29.3	70.7	65.8	75.1
Swan Hill (RC)	14.4	9.4	21.6	27.0	20.0	35.5	58.0	48.8	66.7
Towong (S)	11.3*	6.2	19.6	31.0	20.8	43.4	57.7	45.5	69.1
Wangaratta (RC)	14.2	8.6	22.6	27.5	20.1	36.4	58.3	48.5	67.5
Warrnambool (C)	16.3	10.2	25.1	29.6	22.9	37.3	54.1	45.1	62.8
Wellington (S)	13.7*	7.4	24.0	26.7	19.7	35.2	58.9	48.5	68.6
West Wimmera (S)	7.2	4.7	10.9	25.4	18.8	33.5	67.3	59.5	74.3
Whitehorse (C)	10.2*	6.0	16.8	42.8	34.6	51.4	46.5	37.8	55.4
Whittlesea (C)	19.1	12.9	27.4	35.4	27.4	44.2	45.5	37.1	54.2
Wodonga (RC)	8.2*	4.7	13.8	32.6	23.5	43.2	59.2	48.6	69.1
Wyndham (C)	20.1	14.0	28.1	28.7	22.2	36.2	50.9	42.7	59.0
Yarra (C)	7.0	4.3	11.0	32.6	22.4	44.8	60.4	48.6	71.1
Yarra Ranges (S)	10.4*	5.1	20.1	31.4	24.4	39.4	58.2	48.4	67.4
Yarriambiack (S)	8.8	5.9	12.9	28.5	19.6	39.5	62.1	51.6	71.7
<b>Victoria</b>	<b>14.0</b>	<b>12.9</b>	<b>15.1</b>	<b>33.2</b>	<b>31.9</b>	<b>34.5</b>	<b>52.6</b>	<b>51.1</b>	<b>54.1</b>

a. Based on national guidelines (NHMRC 2001).

b. Drinkers who consumed alcohol at levels that did not expose them to risk of short-term of harm were classified as low risk.

c. Includes those who consumed alcohol at risky or high risk levels weekly, monthly or yearly.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95% confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 2.17: Short-term risk of alcohol-related harm<sup>a</sup> in females, by LGA, Victoria, 2011–12

LGA Females	Abstainer			Low risk <sup>b</sup>			Risky or high risk <sup>c</sup>		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	15.0*	8.7	24.7	31.0	25.7	37.0	54.0	44.8	62.9
Ararat (RC)	18.5	14.1	23.9	35.6	29.0	42.8	45.4	38.4	52.7
Ballarat (C)	23.2	18.2	29.1	33.1	27.2	39.6	43.6	37.2	50.3
Banyule (C)	19.8	15.1	25.4	44.6	36.8	52.7	35.6	28.2	43.8
Bass Coast (S)	19.9	13.7	27.9	32.9	26.4	40.1	46.9	38.4	55.5
Baw Baw (S)	19.1	14.1	25.3	44.7	38.0	51.5	36.2	29.8	43.3
Bayside (C)	11.9	8.6	16.4	36.2	29.7	43.2	51.4	44.8	58.0
Benalla (RC)	14.2	10.2	19.3	34.4	28.6	40.7	51.2	45.0	57.4
Boroondara (C)	12.5	8.6	17.8	45.5	36.2	55.3	40.1	31.0	49.9
Brimbank (C)	37.9	31.5	44.8	36.4	30.1	43.1	25.5	19.9	31.9
Buloke (S)	22.7	17.4	29.1	31.9	25.6	38.9	45.3	38.3	52.6
Campaspe (S)	21.1	14.7	29.4	39.8	28.7	52.0	39.1	28.2	51.2
Cardinia (S)	19.7	14.6	26.1	36.2	29.1	44.0	43.8	36.1	51.7
Casey (C)	27.3	21.6	33.8	37.3	30.2	45.1	35.4	28.3	43.2
Central Goldfields (S)	23.3	18.3	29.2	47.4	40.7	54.2	29.0	22.5	36.5
Colac-Otway (S)	20.5	15.5	26.6	32.6	26.6	39.1	46.9	40.4	53.6
Corangamite (S)	25.5	17.4	35.6	32.5	25.6	40.3	41.6	32.3	51.5
Darebin (C)	23.6	17.8	30.5	36.5	30.4	43.0	39.9	33.1	47.2
East Gippsland (S)	16.5	11.1	24.0	37.3	29.4	45.9	46.1	37.2	55.2
Frankston (C)	22.4	14.9	32.2	39.5	32.2	47.4	38.1	30.0	47.0
Gannawarra (S)	24.7	18.9	31.6	32.4	25.8	39.7	42.8	35.2	50.7
Glen Eira (C)	19.7	14.4	26.5	45.8	36.6	55.4	34.4	26.1	43.9
Glenelg (S)	24.5	16.5	34.9	36.5	26.6	47.7	38.8	28.8	49.8
Golden Plains (S)	24.7	19.7	30.5	29.9	24.7	35.6	45.4	39.5	51.5
Greater Bendigo (C)	21.5	13.6	32.3	34.9	28.6	41.8	42.8	33.0	53.2
Greater Dandenong (C)	45.0	37.8	52.5	34.1	27.4	41.5	20.9	15.5	27.4
Greater Geelong (C)	18.5	13.1	25.5	36.4	30.0	43.2	44.7	37.3	52.3
Greater Shepparton (C)	28.9	21.0	38.3	33.9	27.6	40.8	37.0	28.5	46.5
Hepburn (S)	13.3	9.8	17.8	42.9	34.0	52.2	43.8	35.0	53.1
Hindmarsh (S)	32.3	23.4	42.7	31.4	23.8	40.2	36.3	27.1	46.6
Hobsons Bay (C)	25.0	18.8	32.5	44.4	37.8	51.2	30.5	23.9	38.1
Horsham (RC)	24.7	15.4	37.2	41.9	29.9	55.0	33.4	26.6	40.9
Hume (C)	36.6	30.1	43.6	32.9	27.8	38.5	28.8	22.9	35.5
Indigo (S)	21.2	14.4	30.0	33.1	26.8	40.1	45.4	36.9	54.3
Kingston (C)	13.3	9.5	18.2	35.2	29.1	41.8	50.8	44.0	57.5
Knox (C)	25.8	19.8	33.0	28.6	23.0	34.9	45.5	38.6	52.6
Latrobe (C)	18.2	13.8	23.6	34.2	28.5	40.5	45.9	39.3	52.6
Loddon (S)	31.9	24.3	40.6	32.0	26.4	38.2	35.9	28.1	44.5
Macedon Ranges (S)	13.8	10.6	17.7	34.7	29.1	40.7	51.3	45.6	57.1
Manningham (C)	15.2	10.9	20.9	41.0	34.0	48.4	37.1	27.6	47.7
Mansfield (S)	11.6	7.9	16.7	39.3	32.4	46.5	49.1	42.1	56.0
Maribyrnong (C)	31.7	24.9	39.3	32.9	26.0	40.6	35.4	28.6	43.0

Table 2.17: Short-term risk of alcohol-related harm<sup>a</sup> in females, by LGA, Victoria, 2011–12 (continued)

LGA	Abstainer			Low risk <sup>b</sup>			Risky or high risk <sup>c</sup>		
	95% CI	95% CI		95% CI	95% CI		95% CI	95% CI	
Females	%	LL	UL	%	LL	UL	%	LL	UL
Maroondah (C)	19.5	13.8	27.0	41.3	33.3	49.7	39.2	31.0	48.0
Melbourne (C)	18.7	13.2	25.9	37.1	30.2	44.6	43.9	36.0	52.1
Melton (S)	27.2	21.7	33.5	36.6	29.8	44.0	36.0	29.4	43.3
Mildura (RC)	26.9	21.3	33.5	30.3	24.7	36.6	42.6	35.8	49.7
Mitchell (S)	19.8	15.6	24.8	33.8	27.5	40.8	46.4	39.5	53.3
Moira (S)	17.3	12.4	23.6	45.2	34.8	56.1	36.9	27.4	47.4
Monash (C)	21.8	16.6	28.0	47.5	39.1	56.1	30.4	22.8	39.3
Moonee Valley (C)	18.0	13.6	23.4	32.4	27.3	37.9	49.6	44.1	55.1
Moorabool (S)	22.5	16.2	30.2	38.7	30.8	47.2	38.6	30.4	47.4
Moreland (C)	32.9	25.8	40.9	37.4	31.0	44.3	29.7	22.9	37.5
Mornington Peninsula (S)	15.8	11.2	21.9	32.9	25.8	40.9	51.0	42.7	59.2
Mount Alexander (S)	14.0	10.7	18.3	42.1	31.5	53.4	43.7	33.1	54.9
Moyne (S)	15.7	11.6	20.9	41.0	30.9	51.8	43.0	32.7	53.9
Murrindindi (S)	13.9	10.4	18.3	28.3	22.6	34.8	57.5	51.2	63.6
Nilumbik (S)	8.9	5.7	13.5	45.3	37.2	53.7	45.8	37.9	53.9
Northern Grampians (S)	18.5	13.1	25.3	54.2	43.9	64.2	27.0	20.0	35.5
Port Phillip (C)	12.9*	7.6	21.0	31.6	26.0	37.8	55.3	47.4	63.0
Pyrenees (S)	23.6	15.3	34.7	31.1	25.6	37.3	45.0	35.1	55.3
Queenscliffe (B)	6.8*	3.5	12.7	42.6	32.5	53.3	50.6	39.9	61.2
South Gippsland (S)	14.9	10.6	20.6	41.7	33.4	50.5	42.8	34.2	52.0
Southern Grampians (S)	16.0	12.3	20.7	41.1	31.0	52.1	42.5	32.4	53.3
Stonnington (C)	12.6	7.8	19.6	44.9	36.5	53.5	42.3	34.0	51.0
Strathbogie (S)	17.1	12.3	23.4	38.5	29.2	48.9	44.1	34.1	54.6
Surf Coast (S)	14.7	9.1	22.8	44.0	35.0	53.3	41.3	32.4	50.9
Swan Hill (RC)	26.5	19.7	34.8	38.9	31.0	47.5	34.2	25.8	43.6
Towong (S)	17.7	12.9	23.8	28.4	22.8	34.7	53.7	46.4	60.9
Wangaratta (RC)	13.5	9.2	19.4	40.8	34.2	47.8	45.7	38.5	53.0
Warrnambool (C)	24.5	17.4	33.3	34.9	28.4	41.9	40.6	32.3	49.6
Wellington (S)	23.0	17.8	29.2	40.4	30.0	51.7	36.2	26.5	47.3
West Wimmera (S)	23.6	17.3	31.4	28.2	23.1	33.9	48.2	40.6	55.8
Whitehorse (C)	20.7	15.6	27.0	56.1	49.5	62.6	23.0	17.6	29.5
Whittlesea (C)	36.3	29.4	43.9	36.1	30.1	42.7	27.1	20.9	34.4
Wodonga (RC)	29.0	21.9	37.3	34.0	28.0	40.5	37.1	29.5	45.3
Wyndham (C)	28.7	22.8	35.4	35.7	29.0	42.9	34.7	28.2	41.9
Yarra (C)	17.7	11.8	25.5	40.1	32.0	48.8	42.1	33.5	51.2
Yarra Ranges (S)	21.5	15.4	29.2	34.5	27.9	41.7	43.7	35.9	51.8
Yarriambiack (S)	22.0	18.2	26.3	27.7	22.7	33.3	50.3	45.1	55.4
<b>Victoria</b>	<b>22.9</b>	<b>21.9</b>	<b>23.9</b>	<b>38.4</b>	<b>37.2</b>	<b>39.6</b>	<b>38.3</b>	<b>37.1</b>	<b>39.6</b>

a. Based on national guidelines (NHMRC 2001).

b. Drinkers who consumed alcohol at levels that did not expose them to risk of short-term of harm were classified as low risk.

c. Includes those who consumed alcohol at risky or high risk levels weekly, monthly or yearly.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95% confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 2.18: Short-term risk of alcohol-related harm<sup>a</sup> in persons, by LGA, Victoria, 2011–12

LGA Persons	%	Abstainer		%	Low risk <sup>b</sup>		%	Risky or high risk <sup>c</sup>	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	14.3*	7.8	24.6	33.1	27.3	39.5	52.6	43.1	62.0
Ararat (RC)	16.0	12.7	20.0	30.6	24.8	37.1	52.4	45.8	58.9
Ballarat (C)	18.1	14.3	22.6	30.4	26.1	35.0	51.6	46.3	56.7
Banyule (C)	17.8	13.4	23.3	38.8	32.9	45.2	43.4	36.9	50.1
Bass Coast (S)	13.2	9.3	18.2	29.9	25.1	35.2	56.8	50.5	62.8
Baw Baw (S)	16.0	12.3	20.7	38.0	32.4	44.0	46.0	39.8	52.2
Bayside (C)	11.7	7.5	17.9	37.1	30.3	44.4	50.9	43.2	58.6
Benalla (RC)	16.6	11.5	23.4	29.9	25.6	34.5	53.1	46.3	59.9
Boroondara (C)	9.6	7.1	12.9	43.0	36.1	50.0	46.5	39.7	53.5
Brimbank (C)	30.7	25.7	36.2	34.7	29.8	39.8	34.3	29.2	39.8
Buloke (S)	21.2	14.8	29.5	26.4	22.0	31.3	52.2	44.3	60.0
Campaspe (S)	17.6	12.9	23.5	31.3	25.1	38.1	51.0	43.8	58.2
Cardinia (S)	15.9	12.0	20.7	33.6	28.6	39.0	49.9	44.2	55.6
Casey (C)	24.4	19.8	29.8	34.7	29.7	40.0	40.9	35.3	46.6
Central Goldfields (S)	18.1	14.5	22.4	37.3	27.8	47.8	44.5	34.5	54.9
Colac-Otway (S)	13.5	10.5	17.2	30.3	24.5	36.8	56.2	49.7	62.5
Corangamite (S)	20.6	14.4	28.7	28.5	22.9	34.9	50.5	42.7	58.3
Darebin (C)	18.6	14.7	23.1	33.3	29.0	38.0	48.1	43.1	53.1
East Gippsland (S)	13.8	10.1	18.7	35.3	29.5	41.7	50.8	44.2	57.3
Frankston (C)	16.8	12.0	22.9	36.8	31.5	42.4	46.5	40.1	53.0
Gannawarra (S)	17.9	14.3	22.2	28.2	22.9	34.2	53.7	47.7	59.7
Glen Eira (C)	12.5	9.4	16.5	42.1	35.8	48.7	45.1	38.8	51.7
Glenelg (S)	16.1	11.9	21.3	30.3	24.8	36.5	52.9	46.1	59.6
Golden Plains (S)	18.5	13.6	24.5	30.6	25.5	36.2	50.9	44.4	57.4
Greater Bendigo (C)	20.2	14.8	26.9	30.5	25.7	35.8	48.9	41.7	56.2
Greater Dandenong (C)	33.8	28.6	39.4	37.6	32.5	43.0	28.6	23.6	34.1
Greater Geelong (C)	17.6	13.3	23.0	29.7	24.9	35.0	52.4	46.3	58.5
Greater Shepparton (C)	22.9	17.2	29.9	34.3	27.7	41.6	42.7	35.0	50.9
Hepburn (S)	10.1	7.7	13.2	40.0	31.6	49.1	49.9	41.0	58.8
Hindmarsh (S)	22.7	17.4	29.0	24.1	19.6	29.2	53.0	46.1	59.7
Hobsons Bay (C)	17.5	13.5	22.4	36.7	31.6	42.2	45.8	39.9	51.7
Horsham (RC)	17.4	12.1	24.5	41.3	32.2	51.1	41.3	34.3	48.7
Hume (C)	29.7	24.7	35.2	34.8	29.2	40.9	34.2	28.8	39.9
Indigo (S)	16.6	12.3	22.1	26.5	22.4	31.1	56.7	50.7	62.5
Kingston (C)	13.0	9.8	17.1	30.8	26.1	35.9	55.7	50.3	61.1
Knox (C)	20.3	16.2	25.2	37.4	32.0	43.2	42.2	36.7	48.0
Latrobe (C)	16.4	13.1	20.4	29.6	24.9	34.8	52.6	47.2	57.9
Loddon (S)	26.3	19.2	34.9	25.0	21.1	29.3	48.7	40.4	57.0
Macedon Ranges (S)	12.0	9.2	15.6	33.4	28.3	39.0	54.5	48.9	60.0
Manningham (C)	15.8	11.6	21.1	41.7	35.9	47.8	39.5	32.8	46.6
Mansfield (S)	9.0	6.4	12.4	36.8	29.1	45.2	54.1	45.9	62.1
Maribyrnong (C)	22.5	17.8	28.0	28.2	23.4	33.6	49.3	43.0	55.6

Table 2.18: Short-term risk of alcohol-related harm<sup>a</sup> in persons, by LGA, Victoria, 2011–12 (continued)

LGA Persons	%	Abstainer 95% CI		%	Low risk <sup>b</sup> 95% CI		%	Risky or high risk <sup>c</sup> 95% CI	
		LL	UL		LL	UL		LL	UL
Maroondah (C)	14.7	11.1	19.2	36.2	31.1	41.7	48.8	43.0	54.6
Melbourne (C)	16.2	11.9	21.9	37.8	32.3	43.6	45.5	39.5	51.6
Melton (S)	23.8	19.4	28.7	34.0	28.9	39.4	41.6	36.6	46.8
Mildura (RC)	20.0	16.0	24.7	29.8	23.7	36.6	49.8	43.0	56.6
Mitchell (S)	16.5	12.1	22.1	33.5	27.8	39.7	50.0	43.4	56.6
Moira (S)	19.1	13.4	26.6	33.0	26.1	40.8	47.4	39.5	55.5
Monash (C)	18.7	14.5	23.7	48.4	42.0	54.8	32.7	26.7	39.4
Moonee Valley (C)	13.8	10.3	18.3	32.8	28.5	37.4	53.4	48.3	58.4
Moorabool (S)	17.9	13.8	22.7	34.7	29.3	40.5	47.4	41.3	53.5
Moreland (C)	24.1	19.4	29.6	33.4	28.7	38.5	42.3	36.4	48.3
Mornington Peninsula (S)	12.8	9.4	17.2	31.1	25.6	37.1	55.9	49.7	62.0
Mount Alexander (S)	15.1	11.6	19.4	31.1	24.7	38.4	53.7	46.5	60.8
Moyne (S)	13.6	10.3	17.7	31.7	25.0	39.2	53.7	46.3	61.0
Murrindindi (S)	10.7	8.3	13.6	29.0	24.4	34.0	59.5	54.3	64.5
Nilumbik (S)	7.2	5.0	10.3	40.1	34.3	46.2	52.6	46.7	58.4
Northern Grampians (S)	20.7	14.5	28.7	37.6	26.7	49.9	41.3	32.3	51.0
Port Phillip (C)	10.7	6.9	16.4	33.7	27.7	40.2	55.5	48.6	62.2
Pyrenees (S)	16.1	11.5	22.0	28.2	23.8	33.0	55.5	49.1	61.8
Queenscliffe (B)	6.5	4.2	10.1	33.3	26.5	40.9	60.1	52.3	67.5
South Gippsland (S)	14.4	10.8	19.0	33.9	28.8	39.4	51.3	45.2	57.3
Southern Grampians (S)	12.7	10.0	15.9	31.7	24.5	39.8	55.2	47.4	62.9
Stonnington (C)	12.2	8.5	17.4	38.6	32.8	44.7	48.7	42.4	55.2
Strathbogie (S)	14.9	10.8	20.2	30.6	24.0	38.2	54.3	46.4	62.0
Surf Coast (S)	9.6	6.3	14.4	34.6	28.6	41.1	55.6	48.5	62.4
Swan Hill (RC)	20.3	15.8	25.7	32.9	27.2	39.0	46.4	39.9	53.1
Towong (S)	14.5	10.8	19.3	29.6	23.3	36.8	55.8	48.4	62.9
Wangaratta (RC)	13.8	10.1	18.7	34.3	29.0	40.0	51.9	45.7	58.0
Warrnambool (C)	20.4	15.5	26.5	32.3	27.6	37.5	47.2	41.0	53.5
Wellington (S)	18.7	14.2	24.3	33.1	25.8	41.3	47.6	39.7	55.7
West Wimmera (S)	15.2	11.6	19.7	26.8	22.4	31.7	58.0	52.4	63.5
Whitehorse (C)	16.8	12.8	21.8	47.4	40.8	54.2	35.5	29.3	42.1
Whittlesea (C)	27.6	22.7	33.1	36.0	30.9	41.4	36.2	30.9	41.9
Wodonga (RC)	18.6	14.2	23.9	33.2	27.1	39.8	48.3	41.6	55.0
Wyndham (C)	24.9	20.3	30.1	32.3	27.5	37.5	42.2	36.8	47.8
Yarra (C)	12.5	9.0	17.3	36.9	30.1	44.2	50.5	43.1	57.9
Yarra Ranges (S)	16.0	11.5	21.8	32.4	27.5	37.7	51.5	45.1	57.8
Yarriambiack (S)	15.6	13.1	18.6	28.7	22.4	36.0	55.3	48.4	62.1
<b>Victoria</b>	<b>18.6</b>	<b>17.9</b>	<b>19.4</b>	<b>35.8</b>	<b>34.9</b>	<b>36.7</b>	<b>45.3</b>	<b>44.3</b>	<b>46.3</b>

a. Based on national guidelines (NHMRC 2001).

b. Drinkers who consumed alcohol at levels that did not expose them to risk of short-term of harm were classified as low risk.

c. Includes those who consumed alcohol at risky or high risk levels weekly, monthly or yearly.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95% confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

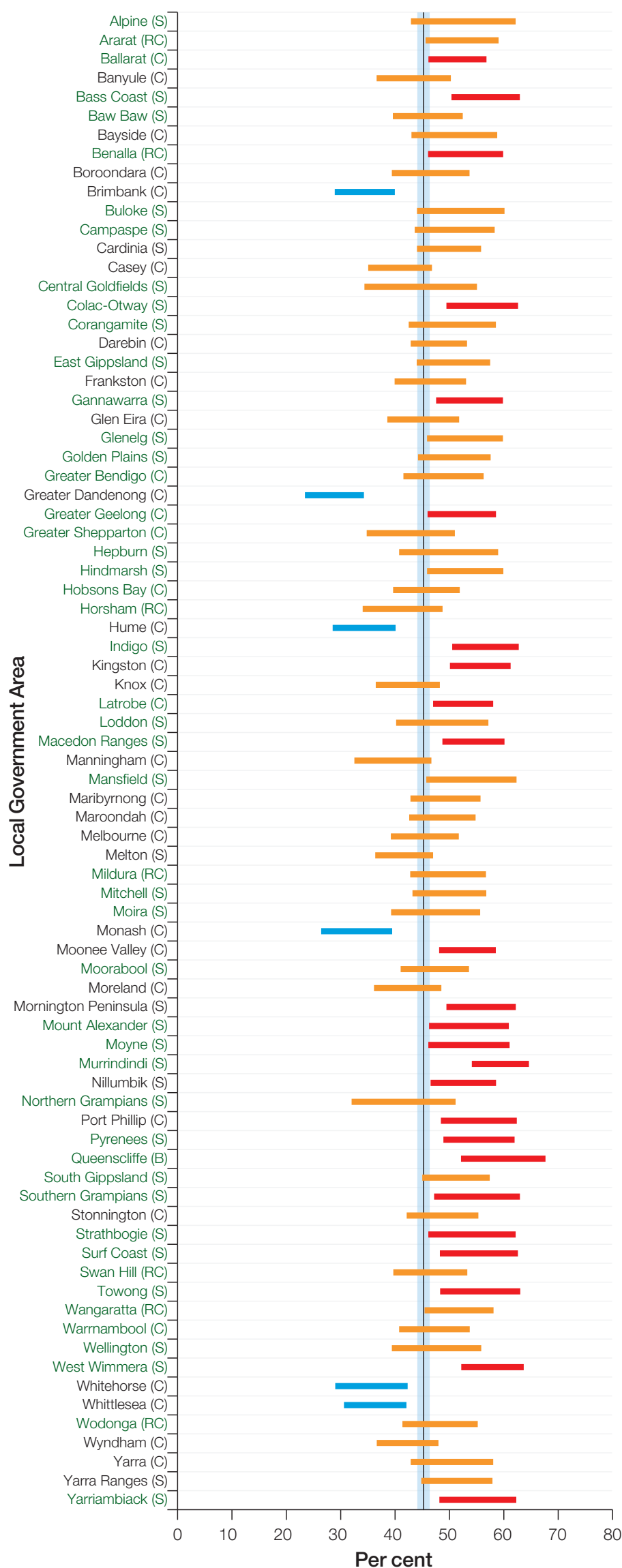
Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Figure 2.6: Short-term risk of alcohol-related harm<sup>a</sup> in persons, by LGA, Victoria, 2011–12



a. Based on national guidelines (NHMRC 2001).

Includes those who consumed alcohol at risky or high risk levels weekly, monthly or yearly.

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

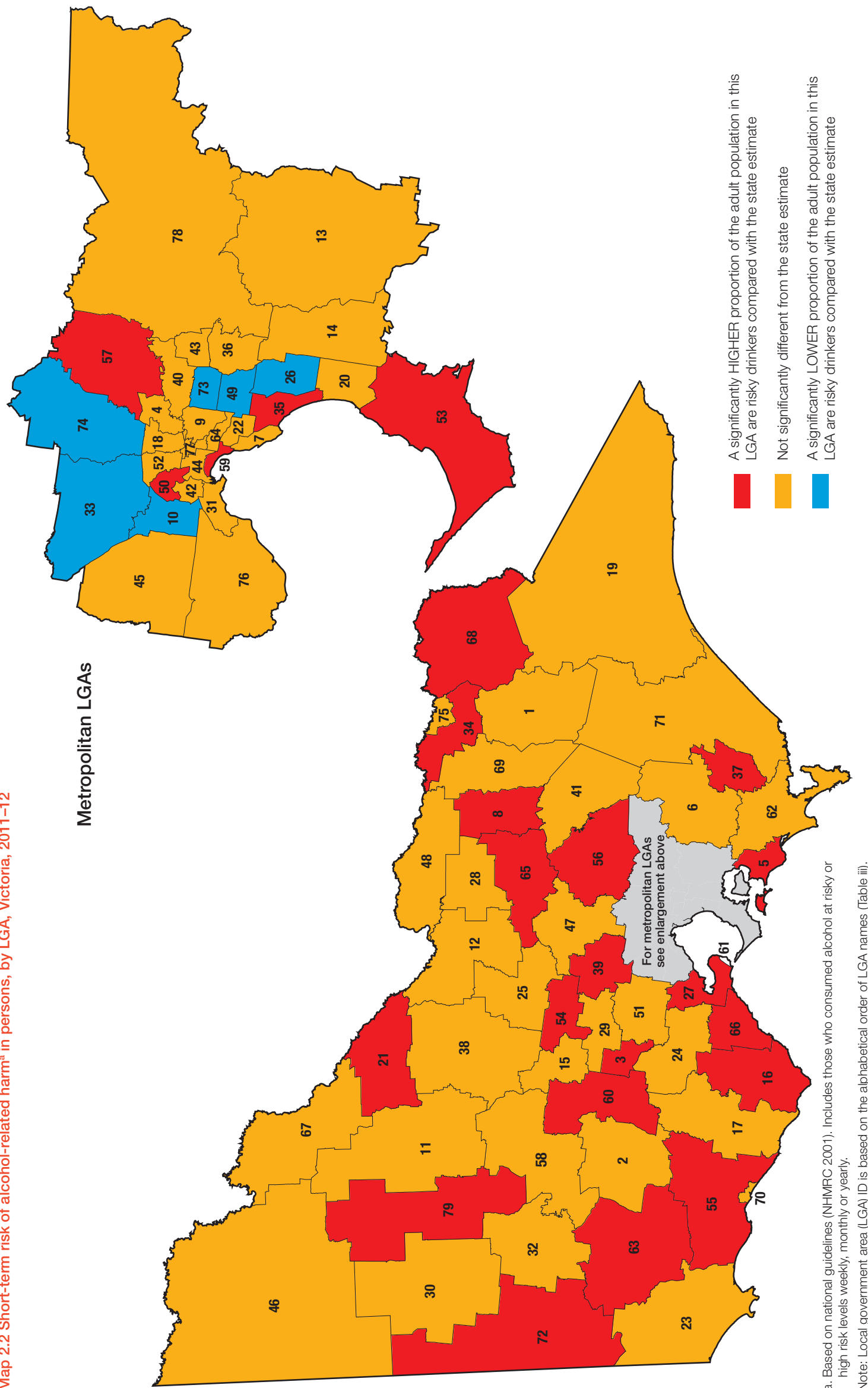
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.



Map 2.2 Short-term risk of alcohol-related harm<sup>a</sup> in persons, by LGA, Victoria, 2011–12





# Modifiable health risk factors

Table 2.19 shows the prevalence of short-term risk of alcohol-related harm, by selected socioeconomic determinants, modifiable risk factors and health status, and is further broken down by sex.

### **Abstinence from alcohol**

Abstainers from alcohol are those people who reported that they did not drink, or who had had a drink in the previous 12 months and reported that they no longer drink (recent abstainers).

When compared with all Victorian men and women, there was a significantly higher prevalence of abstinence among men and women with the following characteristics:

- not in the labour force
- total household income of less than \$40,000
- very high levels of psychological distress
- sedentary behaviour
- non-smoker
- diagnosed with diabetes by a doctor.

When compared with all Victorian men there was a significantly higher prevalence of abstinence among men with the following characteristic:

- high levels of psychological distress.

When compared with all Victorian women there was a significantly higher prevalence of abstinence among women with the following characteristics:

- primary education
- fair or poor self-reported health status.

When compared with all Victorian men and women there was a significantly lower prevalence of abstinence among men and women with the following characteristics:

- employed
- total household income of \$100,000 or more
- ex-smoker.

When compared with all Victorian women there was a significantly lower prevalence of abstinence among women with the following characteristics:

- tertiary educated
- total annual household income between \$40,000 and \$99,999 engaged in sufficient physical activity
- current smoker
- excellent or very good self-reported health status.

### **Short-term risk of alcohol-related harm**

When compared with all Victorian men and women there was a significantly higher prevalence of short-term risk of alcohol-related harm among men and women with the following characteristics:

- living in rural Victoria
- employed
- total annual household income of \$100,000 or more
- current smoker
- ex-smoker.

When compared with all Victorian men there was a significantly higher prevalence of short-term risk of alcohol-related harm among men with the following characteristic:

- primary education.

When compared with all Victorian women there was a significantly higher prevalence of short-term risk of alcohol-related harm among women with the following characteristics:

- engaged in sufficient physical activity
- excellent or very good health self-reported health status
- overweight.

**Table 2.19: Short-term risk of alcohol-related harm,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	%	Abstainer		%	Low risk <sup>a</sup>		%	Risky or high risk <sup>a</sup>		
		95% CI			95% CI			95% CI		
		LL	UL		LL	UL		LL	UL	
<b>Males</b>	<b>14.0</b>	<b>12.9</b>	<b>15.1</b>	<b>33.4</b>	<b>32.0</b>	<b>34.7</b>	<b>52.5</b>	<b>51.0</b>	<b>54.0</b>	
<i>Area of Victoria</i>										
Rural	13.6	11.9	15.4	27.0	25.2	28.9	59.3	56.9	61.6	
Metropolitan	14.0	12.7	15.3	35.4	33.8	37.0	50.4	48.6	52.1	
<i>Education level</i>										
Primary	13.4	11.7	15.5	28.9	26.2	31.6	57.5	54.5	60.4	
Secondary	14.0	12.2	16.0	31.8	29.6	34.0	54.0	51.5	56.5	
Tertiary	12.2	10.7	13.9	38.0	35.8	40.2	49.6	47.3	52.0	
<i>Employment status (age &lt; 65 years)</i>										
Employed	10.4	9.3	11.8	28.4	26.7	30.2	60.9	59.0	62.8	
Unemployed	21.1	15.7	27.8	29.2	23.2	36.0	49.4	42.5	56.4	
Not in labour force	22.1	17.4	27.6	30.0	24.7	36.0	47.8	41.6	54.0	
<i>Total annual household income</i>										
< \$40,000	25.9	22.0	30.1	31.8	28.5	35.3	42.1	37.9	46.4	
\$40,000 to < \$100,000	13.0	11.4	14.8	33.6	31.3	35.9	53.1	50.7	55.5	
≥ \$100,000	7.6	5.9	9.6	29.2	26.7	31.7	63.1	60.2	65.9	
<i>Psychological distress<sup>b</sup></i>										
Low (< 16)	12.0	10.8	13.2	33.9	32.4	35.6	53.9	52.1	55.6	
Moderate (16–21)	15.9	13.4	18.7	32.4	29.7	35.4	51.5	48.3	54.8	
High (22–29)	22.6	18.4	27.5	26.7	22.8	31.0	50.6	45.4	55.7	
Very high (≥ 30)	22.0	15.4	30.4	27.1	20.5	35.0	50.7	42.9	58.5	
<i>Physical activity<sup>c</sup></i>										
Sedentary	22.6	17.5	28.7	34.0	27.4	41.4	43.0	36.5	49.8	
Insufficient time and sessions	16.7	14.0	19.9	34.4	31.7	37.2	48.5	45.2	51.9	
Sufficient time and sessions	12.3	11.2	13.6	33.1	31.5	34.7	54.4	52.7	56.1	
<i>Met fruit / vegetable guidelines<sup>d</sup></i>										
Both guidelines	10.3	7.1	14.7	32.5	27.4	38.2	56.6	50.5	62.5	
Vegetable guidelines <sup>e</sup>	10.2	7.4	13.9	33.7	28.5	39.5	55.6	49.9	61.2	
Fruit guidelines <sup>e</sup>	13.7	12.2	15.4	35.0	32.9	37.3	51.0	48.6	53.4	
Neither	13.6	12.2	15.2	32.1	30.4	33.8	54.1	52.1	56.0	
<i>Smoking status</i>										
Current smoker	12.3	10.1	15.0	25.6	22.9	28.5	61.6	58.6	64.6	
Ex-smoker	8.5	6.9	10.4	29.3	26.4	32.4	61.8	58.5	65.1	
Non-smoker	17.5	15.9	19.2	38.4	36.5	40.3	43.9	41.9	46.0	
<i>Self-reported health</i>										
Excellent / very good	11.8	10.5	13.3	35.1	33.1	37.2	52.9	50.8	55.1	
Good	14.5	12.8	16.4	32.6	30.6	34.6	52.5	50.2	54.9	
Fair / poor	18.5	14.9	22.6	29.7	26.8	32.8	51.7	47.4	55.9	
<i>Body weight status<sup>f</sup></i>										
Underweight	20.2	13.5	28.9	37.6	28.8	47.2	38.5	29.0	49.0	
Normal	15.5	13.7	17.4	36.9	34.7	39.2	47.4	45.0	49.8	
Overweight	12.2	10.5	14.2	31.8	29.8	33.9	55.8	53.3	58.2	
Obese	13.4	11.1	16.0	28.8	25.5	32.4	57.4	53.5	61.1	
<i>Diabetes status<sup>g</sup></i>										
No diabetes	13.4	12.3	14.5	33.1	31.8	34.5	53.3	51.7	54.8	
Diabetes	29.3	19.0	42.1	32.6	25.4	40.7	37.9	27.1	50.0	

a. Based on national guidelines (NHMRC 2001).

b. Based on the Kessler 10 scale for psychological distress.

c. Based on national guidelines (DoHA 1999).

d. Based on national guidelines (NHMRC 2003a).

e. Includes those meeting both guidelines

f. Based on body mass index (BMI).

g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

**Table 2.19: Short-term risk of alcohol-related harm,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)**

	%	Abstainer		%	Low risk <sup>a</sup>		%	Risky or high risk <sup>a</sup>	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
<b>Females</b>	<b>23.0</b>	<b>22.0</b>	<b>24.1</b>	<b>38.5</b>	<b>37.3</b>	<b>39.7</b>	<b>38.1</b>	<b>36.9</b>	<b>39.3</b>
<i>Area of Victoria</i>									
Rural	20.6	19.1	22.1	36.4	34.8	38.1	<b>42.6</b>	40.7	44.5
Metropolitan	23.7	22.5	25.0	39.0	37.6	40.5	36.8	35.4	38.3
<i>Education level</i>									
Primary	<b>27.9</b>	25.5	30.5	35.3	32.8	37.8	36.5	33.8	39.4
Secondary	23.1	21.4	25.0	38.3	36.4	40.3	38.2	36.2	40.1
Tertiary	<b>17.2</b>	15.7	18.8	<b>44.9</b>	43.0	46.9	37.4	35.6	39.3
<i>Employment status (age &lt; 65 years)</i>									
Employed	<b>15.9</b>	14.6	17.3	35.8	34.1	37.6	<b>47.8</b>	45.9	49.7
Unemployed	28.2	22.5	34.6	34.1	27.8	41.0	36.1	30.0	42.6
Not in labour force	<b>29.0</b>	26.6	31.6	35.5	33.0	38.2	35.2	32.7	37.9
<i>Total annual household income</i>									
< \$40,000	<b>32.9</b>	30.1	35.9	36.7	33.9	39.7	<b>29.9</b>	27.1	33.0
\$40,000 to < \$100,000	<b>19.1</b>	17.3	21.0	41.7	39.7	43.8	38.9	36.8	41.0
≥ \$100,000	<b>9.9</b>	8.4	11.6	40.1	37.1	43.3	<b>49.6</b>	46.5	52.7
<i>Psychological distress<sup>b</sup></i>									
Low (< 16)	21.5	20.2	22.9	39.9	38.3	41.6	38.2	36.6	39.9
Moderate (16–21)	22.8	20.8	24.8	38.5	36.3	40.8	38.3	36.1	40.6
High (22–29)	26.6	23.6	30.0	35.2	31.7	38.8	37.6	34.1	41.3
Very high (≥ 30)	<b>33.7</b>	28.2	39.7	<b>26.7</b>	22.3	31.7	39.2	33.7	45.1
<i>Physical activity<sup>c,g</sup></i>									
Sedentary	<b>44.8</b>	38.1	51.8	32.2	26.6	38.5	<b>22.7</b>	17.2	29.2
Insufficient time and sessions	25.4	23.2	27.7	39.0	36.7	41.3	35.0	32.6	37.6
Sufficient time and sessions	<b>19.1</b>	18.0	20.3	39.2	37.7	40.7	<b>41.5</b>	39.9	43.0
<i>Met fruit / vegetable guidelines<sup>d</sup></i>									
Both guidelines	21.6	18.0	25.6	40.2	35.8	44.8	37.3	32.6	42.1
Vegetable guidelines <sup>e</sup>	20.9	17.9	24.2	40.2	36.3	44.2	38.2	34.2	42.4
Fruit guidelines <sup>e</sup>	24.1	22.5	25.7	38.9	37.2	40.7	36.7	34.8	38.6
Neither	22.1	20.7	23.5	37.9	36.2	39.5	39.5	37.8	41.2
<i>Self-reported health</i>									
Excellent / very good	<b>18.2</b>	16.9	19.6	40.3	38.7	42.0	<b>41.2</b>	39.5	43.0
Good	24.3	22.6	26.0	37.9	36.0	39.8	37.1	35.2	39.0
Fair / poor	<b>34.3</b>	31.1	37.7	34.8	31.7	38.0	<b>30.7</b>	27.7	33.9
<i>Body weight status<sup>f</sup></i>									
Underweight	26.7	21.5	32.8	42.9	36.5	49.6	<b>29.9</b>	24.3	36.1
Normal	21.4	20.0	22.9	39.6	37.9	41.4	38.7	37.0	40.4
Overweight	21.6	19.5	23.8	35.5	33.4	37.6	<b>42.1</b>	39.5	44.8
Obese	26.2	23.4	29.2	39.2	36.4	42.1	34.5	31.4	37.6
<i>Smoking status</i>									
Current smoker	<b>19.2</b>	16.8	21.8	<b>28.5</b>	25.7	31.6	<b>51.8</b>	48.7	54.8
Ex-smoker	<b>14.2</b>	12.5	16.0	<b>33.8</b>	31.6	36.1	<b>51.8</b>	49.3	54.3
Non-smoker	<b>27.2</b>	25.9	28.6	<b>42.1</b>	40.6	43.6	<b>30.3</b>	28.9	31.8
<i>Diabetes status<sup>g</sup></i>									
No diabetes	22.1	21.1	23.1	38.9	37.7	40.1	38.6	37.4	39.9
Diabetes	<b>50.8</b>	45.2	56.3	33.8	28.8	39.1	<b>15.3</b>	11.5	20.2

a. Based on national guidelines (NHMRC 2001).

b. Based on the Kessler 10 scale for psychological distress.

c. Based on national guidelines (DoHA 1999).

d. Based on national guidelines (NHMRC 2003a).

e. Includes those meeting both guidelines

f. Based on body mass index (BMI).

g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).

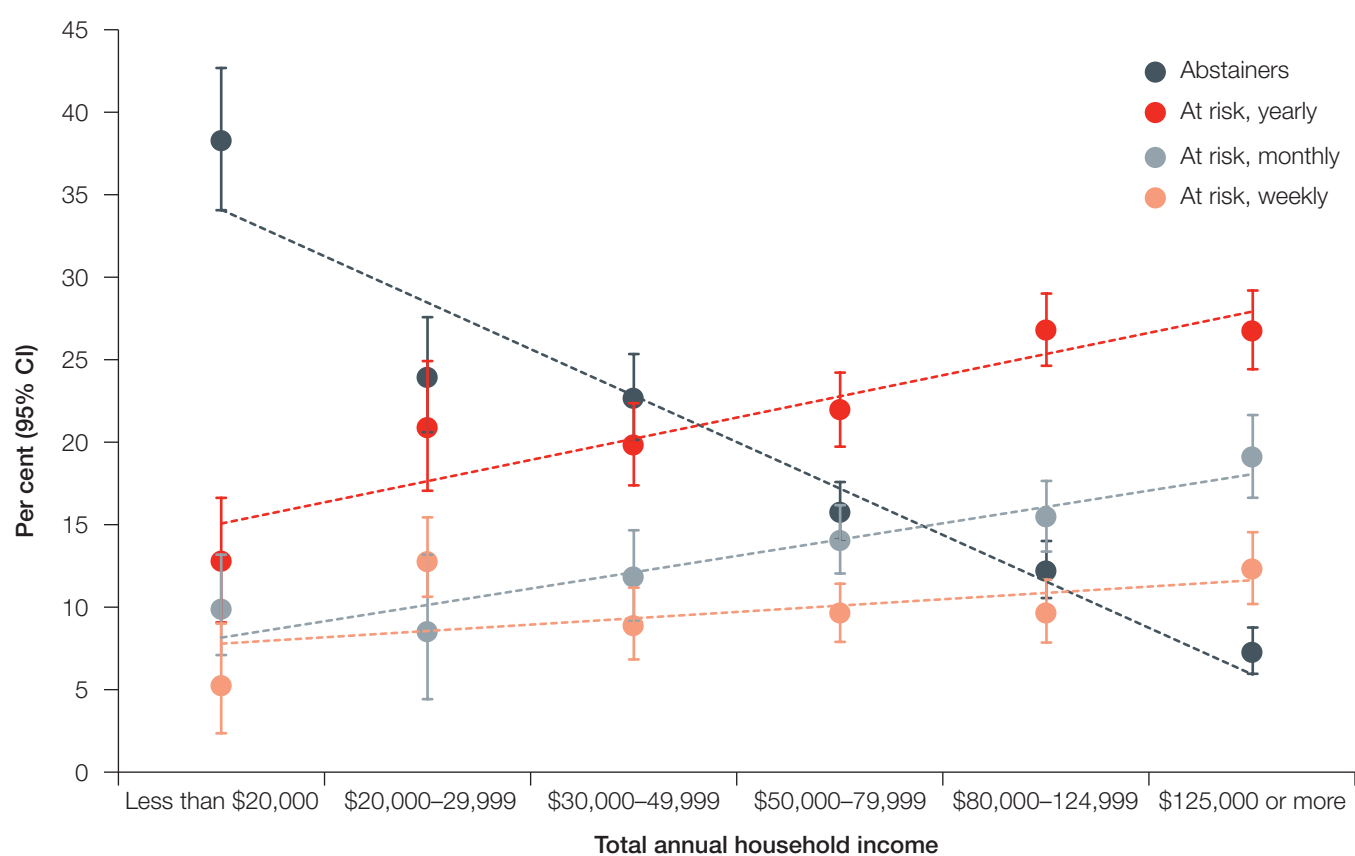
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

The relationship, if any, was investigated between SES and the age-adjusted prevalence of short-term risk of alcohol-related harm, using respondents' total annual household income as a measure of SES (Figure 2.7). The prevalence of abstinence from alcohol consumption significantly decreased with increasing total annual household income. Conversely, the prevalence of short-term risk of alcohol-related harm increased with increasing income in those adults who were at short-term risk on a yearly or monthly basis. Weekly consumption of alcohol at risky levels was not associated with SES.

**Figure 2.7: Prevalence of short-term alcohol-related harm,<sup>a</sup> by total annual household income, Victoria, 2011–12**



a. Based on national guidelines (NHMRC 2001).  
Data were age standardised to the 2011 Victorian population.  
Ordinary least squares regression was used to test for statistical significance.

### Long-term risk of alcohol-related harm

Long-term risk of harm due to alcohol consumption attempts to measure the risk associated with developing an illness such as cirrhosis of the liver, dementia, other cognitive problems, various cancers and alcohol dependence.

Table 2.20 shows the prevalence of long-term risk of alcohol-related harm, by age group and sex. There was a significantly higher prevalence of long-term risk of alcohol-related harm in adults aged 45–54 years and women aged 55–64 years compared with all Victorian adults and women, respectively. Overall, there was a significantly lower prevalence of long-term risk of alcohol-related harm among women compared with men.

Table 2.20: Long-term risk of alcohol-related harm,<sup>a,b</sup> by age group and sex, Victoria, 2011–12

Age group (years)	Abstainer			Low risk			Risky or high risk		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
18–24	13.3	9.7	18.1	81.2	76.2	85.4	3.5*	2.0	5.9
25–34	12.3	9.3	16.0	82.4	78.1	85.9	4.6*	2.8	7.6
35–44	13.0	10.9	15.5	82.5	79.8	84.9	4.1	3.0	5.5
45–54	12.7	11.0	14.7	81.2	78.9	83.3	5.2	4.1	6.6
55–64	11.7	10.1	13.6	82.4	80.3	84.3	4.6	3.7	5.8
65+	19.1	17.4	20.8	77.2	75.3	78.9	2.9	2.3	3.6
<b>Total</b>	<b>13.9</b>	<b>12.8</b>	<b>15.0</b>	<b>81.0</b>	<b>79.7</b>	<b>82.2</b>	<b>4.2</b>	<b>3.6</b>	<b>4.9</b>
<b>Females</b>									
18–24	12.1	9.2	15.9	84.3	80.3	87.7	2.0*	1.1	3.7
25–34	24.9	21.7	28.3	73.9	70.5	77.1	1.0	0.6	1.6
35–44	20.7	18.6	22.8	75.8	73.6	77.9	3.0	2.3	3.9
45–54	17.9	16.2	19.8	77.7	75.8	79.6	3.6	2.9	4.5
55–64	22.2	20.4	24.1	73.4	71.4	75.3	3.7	3.0	4.5
65+	34.9	33.2	36.6	61.7	60.0	63.4	2.4	2.0	3.0
<b>Total</b>	<b>22.9</b>	<b>21.9</b>	<b>24.0</b>	<b>73.8</b>	<b>72.7</b>	<b>74.8</b>	<b>2.5</b>	<b>2.3</b>	<b>2.9</b>
<b>Persons</b>									
18–24	12.7	10.3	15.7	82.7	79.6	85.5	2.8	1.8	4.1
25–34	18.5	16.3	21.0	78.2	75.5	80.6	2.8	1.8	4.3
35–44	16.9	15.4	18.5	79.1	77.4	80.7	3.5	2.9	4.3
45–54	15.4	14.1	16.7	79.4	77.9	80.8	4.4	3.7	5.2
55–64	17.1	15.8	18.4	77.8	76.4	79.2	4.1	3.5	4.8
65+	27.7	26.5	28.9	68.7	67.4	69.9	2.7	2.3	3.1
<b>Total</b>	<b>18.6</b>	<b>17.8</b>	<b>19.3</b>	<b>77.2</b>	<b>76.4</b>	<b>78.0</b>	<b>3.4</b>	<b>3.0</b>	<b>3.7</b>

a. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

b. Based on national guidelines (NHMRC 2001).

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

The trend over time was investigated of the prevalence of long-term risk of alcohol-related harm (Table 2.21 and Figure 2.8). The prevalence of long-term risk of alcohol-related harm remained unchanged between 2003 and 2011–12 for both men and women.

**Table 2.21: Long-term risk of alcohol-related harm<sup>a,b</sup> from 2003 to 2011–12, by sex, Victoria**

Year	Abstainer			Low risk			Risky or high risk		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
2003	12.9	11.3	14.7	82.1	80.1	83.8	4.4	3.6	5.3
2004	12.9	11.4	14.7	80.9	78.9	82.7	5.0	4.1	6.2
2005	15.6	13.8	17.6	79.8	77.7	81.7	4.2	3.4	5.2
2006	12.1	10.6	13.8	82.1	80.1	83.9	5.0	4.0	6.2
2007	13.8	12.1	15.7	81.4	79.3	83.3	4.2	3.4	5.3
2008	12.6	11.8	13.6	82.1	81.0	83.1	4.3	3.8	4.9
2009	14.3	12.7	16.0	79.9	78.0	81.7	4.7	3.9	5.7
2010	14.7	12.9	16.6	80.9	78.8	82.9	3.3	2.5	4.2
<b>2011–12</b>	<b>13.9</b>	<b>12.8</b>	<b>15.0</b>	<b>81.0</b>	<b>79.7</b>	<b>82.2</b>	<b>4.2</b>	<b>3.6</b>	<b>4.9</b>
<b>Females</b>									
2003	23.0	21.4	24.7	73.8	72.0	75.5	2.4	1.8	3.2
2004	22.3	20.8	24.0	74.3	72.6	76.0	2.7	2.2	3.4
2005	22.4	20.7	24.1	74.1	72.3	75.8	3.2	2.5	3.9
2006	22.0	20.3	23.7	73.6	71.7	75.4	3.6	2.9	4.5
2007	23.0	21.3	24.8	73.9	72.1	75.7	2.3	1.9	2.9
2008	23.2	22.3	24.0	73.0	72.1	74.0	3.1	2.7	3.4
2009	23.7	22.2	25.3	71.6	69.9	73.3	3.6	2.8	4.4
2010	22.8	21.2	24.5	73.1	71.3	74.9	3.0	2.4	3.8
<b>2011–12</b>	<b>22.9</b>	<b>21.9</b>	<b>24.0</b>	<b>73.8</b>	<b>72.7</b>	<b>74.8</b>	<b>2.5</b>	<b>2.3</b>	<b>2.9</b>
<b>Persons</b>									
2003	18.3	17.2	19.6	77.6	76.3	78.8	3.3	2.8	3.9
2004	17.8	16.6	18.9	77.5	76.2	78.8	3.8	3.3	4.5
2005	19.1	17.9	20.4	76.9	75.5	78.2	3.7	3.2	4.3
2006	17.3	16.1	18.5	77.6	76.3	78.9	4.3	3.7	5.0
2007	18.6	17.3	19.9	77.5	76.1	78.8	3.3	2.8	3.9
2008	18.1	17.5	18.7	77.4	76.7	78.1	3.7	3.3	4.0
2009	19.2	18.1	20.4	75.6	74.3	76.9	4.1	3.5	4.7
2010	19.0	17.7	20.3	76.8	75.4	78.2	3.1	2.6	3.7
<b>2011–12</b>	<b>18.6</b>	<b>17.8</b>	<b>19.3</b>	<b>77.2</b>	<b>76.4</b>	<b>78.0</b>	<b>3.4</b>	<b>3.0</b>	<b>3.7</b>

a. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

b. Based on national guidelines (NHMRC 2001).

Data were age-standardised to the 2011 Victorian population.

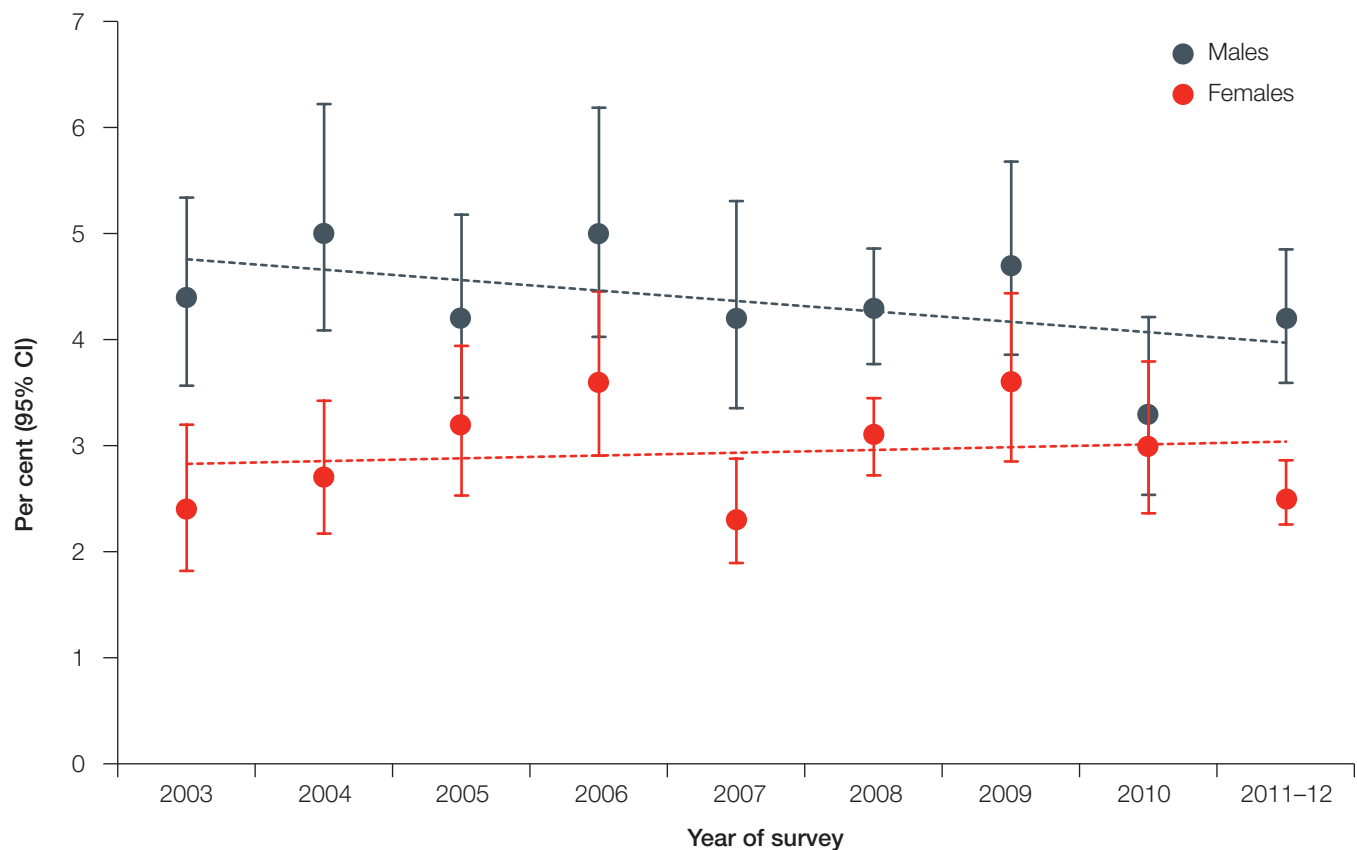
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for trends over time.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.



Figure 2.8: Long-term risk of alcohol-related harm<sup>a</sup> from 2003 to 2011–12, by sex, Victoria



a. Based on national guidelines (NHMRC 2001).  
 Data were age-standardised to the 2011 Victorian population.  
 Ordinary least squares linear regression was used to test for trends over time.

Table 2.22 shows the prevalence of long-term risk of alcohol-related harm, by Department of Health region and sex. There was a significantly higher prevalence of long-term risk of alcohol-related harm in men who lived in Gippsland Region and women who lived in Hume Region compared with all Victorian men and women, respectively. By contrast there was a significantly lower prevalence of long-term risk of alcohol-related harm in adults who lived in North & West Metropolitan Region compared with all Victorian adults.

Table 2.22: Long-term risk of alcohol-related harm,<sup>a,b</sup> by Department of Health region and sex, Victoria, 2011–12

Region	Abstainer			Low risk			Risky or high risk		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
Eastern Metropolitan	11.4	9.4	13.9	83.2	80.3	85.8	4.6	3.3	6.6
North & West Metropolitan	16.0	14.0	18.2	79.8	77.4	81.9	3.2	2.3	4.3
Southern Metropolitan	13.5	11.3	16.1	81.1	78.3	83.7	4.3	3.1	6.1
<b>Metropolitan males</b>	13.9	12.7	15.3	81.3	79.7	82.7	3.9	3.2	4.7
Barwon-South Western	14.6	10.0	20.9	81.1	74.5	86.3	4.1*	2.2	7.5
Gippsland	12.0	9.8	14.8	80.0	76.6	83.0	7.0	5.0	9.6
Grampians	11.7	9.4	14.4	83.7	80.7	86.4	4.3	3.0	6.0
Hume	14.0	11.1	17.4	80.5	76.9	83.7	4.4	3.3	6.0
Loddon Mallee	15.2	12.1	18.9	77.1	72.4	81.1	4.8	3.4	6.9
<b>Rural males</b>	13.5	11.9	15.4	80.5	78.4	82.5	4.8	3.9	5.9
<b>Total</b>	<b>13.9</b>	<b>12.8</b>	<b>15.0</b>	<b>81.0</b>	<b>79.7</b>	<b>82.2</b>	<b>4.2</b>	<b>3.6</b>	<b>4.9</b>
<b>Females</b>									
Eastern Metropolitan	19.8	17.5	22.4	76.2	73.4	78.8	2.7	2.0	3.7
North & West Metropolitan	27.8	25.9	29.7	69.9	67.9	71.8	1.6	1.2	2.1
Southern Metropolitan	21.0	19.0	23.3	74.9	72.6	77.1	3.1	2.5	4.0
<b>Metropolitan females</b>	23.6	22.4	24.9	73.1	71.8	74.4	2.4	2.1	2.8
Barwon-South Western	18.9	15.6	22.7	77.9	74.1	81.4	2.8	1.9	4.1
Gippsland	18.2	16.0	20.5	78.6	76.1	80.9	2.6	1.9	3.6
Grampians	22.9	20.1	26.0	73.8	70.4	77.0	3.1*	1.9	5.1
Hume	21.7	19.0	24.6	73.9	70.9	76.7	3.8	3.0	4.9
Loddon Mallee	22.0	18.8	25.7	75.0	71.2	78.3	2.7	1.9	3.9
<b>Rural females</b>	20.5	19.1	22.1	76.1	74.4	77.6	3.0	2.5	3.6
<b>Total</b>	<b>22.9</b>	<b>21.9</b>	<b>24.0</b>	<b>73.8</b>	<b>72.7</b>	<b>74.8</b>	<b>2.5</b>	<b>2.3</b>	<b>2.9</b>
<b>Persons</b>									
Eastern Metropolitan	16.0	14.3	17.8	79.4	77.4	81.3	3.7	2.9	4.7
North & West Metropolitan	22.0	20.6	23.5	74.7	73.2	76.1	2.4	1.9	3.0
Southern Metropolitan	17.4	15.9	19.1	77.9	76.1	79.6	3.7	3.0	4.7
<b>Metropolitan persons</b>	18.9	18.1	19.9	77.0	76.0	78.0	3.1	2.7	3.6
Barwon-South Western	16.6	13.8	20.0	79.5	75.9	82.7	3.5	2.3	5.3
Gippsland	15.3	13.7	17.1	79.2	77.2	81.2	4.7	3.6	6.0
Grampians	17.6	15.6	19.8	78.5	76.1	80.8	3.6	2.7	4.9
Hume	18.0	16.0	20.2	77.1	74.8	79.3	4.1	3.4	5.0
Loddon Mallee	18.6	16.2	21.2	75.9	72.7	78.9	3.7	2.9	4.8
<b>Rural persons</b>	17.1	16.0	18.3	78.2	76.9	79.5	3.9	3.4	4.5
<b>Total</b>	<b>18.6</b>	<b>17.8</b>	<b>19.3</b>	<b>77.2</b>	<b>76.4</b>	<b>78.0</b>	<b>3.4</b>	<b>3.0</b>	<b>3.7</b>

a. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

b. Based on national guidelines (NHMRC 2001).

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' not reported here.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 2.23 shows the prevalence of long-term risk of alcohol-related harm, by LGA. When the data were analysed at the LGA level, the numbers were very small due to the low prevalence of long-term risk of alcohol-related harm. Please note that most of the LGA estimates had relative standard errors between 25 and 50 per cent, indicating that these estimates are unreliable and the data should be interpreted with caution.

Table 2.23: Long-term risk of alcohol-related harm<sup>a</sup> in persons, by LGA, Victoria, 2011–12

LGA	%	Abstainer		%	Low risk <sup>b</sup>		%	Risky or high risk <sup>c</sup>	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	14.3*	7.8	24.6	80.0	70.0	87.3	5.4*	3.3	8.7
Ararat (RC)	15.9	12.6	19.9	78.3	72.5	83.2	5.5*	2.6	11.4
Ballarat (C)	18.1	14.3	22.6	78.2	73.1	82.6	3.7*	1.9	7.4
Banyule (C)	17.8	13.4	23.3	77.9	71.6	83.1	4.0*	1.7	8.9
Bass Coast (S)	13.2	9.3	18.2	79.9	73.7	85.0	6.8*	3.8	11.8
Baw Baw (S)	15.9	12.2	20.5	80.6	75.8	84.7	3.2*	1.8	5.5
Bayside (C)	11.7	7.5	17.9	82.3	75.2	87.7	5.7*	2.6	12.1
Benalla (RC)	16.6	11.5	23.4	81.1	74.3	86.4	2.2*	1.3	3.7
Boroondara (C)	9.5	7.0	12.8	85.6	81.3	89.0	4.4*	2.4	8.0
Brimbank (C)	30.7	25.7	36.2	66.2	60.7	71.2	2.9*	1.3	6.2
Buloke (S)	21.1	14.7	29.4	73.2	64.8	80.2	4.8*	2.7	8.4
Campaspe (S)	17.6	12.9	23.5	75.4	68.6	81.1	6.8*	3.7	12.2
Cardinia (S)	15.8	11.9	20.6	79.8	74.8	84.1	3.5*	2.0	5.9
Casey (C)	24.3	19.7	29.7	73.4	68.0	78.2	1.5*	0.8	2.9
Central Goldfields (S)	18.1	14.5	22.4	79.0	74.5	82.9	2.3*	1.2	4.5
Colac-Otway (S)	13.5	10.5	17.2	83.3	78.9	86.9	3.1*	1.4	6.5
Corangamite (S)	20.6	14.3	28.6	77.3	69.4	83.7	1.8*	1.0	3.0
Darebin (C)	18.6	14.7	23.1	78.8	74.1	82.8	1.9*	1.0	3.6
East Gippsland (S)	13.8	10.1	18.7	80.7	75.0	85.3	4.2*	2.2	8.0
Frankston (C)	16.7	12.0	22.8	77.4	71.0	82.7	5.4*	3.1	9.1
Gannawarra (S)	17.9	14.3	22.2	79.4	75.0	83.2	2.2*	1.2	4.1
Glen Eira (C)	12.5	9.3	16.5	85.0	80.8	88.5	1.8*	0.8	3.9
Glenelg (S)	16.0	11.9	21.3	76.7	69.4	82.8	6.6*	2.9	14.4
Golden Plains (S)	18.5	13.6	24.5	77.0	70.6	82.4	4.1*	2.1	8.1
Greater Bendigo (C)	20.1	14.7	26.8	75.7	68.1	81.9	1.5*	0.7	3.1
Greater Dandenong (C)	33.5	28.4	39.1	63.0	57.4	68.3	1.6*	0.7	3.2
Greater Geelong (C)	17.6	13.2	23.0	78.8	73.2	83.5	3.4*	1.9	6.1
Greater Shepparton (C)	22.6	17.0	29.4	72.4	65.3	78.5	2.8*	1.6	4.7
Hepburn (S)	10.1	7.7	13.1	85.3	80.5	89.0	4.3*	2.0	9.0
Hindmarsh (S)	22.7	17.4	28.9	73.2	66.2	79.3	3.9*	1.6	9.4
Hobsons Bay (C)	17.4	13.4	22.4	80.3	75.3	84.5	2.0*	1.1	3.5
Horsham (RC)	17.3	11.9	24.3	78.7	70.9	84.9	3.4*	1.4	8.2
Hume (C)	29.6	24.6	35.1	66.8	61.2	72.0	2.2*	1.1	4.3
Indigo (S)	16.6	12.2	22.1	79.4	73.3	84.5	3.7*	1.6	8.4
Kingston (C)	12.9	9.7	16.9	81.4	76.8	85.3	4.2*	2.5	6.9
Knox (C)	20.3	16.2	25.2	74.0	68.6	78.9	5.4*	3.1	9.4
Latrobe (C)	16.1	12.8	20.0	77.5	73.0	81.5	4.8*	2.9	7.8
Loddon (S)	26.2	19.1	34.7	67.5	58.8	75.1	4.9*	2.8	8.6
Macedon Ranges (S)	11.9	9.1	15.5	85.5	81.8	88.6	2.1*	1.1	4.0
Manningham (C)	15.7	11.5	20.9	77.4	70.6	83.0	3.1*	1.2	7.5
Mansfield (S)	9.0	6.4	12.3	85.5	81.2	89.0	5.4*	3.2	8.9
Maribyrnong (C)	22.3	17.6	27.8	73.6	67.8	78.6	3.0*	1.5	6.1

Table 2.23: Long-term risk of alcohol-related harm<sup>a</sup> in persons, by LGA, Victoria, 2011–12 (continued)

LGA	%	Abstainer		%	Low risk <sup>b</sup>		%	Risky or high risk <sup>c</sup>	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Maroondah (C)	14.6	11.0	19.1	81.2	76.2	85.3	3.1*	1.7	5.4
Melbourne (C)	16.2	11.9	21.9	79.8	74.1	84.6	3.5*	2.0	6.0
Melton (S)	23.5	19.2	28.4	74.2	69.2	78.6	0.7*	0.3	1.8
Mildura (RC)	20.0	16.0	24.7	72.6	66.8	77.7	5.9*	3.3	10.3
Mitchell (S)	16.5	12.1	22.1	75.3	69.2	80.5	7.8	5.1	11.7
Moira (S)	19.1	13.4	26.5	76.0	68.5	82.1	3.9*	2.1	7.1
Monash (C)	18.6	14.5	23.7	79.6	74.5	83.8	1.3*	0.7	2.4
Moonee Valley (C)	13.7	10.2	18.1	83.6	79.0	87.4	1.3*	0.6	3.2
Moorabool (S)	17.8	13.8	22.7	79.2	74.2	83.5	2.9*	1.6	5.2
Moreland (C)	24.0	19.3	29.5	73.1	67.4	78.0	1.8*	0.9	3.5
Mornington Peninsula (S)	12.8	9.4	17.2	83.5	78.6	87.4	3.5*	1.9	6.5
Mount Alexander (S)	15.1	11.6	19.4	76.6	70.7	81.6	8.3*	4.8	13.8
Moyne (S)	13.6	10.3	17.7	83.8	79.6	87.3	2.4	1.5	3.8
Murrindindi (S)	10.7	8.3	13.6	84.9	81.5	87.7	4.2	2.6	6.6
Nillumbik (S)	7.1	4.9	10.1	88.3	82.9	92.2	4.0*	1.6	9.9
Northern Grampians (S)	20.7	14.4	28.7	73.8	65.0	81.0	3.4*	2.0	5.6
Port Phillip (C)	10.7	6.9	16.4	81.6	74.8	86.9	6.8*	3.7	12.4
Pyrenees (S)	16.0	11.4	22.0	79.1	72.8	84.3	3.6*	2.0	6.4
Queenscliffe (B)	6.5	4.1	10.1	86.3	77.7	91.9	7.0*	2.7	16.7
South Gippsland (S)	14.3	10.7	18.9	83.5	78.9	87.3	1.7*	0.9	3.0
Southern Grampians (S)	12.6	10.0	15.8	82.5	78.2	86.1	4.0*	2.1	7.3
Stonnington (C)	12.2	8.4	17.4	80.9	74.9	85.7	6.6*	3.6	11.7
Strathbogie (S)	14.9	10.8	20.2	80.4	74.8	85.0	4.5*	2.6	7.7
Surf Coast (S)	9.6	6.3	14.4	87.0	82.1	90.6	2.9	1.8	4.6
Swan Hill (RC)	20.2	15.7	25.6	73.9	67.8	79.2	5.6*	3.0	10.2
Towong (S)	14.5	10.8	19.3	81.2	76.2	85.4	3.9*	2.3	6.5
Wangaratta (RC)	13.8	10.1	18.6	82.9	77.9	86.9	3.0*	1.7	5.4
Warrnambool (C)	20.4	15.5	26.5	77.3	71.2	82.5	2.1*	1.1	4.0
Wellington (S)	18.7	14.2	24.3	74.8	68.8	80.0	5.8*	3.3	10.2
West Wimmera (S)	15.1	11.5	19.6	79.4	73.7	84.1	5.0*	2.3	10.3
Whitehorse (C)	16.6	12.6	21.5	80.5	75.4	84.8	1.7*	0.8	3.7
Whittlesea (C)	27.6	22.7	33.1	70.2	64.6	75.3	2.1*	1.0	4.4
Wodonga (RC)	18.4	14.1	23.7	77.7	72.2	82.3	3.1*	1.9	5.0
Wyndham (C)	24.6	20.1	29.8	70.3	64.9	75.3	1.5*	0.7	3.2
Yarra (C)	12.4	8.8	17.1	80.0	71.8	86.4	**	**	**
Yarra Ranges (S)	16.0	11.5	21.8	76.8	70.5	82.1	6.7*	4.1	10.9
Yarriambiack (S)	15.6	13.1	18.6	79.5	75.7	82.9	4.8*	2.8	8.1
<b>Victoria</b>	<b>18.5</b>	<b>17.8</b>	<b>19.3</b>	<b>77.3</b>	<b>76.5</b>	<b>78.1</b>	<b>3.3</b>	<b>3.0</b>	<b>3.7</b>

a. Based on national guidelines (NHMRC 2001). Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

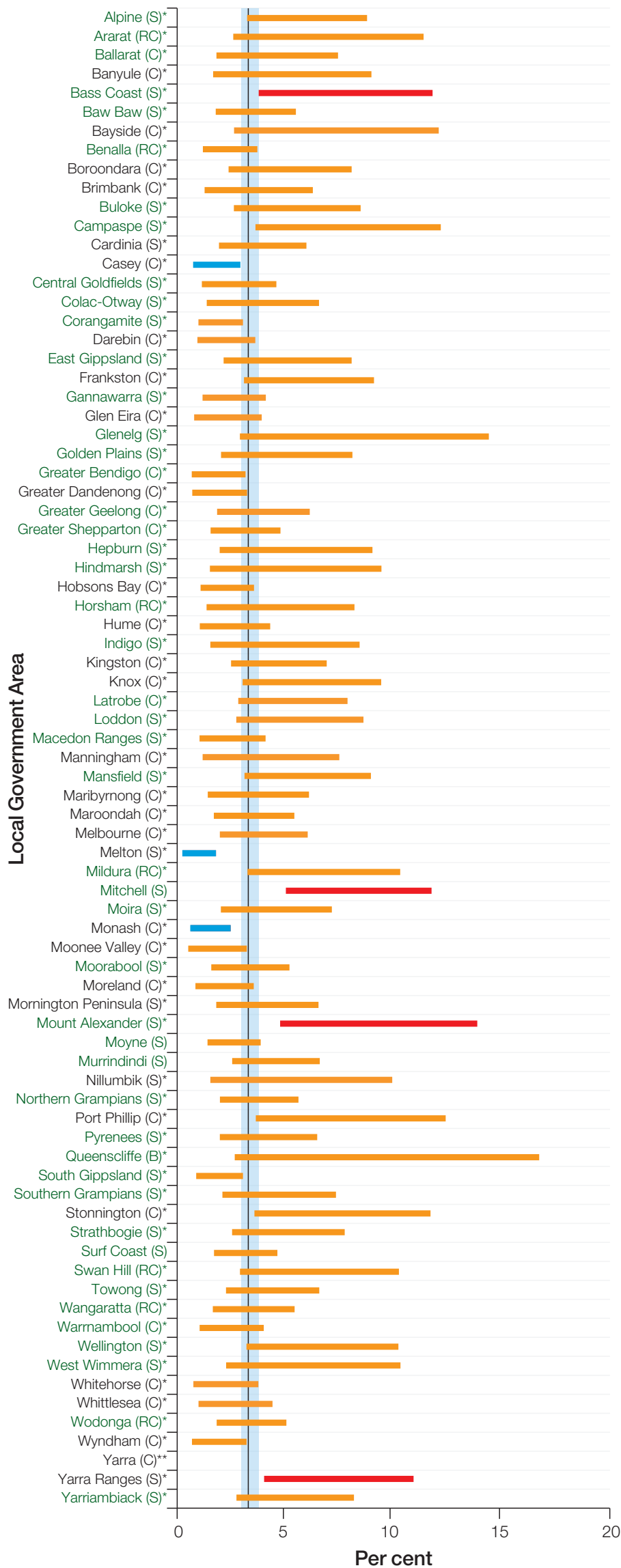
Data were age standardised to the 2011 Victorian population, using 10-year age groups.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Figure 2.9: Prevalence of long-term risk of alcohol-related harm,<sup>a</sup> by LGA, Victoria, 2011–12



a. Based on national guidelines (NHMRC 2001). Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) between 25 and 50 per cent and should be interpreted with caution

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 2.24 shows the prevalence of long-term risk of alcohol-related harm, by sex and selected socioeconomic determinants, modifiable risk factors and health status.

When compared with all Victorian men and women there was a significantly *higher* prevalence of long-term risk of alcohol-related harm among men and women with the following characteristic:

- current smoker.

When compared with all Victorian men there was a significantly *higher* prevalence of long-term risk of alcohol-related harm among men with the following characteristics:

- primary education
- high or very high levels of psychological distress
- fair or poor self-reported health status.

When compared with all Victorian women there was a significantly *higher* prevalence of long-term risk of alcohol-related harm among women with the following characteristics:

- total annual household income of \$100,000 or more
- ex-smoker.



**Table 2.24: Long-term risk of alcohol-related harm,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	%	Abstainer		%	Low risk <sup>a</sup>		%	Risky or high risk <sup>a</sup>	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>	<b>13.9</b>	<b>12.8</b>	<b>15.0</b>	<b>81.0</b>	<b>79.7</b>	<b>82.2</b>	<b>4.2</b>	<b>3.6</b>	<b>4.9</b>
<i>Area of Victoria</i>									
Rural	13.5	11.9	15.4	80.5	78.4	82.5	4.8	3.9	5.9
Metropolitan	13.9	12.7	15.3	81.3	79.7	82.7	3.9	3.2	4.7
<i>Education level</i>									
Primary	13.4	11.6	15.4	78.8	76.3	81.2	<b>6.2</b>	4.9	7.9
Secondary	13.9	12.2	15.9	80.4	78.2	82.5	4.6	3.6	5.9
Tertiary	12.2	10.6	13.9	<b>85.2</b>	83.3	86.8	<b>2.2</b>	1.6	3.2
<i>Employment status (age &lt; 65 years)</i>									
Employed	<b>10.4</b>	9.2	11.7	<b>84.2</b>	82.6	85.6	4.4	3.6	5.4
Unemployed	<b>20.9</b>	15.5	27.5	<b>72.4</b>	65.1	78.6	5.2*	2.6	10.2
Not in labour force	<b>22.0</b>	17.3	27.5	<b>70.7</b>	64.8	76.0	6.1*	3.7	10.0
<i>Total annual household income</i>									
< \$40,000	<b>25.8</b>	22.0	30.1	<b>68.2</b>	63.9	72.3	5.1	3.8	7.0
\$40,000 to < \$100,000	13.0	11.4	14.8	81.7	79.6	83.7	4.5	3.5	5.7
≥ \$100,000	<b>7.6</b>	5.9	9.6	<b>87.2</b>	84.8	89.4	4.9	3.6	6.6
<i>Psychological distress<sup>b</sup></i>									
Low (< 16)	11.9	10.8	13.2	<b>83.8</b>	82.4	85.1	3.4	2.8	4.1
Moderate (16–21)	15.9	13.4	18.7	78.9	75.9	81.7	4.6	3.4	6.2
High (22–29)	<b>22.5</b>	18.3	27.3	<b>66.3</b>	60.9	71.4	<b>9.3</b>	6.3	13.5
Very high (≥ 30)	<b>21.7</b>	15.2	30.1	<b>65.1</b>	56.3	73.1	<b>11.2*</b>	6.2	19.5
<i>Physical activity<sup>c</sup></i>									
Sedentary	<b>22.4</b>	17.3	28.4	<b>70.9</b>	63.8	77.1	5.1*	2.4	10.5
Insufficient time and sessions	16.7	13.9	19.9	79.3	76.1	82.2	3.5	2.6	4.7
Sufficient time and sessions	12.3	11.2	13.6	82.6	81.1	83.9	4.3	3.6	5.1
<i>Met fruit / vegetable guidelines<sup>d</sup></i>									
Both guidelines	10.3	7.1	14.7	<b>87.2</b>	82.6	90.8	1.7*	0.7	3.9
Vegetable guidelines <sup>e</sup>	10.1	7.4	13.8	85.1	80.8	88.6	3.4*	1.8	6.2
Fruit guidelines <sup>e</sup>	13.7	12.2	15.4	82.8	80.9	84.5	2.7	2.0	3.6
Neither	13.6	12.2	15.2	80.7	78.9	82.3	5.0	4.2	6.0
<i>Smoking status</i>									
Current smoker	12.3	10.1	14.9	77.4	74.3	80.3	<b>8.8</b>	7.1	10.8
Ex-smoker	<b>8.5</b>	6.9	10.4	<b>85.4</b>	82.4	88.0	5.6	3.7	8.3
Non-smoker	<b>17.4</b>	15.9	19.1	80.1	78.3	81.7	<b>1.7</b>	1.3	2.4
<i>Self-reported health</i>									
Excellent / very good	11.8	10.4	13.2	<b>84.5</b>	82.8	86.1	2.9	2.2	4.0
Good	14.5	12.8	16.4	80.3	78.2	82.2	4.3	3.4	5.3
Fair / poor	18.3	14.8	22.4	<b>72.7</b>	68.5	76.6	<b>7.7</b>	5.9	10.1
<i>Body weight status<sup>f</sup></i>									
Underweight	20.2	13.5	28.9	71.1	59.6	80.4	3.3*	1.4	7.7
Normal	15.4	13.6	17.3	80.1	78.0	82.0	3.6	2.8	4.7
Overweight	12.2	10.5	14.1	83.0	80.9	85.0	4.3	3.3	5.6
Obese	13.3	11.1	15.9	80.7	77.7	83.4	4.9	3.7	6.6
<i>Diabetes status (excluding gestational)<sup>g</sup></i>									
No diabetes	13.4	12.3	14.5	81.4	80.1	82.6	4.3	3.7	5.0
Diabetes	15.5	12.0	19.8	<b>72.3</b>	68.4	75.9	2.0*	0.9	4.4

a. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.  
b. Based on the Kessler 10 scale for psychological distress.  
c. Based on national guidelines (DoHA 1999).  
d. Based on national guidelines (NHMRC 2003a).  
e. Includes those meeting both guidelines

f. Based on body mass index (BMI).  
g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).  
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.  
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.  
\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.  
Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

**Table 2.24: Long-term risk of alcohol-related harm,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)**

	%	Abstainer		%	Low risk <sup>a</sup>		%	Risky or high risk <sup>a</sup>	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
<b>Females</b>	<b>22.9</b>	<b>21.9</b>	<b>24.0</b>	<b>73.8</b>	<b>72.7</b>	<b>74.8</b>	<b>2.5</b>	<b>2.3</b>	<b>2.9</b>
<i>Area of Victoria</i>									
Rural	20.5	19.1	22.1	76.1	74.4	77.6	3.0	2.5	3.6
Metropolitan	23.6	22.4	24.9	73.1	71.8	74.4	2.4	2.1	2.8
<i>Education level</i>									
Primary	<b>27.8</b>	25.4	30.4	<b>68.7</b>	66.1	71.2	2.8	2.2	3.5
Secondary	23.1	21.4	24.9	73.5	71.6	75.3	2.9	2.3	3.5
Tertiary	<b>17.1</b>	15.7	18.7	<b>79.6</b>	77.9	81.2	2.4	1.9	2.9
<i>Employment status (age &lt; 65 years)</i>									
Employed	<b>15.9</b>	14.5	17.3	<b>80.7</b>	79.2	82.1	2.8	2.4	3.3
Unemployed	28.1	22.4	34.5	67.5	60.9	73.5	3.0*	1.6	5.6
Not in labour force	<b>28.8</b>	26.4	31.4	<b>68.1</b>	65.5	70.6	2.2	1.7	3.0
<i>Total annual household income</i>									
< \$40,000	<b>32.9</b>	30.0	35.9	<b>64.1</b>	61.1	66.9	2.8	2.1	3.6
\$40,000 to < \$100,000	<b>19.0</b>	17.3	20.9	<b>77.9</b>	75.9	79.7	2.6	2.1	3.1
≥ \$100,000	<b>9.9</b>	8.4	11.6	<b>85.1</b>	82.9	87.1	<b>4.0</b>	3.1	5.2
<i>Psychological distress<sup>b</sup></i>									
Low (< 16)	21.4	20.1	22.8	75.6	74.2	77.0	2.4	2.0	2.8
Moderate (16–21)	22.6	20.7	24.6	73.5	71.4	75.5	3.0	2.3	3.8
High (22–29)	26.5	23.5	29.9	69.8	66.4	73.1	3.0	2.1	4.2
Very high (≥ 30)	<b>33.6</b>	28.1	39.6	<b>63.7</b>	57.8	69.3	2.4*	1.3	4.4
<i>Physical activity<sup>c</sup></i>									
Sedentary	<b>44.2</b>	37.5	51.1	<b>51.2</b>	44.4	58.0	3.1*	1.9	5.1
Insufficient time and sessions	25.3	23.2	27.6	72.0	69.6	74.2	1.9	1.5	2.5
Sufficient time and sessions	19.0	17.9	20.2	<b>77.7</b>	76.4	78.8	2.7	2.4	3.2
<i>Met fruit / vegetable guidelines<sup>d</sup></i>									
Both guidelines	21.5	18.0	25.5	75.8	71.8	79.4	2.2	1.5	3.2
Vegetable guidelines <sup>e</sup>	20.8	17.8	24.2	75.6	72.2	78.7	3.1	2.3	4.2
Fruit guidelines <sup>e</sup>	24.0	22.4	25.6	73.8	72.1	75.4	<b>1.7</b>	1.4	2.1
Neither	22.0	20.7	23.5	73.9	72.4	75.4	3.3	2.8	3.8
<i>Smoking status</i>									
Current smoker	<b>19.1</b>	16.7	21.8	74.2	71.4	76.8	<b>5.7</b>	4.6	6.9
Ex-smoker	<b>14.1</b>	12.4	16.0	<b>80.9</b>	78.5	83.1	<b>4.3</b>	3.1	6.0
Non-smoker	<b>27.1</b>	25.8	28.5	<b>71.0</b>	69.5	72.3	<b>1.2</b>	0.9	1.5
<i>Self-reported health</i>									
Excellent / very good	<b>18.1</b>	16.8	19.5	<b>78.8</b>	77.3	80.1	2.6	2.2	3.1
Good	24.2	22.6	25.9	72.4	70.6	74.1	2.6	2.1	3.1
Fair / poor	<b>33.9</b>	30.7	37.3	<b>62.2</b>	58.8	65.5	2.5	1.8	3.4
<i>Body weight status<sup>f</sup></i>									
Underweight	26.7	21.4	32.7	70.3	64.3	75.7	2.1*	1.1	3.9
Normal	21.3	19.9	22.8	75.3	73.8	76.8	2.6	2.2	3.1
Overweight	21.5	19.5	23.7	74.3	71.7	76.7	3.2	2.3	4.5
Obese	26.2	23.4	29.2	71.1	68.1	74.0	2.4	1.8	3.2
<i>Diabetes status (excluding gestational)<sup>g</sup></i>									
No diabetes	22.0	21.0	23.0	74.6	73.5	75.6	2.6	2.3	3.0
Diabetes	<b>50.7</b>	45.1	56.3	<b>48.0</b>	42.6	53.5	**	**	**

a. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

b. Based on the Kessler 10 scale for psychological distress.

c. Based on national guidelines (DoHA 1999).

d. Based on national guidelines (NHMRC 2003a).

e. Includes those meeting both guidelines

f. Based on body mass index (BMI).

g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

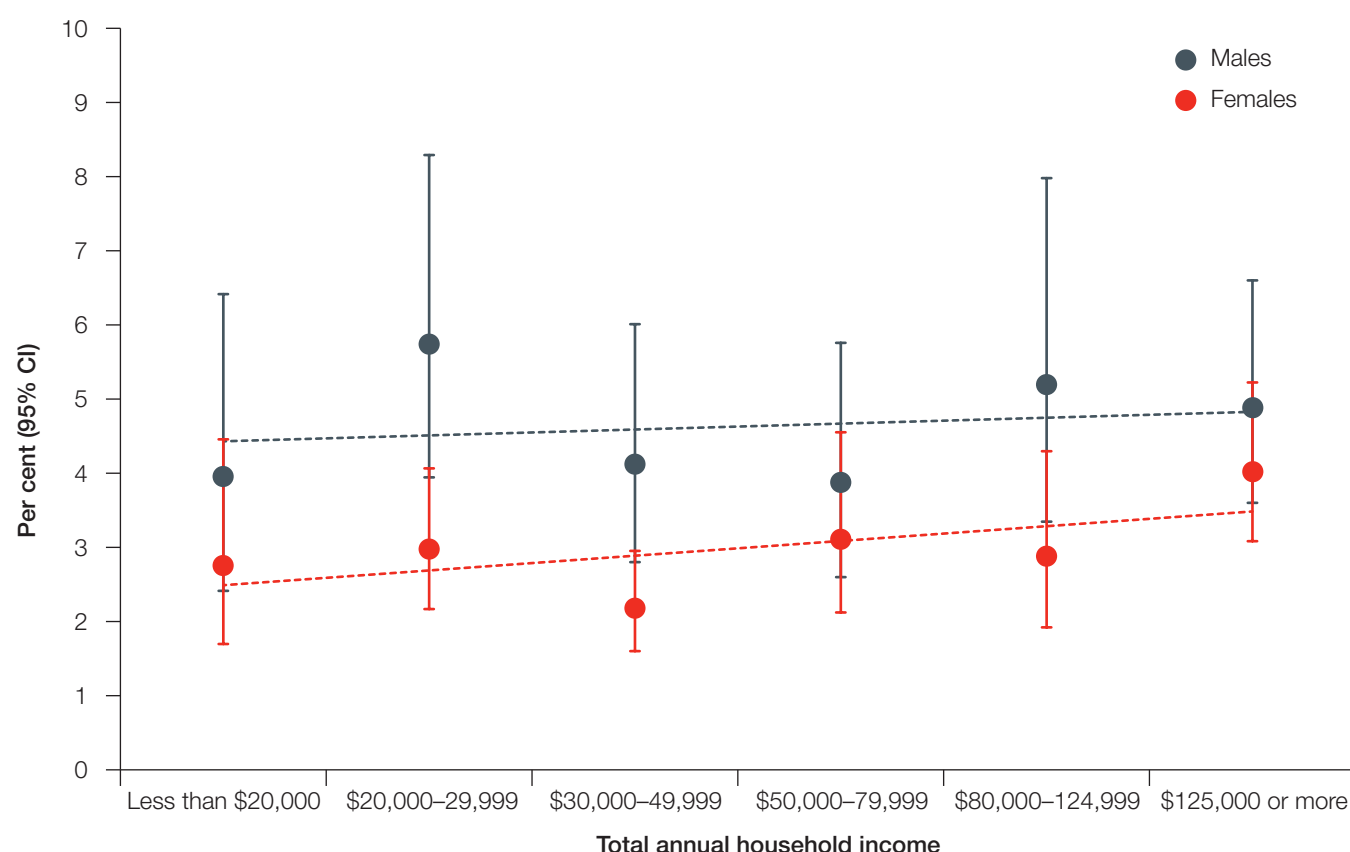
\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

The relationship, if any, was investigated between SES and the age-adjusted prevalence of long-term risk of alcohol-related harm, using total annual household income as a measure of SES (Figure 2.10). Long-term risk of alcohol-related harm was not associated with SES in either men or women. The figure shows that the age-adjusted prevalence of long-term risk of alcohol-related harm did not differ between the sexes.

**Figure 2.10: Long-term risk of alcohol-related harm,<sup>a</sup> by total annual household income and sex, Victoria, 2011–12**



a. Based on national guidelines (NHMRC 2001).  
Data were age standardised to the 2011 Victorian population.  
Ordinary least squares regression was used to test for statistical significance.

## Discussion

### Interpretation of the findings

Overall, more than half (52.5 per cent) of men and 38.1 per cent of women in Victoria consumed alcohol on at least one occasion in the past 12 months and this put them at short-term risk of alcohol-related harm. These are consistent with national findings (ABS 2013a) that the prevalence of short-term risk of alcohol-related harm is higher among men compared with women and in the younger age groups, declining with age.

The prevalence of short-term risk of alcohol related harm is significantly higher in young men and women aged 18–24 years, suggesting that this age group is particularly vulnerable to engaging in risky drinking. By contrast the prevalence of long-term risk of alcohol-related harm is significantly higher among women aged 45–64 years and persons aged 45–54 years. Given that long-term risk is associated with alcohol dependence, it would seem prudent to design interventions to reduce risky drinking in the younger age groups. This would not only reduce the associated morbidity and mortality due to injuries, but it may also have the long-term benefit of reducing the number of people who go on to become alcohol-dependent.

There was a significantly higher prevalence of short-term risk of alcohol-related harm among adults who lived in rural Victoria compared with their metropolitan counterparts. This is consistent with the findings that adults who live in rural areas have higher levels of personal risk that may contribute to poorer health outcomes, which are consistently observed and reported in the national and international literature (Ansari et al. 2003; Smith, Humphreys & Wilson 2008).

A significantly higher prevalence of short-term risk of alcohol-related harm was observed in several LGAs across Victoria. However, unlike the finding for smoking, there was no clear pattern between the area-based SES status of the LGA and prevalence of short-term risk of alcohol-related harm. However, when the data were broken down by sex, there was a significantly higher prevalence of short-term risk of alcohol-related harm among women who lived in LGAs of high SES (quintile 4 and 5). By contrast there was a significantly higher prevalence of short-term risk of alcohol-related harm among men who lived in LGAs of low SES (quintile 1). This suggests

there may be an important difference in the prevalence of short-term risk of alcohol-related harm between the sexes, where high SES is associated with short-term risk of alcohol-related harm in women but low SES is associated with short-term risk of alcohol-related harm in men. Glover et al. (2004) have reported similar findings when they investigated the relationship between high-risk alcohol consumption and an area-based indicator of SES in Australia. They observed a typical SES gradient among men where the prevalence of high-risk alcohol consumption decreased with increasing SES. However, they found a reverse gradient among women (Glover, Hetzel & Tennant 2004).

The relationship between risky drinking and SES was further investigated using total annual household income as a measure of SES rather than area-based IRSED scores. Reverse SES gradients were observed in all Victorian adults at short-term risk of alcohol-related harm where the frequency of risk was yearly or monthly; the prevalence of short-term risk increased with increasing total annual household income. By contrast when the frequency of risk was weekly, the prevalence of short-term risk of alcohol-related harm did not vary by total annual household income, suggesting no association with SES. However, reverse SES gradients were observed in women at short-term risk of alcohol-related harm irrespective of the frequency of risk, while reverse SES gradients were only observed in men when the frequency of risk was yearly or monthly but not weekly.

The prevalence of short-term risk of alcohol-related harm was significantly higher in men who reported a total annual household income of \$100,000 or more and men who had only completed a primary education. A possible explanation for these disparate findings is that there were two distinct SES subpopulations of men at short-term risk of alcohol-related harm, depending upon their frequency of alcohol consumption. Higher SES men may have been more likely to engage in risky drinking than lower SES men when the frequency was monthly or less, whereas a similar proportion of low and high SES men may have engaged in risky drinking when the frequency was weekly. This may explain why an SES gradient among men who engaged in weekly risky drinking was not observed as the two distinct SES subpopulations effectively cancelled each other out.

The data also showed that men and women at short-term risk of alcohol-related harm at least once a year were more likely to reside in rural Victoria, be employed and/or be a current smoker or ex-smoker.

## Other sources of data

Table 2.25 summarises the findings from the three main surveys that report the risk of alcohol-related harm – the NDSHS, Australian Health Survey and the Victorian Population Health Survey.

**Table 2.25: Comparison of selected data sources of prevalence estimates of risk of alcohol-related harm**

Most recent survey	Population	2001 guideline		2009 guideline		2001 guideline		2009 guideline	
		Prevalence (%) of short-term risk (yearly) <sup>a</sup>		Prevalence (%) of single occasion risk <sup>b</sup>		Prevalence (%) of long-term risk <sup>c</sup>		Prevalence (%) of lifetime risk <sup>d</sup>	
		Males	Females	Males	Females	Males	Females	Males	Females
2011–12 VPHS	Victoria (18 years+)	52.5	38.1	nd	nd	4.2	2.5	nd	nd
2010 NDSHS	Australia (12 years+)	nd	nd	50.0	29.8	nd	nd	28.1	11.0
2011–12 AHS	Victoria (18 years+)	46.7	29.7	57.4	29.7	11.1	8.2	27.3	8.2

a. 2001 Australian guidelines define being at short-term risk as the consumption in males of seven or more standard drinks on any one day and in females the consumption of five or more.

b. 2009 Australian guidelines define single occasion risk as the consumption of five or more standard drinks on a single occasion.

c. 2001 Australian guidelines define long-term risk as the consumption of five or more / three or more standard drinks in males or females respectively, on an average day.

d. 2009 Australian guidelines define lifetime risk as the consumption of three or more standard drinks on any one day.

nd = not done; NDSHS = National Drug Strategy Household Survey; AHS = Australian Health Survey, data for Victoria (ABS 2013a).

The NDSHS conducted by the AIHW reports on the risk of alcohol-related harm every three years, with the most recent survey conducted in 2010 (AIHW 2013b). However, the 2010 NDSHS used the 2009 Australian guidelines to determine the prevalence of the risk of alcohol-related harm, and did so among people aged 12 years or over, while the Victorian Population Health Survey used the 2001 Australian guidelines in adults aged 18 years or over. Therefore the NDSHS and the Victorian Population Health Survey estimates cannot be directly compared.

The National Health Survey is conducted by the ABS every three years, and in 2011–12 was part of the Australian Health Survey. The National Health Survey uses the 2001 and 2009 Australian guidelines to report the risk prevalence of alcohol-related harm. The 2011–12 Australian Health Survey estimates for Victoria show that 46.7 per cent of men and 29.7 per cent of women aged 18 years or over were at short-term risk of alcohol-related harm (ABS 2013a). These estimates are considerably lower than the Victorian Population Health Survey estimates (52.5 and 38.1 per cent, respectively). By contrast the 2011–12 Australian Health Survey reported a higher prevalence of both men (11.1 per cent) and women (8.1 per cent) who were at long-term risk of alcohol-related harm compared with the Victorian Population Health Survey estimates (4.2 and 2.5 per cent, respectively).

There are significant methodological differences between these two surveys that may explain, at least in part, the difference between the estimates and these have already been discussed (see Table 2.10). Another possible explanation lies in the different sampling frames employed for both surveys. The Victorian Population Health Survey uses a sampling frame that consists of randomly generated landline telephone numbers, whereas the sampling frame for the National Health Survey is comprised of household dwellings in randomly selected census collection districts across the state.

The 2009 guidelines state that consuming no more than four standard drinks on a single occasion reduces the risk of alcohol-related injury arising from that occasion in both healthy men and women. By contrast the 2001 guidelines state that short-term risk of alcohol-related harm is reduced if men or women consume up to six or four standard drinks respectively, on any one day, no more than three days of the week. Both sets of guidelines are attempting to measure the risk of injury due to consumption of alcohol.

The 2009 guidelines, however, significantly reduce the threshold number of standard drinks considered to be safe for men. It would be expected that this reduction would significantly increase the proportion of men considered to be at risk of injury due to alcohol consumption. This is confirmed by the data from the 2011–12 Australian Health Survey where 57.4 per cent of adult Victorian men were considered to be at risk based on the 2009 guidelines compared with 46.7 per cent at risk based on

the 2001 guidelines. By contrast the estimates for women did not change regardless of whether the 2001 or 2009 guidelines were used because the recommended threshold number of drinks remained unchanged in the new guidelines.

The 2009 guidelines state that the lifetime risk of alcohol-related harm is reduced when healthy men and women drink no more than two standard drinks on any day. By contrast the 2001 guidelines state that the long-term risk of alcohol-related harm is reduced if men or women drink no more than four or two standard drinks respectively on an average day. Both sets of guidelines are attempting to measure the risk of disease due to the long-term consumption of alcohol. The 2009 guidelines have also reduced the threshold number of standard drinks considered safe for men in relation to risk of disease. The expected impact of using these guidelines is an increase in the prevalence of men at risk. This was observed in the 2011–12 Australian Health Survey where 27.3 per cent of men were considered to be at risk of disease using the 2009 guidelines compared with 11.1 per cent using the 2001 guidelines (ABS 2013a).

## 2.3 Fruit and vegetable consumption

Daily intake of fruit and vegetables is used as a proxy measure of the quality of a person's diet in Australia and internationally.

### Introduction

New Australian dietary guidelines have been introduced in 2013 that alter some of the serving sizes and recommendations for fruit and vegetable consumption, based on sex and age. Analysis of the Victorian Population Health Survey 2011–12 data has been undertaken using the 2003 Australian guidelines. Future surveys will use the 2013 guidelines when analysing the survey data. Table 2.26 shows the differences between the two sets of guidelines.

**Table 2.26: Australian dietary guidelines for vegetable and fruit consumption, by sex and age group, 2003<sup>a</sup> and 2013<sup>b</sup>**

	2013			2003		
	Age group (years)	Vegetables and legumes/beans (75g/serve)	Fruit (150g/serve)	Age group (years)	Vegetables and legumes (75g/serve)	Fruit (150g/serve)
Boys	2–3	2.5	1			
	4–8	4.5	1.5	4–7	2	1
	9–11	5	2	8–11	3	1
	12–13	5.5	2	12–18	4	3
	14–18	5.5	2			
Men	19–50	6	2	19–60	5	2
	51–70	5.5	2	60+	5	2
	70+	5	2			
Girls	2–3	2.5	1			
	4–8	4.5	1.5	4–7	2	1
	9–11	5	2	8–11	3	1
	12–13	5	2	12–18	4	1
	14–18	5	2			
	Pregnant (up to 18)	5	2			
	Breastfeeding (up to 18)	5.5	2			
Women	19–50	5	2	19–60	5	2
	51–70	5	2	60+	5	2
	70+	5	2			
	Pregnant (19–50)	5	2	Pregnant (19–50)	5–6	4
	Breastfeeding (19–50)	7.5	2	Breastfeeding (19–50)	7	5

a. NHMRC 2003a; 2003b. Dietary guidelines for Australian adults and Dietary guidelines for children and adolescents in Australia, NHMRC, Canberra.  
b. NHMRC 2013, Dietary guidelines for Australian adults, NHMRC, Canberra.

The 2003 Australian guidelines recommend a minimum daily vegetable intake of four serves for persons aged 12–18 years and five serves for persons aged 19 years or over, where a serve is defined as half a cup of cooked vegetables or a cup of salad vegetables (NHMRC 2003a; 2003b). The recommended minimum daily fruit intake is three serves for persons aged 12–18 years and two serves for persons aged 19 years or over, where a serve is defined as one medium piece or two small pieces of fruit or one cup of diced pieces (NHMRC 2003a; 2003b).

### **Daily vegetable consumption**

Table 2.27 shows daily vegetable consumption in serves per day, by age group and sex. The proportion of adults who consumed 'one or less than one serve' of vegetables daily was 7.8 per cent among all Victorian adults but was significantly higher among men (9.3 per cent) compared with women (6.3 per cent).

The proportion of adults who consumed 'none or less than one serve' of vegetables daily was similar across all age groups among men and adults. A significantly lower proportion of adults who had a daily consumption of 'none or less than one serve' was observed among women aged 35–44 years compared with all Victorian women.

The proportion of adults who consumed 'five or more serves' of vegetables daily was 7.1 per cent among all Victorian adults but was significantly higher among women (9.6 per cent) compared with men (4.3 per cent).

The proportion of men who consumed 'five or more serves' of vegetables daily was similar across all age groups. A significantly higher proportion of women and people aged 55 years or over consumed 'five or more serves' of vegetables daily compared with all Victorian women and adults. By contrast a significantly lower proportion of adults who consumed 'five or more serves' of vegetables daily was observed among women and people aged 18–34 years compared with all Victorian women.



**Table 2.27: Daily vegetable consumption (serves/day), by age group and sex, Victoria, 2011–12**

Age group (years)	None or < 1 serve			1–3 serves			4 serves			5 or more serves		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	11.9	8.1	17.2	72.9	67.3	77.9	8.3	5.7	11.8	5.2	3.3	7.9
25–34	7.9	5.4	11.5	80.0	75.4	83.9	7.5	5.1	10.9	3.2*	1.9	5.3
35–44	9.4	7.6	11.5	78.1	75.4	80.6	8.1	6.6	10.0	3.3	2.5	4.5
45–54	9.2	7.7	10.9	77.6	75.2	79.9	7.6	6.3	9.2	4.1	3.1	5.3
55–64	7.8	6.5	9.4	76.5	74.1	78.6	8.7	7.4	10.3	5.3	4.2	6.6
65+	10.1	8.8	11.5	72.9	71.0	74.8	8.7	7.6	9.9	5.9	4.9	7.0
<b>Total</b>	<b>9.3</b>	<b>8.4</b>	<b>10.4</b>	<b>76.6</b>	<b>75.2</b>	<b>77.9</b>	<b>8.1</b>	<b>7.3</b>	<b>9.0</b>	<b>4.3</b>	<b>3.8</b>	<b>4.9</b>
<b>Females</b>												
18–24	7.5	5.0	11.1	76.5	71.7	80.7	10.3	7.4	14.1	4.6	3.1	6.8
25–34	6.8	5.1	8.9	76.0	72.6	79.0	9.6	7.6	12.1	6.4	5.0	8.3
35–44	4.3	3.5	5.2	72.8	70.7	74.8	12.6	11.2	14.2	9.8	8.5	11.2
45–54	5.8	4.8	6.9	67.6	65.4	69.6	14.1	12.6	15.7	10.7	9.4	12.2
55–64	6.2	5.2	7.3	63.7	61.5	65.7	15.1	13.6	16.7	13.7	12.3	15.2
65+	7.6	6.8	8.6	63.1	61.4	64.8	14.6	13.4	15.9	12.9	11.8	14.1
<b>Total</b>	<b>6.3</b>	<b>5.7</b>	<b>7.0</b>	<b>70.1</b>	<b>69.0</b>	<b>71.2</b>	<b>12.6</b>	<b>11.8</b>	<b>13.4</b>	<b>9.6</b>	<b>9.0</b>	<b>10.2</b>
<b>Persons</b>												
18–24	9.8	7.3	12.9	74.7	71.0	78.0	9.3	7.2	11.7	4.9	3.6	6.6
25–34	7.3	5.7	9.3	78.0	75.2	80.5	8.5	6.9	10.6	4.8	3.8	6.1
35–44	6.8	5.8	7.9	75.4	73.7	77.0	10.4	9.3	11.6	6.6	5.8	7.5
45–54	7.4	6.5	8.4	72.5	70.9	74.1	10.9	9.9	12.0	7.4	6.6	8.4
55–64	7.0	6.1	7.9	69.9	68.4	71.4	12.0	11.0	13.1	9.6	8.7	10.6
65+	8.7	8.0	9.6	67.6	66.3	68.8	11.9	11.1	12.8	9.7	8.9	10.5
<b>Total</b>	<b>7.8</b>	<b>7.2</b>	<b>8.4</b>	<b>73.2</b>	<b>72.4</b>	<b>74.1</b>	<b>10.4</b>	<b>9.9</b>	<b>11.0</b>	<b>7.1</b>	<b>6.7</b>	<b>7.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses not reported here.

Table 2.28 shows daily vegetable consumption in serves per day, by Department of Health region and sex.

The proportion of adults who consumed 'none or less than one serve' of vegetables daily was significantly higher among men, women and adults who lived in North & West Metropolitan Region and among men in Barwon-South Western Region compared with the respective estimates for all men, women and adults. In contrast, the proportion of adults who consumed 'none or less than one serve' of vegetables daily was significantly lower among women who lived in Grampians Region compared with all Victorian women.

The proportion of adults who consumed 'five or more serves' of vegetables daily was significantly higher among men and adults who lived in Gippsland Region and women who lived in Loddon Mallee Region compared with all Victorian men, adults and women, respectively. By contrast the proportion of adults who consumed 'five or more serves' of vegetables daily was significantly lower among women and adults who lived in North & West Metropolitan Region compared with all Victorian women and adults, respectively.

Table 2.28: Daily vegetable consumption, by Department of Health region and sex, Victoria, 2011–12

Region	None or < 1 serve			1–3 serves			4 serves			5 or more serves		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
Eastern Metropolitan	7.1	5.5	9.0	78.6	75.4	81.4	8.7	6.8	11.1	3.6	2.6	5.0
North & West Metropolitan	12.2	10.5	14.1	75.0	72.7	77.2	7.1	5.8	8.5	3.7	2.9	4.6
Southern Metropolitan	8.0	6.4	10.0	77.1	74.3	79.7	7.9	6.4	9.6	5.5	4.2	7.2
<b>Metropolitan males</b>	9.5	8.4	10.6	76.6	75.1	78.1	7.8	6.9	8.8	4.2	3.6	5.0
Barwon-South Western	16.3	11.0	23.6	70.2	65.0	75.0	8.9*	5.0	15.4	3.9	2.6	5.9
Gippsland	6.6	4.7	9.1	78.0	73.9	81.6	7.8	5.7	10.5	7.1	5.0	10.0
Grampians	7.4	5.3	10.2	77.3	72.9	81.1	9.7	6.9	13.6	4.4	3.1	6.4
Hume	7.7	5.0	11.6	76.3	72.0	80.1	10.1	7.7	13.1	4.3	3.3	5.7
Loddon Mallee	7.9	6.2	10.2	78.7	75.1	82.0	8.6	6.2	11.7	3.9	2.9	5.3
<b>Rural males</b>	9.8	7.2	13.4	75.5	72.2	78.5	9.2	7.4	11.5	4.6	3.9	5.4
<b>Total</b>	<b>9.3</b>	<b>8.4</b>	<b>10.4</b>	<b>76.6</b>	<b>75.2</b>	<b>77.9</b>	<b>8.1</b>	<b>7.3</b>	<b>9.0</b>	<b>4.3</b>	<b>3.8</b>	<b>4.9</b>
<b>Females</b>												
Eastern Metropolitan	5.7	4.3	7.4	69.1	66.1	72.0	13.2	11.3	15.4	10.6	8.9	12.6
North & West Metropolitan	8.5	7.4	9.7	72.3	70.4	74.2	9.9	8.7	11.2	7.7	6.7	8.7
Southern Metropolitan	5.5	4.3	6.9	70.8	68.3	73.1	12.5	10.9	14.3	9.8	8.6	11.3
<b>Metropolitan females</b>	6.8	6.0	7.6	70.9	69.6	72.2	11.7	10.8	12.7	9.1	8.3	9.8
Barwon-South Western	5.1	3.7	6.9	69.2	65.0	73.2	14.8	11.6	18.6	9.7	7.8	11.9
Gippsland	4.8	3.2	7.0	67.0	63.3	70.5	15.7	13.0	18.8	11.5	9.4	14.1
Grampians	4.3	3.2	5.6	68.6	65.1	71.9	16.8	14.2	19.9	9.8	7.9	12.0
Hume	6.0	4.4	8.1	68.4	65.5	71.2	13.2	11.4	15.2	11.7	10.2	13.4
Loddon Mallee	5.2	4.0	6.7	67.7	64.5	70.7	14.0	11.8	16.4	12.8	10.9	15.0
<b>Rural females</b>	5.0	4.3	5.8	68.1	66.4	69.8	15.0	13.7	16.5	11.1	10.2	12.1
<b>Total</b>	<b>6.3</b>	<b>5.7</b>	<b>7.0</b>	<b>70.1</b>	<b>69.0</b>	<b>71.2</b>	<b>12.6</b>	<b>11.8</b>	<b>13.4</b>	<b>9.6</b>	<b>9.0</b>	<b>10.2</b>
<b>Persons</b>												
Eastern Metropolitan	6.5	5.4	7.9	73.6	71.4	75.6	11.0	9.6	12.6	7.1	6.1	8.2
North & West Metropolitan	10.2	9.2	11.3	73.7	72.2	75.1	8.5	7.6	9.5	5.7	5.1	6.4
Southern Metropolitan	6.7	5.7	8.0	73.8	71.9	75.5	10.3	9.2	11.5	7.7	6.8	8.8
<b>Metropolitan persons</b>	8.0	7.4	8.7	73.7	72.7	74.7	9.8	9.2	10.5	6.7	6.2	7.3
Barwon-South Western	10.3	6.4	16.4	69.4	64.3	74.0	12.6	9.3	16.9	6.8	5.6	8.2
Gippsland	5.6	4.3	7.3	72.3	69.6	74.9	11.9	10.1	14.0	9.3	7.7	11.2
Grampians	5.9	4.6	7.4	72.6	69.6	75.3	13.8	11.5	16.4	7.0	5.8	8.3
Hume	6.7	5.0	8.9	72.3	69.8	74.8	11.6	10.1	13.4	8.2	7.1	9.3
Loddon Mallee	6.6	5.4	8.1	73.1	70.5	75.5	11.4	9.7	13.3	8.3	7.2	9.6
<b>Rural persons</b>	7.4	5.8	9.3	71.6	69.6	73.5	12.3	11.0	13.7	7.9	7.3	8.5
<b>Total</b>	<b>7.8</b>	<b>7.2</b>	<b>8.4</b>	<b>73.2</b>	<b>72.4</b>	<b>74.1</b>	<b>10.4</b>	<b>9.9</b>	<b>11.0</b>	<b>7.1</b>	<b>6.7</b>	<b>7.5</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 2.29 and Figure 2.11 show daily vegetable consumption in serves per day, by LGA.

The proportion of adults who consumed 'none or less than one serve' of vegetables daily was significantly higher among adults who lived in the LGAs of Brimbank (C), Darebin (C), Melton (S) and Whittlesea (C) compared with all Victorian adults. By contrast the proportion of adults who consumed 'none or less than one serve' of vegetables daily was significantly lower among adults who lived in the LGAs of Bass Coast (S), Baw Baw (S), Frankston (C), Gannawarra (S), Loddon (S), Mansfield (S), Maroondah (C), Mount Alexander (S), Northern Grampians (S), Queenscliffe (B), Southern Grampians (S) and Towong (S) compared with all Victorian adults (Figure 2.11).

The proportion of adults who consumed 'five or more serves' of vegetables daily was significantly higher among adults who lived in Indigo (S), Mornington Peninsula (S), Mount Alexander (S), Moyne (S), Queenscliffe (B), Strathbogie (S), Swan Hill (RC), Towong (S), Warrnambool (C), West Wimmera (S) and Wodonga (RC) compared with all Victorian adults. By contrast the proportion of adults who consumed 'five or more serves' of vegetables daily was significantly lower among adults who lived in Ballarat (C), Brimbank (C) and Casey (C) compared with all Victorian adults.

Table 2.29: Daily vegetable consumption, by LGA, Victoria, 2011–12

LGA	None or < 1 serve			1–3 serves			4 serves			5 or more serves		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	4.6*	1.8	11.1	70.6	60.5	79.0	16.4*	9.4	26.9	8.2	5.8	11.4
Ararat (RC)	6.6*	3.7	11.6	75.2	69.6	80.1	10.2	7.6	13.7	6.9	4.8	9.7
Ballarat (C)	4.9	3.1	7.8	72.9	66.9	78.2	17.3	12.7	23.1	4.3	2.8	6.6
Banyule (C)	6.9	4.2	11.1	72.9	66.5	78.4	11.6	7.6	17.2	7.7	5.2	11.3
Bass Coast (S)	4.3	2.7	6.8	76.6	69.7	82.3	9.4	6.2	14.0	9.2*	5.4	15.4
Baw Baw (S)	3.5*	2.0	6.2	74.8	69.0	79.8	10.9	7.6	15.3	10.2	6.9	14.9
Bayside (C)	4.6*	2.1	9.9	71.3	63.9	77.7	16.3	11.2	23.1	7.6	5.1	11.1
Benalla (RC)	3.5*	1.9	6.4	79.4	74.8	83.4	9.7	6.8	13.5	6.6	4.7	9.0
Boroondara (C)	5.8*	3.5	9.5	68.6	62.2	74.4	16.1	11.6	22.0	7.2	4.8	10.7
Brimbank (C)	12.4	9.2	16.6	73.7	68.2	78.5	7.4	4.6	11.7	3.1*	1.9	5.1
Buloke (S)	6.3	4.0	9.6	73.9	66.7	80.0	9.5	5.8	15.1	10.1	6.3	15.8
Campaspe (S)	9.0	6.0	13.4	66.8	59.4	73.5	15.3	10.0	22.6	7.8*	4.7	12.6
Cardinia (S)	8.3	5.9	11.7	72.7	67.7	77.2	11.1	8.3	14.7	7.0	4.9	9.9
Casey (C)	7.6	4.8	11.8	76.7	71.5	81.2	9.2	6.5	12.8	4.5	3.1	6.5
Central Goldfields (S)	7.3	4.7	11.1	75.5	70.6	79.8	10.8	8.1	14.3	5.8	4.0	8.4
Colac-Otway (S)	7.4*	4.2	12.5	72.8	66.2	78.5	12.2	8.7	16.8	5.6	4.0	7.7
Corangamite (S)	10.1*	5.2	18.8	70.9	63.0	77.6	11.1	8.0	15.4	6.5	4.6	9.2
Darebin (C)	12.2	9.0	16.2	73.8	69.1	78.1	7.3	5.1	10.5	6.0	4.2	8.4
East Gippsland (S)	6.5*	3.8	11.0	72.4	66.4	77.8	11.8	8.4	16.3	8.8	5.9	13.0
Frankston (C)	3.8	2.3	6.1	77.7	72.8	81.9	11.3	8.4	15.0	6.5	4.1	10.2
Gannawarra (S)	3.1*	1.6	5.6	78.8	73.1	83.5	11.5	7.9	16.4	6.5	4.4	9.7
Glen Eira (C)	6.8	4.1	10.9	73.9	68.0	79.0	8.4	5.9	11.9	9.3	6.3	13.5
Glenelg (S)	5.0*	3.0	8.2	70.8	62.8	77.7	12.6	9.0	17.2	8.9*	5.1	15.2
Golden Plains (S)	6.5	4.3	9.6	74.2	68.6	79.0	8.8	6.0	12.8	9.6	6.8	13.3
Greater Bendigo (C)	9.0*	5.1	15.6	71.5	64.7	77.3	10.9	8.0	14.7	8.4	6.3	11.0
Greater Dandenong (C)	7.8	5.3	11.3	73.4	68.3	77.9	7.9	5.6	11.0	5.7	3.7	8.7
Greater Geelong (C)	11.8*	6.7	20.0	70.2	62.6	76.7	12.0	7.7	18.4	5.1	3.6	7.4
Greater Shepparton (C)	9.4*	4.5	18.5	73.6	65.6	80.3	9.2	6.3	13.1	5.1	3.7	7.2
Hepburn (S)	8.3*	3.2	19.7	69.2	59.5	77.4	9.5	6.4	13.9	11.9*	6.0	22.1
Hindmarsh (S)	3.7*	1.8	7.3	70.9	62.6	78.0	13.6*	8.1	21.9	10.3	6.4	16.1
Hobsons Bay (C)	9.4	6.6	13.4	74.3	68.2	79.5	7.5	5.1	10.9	7.4*	4.2	12.7
Horsham (RC)	5.5*	3.1	9.5	72.3	62.4	80.3	16.0*	9.2	26.6	5.6	4.0	7.7
Hume (C)	9.4	6.7	13.0	78.4	73.6	82.6	5.6	3.8	8.2	4.8*	2.9	7.9
Indigo (S)	5.6*	3.4	9.1	72.2	66.3	77.4	9.0	6.6	12.2	12.5	8.7	17.6
Kingston (C)	8.1	5.2	12.6	68.9	62.1	75.0	10.3	7.0	14.9	11.2	7.0	17.5
Knox (C)	7.5	4.8	11.6	74.8	69.1	79.6	10.6	7.2	15.2	6.6	4.3	9.8
Latrobe (C)	5.2*	3.0	8.7	73.3	67.5	78.4	10.1	7.3	13.8	9.9	6.5	14.8
Loddon (S)	4.8	3.3	7.0	70.6	62.3	77.6	11.5	7.2	18.0	9.6	7.2	12.9
Macedon Ranges (S)	6.0*	3.5	10.0	75.2	69.1	80.4	7.7	5.3	11.1	9.9	6.5	14.8
Manningham (C)	5.9*	3.4	10.0	76.9	71.0	81.9	11.0	7.5	15.9	4.6	3.1	6.8
Mansfield (S)	3.1*	1.8	5.4	71.1	63.6	77.6	15.3	10.1	22.4	10.2	6.9	14.9
Maribyrnong (C)	6.8	4.6	9.9	69.7	64.0	74.8	12.5	9.2	16.8	8.9	5.9	13.4

Table 2.29: Daily vegetable consumption, by LGA, Victoria, 2011–12 (continued)

LGA	None or < 1 serve			1–3 serves			4 serves			5 or more serves		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Maroondah (C)	2.6*	1.5	4.4	78.5	73.4	82.9	10.4	7.2	14.8	7.3	4.9	10.9
Melbourne (C)	7.0*	4.0	12.0	67.1	61.2	72.6	15.0	11.1	20.0	9.5	6.8	13.0
Melton (S)	14.5	10.5	19.7	73.6	68.2	78.5	6.4	4.3	9.4	3.8	2.4	6.0
Mildura (RC)	6.7	4.5	9.8	75.9	70.8	80.4	10.7	7.5	15.1	5.9	4.1	8.5
Mitchell (S)	7.9	5.1	12.3	75.5	69.6	80.6	10.8	7.2	15.8	5.5	3.9	7.8
Moira (S)	6.0	3.7	9.7	75.5	69.8	80.5	10.2	6.4	15.7	7.5	5.3	10.5
Monash (C)	6.3	4.3	9.2	75.3	70.5	79.6	9.6	6.8	13.5	5.7	4.0	8.0
Moonee Valley (C)	10.3	7.2	14.5	74.8	69.0	79.7	7.3*	4.3	12.0	6.0	4.2	8.4
Moorabool (S)	7.2	4.6	11.1	72.5	66.5	77.8	11.0	7.5	15.9	9.1	6.1	13.4
Moreland (C)	7.0	4.8	10.0	76.4	71.3	80.8	10.0	7.1	14.0	4.6*	2.8	7.5
Mornington Peninsula (S)	8.8*	4.9	15.4	71.3	64.5	77.3	9.1	6.5	12.5	10.5	7.6	14.4
Mount Alexander (S)	3.4	2.2	5.2	61.1	52.5	69.1	18.4	12.6	26.1	16.0	10.2	24.0
Moyne (S)	4.4*	2.2	8.6	65.9	57.7	73.3	13.6	9.5	19.1	15.4	9.5	23.8
Murrindindi (S)	5.5*	2.7	10.7	72.2	63.5	79.4	15.7	9.6	24.6	5.6	3.9	7.9
Nillumbik (S)	5.8*	3.0	10.9	69.9	63.1	75.9	14.1	10.2	19.3	9.8	6.5	14.6
Northern Grampians (S)	4.5	2.7	7.2	71.4	64.3	77.6	13.7	9.3	19.7	9.5	6.2	14.2
Port Phillip (C)	5.2	3.4	8.0	76.5	70.4	81.6	12.4	8.4	18.0	5.4	3.5	8.2
Pyrenees (S)	6.0	3.9	9.2	76.0	70.9	80.4	9.4	6.7	13.0	7.4	4.8	11.3
Queenscliffe (B)	3.2*	1.6	6.3	68.0	58.4	76.3	16.0	10.2	24.4	12.0	7.5	18.8
South Gippsland (S)	5.2*	3.0	8.7	72.9	66.6	78.4	12.8	8.6	18.5	8.4	5.9	11.9
Southern Grampians (S)	2.7*	1.6	4.7	77.7	72.8	81.9	11.4	8.0	15.9	8.0	6.0	10.5
Stonnington (C)	7.1*	4.1	12.2	73.4	67.2	78.9	10.8	7.3	15.8	8.2	5.8	11.6
Strathbogie (S)	6.4*	3.4	11.6	65.9	54.0	76.1	9.2	6.6	12.7	18.3*	9.8	31.5
Surf Coast (S)	5.4*	2.9	9.8	74.4	68.1	79.8	8.9	6.4	12.3	10.3	6.7	15.5
Swan Hill (RC)	6.0*	3.6	9.9	72.8	66.6	78.3	9.2	6.6	12.8	11.4	7.5	16.9
Towong (S)	2.8*	1.6	4.7	72.8	67.2	77.8	12.2	9.2	16.0	11.6	7.9	16.7
Wangaratta (RC)	4.5*	2.4	8.2	70.6	64.2	76.2	14.7	10.4	20.5	8.4	6.1	11.5
Warrnambool (C)	5.9	3.6	9.4	67.2	61.1	72.8	15.6	11.3	21.2	10.4	7.6	14.0
Wellington (S)	6.7*	3.8	11.7	68.8	60.3	76.3	17.1	10.8	26.1	7.2	4.8	10.5
West Wimmera (S)	4.0*	2.0	8.0	67.4	60.8	73.3	15.4	11.0	21.0	11.6	8.1	16.3
Whitehorse (C)	9.7*	5.8	15.8	65.9	59.2	72.1	12.0	8.7	16.2	10.0	7.1	14.1
Whittlesea (C)	12.0	8.8	16.1	77.1	72.0	81.5	3.4*	2.0	5.7	4.4*	2.6	7.3
Wodonga (RC)	6.4*	3.6	11.2	65.7	58.8	72.0	12.5	8.7	17.6	14.0	9.2	20.9
Wyndham (C)	10.3	7.4	14.2	76.7	71.8	81.0	6.7	4.5	9.7	4.3*	2.6	7.0
Yarra (C)	8.4	5.5	12.7	69.8	63.1	75.8	10.9	6.8	17.0	7.7	5.4	10.8
Yarra Ranges (S)	6.2	4.1	9.3	75.3	69.9	80.0	9.7	6.4	14.3	8.0	5.6	11.3
Yarriambiack (S)	7.6*	4.3	12.9	77.0	71.4	81.8	9.1	6.6	12.5	6.1	4.5	8.3
<b>Victoria</b>	<b>7.8</b>	<b>7.2</b>	<b>8.5</b>	<b>73.2</b>	<b>72.3</b>	<b>74.0</b>	<b>10.4</b>	<b>9.9</b>	<b>11.0</b>	<b>7.1</b>	<b>6.7</b>	<b>7.5</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

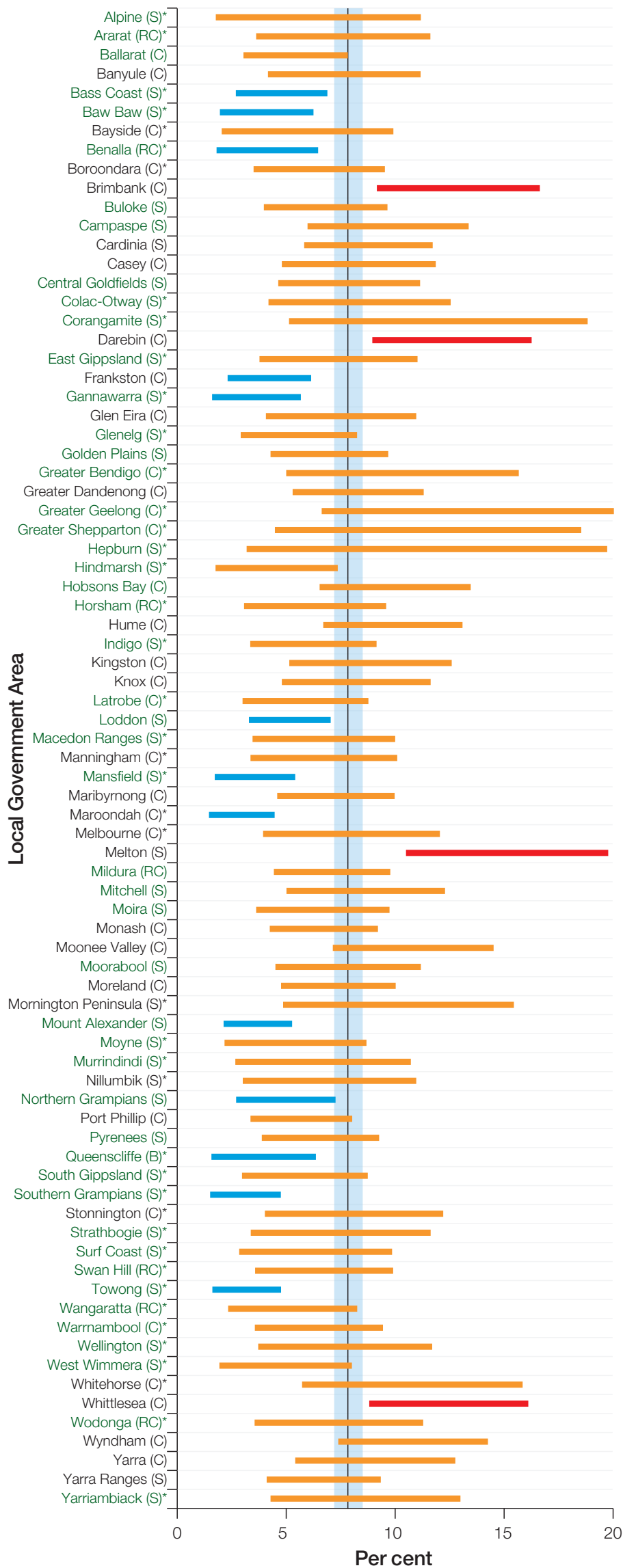
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Figure 2.11: Daily consumption of 'none or less than one serve' of vegetables, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) between 25 and 50 per cent and should be interpreted with caution.

### Daily fruit consumption

Table 2.30 shows daily fruit consumption in serves per day, by age group and sex.

The proportion of adults who consumed 'one or less than one serve' of fruit daily was 16.8 per cent among all Victorian adults but was significantly higher among men (19.6 per cent) compared with women (13.3 per cent).

The proportion of adults who consumed 'none or less than one serve' of fruit daily was significantly lower among men, women and people aged 65 years or over compared with all Victorian men, women and adults, respectively.

The proportion of adults who consumed 'three or more serves' of fruit daily was 17.8 per cent among all Victorian adults but was significantly higher among women (19.6 per cent) compared with men (16.0 per cent).

The proportion of adults who consumed 'three or more serves' of fruit daily was significantly higher among women and people aged 65 years or over compared with all Victorian women and adults, respectively. By contrast the proportion of adults who consumed 'three or more serves' of fruit daily was significantly lower among men, women and people aged 25–34 years compared with all Victorian men, women and adults, respectively.



Table 2.30: Daily fruit consumption, by age group and sex, Victoria, 2011–12

Age group (years)	None or < 1 serve			1 serve			2 serves			3 or more serves		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	16.2	12.4	20.8	40.9	35.3	46.7	22.5	18.3	27.4	19.8	15.6	24.8
25–34	22.2	18.3	26.7	42.6	37.7	47.7	22.9	18.9	27.5	10.7	8.0	14.0
35–44	21.6	19.2	24.4	38.1	35.0	41.2	24.7	22.0	27.6	15.2	13.0	17.7
45–54	20.7	18.5	22.9	36.5	33.9	39.2	25.0	22.6	27.5	17.0	15.0	19.3
55–64	20.4	18.4	22.6	35.9	33.4	38.5	24.9	22.6	27.2	17.5	15.6	19.6
65+	15.6	14.1	17.1	37.4	35.4	39.5	27.8	25.9	29.7	17.9	16.3	19.5
<b>Total</b>	<b>19.6</b>	<b>18.4</b>	<b>20.9</b>	<b>38.8</b>	<b>37.2</b>	<b>40.3</b>	<b>24.6</b>	<b>23.3</b>	<b>26.0</b>	<b>16.0</b>	<b>14.9</b>	<b>17.1</b>
<b>Females</b>												
18–24	12.6	9.6	16.4	36.9	31.8	42.3	28.1	23.6	33.0	21.9	17.5	27.0
25–34	13.4	11.1	16.1	40.3	36.7	44.0	29.6	26.2	33.2	15.5	12.9	18.5
35–44	13.9	12.4	15.6	37.2	34.9	39.6	31.5	29.3	33.8	16.9	15.1	18.7
45–54	14.1	12.6	15.6	33.3	31.2	35.5	31.4	29.4	33.5	20.6	18.8	22.5
55–64	13.5	12.1	15.0	29.9	27.9	31.9	33.5	31.5	35.6	21.8	20.1	23.6
65+	11.3	10.2	12.5	29.3	27.7	30.9	34.6	33.0	36.3	23.5	22.0	25.0
<b>Total</b>	<b>13.3</b>	<b>12.5</b>	<b>14.2</b>	<b>34.7</b>	<b>33.5</b>	<b>35.9</b>	<b>31.5</b>	<b>30.3</b>	<b>32.7</b>	<b>19.6</b>	<b>18.6</b>	<b>20.6</b>
<b>Persons</b>												
18–24	14.4	11.9	17.4	38.9	35.1	42.9	25.2	22.1	28.6	20.8	17.7	24.3
25–34	17.9	15.5	20.5	41.5	38.4	44.6	26.2	23.5	29.1	13.1	11.2	15.3
35–44	17.7	16.2	19.3	37.6	35.7	39.6	28.2	26.4	30.0	16.1	14.6	17.6
45–54	17.3	16.0	18.7	34.9	33.2	36.6	28.2	26.7	29.9	18.9	17.5	20.3
55–64	16.9	15.6	18.2	32.8	31.2	34.5	29.3	27.8	30.8	19.7	18.4	21.0
65+	13.2	12.3	14.2	33.0	31.7	34.3	31.5	30.3	32.8	20.9	19.8	22.0
<b>Total</b>	<b>16.4</b>	<b>15.7</b>	<b>17.2</b>	<b>36.6</b>	<b>35.7</b>	<b>37.6</b>	<b>28.1</b>	<b>27.3</b>	<b>29.0</b>	<b>17.8</b>	<b>17.1</b>	<b>18.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 2.31 shows daily fruit consumption in serves per day, by Department of Health region and sex.

The proportion of adults who consumed 'none or less than one serve' of fruit daily was similar in all regions among men, women and adults.

The proportion who consumed 'three or more serves' of fruit daily was significantly lower among men and adults who lived in Barwon-South Western Region compared with all Victorian men and adults, respectively. By contrast the proportion of adults who consumed 'five or more serves' of fruit daily was not significantly different among men, women and adults in other regions compared with all Victorian men, women and adults, respectively.

**Table 2.31: Daily fruit consumption, by Department of Health region and sex, Victoria, 2011–12**

Region	None or < 1 serve			1 serve			2 serves			3 or more serves		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
Eastern Metropolitan	17.5	15.0	20.5	37.2	33.6	41.0	25.6	22.5	28.8	18.0	15.4	21.0
North & West Metropolitan	20.7	18.6	23.0	36.9	34.3	39.6	25.2	22.9	27.6	16.2	14.3	18.2
Southern Metropolitan	16.5	14.1	19.1	42.7	39.5	46.0	24.6	22.0	27.4	15.2	13.3	17.3
<b>Metropolitan males</b>	18.6	17.2	20.1	38.5	36.7	40.3	25.1	23.6	26.7	16.6	15.3	17.9
Barwon-South Western	22.3	15.8	30.6	39.7	32.5	47.4	26.1	19.9	33.3	11.6	9.0	14.8
Gippsland	23.2	19.4	27.6	36.1	31.8	40.7	22.7	19.0	26.9	16.8	13.6	20.7
Grampians	24.0	20.4	27.9	39.4	34.8	44.2	22.4	18.7	26.5	13.8	10.7	17.7
Hume	20.3	16.7	24.4	38.2	34.0	42.5	23.1	20.0	26.6	17.5	14.4	21.0
Loddon Mallee	23.5	20.0	27.3	38.2	33.2	43.3	21.8	18.4	25.7	15.5	11.7	20.4
<b>Rural males</b>	22.7	20.1	25.6	38.8	36.0	41.8	23.3	20.9	26.0	14.4	12.7	16.2
<b>Total</b>	<b>19.6</b>	<b>18.4</b>	<b>20.9</b>	<b>38.8</b>	<b>37.2</b>	<b>40.3</b>	<b>24.6</b>	<b>23.3</b>	<b>26.0</b>	<b>16.0</b>	<b>14.9</b>	<b>17.1</b>
<b>Females</b>												
Eastern Metropolitan	11.6	9.7	13.7	35.3	31.9	38.9	30.9	27.7	34.3	21.3	18.9	24.0
North & West Metropolitan	13.8	12.4	15.4	33.3	31.3	35.3	31.8	29.9	33.7	20.1	18.4	21.9
Southern Metropolitan	13.5	11.7	15.6	35.2	32.6	37.9	31.7	29.2	34.3	18.5	16.7	20.5
<b>Metropolitan females</b>	13.2	12.2	14.2	34.4	32.9	35.8	31.3	29.9	32.7	20.2	19.0	21.4
Barwon-South Western	12.4	9.9	15.4	35.4	30.4	40.7	35.0	30.0	40.4	16.3	13.7	19.4
Gippsland	14.6	12.1	17.6	34.2	30.7	37.9	32.3	28.8	36.0	18.0	15.2	21.2
Grampians	14.9	12.1	18.1	35.5	31.5	39.7	32.4	28.5	36.5	16.8	14.6	19.2
Hume	15.4	13.0	18.2	34.3	31.3	37.5	31.1	28.5	34.0	18.4	16.1	21.0
Loddon Mallee	13.8	11.2	16.8	38.5	34.1	43.1	29.3	25.6	33.2	17.8	14.4	21.8
<b>Rural females</b>	13.9	12.7	15.2	35.6	33.6	37.7	32.4	30.3	34.5	17.4	15.9	18.9
<b>Total</b>	<b>13.3</b>	<b>12.5</b>	<b>14.2</b>	<b>34.7</b>	<b>33.5</b>	<b>35.9</b>	<b>31.5</b>	<b>30.3</b>	<b>32.7</b>	<b>19.6</b>	<b>18.6</b>	<b>20.6</b>
<b>Persons</b>												
Eastern Metropolitan	14.7	13.1	16.5	35.9	33.4	38.5	28.0	25.8	30.3	20.0	18.1	22.1
North & West Metropolitan	17.2	15.9	18.6	35.1	33.4	36.7	28.6	27.1	30.2	18.2	16.9	19.5
Southern Metropolitan	15.0	13.5	16.6	38.7	36.6	40.9	28.2	26.3	30.1	17.1	15.7	18.5
<b>Metropolitan persons</b>	15.8	15.0	16.7	36.4	35.2	37.5	28.3	27.3	29.4	18.4	17.5	19.3
Barwon-South Western	17.6	13.4	22.7	37.3	32.8	42.0	30.7	26.1	35.7	13.8	11.8	16.0
Gippsland	18.8	16.5	21.4	35.2	32.3	38.1	27.5	24.9	30.3	17.4	15.2	19.9
Grampians	19.2	16.8	21.7	37.4	34.2	40.7	27.4	24.6	30.4	15.5	13.4	18.0
Hume	18.0	15.7	20.5	36.2	33.6	38.9	27.2	25.0	29.4	17.8	15.9	20.0
Loddon Mallee	18.6	16.4	21.0	38.7	35.0	42.5	25.4	22.7	28.3	16.4	13.5	19.9
<b>Rural persons</b>	18.4	16.8	20.1	37.1	35.3	38.9	27.9	26.2	29.6	15.9	14.8	17.1
<b>Total</b>	<b>16.4</b>	<b>15.7</b>	<b>17.2</b>	<b>36.6</b>	<b>35.7</b>	<b>37.6</b>	<b>28.1</b>	<b>27.3</b>	<b>29.0</b>	<b>17.8</b>	<b>17.1</b>	<b>18.5</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

# Modifiable health risk factors

Table 2.32 and Figure 2.12 show daily fruit consumption in serves per day, by LGA.

The proportion of adults who consumed 'none or less than one serve' of fruit daily was significantly higher among adults who lived in Ararat (RC), Central Goldfields (S), Glenelg (S), Hepburn (S), Melton (S), Pyrenees (S) and Yarriambiack (S) compared with all Victorian adults. By contrast the proportion of adults who consumed 'none or less than one serve' of fruit daily was significantly lower in adults who lived in Bayside (C), Boroodara (C), Moreland (C), Warrnambool (C) and Whitehorse (C) compared with all Victorian adults.

The proportion of adults who consumed 'three or more serves' of fruit daily was significantly higher among adults who lived in Boroodara (C) compared with all Victorian adults. By contrast the proportion of adults who consumed 'three or more serves' of fruit daily was significantly lower in adults who lived in Cardinia (S), Casey (C), Central Goldfields (S), Greater Geelong (C), Horsham (RC), Loddon (S), Mitchell (S), Northern Grampians (S), Pyrenees (S), West Wimmera (S), Wyndham (C) and Yarriambiack (S) compared with all Victorian adults.

Table 2.32: Daily fruit consumption, by LGA, Victoria, 2011–12

LGA	None or < 1 serve			1 serve			2 serves			3 or more serves		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	13.7	9.2	19.9	41.1	31.8	51.1	25.1	20.6	30.1	19.8	12.4	30.1
Ararat (RC)	23.2	17.2	30.6	35.9	28.9	43.5	27.3	21.8	33.6	13.2	8.5	19.9
Ballarat (C)	16.5	12.5	21.5	39.9	33.6	46.5	28.3	23.2	34.0	15.2	11.1	20.6
Banyule (C)	15.3	10.3	22.1	35.5	29.5	42.0	26.9	22.0	32.5	21.8	16.6	28.2
Bass Coast (S)	16.8	11.9	23.3	32.1	25.2	39.8	32.0	24.9	40.0	17.3	12.1	24.2
Baw Baw (S)	15.9	12.1	20.6	35.6	29.6	42.1	33.1	27.2	39.6	15.1	11.1	20.3
Bayside (C)	8.5	5.6	12.8	33.4	26.4	41.3	33.6	26.7	41.2	24.1	18.4	30.8
Benalla (RC)	18.9	12.6	27.4	33.0	25.5	41.4	29.9	21.7	39.6	17.8*	10.5	28.6
Boroondara (C)	9.7	6.9	13.5	34.9	28.5	42.0	28.6	22.9	35.0	26.1	21.0	31.9
Brimbank (C)	18.3	14.1	23.5	33.2	27.9	38.9	24.7	20.3	29.7	21.9	17.6	27.0
Buloke (S)	22.1	16.8	28.4	40.9	33.1	49.1	22.0	16.8	28.1	14.8	9.6	22.1
Campaspe (S)	22.3	17.0	28.7	34.4	28.2	41.2	23.4	17.8	30.2	18.3	12.8	25.5
Cardinia (S)	20.3	16.0	25.3	40.4	34.9	46.3	27.3	22.5	32.7	11.4	8.7	14.9
Casey (C)	17.1	12.9	22.4	44.1	38.2	50.1	23.8	19.6	28.7	13.4	10.5	17.0
Central Goldfields (S)	25.0	19.0	32.1	35.9	27.1	45.8	27.3	18.1	39.1	11.0	8.3	14.5
Colac-Otway (S)	14.6	10.4	20.0	33.9	27.4	41.1	34.9	28.0	42.5	16.3	12.1	21.8
Corangamite (S)	20.6	14.3	28.8	33.1	28.1	38.4	26.6	20.4	33.9	18.8	12.7	26.9
Darebin (C)	15.0	11.1	20.0	34.4	28.8	40.6	33.8	28.1	40.0	16.4	12.9	20.7
East Gippsland (S)	21.5	15.8	28.6	37.0	30.3	44.3	23.3	18.2	29.3	17.3	12.7	23.0
Frankston (C)	19.8	15.2	25.4	36.3	30.2	42.9	29.1	23.3	35.7	14.3	10.8	18.7
Gannawarra (S)	19.7	13.7	27.4	36.9	29.6	45.0	25.7	18.5	34.5	16.6	12.0	22.5
Glen Eira (C)	15.6	11.3	21.2	29.9	24.4	36.1	32.2	26.3	38.7	21.2	16.7	26.5
Glenelg (S)	26.7	19.6	35.3	26.4	21.4	32.1	27.7	21.6	34.8	18.4	11.9	27.4
Golden Plains (S)	20.3	15.6	26.0	35.9	28.9	43.7	21.1	17.1	25.7	22.0	15.9	29.5
Greater Bendigo (C)	18.6	13.4	25.2	38.5	30.4	47.2	25.0	19.3	31.7	17.0	10.4	26.7
Greater Dandenong (C)	15.3	11.9	19.3	36.4	31.0	42.1	26.6	21.7	32.2	18.7	14.8	23.4
Greater Geelong (C)	17.9	12.1	25.6	39.7	32.6	47.3	30.7	24.1	38.3	11.0	7.9	15.2
Greater Shepparton (C)	20.8	14.1	29.7	35.7	28.2	44.0	20.4	16.5	25.1	22.1	16.6	28.7
Hepburn (S)	27.2	18.6	37.9	27.2	22.5	32.4	25.5	17.8	35.1	19.6	14.1	26.5
Hindmarsh (S)	19.4	13.9	26.5	34.6	27.7	42.3	25.2	19.0	32.7	19.7	12.8	29.0
Hobsons Bay (C)	21.9	16.8	28.1	37.5	31.6	43.8	21.8	17.1	27.4	18.6	14.3	23.9
Horsham (RC)	16.4	11.9	22.2	36.2	28.6	44.6	33.6	25.0	43.5	13.4	10.5	16.9
Hume (C)	17.8	13.6	23.0	34.7	29.3	40.4	32.2	26.8	38.0	14.6	11.1	19.1
Indigo (S)	19.4	14.7	25.2	34.0	27.7	41.0	28.3	21.9	35.7	17.4	12.4	24.0
Kingston (C)	13.6	10.1	17.9	37.2	31.1	43.6	27.0	21.4	33.5	21.2	15.8	27.8
Knox (C)	20.6	16.0	26.0	35.3	29.8	41.2	27.8	22.6	33.5	15.7	12.2	19.9
Latrobe (C)	18.6	14.1	24.1	34.9	29.2	41.2	27.2	21.9	33.2	18.7	14.4	23.8
Loddon (S)	22.7	14.5	33.9	34.3	27.5	41.9	25.9	19.4	33.6	13.2	10.1	16.9
Macedon Ranges (S)	17.3	12.6	23.2	39.0	32.7	45.8	27.2	21.9	33.3	16.5	11.7	22.7
Manningham (C)	11.4	8.1	15.9	38.0	31.4	45.1	29.8	23.9	36.5	20.6	15.3	27.0
Mansfield (S)	13.8	9.9	18.7	32.1	24.9	40.2	30.7	24.0	38.3	23.2	16.5	31.6
Maribyrnong (C)	15.1	11.2	20.0	35.7	29.3	42.6	30.7	24.3	38.0	17.4	13.5	22.1

Table 2.32: Daily fruit consumption, by LGA, Victoria, 2011–12 (continued)

LGA	None or < 1 serve			1 serve			2 serves			3 or more serves		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Maroondah (C)	19.7	14.6	26.0	36.3	30.2	42.9	25.2	20.5	30.6	18.4	13.8	24.1
Melbourne (C)	13.7	10.0	18.6	36.0	30.1	42.3	28.9	23.9	34.5	20.8	16.4	26.0
Melton (S)	24.2	19.4	29.6	33.3	28.3	38.7	27.8	23.0	33.2	13.0	9.6	17.4
Mildura (RC)	17.7	13.4	23.0	41.7	35.2	48.4	26.7	21.6	32.5	13.8	10.3	18.2
Mitchell (S)	21.6	16.9	27.1	33.9	28.1	40.4	33.2	27.0	40.1	11.1	7.6	16.0
Moira (S)	21.1	15.0	28.7	37.5	30.7	44.9	23.2	17.7	29.8	17.6	11.8	25.4
Monash (C)	11.6	8.3	15.9	32.9	27.2	39.2	29.8	24.4	35.9	23.3	17.9	29.7
Moonee Valley (C)	16.7	12.3	22.1	33.2	27.4	39.7	29.4	23.5	36.0	19.5	14.7	25.4
Moorabool (S)	20.9	16.1	26.7	31.9	26.7	37.7	28.3	22.7	34.6	17.8	13.4	23.3
Moreland (C)	11.0	7.9	15.1	35.9	29.8	42.4	29.5	24.4	35.1	23.1	18.0	29.3
Mornington Peninsula (S)	13.8	9.1	20.4	41.7	34.8	48.9	27.9	22.5	34.1	16.3	12.4	21.0
Mount Alexander (S)	11.9	8.5	16.6	30.9	23.7	39.1	31.1	23.3	40.1	25.5	18.6	33.8
Moyne (S)	16.0	11.9	21.3	37.6	30.5	45.4	27.8	20.7	36.2	17.8	12.0	25.4
Murrindindi (S)	17.5	12.1	24.6	30.5	23.6	38.4	29.4	21.8	38.2	21.6	14.9	30.1
Nilfumbik (S)	15.1	10.4	21.4	29.6	23.9	36.0	33.3	27.0	40.3	21.6	16.4	27.7
Northern Grampians (S)	21.9	15.0	30.8	41.0	31.0	51.8	25.3	19.2	32.6	11.1	8.1	15.0
Port Phillip (C)	13.2	8.7	19.5	42.0	35.2	49.2	26.4	21.1	32.5	18.2	13.9	23.5
Pyrenees (S)	30.3	20.3	42.6	38.8	28.0	50.8	19.1	15.2	23.8	11.4	7.7	16.5
Queenscliffe (B)	14.8	9.0	23.3	31.7	24.1	40.4	30.4	21.5	41.0	22.5	15.4	31.7
South Gippsland (S)	19.6	12.9	28.7	39.0	30.8	47.9	25.0	19.5	31.3	15.6	11.5	20.9
Southern Grampians (S)	17.8	13.8	22.6	33.7	25.8	42.6	26.2	19.5	34.2	22.0*	12.7	35.2
Stonnington (C)	14.2	10.4	19.0	36.0	30.0	42.6	33.0	27.2	39.4	16.6	12.4	21.8
Strathbogie (S)	11.9	8.2	16.9	37.3	26.7	49.1	34.8	25.1	45.9	14.5	10.5	19.8
Surf Coast (S)	14.0	9.1	20.9	32.7	25.4	41.0	27.4	21.6	34.0	25.2	18.4	33.5
Swan Hill (RC)	20.5	15.2	27.0	36.6	30.1	43.5	24.1	18.7	30.5	16.2	11.8	21.8
Towong (S)	13.9	10.2	18.5	34.9	27.3	43.4	35.3	27.9	43.5	15.2	11.8	19.5
Wangaratta (RC)	10.9	7.0	16.6	38.5	32.0	45.4	28.3	22.9	34.3	21.6	16.1	28.5
Warrnambool (C)	11.3	8.6	14.7	36.5	30.7	42.8	29.3	24.2	34.9	22.4	17.3	28.5
Wellington (S)	17.1	12.6	22.8	35.1	28.4	42.6	26.2	19.8	33.7	19.6	12.9	28.6
West Wimmera (S)	16.5	11.8	22.7	42.6	36.1	49.3	26.9	21.4	33.3	12.6	9.2	16.9
Whitehorse (C)	9.6	6.7	13.5	36.6	30.3	43.5	30.8	25.3	36.8	21.9	16.3	28.8
Whittlesea (C)	20.1	15.6	25.6	30.5	25.6	36.0	29.8	25.2	34.9	18.2	14.1	23.2
Wodonga (RC)	14.2	10.5	19.1	41.5	34.8	48.6	27.2	22.3	32.9	15.6	10.7	22.2
Wyndham (C)	18.2	14.3	23.0	42.1	36.8	47.7	27.0	22.6	32.0	11.2	8.4	14.9
Yarra (C)	16.9	12.6	22.3	34.8	27.3	43.1	23.9	19.6	28.7	21.3	15.3	28.8
Yarra Ranges (S)	19.3	14.9	24.6	39.2	32.8	46.0	24.0	19.5	29.3	15.3	11.6	19.9
Yarriambiack (S)	27.7	20.5	36.2	35.7	29.3	42.6	24.3	18.1	31.9	11.9	8.7	16.0
<b>Victoria</b>	<b>16.3</b>	<b>15.5</b>	<b>17.1</b>	<b>36.6</b>	<b>35.6</b>	<b>37.6</b>	<b>28.1</b>	<b>27.3</b>	<b>29.0</b>	<b>18.0</b>	<b>17.2</b>	<b>18.8</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

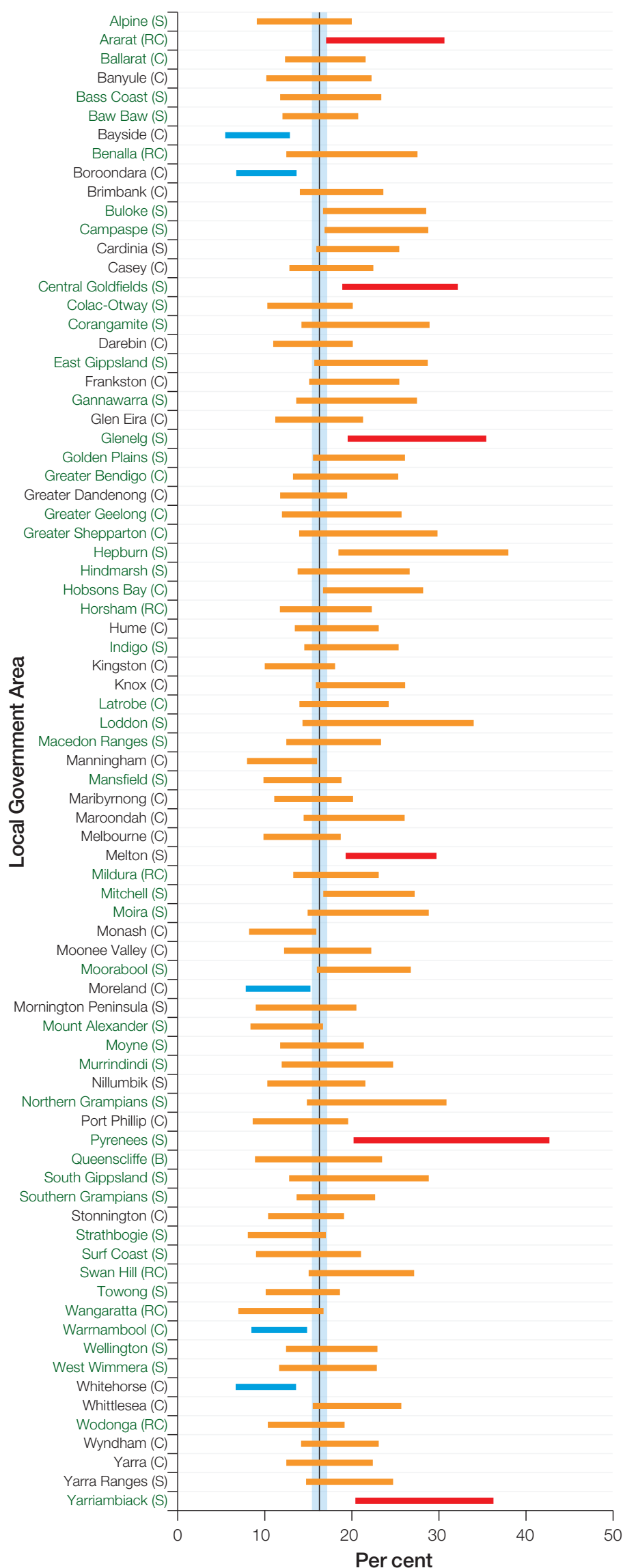
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City. Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Figure 2.12: Proportion of adults consuming 'none or less than one serve' of vegetables daily, by LGA, Victoria, 2011-12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.



## Compliance with the 2003 Australian fruit and vegetable consumption guidelines

Table 2.33 shows the proportion of adults who met the 2003 Australian guidelines for fruit and vegetable consumption, by age group and sex.

The proportion of adults who met the guidelines for daily fruit and vegetable consumption was 5.0 per cent among all Victorian adults. A significantly higher proportion of women met the guidelines (7.0 per cent) compared with men (3.2 per cent).

The proportion of adults who met both guidelines was significantly higher among women and people aged 55 years or over compared with all Victorian women and adults, respectively. By contrast the proportion who met both guidelines was significantly lower among women aged 18–34 years and people

aged 25–34 years compared with all Victorian women and adults, respectively.

The proportion of adults who met neither set of guidelines was 51.0 per cent among all Victorian adults but was significantly higher among men (56.9 per cent) compared with women (45.5 per cent).

The proportion who did not meet either set of guidelines was significantly higher among men aged 25–34 years, women and people aged 18–34 years compared with all Victorian men, women and adults, respectively. By contrast the proportion of adults who did not meet either set of guidelines was significantly lower among men aged 65 years or over and women and people aged 55 years or over compared with all Victorian men, women and adults, respectively.

**Table 2.33: Meeting guidelines<sup>a</sup> for fruit and vegetable consumption, by age group and sex, Victoria, 2011–12**

Age group (years)	Both guidelines			Vegetable guidelines <sup>b</sup>			Fruit guidelines <sup>b</sup>			Neither		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	4.8	3.0	7.7	6.6	4.5	9.5	36.3	31.0	41.9	60.2	54.5	65.6
25–34	2.4*	1.2	4.4	3.2*	1.9	5.3	33.6	29.0	38.5	63.6	58.6	68.2
35–44	2.3	1.6	3.3	3.3	2.5	4.5	39.9	36.8	43.2	58.3	55.1	61.4
45–54	2.6	1.8	3.6	4.1	3.1	5.3	42.0	39.3	44.8	55.0	52.2	57.8
55–64	3.8	2.9	4.9	5.3	4.2	6.6	42.3	39.7	45.0	53.8	51.2	56.4
65+	4.3	3.4	5.3	5.9	4.9	7.0	45.6	43.5	47.7	50.5	48.4	52.6
<b>Total</b>	<b>3.2</b>	<b>2.7</b>	<b>3.7</b>	<b>4.5</b>	<b>3.9</b>	<b>5.1</b>	<b>40.0</b>	<b>38.5</b>	<b>41.6</b>	<b>56.9</b>	<b>55.3</b>	<b>58.4</b>
<b>Females</b>												
18–24	3.9	2.4	6.2	5.5	3.8	8.0	45.0	39.7	50.5	52.5	47.1	57.8
25–34	4.7	3.5	6.4	6.4	5.0	8.3	45.1	41.3	48.9	52.1	48.3	55.9
35–44	6.6	5.5	7.9	9.8	8.5	11.2	48.4	46.0	50.8	47.7	45.3	50.1
45–54	7.5	6.4	8.8	10.7	9.4	12.2	52.0	49.8	54.3	43.4	41.2	45.6
55–64	10.0	8.8	11.4	13.7	12.3	15.2	55.3	53.2	57.5	39.5	37.4	41.7
65+	9.6	8.6	10.7	12.9	11.8	14.1	58.1	56.3	59.8	36.8	35.1	38.5
<b>Total</b>	<b>7.0</b>	<b>6.5</b>	<b>7.5</b>	<b>9.7</b>	<b>9.1</b>	<b>10.3</b>	<b>50.5</b>	<b>49.2</b>	<b>51.8</b>	<b>45.5</b>	<b>44.2</b>	<b>46.8</b>
<b>Persons</b>												
18–24	4.4	3.1	6.1	6.0	4.6	7.9	40.6	36.8	44.5	56.4	52.5	60.3
25–34	3.5	2.6	4.7	4.8	3.8	6.1	39.3	36.3	42.4	57.9	54.7	60.9
35–44	4.5	3.8	5.3	6.6	5.8	7.5	44.2	42.3	46.2	52.9	50.9	54.9
45–54	5.1	4.4	5.9	7.4	6.6	8.4	47.1	45.3	48.9	49.1	47.4	50.9
55–64	7.0	6.2	7.9	9.6	8.7	10.6	49.0	47.3	50.7	46.5	44.8	48.2
65+	7.2	6.5	7.9	9.7	8.9	10.5	52.4	51.1	53.8	43.0	41.7	44.4
<b>Total</b>	<b>5.1</b>	<b>4.8</b>	<b>5.5</b>	<b>7.2</b>	<b>6.8</b>	<b>7.6</b>	<b>45.4</b>	<b>44.4</b>	<b>46.4</b>	<b>51.0</b>	<b>50.0</b>	<b>52.0</b>

a. Based on national guidelines (NHMRC 2003a).

b. Includes those meeting both guidelines.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

The trend over time was investigated of the age-adjusted prevalence of compliance with the 2003 Australian guidelines for fruit and vegetable consumption (Table 2.34 and Figure 2.13). The proportion of adults who met the guidelines for fruit, vegetables or neither remained unchanged from 2003 to 2011–12 in both men and women. Similarly there was no change in the proportion of men who met both guidelines. By contrast the proportion of women who met both guidelines significantly

declined from 2003 to 2011–12. However, the proportion of women who refused to disclose or did not know their daily fruit and vegetable consumption significantly increased from 2003 to 2011–12. Therefore the decrease in the proportion of women who met both guidelines may reflect the increase in the proportion of women who did not know or refused to disclose their consumption, rather than a true decline over time in their daily fruit and vegetable consumption.

**Table 2.34: Compliance with fruit and vegetable consumption guidelines<sup>a</sup> from 2003 to 2011–12, by sex, Victoria**

Year	Both guidelines			Vegetable guidelines <sup>b</sup>			Fruit guidelines <sup>b</sup>			Neither		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
2003	5.7	4.7	6.8	9.7	8.4	11.2	43.2	40.8	45.6	52.3	49.9	54.8
2004	3.1	2.3	4.0	3.8	3.0	4.8	43.0	40.6	45.4	55.0	52.6	57.4
2005	4.3	3.3	5.5	6.3	5.1	7.6	42.2	39.8	44.7	55.4	52.9	57.9
2006	5.0	3.9	6.5	6.9	5.7	8.5	38.8	36.4	41.3	57.4	54.9	59.8
2007	3.1	2.4	4.0	5.4	4.4	6.5	38.5	36.0	41.1	56.6	54.0	59.2
2008	3.2	2.8	3.6	5.1	4.6	5.7	41.7	40.4	43.0	54.7	53.4	56.1
2009	3.5	2.7	4.4	4.9	4.1	5.9	45.7	43.4	48.0	50.8	48.5	53.1
2010	3.5	2.8	4.5	5.3	4.3	6.4	45.1	42.5	47.7	51.7	49.1	54.2
<b>2011–12</b>	<b>3.2</b>	<b>2.7</b>	<b>3.7</b>	<b>4.5</b>	<b>3.9</b>	<b>5.1</b>	<b>40.0</b>	<b>38.5</b>	<b>41.6</b>	<b>56.9</b>	<b>55.3</b>	<b>58.4</b>
<b>Females</b>												
2003	10.5	9.4	11.7	13.6	12.4	15.0	57.6	55.6	59.5	39.1	37.2	41.1
2004	8.1	7.1	9.2	10.0	9.0	11.2	59.4	57.5	61.3	38.2	36.3	40.0
2005	9.9	8.9	11.1	12.8	11.6	14.0	57.3	55.3	59.3	39.7	37.7	41.7
2006	9.2	8.2	10.4	13.3	12.1	14.7	53.2	51.2	55.2	41.3	39.3	43.3
2007	7.5	6.6	8.5	10.2	9.2	11.3	51.7	49.6	53.7	44.4	42.4	46.4
2008	8.0	7.5	8.6	10.7	10.1	11.3	54.1	53.0	55.2	41.9	40.8	42.9
2009	8.8	7.8	9.9	11.2	10.1	12.4	57.9	56.0	59.8	38.6	36.7	40.4
2010	7.2	6.3	8.2	10.0	9.0	11.1	54.4	52.3	56.4	41.6	39.6	43.7
<b>2011–12</b>	<b>7.0</b>	<b>6.5</b>	<b>7.5</b>	<b>9.7</b>	<b>9.1</b>	<b>10.3</b>	<b>50.5</b>	<b>49.2</b>	<b>51.8</b>	<b>45.5</b>	<b>44.2</b>	<b>46.8</b>
<b>Persons</b>												
2003	8.1	7.4	8.9	11.7	10.8	12.7	50.7	49.1	52.2	45.5	43.9	47.0
2004	5.7	5.0	6.4	7.0	6.3	7.8	51.5	50.0	53.0	46.3	44.8	47.9
2005	7.2	6.5	8.1	9.6	8.8	10.5	50.0	48.4	51.6	47.3	45.7	48.9
2006	7.1	6.3	8.0	10.1	9.2	11.1	46.2	44.6	47.8	49.1	47.5	50.7
2007	5.3	4.8	6.0	7.8	7.1	8.6	45.3	43.7	46.9	50.3	48.7	52.0
2008	5.7	5.3	6.0	8.0	7.6	8.4	48.1	47.2	48.9	48.1	47.3	49.0
2009	6.2	5.5	6.9	8.1	7.4	8.9	52.1	50.6	53.6	44.4	42.9	45.9
2010	5.4	4.8	6.1	7.7	7.0	8.5	49.9	48.2	51.5	46.5	44.9	48.2
<b>2011–12</b>	<b>5.1</b>	<b>4.8</b>	<b>5.5</b>	<b>7.2</b>	<b>6.8</b>	<b>7.6</b>	<b>45.4</b>	<b>44.4</b>	<b>46.4</b>	<b>51.0</b>	<b>50.0</b>	<b>52.0</b>

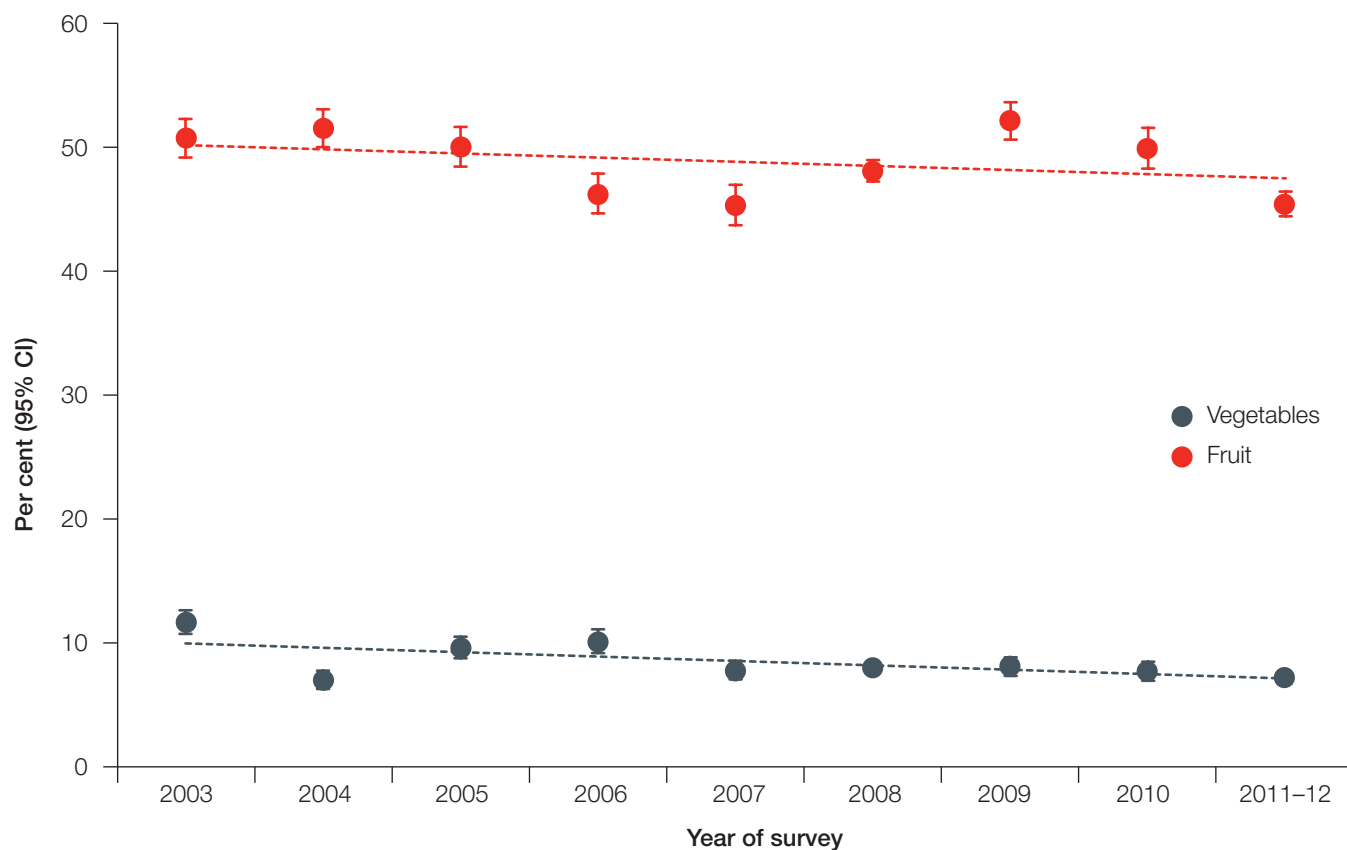
a. Based on national guidelines (NHMRC 2003a).

b. Includes those meeting both guidelines.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Figure 2.13: Compliance with fruit and/ or vegetable consumption guidelines,<sup>a,b</sup> from 2003 to 2011–12, Victoria



a. Based on national guidelines (NHMRC 2003a).  
 b. Includes those meeting both guidelines.  
 Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.

Table 2.35 shows the proportion of adults who met the 2003 Australian fruit and vegetable consumption guidelines, by Department of Health region and sex.

The proportion of adults who met both guidelines was similar across all regions among men and women but was significantly lower in North & West Metropolitan Region among adults compared with all men, women and adults, respectively.

The proportion of adults who met neither set of guidelines was similar across all regions among men, women and adults compared with all Victorian men and adults, respectively.

**Table 2.35: Compliance with fruit and vegetable consumption guidelines,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12**

Region	Both guidelines			Vegetable guidelines <sup>b</sup>			Fruit guidelines <sup>b</sup>			Neither		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
Eastern Metropolitan	2.9	2.0	4.2	3.8	2.7	5.2	42.9	39.3	46.5	53.9	50.2	57.6
North & West Metropolitan	2.5	1.9	3.4	3.7	2.9	4.7	40.7	38.1	43.4	56.1	53.4	58.8
Southern Metropolitan	4.5	3.3	6.1	5.7	4.4	7.4	39.3	36.4	42.4	57.8	54.7	60.8
<b>Metropolitan males</b>	3.3	2.7	3.9	4.4	3.7	5.1	41.1	39.3	42.9	55.8	54.0	57.6
Barwon-South Western	2.5*	1.5	4.1	3.9	2.6	5.9	37.6	30.9	44.9	60.2	53.0	67.1
Gippsland	4.3	2.8	6.5	7.3	5.1	10.3	38.6	34.1	43.2	57.0	52.3	61.6
Grampians	3.0	1.9	4.7	4.6	3.2	6.5	35.5	30.9	40.2	62.1	57.3	66.7
Hume	2.8	2.0	3.9	4.5	3.5	5.9	40.1	36.3	44.0	56.9	52.9	60.8
Loddon Mallee	2.0	1.2	3.1	3.9	2.9	5.3	37.2	32.5	42.2	59.5	54.5	64.3
<b>Rural males</b>	2.8	2.3	3.5	4.7	3.9	5.5	37.3	34.6	40.2	59.7	56.8	62.5
<b>Total</b>	<b>3.2</b>	<b>2.7</b>	<b>3.7</b>	<b>4.5</b>	<b>3.9</b>	<b>5.1</b>	<b>40.0</b>	<b>38.5</b>	<b>41.6</b>	<b>56.9</b>	<b>55.3</b>	<b>58.4</b>
<b>Females</b>												
Eastern Metropolitan	7.7	6.2	9.5	10.9	9.1	12.9	51.8	48.3	55.4	43.8	40.3	47.4
North & West Metropolitan	5.6	4.8	6.6	7.7	6.7	8.7	51.4	49.3	53.5	45.2	43.1	47.3
Southern Metropolitan	7.5	6.3	8.8	9.8	8.6	11.3	49.8	47.1	52.5	46.4	43.7	49.1
<b>Metropolitan females</b>	6.7	6.1	7.4	9.1	8.4	9.9	51.0	49.5	52.5	45.2	43.7	46.7
Barwon-South Western	7.3	5.6	9.4	9.7	7.8	12.0	50.9	45.5	56.2	45.5	40.3	50.9
Gippsland	7.6	5.8	9.8	11.5	9.4	14.1	49.3	45.5	53.1	45.6	41.8	49.4
Grampians	6.9	5.5	8.7	10.3	8.3	12.6	48.1	44.0	52.3	47.9	43.7	52.0
Hume	7.5	6.5	8.5	11.7	10.2	13.4	49.1	46.0	52.2	45.5	42.4	48.7
Loddon Mallee	8.9	7.3	10.7	12.9	10.9	15.1	45.9	41.6	50.2	49.3	45.0	53.7
<b>Rural females</b>	7.6	6.9	8.5	11.2	10.3	12.2	48.9	46.8	51.1	46.5	44.4	48.6
<b>Total</b>	<b>7.0</b>	<b>6.5</b>	<b>7.5</b>	<b>9.7</b>	<b>9.1</b>	<b>10.3</b>	<b>50.5</b>	<b>49.2</b>	<b>51.8</b>	<b>45.5</b>	<b>44.2</b>	<b>46.8</b>
<b>Persons</b>												
Eastern Metropolitan	5.2	4.4	6.2	7.3	6.3	8.5	47.5	44.9	50.0	48.6	46.0	51.1
North & West Metropolitan	4.1	3.6	4.7	5.7	5.1	6.4	46.2	44.5	47.9	50.5	48.8	52.2
Southern Metropolitan	6.1	5.2	7.1	7.9	6.9	9.0	44.8	42.7	46.9	51.9	49.8	54.0
<b>Metropolitan persons</b>	5.0	4.6	5.5	6.9	6.4	7.4	46.2	45.0	47.4	50.3	49.2	51.5
Barwon-South Western	4.9	3.9	6.1	6.8	5.6	8.2	44.3	39.4	49.4	52.7	47.6	57.7
Gippsland	5.9	4.7	7.4	9.4	7.8	11.3	44.0	41.0	47.0	51.2	48.1	54.2
Grampians	5.0	4.0	6.1	7.3	6.1	8.8	42.0	38.8	45.3	54.9	51.6	58.1
Hume	5.2	4.6	6.0	8.3	7.2	9.4	44.5	41.9	47.1	51.2	48.6	53.9
Loddon Mallee	5.3	4.5	6.3	8.3	7.2	9.6	41.3	38.0	44.7	54.6	51.1	58.0
<b>Rural persons</b>	5.3	4.8	5.8	8.0	7.4	8.6	43.2	41.4	45.1	53.0	51.1	54.9
<b>Total</b>	<b>5.1</b>	<b>4.8</b>	<b>5.5</b>	<b>7.2</b>	<b>6.8</b>	<b>7.6</b>	<b>45.4</b>	<b>44.4</b>	<b>46.4</b>	<b>51.0</b>	<b>50.0</b>	<b>52.0</b>

a. Based on national guidelines (NHMRC 2003a).

b. Includes those meeting both guidelines.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 2.36 shows that the proportion of adults who met both guidelines was significantly higher among adults who lived in the LGAs of Mornington Peninsula (S), Mount Alexander (S), Moyne (S), Queenscliffe (B), Towong (S) and West Wimmera (S) compared with all Victorian adults. By contrast the proportion of adults who met both guidelines was significantly lower in adults who lived in Brimbank (C), Melton (S) and Wyndham (C) compared with all Victorian adults.

Figure 2.14 and Map 2.3 shows that the proportion of adults who did not meet either set of guidelines was significantly higher among adults who lived in the LGAs of Buloke (S), Casey (C), Central Goldfields (S), Northern Grampians (S), Pyrenees (S), Wyndham (C) and Yarriambiack (S) compared with all Victorian adults. By contrast the proportion of adults who did not meet either set of guidelines was significantly lower for those who lived in Bayside (C) and Mount Alexander (S) compared with all Victorian adults.

Table 2.36: Compliance with fruit and vegetable consumption guidelines,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	Both guidelines			Vegetable guidelines <sup>b</sup>			Fruit guidelines <sup>b</sup>			Neither		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	6.4	4.3	9.4	8.2	5.8	11.4	44.9	35.6	54.5	52.8	43.3	62.2
Ararat (RC)	4.7	3.0	7.2	6.9	4.8	9.7	40.5	33.5	48.0	56.7	49.2	63.8
Ballarat (C)	3.0	1.9	4.9	5.0	3.1	8.0	41.8	35.8	48.0	56.0	49.7	62.0
Banyule (C)	5.7	3.7	8.9	7.7	5.2	11.3	48.3	41.6	55.1	48.8	42.0	55.6
Bass Coast (S)	7.4*	3.8	13.9	9.2*	5.4	15.4	48.2	40.2	56.3	48.0	39.9	56.1
Baw Baw (S)	5.9	3.7	9.3	10.2	6.9	14.9	46.2	39.8	52.8	48.9	42.4	55.5
Bayside (C)	7.0	4.6	10.5	7.6	5.1	11.1	57.0	49.2	64.4	41.9	34.5	49.7
Benalla (RC)	5.4	3.7	7.7	6.6	4.7	9.0	43.3	34.0	53.1	54.5	44.7	63.9
Boroondara (C)	6.8	4.3	10.5	8.0	5.3	11.9	53.6	46.7	60.3	43.5	36.9	50.4
Brimbank (C)	2.2*	1.2	4.0	3.1*	1.9	5.1	45.7	40.1	51.5	49.8	44.1	55.5
Buloke (S)	8.8*	5.1	14.7	12.0	7.4	18.9	34.8	28.0	42.3	61.5	53.6	68.8
Campaspe (S)	5.3*	2.9	9.7	7.8*	4.7	12.6	38.5	31.5	46.1	57.2	49.8	64.2
Cardinia (S)	3.4*	2.0	5.5	7.0	4.9	9.9	37.7	32.5	43.2	57.4	51.8	62.9
Casey (C)	3.6	2.4	5.5	4.5	3.1	6.5	37.3	32.4	42.4	59.8	54.5	64.9
Central Goldfields (S)	3.3*	1.9	5.6	5.8	4.0	8.4	30.1	23.9	37.1	66.4	59.5	72.6
Colac-Otway (S)	4.2	2.8	6.2	5.6	4.0	7.7	51.2	43.9	58.5	45.3	38.2	52.5
Corangamite (S)	3.8	2.4	5.9	6.5	4.6	9.2	45.4	38.1	52.9	50.3	42.8	57.7
Darebin (C)	4.5	3.0	6.7	6.0	4.2	8.4	49.3	43.1	55.6	48.9	42.7	55.1
East Gippsland (S)	5.2*	3.0	9.0	8.8	5.9	13.0	39.6	33.2	46.2	55.5	48.8	62.0
Frankston (C)	5.6*	3.3	9.5	7.1	4.5	11.0	42.4	36.0	49.0	55.4	48.8	61.8
Gannawarra (S)	4.3	2.7	6.7	6.5	4.4	9.7	42.3	34.2	50.8	54.4	45.9	62.6
Glen Eira (C)	8.4	5.5	12.6	9.3	6.3	13.5	53.4	46.9	59.7	44.4	38.1	50.9
Glenelg (S)	4.4	3.0	6.3	8.9*	5.1	15.2	46.2	37.9	54.6	48.5	40.3	56.7
Golden Plains (S)	5.8	4.1	8.1	10.7	7.4	15.3	42.2	35.1	49.7	52.0	44.5	59.5
Greater Bendigo (C)	5.0	3.5	7.1	8.4	6.3	11.0	42.0	34.0	50.5	53.7	45.5	61.7
Greater Dandenong (C)	3.7*	2.1	6.4	5.7	3.7	8.7	44.8	39.2	50.6	48.5	42.8	54.2
Greater Geelong (C)	3.6	2.3	5.4	5.1	3.6	7.4	41.8	34.5	49.4	55.7	48.2	63.0
Greater Shepparton (C)	4.0	2.7	5.8	5.1	3.7	7.2	42.5	35.7	49.6	54.9	47.9	61.8
Hepburn (S)	5.9*	3.3	10.5	13.3*	7.2	23.4	39.3	31.9	47.2	52.4	42.8	61.9
Hindmarsh (S)	8.6*	5.0	14.5	10.3	6.4	16.1	44.9	37.0	53.1	51.7	43.6	59.7
Hobsons Bay (C)	5.4*	2.7	10.3	7.4*	4.2	12.7	39.6	33.7	45.8	57.3	51.0	63.3
Horsham (RC)	3.5	2.4	5.2	5.6	4.0	7.7	47.0	37.7	56.5	50.2	40.8	59.6
Hume (C)	3.9*	2.2	7.0	4.8*	2.9	7.9	45.0	39.1	51.1	53.0	47.0	59.0
Indigo (S)	8.3	5.2	13.1	12.5	8.7	17.6	45.7	38.9	52.7	49.1	42.1	56.2
Kingston (C)	9.5*	5.6	15.9	11.2	7.0	17.5	47.5	40.9	54.2	48.5	41.9	55.1
Knox (C)	4.0*	2.3	6.6	6.6	4.3	9.8	41.8	36.1	47.7	54.3	48.4	60.1
Latrobe (C)	7.0*	4.2	11.3	9.9	6.5	14.8	43.3	37.3	49.4	52.9	46.7	59.0
Loddon (S)	6.6	4.5	9.6	9.6	7.2	12.9	37.0	30.5	43.9	55.7	47.4	63.7
Macedon Ranges (S)	6.8	4.3	10.5	9.9	6.5	14.8	42.6	36.1	49.4	53.1	46.4	59.7
Manningham (C)	3.3*	1.5	6.9	5.7	3.5	9.3	50.3	43.3	57.3	45.9	39.0	52.9
Mansfield (S)	6.6	4.3	9.8	10.2	6.9	14.9	53.8	45.7	61.7	42.1	34.4	50.2
Maribyrnong (C)	6.1	3.8	9.7	8.9	5.9	13.4	47.0	40.0	54.1	48.9	41.9	55.8

Table 2.36: Compliance with fruit and vegetable consumption guidelines,<sup>a</sup> by LGA, Victoria, 2011–12 (continued)

LGA	Both guidelines			Vegetable guidelines <sup>b</sup>			Fruit guidelines <sup>b</sup>			Neither		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Maroondah (C)	6.9*	4.2	11.3	8.5	5.5	13.0	43.6	37.4	50.1	53.9	47.4	60.2
Melbourne (C)	7.3	5.1	10.2	9.5	6.8	13.0	49.7	43.6	55.8	46.9	40.9	52.9
Melton (S)	1.9*	1.0	3.5	3.8	2.4	6.0	40.4	35.1	45.9	55.2	49.7	60.7
Mildura (RC)	3.6*	2.2	6.0	5.9	4.1	8.5	39.9	34.1	46.1	57.4	51.3	63.3
Mitchell (S)	3.4	2.2	5.1	5.5	3.9	7.8	44.3	37.9	50.9	53.2	46.6	59.6
Moira (S)	4.2	2.8	6.3	7.5	5.3	10.5	39.8	32.5	47.7	55.6	47.7	63.3
Monash (C)	4.0	2.7	6.0	5.7	4.0	8.0	51.4	45.0	57.8	43.9	37.6	50.4
Moonee Valley (C)	4.9	3.4	7.1	6.0	4.2	8.4	48.6	41.9	55.3	48.8	42.1	55.5
Moorabool (S)	7.6	4.8	11.8	9.1	6.1	13.4	46.1	40.0	52.3	51.2	45.0	57.4
Moreland (C)	3.0*	1.5	5.8	4.6*	2.8	7.5	51.2	44.8	57.6	45.7	39.4	52.1
Mornington Peninsula (S)	8.5	5.9	12.3	10.9	7.9	14.9	42.7	36.6	49.0	54.6	48.3	60.8
Mount Alexander (S)	11.3*	6.5	18.9	16.0	10.2	24.0	56.5	48.2	64.5	37.6	30.1	45.8
Moyne (S)	12.1*	6.5	21.2	15.4	9.5	23.8	45.6	38.1	53.3	50.4	43.0	57.7
Murrindindi (S)	4.2	2.8	6.4	9.3*	4.4	18.3	47.3	39.0	55.7	46.4	38.1	54.9
Nillumbik (S)	8.3	5.2	13.1	9.8	6.5	14.6	53.3	46.2	60.2	44.8	38.0	51.9
Northern Grampians (S)	5.8*	3.5	9.5	11.2	6.9	17.6	33.6	28.4	39.1	60.2	52.9	67.0
Port Phillip (C)	4.7*	2.4	8.9	6.6*	4.0	10.7	44.0	37.4	50.8	53.8	47.0	60.5
Pyrenees (S)	5.1*	2.9	8.8	7.4	4.8	11.3	30.5	25.2	36.4	66.1	60.2	71.6
Queenscliffe (B)	11.2*	6.3	19.3	14.2	8.5	22.6	45.3	34.9	56.2	50.5	39.6	61.3
South Gippsland (S)	4.7	3.0	7.1	8.4	5.9	11.9	40.6	34.0	47.5	54.5	47.7	61.2
Southern Grampians (S)	5.4	3.8	7.6	8.0	6.0	10.5	44.3	33.5	55.7	52.5	41.3	63.5
Stonnington (C)	5.7	3.9	8.3	8.2	5.8	11.6	48.3	41.9	54.7	48.9	42.4	55.3
Strathbogie (S)	6.0*	3.3	10.5	18.3*	9.8	31.5	43.7	35.1	52.8	42.3	33.0	52.1
Surf Coast (S)	8.8	5.4	14.1	10.3	6.7	15.5	52.6	44.5	60.6	44.6	36.7	52.8
Swan Hill (RC)	7.1	4.5	11.0	11.4	7.5	16.9	38.7	32.3	45.6	53.9	46.7	60.9
Towong (S)	9.2	5.8	14.3	11.6	7.9	16.7	49.7	41.7	57.7	47.1	39.2	55.2
Wangaratta (RC)	5.9	4.0	8.5	9.6	6.6	13.6	48.7	41.8	55.8	46.5	39.6	53.6
Warrnambool (C)	7.7	5.2	11.1	10.4	7.6	14.0	50.3	44.1	56.5	46.0	39.9	52.2
Wellington (S)	5.0	3.1	7.9	8.5	5.4	13.0	45.7	38.2	53.4	48.7	41.4	56.1
West Wimmera (S)	9.3	6.1	13.9	11.6	8.1	16.3	38.3	32.3	44.7	57.3	50.9	63.5
Whitehorse (C)	7.6	5.1	11.1	10.0	7.1	14.1	51.6	44.8	58.3	45.2	38.5	52.0
Whittlesea (C)	3.2*	1.7	6.0	4.7*	2.9	7.6	47.9	42.2	53.6	47.6	41.9	53.3
Wodonga (RC)	7.7*	4.1	14.0	14.0	9.2	20.9	40.9	34.4	47.6	50.9	44.0	57.8
Wyndham (C)	2.5*	1.3	4.8	4.3*	2.6	7.0	37.8	32.9	43.1	58.4	53.2	63.5
Yarra (C)	4.6	3.0	6.8	7.7	5.4	10.8	45.2	37.7	52.9	47.9	40.2	55.7
Yarra Ranges (S)	4.7	3.0	7.3	8.0	5.6	11.3	39.3	33.7	45.3	55.3	49.0	61.3
Yarriambiack (S)	4.5	3.1	6.5	6.1	4.5	8.3	34.4	27.9	41.4	63.4	56.4	69.9
<b>Victoria</b>	<b>5.2</b>	<b>4.8</b>	<b>5.6</b>	<b>7.2</b>	<b>6.8</b>	<b>7.7</b>	<b>45.3</b>	<b>44.4</b>	<b>46.3</b>	<b>51.1</b>	<b>50.1</b>	<b>52.1</b>

a. Based on national guidelines (NHMRC 2003a).

b. Includes those meeting both guidelines.

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

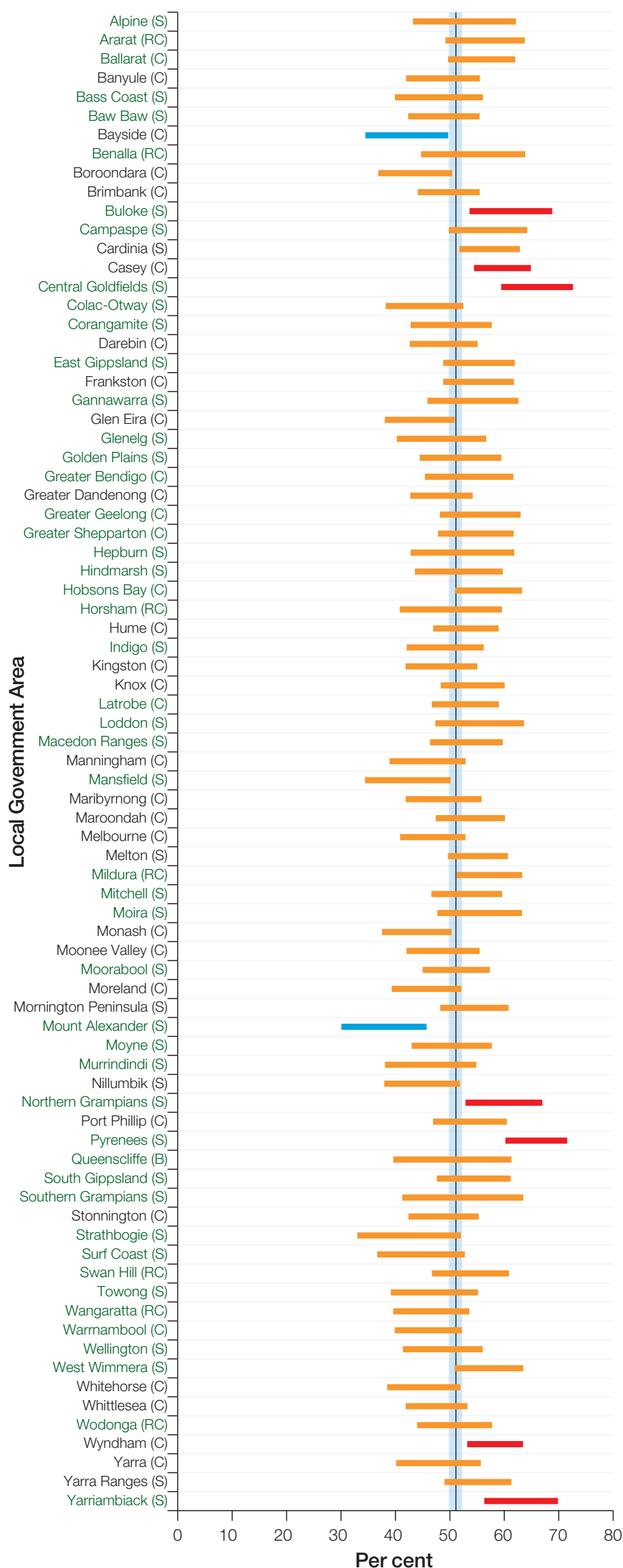
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City. Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

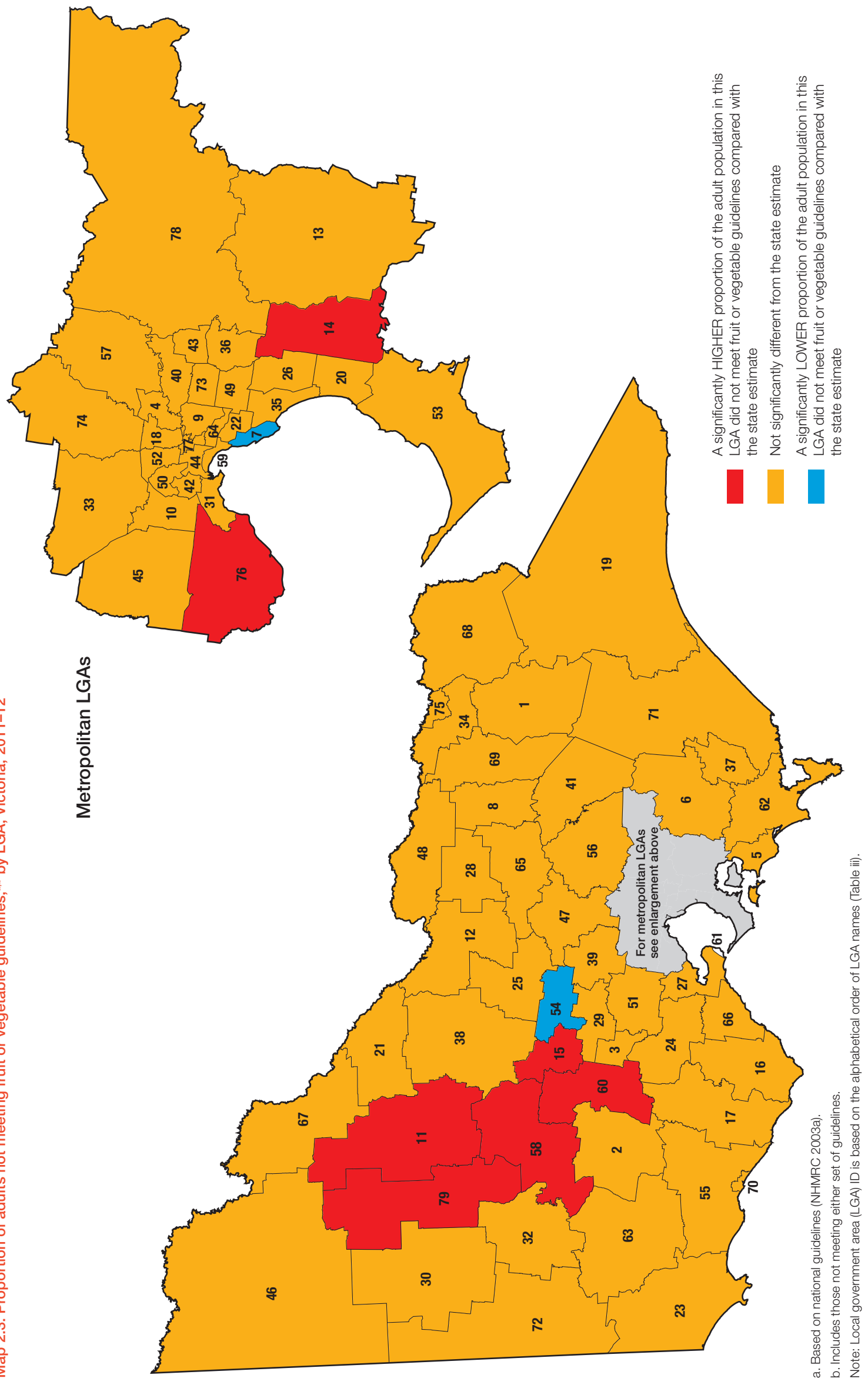


Figure 2.14: Proportion of adults not meeting fruit or vegetable guidelines,<sup>a,b</sup> by LGA, Victoria, 2011–12



a. Based on national guidelines (NHMRC 2003a).  
 b. Includes those meeting both guidelines.  
 Data were age-standardised to the 2011 Victorian population using 10-year age groups.  
 The horizontal bars represent the 95% CI around the estimate for each LGA.  
 The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.  
 Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.  
 95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.  
 Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Map 2.3: Proportion of adults not meeting fruit or vegetable guidelines,<sup>a,b</sup> by LGA, Victoria, 2011–12



# Modifiable health risk factors

Table 2.37 shows the proportion of males, females and adults who met the Australian guidelines for fruit and vegetable consumption, by selected socioeconomic determinants, modifiable risk factors and health status.

### **Met both guidelines**

When compared with all Victorian men and women there were significantly higher proportions of men and women who complied with both guidelines with the following characteristic:

- excellent or very good self-reported health status.

When compared with all Victorian women there was a significantly higher proportion of women who complied with both guidelines with the following characteristics:

- tertiary educated
- total annual household income of \$100,000 or more
- engaged in sufficient physical activity.

When compared with all Victorian men and women there were significantly lower proportions of men and women who complied with both guidelines with the following characteristic:

- insufficient physical activity.

When compared with all Victorian men there was a significantly lower proportion of men who complied with both guidelines with the following characteristics:

- at long-term risk of alcohol-related harm
- good self-reported health status.

When compared with all Victorian women there was a significantly lower proportion of women who complied with both guidelines with the following characteristics:

- primary education
- total annual household income of less than \$40,000
- high level of psychological distress
- sedentary behaviour
- current smoker
- fair or poor self-reported health status.

### **Met neither set of guidelines**

When compared with all Victorian men and women there were significantly higher proportions of men and women who did not comply with either set of guidelines with the following characteristics:

- primary education
- unemployed
- total annual household income of less than \$40,000
- high level of psychological distress
- insufficient physical activity
- at long-term risk of alcohol-related harm
- current smoker
- fair or poor health status.

When compared with all Victorian women there was a significantly higher proportion of women who did not comply with either set of guidelines with the following characteristics:

- not in the labour force
- very high level of psychological distress
- sedentary behaviour
- good self-reported health status.

When compared with all Victorian men and women there were significantly lower proportions of men and women who did not comply with either set of guidelines with the following characteristics:

- tertiary educated
- engaged in sufficient physical activity
- excellent or very good self-reported health status.

When compared with all Victorian men there was a significantly lower proportion of men who did not comply with either set of guidelines with the following characteristics:

- non-smoker
- diagnosed with diabetes by a doctor.

When compared with all Victorian women there was a significantly lower proportion of women who did not comply with either set of guidelines with the following characteristic:

- total annual household income of \$100,000 or more.

**Table 2.37: Compliance with fruit and vegetable consumption guidelines,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	Both guidelines			Vegetable guidelines <sup>b</sup>			Fruit guidelines <sup>b</sup>			Neither guideline		
	95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>	<b>3.2</b>	<b>2.7</b>	<b>3.7</b>	<b>4.5</b>	<b>3.9</b>	<b>5.1</b>	<b>40.0</b>	<b>38.5</b>	<b>41.6</b>	<b>56.9</b>	<b>55.3</b>	<b>58.4</b>
<i>Area of Victoria</i>												
Rural	2.8	2.3	3.5	4.7	3.9	5.5	37.3	34.6	40.2	59.7	56.8	62.5
Metropolitan	3.3	2.7	3.9	4.4	3.7	5.1	41.1	39.3	42.9	55.8	54.0	57.6
<i>Education level</i>												
Primary	2.0	1.5	2.7	3.1	2.4	3.9	33.2	30.4	36.1	63.9	60.9	66.7
Secondary	2.7	2.1	3.5	3.8	3.1	4.7	37.9	35.4	40.5	58.9	56.3	61.4
Tertiary	4.0	3.2	4.9	5.4	4.5	6.5	45.3	42.8	47.8	52.1	49.6	54.6
<i>Employment status (age &lt; 65 years)</i>												
Employed	2.7	2.2	3.4	4.1	3.4	4.8	39.7	37.6	41.8	57.6	55.5	59.6
Unemployed	**	**	**	2.3*	1.2	4.3	26.0	20.2	32.8	70.5	63.6	76.6
Not in labour force	2.5	1.6	4.0	3.3	2.2	4.7	37.5	31.8	43.6	59.7	53.6	65.4
<i>Total annual household income</i>												
< \$40,000	2.4*	1.3	4.5	3.5	2.2	5.6	30.4	26.9	34.1	66.8	63.0	70.3
\$40,000 to < \$100,000	3.4	2.6	4.3	4.4	3.5	5.4	39.0	36.5	41.5	58.4	55.8	60.9
≥ \$100,000	4.1	3.1	5.4	5.7	4.6	7.2	44.5	41.2	47.8	53.4	50.0	56.6
<i>Psychological distress<sup>c</sup></i>												
Low (< 16)	3.5	2.9	4.2	4.9	4.2	5.6	41.5	39.7	43.4	55.7	53.8	57.6
Moderate (16–21)	2.6	1.9	3.7	3.9	3.0	5.2	39.0	35.9	42.3	58.4	55.1	61.6
High (22–29)	2.6*	1.5	4.4	3.6	2.3	5.5	33.0	28.4	37.9	64.0	58.9	68.8
Very high (≥ 30)	**	**	**	**	**	**	29.1	22.2	37.1	62.9	54.1	70.8
<i>Physical activity<sup>d</sup></i>												
Sedentary	1.5*	0.8	2.8	2.7*	1.6	4.4	30.4	24.5	36.9	64.8	58.3	70.8
Insufficient time and sessions	1.4	0.9	2.1	2.2	1.6	3.0	31.1	28.5	33.9	66.7	63.8	69.4
Sufficient time and sessions	4.0	3.3	4.7	5.5	4.8	6.3	44.4	42.6	46.3	52.7	50.8	54.5
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>												
Abstainer	2.5	1.7	3.6	3.5	2.5	4.9	39.5	35.5	43.6	56.6	52.3	60.7
Low risk	3.3	2.8	3.9	4.6	4.0	5.3	40.8	39.1	42.5	56.6	54.9	58.3
Risky or high risk	1.3*	0.6	2.7	3.2*	1.8	5.8	28.6	23.0	34.9	66.1	59.5	72.2
<i>Smoking status</i>												
Current smoker	2.0	1.4	2.8	3.1	2.3	4.2	29.3	26.1	32.6	67.8	64.4	71.0
Ex-smoker	2.6	1.9	3.7	4.5	3.3	6.1	39.4	35.2	43.7	56.8	52.5	61.0
Non-smoker	3.7	3.1	4.5	5.0	4.2	5.9	44.6	42.6	46.7	52.7	50.7	54.8
<i>Self-reported health</i>												
Excellent / very good	4.7	3.8	5.7	6.3	5.3	7.4	45.3	43.0	47.5	51.7	49.5	54.0
Good	1.9	1.5	2.4	3.1	2.6	3.8	38.7	36.3	41.1	58.7	56.2	61.1
Fair / poor	2.0*	1.1	3.7	2.7	1.7	4.3	29.0	25.7	32.6	66.5	62.7	70.1
<i>Body weight status<sup>f</sup></i>												
Underweight	7.1*	3.2	15.2	7.6*	3.5	15.6	31.2	20.9	43.8	66.8	54.2	77.4
Normal	3.7	2.9	4.6	5.1	4.2	6.1	42.1	39.7	44.6	54.5	52.1	56.9
Overweight	2.5	2.0	3.2	3.8	3.1	4.6	40.6	38.1	43.2	57.0	54.4	59.6
Obese	3.2	2.0	5.2	4.1	2.7	6.0	38.2	34.2	42.3	59.3	55.2	63.2
<i>Diabetes (excluding GDM)</i>												
No diabetes	3.1	2.6	3.6	4.4	3.9	5.0	39.9	38.4	41.5	57.1	55.5	58.6
Diabetes	2.1	1.4	3.2	2.7	1.9	3.9	38.7	34.4	43.3	45.9	39.2	52.6

a. Based on national guidelines (NHMRC 2003a).

b. Includes those meeting both guidelines.

c. Based on the Kessler 10 scale for psychological distress.

d. Based on national guidelines (DoHA 1999).

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

**Table 2.37: Compliance with fruit and vegetable consumption guidelines,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)**

	Both guidelines			Vegetable guidelines <sup>b</sup>			Fruit guidelines <sup>b</sup>			Neither guideline		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Females</b>	<b>7.0</b>	<b>6.5</b>	<b>7.5</b>	<b>9.7</b>	<b>9.1</b>	<b>10.3</b>	<b>50.5</b>	<b>49.2</b>	<b>51.8</b>	<b>45.5</b>	<b>44.2</b>	<b>46.8</b>
<i>Area of Victoria</i>												
Rural	7.6	6.9	8.5	11.2	10.3	12.2	48.9	46.8	51.1	46.5	44.4	48.6
Metropolitan	6.7	6.1	7.4	9.1	8.4	9.9	51.0	49.5	52.5	45.2	43.7	46.7
<i>Education level</i>												
Primary	<b>5.3</b>	4.3	6.4	8.6	7.4	9.9	<b>40.9</b>	38.4	43.6	<b>54.3</b>	51.6	56.9
Secondary	6.7	5.9	7.7	8.9	7.9	10.0	50.5	48.4	52.5	46.5	44.4	48.6
Tertiary	<b>9.0</b>	8.0	10.0	<b>11.8</b>	10.8	13.0	<b>55.5</b>	53.5	57.6	<b>40.6</b>	38.6	42.6
<i>Employment status (age &lt; 65 years)</i>												
Employed	7.0	6.2	7.8	9.8	8.9	10.8	50.3	48.3	52.2	46.2	44.3	48.1
Unemployed	4.5*	2.4	8.1	5.2*	3.1	8.8	<b>42.2</b>	35.9	48.8	<b>54.4</b>	47.9	60.8
Not in labour force	5.7	4.7	6.9	8.0	6.8	9.4	<b>46.0</b>	43.2	48.7	<b>49.7</b>	47.0	52.5
<i>Total annual household income</i>												
< \$40,000	<b>5.0</b>	3.9	6.3	<b>7.2</b>	6.0	8.6	<b>45.4</b>	42.3	48.6	<b>51.3</b>	48.2	54.5
\$40,000 to < \$100,000	7.3	6.4	8.2	10.7	9.6	11.9	51.5	49.2	53.7	44.4	42.2	46.6
≥ \$100,000	<b>11.0</b>	8.9	13.5	<b>14.2</b>	11.9	16.9	<b>58.4</b>	55.2	61.5	<b>38.2</b>	35.2	41.2
<i>Psychological distress<sup>c</sup></i>												
Low (< 16)	7.4	6.7	8.1	10.2	9.5	11.1	53.2	51.5	54.9	42.8	41.1	44.5
Moderate (16–21)	7.2	6.2	8.5	9.7	8.5	11.1	48.5	46.1	51.0	48.1	45.6	50.5
High (22–29)	<b>4.4</b>	3.1	6.3	<b>7.0</b>	5.4	9.0	<b>44.3</b>	40.4	48.2	<b>51.3</b>	47.4	55.2
Very high (≥ 30)	5.4*	3.1	9.1	8.5	5.7	12.6	<b>41.8</b>	35.6	48.3	<b>54.4</b>	47.9	60.8
<i>Physical activity<sup>d</sup></i>												
Sedentary	<b>2.1</b>	1.4	3.0	<b>3.6</b>	2.6	5.0	<b>38.4</b>	33.1	44.0	<b>53.8</b>	48.3	59.2
Insufficient time and sessions	<b>3.9</b>	3.2	4.6	<b>6.5</b>	5.7	7.5	<b>43.9</b>	41.5	46.3	<b>52.4</b>	50.0	54.9
Sufficient time and sessions	<b>8.9</b>	8.2	9.7	<b>11.7</b>	10.9	12.6	<b>55.0</b>	53.4	56.5	<b>41.5</b>	40.0	43.1
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>												
Abstainer	6.9	5.7	8.4	9.2	7.8	10.7	53.1	50.1	56.0	43.1	40.1	46.0
Low risk	7.2	6.6	7.8	9.9	9.2	10.6	50.6	49.1	52.0	45.7	44.2	47.1
Risky or high risk	5.9	4.0	8.8	12.1	9.2	15.8	<b>32.0</b>	26.9	37.5	<b>60.4</b>	54.9	65.7
<i>Smoking status</i>												
Current smoker	<b>3.5</b>	2.6	4.7	<b>6.3</b>	5.1	7.7	<b>35.2</b>	32.0	38.6	<b>60.7</b>	57.4	64.0
Ex-smoker	7.1	6.1	8.2	10.5	9.3	11.8	51.1	47.1	55.0	44.6	40.7	48.6
Non-smoker	7.4	6.7	8.1	9.7	9.0	10.5	53.0	51.4	54.6	43.3	41.8	44.9
<i>Self-reported health</i>												
Excellent / very good	<b>8.9</b>	8.1	9.8	<b>11.9</b>	11.0	12.9	<b>56.4</b>	54.5	58.2	<b>39.9</b>	38.1	41.7
Good	5.8	5.0	6.7	8.4	7.6	9.4	<b>46.9</b>	44.9	48.9	<b>49.1</b>	47.1	51.2
Fair / poor	<b>3.8</b>	2.9	5.0	<b>6.3</b>	5.0	7.9	<b>40.1</b>	36.7	43.7	<b>54.9</b>	51.3	58.5
<i>Body weight status<sup>f</sup></i>												
Underweight	8.4	5.7	12.2	11.0	7.9	15.2	46.2	39.9	52.7	49.1	42.8	55.5
Normal	7.7	6.9	8.5	10.3	9.4	11.2	53.3	51.5	55.2	42.8	40.9	44.6
Overweight	7.2	6.2	8.5	10.4	9.1	11.8	51.0	48.3	53.7	44.7	41.9	47.4
Obese	5.5	4.7	6.5	8.3	7.2	9.4	46.7	43.4	50.0	49.9	46.6	53.3
<i>Diabetes (excluding GDM)</i>												
No diabetes	7.0	6.5	7.6	9.8	9.2	10.4	50.3	49.0	51.6	45.7	44.4	47.0
Diabetes	5.5	4.0	7.5	10.8	8.9	13.0	56.1	48.4	63.5	37.8	30.5	45.7

a. Based on national guidelines (NHMRC 2003a).

b. Includes those meeting both guidelines.

c. Based on the Kessler 10 scale for psychological distress.

d. Based on national guidelines (DoHA 1999).

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

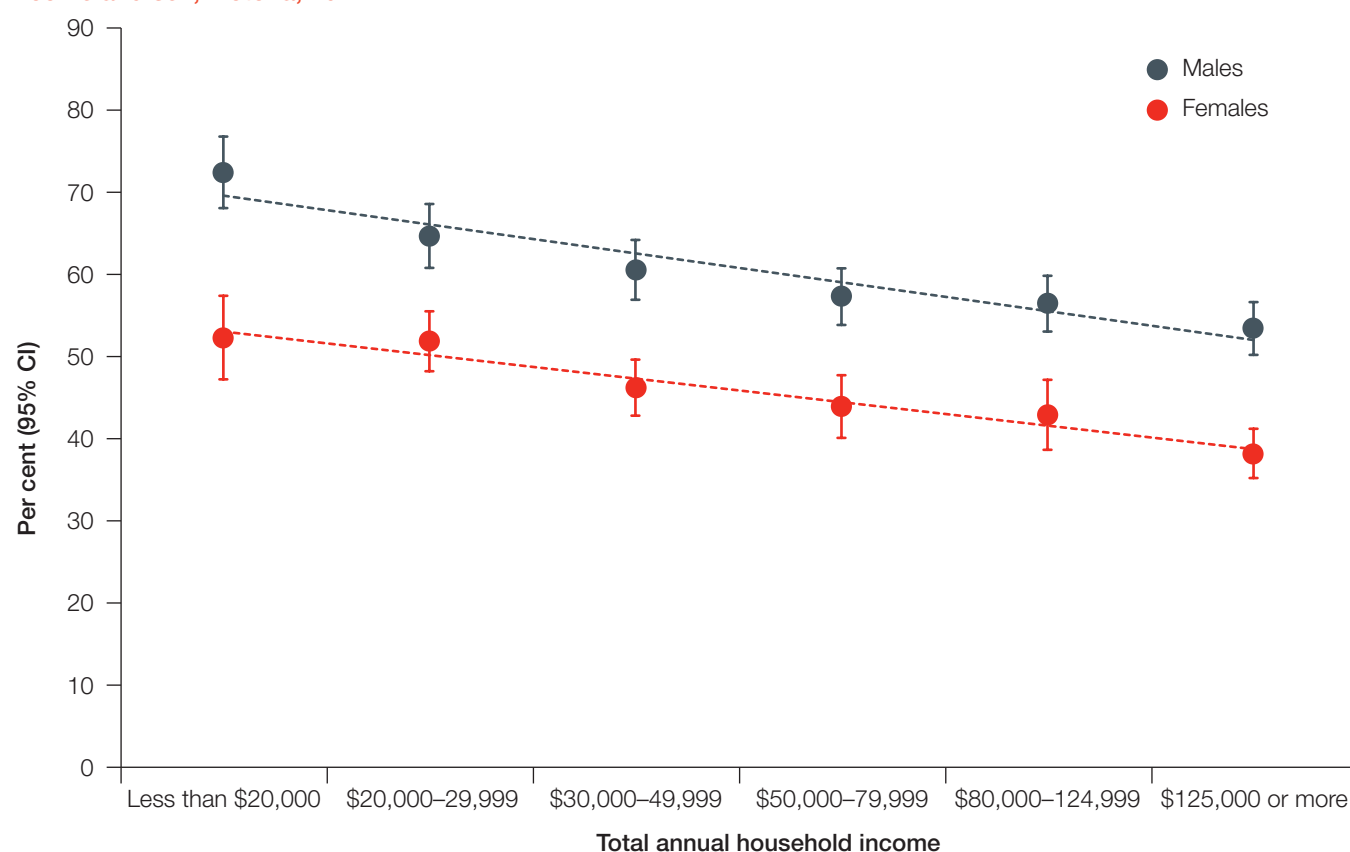
\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

The relationship, if any, was investigated between SES and the age-adjusted prevalence of not meeting the 2003 Australian guidelines for fruit and vegetable consumption, using total annual household income as a measure of SES (Figure 2.15). The proportion of adults who did not meet either guideline significantly decreased with increasing total annual household income in both men and women.

**Figure 2.15: Proportion of adults who did not meet fruit and vegetable consumption guidelines,<sup>a,b</sup> by total annual household income and sex, Victoria, 2011–12**



a. Based on national guidelines (NHMRC 2003a).

b. Includes those not meeting either set of guidelines.

Data were age-standardised to the 2011 Victorian population.

Ordinary least squares linear regression was used to test for statistical significance.

## Discussion

### Interpretation of the findings

The World Health Organization (WHO) lists low fruit and vegetable consumption as one of the top 10 risk factors contributing to global mortality and is responsible for 14 per cent of gastrointestinal deaths, 11 per cent of ischaemic heart disease deaths, nine per cent of stroke deaths and 2.8 per cent of deaths overall worldwide (WHO 2011). Begg and colleagues estimated that inadequate fruit and vegetable consumption is responsible for 2.1 per cent of the total burden of disease in Australia (Begg et al. 2008). In Victoria more than half (51.0 per cent) of the adult population did not consume sufficient fruit and vegetables each day to meet the 2003 Australian guidelines for daily fruit and vegetable consumption.

As with the modifiable health risk factors of smoking and risky drinking (previously covered in this chapter), a significantly higher proportion of men did not consume enough fruit and vegetables compared with their female counterparts. The data show that

men and women who did not consume enough fruit and vegetables were more likely to be of low educational attainment, to be unemployed and to have low total annual household incomes. They were also more likely to be a current smoker, engage in risky drinking, have high levels of psychological distress, be physically inactive and to report overall poorer health status.

Inadequate fruit consumption declined with age in both men and women. However, while inadequate vegetable consumption also declined with age in women, there appeared to be no association with age in men. The implications of this finding are that interventions to increase fruit and vegetable consumption may best be targeted at the younger age groups. Moreover, the apparent sex difference in relation to vegetable consumption may warrant further investigation.

The Victorian Population Health Survey has almost 10 years of data to enable an analysis of trends over time. Inadequate fruit



and vegetable consumption has remained unchanged in men and women from 2003 to 2011–12. Similarly, the proportion of adults with adequate fruit and vegetable consumption remained unchanged from 2003 to 2011–12 in both men and women with one exception: there was a significant decrease in the proportion of women who met both guidelines simultaneously and a significant increase in the proportion of women who refused to disclose or did not know their daily fruit and vegetable consumption. An interpretation of this finding is that there was no real decline in the proportion of women who met both guidelines between 2003 and 2011–12, as the decline observed may reflect the increase in the proportion of women not knowing or refusing to disclose their consumption. This is supported by the observation that women did not experience a significant decline in adequate fruit or vegetable consumption when the guidelines were analysed independently of each other.

There were no notable differences in fruit and vegetable consumption by Department of Health region. The few LGAs that had a significantly higher proportion of adults not meeting either of the 2003 Australian guidelines for fruit and vegetable consumption were of low SES, while those meeting the fruit guidelines only were predominantly of high SES.

A more in-depth analysis of the relationship between fruit and vegetable consumption and SES revealed typical SES gradients for both men and women where the proportion of adults not meeting the fruit, vegetable or either guideline significantly declined with increasing total annual household income. The findings show that inadequate fruit and vegetable consumption is strongly associated with SES. Low educational attainment and unemployment, which are also indicators of SES, were also associated with inadequate fruit and vegetable consumption.

### Other sources of data

The ABS Australian Health Survey 2011–12 reported that 48.3 per cent of Australian adults usually met the guideline for fruit consumption and 8.3 per cent usually met the guideline for vegetable consumption, based on the 2003 Australian guidelines (ABS 2012; 2013a). By comparison, the Victorian Population Health Survey data show that 45.4 per cent and 7.2 per cent of Victorian adults met the guidelines for fruit or vegetable consumption, respectively. Whether the Victorian estimates are significantly lower than the national estimates cannot be ascertained as the Australian Health Survey does not publish 95 per cent confidence intervals to compare between the point estimates. It is not scientifically valid to directly compare the point estimates. Table 2.38 shows the proportion of adults who met the 2003 Australian guidelines for fruit and vegetables, by survey.

**Table 2.38: Compliance with 2003 Australian guidelines for fruit and vegetable consumption,<sup>a</sup> by survey**

Age (years)	Met fruit guideline (%)				Met vegetable guideline (%)			
	Males		Females		Males		Females	
	NHS <sup>b</sup>	VPHS <sup>c</sup>	NHS <sup>b</sup>	VPHS <sup>c</sup>	NHS <sup>b</sup>	VPHS <sup>c</sup>	NHS <sup>b</sup>	VPHS <sup>c</sup>
18–24	41.2	36.3	34.7	45.0	7.1*	6.6	**	5.5
25–34	35.1	33.6	43.3	45.1	5.7*	3.2*	6.6*	6.4
35–44	37.9	39.9	42.7	48.4	5.8*	3.3	10.7	9.8
45–54	39.7	42.0	53.2	52.0	7.6*	4.1	10.4	10.7
55–64	47.5	42.3	55.8	55.3	7.0*	5.3	13.1	13.7
65+	55.6	45.6	65.8	58.1	11.6	5.9	10.0	12.9
<b>Total</b>	<b>42.4</b>	<b>40.0</b>	<b>49.7</b>	<b>50.5</b>	<b>7.4</b>	<b>4.5</b>	<b>9.3</b>	<b>9.7</b>

a. Based on national guidelines (NHMRC 2003a).

b. NHS survey conducted in 2011–12; data for Victoria (ABS 2013a).

c. 2011–12 VPHS

Data for the VPHS are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

## 2.4 Consumption of sugar-sweetened soft drinks and water

### Introduction

In 2011–12 questions were included to measure the consumption of sugar-sweetened soft drinks in Victoria. The term 'sugar-sweetened soft drink' refers to any beverage with added sugar, and includes carbonated drinks, flavoured mineral water, cordial, sports drinks and energy drinks. Ready-to-drink alcoholic beverages were also included as sugar-sweetened beverages because they are mixed with other flavours such as fruit juice or soft drink. All plain, non-flavoured mineral water and soda water were excluded.

The weight of epidemiologic evidence shows that consumption of sugar-sweetened soft drinks has significantly contributed to the obesity epidemic (Malik, Schulze & Hu 2006; Vartanian, Schwartz & Brownell 2007; Woodward-Lopez, Kao & Ritchie 2011). In a meta-analysis of 30 studies, 10 of 12 cross-sectional studies, five of five longitudinal studies and four of four long-term experimental studies showed this positive association (Malik, Schulze & Hu 2006). Another meta-analysis of 88 studies showed a clear association between the intake of sugar-sweetened drinks and increased energy intake leading to weight gain (Chen et al. 2009; Ebbeling et al. 2006; Vartanian, Schwartz & Brownell 2007).

### Consumption of sugar-sweetened and artificially sweetened (diet) soft drinks

Survey participants were asked how often they consumed cordial, soft drinks, flavoured mineral water, energy drinks or sports drinks.

Table 2.39 shows the prevalence of soft drink consumption, irrespective of whether the soft drinks were sugar-sweetened or artificially sweetened diet soft drinks, by frequency, age group and sex. Overall, 22.6 per cent of Victorian adults reported consuming sugar-sweetened or diet soft drinks on a daily basis. The proportion of adults who reported consuming these drinks daily was significantly higher in men (28.6 per cent) compared with women (16.7 per cent). By contrast the proportion of adults who had 'never' consumed soft drinks was 24.7 per cent in all Victorian adults. The proportion of adults who reported that they did not consume soft drinks was significantly higher in women (30.3 per cent) compared with men (18.8 per cent).

The proportion of adults who drank soft drink daily was significantly higher in men aged 18–24 years, women aged 18–34 years and people aged 18–44 years compared with all Victorian men, women and adults, respectively. By contrast the proportion of adults who drank soft drink daily was significantly lower in men, women and people aged 55 years or over compared with all Victorian men, women and adults, respectively.

The proportion of adults who 'never' consumed soft drinks was significantly higher in men, women and people aged 55 years or over compared with all Victorian men, women and adults, respectively. By contrast the proportion of adults who 'never' consumed soft drinks was significantly lower in men, women and people aged 18–44 years compared with all men, women and adults, respectively.

Respondents who reported consuming soft drinks at least once a fortnight were asked whether they mainly consumed sugar-sweetened soft drinks, diet drinks or both.

Table 2.39: Prevalence of soft drinka consumption, by frequency, age group and sex, Victoria, 2011–12

Age group (years)	Daily			Several times per week			About once a week			About once a fortnight			About once a month			Less often than once per month			Never		
	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%
	LL	UL		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL	
<b>Males</b>																					
18–24	37.5	32.0	43.3	27.8	23.2	33.0	18.1	14.1	22.8	5.8*	3.3	9.9	3.3*	1.8	5.9	2.0*	1.1	3.7	5.1*	3.1	8.2
25–34	34.8	30.1	39.8	23.7	19.7	28.3	19.5	15.7	23.9	6.5	4.4	9.6	3.5	2.2	5.6	3.5*	2.0	6.0	8.2	5.8	11.3
35–44	32.2	29.3	35.2	18.4	16.1	21.1	19.2	16.7	21.9	5.3	4.2	6.8	6.4	5.1	8.1	5.6	4.3	7.3	12.8	10.8	15.2
45–54	27.1	24.7	29.7	17.0	15.1	19.2	17.4	15.4	19.6	6.4	5.1	8.1	7.9	6.5	9.5	6.1	4.9	7.6	18.0	16.0	20.3
55–64	22.2	20.1	24.5	15.0	13.3	16.9	13.9	12.2	15.8	5.4	4.4	6.7	7.8	6.5	9.2	8.3	6.9	9.9	27.3	25.0	29.7
65+	17.4	15.8	19.0	10.3	9.1	11.7	10.4	9.2	11.7	4.7	3.9	5.6	8.2	7.1	9.4	9.2	8.1	10.5	39.3	37.2	41.4
<b>Total</b>	<b>28.6</b>	<b>27.1</b>	<b>30.1</b>	<b>18.3</b>	<b>17.1</b>	<b>19.6</b>	<b>16.5</b>	<b>15.3</b>	<b>17.7</b>	<b>5.7</b>	<b>5.0</b>	<b>6.5</b>	<b>6.1</b>	<b>5.5</b>	<b>6.8</b>	<b>5.8</b>	<b>5.2</b>	<b>6.5</b>	<b>18.8</b>	<b>17.8</b>	<b>19.8</b>
<b>Females</b>																					
18–24	22.3	18.0	27.2	22.7	18.4	27.6	23.4	19.2	28.3	7.1	4.8	10.5	9.2	6.5	12.7	3.1*	1.9	5.1	12.2	9.0	16.2
25–34	24.4	21.4	27.6	17.4	14.7	20.5	16.7	14.1	19.7	6.6	4.9	8.7	10.8	8.6	13.4	8.2	6.2	10.7	16.0	13.3	19.0
35–44	18.9	17.1	20.7	14.0	12.5	15.7	18.2	16.4	20.1	6.7	5.6	8.0	10.1	8.7	11.8	8.6	7.4	10.0	23.4	21.3	25.5
45–54	14.2	12.8	15.8	12.2	10.8	13.8	12.9	11.5	14.5	5.7	4.7	6.8	9.5	8.3	10.9	12.1	10.7	13.6	33.2	31.1	35.4
55–64	11.3	10.0	12.7	8.5	7.4	9.8	10.6	9.3	12.0	5.4	4.5	6.4	10.3	9.0	11.7	12.7	11.3	14.2	41.0	38.9	43.1
65+	10.5	9.5	11.6	7.0	6.1	8.0	7.1	6.3	8.1	3.7	3.1	4.5	7.4	6.5	8.4	10.8	9.7	12.0	52.9	51.2	54.7
<b>Total</b>	<b>16.7</b>	<b>15.8</b>	<b>17.7</b>	<b>13.5</b>	<b>12.6</b>	<b>14.5</b>	<b>14.6</b>	<b>13.7</b>	<b>15.6</b>	<b>5.7</b>	<b>5.1</b>	<b>6.3</b>	<b>9.6</b>	<b>8.8</b>	<b>10.4</b>	<b>9.4</b>	<b>8.7</b>	<b>10.1</b>	<b>30.3</b>	<b>29.3</b>	<b>31.3</b>
<b>Persons</b>																					
18–24	30.0	26.5	33.9	25.3	22.1	28.8	20.7	17.7	24.0	6.4	4.6	8.9	6.2	4.6	8.2	2.6	1.7	3.8	8.5	6.6	11.0
25–34	29.6	26.8	32.6	20.6	18.1	23.3	18.1	15.8	20.7	6.6	5.1	8.3	7.1	5.8	8.8	5.8	4.5	7.5	12.0	10.2	14.2
35–44	25.4	23.7	27.2	16.2	14.8	17.7	18.6	17.1	20.3	6.0	5.2	7.0	8.3	7.3	9.5	7.1	6.2	8.2	18.2	16.7	19.8
45–54	20.6	19.1	22.1	14.6	13.3	15.9	15.1	13.9	16.4	6.0	5.2	7.0	8.7	7.7	9.7	9.1	8.2	10.2	25.7	24.2	27.3
55–64	16.6	15.4	18.0	11.7	10.6	12.8	12.2	11.1	13.4	5.4	4.7	6.2	9.1	8.2	10.1	10.5	9.5	11.6	34.3	32.7	35.9
65+	13.6	12.7	14.6	8.5	7.7	9.3	8.6	7.9	9.4	4.2	3.7	4.8	7.7	7.0	8.5	10.1	9.3	10.9	46.7	45.4	48.1
<b>Total</b>	<b>22.6</b>	<b>21.7</b>	<b>23.5</b>	<b>15.8</b>	<b>15.1</b>	<b>16.7</b>	<b>15.5</b>	<b>14.8</b>	<b>16.3</b>	<b>5.7</b>	<b>5.2</b>	<b>6.2</b>	<b>7.8</b>	<b>7.4</b>	<b>8.4</b>	<b>7.6</b>	<b>7.2</b>	<b>8.1</b>	<b>24.7</b>	<b>24.0</b>	<b>25.4</b>

a. Includes both diet and sugar-sweetened soft drinks.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria. \* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 2.40 shows the prevalence of sugar-sweetened (non-diet) soft drink consumption, by frequency, age group and sex. Overall, 20.9 per cent of men and 10.2 per cent of women consumed sugar-sweetened soft drinks daily. An additional 14.8 per cent of men and 9.1 per cent of women consumed sugar-sweetened soft drinks several times a week. Consumption of sugar-sweetened drinks was significantly higher among men compared with women.

**Table 2.40: Prevalence of sugar-sweetened soft drink consumption, by frequency, age group and sex, Victoria, 2011–12**

Age group (years)	Daily			Several times a week			Once a week			Once a fortnight		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	32.6	27.2	38.5	25.6	20.9	30.9	16.1	12.2	21.0	5.8*	3.2	10.2
25–34	25.4	21.2	30.1	19.6	15.8	24.0	15.3	12.0	19.5	6.1	4.0	9.4
35–44	24.5	21.7	27.5	14.7	12.3	17.3	15.9	13.5	18.7	4.2	3.1	5.6
45–54	17.4	15.3	19.8	12.2	10.4	14.3	13.1	11.2	15.3	5.4	4.1	7.1
55–64	13.8	11.9	15.9	10.8	9.1	12.6	10.3	8.7	12.1	4.3	3.3	5.6
65+	12.1	10.6	13.7	8.4	7.2	9.8	8.4	7.2	9.8	4.0	3.2	4.9
<b>Total</b>	<b>20.9</b>	<b>19.5</b>	<b>22.4</b>	<b>14.8</b>	<b>13.6</b>	<b>16.1</b>	<b>13.1</b>	<b>12.0</b>	<b>14.3</b>	<b>4.9</b>	<b>4.2</b>	<b>5.8</b>
<b>Females</b>												
18–24	16.9	12.8	22.1	15.9	12.0	20.8	18.5	14.3	23.6	5.5	3.5	8.6
25–34	16.1	13.4	19.2	13.5	10.9	16.7	14.0	11.3	17.1	5.3	3.6	7.6
35–44	10.5	9.1	12.1	9.3	7.9	10.9	12.1	10.5	14.0	5.1	4.1	6.3
45–54	7.3	6.1	8.6	6.9	5.7	8.4	9.4	8.1	10.9	4.7	3.7	5.9
55–64	5.6	4.6	6.8	5.6	4.5	6.8	7.4	6.2	8.8	3.9	3.1	5.0
65+	5.9	5.1	6.9	4.2	3.5	5.1	4.7	4.0	5.6	2.5	2.0	3.2
<b>Total</b>	<b>10.2</b>	<b>9.3</b>	<b>11.2</b>	<b>9.1</b>	<b>8.2</b>	<b>10.1</b>	<b>10.8</b>	<b>9.9</b>	<b>11.8</b>	<b>4.4</b>	<b>3.8</b>	<b>5.0</b>
<b>Persons</b>												
18–24	25.2	21.7	29.2	21.0	17.9	24.6	17.2	14.3	20.7	5.7	3.9	8.2
25–34	21.1	18.5	24.0	16.8	14.3	19.5	14.7	12.4	17.3	5.7	4.3	7.7
35–44	17.7	16.0	19.4	12.0	10.6	13.6	14.1	12.6	15.7	4.6	3.9	5.5
45–54	12.5	11.2	13.9	9.6	8.5	10.9	11.3	10.1	12.6	5.1	4.2	6.1
55–64	9.8	8.7	11.0	8.2	7.2	9.3	8.9	7.9	10.0	4.1	3.5	4.9
65+	8.7	7.9	9.6	6.2	5.5	6.9	6.4	5.7	7.2	3.2	2.7	3.7
<b>Total</b>	<b>15.8</b>	<b>14.9</b>	<b>16.7</b>	<b>12.0</b>	<b>11.2</b>	<b>12.8</b>	<b>12.0</b>	<b>11.2</b>	<b>12.7</b>	<b>4.6</b>	<b>4.2</b>	<b>5.2</b>

Persons who reported consuming equal amounts of sugar and artificially sweetened soft drinks were classified with those who only consumed artificially sweetened soft drinks, therefore included in the denominator but not numerator.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) between 25 and 50 per cent and should be interpreted with caution.

Table 2.41 shows the prevalence of sugar-sweetened soft drink consumption, by frequency, Department of Health region and sex.

The prevalence of 'daily' consumption of sugar-sweetened soft drinks was significantly higher in men but not women who lived in rural Victoria compared with their metropolitan counterparts.

The prevalence of 'daily' consumption of sugar-sweetened soft drinks was significantly higher in men who lived in Loddon Mallee Region and women who lived in Hume Region.

**Table 2.41: Prevalence of sugar-sweetened soft drink consumption, by frequency, Department of Health region and sex, Victoria, 2011–12**

Region	%	Daily		Several times a week			Once a week			Once a fortnight		
		95% CI		95% CI			95% CI			95% CI		
		LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>												
Eastern Metropolitan	19.2	16.0	22.9	14.1	11.5	17.1	15.6	12.7	19.0	6.2	4.5	8.4
North & West Metropolitan	20.5	18.3	23.0	13.4	11.5	15.6	13.1	11.2	15.3	5.2	3.8	7.0
Southern Metropolitan	19.3	16.6	22.3	16.8	14.1	19.8	12.0	10.0	14.3	4.3	3.1	5.9
<b>Metropolitan males</b>	19.7	18.1	21.3	14.5	13.2	16.0	13.4	12.1	14.9	5.2	4.3	6.3
Barwon-South Western	25.1	19.1	32.3	12.6	9.3	16.8	9.2	6.6	12.7	3.3	1.9	5.7
Gippsland	26.1	21.7	31.0	13.7	10.4	17.9	11.7	9.1	15.0	4.9	3.1	7.6
Grampians	24.4	20.3	29.0	15.0	11.5	19.4	14.6	11.2	18.9	4.1	2.7	6.3
Hume	21.7	18.3	25.6	19.7	15.8	24.4	11.8	8.6	15.9	3.4	2.6	4.6
Loddon Mallee	27.2	23.2	31.6	15.8	12.6	19.5	12.2	9.5	15.5	3.1	1.9	5.0
<b>Rural males</b>	25.2	22.3	28.3	15.4	13.5	17.5	11.8	10.2	13.6	3.6	3.0	4.5
<b>Total</b>	<b>20.9</b>	<b>19.5</b>	<b>22.4</b>	<b>14.8</b>	<b>13.6</b>	<b>16.1</b>	<b>13.1</b>	<b>12.0</b>	<b>14.3</b>	<b>4.9</b>	<b>4.2</b>	<b>5.8</b>
<b>Females</b>												
Eastern Metropolitan	8.2	6.4	10.5	7.4	5.6	9.8	11.6	9.0	14.9	4.3	3.1	5.8
North & West Metropolitan	9.6	8.2	11.1	9.4	8.1	11.0	11.5	10.0	13.2	4.3	3.5	5.4
Southern Metropolitan	10.9	8.8	13.3	9.2	7.3	11.6	9.3	7.5	11.5	4.0	2.9	5.4
<b>Metropolitan females</b>	9.8	8.7	10.9	8.9	7.8	10.0	10.7	9.6	11.9	4.3	3.7	5.1
Barwon-South Western	9.8	6.5	14.5	9.0	6.0	13.4	11.7	8.3	16.2	3.7	2.4	5.7
Gippsland	13.9	10.9	17.6	7.9	6.1	10.0	8.8	7.0	11.1	5.6	3.6	8.8
Grampians	12.9	10.3	16.1	10.7	7.9	14.2	12.1	9.2	15.8	3.4	2.5	4.7
Hume	13.8	11.3	16.6	7.5	6.0	9.4	12.3	10.0	15.0	3.4	2.4	4.7
Loddon Mallee	9.5	7.7	11.6	13.5	10.0	18.1	9.6	7.5	12.1	5.7	4.3	7.6
<b>Rural females</b>	11.6	10.3	13.2	9.9	8.3	11.9	10.7	9.4	12.2	4.4	3.7	5.3
<b>Total</b>	<b>10.2</b>	<b>9.3</b>	<b>11.2</b>	<b>9.1</b>	<b>8.2</b>	<b>10.1</b>	<b>10.8</b>	<b>9.9</b>	<b>11.8</b>	<b>4.4</b>	<b>3.8</b>	<b>5.0</b>
<b>Persons</b>												
Eastern Metropolitan	14.4	12.4	16.8	10.7	9.1	12.6	13.7	11.6	16.0	5.4	4.3	6.9
North & West Metropolitan	15.2	13.8	16.7	11.5	10.3	12.8	12.3	11.0	13.7	4.8	3.9	5.8
Southern Metropolitan	15.1	13.4	17.0	13.0	11.3	14.9	10.6	9.2	12.1	4.1	3.3	5.1
<b>Metropolitan persons</b>	14.9	13.9	15.9	11.7	10.9	12.7	12.1	11.2	13.0	4.8	4.2	5.4
Barwon-South Western	18.4	13.7	24.2	10.7	8.3	13.7	10.4	7.9	13.5	3.5	2.5	5.0
Gippsland	20.2	17.3	23.3	10.9	8.9	13.3	10.3	8.6	12.2	5.2	3.7	7.1
Grampians	18.8	16.1	21.7	13.1	10.6	16.1	13.3	10.9	16.2	3.8	2.8	5.0
Hume	17.9	15.8	20.3	13.5	11.2	16.2	12.1	10.0	14.6	3.4	2.7	4.2
Loddon Mallee	19.1	16.3	22.3	15.0	12.1	18.5	10.5	8.8	12.5	4.5	3.5	5.9
<b>Rural persons</b>	18.8	17.0	20.8	12.7	11.4	14.1	11.2	10.1	12.4	4.0	3.5	4.6
<b>Total</b>	<b>15.8</b>	<b>14.9</b>	<b>16.7</b>	<b>12.0</b>	<b>11.2</b>	<b>12.8</b>	<b>12.0</b>	<b>11.2</b>	<b>12.7</b>	<b>4.6</b>	<b>4.2</b>	<b>5.2</b>

Persons who reported consuming equal amounts of sugar and artificially sweetened soft drinks were classified with those who only consumed artificially sweetened soft drinks, therefore included in the denominator but not numerator.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

# Modifiable health risk factors

Table 2.42, Figure 2.16 and Map 2.4 show the prevalence of daily sugar-sweetened soft drink consumption, by LGA. Compared with all Victorian adults the prevalence of 'daily' consumption of sugar-sweetened soft drinks was significantly higher in adults who lived in Buloke (S), Casey (C), Gannawarra (S), Latrobe (C), Mount Alexander (S), Yarra Ranges (S) and Yarriambiack (S). By contrast the prevalence of 'daily' consumption of sugar-sweetened soft drinks was significantly lower in adults who lived in Glen Eira (C), Maribyrnong (C), Melbourne (C), Nillumbik (S), Port Phillip (C), Stonnington (C) and Yarra (C) compared with all Victorian adults.



Table 2.42: Prevalence of sugar-sweetened soft drink consumption by frequency and LGA, Victoria, 2011–12

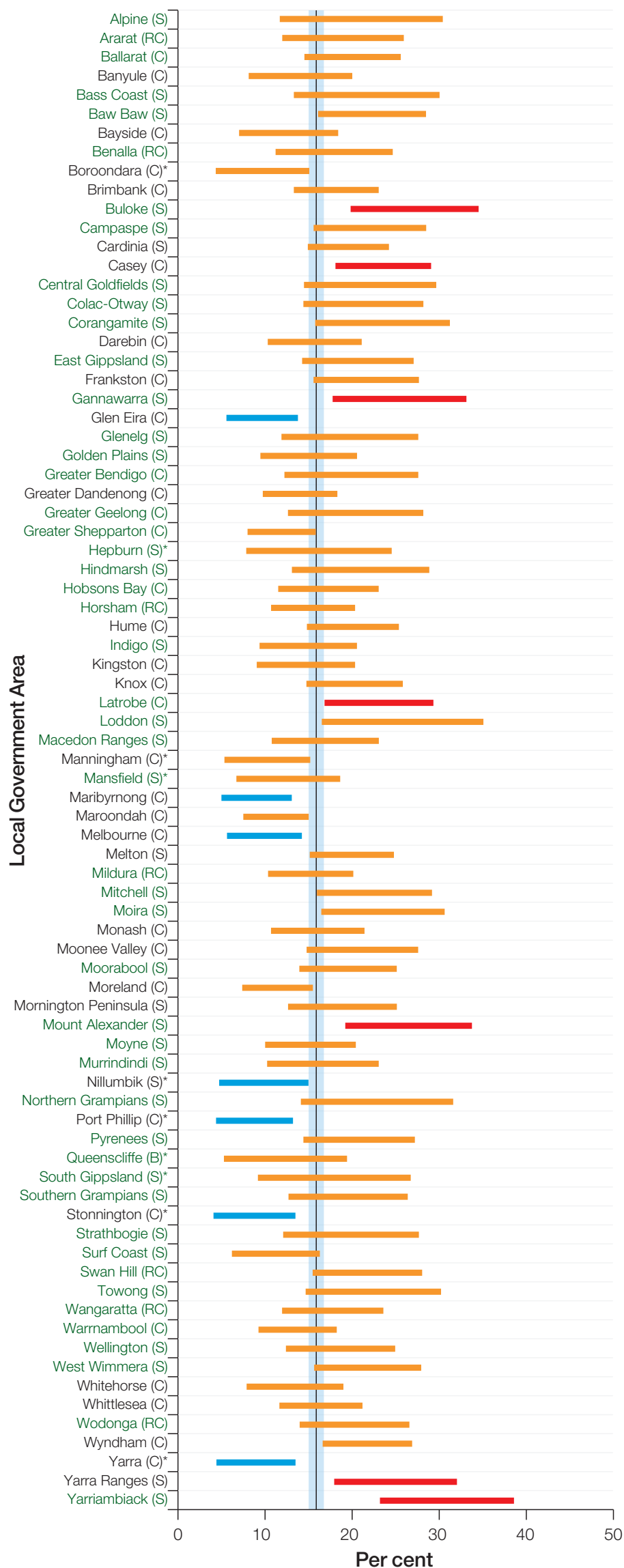
LGA	%	Daily 95% CI		LGA	%	Daily 95% CI	
		LL	UL			LL	UL
Alpine (S)	19.4	11.7	30.4	Mansfield (S)	11.4*	6.7	18.6
Ararat (RC)	17.9	12.0	25.9	Maribyrnong (C)	8.2	5.0	13.1
Ballarat (C)	19.5	14.5	25.6	Maroondah (C)	10.7	7.5	15.0
Banyule (C)	12.9	8.1	20.0	Melbourne (C)	9.1	5.6	14.2
Bass Coast (S)	20.4	13.3	30.0	Melton (S)	19.5	15.1	24.8
Baw Baw (S)	21.7	16.1	28.5	Mildura (RC)	14.6	10.3	20.1
Bayside (C)	11.5	7.0	18.4	Mitchell (S)	21.9	16.0	29.2
Benalla (RC)	16.9	11.2	24.7	Moira (S)	22.8	16.5	30.6
Boroondara (C)	8.2*	4.3	15.1	Monash (C)	15.3	10.7	21.4
Brimbank (C)	17.7	13.3	23.1	Moonee Valley (C)	20.4	14.8	27.6
Buloke (S)	26.5	19.8	34.5	Moorabool (S)	18.9	13.9	25.1
Campaspe (S)	21.3	15.6	28.5	Moreland (C)	10.8	7.4	15.5
Cardinia (S)	19.1	14.9	24.2	Mornington Peninsula (S)	18.1	12.6	25.1
Casey (C)	23.1	18.1	29.1	Mount Alexander (S)	25.8	19.2	33.8
Central Goldfields (S)	21.1	14.5	29.7	Moyne (S)	14.5	10.0	20.4
Colac-Otway (S)	20.4	14.4	28.2	Murrindindi (S)	15.6	10.2	23.1
Corangamite (S)	22.6	15.8	31.2	Nullumbik (S)	8.6*	4.7	15.0
Darebin (C)	14.9	10.3	21.1	Northern Grampians (S)	21.6	14.1	31.6
East Gippsland (S)	19.9	14.3	27.1	Port Phillip (C)	7.7*	4.4	13.2
Frankston (C)	21.0	15.6	27.7	Pyrenees (S)	20.0	14.4	27.2
Gannawarra (S)	24.6	17.8	33.1	Queenscliffe (B)	10.4*	5.3	19.4
Glen Eira (C)	8.8	5.6	13.8	South Gippsland (S)	16.1*	9.2	26.7
Glenelg (S)	18.5	11.9	27.6	Southern Grampians (S)	18.6	12.7	26.4
Golden Plains (S)	14.1	9.5	20.6	Stonnington (C)	7.5*	4.1	13.5
Greater Bendigo (C)	18.7	12.2	27.6	Strathbogie (S)	18.6	12.1	27.7
Greater Dandenong (C)	13.5	9.7	18.3	Surf Coast (S)	10.2	6.2	16.3
Greater Geelong (C)	19.2	12.6	28.2	Swan Hill (RC)	21.1	15.5	28.0
Greater Shepparton (C)	11.3	8.0	15.8	Towong (S)	21.4	14.7	30.2
Hepburn (S)	14.3*	7.8	24.5	Wangaratta (RC)	17.0	12.0	23.6
Hindmarsh (S)	19.8	13.1	28.9	Warrnambool (C)	13.1	9.2	18.2
Hobsons Bay (C)	16.5	11.5	23.0	Wellington (S)	17.8	12.4	24.9
Horsham (RC)	14.9	10.7	20.3	West Wimmera (S)	21.1	15.6	27.9
Hume (C)	19.6	14.8	25.4	Whitehorse (C)	12.4	7.9	19.0
Indigo (S)	14.1	9.4	20.6	Whittlesea (C)	15.8	11.6	21.2
Kingston (C)	13.7	9.0	20.3	Wodonga (RC)	19.5	14.0	26.6
Knox (C)	19.7	14.7	25.8	Wyndham (C)	21.3	16.6	26.9
Latrobe (C)	22.5	16.8	29.3	Yarra (C)	7.8*	4.4	13.5
Loddon (S)	24.6	16.5	35.1	Yarra Ranges (S)	24.3	17.9	32.0
Macedon Ranges (S)	16.0	10.8	23.1	Yarriambiack (S)	30.3	23.2	38.6
Manningham (C)	9.1*	5.3	15.2	<b>Victoria</b>	<b>15.9</b>	<b>15.0</b>	<b>16.8</b>

Persons who reported consuming equal amounts of sugar and artificially sweetened soft drinks were classified with those who only consumed artificially sweetened soft drinks, therefore included in the denominator but not numerator.  
Data were age-standardised to the 2011 Victorian population using 10-year age groups.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.  
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.  
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.  
\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Figure 2.16: Prevalence of daily sugar-sweetened soft drink consumption, by LGA, Victoria, 2011–12



Persons who reported consuming equal amounts of sugar and artificially sweetened soft drinks were classified with those who only consumed artificially sweetened soft drinks, therefore included in the denominator but not numerator.

Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

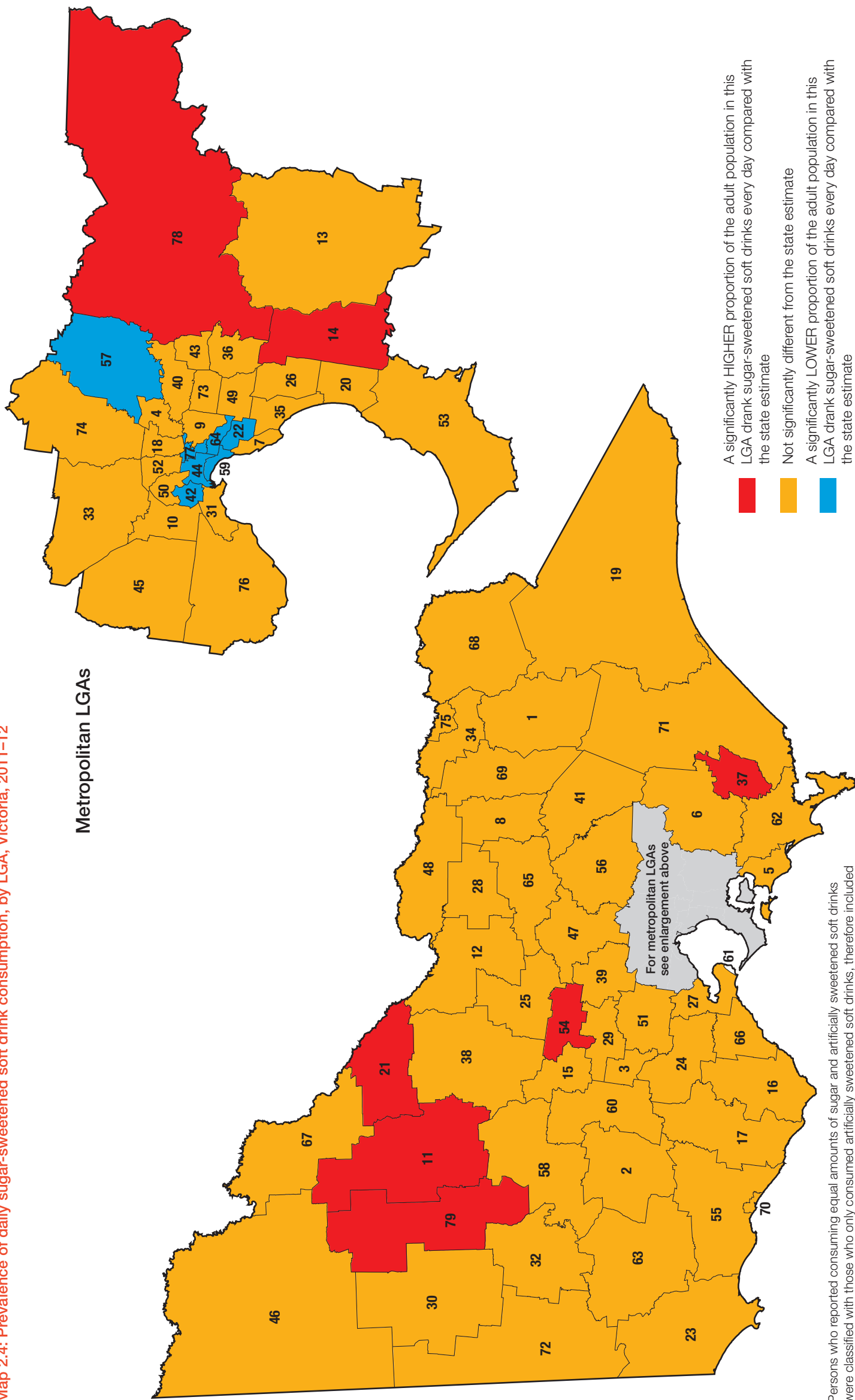
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Map 2.4: Prevalence of daily sugar-sweetened soft drink consumption, by LGA, Victoria, 2011–12



Persons who reported consuming equal amounts of sugar and artificially sweetened soft drinks were classified with those who only consumed artificially sweetened soft drinks, therefore included in the denominator but not numerator.

Note: Local government area (LGA) ID is based on the alphabetical order of LGA names (Table iii).

Table 2.43 shows the prevalence of daily consumption of sugar-sweetened soft drinks, by selected socioeconomic determinants, modifiable risk factors and health status.

When compared with all Victorian men and women there was a significantly higher prevalence of daily consumption of sugar-sweetened soft drinks among men and women with the following characteristics:

- primary education
- very high level of psychological distress
- did not meet either guideline for fruit or vegetable consumption
- current smoker
- fair or poor health status.

When compared with all Victorian women there was a significantly higher prevalence of daily consumption of sugar-sweetened soft drinks among women with the following characteristics:

- total annual household income of \$40,000 or less
- obesity.

When compared with all Victorian men and women there was a significantly lower prevalence of daily consumption of sugar-sweetened soft drinks among men and women with the following characteristics:

- tertiary educated
- met fruit consumption guideline
- diagnosed with diabetes by a doctor.

When compared with all Victorian men there was a significantly lower prevalence of daily consumption of sugar-sweetened soft drinks among men with the following characteristic:

- total annual household income of \$100,000 or more.

When compared with all Victorian women a significantly lower proportion of women consumed sugar-sweetened soft drinks daily with the following characteristics:

- met both guidelines for fruit and vegetable consumption
- met guidelines for vegetable consumption
- excellent or very good health status.

**Table 2.43: Daily consumption of sugar-sweetened soft drinks, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	Males			Females		
	%	95% CI		%	95% CI	
		LL	UL		LL	UL
<b>Total</b>	<b>20.9</b>	<b>19.6</b>	<b>22.4</b>	<b>10.4</b>	<b>9.5</b>	<b>11.5</b>
<i>Area of Victoria</i>						
Rural	24.7	22.1	27.6	11.6	10.2	13.3
Metropolitan	19.7	18.2	21.4	10.0	8.9	11.2
<i>Education level</i>						
Primary	<b>29.8</b>	26.8	33.1	<b>15.2</b>	12.6	18.2
Secondary	22.5	20.3	25.0	10.9	9.5	12.6
Tertiary	<b>13.5</b>	11.5	15.7	<b>6.8</b>	5.6	8.2
<i>Employment status (age &lt; 65 years)</i>						
Employed	22.1	20.3	24.1	10.3	9.1	11.8
Unemployed	29.0	21.7	37.5	12.3	7.8	18.8
Not in labour force	24.7	20.2	29.9	12.4	10.4	14.7
<i>Total annual household income</i>						
< \$40,000	23.7	19.7	28.3	<b>14.1</b>	11.5	17.3
\$40,000 to < \$100,000	24.2	21.8	26.9	11.3	9.6	13.2
≥ \$100,000	<b>15.7</b>	13.4	18.3	7.3	5.5	9.6
<i>Psychological distress <sup>c</sup></i>						
Low (< 16)	19.6	17.9	21.4	9.1	8.0	10.5
Moderate (16–21)	21.4	18.7	24.4	10.6	8.9	12.5
High (22–29)	26.9	21.9	32.5	12.7	10.2	15.6
Very high (≥ 30)	<b>40.9</b>	32.4	49.9	<b>21.8</b>	16.1	28.7
<i>Physical activity <sup>d</sup></i>						
Sedentary	23.1	16.3	31.7	10.4	6.7	15.9
Insufficient time and sessions	21.9	19.0	25.0	11.5	9.6	13.9
Sufficient time and sessions	20.0	18.4	21.7	9.7	8.6	10.9

Persons who reported consuming equal amounts of sugar and artificially sweetened soft drinks were classified with those who only consumed artificially sweetened soft drinks, therefore included in the denominator but not numerator.

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003).

d. Includes those meeting both guidelines.

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

**Table 2.43: Daily consumption of sugar-sweetened soft drinks, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)**

	%	Males		%	Females		
		95% CI			95% CI		
		LL	UL		LL	UL	
<i>Met fruit / vegetable guidelines <sup>d</sup></i>							
Both guidelines	16.0	10.5	23.5	<b>3.5</b>	2.3	5.3	
Vegetable guidelines <sup>e</sup>	18.1	13.2	24.3	<b>5.5</b>	3.7	8.0	
Fruit guidelines <sup>e</sup>	<b>15.5</b>	13.5	17.7	<b>7.0</b>	5.8	8.3	
Neither	<b>24.5</b>	22.7	26.5	<b>13.5</b>	12.1	15.0	
<i>Long-term risk of alcohol-related harm <sup>e</sup></i>							
Abstainer	21.9	18.2	26.1	12.0	10.0	14.2	
Low risk	20.4	18.9	22.0	9.8	8.7	11.0	
Risky or high risk	22.7	16.8	30.0	11.6*	6.5	19.8	
<i>Smoking status</i>							
Current smoker	<b>31.2</b>	27.9	34.7	<b>18.7</b>	16.1	21.7	
Ex-smoker	16.8	14.2	19.6	10.7	8.2	13.8	
Non-smoker	18.1	16.5	19.9	8.7	7.6	9.9	
<i>Self-reported health</i>							
Excellent / very good	18.6	16.7	20.6	<b>7.9</b>	6.8	9.2	
Good	21.8	19.6	24.2	11.3	9.8	13.0	
Fair / poor	<b>26.8</b>	22.9	31.2	<b>17.1</b>	13.9	20.9	
<i>Body weight status <sup>f</sup></i>							
Underweight	21.4*	12.9	33.4	10.7	7.2	15.7	
Normal	20.6	18.5	22.9	9.3	8.0	10.8	
Overweight	18.9	16.8	21.2	10.4	8.5	12.6	
Obese	23.6	19.9	27.7	<b>14.6</b>	11.6	18.1	
<i>Diabetes (excluding GDM)</i>							
No diabetes	21.7	20.3	23.1	10.7	9.7	11.7	
Diabetes	<b>4.1</b>	2.6	6.4	<b>2.7*</b>	1.5	4.9	

Persons who reported consuming equal amounts of sugar and artificially sweetened soft drinks were classified with those who only consumed artificially sweetened soft drinks, therefore included in the denominator but not numerator.

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003).

d. Includes those meeting both guidelines.

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

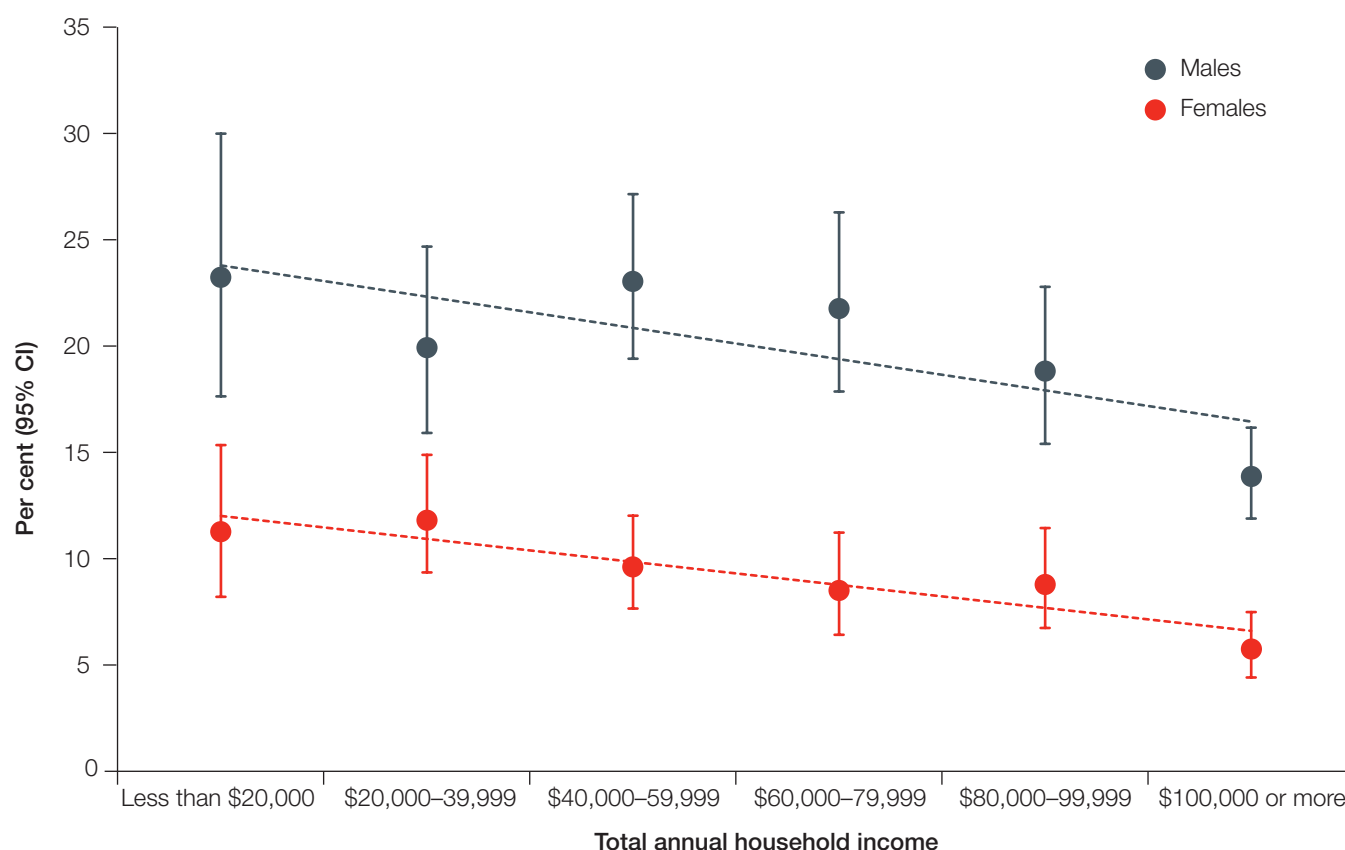
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

The relationship, if any, was investigated between SES and the age-adjusted prevalence of daily consumption of sugar-sweetened soft drinks, using total annual household income as a measure of SES (Figure 2.17). The prevalence of daily consumption of sugar-sweetened soft drinks significantly decreased with increasing household income in women. However, no relationship was found between daily consumption of sugar-sweetened soft drinks and SES in men.

**Figure 2.17 Prevalence of daily consumption of sugar-sweetened soft drinks, by total annual household income and sex, Victoria, 2011–12**



Persons who reported consuming equal amounts of sugar and artificially sweetened soft drinks were classified with those who only consumed artificially sweetened soft drinks, therefore included in the denominator but not numerator.

Data were age-standardised to the 2011 Victorian population.

Ordinary least squares linear regression was used to test for statistical significance.

NS = not statistically significant

Table 2.44 shows the mean volume of sugar-sweetened soft drinks consumed by men and women who drank sugar-sweetened soft drinks daily, by age group. Overall, men drank on average 642 mL per day (approximately 1.7 cans where a can equals 375 mL), while women drank 492 mL per day (approximately 1.3 cans). The mean volume consumed each day declined with age. Men and women aged 18–24 years consumed the largest volumes (749 mL or almost two cans per day versus 593 mL or almost 1.6 cans per day).



**Table 2.44: Mean number of millilitres consumed each day by 'daily' consumers of sugar-sweetened soft drinks, by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	749	593	904	593	463	722	700	583	816
25–34	758	629	886	468	396	540	655	567	743
35–44	700	627	773	505	455	556	644	589	698
45–54	581	526	636	477	416	539	552	509	596
55–64	563	512	615	467	391	542	536	493	579
65+	501	453	549	449	405	493	482	448	516
<b>Total</b>	<b>642</b>	<b>604</b>	<b>680</b>	<b>492</b>	<b>460</b>	<b>524</b>	<b>596</b>	<b>568</b>	<b>624</b>

Mean includes only those who consumed sugar-sweetened soft drinks daily, persons who reported drinking equal quantities of sugar and artificially sweetened soft drinks daily were not included.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 2.45 shows the mean volume of sugar-sweetened soft drinks consumed by men and women who drank sugar-sweetened soft drinks daily, by Department of Health region and sex.

There was no difference between men and women who lived in rural compared with metropolitan Victoria in the mean volume of sugar-sweetened soft drinks consumed daily. Similarly there were no significant differences between Department of Health regions.

**Table 2.45: Mean number of millilitres consumed each day by 'daily' consumers of sugar-sweetened soft drinks, by Department of Health region and sex, Victoria, 2011–12**

Region	Males			Females			Persons		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
		LL	UL		LL	UL		LL	UL
Eastern Metropolitan	610	534	686	412	349	474	572	503	640
North & West Metropolitan	642	577	707	444	397	490	582	533	631
Southern Metropolitan	592	522	662	502	428	576	563	508	618
<b>Metropolitan</b>	<b>622</b>	<b>578</b>	<b>666</b>	<b>464</b>	<b>426</b>	<b>503</b>	<b>573</b>	<b>541</b>	<b>606</b>
Barwon-South Western	735	601	868	581	492	669	649	550	747
Gippsland	660	582	739	609	487	731	646	580	713
Grampians	624	550	698	536	475	597	594	535	653
Hume	698	581	816	585	506	663	638	558	718
Loddon Mallee	804	525	1083	489	425	553	670	533	807
<b>Rural</b>	<b>706</b>	<b>626</b>	<b>787</b>	<b>564</b>	<b>515</b>	<b>614</b>	<b>649</b>	<b>595</b>	<b>704</b>
<b>Total</b>	<b>642</b>	<b>604</b>	<b>680</b>	<b>492</b>	<b>460</b>	<b>524</b>	<b>596</b>	<b>568</b>	<b>624</b>

Mean includes only those who consumed sugar-sweetened soft drinks daily, persons who reported drinking equal quantities of sugar and artificially sweetened soft drinks daily were not included.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Table 2.46 shows the mean volume of sugar-sweetened soft drinks consumed by men and women who drank sugar-sweetened soft drinks daily, by LGA. Adults who lived in the LGAs of Alpine (S), Bayside (C), Brimbank (C), Campaspe (S), Greater Shepparton (C), Manningham (C), Mansfield (S), Mount Alexander (S), Port Phillip (C), Pyrenees (S) and Queenscliffe (B) consumed a significantly lower mean number of millilitres of soft drink each day compared with all Victorian adults.

**Table 2.46: Mean number of millilitres consumed each day by 'daily' consumers of sugar-sweetened soft drinks, by LGA, Victoria, 2011–12**

LGA	Mean	95% CI	
		LL	UL
Alpine (S)	420	342	499
Ararat (RC)	586	507	666
Ballarat (C)	535	432	639
Banyule (C)	612	470	753
Bass Coast (S)	719	519	920
Baw Baw (S)	715	499	931
Bayside (C)	338	284	391
Benalla (RC)	630	437	822
Boroondara (C)	526	387	665
Brimbank (C)	433	343	524
Buloke (S)	588	486	691
Campaspe (S)	473	392	554
Cardinia (S)	696	501	890
Casey (C)	629	489	770
Central Goldfields (S)	726	521	931
Colac-Otway (S)	576	417	736
Corangamite (S)	584	435	732
Darebin (C)	718	464	973
East Gippsland (S)	555	432	678
Frankston (C)	523	440	607
Gannawarra (S)	507	412	602
Glen Eira (C)	526	392	659
Glenelg (S)	710	589	830
Golden Plains (S)	492	417	568
Greater Bendigo (C)	671	469	874
Greater Dandenong (C)	504	422	587
Greater Geelong (C)	731	530	932
Greater Shepparton (C)	442	349	534
Hepburn (S)	606	437	775
Hindmarsh (S)	600	483	718
Hobsons Bay (C)	754	605	904
Horsham (RC)	606	399	813
Hume (C)	532	455	610
Indigo (S)	557	435	680
Kingston (C)	542	406	678
Knox (C)	571	497	645
Latrobe (C)	705	555	856
Loddon (S)	540	448	631
Macedon Ranges (S)	476	376	575
Manningham (C)	412	319	504

LGA	Mean	95% CI	
		LL	UL
Mansfield (S)	444	378	509
Maribyrnong (C)	481	362	600
Maroondah (C)	615	343	887
Melbourne (C)	669	504	834
Melton (S)	564	463	665
Mildura (RC)	1074	510	1638
Mitchell (S)	635	490	780
Moira (S)	836	533	1139
Monash (C)	593	376	810
Moonee Valley (C)	598	481	715
Moorabool (S)	693	518	869
Moreland (C)	519	409	629
Mornington Peninsula (S)	504	423	584
Mount Alexander (S)	348	300	396
Moyne (S)	755	496	1013
Murrindindi (S)	613	384	842
Nillumbik (S)	528	407	650
Northern Grampians (S)	771	573	969
Port Phillip (C)	378	287	468
Pyrenees (S)	506	446	565
Queenscliffe (B)	494	455	534
South Gippsland (S)	483	396	570
Southern Grampians (S)	598	448	749
Stonnington (C)	558	388	728
Strathbogie (S)	603	443	764
Surf Coast (S)	509	433	585
Swan Hill (RC)	662	522	802
Towong (S)	535	406	663
Wangaratta (RC)	882	515	1249
Warrnambool (C)	543	417	669
Wellington (S)	637	529	745
West Wimmera (S)	567	452	682
Whitehorse (C)	671	516	827
Whittlesea (C)	637	505	769
Wodonga (RC)	611	470	752
Wyndham (C)	621	471	772
Yarra (C)	611	439	782
Yarra Ranges (S)	600	487	712
Yarriambiack (S)	669	539	798
<b>Victoria</b>	<b>595</b>	<b>567</b>	<b>624</b>

Mean includes only those who consumed sugar-sweetened soft drinks daily, persons who reported drinking equal quantities of sugar and artificially sweetened soft drinks daily were not included.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population using 10-year age groups.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

## Daily water consumption

Water comprises from 75 per cent of body weight in infants to 55 per cent in the elderly and is essential for cellular homeostasis and life (Popkin, D'Anci & Rosenberg 2010). Studies have produced varying recommendations over the years, but water needs depend on many factors, including health status, physical activity level and the environment. Every day, water is lost through respiration, perspiration, urine and bowel movements. For normal bodily functions, water must be replenished by consuming water and beverages and foods that contain water. Food provides a significant portion of fluid needs. On average, food provides about 20 per cent of total water intake. For example, many types of fruit and vegetables, such as watermelon and tomatoes, are 90 per cent or more water by weight. In addition, beverages such as milk and juice are composed mostly of water. Even beer, wine and caffeinated beverages – such as coffee, tea or soft drinks – can contribute,

but these should not be a major portion of the daily total fluid intake. Water is still the healthiest option because it is calorie-free, inexpensive and readily available.

Survey respondents were asked how much water they usually drank on an average day. Table 2.47 shows that the mean daily water consumption was 1.25 L per day in all Victorian adults. The mean daily water consumption was significantly higher in men (1.32 L per day) compared with women (1.18 L per day).

Men, women and people aged 18–34 years had a significantly higher mean daily intake of water per day compared with all Victorian men, women and adults, respectively. By contrast the mean daily intake of water was significantly lower in men and women aged 55 years or over and people aged 45 years or over compared with all Victorian men, women and adults, respectively.

**Table 2.47: Mean daily water consumption (litres per day), by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	1.72	1.57	1.87	1.32	1.23	1.41	1.52	1.43	1.61
25–34	1.61	1.51	1.72	1.31	1.26	1.36	1.46	1.40	1.52
35–44	1.34	1.28	1.41	1.23	1.20	1.27	1.29	1.25	1.32
45–54	1.24	1.19	1.29	1.16	1.13	1.19	1.20	1.17	1.23
55–64	1.08	1.04	1.13	1.10	1.07	1.13	1.09	1.06	1.12
65+	0.93	0.90	0.96	1.00	0.98	1.02	0.97	0.95	0.99
<b>Total</b>	<b>1.32</b>	<b>1.28</b>	<b>1.35</b>	<b>1.18</b>	<b>1.16</b>	<b>1.20</b>	<b>1.25</b>	<b>1.23</b>	<b>1.27</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 2.48 shows the mean daily intake of water, by Department of Health region and sex. There were no significant differences in mean daily intake by Department of Health region compared with Victoria, or between adults who lived in rural compared with metropolitan Victoria.

**Table 2.48: Mean daily water intake (litres per day), by Department of Health region and sex, Victoria, 2011–12**

Region	Mean	Water intake (L/day)	
		95% CI	
		LL	UL
<b>Males</b>			
Eastern Metropolitan	1.30	1.21	1.39
North & West Metropolitan	1.33	1.28	1.39
Southern Metropolitan	1.29	1.23	1.35
<b>Metropolitan males</b>	1.31	1.27	1.35
Barwon-South Western	1.34	1.20	1.49
Gippsland	1.27	1.17	1.37
Grampians	1.31	1.18	1.45
Hume	1.34	1.25	1.43
Loddon Mallee	1.32	1.20	1.43
<b>Rural males</b>	1.33	1.25	1.40
<b>Total</b>	<b>1.32</b>	<b>1.28</b>	<b>1.35</b>
<b>Females</b>			
Eastern Metropolitan	1.17	1.13	1.21
North & West Metropolitan	1.20	1.16	1.23
Southern Metropolitan	1.19	1.15	1.23
<b>Metropolitan females</b>	1.19	1.17	1.21
Barwon-South Western	1.13	1.07	1.18
Gippsland	1.15	1.09	1.20
Grampians	1.13	1.07	1.19
Hume	1.16	1.12	1.21
Loddon Mallee	1.23	1.16	1.29
<b>Rural females</b>	1.16	1.13	1.18
<b>Total</b>	<b>1.18</b>	<b>1.16</b>	<b>1.20</b>
<b>Persons</b>			
Eastern Metropolitan	1.24	1.19	1.29
North & West Metropolitan	1.27	1.23	1.30
Southern Metropolitan	1.24	1.20	1.28
<b>Metropolitan persons</b>	1.25	1.23	1.27
Barwon-South Western	1.26	1.16	1.35
Gippsland	1.20	1.15	1.26
Grampians	1.23	1.14	1.31
Hume	1.26	1.21	1.31
Loddon Mallee	1.25	1.18	1.33
<b>Rural persons</b>	1.24	1.20	1.28
<b>Total</b>	<b>1.25</b>	<b>1.23</b>	<b>1.27</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Table 2.49 and Figure 2.18 show the mean daily water consumption, by LGA. Adults who lived in the LGAs of Cardinia (S), Central Goldfields (S), East Gippsland (S) and South Gippsland (S) had a significantly lower mean daily intake of water compared with all Victorian adults.

**Table 2.49: Mean daily water intake (litres per day), by LGA, Victoria, 2011–12**

LGA	Mean	95% CI		LGA	Mean	95% CI	
		LL	UL			LL	UL
Alpine (S)	1.28	1.02	1.53	Mansfield (S)	1.32	1.16	1.47
Ararat (RC)	1.21	1.09	1.33	Maribyrnong (C)	1.34	1.22	1.45
Ballarat (C)	1.17	0.99	1.35	Maroondah (C)	1.16	1.06	1.25
Banyule (C)	1.31	1.20	1.43	Melbourne (C)	1.28	1.16	1.39
Bass Coast (S)	1.24	1.13	1.35	Melton (S)	1.30	1.20	1.39
Baw Baw (S)	1.20	1.09	1.30	Mildura (RC)	1.36	1.24	1.49
Bayside (C)	1.26	1.13	1.39	Mitchell (S)	1.24	1.07	1.42
Benalla (RC)	1.56	1.22	1.90	Moira (S)	1.27	1.14	1.41
Boroondara (C)	1.30	1.11	1.48	Monash (C)	1.30	1.20	1.41
Brimbank (C)	1.31	1.20	1.41	Moonee Valley (C)	1.31	1.17	1.46
Buloke (S)	1.27	1.17	1.38	Moorabool (S)	1.30	1.16	1.44
Campaspe (S)	1.39	1.23	1.55	Moreland (C)	1.24	1.14	1.34
Cardinia (S)	1.08	0.99	1.17	Mornington Peninsula (S)	1.26	1.14	1.38
Casey (C)	1.15	1.05	1.25	Mount Alexander (S)	1.25	1.13	1.37
Central Goldfields (S)	1.12	1.01	1.23	Moyne (S)	1.34	1.17	1.52
Colac-Otway (S)	1.12	0.97	1.26	Murrindindi (S)	1.28	0.96	1.60
Corangamite (S)	1.29	1.05	1.52	Nilumbik (S)	1.13	1.01	1.25
Darebin (C)	1.25	1.12	1.38	Northern Grampians (S)	1.34	1.21	1.48
East Gippsland (S)	1.10	0.98	1.21	Port Phillip (C)	1.30	1.18	1.42
Frankston (C)	1.17	1.06	1.27	Pyrenees (S)	1.14	0.97	1.30
Gannawarra (S)	1.31	1.20	1.41	Queenscliffe (B)	1.26	1.16	1.36
Glen Eira (C)	1.26	1.14	1.38	South Gippsland (S)	1.09	0.97	1.22
Glenelg (S)	1.41	1.21	1.60	Southern Grampians (S)	1.16	0.97	1.34
Golden Plains (S)	1.28	1.17	1.40	Stonnington (C)	1.29	1.18	1.39
Greater Bendigo (C)	1.19	1.04	1.34	Strathbogie (S)	1.09	0.94	1.24
Greater Dandenong (C)	1.28	1.19	1.37	Surf Coast (S)	1.41	1.04	1.78
Greater Geelong (C)	1.28	1.13	1.44	Swan Hill (RC)	1.26	1.13	1.39
Greater Shepparton (C)	1.24	1.11	1.38	Towong (S)	1.37	1.21	1.54
Hepburn (S)	1.21	1.04	1.37	Wangaratta (RC)	1.21	1.11	1.31
Hindmarsh (S)	1.48	1.23	1.73	Warrnambool (C)	1.20	1.10	1.30
Hobsons Bay (C)	1.31	1.14	1.48	Wellington (S)	1.16	1.04	1.29
Horsham (RC)	1.31	1.20	1.42	West Wimmera (S)	1.38	1.22	1.55
Hume (C)	1.21	1.11	1.30	Whitehorse (C)	1.26	1.09	1.43
Indigo (S)	1.30	1.18	1.42	Whittlesea (C)	1.26	1.14	1.38
Kingston (C)	1.33	1.18	1.49	Wodonga (RC)	1.33	1.23	1.43
Knox (C)	1.25	1.14	1.35	Wyndham (C)	1.22	1.13	1.31
Latrobe (C)	1.29	1.17	1.42	Yarra (C)	1.21	1.08	1.34
Loddon (S)	1.41	1.24	1.57	Yarra Ranges (S)	1.14	1.03	1.25
Macedon Ranges (S)	1.16	1.04	1.29	Yarriambiack (S)	1.38	1.24	1.52
Manningham (C)	1.21	1.11	1.30	<b>Victoria</b>	<b>1.25</b>	<b>1.23</b>	<b>1.27</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

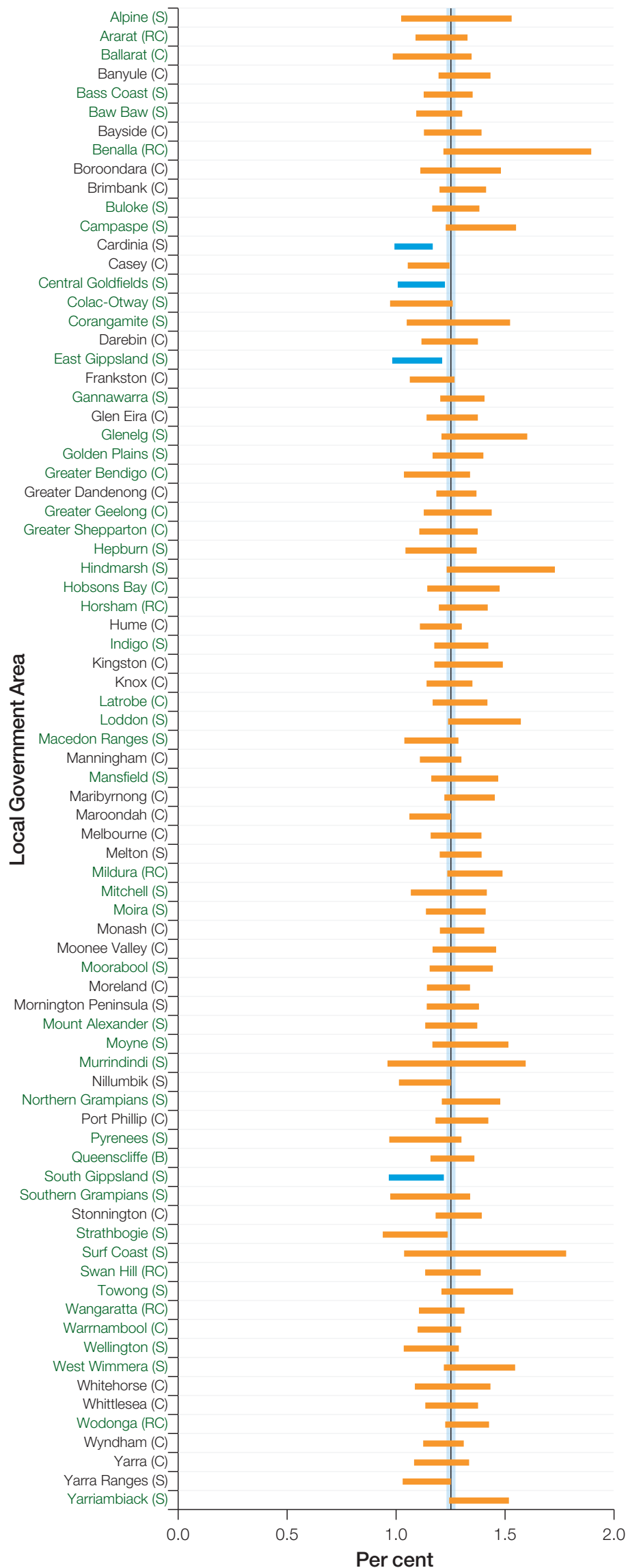
Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Figure 2.18: Mean daily intake of water (litres per day), by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.



## Discussion

### Interpretation of the findings

WHO and the Surgeon General of the United States have cited sugar-sweetened soft drinks as a key contributor to the development of obesity (Dorfman et al. 2012). Sugar-sweetened soft drinks alone account for at least one-fifth of the weight gained between 1977 and 2007 in the United States (Woodward-Lopez, Kao & Ritchie 2011). While the food industry disputes the evidence, there is emerging evidence that sugar may be addictive in some people, especially when combined with the known addictive properties of caffeine found in sugar-sweetened soft drinks (Dorfman et al. 2012; Gearhardt, Corbin & Brownell 2009).

The consumption of soft drink among adults will continue to be reported in future reports of the Victorian Population Health Survey. The current results show that less than one-quarter of the adult population (24.7 per cent) had never consumed soft drinks, while almost half (46.9 per cent) of men and almost a third (30.2 per cent) of women consumed soft drinks daily or several times a week. However, when those who drank artificially sweetened diet soft drinks are eliminated from the analysis, the prevalence of consuming sugar-sweetened soft drinks daily or several times a week decreased to 35.7 per cent of men and 19.4 per cent of women.

There is emerging, but disputed, evidence that artificially sweetened diet soft drinks may also be contributing to the obesity epidemic. Fowler et al. (2008) proposed two possible mechanisms of action. Artificial sweeteners are significantly sweeter than sugar and may therefore indirectly contribute to the obesity epidemic by distorting taste thereby increasing the appetite for sweet, high-caloric foods. Alternatively or additionally, artificial sweeteners in high doses may directly cause neurotoxicity and increase obesity by increasing leptin resistance. However, more evidence is needed.

The prevalence of soft drink consumption and the mean number of glasses of soft drink consumed on average is age and sex-related, being significantly lower in people aged 55 years or over and higher in men. Since sugar-sweetened soft drink consumption increased by 240 per cent between 1969 and 1999 (Hector et al. 2009), it may be possible that this age-related finding is a cohort effect that may disappear over time if nothing is done to reduce overall consumption of sugar-sweetened soft drinks. Of particular note and concern are the findings that more than one-third of men aged 18–24 years and approximately 17 per cent of women in this age group consumed sugar-sweetened soft drinks every day and did so by consuming on average 749 mL and 593 mL, respectively. These volumes are equivalent to two cans and 1.6 cans per day, where a typical can of soft drink is 375 mL.

A higher proportion of men, but not women, who lived in rural Victoria had a significantly higher prevalence of daily sugar-sweetened soft drink consumption and consumed a significantly higher mean number of millilitres of soft drink than their metropolitan counterparts. This is consistent with other findings in this report for other lifestyle risk factors and confirms that people who live in rural Victoria have higher levels of personal risk that may contribute to the poorer health outcomes noted in the national and international literature (Ansari et al. 2003; Smith, Humphreys & Wilson 2008).

Six of the seven LGAs that had a significantly higher prevalence of daily sugar-sweetened soft drink consumption compared with Victoria were in the two lowest IRSED quintiles, indicating low SES and suggesting a strong association of sugar-sweetened soft drink consumption with SES. This association was confirmed by the finding that the prevalence of sugar-sweetened daily soft drink consumption significantly increased with decreasing total annual household income. This is not an unexpected finding and is consistent with the findings for other lifestyle risk factors, such as smoking and inadequate fruit and vegetable consumption. A higher prevalence of lifestyle risk factors in those of low SES undoubtedly contributes to poorer health outcomes.

Men and women with specific characteristics, some of which are indicative of low SES such as a primary education and low income, also had a higher prevalence of daily sugar-sweetened soft drink consumption. A higher prevalence of daily soft drink consumption was also observed among people with the lifestyle risk factors of smoking, obesity (in women only), inadequate fruit and vegetable consumption and high levels of psychological distress but not inadequate physical activity or risky drinking. The latter is understandable in that a *reverse* SES gradient for risky drinking was observed in the survey findings.

### Concluding remarks

Given the significant contribution of sugar-sweetened soft drinks to the obesity epidemic, it seems remiss that there has been very little collection of data on the prevalence of sugar-sweetened soft drink consumption in Australia. The ABS is currently conducting its second national nutrition survey using 24-hour dietary recall interviews and will be able to report on soft drink consumption in Australia. However, the National Health Surveys do not currently include short-form questions on sugar-sweetened soft drink consumption. Future reports of the Victorian Population Health Survey will continue to report and monitor the consumption of sugar-sweetened drinks over time.

## 2.5 Physical activity

### Introduction

Physical inactivity is a major modifiable risk factor for a range of conditions, including cardiovascular disease, type 2 diabetes, some cancers, osteoporosis, depression/anxiety and falls among the elderly. Moreover, physical activity improves cognitive function in the elderly, prevents weight gain and maintains current body weight and, in conjunction with a low-calorie diet, promotes weight loss. The evidence suggests that health benefits accrue with increasing levels of physical activity and that this protective effect occurs even if adopted in middle and later life. Therefore physical activity is an obvious target for health promotion. Monitoring physical activity levels at the population level is relevant for investigating the outcomes of health promotion efforts.

Information was collected on three types of physical activity to measure the extent to which the population is engaging in sufficient physical activity to achieve a health benefit and meet the current national guidelines:

- (i) time spent walking (for more than 10 minutes at a time) for recreation or exercise, or to get to and from places
- (ii) time spent doing vigorous household chores (excluding gardening)
- (iii) time spent doing vigorous activities other than household chores and gardening (for example, tennis, jogging, cycling or keep-fit exercises).

The level of health benefit achieved from physical activity partly depends on the intensity of the activity. In general, to obtain 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* (DoHA 1999). 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.

The sum of the proportion of people who undertake only vigorous physical activity or walking and vigorous activity sets the upper limit for the proportion of the population who may satisfy both the health benefit and health fitness criteria to meet the guidelines on physical activity. The actual proportion of people who fulfil both criteria 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 a health benefit because it addresses the regularity of the activity undertaken. 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.

A person who satisfied both criteria (time and number of sessions) was classified as doing 'sufficient' physical activity to achieve an added health benefit in the analysis that follows. The number of minutes spent on physical activity was 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).

The 1999 *National physical activity guidelines for adults* were applied to all respondents (persons aged 18 years or over) to provide information about the prevalence of different levels of physical activity, including sufficient physical activity to achieve a health benefit. Subsequently, in 2004 the Australian Government established physical activity recommendations for children aged 12–18 years (DoHA 2004); in 2006 it devised recommendations on physical activity for health for older people (persons aged 65 years or over and Aboriginal and Torres Strait Islanders aged over 55 years) (DoHA 2006). While the latter set of recommendations were developed to complement the existing guidelines, the recommendations for children pertain to both undertaking physical activity and limiting time spent on non-educational activities that involve sitting still for a long period of time (e.g. internet use, playing computer games or watching TV, videos or DVDs). However, the newer sets of guidelines have not been applied to this data. Table 2.50 outlines the definitions of sufficient activity and session per week, as applied to the Victorian Population Health Survey.

**Table 2.50: Definition of sufficient physical activity time and sessions per week**

Physical activity category	Time and sessions per week
Sedentary	0 minutes
Insufficient time and/or sessions	Less than 150 minutes or 150 or more minutes, but fewer than five sessions
Sufficient time and sessions	150 minutes and five or more sessions

Data were collected on the number of sessions and the duration of each type of physical activity.

### Type of physical activity undertaken in past week

Table 2.51 shows the proportion of the population undertaking physical activity, by type of physical activity, age group and sex. The proportion of men and women who reported engaging in walking combined with vigorous activity was significantly higher among younger men and women and declined with age. By contrast there were significantly higher proportions of men and

women aged 55 years or over who reported 'walking only' as their only form of physical activity. There was also a significantly higher proportion of men and women aged 65 years or over who reported not doing any physical activity compared with all Victorian men and women, respectively. There was no difference between the sexes for any type of physical activity.

**Table 2.51: Types of physical activity undertaken during the week prior to the interview, by age group and sex, Victoria, 2011–12**

Age group (years)	None			Walking only			Vigorous only			Walking / Vigorous		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	1.5*	0.6	4.1	18.3*	13.9	23.7	4.4	2.5	7.6	72.2*	66.5	77.3
25–34	6.0	3.9	9.0	20.6	16.8	24.9	4.3	2.7	6.6	65.6	60.6	70.2
35–44	4.1	3.0	5.6	20.0	17.5	22.7	7.4	6.0	9.3	65.8	62.7	68.7
45–54	4.2	3.1	5.6	23.4	21.1	25.9	5.4	4.3	6.8	63.2	60.4	65.8
55–64	6.4	5.2	7.9	31.9	29.5	34.4	4.7	3.8	6.0	53.0	50.3	55.6
65+	8.6	7.5	9.8	40.4	38.3	42.5	4.6	3.8	5.5	41.5	39.5	43.6
<b>Total</b>	<b>5.4</b>	<b>4.8</b>	<b>6.2</b>	<b>26.1</b>	<b>24.8</b>	<b>27.4</b>	<b>5.3</b>	<b>4.7</b>	<b>6.0</b>	<b>59.5</b>	<b>58.0</b>	<b>61.0</b>
<b>Females</b>												
18–24	2.0*	1.0	3.9	15.3*	11.7	19.7	2.8	1.6	4.8	76.8*	71.9	81.1
25–34	4.1	2.8	6.0	20.8	17.8	24.1	5.0	3.6	6.9	66.5	62.7	70.0
35–44	3.6	2.7	4.8	17.9	16.1	19.9	5.8	4.7	7.0	69.9	67.6	72.1
45–54	5.0	4.1	6.0	20.7	19.0	22.6	5.1	4.2	6.1	65.5	63.4	67.6
55–64	6.1	5.1	7.3	30.6	28.6	32.7	4.1	3.4	5.0	55.3	53.1	57.4
65+	10.8	9.8	12.0	38.4	36.7	40.1	5.3	4.6	6.1	40.2	38.5	41.9
<b>Total</b>	<b>5.6</b>	<b>5.1</b>	<b>6.2</b>	<b>24.2</b>	<b>23.2</b>	<b>25.3</b>	<b>4.8</b>	<b>4.3</b>	<b>5.3</b>	<b>61.6</b>	<b>60.4</b>	<b>62.7</b>
<b>Persons</b>												
18–24	1.8*	1.0	3.2	16.8*	13.9	20.3	3.6	2.4	5.4	74.5	70.7	77.9
25–34	5.1	3.8	6.7	20.7	18.2	23.4	4.6	3.5	6.1	66.0	63.0	69.0
35–44	3.9	3.1	4.8	18.9	17.4	20.6	6.6	5.7	7.7	67.8	65.9	69.7
45–54	4.6	3.9	5.4	22.0	20.6	23.6	5.3	4.5	6.1	64.4	62.6	66.1
55–64	6.3	5.5	7.2	31.3	29.7	32.9	4.4	3.8	5.2	54.2	52.5	55.8
65+	9.8	9.0	10.6	39.3	38.0	40.6	5.0	4.5	5.6	40.8	39.5	42.1
<b>Total</b>	<b>5.5</b>	<b>5.1</b>	<b>6.0</b>	<b>25.1</b>	<b>24.3</b>	<b>26.0</b>	<b>5.1</b>	<b>4.7</b>	<b>5.5</b>	<b>60.5</b>	<b>59.5</b>	<b>61.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.52 shows the proportion of the population who undertook physical activity, by type of physical activity, Department of Health region and sex. A significantly higher proportion of men who lived in Eastern Metropolitan Region and Gippsland Region undertook walking combined with vigorous physical activity compared with all Victorian men, while the proportion of men who undertook physical activity in North & West Metropolitan Region was significantly lower. A significantly

higher proportion of women who lived in Grampians Region and rural Victoria overall undertook walking combined with vigorous physical activity compared with all Victorian women and their metropolitan counterparts. By contrast a significantly lower proportion of women who lived in North & West Metropolitan Region undertook walking combined with vigorous physical activity compared with all Victorian women.

**Table 2.52: Types of physical activity undertaken during the past week, by Department of Health region and sex, Victoria, 2011–12**

Region	%	None		Walking only			Vigorous only			Walking / Vigorous		
		95% CI		95% CI			95% CI			95% CI		
		LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>												
Eastern Metropolitan	4.8	3.4	6.6	22.2	19.7	25.0	5.8	4.4	7.6	64.5	61.2	67.6
North & West Metropolitan	5.6	4.5	6.9	31.0	28.6	33.5	5.3	4.1	6.7	54.0	51.4	56.6
Southern Metropolitan	6.1	4.8	7.8	26.2	23.5	29.0	3.9	2.8	5.4	60.5	57.3	63.5
<b>Metropolitan males</b>	5.6	4.8	6.4	27.2	25.6	28.7	5.0	4.3	5.9	58.7	56.9	60.4
Barwon-South Western	3.3	2.2	4.8	28.4	22.5	35.1	5.3	3.3	8.2	59.3	52.7	65.5
Gippsland	3.4	2.3	4.9	19.7	16.8	22.9	4.1	2.9	5.9	67.6	63.7	71.3
Grampians	4.2	3.2	5.4	25.4	21.5	29.9	5.9	4.4	8.0	60.6	56.1	65.0
Hume	4.7	3.2	6.9	22.9	19.4	26.8	8.3	6.2	10.8	60.9	56.6	65.1
Loddon Mallee	9.4	5.9	14.7	18.3	15.6	21.3	7.3	5.0	10.4	60.0	55.1	64.7
<b>Rural males</b>	5.1	3.8	6.8	23.2	20.5	26.2	6.1	5.1	7.2	61.4	58.3	64.3
<b>Total</b>	<b>5.4</b>	<b>4.8</b>	<b>6.2</b>	<b>26.1</b>	<b>24.8</b>	<b>27.4</b>	<b>5.3</b>	<b>4.7</b>	<b>6.0</b>	<b>59.5</b>	<b>58.0</b>	<b>61.0</b>
<b>Females</b>												
Eastern Metropolitan	4.5	3.4	6.0	23.8	21.1	26.8	4.0	3.2	5.1	64.5	61.3	67.5
North & West Metropolitan	7.0	6.0	8.1	26.7	25.0	28.6	4.8	3.9	5.8	57.1	55.1	59.1
Southern Metropolitan	5.5	4.5	6.7	24.0	21.6	26.5	5.0	4.0	6.3	62.1	59.4	64.8
<b>Metropolitan females</b>	5.9	5.3	6.6	25.0	23.8	26.3	4.7	4.2	5.4	60.6	59.2	62.0
Barwon-South Western	3.6	2.5	5.1	24.7	20.6	29.3	4.2	3.0	5.8	64.4	59.9	68.7
Gippsland	6.5	5.1	8.3	19.3	17.1	21.7	4.8	3.7	6.2	65.5	62.6	68.3
Grampians	4.5	3.4	5.8	19.6	16.9	22.6	5.3	3.9	7.1	67.2	63.8	70.5
Hume	6.0	4.8	7.5	21.9	19.3	24.7	5.4	4.3	6.8	63.2	60.1	66.1
Loddon Mallee	4.0	3.3	5.0	20.6	18.5	23.0	4.6	3.4	6.1	65.2	61.1	69.1
<b>Rural females</b>	4.8	4.3	5.5	21.4	19.9	23.0	4.7	4.1	5.4	65.1	63.3	66.9
<b>Total</b>	<b>5.6</b>	<b>5.1</b>	<b>6.2</b>	<b>24.2</b>	<b>23.2</b>	<b>25.3</b>	<b>4.8</b>	<b>4.3</b>	<b>5.3</b>	<b>61.6</b>	<b>60.4</b>	<b>62.7</b>
<b>Persons</b>												
Eastern Metropolitan	4.5	3.7	5.6	22.9	21.1	24.9	5.1	4.2	6.1	64.5	62.3	66.7
North & West Metropolitan	6.3	5.6	7.2	28.8	27.3	30.3	5.0	4.3	5.9	55.6	53.9	57.2
Southern Metropolitan	5.9	5.0	6.8	25.0	23.2	26.8	4.5	3.7	5.4	61.3	59.3	63.3
<b>Metropolitan persons</b>	5.8	5.3	6.3	26.0	25.0	27.0	4.9	4.4	5.4	59.7	58.5	60.8
Barwon-South Western	3.4	2.6	4.4	26.5	22.0	31.4	4.7	3.5	6.2	62.0	57.1	66.7
Gippsland	5.1	4.1	6.3	19.3	17.5	21.3	4.5	3.6	5.6	66.5	64.1	68.9
Grampians	4.3	3.6	5.2	22.6	20.0	25.3	5.6	4.5	6.9	63.9	61.0	66.7
Hume	5.3	4.3	6.5	22.3	20.1	24.7	6.8	5.7	8.2	62.2	59.5	64.7
Loddon Mallee	7.1	4.6	10.7	19.8	17.9	21.8	5.5	4.2	7.2	62.3	58.8	65.7
<b>Rural persons</b>	5.0	4.2	5.9	22.4	20.8	24.1	5.3	4.8	6.0	63.2	61.3	65.1
<b>Total</b>	<b>5.5</b>	<b>5.1</b>	<b>6.0</b>	<b>25.1</b>	<b>24.3</b>	<b>26.0</b>	<b>5.1</b>	<b>4.7</b>	<b>5.5</b>	<b>60.5</b>	<b>59.5</b>	<b>61.5</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

# Modifiable health risk factors

Table 2.53 shows the proportion of the population who undertook physical activity, by type of physical activity and LGA. Significantly higher proportions of adults who lived in the LGAs of Ballarat (C), Bass Coast (S), Benalla (RC), Colac-Otway (S), Golden Plains (S), Knox (C), Latrobe (C), Macedon Ranges (S), Mansfield (S), Maroondah (C), Moyne (S), Queenscliffe (B), Surf Coast (S), Towong (S), Wangaratta (RC), Warrnambool (C) and Wellington (S) undertook walking combined with vigorous activity compared with all Victorian adults. By contrast there were significantly lower proportions of adults who lived in the LGAs of Brimbank (C), Greater Dandenong (C), Hume (C), Whittlesea (C) and Wyndham (C) who undertook walking combined with vigorous activity compared with all Victorian adults.

Figure 2.19 and Map 2.5 shows the proportion of the population who undertook physical activity, by LGA. There were significantly higher proportions of adults who lived in the LGAs of Greater Dandenong (C) and Whittlesea (C) who did not undertake any physical activity compared with all Victorian adults.

Table 2.53: Types of physical activity undertaken during the previous week, by LGA, Victoria, 2011–12

LGA	None			Walking only			Vigorous only			Walking / Vigorous		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	**	**	**	15.4	11.7	19.9	5.3	3.5	7.8	69.4	59.9	77.5
Ararat (RC)	4.4	3.0	6.3	22.7	16.9	29.8	8.2*	4.1	15.5	61.8	54.0	69.0
Ballarat (C)	3.7	2.3	5.9	21.8	17.5	26.9	4.0*	2.4	6.7	68.0	62.8	72.9
Banyule (C)	5.4	3.7	7.7	25.7	20.5	31.7	6.0*	3.6	10.0	58.6	52.1	64.8
Bass Coast (S)	7.5*	4.1	13.5	17.7	14.0	22.1	3.7*	2.0	6.7	69.1	62.9	74.7
Baw Baw (S)	3.8*	2.1	6.8	20.3	16.4	25.0	4.5*	2.5	8.1	64.7	58.8	70.2
Bayside (C)	2.6	1.6	4.0	22.0	16.4	28.9	2.8*	1.3	5.9	69.0	61.7	75.4
Benalla (RC)	3.5	2.3	5.4	18.4	14.2	23.5	6.7	4.2	10.5	68.6	63.1	73.7
Boroondara (C)	3.1	2.0	4.8	22.0	17.4	27.3	5.8*	3.3	10.1	66.6	60.3	72.4
Brimbank (C)	6.4	4.4	9.4	33.9	28.8	39.3	2.9*	1.6	5.1	52.9	47.3	58.3
Buloke (S)	6.2	4.0	9.4	18.6	14.9	23.0	6.6*	3.9	10.9	62.0	55.2	68.4
Campaspe (S)	6.0	4.4	8.3	20.9	16.6	26.0	8.8*	4.5	16.3	60.9	53.7	67.8
Cardinia (S)	6.2	4.3	8.9	19.2	15.2	23.9	6.5	4.2	9.9	63.3	58.0	68.2
Casey (C)	7.2	5.1	10.2	24.6	19.5	30.5	6.8	4.6	9.8	58.0	52.1	63.8
Central Goldfields (S)	5.8*	3.0	10.7	18.9	14.9	23.8	14.3*	6.2	29.5	56.2	45.5	66.4
Colac-Otway (S)	3.1	2.0	4.9	20.5	15.5	26.7	4.4	2.8	6.8	70.0	63.9	75.5
Corangamite (S)	5.9	4.0	8.6	19.0	14.2	24.9	5.8*	3.5	9.5	62.3	54.2	69.7
Darebin (C)	4.7	3.2	7.0	30.5	25.2	36.4	2.2*	1.2	3.9	57.7	51.8	63.4
East Gippsland (S)	4.6	2.8	7.3	20.7	15.6	27.0	5.8*	3.4	9.6	65.4	58.5	71.6
Frankston (C)	4.6*	2.7	7.9	24.3	19.0	30.6	5.9*	3.0	11.1	63.0	56.2	69.3
Gannawarra (S)	8.9*	4.7	16.4	17.7	14.4	21.5	7.9	4.8	12.6	60.7	53.0	67.9
Glen Eira (C)	4.9	3.2	7.4	20.9	17.1	25.3	2.7*	1.5	4.6	66.1	60.7	71.1
Glenelg (S)	5.6	3.6	8.6	21.1	17.5	25.1	8.2*	3.3	19.0	62.6	54.1	70.3
Golden Plains (S)	4.3	2.7	6.9	16.4	13.4	19.9	4.1*	2.2	7.6	70.9	66.2	75.1
Greater Bendigo (C)	8.3*	3.7	17.6	19.1	15.4	23.5	3.1*	1.4	6.9	62.7	54.5	70.3
Greater Dandenong (C)	13.8	10.1	18.5	33.8	28.9	39.0	6.5	4.1	10.3	41.4	35.9	47.0
Greater Geelong (C)	2.4*	1.3	4.2	28.8	22.3	36.3	4.6	3.0	7.2	60.2	52.7	67.3
Greater Shepparton (C)	5.8*	3.3	10.2	30.2	23.4	38.0	6.5*	3.7	11.3	53.1	45.1	60.9
Hepburn (S)	3.9	2.7	5.6	27.9	20.0	37.5	6.1*	2.7	13.2	58.4	48.3	67.7
Hindmarsh (S)	4.2	2.9	6.1	28.0	21.1	36.2	7.2*	4.0	12.6	54.4	46.0	62.6
Hobsons Bay (C)	7.6	4.8	11.9	27.5	22.8	32.9	4.0*	2.4	6.6	58.6	52.7	64.2
Horsham (RC)	4.6	3.2	6.6	26.9	18.1	37.9	6.7	4.5	9.9	57.9	47.6	67.6
Hume (C)	8.2	5.6	12.0	28.2	23.3	33.5	6.8	4.4	10.3	49.6	43.7	55.5
Indigo (S)	4.4*	1.7	10.5	17.7	14.0	22.1	7.9*	4.3	14.1	65.1	58.3	71.4
Kingston (C)	6.4*	3.6	10.9	23.4	18.8	28.8	3.2*	1.8	5.8	64.4	58.2	70.2
Knox (C)	3.3	2.1	5.2	22.1	17.6	27.3	3.7*	2.2	6.3	67.4	62.1	72.3
Latrobe (C)	5.7	3.9	8.2	19.1	15.6	23.1	3.5*	1.9	6.2	67.0	62.3	71.4
Loddon (S)	5.3	3.3	8.5	29.4	21.0	39.4	3.6	2.3	5.6	53.9	45.2	62.4
Macedon Ranges (S)	3.5*	2.0	6.0	17.6	13.8	22.4	4.8	2.9	7.8	70.6	65.4	75.3
Manningham (C)	3.8	2.5	5.7	23.6	19.3	28.6	6.4*	3.8	10.5	64.2	58.5	69.5
Mansfield (S)	3.2*	1.9	5.4	20.1	14.5	27.2	4.3*	2.6	6.9	69.8	62.6	76.0
Maribyrnong (C)	5.8*	3.4	10.0	27.7	23.0	32.9	7.7*	3.3	16.8	55.4	48.5	62.1



Table 2.53: Types of physical activity undertaken during the previous week, by LGA, Victoria, 2011–12 (continued)

LGA	%	None		Walking only			Vigorous only			Walking / Vigorous		
		95% CI		95% CI			95% CI			95% CI		
		LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Maroondah (C)	4.2*	2.3	7.5	19.6	15.2	25.0	3.6	2.3	5.6	69.2	63.2	74.6
Melbourne (C)	1.8*	0.9	3.5	30.7	25.2	36.8	2.8*	1.1	6.6	59.9	53.8	65.8
Melton (S)	7.7	5.2	11.5	26.5	21.8	31.8	4.9*	2.9	8.1	55.3	49.7	60.8
Mildura (RC)	5.4	3.7	7.8	21.9	17.5	27.0	6.5	4.1	10.2	62.3	56.5	67.8
Mitchell (S)	5.5	3.4	8.5	19.5	15.2	24.6	8.4	5.6	12.4	61.7	55.7	67.3
Moira (S)	5.2	3.3	8.3	23.4	18.6	29.1	6.7	4.3	10.3	63.1	57.0	68.8
Monash (C)	6.1*	3.6	10.2	23.4	19.1	28.2	5.2	3.3	8.1	61.9	56.2	67.3
Moonee Valley (C)	5.1	3.5	7.2	24.6	20.0	29.9	4.0*	2.4	6.5	61.8	56.0	67.2
Moorabool (S)	4.6*	2.6	7.9	23.3	18.8	28.5	8.0	5.2	12.3	60.5	54.8	66.0
Moreland (C)	5.7	3.7	8.6	25.3	20.7	30.5	7.2*	4.3	11.7	58.8	52.9	64.4
Mornington Peninsula (S)	3.2	2.0	5.2	26.0	20.5	32.4	3.2*	1.8	5.4	64.5	57.7	70.7
Mount Alexander (S)	3.9	2.6	6.0	20.2	14.0	28.1	4.0*	2.2	7.3	67.4	59.4	74.4
Moyne (S)	4.8	3.2	7.2	18.5	14.4	23.4	4.1*	2.5	6.7	67.7	62.2	72.7
Murrindindi (S)	2.9*	1.7	4.7	27.5	20.1	36.4	4.7	3.0	7.4	62.5	53.8	70.5
Nillumbik (S)	6.9*	3.5	13.0	15.2	11.5	19.9	8.1	4.9	12.9	66.9	60.1	73.1
Northern Grampians (S)	6.2	4.3	8.7	24.7	18.8	31.7	6.3	4.1	9.7	56.2	49.3	62.8
Port Phillip (C)	1.8*	0.9	3.5	25.6	20.3	31.8	4.1*	1.7	9.4	65.9	59.1	72.1
Pyrenees (S)	3.6*	2.0	6.3	20.0	15.8	25.0	8.1*	4.7	13.6	60.5	53.1	67.4
Queenscliffe (B)	2.0*	1.0	4.0	17.9	12.4	25.1	3.0*	1.3	7.0	76.0	68.5	82.2
South Gippsland (S)	5.2	3.2	8.2	19.0	12.5	27.8	6.6	4.4	9.7	62.2	53.5	70.1
Southern Grampians (S)	4.9	3.3	7.2	23.1	17.5	29.9	1.7*	0.9	3.2	67.4	60.7	73.4
Stonnington (C)	3.4*	1.4	8.0	26.5	21.4	32.3	0.9*	0.4	2.3	65.2	58.8	71.1
Strathbogie (S)	4.1*	2.4	6.9	19.7	14.7	25.9	13.2*	5.4	28.8	59.4	47.7	70.1
Surf Coast (S)	5.8*	2.9	11.3	16.9	12.3	22.9	3.7*	2.2	6.0	71.4	64.3	77.6
Swan Hill (RC)	8.7*	5.0	14.5	22.1	18.4	26.3	5.2	3.2	8.1	61.4	55.6	66.8
Towong (S)	4.0	2.6	6.0	15.7	12.2	20.0	8.1	5.1	12.5	68.7	63.3	73.6
Wangaratta (RC)	5.2*	2.8	9.3	16.3	12.9	20.4	3.4*	1.9	6.1	70.9	64.9	76.3
Warrnambool (C)	3.9	2.5	6.0	22.6	19.0	26.7	4.4	2.8	7.0	67.5	63.2	71.5
Wellington (S)	3.4	2.1	5.5	19.6	15.8	24.2	4.2*	2.4	7.3	68.5	62.8	73.7
West Wimmera (S)	7.8*	4.2	14.0	21.0	16.5	26.4	7.8	5.0	12.0	58.4	51.6	64.8
Whitehorse (C)	4.2	2.6	6.6	26.4	21.9	31.5	4.6	2.8	7.4	62.2	57.0	67.0
Whittlesea (C)	9.1	6.3	12.9	33.0	27.7	38.8	6.5	4.0	10.3	47.4	41.6	53.2
Wodonga (RC)	5.4	3.6	7.9	20.5	16.1	25.7	7.0	4.5	10.9	64.2	58.5	69.6
Wyndham (C)	5.8	3.6	9.2	32.9	27.8	38.3	3.9	2.4	6.4	51.9	46.4	57.3
Yarra (C)	7.2*	2.7	17.7	20.1	15.9	25.2	3.6*	2.1	6.4	66.7	58.5	73.9
Yarra Ranges (S)	6.7*	4.0	11.0	18.9	14.9	23.7	6.4	4.1	9.9	63.9	57.7	69.6
Yarriambiack (S)	5.4	3.6	8.2	22.0	17.3	27.5	4.1	2.6	6.3	60.2	52.5	67.3
<b>Victoria</b>	<b>5.5</b>	<b>5.1</b>	<b>5.9</b>	<b>25.0</b>	<b>24.1</b>	<b>25.8</b>	<b>5.0</b>	<b>4.6</b>	<b>5.4</b>	<b>60.8</b>	<b>59.8</b>	<b>61.7</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

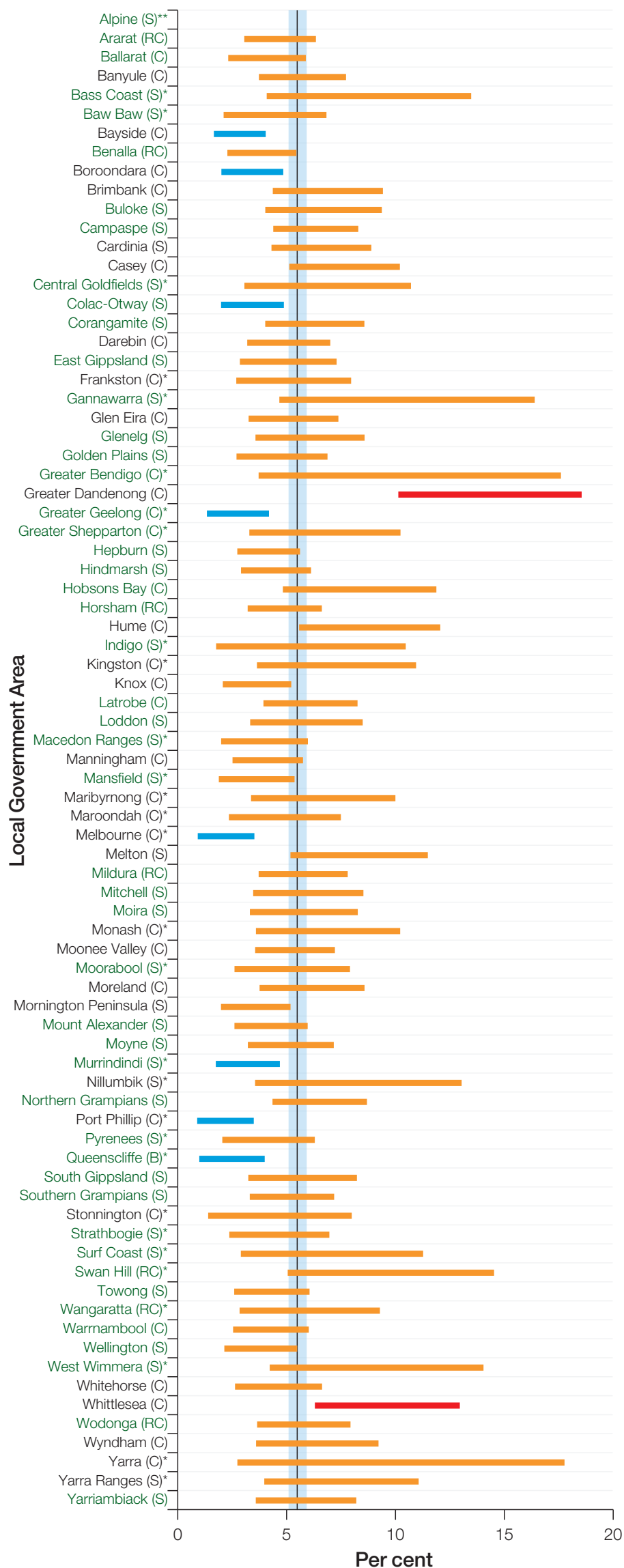
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Figure 2.19: Prevalence of physical inactivity, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

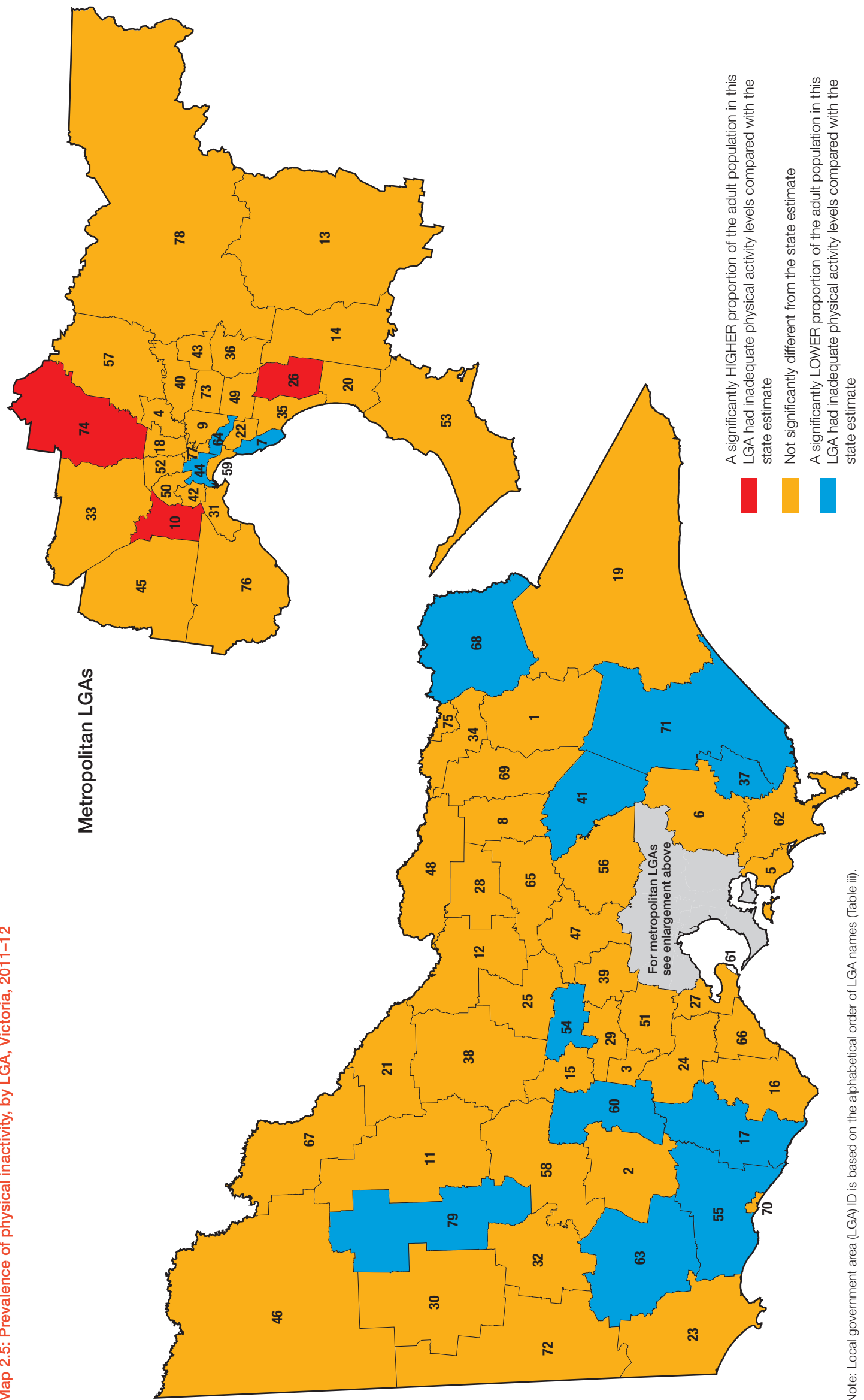
95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Map 2.5: Prevalence of physical inactivity, by LGA, Victoria, 2011-12



### Met the 1999 Australian physical activity guidelines

Table 2.54 shows the physical activity levels of the Victorian population categorised by whether the level of physical activity met the 1999 Australian guidelines, by age group and sex. Overall, there was a significantly higher proportion of men who had engaged in sufficient physical activity (65.9 per cent) compared with women (61.7 per cent). There was a significantly higher proportion of men aged 18–24 years who had engaged in sufficient physical activity compared with all Victorian men. There were significantly higher proportions of women aged 18–24 and 35–44 years who had engaged in sufficient physical activity compared with all Victorian women.

Sedentary behaviour was reported by 5.5 per cent of Victorian adults, with no significant difference between the sexes. There were significantly higher proportions of men and women aged 65 years or over who reported sedentary behaviour compared with all Victorian men and women respectively.

**Table 2.54: Physical activity, by age group and sex, Victoria, 2011–12**

Age group (years)	Sedentary			Insufficient time and sessions			Sufficient time and sessions		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
18–24	1.6*	0.6	4.1	17.0	13.0	22.0	77.3	72.0	81.9
25–34	6.0	3.9	9.0	22.1	18.1	26.7	69.5	64.5	74.0
35–44	4.1	3.0	5.6	26.3	23.6	29.1	67.5	64.4	70.4
45–54	4.2	3.1	5.6	24.8	22.4	27.3	67.4	64.7	70.0
55–64	6.4	5.2	7.9	26.2	24.0	28.6	63.7	61.1	66.1
65+	8.6	7.5	9.8	31.9	29.9	33.9	54.3	52.2	56.4
<b>Total</b>	<b>5.4</b>	<b>4.8</b>	<b>6.2</b>	<b>25.2</b>	<b>23.9</b>	<b>26.6</b>	<b>65.9</b>	<b>64.4</b>	<b>67.3</b>
<b>Females</b>									
18–24	2.0*	1.0	3.9	19.9	15.9	24.5	74.9	70.0	79.2
25–34	4.1	2.8	6.0	26.5	23.2	30.0	65.4	61.7	69.0
35–44	3.6	2.7	4.8	27.6	25.5	29.8	65.8	63.5	68.1
45–54	5.0	4.1	6.0	25.3	23.4	27.3	66.0	63.9	68.1
55–64	6.1	5.1	7.3	30.7	28.7	32.8	58.9	56.7	61.0
65+	10.8	9.8	12.0	36.7	35.0	38.4	45.0	43.2	46.7
<b>Total</b>	<b>5.6</b>	<b>5.1</b>	<b>6.2</b>	<b>28.2</b>	<b>27.1</b>	<b>29.4</b>	<b>61.7</b>	<b>60.5</b>	<b>62.9</b>
<b>Persons</b>									
18–24	1.8*	1.0	3.2	18.4	15.5	21.7	76.1	72.6	79.3
25–34	5.1	3.8	6.7	24.3	21.6	27.1	67.5	64.4	70.4
35–44	3.9	3.1	4.8	26.9	25.2	28.7	66.6	64.7	68.5
45–54	4.6	3.9	5.4	25.0	23.5	26.6	66.7	65.0	68.4
55–64	6.3	5.5	7.2	28.5	27.0	30.1	61.2	59.6	62.9
65+	9.8	9.0	10.6	34.5	33.2	35.8	49.2	47.9	50.6
<b>Total</b>	<b>5.5</b>	<b>5.1</b>	<b>6.0</b>	<b>26.7</b>	<b>25.9</b>	<b>27.6</b>	<b>63.7</b>	<b>62.8</b>	<b>64.7</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

The trend over time of physical activity levels, adjusted for age, was investigated (Table 2.55 and Figure 2.20). The proportions of men and women who engaged in sedentary behaviour, insufficient physical activity or sufficient physical activity remained unchanged between 2005 and 2011–12.

**Table 2.55: Physical activity from 2005 to 2011–12, by sex, Victoria**

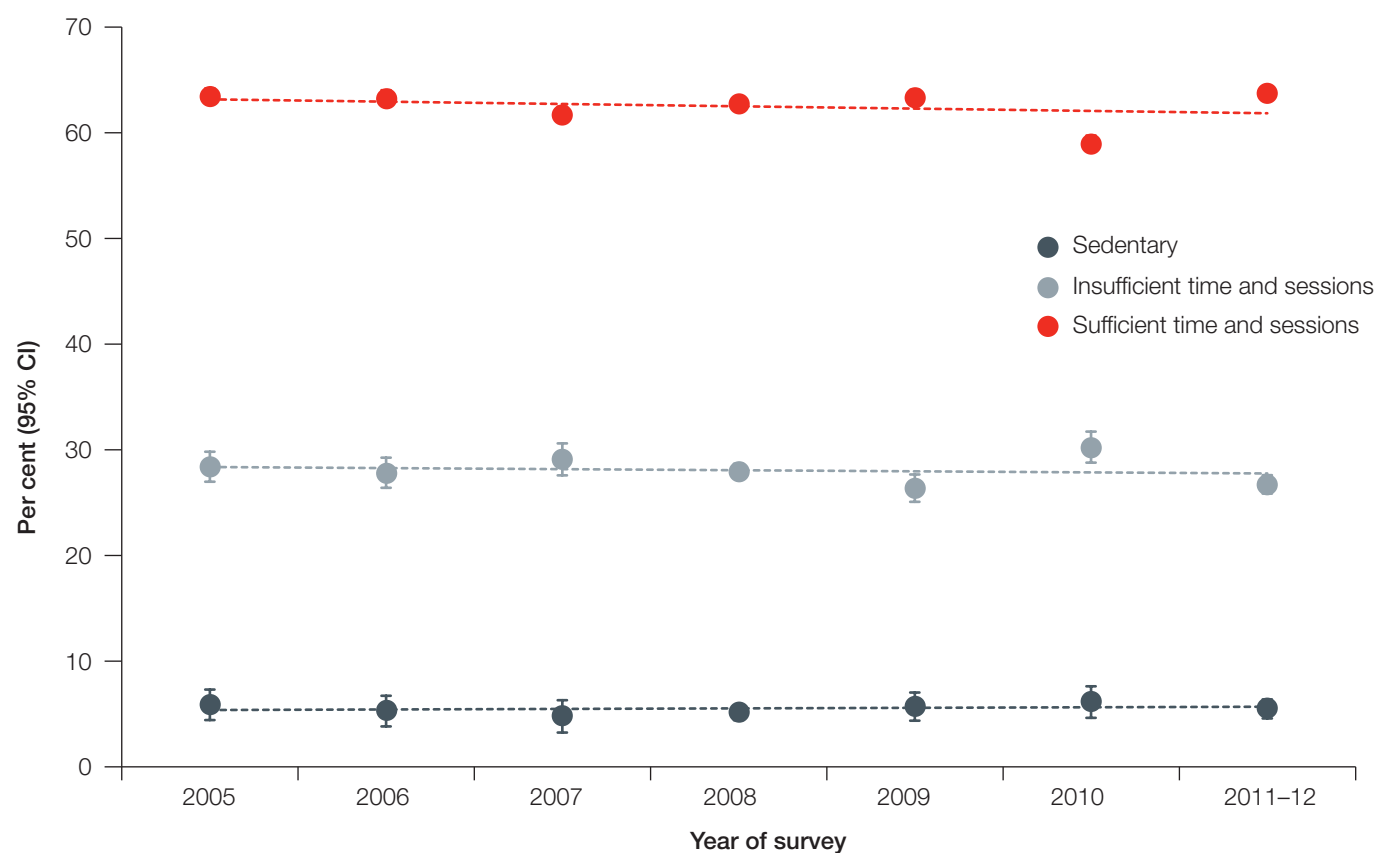
	2005			2006			2007			2008			2009			2010			2011–12		
	95% CI			95% CI			95% CI			95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>																					
Sedentary	6.6	5.6	7.9	4.9	4.0	6.1	4.8	3.9	5.8	5.1	4.6	5.6	5.9	4.9	7.0	6.2	5.2	7.3	5.4	4.8	6.2
Insufficient time and sessions	28.0	25.8	30.2	27.6	25.5	29.9	28.2	25.9	30.6	27.9	26.7	29.1	26.2	24.2	28.2	28.3	26.2	30.5	25.2	23.9	26.6
Sufficient time and sessions	63.4	61.0	65.7	64.0	61.6	66.3	63.4	60.9	65.9	63.3	62.0	64.6	63.6	61.4	65.8	61.2	58.8	63.4	65.9	64.4	67.3
<b>Females</b>																					
Sedentary	5.4	4.6	6.2	5.6	4.8	6.5	4.9	4.2	5.8	5.4	5.0	5.8	5.7	4.9	6.6	6.2	5.5	7.1	5.6	5.1	6.2
Insufficient time and sessions	28.9	27.1	30.7	28.1	26.3	29.9	29.9	28.0	31.8	27.9	27.0	28.9	26.4	24.8	28.1	32.1	30.2	34.1	28.2	27.1	29.4
Sufficient time and sessions	63.4	61.5	65.3	62.8	60.9	64.6	60.4	58.4	62.3	62.4	61.4	63.4	63.3	61.6	65.1	57.1	55.1	59.1	61.7	60.5	62.9
<b>Persons</b>																					
Sedentary	5.9	5.3	6.7	5.4	4.7	6.1	4.8	4.3	5.5	5.3	4.9	5.6	5.8	5.2	6.5	6.2	5.6	6.9	5.5	5.1	6.0
Insufficient time and sessions	28.4	27.0	29.8	27.8	26.4	29.3	29.1	27.6	30.6	27.9	27.2	28.7	26.4	25.1	27.7	30.2	28.8	31.7	26.7	25.9	27.6
Sufficient time and sessions	63.5	62.0	65.0	63.3	61.8	64.8	61.8	60.2	63.4	62.8	62.0	63.6	63.4	62.0	64.8	59.1	57.5	60.6	63.7	62.8	64.7

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data were age-standardised to the 2011 Victorian population.

Ordinary least squares regression was used to test for trends over time.

Figure 2.20: Physical activity from 2005 to 2011–12, Victoria



95% CI = 95 per cent confidence interval.

Data were age-standardised to the 2011 Victorian population.

Ordinary least squares regression was used to test for trends over time.

Table 2.56 shows physical activity levels categorised by whether the level of physical activity met the 1999 Australian guidelines, by Department of Health region and sex. There were no significant differences between the regions in the proportions of men who engaged in sedentary behaviour. However, there were significantly lower proportions of women who lived in Barwon-South Western Region and Loddon Mallee Region who engaged in sedentary behaviour compared with all Victorian women.

There were no significant differences between the regions in the proportions of men or women who engaged in sufficient physical activity compared with all Victorian men and women, respectively. However, there was a significantly higher proportion of adults who lived in Gippsland Region who engaged in sufficient physical activity, while there was a significantly lower proportion of adults who lived in North & West Metropolitan Region compared with all Victorian adults.

There were no significant differences between the regions in the proportions of men who did not engage in sufficient physical activity compared with all Victorian men. By contrast there was a significantly lower proportion of women who lived in Loddon Mallee Region who did not engage in sufficient physical activity compared with all Victorian women. Moreover, there were significantly lower proportions of adults who lived in Gippsland Region and Loddon Mallee Region who did not engage in sufficient physical activity compared with all Victorian adults.

Table 2.56: Physical activity, by Department of Health region and sex, Victoria, 2011–12

Region	Sedentary			Insufficient time and sessions			Sufficient time and sessions		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
Eastern Metropolitan	4.8	3.4	6.6	25.1	22.1	28.4	67.1	63.6	70.4
North & West Metropolitan	5.6	4.5	6.9	27.7	25.4	30.1	62.8	60.2	65.3
Southern Metropolitan	6.1	4.8	7.8	23.6	21.0	26.4	67.4	64.4	70.3
<b>Metropolitan males</b>	5.6	4.8	6.4	25.7	24.2	27.3	65.4	63.6	67.0
Barwon-South Western	3.3	2.2	4.8	24.7	17.9	32.9	68.9	60.7	76.1
Gippsland	3.4	2.3	4.9	21.8	18.5	25.4	71.0	67.2	74.6
Grampians	4.2	3.2	5.4	26.7	22.9	30.9	64.6	60.4	68.6
Hume	4.7	3.2	6.9	26.6	22.8	30.8	65.2	60.9	69.3
Loddon Mallee	9.4	5.9	14.7	21.3	18.2	24.8	64.8	59.6	69.6
<b>Rural males</b>	5.1	3.8	6.8	24.3	21.6	27.3	66.8	63.8	69.7
<b>Total</b>	<b>5.4</b>	<b>4.8</b>	<b>6.2</b>	<b>25.2</b>	<b>23.9</b>	<b>26.6</b>	<b>65.9</b>	<b>64.4</b>	<b>67.3</b>
<b>Females</b>									
Eastern Metropolitan	4.5	3.4	6.0	28.6	25.8	31.6	63.2	60.1	66.3
North & West Metropolitan	7.0	6.0	8.1	29.7	27.8	31.6	58.6	56.6	60.6
Southern Metropolitan	5.5	4.5	6.7	28.0	25.5	30.6	62.1	59.3	64.8
<b>Metropolitan females</b>	5.9	5.3	6.6	28.9	27.6	30.3	60.8	59.4	62.2
Barwon-South Western	3.6	2.5	5.1	26.2	22.1	30.8	65.5	61.0	69.8
Gippsland	6.5	5.1	8.3	24.6	21.9	27.4	64.0	60.9	67.0
Grampians	4.5	3.4	5.8	27.3	23.6	31.3	64.4	60.4	68.2
Hume	6.0	4.8	7.5	27.2	24.4	30.1	62.8	59.7	65.8
Loddon Mallee	4.0	3.3	5.0	24.2	21.7	26.8	65.5	61.3	69.4
<b>Rural females</b>	4.8	4.3	5.5	25.7	24.1	27.5	64.7	62.8	66.5
<b>Total</b>	<b>5.6</b>	<b>5.1</b>	<b>6.2</b>	<b>28.2</b>	<b>27.1</b>	<b>29.4</b>	<b>61.7</b>	<b>60.5</b>	<b>62.9</b>
<b>Persons</b>									
Eastern Metropolitan	4.5	3.7	5.6	27.1	25.0	29.3	65.0	62.6	67.2
North & West Metropolitan	6.3	5.6	7.2	28.7	27.2	30.2	60.7	59.1	62.3
Southern Metropolitan	5.9	5.0	6.8	25.8	24.0	27.7	64.7	62.7	66.7
<b>Metropolitan persons</b>	5.8	5.3	6.3	27.3	26.3	28.4	63.1	61.9	64.2
Barwon-South Western	3.4	2.6	4.4	25.9	21.4	31.1	66.7	61.6	71.5
Gippsland	5.1	4.1	6.3	23.0	20.9	25.3	67.4	64.9	69.8
Grampians	4.3	3.6	5.2	26.8	24.1	29.7	64.7	61.7	67.5
Hume	5.3	4.3	6.5	27.0	24.5	29.7	63.9	61.2	66.5
Loddon Mallee	7.1	4.6	10.7	22.9	20.7	25.2	64.8	61.1	68.3
<b>Rural persons</b>	5.0	4.2	5.9	25.2	23.5	27.0	65.6	63.7	67.4
<b>Total</b>	<b>5.5</b>	<b>5.1</b>	<b>6.0</b>	<b>26.7</b>	<b>25.9</b>	<b>27.6</b>	<b>63.7</b>	<b>62.8</b>	<b>64.7</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.



# Modifiable health risk factors

Table 2.57 and Figure 2.21 show the physical activity levels categorised by whether the level of physical activity met the 1999 Australian guidelines, by LGA. There were significantly higher proportions of adults who lived in the LGAs of Greater Dandenong (C) and Whittlesea (C) who engaged in sedentary behaviour compared with all Victorian adults. By contrast there were significantly lower proportions of adults who lived in the LGAs of Bayside (C), Boroondara (C), Colac-Otway (S), Greater Geelong (C), Melbourne (C), Murrindindi (S), Port Phillip (C) and Queenscliffe (B) who engaged in sedentary behaviour compared with all Victorian adults.

There were significantly higher proportions of adults who lived in the LGAs of Bayside (C), Mansfield (S), Melbourne (C), Moyne (S), Queenscliffe (B), Southern Grampians (S), Stonnington (C), Towong (S), Wellington (S) and Yarriambiack (S) who were sufficiently physically active compared with all Victorian adults. By contrast there were significantly lower proportions of adults who lived in the LGAs of Brimbank (C), Greater Dandenong (C), Hume (C), Melton (S) and Whittlesea (C) who were sufficiently physically active compared with all Victorian adults.

Table 2.57: Physical activity, by LGA, Victoria, 2011–12

LGA	Sedentary			Insufficient time and sessions			Sufficient time and sessions		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	**	**	**	17.0	13.1	21.8	73.2	63.5	81.1
Ararat (RC)	4.4	3.0	6.3	25.6	19.4	32.9	66.3	59.0	72.9
Ballarat (C)	3.7	2.3	5.9	26.6	21.5	32.3	66.1	60.4	71.4
Banyule (C)	5.4	3.7	7.7	30.4	24.6	36.8	60.9	54.5	66.9
Bass Coast (S)	7.5*	4.1	13.5	19.7	14.8	25.7	69.5	62.4	75.8
Baw Baw (S)	3.8*	2.1	6.8	27.4	22.5	33.0	62.8	57.0	68.3
Bayside (C)	2.6	1.6	4.0	19.9	14.5	26.6	74.3	67.2	80.3
Benalla (RC)	3.5	2.3	5.4	24.8	18.0	33.1	67.0	58.6	74.5
Boroondara (C)	3.1	2.0	4.8	25.2	20.6	30.5	69.1	63.4	74.2
Brimbank (C)	6.4	4.4	9.4	33.4	28.5	38.8	55.2	49.8	60.5
Buloke (S)	6.2	4.0	9.4	25.3	20.2	31.1	61.7	54.8	68.1
Campaspe (S)	6.0	4.4	8.3	25.9	19.8	33.1	63.0	55.7	69.7
Cardinia (S)	6.2	4.3	8.9	25.4	20.9	30.6	63.6	58.4	68.5
Casey (C)	7.2	5.1	10.2	30.4	25.1	36.4	58.7	52.7	64.4
Central Goldfields (S)	5.8*	3.0	10.7	24.4	18.4	31.5	63.9	55.4	71.6
Colac-Otway (S)	3.1	2.0	4.9	28.8	22.5	36.0	65.6	58.5	72.1
Corangamite (S)	5.9	4.0	8.6	18.2	14.6	22.4	68.4	62.7	73.7
Darebin (C)	4.7	3.2	7.0	28.8	23.6	34.7	61.8	56.0	67.3
East Gippsland (S)	4.6	2.8	7.3	25.9	20.1	32.7	66.6	59.7	72.9
Frankston (C)	4.6*	2.7	7.9	24.5	19.5	30.3	65.2	58.5	71.4
Gannawarra (S)	8.9*	4.7	16.4	23.1	18.1	28.9	59.7	51.2	67.7
Glen Eira (C)	4.9	3.2	7.4	22.1	17.7	27.2	67.9	62.2	73.2
Glenelg (S)	5.6	3.6	8.6	24.3	18.6	31.1	66.3	59.4	72.5
Golden Plains (S)	4.3	2.7	6.9	22.2	17.4	28.0	69.8	64.0	75.1
Greater Bendigo (C)	8.3*	3.7	17.6	20.0	16.1	24.6	66.3	58.1	73.7
Greater Dandenong (C)	13.8	10.1	18.5	31.6	26.6	37.1	50.1	44.5	55.8
Greater Geelong (C)	2.4*	1.3	4.2	25.9	19.6	33.5	67.6	60.1	74.3
Greater Shepparton (C)	5.8*	3.3	10.2	33.1	26.3	40.6	58.1	50.7	65.1
Hepburn (S)	3.9	2.7	5.6	34.4	25.6	44.4	57.3	47.6	66.4
Hindmarsh (S)	4.2	2.9	6.1	26.2	19.6	34.2	61.9	53.6	69.5
Hobsons Bay (C)	7.6	4.8	11.9	30.3	25.1	36.1	60.7	54.6	66.5
Horsham (RC)	4.6	3.2	6.6	27.2	20.5	35.1	62.8	55.0	69.9
Hume (C)	8.2	5.6	12.0	28.7	24.0	33.9	55.2	49.2	61.1
Indigo (S)	4.4*	1.7	10.5	24.7	18.9	31.6	67.0	59.7	73.5
Kingston (C)	6.4*	3.6	10.9	21.6	17.4	26.6	69.3	63.2	74.8
Knox (C)	3.3	2.1	5.2	25.5	20.8	31.0	67.2	61.7	72.3
Latrobe (C)	5.7	3.9	8.2	19.3	15.2	24.2	69.6	64.5	74.2
Loddon (S)	5.3	3.3	8.5	28.3	19.8	38.7	57.8	48.5	66.6
Macedon Ranges (S)	3.5*	2.0	6.0	29.7	23.7	36.4	64.3	57.5	70.5
Manningham (C)	3.8	2.5	5.7	28.0	22.5	34.4	65.1	58.7	71.0
Mansfield (S)	3.2*	1.9	5.4	20.3	14.6	27.6	72.8	65.6	79.0
Maribyrnong (C)	5.8*	3.4	10.0	27.4	22.8	32.6	62.3	56.6	67.7

Table 2.57: Physical activity, by LGA, Victoria, 2011–12 (continued)

LGA	%	Sedentary		%	Insufficient time and sessions		%	Sufficient time and sessions	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Maroondah (C)	4.2*	2.3	7.5	22.8	18.0	28.4	69.0	63.0	74.5
Melbourne (C)	1.8*	0.9	3.5	19.1	14.3	24.9	74.5	68.5	79.6
Melton (S)	7.7	5.2	11.5	30.1	25.0	35.8	57.3	51.7	62.7
Mildura (RC)	5.4	3.7	7.8	24.1	18.8	30.3	66.6	60.2	72.4
Mitchell (S)	5.5	3.4	8.5	23.7	18.9	29.2	66.1	60.1	71.6
Moira (S)	5.2	3.3	8.3	24.4	18.8	31.0	66.9	60.0	73.1
Monash (C)	6.1*	3.6	10.2	27.6	22.4	33.5	62.2	55.9	68.1
Moonee Valley (C)	5.1	3.5	7.2	23.8	19.5	28.7	66.9	61.6	71.8
Moorabool (S)	4.6*	2.6	7.9	30.2	24.6	36.3	60.9	54.8	66.7
Moreland (C)	5.7	3.7	8.6	29.0	24.0	34.6	63.2	57.6	68.5
Mornington Peninsula (S)	3.2	2.0	5.2	28.6	22.6	35.4	66.3	59.4	72.6
Mount Alexander (S)	3.9	2.6	6.0	19.0	13.8	25.6	69.4	61.4	76.4
Moyne (S)	4.8	3.2	7.2	18.0	13.8	23.2	72.4	66.8	77.4
Murrindindi (S)	2.9*	1.7	4.7	31.3	23.6	40.1	62.8	54.1	70.8
Nilumbik (S)	6.9*	3.5	13.0	24.9	19.6	31.1	65.2	58.2	71.5
Northern Grampians (S)	6.2	4.3	8.7	30.1	20.3	42.2	57.5	46.0	68.2
Port Phillip (C)	1.8*	0.9	3.5	26.7	20.7	33.7	68.4	61.4	74.6
Pyrenees (S)	3.6*	2.0	6.3	20.0	15.6	25.3	71.0	64.5	76.7
Queenscliffe (B)	2.0*	1.0	4.0	18.7	12.2	27.7	78.3	69.5	85.1
South Gippsland (S)	5.2	3.2	8.2	26.5	20.5	33.5	62.5	54.9	69.5
Southern Grampians (S)	4.9	3.3	7.2	20.7	16.2	26.1	71.2	65.8	76.1
Stonnington (C)	3.4*	1.4	8.0	19.7	15.4	24.8	73.5	67.7	78.7
Strathbogie (S)	4.1*	2.4	6.9	34.0	23.6	46.2	58.7	47.0	69.6
Surf Coast (S)	5.8*	2.9	11.3	22.0	16.5	28.8	69.8	62.2	76.4
Swan Hill (RC)	8.7*	5.0	14.5	23.0	18.0	28.8	64.8	57.9	71.1
Towong (S)	4.0	2.6	6.0	17.5	13.6	22.3	72.7	66.3	78.3
Wangaratta (RC)	5.2*	2.8	9.3	22.7	18.1	28.1	67.9	61.5	73.7
Warrnambool (C)	3.9	2.5	6.0	26.8	21.9	32.3	65.7	60.0	70.9
Wellington (S)	3.4	2.1	5.5	22.1	18.2	26.5	70.8	66.1	75.1
West Wimmera (S)	7.8*	4.2	14.0	23.5	18.5	29.2	63.6	57.0	69.8
Whitehorse (C)	4.2	2.6	6.6	30.3	25.2	35.8	62.8	57.2	68.0
Whittlesea (C)	9.1	6.3	12.9	31.3	26.1	37.1	56.4	50.5	62.1
Wodonga (RC)	5.4	3.6	7.9	26.4	21.6	31.7	65.2	59.7	70.3
Wyndham (C)	5.8	3.6	9.2	29.5	25.0	34.4	58.0	52.7	63.2
Yarra (C)	7.2*	2.7	17.7	19.2	15.0	24.4	70.8	62.6	77.8
Yarra Ranges (S)	6.7*	4.0	11.0	27.5	22.1	33.6	61.1	54.6	67.3
Yarriambiack (S)	5.4	3.6	8.2	20.0	16.0	24.7	71.3	66.3	75.8
<b>Victoria</b>	<b>5.5</b>	<b>5.1</b>	<b>5.9</b>	<b>26.6</b>	<b>25.7</b>	<b>27.5</b>	<b>63.9</b>	<b>63.0</b>	<b>64.9</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

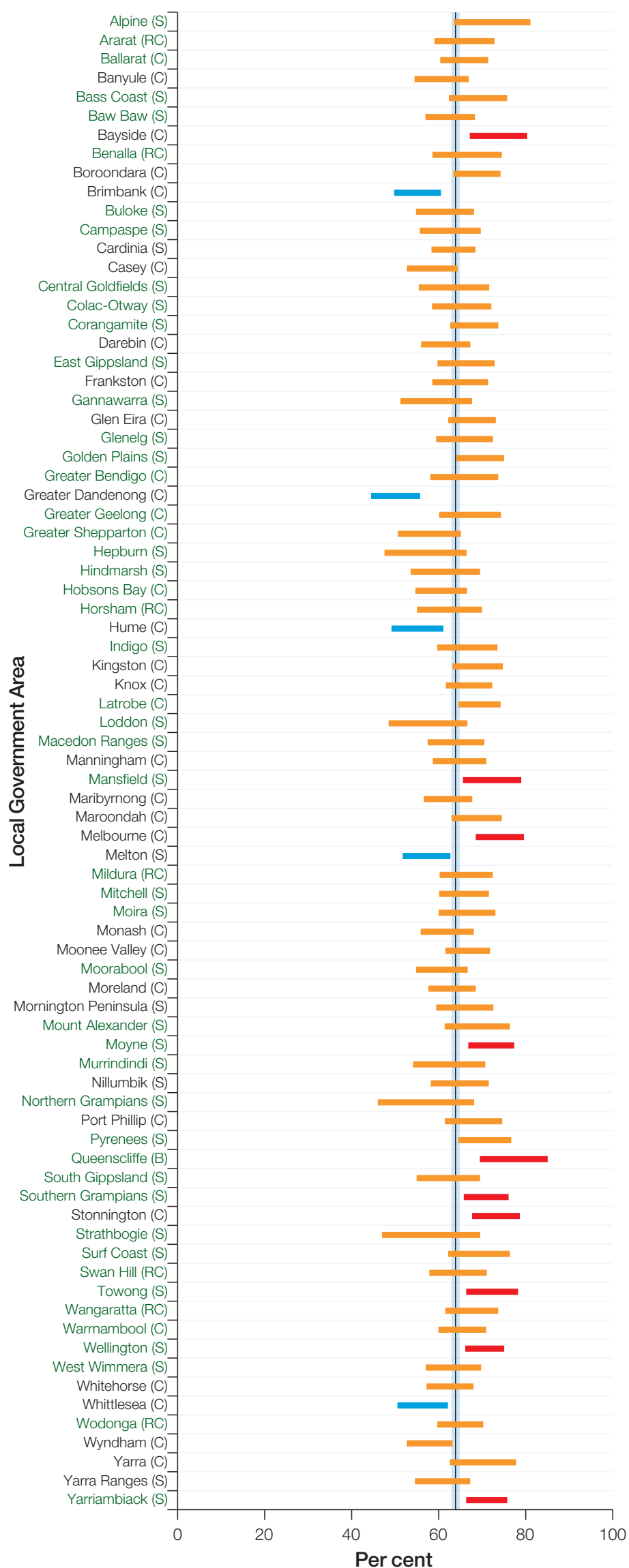
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Figure 2.21: Proportion of adults who were sufficiently physically active, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Table 2.58 presents levels of physical activity by selected socioeconomic determinants, modifiable risk factors and health status.

### **Sedentary behaviour**

When compared with all Victorian men and women, there was a significantly higher proportion of men and women who engaged in sedentary behaviour with the following characteristic:

- fair or poor health status.

When compared with all Victorian men, there were significantly higher proportions of men who engaged in sedentary behaviour with the following characteristics:

- total annual household income of less than \$40,000
- current smoker.

When compared with all Victorian women, there were significantly higher proportions of women who engaged in sedentary behaviour with the following characteristics:

- primary education
- high or very high levels of psychological distress
- abstained from alcohol consumption.

When compared with all Victorian men and women, there were significantly lower proportions of men and women who engaged in sedentary behaviour with the following characteristics:

- total household income of \$100,000 or more
- met both fruit and vegetable consumption guidelines
- excellent or very good health status.

When compared with all Victorian men, there was a significantly lower proportion of men who engaged in sedentary behaviour with the following characteristic:

- met guideline for consumption of fruit.

When compared with all Victorian women, there were significantly lower proportions of women who engaged in sedentary behaviour with the following characteristics:

- tertiary educated
- employed
- met guideline for consumption of vegetables
- low long-term risk of alcohol-related harm.

### **Sufficient physical activity**

When compared with all Victorian men and women, there were significantly higher proportions of men and women who were sufficiently physically active with the following characteristics:

- tertiary educated
- employed
- total household income of \$100,000 or more
- met guidelines for consumption of fruit and vegetables
- excellent or very good health status.

When compared with all Victorian women, there were significantly higher proportions of women who were sufficiently physically active with the following characteristics:

- low long-term risk of alcohol-related harm
- ex-smoker.

When compared with all Victorian men and women, there were significantly lower proportions of men and women who were sufficiently physically active with the following characteristics:

- total household income of less than \$40,000
- very high level of psychological distress
- met neither fruit nor vegetable consumption guidelines
- abstained from alcohol consumption
- fair or poor self-reported health status
- obese.

When compared with all Victorian men, there were significantly lower proportions of men who were sufficiently physically active with the following characteristics:

- primary education
- unemployed
- current smoker
- diagnosed with diabetes by a doctor.

When compared with all Victorian women, there were significantly lower proportions of women who were sufficiently physically active with the following characteristics:

- high level of psychological distress
- good self-reported health status.

**Table 2.58: Physical activity level <sup>a</sup>, by selected socioeconomic determinants, modifiable risk factors, conditions and sex, Victoria, 2011–12**

	%	Sedentary		Insufficient time and sessions			Sufficient time and sessions		
		95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>	<b>5.4</b>	<b>4.8</b>	<b>6.2</b>	<b>25.2</b>	<b>23.9</b>	<b>26.6</b>	<b>65.9</b>	<b>64.4</b>	<b>67.3</b>
<i>Area of Victoria</i>									
Rural	5.1	3.8	6.8	24.3	21.6	27.3	66.8	63.8	69.7
Metropolitan	5.6	4.8	6.4	25.7	24.2	27.3	65.4	63.6	67.0
<i>Education level</i>									
Primary	6.4	4.9	8.3	26.6	23.6	29.9	60.7	57.3	63.9
Secondary	6.2	5.1	7.6	26.5	24.2	28.9	64.5	62.0	67.0
Tertiary	3.7	2.9	4.8	22.2	20.4	24.1	72.0	69.8	74.0
<i>Employment status (age &lt; 65 years)</i>									
Employed	4.2	3.5	5.2	22.7	21.0	24.4	70.0	68.1	71.9
Unemployed	5.3*	3.0	9.3	31.1	24.5	38.5	57.2	49.8	64.2
Not in labour force	7.1	4.5	10.9	26.8	21.9	32.4	63.6	57.5	69.2
<i>Total annual household income</i>									
< \$40,000	9.4	6.9	12.5	30.6	26.5	34.9	55.7	51.0	60.3
\$40,000 to < \$100,000	5.3	4.2	6.7	23.9	21.9	25.9	67.9	65.6	70.2
≥ \$100,000	2.8	1.9	4.1	22.6	19.9	25.5	73.1	70.1	76.0
<i>Psychological distress <sup>b</sup></i>									
Low (< 16)	5.5	4.6	6.5	24.1	22.5	25.7	67.7	65.9	69.4
Moderate (16–21)	3.9	3.1	5.0	27.0	24.1	30.0	65.9	62.8	68.9
High (22–29)	6.2	4.2	8.9	30.6	25.8	35.8	59.3	53.8	64.5
Very high (≥ 30)	9.2*	5.5	14.9	33.7	25.3	43.2	41.7	33.8	50.1
<i>Met fruit / vegetable guidelines <sup>c</sup></i>									
Both guidelines	2.5*	1.4	4.6	12.1	8.2	17.5	83.7	78.2	88.0
Vegetable guidelines <sup>d</sup>	3.3	2.1	5.3	12.9	9.5	17.4	81.9	77.2	85.8
Fruit guidelines <sup>d</sup>	3.8	3.0	4.8	19.7	18.0	21.6	73.1	71.0	75.2
Neither	6.3	5.5	7.4	29.3	27.5	31.2	61.1	59.1	63.1
<i>Long-term risk of alcohol-related harm <sup>e</sup></i>									
Abstainer	7.8	6.1	10.0	29.2	25.2	33.6	58.2	53.6	62.5
Low risk	4.8	4.1	5.6	24.9	23.5	26.4	67.2	65.6	68.7
Risky or high risk	8.0*	4.5	14.0	20.1	15.8	25.3	68.7	62.1	74.6
<i>Smoking status</i>									
Current smoker	8.7	6.7	11.3	28.3	25.1	31.7	59.3	55.8	62.8
Ex-smoker	5.7	4.2	7.7	22.6	20.4	24.9	67.2	64.0	70.1
Non-smoker	4.5	3.8	5.4	24.4	22.7	26.2	68.1	66.2	70.0
<i>Self-reported health</i>									
Excellent / very good	3.2	2.5	4.0	19.5	17.8	21.2	74.5	72.5	76.4
Good	5.7	4.7	7.0	28.0	25.7	30.3	62.9	60.5	65.3
Fair / poor	10.4	8.1	13.1	35.0	31.0	39.2	49.3	45.0	53.5
<i>Body weight status <sup>f</sup></i>									
Underweight	9.9*	5.3	17.7	20.6	14.1	29.1	66.5	56.9	74.8
Normal	4.6	3.7	5.7	21.3	19.5	23.3	70.2	68.0	72.3
Overweight	5.3	4.1	6.8	27.2	24.7	29.7	65.0	62.3	67.6
Obese	6.7	4.9	9.1	30.1	26.9	33.5	59.0	55.1	62.8
<i>Diabetes (excluding gestational)</i>									
No diabetes	5.1	4.5	5.9	24.9	23.6	26.3	66.4	64.9	67.9
Diabetes	5.3	3.8	7.3	22.9	19.5	26.8	59.9	55.5	64.2

a. Based on national guidelines (DoHA 1999).

b. Based on the Kessler 10 scale for psychological distress.

c. Based on national guidelines (NHMRC 2003a).

d. Includes those meeting both guidelines

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and

dementia, and alcohol dependence.

f. Based on body mass index (BMI). Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria

are identified by colour as follows: **above/below** Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' not reported here.



**Table 2.58: Physical activity level <sup>a</sup>, by selected socioeconomic determinants, modifiable risk factors, conditions and sex, Victoria, 2011–12 (continued)**

	Sedentary		Insufficient time and sessions			Sufficient time and sessions			
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Females</b>	<b>5.6</b>	<b>5.1</b>	<b>6.2</b>	<b>28.2</b>	<b>27.1</b>	<b>29.4</b>	<b>61.7</b>	<b>60.5</b>	<b>62.9</b>
<i>Area of Victoria</i>									
Rural	4.8	4.3	5.5	25.7	24.1	27.5	64.7	62.8	66.5
Metropolitan	5.9	5.3	6.6	28.9	27.6	30.3	60.8	59.4	62.2
<i>Education level</i>									
Primary	<b>8.3</b>	6.8	10.1	28.0	25.6	30.4	58.5	55.7	61.3
Secondary	5.5	4.7	6.4	27.0	25.2	28.9	62.8	60.8	64.7
Tertiary	<b>3.8</b>	3.1	4.7	26.0	24.2	27.8	<b>67.2</b>	65.3	69.0
<i>Employment status (age &lt; 65 years)</i>									
Employed	<b>3.4</b>	2.8	4.1	25.8	24.3	27.5	<b>67.7</b>	66.0	69.4
Unemployed	6.0	3.7	9.5	29.5	23.9	35.9	55.9	49.1	62.5
Not in labour force	6.0	4.8	7.4	26.4	24.0	28.9	63.1	60.4	65.7
<i>Total annual household income</i>									
< \$40,000	7.1	5.9	8.6	31.0	28.1	34.2	<b>56.8</b>	53.6	60.0
\$40,000 to < \$100,000	5.1	4.2	6.3	26.8	25.0	28.7	64.6	62.6	66.6
≥ \$100,000	<b>2.3</b>	1.5	3.5	<b>22.1</b>	19.7	24.6	<b>74.0</b>	71.1	76.6
<i>Psychological distress <sup>b</sup></i>									
Low (< 16)	4.8	4.2	5.5	27.9	26.5	29.4	63.3	61.7	64.9
Moderate (16–21)	5.7	4.7	6.8	27.1	25.0	29.2	63.2	60.9	65.4
High (22–29)	<b>7.7</b>	6.2	9.6	31.6	28.2	35.2	<b>56.0</b>	52.3	59.7
Very high (≥ 30)	<b>10.8</b>	7.8	14.9	31.0	25.6	37.0	<b>51.6</b>	45.5	57.6
<i>Met fruit / vegetable guidelines <sup>c</sup></i>									
Both guidelines	<b>2.4</b>	1.7	3.3	<b>15.6</b>	12.8	18.8	<b>78.6</b>	75.1	81.7
Vegetable guidelines <sup>d</sup>	<b>2.8</b>	2.1	3.6	<b>19.0</b>	16.3	22.1	<b>74.7</b>	71.5	77.7
Fruit guidelines <sup>d</sup>	4.5	4.0	5.2	<b>24.6</b>	23.1	26.1	<b>67.1</b>	65.4	68.8
Neither	6.8	6.0	7.7	<b>32.2</b>	30.5	33.9	<b>56.4</b>	54.7	58.1
<i>Long-term risk of alcohol-related harm <sup>e</sup></i>									
Abstainer	<b>10.0</b>	8.5	11.9	30.9	28.3	33.7	<b>51.1</b>	48.2	54.0
Low risk	<b>4.1</b>	3.6	4.6	27.9	26.7	29.1	<b>64.8</b>	63.4	66.1
Risky or high risk	9.5*	5.6	15.9	<b>19.2</b>	15.2	23.9	67.4	60.8	73.5
<i>Smoking status</i>									
Current smoker	6.9	5.4	8.9	27.6	24.8	30.6	59.6	56.6	62.6
Ex-smoker	4.5	3.7	5.6	24.8	22.3	27.5	<b>66.6</b>	63.6	69.5
Non-smoker	5.8	5.2	6.5	29.5	28.1	30.9	60.2	58.6	61.7
<i>Self-reported health</i>									
Excellent / very good	<b>3.3</b>	2.7	3.9	<b>23.2</b>	21.7	24.6	<b>70.0</b>	68.4	71.6
Good	5.5	4.8	6.4	<b>31.8</b>	30.0	33.7	<b>57.7</b>	55.8	59.7
Fair / poor	<b>12.6</b>	10.6	14.9	<b>36.7</b>	33.2	40.2	<b>44.8</b>	41.2	48.4
<i>Body weight status <sup>f</sup></i>									
Underweight	5.0*	2.7	9.1	30.9	25.2	37.3	59.1	52.9	65.1
Normal	4.6	4.0	5.4	26.0	24.5	27.7	<b>65.2</b>	63.5	66.9
Overweight	5.2	4.3	6.3	28.7	26.3	31.2	62.7	60.0	65.2
Obese	6.5	5.4	7.7	<b>32.8</b>	29.4	36.3	<b>56.3</b>	52.8	59.8
<i>Diabetes (excluding gestational)</i>									
No diabetes	5.4	4.9	5.9	28.1	26.9	29.2	62.2	61.0	63.4
Diabetes	6.0	4.8	7.4	32.7	25.8	40.4	57.8	50.2	64.9

a. Based on national guidelines (DoHA 1999).

b. Based on the Kessler 10 scale for psychological distress.

c. Based on national guidelines (NHMRC 2003a).

d. Includes those meeting both guidelines

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and

dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria

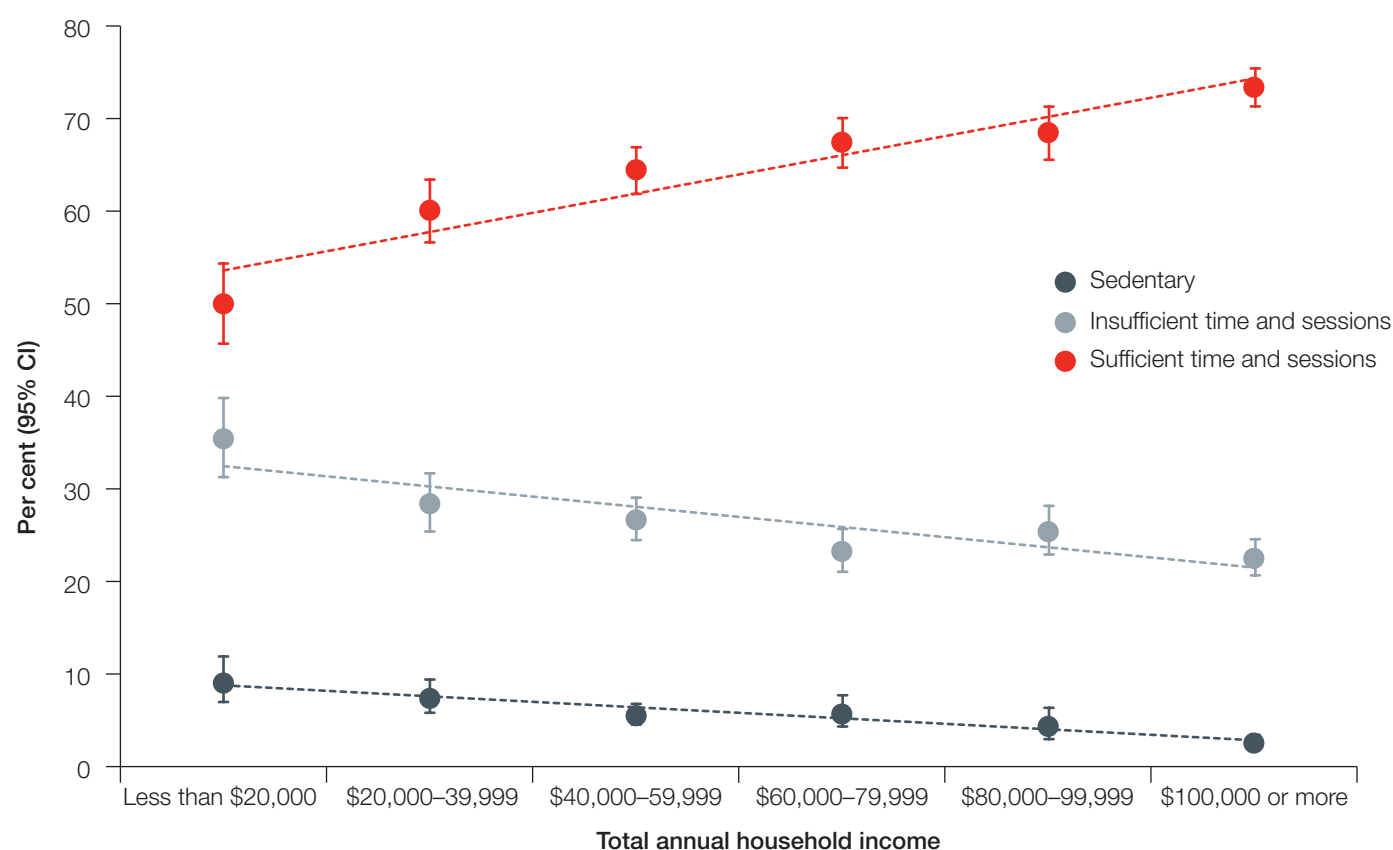
are identified by colour as follows: **above/below** Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' not reported here.

The relationship, if any, was investigated between SES and age-adjusted physical activity levels, using total annual household income as a measure of SES (Figure 2.22). The proportion of men and women who engaged in sedentary behaviour or were insufficiently physically active significantly decreased with increasing total annual household income. Conversely, the proportion of men and women who were sufficiently physically active increased with increasing income.

**Figure 2.22: Physical activity,<sup>a</sup> by total annual household income, Victoria, 2011–12**



a. Based on national guidelines (DOHA 1999).  
 Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.

### Physical activity associated with occupation

Respondents who were employed were asked whether their work activities were best described as mostly sitting or standing, mostly walking, or mostly 'heavy labour or physically demanding work'.

Table 2.59 shows physical activity associated with occupation, by age group and sex. The majority of working respondents (67.0 per cent) reported mostly sitting or standing at work, while 19.0 per cent reported mostly walking and 12.5 per cent reported doing mostly heavy labour or physically demanding work. A significantly higher proportion of men engaged in heavy labour or physically demanding work compared with their female counterparts particularly in those aged 18–24 years where more than one-third (36.1 per cent) of men reported doing mostly heavy labour or physically demanding work.

**Table 2.59: Occupational physical activity, by age group and sex, Victoria, 2011–12**

Age group (years)	Mostly sitting			Mostly standing			Mostly walking			Mostly heavy labour/ physically demanding		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	26.5	19.6	34.8	20.0	14.7	26.7	16.1	11.5	22.1	36.1	28.6	44.4
25–34	50.3	45.0	55.7	15.1	11.5	19.7	17.7	13.9	22.4	15.7	12.4	19.6
35–44	52.9	49.6	56.3	14.4	12.2	17.0	14.7	12.3	17.4	16.4	14.1	18.9
45–54	53.8	50.8	56.7	13.9	11.9	16.0	14.1	12.2	16.3	16.4	14.4	18.6
55–64	50.7	47.5	54.0	16.0	13.7	18.5	18.6	16.2	21.2	12.5	10.7	14.6
65+	46.1	41.1	51.2	17.7	14.0	22.0	21.6	17.6	26.2	12.7	10.1	15.9
<b>Total</b>	<b>47.8</b>	<b>45.7</b>	<b>50.0</b>	<b>16.1</b>	<b>14.5</b>	<b>17.9</b>	<b>16.8</b>	<b>15.3</b>	<b>18.3</b>	<b>17.7</b>	<b>16.2</b>	<b>19.3</b>
<b>Females</b>												
18–24	24.3	18.6	30.9	38.7	31.4	46.5	32.1	25.4	39.5	4.6*	2.6	8.1
25–34	53.3	48.6	57.9	20.8	17.1	24.9	19.0	15.4	23.2	6.0	4.2	8.4
35–44	56.0	53.3	58.8	19.5	17.4	21.8	18.3	16.2	20.5	5.1	3.9	6.6
45–54	52.5	49.9	55.0	21.0	19.0	23.2	19.0	17.1	21.1	5.7	4.6	6.9
55–64	46.6	43.8	49.5	22.4	20.0	24.9	23.2	20.9	25.8	6.3	5.2	7.7
65+	47.9	41.6	54.2	20.4	15.5	26.4	21.8	17.3	27.1	7.3	4.9	10.7
<b>Total</b>	<b>47.7</b>	<b>45.8</b>	<b>49.7</b>	<b>21.6</b>	<b>20.1</b>	<b>23.1</b>	<b>23.5</b>	<b>21.8</b>	<b>25.3</b>	<b>5.7</b>	<b>4.9</b>	<b>6.6</b>
<b>Persons</b>												
18–24	25.5	20.8	30.8	28.6	23.9	33.9	23.5	19.3	28.2	21.6	17.1	26.9
25–34	51.6	47.9	55.2	17.5	14.8	20.6	18.3	15.5	21.4	11.6	9.5	14.0
35–44	54.3	52.1	56.6	16.7	15.2	18.5	16.3	14.7	18.1	11.2	9.9	12.8
45–54	53.2	51.2	55.1	17.2	15.8	18.7	16.4	15.0	17.9	11.4	10.2	12.7
55–64	48.8	46.6	51.0	19.0	17.3	20.8	20.8	19.1	22.6	9.6	8.5	10.8
65+	46.7	42.7	50.7	18.6	15.6	22.0	21.7	18.5	25.1	10.9	9.0	13.3
<b>Total</b>	<b>48.1</b>	<b>46.5</b>	<b>49.8</b>	<b>18.9</b>	<b>17.6</b>	<b>20.3</b>	<b>19.0</b>	<b>17.8</b>	<b>20.2</b>	<b>12.5</b>	<b>11.5</b>	<b>13.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.60 shows physical activity associated with occupation, by Department of Health region and sex.

There were significantly higher proportions of men and women who reported doing mostly heavy labour or physically demanding work that lived in rural Victoria compared with their metropolitan counterparts. Conversely, there were significantly higher proportions of men and women who reported being mostly physically inactive at work (mostly sitting) that lived in metropolitan Victoria compared with their rural counterparts.

There were significantly higher proportions of men who reported doing mostly heavy labour or physically demanding work in all rural regions, with the exception of those who lived in Grampians Region. Similarly, there were significantly higher proportions of women who reported doing mostly heavy labour or physically

demanding work in all rural regions, with the exception of those who lived in Loddon Mallee Region or Barwon-South Western Region.

There was a significantly higher proportion of men who lived in Eastern Metropolitan Region and women who lived in North & West Metropolitan Region who reported being physically inactive (mostly sitting) at work compared with all Victorian men and women respectively.

There were no significant differences in the proportions of men or women who reported 'mostly standing' at work by region or between rural and metropolitan Victoria.

The proportion of men and women who reported 'mostly walking' at work was significantly higher in those who lived in rural Victoria compared with their metropolitan counterparts.

Table 2.60: Occupational physical activity, by Department of Health region and sex, Victoria, 2011–12

Region	Mostly sitting			Mostly standing			Mostly walking			Mostly heavy labour/ physically demanding		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
Eastern Metropolitan	56.0	51.4	60.5	15.2	12.4	18.5	11.8	9.2	15.0	12.3	9.4	16.0
North & West Metropolitan	50.3	47.0	53.6	14.7	12.4	17.3	16.7	14.1	19.7	14.7	12.5	17.2
Southern Metropolitan	52.2	47.8	56.6	18.1	14.7	22.0	15.2	12.6	18.3	14.0	11.0	17.6
<b>Metropolitan males</b>	<b>53.5</b>	50.6	56.3	15.9	13.9	18.1	15.0	13.4	16.8	14.4	12.5	16.6
Barwon-South Western	34.2	28.5	40.5	19.2	13.3	27.0	16.8	11.4	23.9	28.0	22.2	34.8
Gippsland	30.8	26.1	35.9	15.1	11.5	19.5	20.1	16.4	24.5	27.1	22.6	32.0
Grampians	39.1	33.8	44.6	14.4	11.5	17.9	19.9	16.1	24.3	23.7	19.0	29.1
Hume	30.6	26.6	35.0	14.4	11.3	18.1	23.9	19.9	28.5	26.4	22.5	30.7
Loddon Mallee	33.6	28.9	38.8	16.0	12.6	20.1	18.7	14.4	23.8	29.2	23.7	35.4
<b>Rural males</b>	<b>34.7</b>	31.7	37.9	16.2	13.3	19.7	19.7	17.0	22.7	27.1	24.0	30.4
<b>Total</b>	<b>47.8</b>	<b>45.7</b>	<b>50.0</b>	<b>16.1</b>	<b>14.5</b>	<b>17.9</b>	<b>16.8</b>	<b>15.3</b>	<b>18.3</b>	<b>17.7</b>	<b>16.2</b>	<b>19.3</b>
<b>Females</b>												
Eastern Metropolitan	50.5	46.1	54.8	22.0	18.4	26.0	20.8	16.8	25.4	4.9	3.2	7.5
North & West Metropolitan	55.0	52.1	57.8	21.4	18.7	24.3	18.5	16.0	21.2	4.1	3.2	5.4
Southern Metropolitan	53.4	49.6	57.2	20.2	17.2	23.5	19.6	16.6	23.0	5.4	3.7	7.9
<b>Metropolitan females</b>	<b>53.3</b>	51.1	55.5	21.4	19.6	23.4	19.0	17.2	20.9	4.8	3.9	5.9
Barwon-South Western	37.3	32.1	42.8	23.9	18.2	30.6	32.9	26.3	40.2	5.6*	3.4	9.2
Gippsland	34.8	30.1	39.9	18.7	15.6	22.3	31.3	25.9	37.2	10.4	6.8	15.5
Grampians	39.8	34.9	45.0	23.5	19.2	28.6	22.8	19.0	27.0	9.0	6.7	12.0
Hume	37.2	32.8	41.8	26.5	22.7	30.6	23.1	20.0	26.4	9.4	7.0	12.5
Loddon Mallee	36.5	32.3	40.9	24.0	19.6	29.0	24.7	20.1	30.0	7.6	5.5	10.5
<b>Rural females</b>	<b>37.2</b>	34.5	39.9	23.2	20.9	25.7	29.5	26.6	32.5	8.5	7.1	10.1
<b>Total</b>	<b>47.7</b>	<b>45.8</b>	<b>49.7</b>	<b>21.6</b>	<b>20.1</b>	<b>23.1</b>	<b>23.5</b>	<b>21.8</b>	<b>25.3</b>	<b>5.7</b>	<b>4.9</b>	<b>6.6</b>
<b>Persons</b>												
Eastern Metropolitan	54.8	51.5	58.0	19.5	17.1	22.2	15.1	12.7	17.7	8.8	6.9	11.2
North & West Metropolitan	51.5	49.1	53.9	17.6	15.7	19.6	17.4	15.4	19.5	10.0	8.7	11.6
Southern Metropolitan	53.1	50.1	56.2	19.0	16.5	21.7	17.0	15.0	19.3	10.0	8.1	12.3
<b>Metropolitan persons</b>	<b>53.5</b>	51.4	55.6	18.6	16.8	20.5	16.7	15.4	18.0	10.0	8.8	11.3
Barwon-South Western	34.7	30.8	38.9	22.5	17.1	29.1	23.3	18.4	29.0	18.3	13.5	24.4
Gippsland	33.1	29.5	36.9	17.8	14.8	21.2	24.7	21.1	28.7	20.0	16.8	23.5
Grampians	39.5	35.5	43.7	18.6	15.9	21.7	21.6	18.7	24.9	17.5	14.1	21.5
Hume	33.3	30.1	36.7	19.6	17.0	22.4	24.1	21.2	27.2	18.6	16.1	21.3
Loddon Mallee	35.3	32.1	38.7	18.8	16.0	22.1	22.9	18.9	27.5	20.8	16.6	25.7
<b>Rural persons</b>	<b>36.0</b>	33.6	38.3	19.7	17.5	22.1	23.4	21.2	25.7	19.0	17.0	21.3
<b>Total</b>	<b>48.1</b>	<b>46.5</b>	<b>49.8</b>	<b>18.9</b>	<b>17.6</b>	<b>20.3</b>	<b>19.0</b>	<b>17.8</b>	<b>20.2</b>	<b>12.5</b>	<b>11.5</b>	<b>13.5</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.61 and Figure 2.23 show physical activity associated with occupation, by LGA.

There were significantly higher proportions of adults who reported mostly doing heavy labour or physically demanding work in the LGAs of Baw Baw (S), Buloke (S), Central Goldfields (S), Colac-Otway (S), Corangamite (S), Gannawarra (S), Glenelg (S), Hindmarsh (S), Indigo (S), Mansfield (S), Moyne (S), Murrindindi (S), Pyrenees (S), South Gippsland (S), Southern Grampians (S), Swan Hill (RC), Towong (S), Wangaratta (RC), West Wimmera (S) and Yarriambiack (S) compared with all Victorian adults. By contrast there were significantly lower proportions of adults who reported mostly doing heavy labour or physically demanding work in the LGAs of Boroondara (C), Darebin (C), Monash (C), Moonee Valley (C), Port Phillip (C) and Surf Coast compared with all Victorian adults.

There were significantly higher proportions of adults who reported being mostly physically inactive (mostly sitting) at work in the LGAs of Bayside (C), Boroondara (C), Glen Eira (C), Maribyrnong (C), Melbourne (C), Monash (C), Moonee Valley (C), Port Phillip (C), Stonnington (C) and Yarra (C) compared with all Victorian adults.

Table 2.61: Occupational physical activity, by LGA, Victoria, 2011–12

LGA	Mostly sitting			Mostly standing			Mostly walking			Mostly heavy labour/ physically demanding		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	28.2	21.1	36.5	17.5*	9.3	30.6	33.9	23.5	46.1	15.3*	8.5	26.2
Ararat (RC)	32.2	23.9	41.8	24.3	16.5	34.3	24.9	18.2	33.0	16.6	11.6	23.3
Ballarat (C)	43.5	35.7	51.6	18.9	14.1	25.0	20.7	16.0	26.4	13.0	7.9	20.5
Banyule (C)	44.7	37.6	52.0	15.0	9.7	22.5	25.2	18.7	33.1	8.8*	4.5	16.8
Bass Coast (S)	32.2	22.5	43.7	25.5	17.9	35.0	20.7	14.0	29.5	16.0	10.2	24.3
Baw Baw (S)	31.4	24.7	38.9	19.4	13.8	26.6	25.5	20.0	31.8	22.0	15.4	30.3
Bayside (C)	69.3	59.7	77.4	19.5	12.8	28.6	8.2*	4.5	14.4	**	**	**
Benalla (RC)	28.8	23.5	34.8	17.5*	8.9	31.6	27.5	17.1	41.2	19.4*	11.4	31.0
Boroondara (C)	65.1	56.3	73.1	13.4	8.3	20.8	9.0*	4.2	18.3	5.1*	2.3	11.0
Brimbank (C)	43.8	37.0	50.9	18.1	13.5	23.8	16.6	11.7	22.9	15.9	11.1	22.3
Buloke (S)	22.9	17.3	29.7	19.7	12.4	29.9	24.2	18.5	31.1	31.0	21.4	42.6
Campaspe (S)	24.9	17.7	33.9	21.7	14.1	31.9	28.7	22.2	36.1	20.1	13.1	29.5
Cardinia (S)	39.6	32.6	47.0	16.3	11.8	22.0	28.2	21.7	35.9	14.9	10.6	20.4
Casey (C)	44.7	36.9	52.8	20.6	15.1	27.5	17.7	12.9	23.8	10.4*	5.8	18.0
Central Goldfields (S)	26.8	19.0	36.3	22.0	14.1	32.8	22.5	14.3	33.6	27.6	18.1	39.7
Colac-Otway (S)	22.6	17.0	29.3	15.9	11.1	22.3	38.1	29.3	47.7	22.5	14.7	32.7
Corangamite (S)	24.8	17.0	34.8	19.3	13.1	27.7	25.4	18.4	34.0	28.3	19.7	38.8
Darebin (C)	48.8	40.7	57.0	19.6	13.4	27.8	11.7	7.3	18.4	5.0*	2.5	9.7
East Gippsland (S)	28.6	21.3	37.4	19.3	13.3	27.2	31.2	23.8	39.6	14.3	9.3	21.2
Frankston (C)	38.5	30.5	47.2	17.9	12.1	25.7	19.4	13.3	27.3	18.5	12.5	26.5
Gannawarra (S)	22.1	14.9	31.5	18.3	12.1	26.8	20.0	14.8	26.4	32.8	23.7	43.5
Glen Eira (C)	59.9	51.6	67.6	17.9	11.3	27.3	16.2	10.1	24.9	5.3*	2.0	13.3
Glenelg (S)	34.1	24.6	45.1	15.2*	8.7	25.3	19.4	14.9	24.8	27.7	20.1	36.9
Golden Plains (S)	40.2	32.1	48.9	18.1	11.2	27.9	22.9	16.7	30.6	16.0	10.8	22.9
Greater Bendigo (C)	31.1	25.9	36.9	15.3	10.1	22.4	24.9	15.5	37.6	21.9*	12.2	36.0
Greater Dandenong (C)	42.5	35.2	50.1	16.9	11.7	23.9	19.9	14.7	26.3	14.0	9.1	21.1
Greater Geelong (C)	41.2	34.5	48.3	23.4	15.4	33.9	20.6	13.6	30.0	14.1*	7.5	25.1
Greater Shepparton (C)	39.4	31.0	48.4	19.9	13.6	28.1	24.6	18.5	32.0	13.1	8.7	19.4
Hepburn (S)	43.7	34.3	53.6	15.8	9.9	24.3	23.8	17.0	32.3	16.1	11.7	21.7
Hindmarsh (S)	24.9	18.1	33.2	17.7	10.8	27.6	21.1	13.5	31.6	29.7	19.5	42.4
Hobsons Bay (C)	54.9	46.9	62.7	12.5	8.0	19.0	17.1	11.5	24.7	9.3*	5.3	15.9
Horsham (RC)	28.2	21.7	35.7	17.7	12.1	25.1	33.2	23.4	44.6	15.0	9.9	22.0
Hume (C)	38.3	31.9	45.1	20.8	15.2	27.7	20.8	14.4	29.0	14.4	10.0	20.4
Indigo (S)	30.5	24.6	37.2	18.9	11.9	28.7	27.4	19.7	36.6	21.6	16.2	28.1
Kingston (C)	55.2	45.2	64.7	15.2	9.3	24.0	13.2*	7.6	22.1	10.4*	4.8	21.1
Knox (C)	42.6	35.6	49.8	18.1	12.7	25.1	14.9	10.5	20.6	10.5	6.3	16.8
Latrobe (C)	34.4	27.0	42.6	20.1	15.4	25.9	18.4	12.5	26.3	19.7	13.4	27.8
Loddon (S)	21.0	14.9	28.8	37.5	29.4	46.3	20.5	15.3	27.0	18.0	13.2	24.0
Macedon Ranges (S)	48.9	40.7	57.3	16.3	10.9	23.8	11.7	8.0	17.0	17.1	11.1	25.4
Manningham (C)	51.9	42.3	61.4	10.1	6.9	14.5	21.9	14.6	31.6	9.6*	4.9	18.0
Mansfield (S)	24.9	18.4	32.8	16.6	11.8	22.9	29.6	21.0	40.0	26.6	18.5	36.8
Maribyrnong (C)	62.0	53.3	70.0	8.6	5.6	13.1	15.9	10.2	23.9	6.1*	3.1	11.8

Table 2.57: Physical activity, by LGA, Victoria, 2011–12 (continued)

LGA	Mostly sitting			Mostly standing			Mostly walking			Mostly heavy labour/ physically demanding		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Maroondah (C)	49.1	41.1	57.1	20.9	14.5	29.2	15.0	10.2	21.4	8.3	5.1	13.2
Melbourne (C)	70.8	63.0	77.6	15.3	9.7	23.2	9.8*	5.9	15.8	**	**	**
Melton (S)	41.3	34.7	48.3	20.1	14.9	26.6	19.3	13.8	26.4	13.0	9.2	18.1
Mildura (RC)	37.2	29.9	45.1	18.3	11.6	27.6	26.9	19.4	36.0	15.5	10.3	22.5
Mitchell (S)	39.3	32.0	47.1	19.9	13.8	27.8	20.3	13.8	29.0	19.7	13.6	27.6
Moira (S)	30.9	22.8	40.3	21.8	14.3	31.8	19.8	13.5	28.2	20.7	13.0	31.3
Monash (C)	60.4	52.2	68.0	14.7	9.9	21.3	12.4	7.5	19.7	5.5*	3.0	9.8
Moonee Valley (C)	65.6	57.3	73.0	11.0	7.4	16.1	9.8*	5.7	16.4	5.1*	2.5	10.1
Moorabool (S)	45.8	37.5	54.4	20.2	14.0	28.3	18.4	12.3	26.8	11.9	7.9	17.7
Moreland (C)	49.2	41.0	57.5	21.1	15.1	28.6	12.9*	7.8	20.8	11.5*	6.5	19.4
Mornington Peninsula (S)	49.1	39.5	58.9	18.2	11.7	27.1	18.2	11.9	26.9	13.9*	8.1	22.8
Mount Alexander (S)	36.8	28.1	46.4	28.3	20.7	37.2	21.1	13.4	31.6	11.1*	5.3	21.7
Moyne (S)	25.4	19.8	31.9	12.3	7.9	18.7	29.2	21.5	38.2	31.5	24.4	39.6
Murrindindi (S)	23.0	17.8	29.1	16.6*	8.9	28.8	31.6	21.8	43.3	27.7	19.4	38.0
Nillumbik (S)	42.2	33.8	51.0	17.1	11.2	25.2	24.1	17.2	32.7	10.9*	5.9	19.2
Northern Grampians (S)	33.8	24.3	44.7	16.9	12.2	22.9	21.4	14.6	30.2	18.8	12.4	27.5
Port Phillip (C)	59.2	50.7	67.1	19.2	12.8	27.9	16.8	10.7	25.6	4.3*	2.4	7.7
Pyrenees (S)	20.1	14.8	26.7	14.3	9.7	20.5	28.5	21.4	36.9	36.6	28.3	45.7
Queenscliffe (B)	48.5	37.7	59.6	18.1*	10.4	29.6	18.8	11.4	29.5	8.5*	3.4	19.9
South Gippsland (S)	33.3	26.0	41.6	12.5*	7.3	20.6	26.6	17.7	37.8	26.4	18.4	36.3
Southern Grampians (S)	18.3	14.3	23.2	22.4	14.2	33.6	24.2	16.2	34.5	34.5	24.5	46.0
Stonnington (C)	67.4	59.2	74.6	15.4	10.1	22.7	11.3*	6.7	18.4	5.9*	2.9	11.9
Strathbogie (S)	32.3	20.6	46.7	15.7	11.1	21.7	31.7	19.8	46.6	17.2	11.8	24.5
Surf Coast (S)	42.0	33.3	51.1	31.2	22.3	41.7	20.1	13.8	28.3	6.5	4.1	10.2
Swan Hill (RC)	21.8	16.8	27.7	33.3	25.3	42.5	19.8	12.8	29.4	24.0	15.3	35.5
Towong (S)	20.0	14.4	27.1	11.6	7.8	16.9	28.1	20.2	37.6	33.2	24.8	42.8
Wangaratta (RC)	25.7	20.3	31.9	22.3	15.9	30.3	21.5	15.8	28.6	23.0	16.9	30.6
Warrnambool (C)	34.9	27.9	42.7	22.4	15.0	32.2	18.2	12.2	26.4	16.3	11.3	23.0
Wellington (S)	29.5	21.7	38.6	16.9	11.0	24.9	29.7	20.6	40.8	17.6	12.0	25.1
West Wimmera (S)	23.9	16.4	33.5	17.6	11.9	25.3	21.8	15.3	30.0	25.6	18.7	34.0
Whitehorse (C)	46.7	40.7	52.8	28.5	20.7	37.9	18.4	11.6	27.8	5.4*	2.4	11.9
Whittlesea (C)	42.3	35.4	49.6	19.3	13.9	26.1	19.5	14.4	25.9	13.5	9.1	19.6
Wodonga (RC)	39.6	30.7	49.1	22.9	16.8	30.5	22.4	15.3	31.5	14.7*	8.8	23.6
Wyndham (C)	50.2	44.1	56.3	19.0	14.1	25.2	16.1	11.4	22.2	8.4	5.4	12.9
Yarra (C)	67.0	52.8	78.7	10.1	6.5	15.4	16.3*	7.0	33.7	5.8*	2.4	13.3
Yarra Ranges (S)	42.2	35.9	48.8	20.8	14.2	29.5	17.7	12.2	25.0	16.6*	9.5	27.5
Yarriambiack (S)	24.5	18.5	31.8	15.1	9.3	23.5	24.7	16.6	34.9	29.3	20.3	40.2
<b>Victoria</b>	<b>48.1</b>	<b>46.5</b>	<b>49.7</b>	<b>18.5</b>	<b>17.3</b>	<b>19.7</b>	<b>19.3</b>	<b>18.1</b>	<b>20.7</b>	<b>12.5</b>	<b>11.5</b>	<b>13.7</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

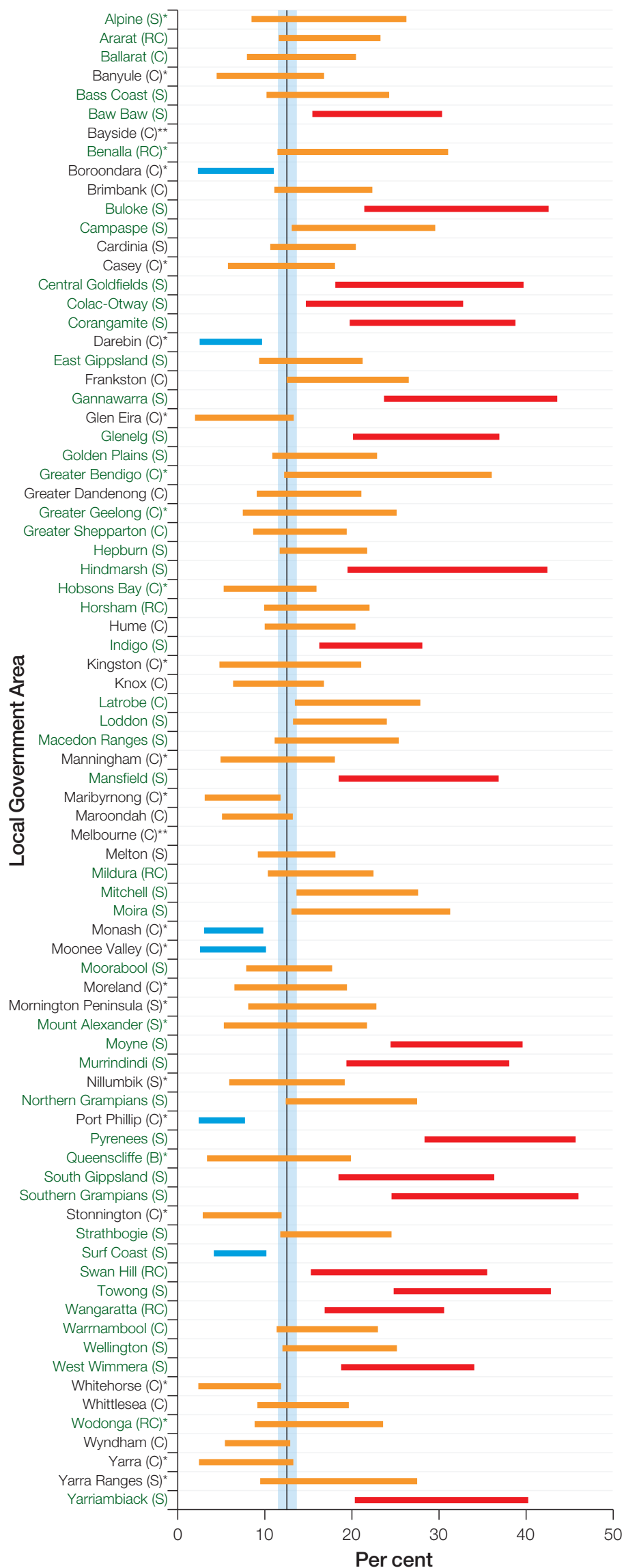
\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that the estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.



Figure 2.23: Occupational physical activity, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

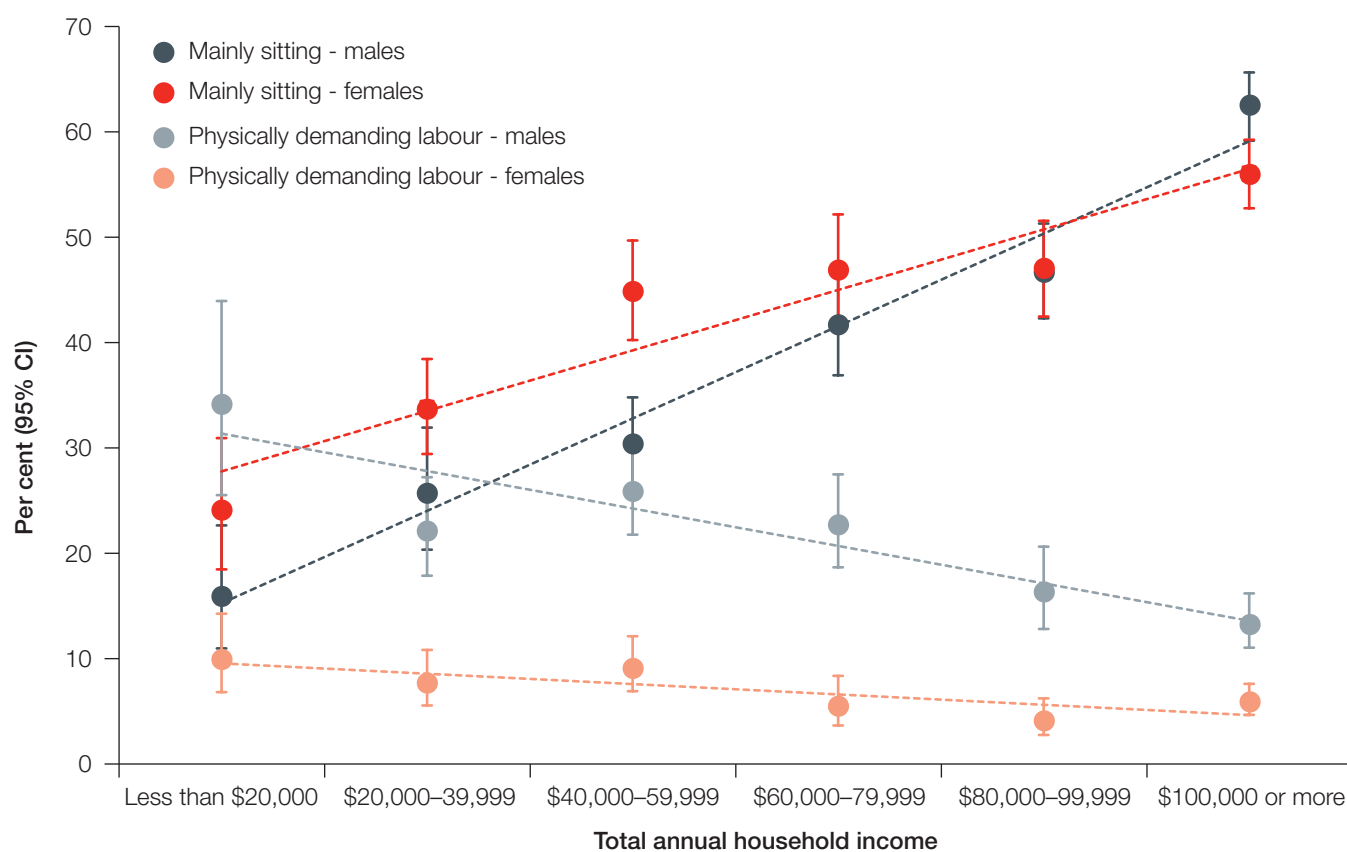
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

The relationship, if any, was investigated between SES and age-adjusted physical activity associated with work, using total annual household income as a measure of SES (Figure 2.24). The proportion of men and women who reported mostly doing heavy labour or physically demanding work significantly decreased with increasing total annual household income. Conversely, the proportion of men and women who reported mostly being physically inactive at work increased with increasing income.

**Figure 2.24: Occupational physical activity, by total annual household income and sex, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for statistical significance.

## Discussion

### Interpretation of the findings

The majority of Victorian adults (63.7 per cent) were sufficiently physically active to meet the 1999 Australian guidelines. This may change, however, as it is expected that the new, soon to be released, guidelines may significantly increase the minimum level of physical activity considered to be sufficient to promote and maintain good health.

There has been a significant decline in average energy expenditure in developed countries since the Second World War, due to increased mechanisation, technological developments and globalisation (Egger, Vogels & Westerterp 2001). It is widely believed that this decline in physical activity in conjunction with changes to the food supply and diet is largely responsible for the obesity epidemic. However, no change was found in physical activity levels among Victorian adults from 2005 to 2011–12.

There were typical SES gradients for physical activity, where physical activity declined with decreasing total annual household income. However, there were reverse SES gradients for occupation-related physical activity, where physical activity increased with decreasing total annual household income.

### Other sources of data

The ABS conducts the National Health Survey approximately every three years. For the year 2011–12 the National Health Survey was conducted as part of the Australian Health Survey. The National Health Survey uses a different method for evaluating physical activity levels and does not attempt to measure total physical activity levels, but rather exercise associated with leisure. The 2011–12 Australian Health Survey captured information about walking and moderate and vigorous exercise for sport, recreation or fitness. Moderate exercise consisted of activity undertaken for fitness, recreation or sport that caused a moderate increase in heart rate or breathing, while vigorous exercise caused a large increase in a person's heart rate or breathing. The level of exercise was determined based on frequency, intensity and duration.

## 2.6 Overweight and obesity

### Introduction

Obesity is an excess accumulation of body fat and is a significant risk factor for hypertension, cardiovascular disease, type 2 diabetes; gallbladder disease, musculoskeletal disorders (especially osteoarthritis), some cancers (endometrial, breast and colon), psychosocial disorders and breathing difficulties (WHO 2013). Ultimately being obese can lead to disability and/or premature death.

Measurement of excess body fat as a risk factor for chronic disease is not simple, because both the amount of overall fat and its anatomical distribution contribute to chronic disease development and progression. At the population level, a common indicator of excess weight (approximating body fat) is the body mass index (BMI). However, BMI is a poor indicator of the percentage of body fat as it cannot distinguish between body fat and muscle. Therefore an individual who is very muscular with low body fat could have a high BMI estimate and be classified as obese. Nevertheless self-reported data still have a place in monitoring the health of a population because such data are relatively inexpensive and easy to collect and can be used to track changes over time.

The body mass index (BMI) provides a measure of body weight in relation to height that can be used to estimate levels of unhealthy weight in a population. It is calculated as weight in kilograms divided by height in metres squared:

$$\text{BMI} = \text{weight (kg)}/\text{height squared (m}^2\text{)}$$

WHO classifies adult body weight status based on the following BMI scores:

BMI score	Weight category
< 18.5	Underweight
18.5–24.9	Normal
25.0–29.9	Overweight
30.0–34.9	Obese class I
35.0–39.9	Obese class II
≥ 40.0	Obese class III

(WHO 2000; 2013)

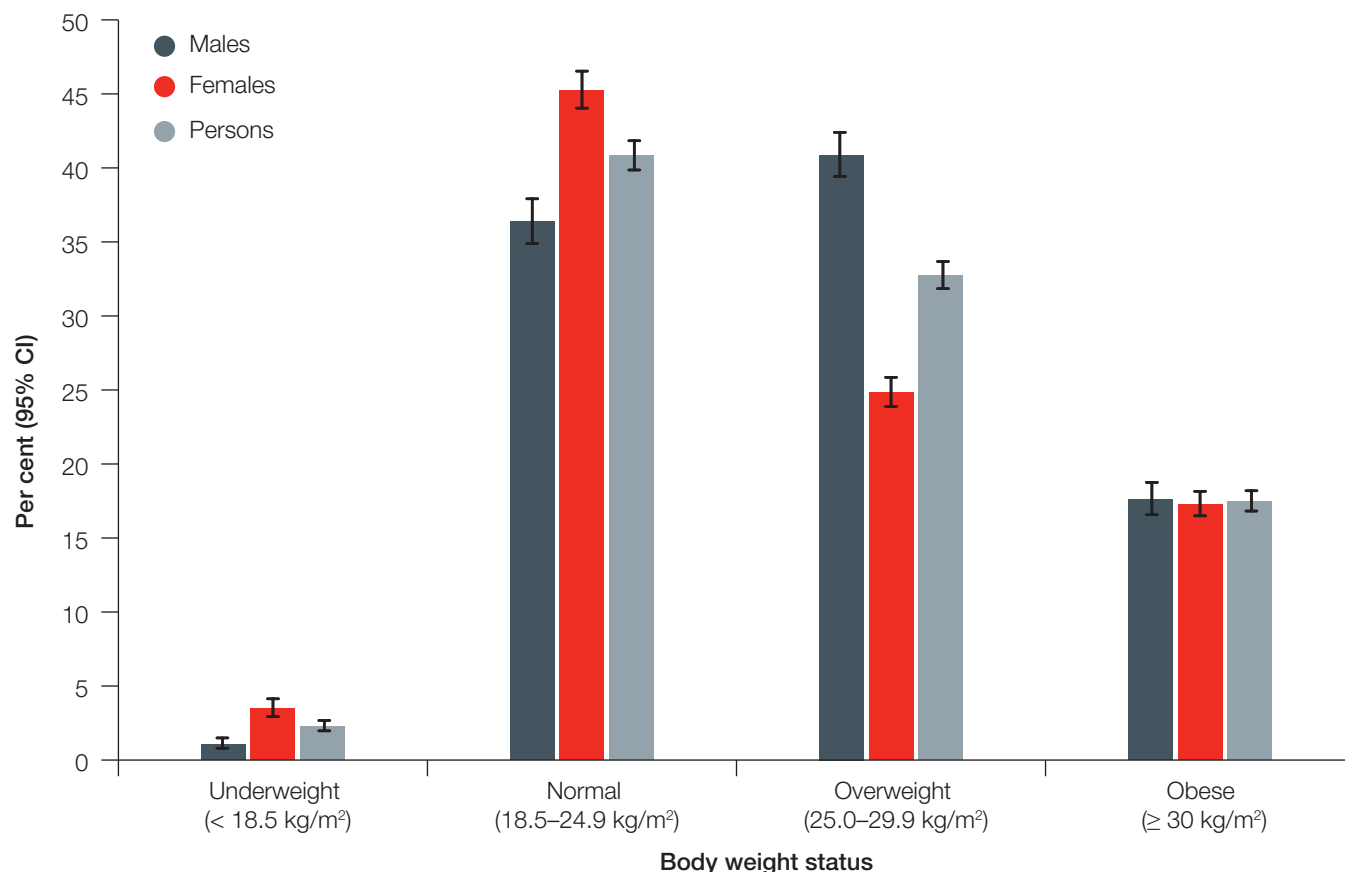
Survey respondents reported their height and weight and the formula described above was used to calculate their BMI. A respondent's weight status was categorized according to the WHO criteria.

It is important to note that studies comparing self-reported height and weight with actual physical measurements have shown that people tend to underestimate their weight or overestimate their height, resulting in an overall underestimation of their BMI (Elgar & Stewart 2008). Therefore estimates of the prevalence of overweight and obesity in a population that are based on self-reported data, are likely to be an underestimate.

### Prevalence of overweight and obesity

Figure 2.25 shows the body weight status of Victorians aged 18 years or over in 2011–12. Women had a significantly higher prevalence of underweight and normal weight compared with their male counterparts. Men had a significantly higher prevalence of overweight compared with their female counterparts. There was no difference between the sexes in the prevalence of obesity.

Figure 2.25: Body weight status<sup>a</sup>, by sex, 2011–12



a. Determined by calculation of body mass index (BMI) from self-reported height and weight.

BMI = weight (kg)/height squared (m<sup>2</sup>); 95% CI = 95 per cent confidence interval.

Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 2.62 shows the body weight status of Victorian adults, by age group and sex. Overall, 40.9 per cent of men and 24.8 per cent of women were overweight, while 17.6 and 17.3 per cent of men and women respectively, were obese.

People aged 18–24 had a significantly higher prevalence of underweight compared with any other age group. People aged 45 years or over had a significantly higher prevalence of overweight and obesity compared with all Victorians.

Table 2.62: Body weight status<sup>a</sup>, by age group and sex, Victoria, 2011–12

Age group (years)	Underweight (< 18.5 kg/m <sup>2</sup> )			Normal (18.5–24.9 kg/m <sup>2</sup> )			Overweight (25.0–29.9 kg/m <sup>2</sup> )			Obese (≥ 30.0 kg/m <sup>2</sup> )		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	3.7*	2.2	6.1	57.4	51.6	62.9	21.9	17.5	27.1	8.8	6.2	12.4
25–34	**	**	**	43.7	38.8	48.8	38.4	33.5	43.4	12.9	9.9	16.7
35–44	0.6*	0.3	1.3	32.3	29.4	35.4	45.1	41.9	48.3	18.7	16.4	21.3
45–54	0.6*	0.3	1.2	27.6	25.2	30.2	45.5	42.8	48.3	23.6	21.3	26.1
55–64	0.4*	0.2	0.8	26.6	24.3	29.0	48.1	45.5	50.8	22.0	19.9	24.2
65+	0.7	0.5	1.2	32.8	30.8	34.8	43.4	41.4	45.5	18.9	17.4	20.7
<b>Total</b>	<b>1.1</b>	<b>0.8</b>	<b>1.5</b>	<b>36.4</b>	<b>34.9</b>	<b>37.9</b>	<b>40.9</b>	<b>39.4</b>	<b>42.4</b>	<b>17.6</b>	<b>16.5</b>	<b>18.7</b>
<b>Females</b>												
18–24	9.8	6.9	13.8	60.6	55.2	65.7	11.9	9.1	15.5	6.3	4.2	9.4
25–34	4.3	3.0	6.2	51.5	47.8	55.3	20.4	17.6	23.4	14.7	12.4	17.4
35–44	2.3	1.7	3.1	47.8	45.4	50.2	26.0	23.9	28.2	16.9	15.2	18.7
45–54	1.9	1.4	2.5	41.0	38.8	43.3	28.0	26.0	30.0	21.3	19.5	23.2
55–64	1.3	0.9	1.9	35.8	33.8	37.9	30.8	28.8	32.8	23.6	21.8	25.5
65+	2.1	1.6	2.6	35.3	33.6	37.0	30.7	29.1	32.3	21.2	19.7	22.7
<b>Total</b>	<b>3.5</b>	<b>2.9</b>	<b>4.1</b>	<b>45.2</b>	<b>44.0</b>	<b>46.5</b>	<b>24.8</b>	<b>23.9</b>	<b>25.8</b>	<b>17.3</b>	<b>16.5</b>	<b>18.1</b>
<b>Persons</b>												
18–24	6.7	5.0	8.9	58.9	55.0	62.7	17.0	14.3	20.2	7.6	5.8	9.9
25–34	2.6	1.8	3.7	47.6	44.5	50.8	29.4	26.5	32.5	13.8	11.8	16.1
35–44	1.5	1.1	2.0	40.2	38.3	42.1	35.4	33.5	37.4	17.8	16.3	19.4
45–54	1.2	0.9	1.6	34.4	32.8	36.1	36.6	34.9	38.4	22.4	21.0	24.0
55–64	0.9	0.7	1.2	31.3	29.8	32.9	39.3	37.6	41.0	22.8	21.4	24.2
65+	1.5	1.2	1.8	34.1	32.9	35.4	36.5	35.2	37.8	20.2	19.1	21.3
<b>Total</b>	<b>2.3</b>	<b>2.0</b>	<b>2.7</b>	<b>40.8</b>	<b>39.8</b>	<b>41.8</b>	<b>32.7</b>	<b>31.8</b>	<b>33.6</b>	<b>17.5</b>	<b>16.8</b>	<b>18.2</b>

a. Determined by calculation of body mass index (BMI) from self-reported height and weight.

BMI = weight (kg)/height squared (m<sup>2</sup>); LL/UL 95% CI = lower/upper limit of 95% confidence interval.

Data are age-specific estimates, except for 'Total', which represent the total for Victoria and were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\*Estimate has a RSE of greater than 50 per cent and is not reported as it is unreliable for general use.

Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

The trend over time was investigated of the age-adjusted prevalence of underweight, normal weight, overweight and obesity (Table 2.63 and Figure 2.26). The prevalence of underweight in women and people, but not men, significantly declined between 2003 and 2011–12. The prevalence of normal weight in both men and women also significantly declined. By contrast the prevalence of obesity significantly increased in both men and women. However, the prevalence of overweight remained unchanged in both men and women.

Table 2.63: Body weight status<sup>a</sup> from 2003 to 2011–12, by sex, Victoria

Year	Underweight ( $< 18.5 \text{ kg/m}^2$ )			Normal ( $18.5\text{--}24.9 \text{ kg/m}^2$ )			Overweight ( $25.0\text{--}29.9 \text{ kg/m}^2$ )			Obese ( $\geq 30.0 \text{ kg/m}^2$ )		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
2003	1.8	1.2	2.6	42.6	40.3	44.9	38.9	36.7	41.2	14.2	12.7	15.8
2004	1.6	1.1	2.5	40.6	38.3	42.9	41.2	38.9	43.6	14.0	12.5	15.6
2005	1.6	1.1	2.3	41.2	38.8	43.7	39.1	36.8	41.4	15.1	13.5	16.8
2006	0.7*	0.4	1.1	40.0	37.5	42.5	39.9	37.5	42.3	16.1	14.5	17.8
2007	1.2*	0.7	2.1	39.3	36.9	41.9	40.9	38.4	43.4	15.7	14.1	17.4
2008	0.9	0.7	1.2	38.8	37.5	40.1	39.8	38.6	41.1	17.2	16.3	18.2
2009	1.4	0.9	2.1	35.6	33.4	37.9	39.6	37.4	41.8	18.4	16.7	20.2
2010	0.6*	0.3	1.0	34.4	32.0	36.9	40.8	38.5	43.3	18.5	16.7	20.5
<b>2011–12</b>	<b>1.1</b>	<b>0.8</b>	<b>1.5</b>	<b>36.4</b>	<b>34.9</b>	<b>37.9</b>	<b>40.9</b>	<b>39.4</b>	<b>42.4</b>	<b>17.6</b>	<b>16.5</b>	<b>18.7</b>
<b>Females</b>												
2003	5.0	4.1	6.0	51.9	50.0	53.9	23.9	22.3	25.6	13.7	12.4	15.0
2004	5.3	4.4	6.3	49.2	47.3	51.1	23.0	21.5	24.5	14.7	13.5	16.1
2005	3.6	2.9	4.6	48.6	46.6	50.6	25.6	24.0	27.4	16.0	14.6	17.5
2006	3.1	2.5	3.9	50.2	48.2	52.1	24.6	23.0	26.2	14.5	13.3	15.9
2007	2.8	2.2	3.6	47.9	45.8	49.9	25.1	23.4	26.9	15.1	13.8	16.4
2008	3.6	3.1	4.1	48.1	47.0	49.1	24.2	23.4	25.1	16.1	15.4	16.8
2009	3.5	2.7	4.4	48.3	46.4	50.2	22.3	20.9	23.7	16.1	14.9	17.5
2010	2.9	2.2	3.7	45.2	43.2	47.2	25.8	24.1	27.5	15.2	14.0	16.5
<b>2011–12</b>	<b>3.5</b>	<b>2.9</b>	<b>4.1</b>	<b>45.2</b>	<b>44.0</b>	<b>46.5</b>	<b>24.8</b>	<b>23.9</b>	<b>25.8</b>	<b>17.3</b>	<b>16.5</b>	<b>18.1</b>
<b>Persons</b>												
2003	3.4	2.9	4.1	47.4	45.9	48.9	31.1	29.7	32.6	13.9	12.9	15.0
2004	3.4	2.9	4.1	45.0	43.5	46.5	31.8	30.4	33.3	14.4	13.4	15.5
2005	2.6	2.2	3.2	45.0	43.4	46.6	32.2	30.7	33.6	15.6	14.5	16.8
2006	1.9	1.6	2.4	45.2	43.6	46.8	32.0	30.5	33.5	15.3	14.3	16.4
2007	2.0	1.6	2.6	43.7	42.1	45.3	32.8	31.3	34.3	15.4	14.4	16.5
2008	2.3	2.0	2.6	43.5	42.7	44.3	31.9	31.1	32.6	16.7	16.1	17.3
2009	2.4	2.0	3.0	42.1	40.6	43.5	30.8	29.4	32.1	17.3	16.2	18.4
2010	1.7	1.4	2.2	39.8	38.2	41.4	33.1	31.7	34.6	16.9	15.7	18.0
<b>2011–12</b>	<b>2.3</b>	<b>2.0</b>	<b>2.7</b>	<b>40.8</b>	<b>39.8</b>	<b>41.8</b>	<b>32.7</b>	<b>31.8</b>	<b>33.6</b>	<b>17.5</b>	<b>16.8</b>	<b>18.2</b>

a. Determined by calculation of body mass index (BMI) from self-reported height and weight, BMI = weight (kg)/height squared (m<sup>2</sup>); LL/UL 95% CI = lower/upper limit of 95% confidence interval.

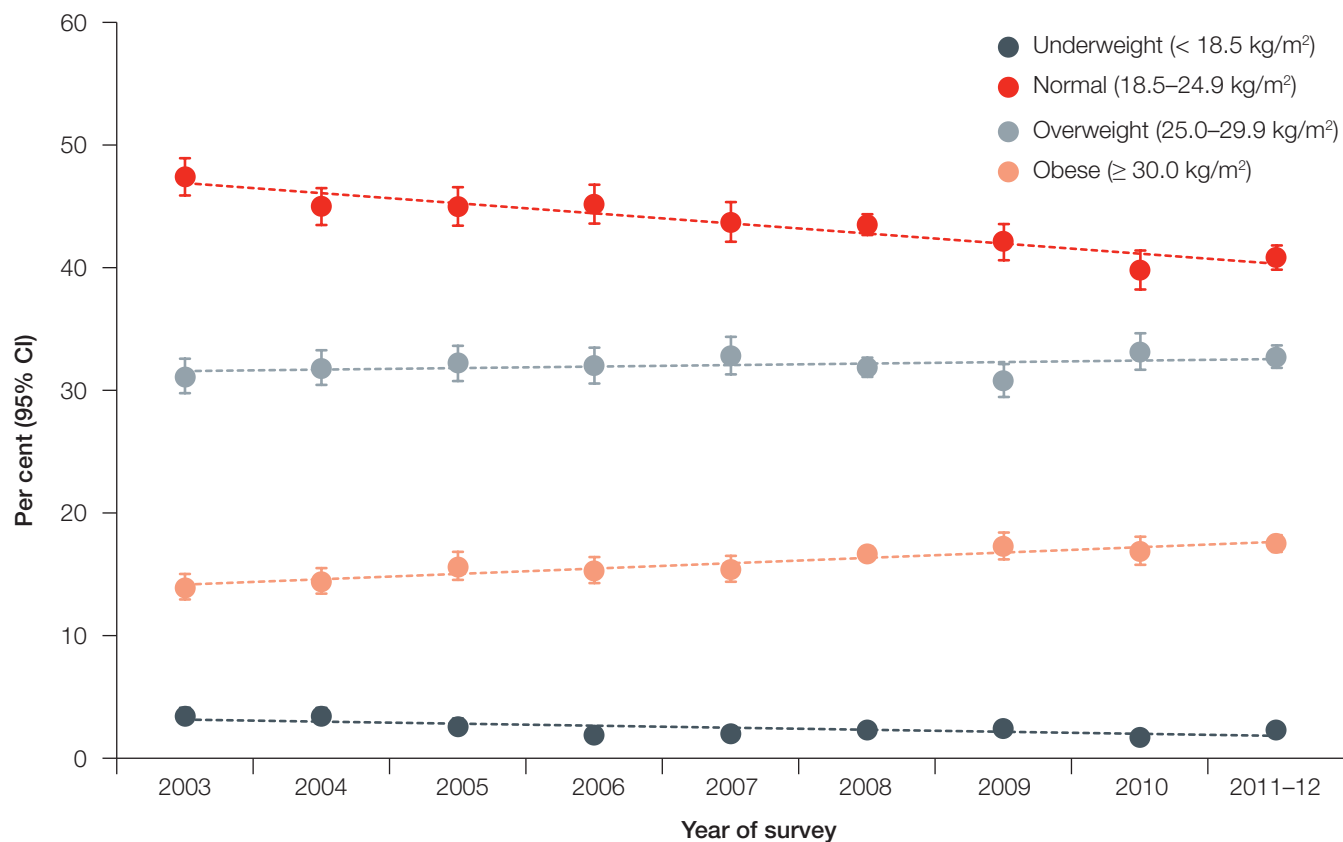
Data were age-standardised to the 2011 Victorian population.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.



Figure 2.26: Body weight status<sup>a</sup> from 2003 to 2011–12, Victoria



Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for statistical significance.

Table 2.64 shows the body weight status by Department of Health region and sex. There was a significantly higher prevalence of obesity in men and women who lived in rural Victoria (20.7 per cent) compared with metropolitan Victoria (16.5 per cent). By contrast there were no significant differences in the prevalence of overweight in men and women, whether they lived in rural or metropolitan Victoria.

There was a significantly higher prevalence of overweight in women who lived in Hume Region. There were no significant regional differences in the prevalence of overweight in men compared with all Victorian men.

Men and women who lived in Hume Region and men who lived in Loddon Mallee Region had a significantly higher prevalence of obesity compared with all Victorian men and women, respectively. Conversely, women, but not men, who lived in Eastern Metropolitan Region had a significantly lower prevalence of obesity compared with all Victorian women.

Table 2.64: Body weight status,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12

Region	Underweight ( $< 18.5 \text{ kg/m}^2$ )			Normal ( $18.5\text{--}24.9 \text{ kg/m}^2$ )			Overweight ( $25.0\text{--}29.9 \text{ kg/m}^2$ )			Obese ( $\geq 30.0 \text{ kg/m}^2$ )		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
Eastern Metropolitan	1.6*	0.8	3.0	39.0	35.3	42.7	40.7	37.1	44.4	15.6	13.2	18.3
North & West Metropolitan	0.7*	0.4	1.2	36.2	33.7	38.8	39.9	37.4	42.5	18.5	16.7	20.6
Southern Metropolitan	1.2*	0.6	2.4	38.0	34.9	41.2	42.1	39.0	45.3	14.9	12.9	17.3
<b>Metropolitan males</b>	1.1	0.7	1.5	37.5	35.8	39.3	40.8	39.0	42.5	16.7	15.5	18.0
Barwon-South Western	0.3*	0.2	0.6	33.2	25.8	41.5	41.8	35.2	48.8	17.5	14.2	21.4
Gippsland	1.3*	0.6	2.9	32.0	27.8	36.6	42.0	37.6	46.5	19.1	15.8	22.9
Grampians	0.4*	0.1	0.9	35.6	30.9	40.5	40.1	35.7	44.7	19.5	15.9	23.8
Hume	0.3*	0.2	0.6	32.9	28.6	37.6	41.2	36.8	45.6	21.8	19.1	24.8
Loddon Mallee	2.9*	1.1	7.4	26.9	23.2	30.9	41.3	36.5	46.2	24.6	19.2	30.9
<b>Rural males</b>	1.1*	0.5	2.2	31.8	29.1	34.7	41.6	38.7	44.5	20.6	18.4	23.0
<b>Total</b>	<b>1.1</b>	<b>0.8</b>	<b>1.5</b>	<b>36.4</b>	<b>34.9</b>	<b>37.9</b>	<b>40.9</b>	<b>39.4</b>	<b>42.4</b>	<b>17.6</b>	<b>16.5</b>	<b>18.7</b>
<b>Females</b>												
Eastern Metropolitan	4.2	2.6	6.7	49.2	45.7	52.6	23.1	20.7	25.8	13.8	12.0	15.8
North & West Metropolitan	3.9	3.0	5.1	44.5	42.5	46.6	25.2	23.6	26.9	18.1	16.7	19.6
Southern Metropolitan	2.7	2.0	3.7	48.9	46.2	51.6	24.2	22.0	26.5	15.8	14.2	17.6
<b>Metropolitan females</b>	3.6	2.9	4.4	47.3	45.8	48.8	24.2	23.1	25.5	16.2	15.3	17.2
Barwon-South Western	4.0*	1.9	8.0	39.8	34.7	45.1	27.6	23.6	32.0	19.6	16.1	23.6
Gippsland	2.6*	1.5	4.3	36.3	32.7	40.0	28.6	25.4	32.0	20.3	17.8	23.0
Grampians	2.7*	1.4	5.0	40.8	36.7	45.1	25.1	22.2	28.4	19.9	16.8	23.4
Hume	2.6*	1.5	4.5	37.0	34.0	40.1	29.4	26.5	32.5	22.8	20.3	25.6
Loddon Mallee	2.6*	1.6	4.2	37.0	33.4	40.7	25.2	22.5	28.1	21.5	17.5	26.2
<b>Rural females</b>	3.0	2.1	4.2	38.1	36.0	40.2	27.3	25.7	28.9	20.7	19.1	22.5
<b>Total</b>	<b>3.5</b>	<b>2.9</b>	<b>4.1</b>	<b>45.2</b>	<b>44.0</b>	<b>46.5</b>	<b>24.8</b>	<b>23.9</b>	<b>25.8</b>	<b>17.3</b>	<b>16.5</b>	<b>18.1</b>
<b>Persons</b>												
Eastern Metropolitan	2.9	2.0	4.2	44.2	41.7	46.8	31.8	29.5	34.2	14.8	13.2	16.4
North & West Metropolitan	2.3	1.8	2.9	40.4	38.8	42.1	32.5	31.0	34.0	18.4	17.2	19.6
Southern Metropolitan	1.9	1.4	2.6	43.4	41.4	45.5	33.0	31.1	35.0	15.4	14.1	16.8
<b>Metropolitan persons</b>	2.3	2.0	2.8	42.4	41.3	43.6	32.4	31.3	33.5	16.5	15.7	17.3
Barwon-South Western	2.4*	1.1	5.1	36.3	31.5	41.4	34.9	30.5	39.6	18.7	16.0	21.6
Gippsland	1.8	1.2	2.8	34.2	31.4	37.1	35.3	32.5	38.2	19.6	17.6	21.9
Grampians	1.5*	0.9	2.5	37.9	34.6	41.2	32.7	29.8	35.7	19.9	17.3	22.7
Hume	1.9*	0.9	2.4	35.0	32.3	37.7	35.2	32.5	37.9	22.4	20.4	24.4
Loddon Mallee	3.0*	1.6	5.6	31.7	28.9	34.5	32.8	30.0	35.7	23.3	19.5	27.5
<b>Rural persons</b>	2.1	1.5	2.9	35.0	33.2	36.8	34.3	32.5	36.0	20.7	19.3	22.2
<b>Total</b>	<b>2.3</b>	<b>2.0</b>	<b>2.7</b>	<b>40.8</b>	<b>39.8</b>	<b>41.8</b>	<b>32.7</b>	<b>31.8</b>	<b>33.6</b>	<b>17.5</b>	<b>16.8</b>	<b>18.2</b>

a. Determined by calculation of body mass index (BMI) from self-reported height and weight.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

BMI = weight (kg)/height squared (m<sup>2</sup>); LL/UL 95% CI = lower/upper limit of 95% confidence interval.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Tables 2.65a-c shows the prevalence of overweight and obesity, by LGA and sex.

Figure 2.27 and Figure 2.28 shows the prevalence of overweight and obesity, respectively, in men, by LGA. Men who lived in the LGA of Bayside (C) had a significantly higher prevalence of overweight (57.1 per cent) compared with all Victorian men and this was the highest estimate in the state. By contrast men who lived in Northern Grampians (S) had a significantly lower prevalence of overweight (26.2 per cent) compared with all Victorian men and this was the lowest estimate in the state.

There was a significantly higher prevalence of obesity in men who lived in the LGAs of Corangamite (S), Greater Bendigo (C), Hume (C), Melton (S), Mitchell (S), Wyndham (C) and Yarriambiack (S) compared with all Victorian men. By contrast there was a significantly lower prevalence of obesity in men who lived in Boroondara (C), Greater Dandenong (C), Nillumbik (S) and Yarra (C) compared with all Victorian men.

Figure 2.29 and Figure 2.30 shows the prevalence of overweight and obesity, respectively, in women, by LGA. Women who lived in the LGAs of Central Goldfields (S), Corangamite (S), East Gippsland (S), Melton (S), Mitchell (S), and Murrindindi (S) had a significantly higher prevalence of overweight compared with all Victorian women. By contrast there was a significantly lower prevalence of overweight in women who lived in Campaspe (S), Glen Eira (C), Monash (C), and Whitehorse (C) compared with all Victorian women.

There was a significantly higher prevalence of obesity in women who lived in the LGA of West Wimmera (S) and the lowest in the LGA of Melbourne (C). A higher proportion of obese women lived in Frankston (C), Greater Shepparton (C), Hume (C), Melton (S), Mitchell (S), West Wimmera (S) and Wodonga (RC) compared with all Victorian women. By contrast there was a significantly lower prevalence of obesity in women who lived in Alpine (S), Bayside (C), Boroondara (C), Darebin (C), Manningham (C), Maribyrnong (C), Melbourne (C), Port Phillip (C), Queenscliffe (B), Stonnington (C), Whitehorse (C) and Yarra (C) compared with all Victorian women.

Figure 2.31 shows the prevalence of overweight in Victorian adults, by LGA. There was a significantly higher prevalence of overweight in adults who lived in the LGAs of Gannawarra (S) and Murrindindi (S) compared with all adult Victorians. By contrast there was a lower prevalence of overweight in adults who lived in Northern Grampians (S) compared with all adult Victorians.

Figure 2.32 and Map 2.6 shows the prevalence of obesity in Victorian adults, by LGA. When the sexes were combined, there was a significantly higher prevalence of obesity in adults who lived in the LGAs of Central Goldfields (S), Greater Bendigo (C), Greater Shepparton (C), Hume (C), Latrobe (C), Melton (S), Mitchell (S), West Wimmera (S), Wyndham (C) and Yarriambiack (S) compared with all Victorian adults. By contrast there was a significantly lower prevalence of obesity in adults who lived in Bayside (C), Boroondara (C), Glen Eira (C), Manningham (C), Maribyrnong (C), Melbourne (C), Nillumbik (S), Port Phillip (C), Queenscliffe (B), Stonnington (C) and Yarra (C) compared with all Victorian adults.

Table 2.65a: Prevalence of overweight and obesity<sup>a</sup>, by LGA and sex, Victoria, 2011–12

LGA	Males					
	Overweight (25.0-29.9 kg/m <sup>2</sup> )			Obese (≥ 30 kg/m <sup>2</sup> )		
	%	95% CI		%	95% CI	
	LL	UL		LL	UL	
Alpine (S)	31.0	19.5	45.4	25.9	16.0	39.0
Ararat (RC)	41.8	33.8	50.2	20.8	12.7	32.3
Ballarat (C)	42.5	33.3	52.2	19.6	12.2	30.0
Banyule (C)	33.5	25.8	42.1	13.2	8.3	20.2
Bass Coast (S)	42.4	32.2	53.2	17.9*	9.2	31.9
Baw Baw (S)	33.1	26.1	40.9	17.0	11.0	25.4
Bayside (C)	57.1	43.4	69.8	11.4*	6.0	20.7
Benalla (RC)	41.3	30.3	53.3	16.7	11.3	24.0
Boroondara (C)	35.0	27.8	43.0	6.7	4.1	10.6
Brimbank (C)	37.7	29.6	46.5	20.3	14.5	27.7
Buloke (S)	44.1	33.5	55.3	23.4*	13.5	37.6
Campaspe (S)	50.7	41.0	60.4	19.8	14.4	26.6
Cardinia (S)	35.9	28.7	43.9	17.0	11.5	24.3
Casey (C)	38.7	30.4	47.6	19.9	14.4	26.9
Central Goldfields (S)	40.3	29.2	52.4	28.1	18.3	40.5
Colac-Otway (S)	33.3	24.0	44.0	13.8	8.6	21.5
Corangamite (S)	37.0	26.3	49.1	26.9	19.8	35.5
Darebin (C)	41.3	32.2	51.0	14.8	9.2	23.0
East Gippsland (S)	40.9	31.8	50.6	16.4	11.2	23.4
Frankston (C)	38.7	29.8	48.4	18.6	12.6	26.6
Gannawarra (S)	52.9	40.6	64.9	18.2	11.3	27.9
Glen Eira (C)	42.0	34.0	50.4	10.3*	6.1	17.0
Glenelg (S)	42.1	30.8	54.3	23.6	15.7	34.0
Golden Plains (S)	41.0	29.4	53.7	15.7	11.4	21.2
Greater Bendigo (C)	39.1	28.6	50.9	31.3	19.4	46.4
Greater Dandenong (C)	44.0	36.1	52.2	9.0	5.6	14.0
Greater Geelong (C)	46.4	34.3	59.0	17.2	11.7	24.6
Greater Shepparton (C)	32.2	21.4	45.3	25.3	18.1	34.3
Hepburn (S)	34.6	24.2	46.6	12.8	8.9	18.1
Hindmarsh (S)	49.8	37.1	62.6	19.9	12.9	29.4
Hobsons Bay (C)	37.6	28.7	47.5	26.6	18.4	36.7
Horsham (RC)	36.2	28.2	45.2	15.9	10.0	24.3
Hume (C)	41.9	33.7	50.5	26.9	18.7	37.0
Indigo (S)	40.2	29.2	52.2	15.2	10.4	21.7
Kingston (C)	40.5	31.9	49.8	14.0*	8.0	23.6
Knox (C)	42.6	33.9	51.7	22.9	16.2	31.3
Latrobe (C)	44.6	35.4	54.2	24.2	17.1	33.1
Loddon (S)	50.4	35.0	65.7	18.7	13.6	25.2
Macedon Ranges (S)	44.7	35.4	54.4	18.8	12.3	27.6
Manningham (C)	37.1	28.2	47.0	13.9	9.1	20.5
Mansfield (S)	35.7	26.4	46.3	14.2	9.0	21.7
Maribyrnong (C)	37.5	28.6	47.2	14.8	10.5	20.4

Table 2.65a: Prevalence of overweight and obesity<sup>a</sup>, by LGA and sex, Victoria, 2011–12 (continued)

LGA	Males					
	Overweight (25.0-29.9 kg/m <sup>2</sup> )			Obese (≥ 30 kg/m <sup>2</sup> )		
	%	95% CI		%	95% CI	
	LL	UL		LL	UL	
Maroondah (C)	42.6	33.6	52.1	14.5	10.0	20.6
Melbourne (C)	35.4	27.8	43.9	12.5	8.2	18.7
Melton (S)	38.9	31.3	47.2	27.7	21.1	35.3
Mildura (RC)	35.9	26.8	46.2	22.3	15.7	30.7
Mitchell (S)	37.7	27.8	48.7	32.6	24.5	42.0
Moira (S)	37.8	27.1	49.8	21.9	15.6	29.9
Monash (C)	36.7	27.8	46.7	15.1	10.0	22.3
Moonee Valley (C)	43.5	36.1	51.1	19.5	12.0	30.0
Moorabool (S)	40.7	32.4	49.6	21.1	15.2	28.6
Moreland (C)	45.2	36.1	54.7	13.5	9.2	19.2
Mornington Peninsula (S)	46.5	36.8	56.4	21.5	14.1	31.3
Mount Alexander (S)	30.6	21.4	41.6	21.4*	12.5	34.2
Moyne (S)	34.9	27.0	43.6	20.1	12.7	30.1
Murrindindi (S)	50.3	38.0	62.5	21.4	14.2	30.8
Nillumbik (S)	42.0	33.0	51.5	10.0	6.6	14.8
Northern Grampians (S)	26.2	18.6	35.5	20.4	15.0	27.1
Port Phillip (C)	37.3	26.5	49.6	13.0*	7.7	21.0
Pyrenees (S)	33.8	26.4	42.2	22.7	16.1	31.0
Queenscliffe (B)	45.7	34.1	57.8	12.8	8.1	19.8
South Gippsland (S)	41.6	32.3	51.5	17.2	11.4	24.9
Southern Grampians (S)	36.9	28.5	46.2	18.4	13.1	25.1
Stonnington (C)	39.7	31.8	48.2	9.7*	5.1	17.7
Strathbogie (S)	36.1	27.7	45.4	20.3	13.7	29.0
Surf Coast (S)	36.5	28.1	45.8	11.7	7.3	18.2
Swan Hill (RC)	43.5	34.8	52.6	*18.3	10.9	29.0
Towong (S)	48.4	36.3	60.6	18.8	12.4	27.6
Wangaratta (RC)	49.5	39.0	60.0	11.8	7.8	17.3
Warrnambool (C)	32.1	24.9	40.3	16.5	11.7	22.9
Wellington (S)	44.9	34.5	55.7	14.4	10.2	20.0
West Wimmera (S)	43.3	34.9	52.2	17.2	11.9	24.3
Whitehorse (C)	42.5	34.3	51.1	13.6	8.3	21.6
Whittlesea (C)	45.3	36.8	54.1	18.7	13.4	25.4
Wodonga (RC)	50.1	40.3	59.9	18.3	11.5	27.8
Wyndham (C)	34.1	27.0	41.9	27.0	21.0	33.9
Yarra (C)	42.1	29.1	56.2	7.2*	4.3	11.8
Yarra Ranges (S)	47.7	37.2	58.3	19.7	13.4	28.0
Yarriambiack (S)	40.8	31.3	50.9	34.2	24.6	45.3
<b>Victoria</b>	<b>40.6</b>	<b>39.1</b>	<b>42.2</b>	<b>17.4</b>	<b>16.4</b>	<b>18.5</b>

a. Determined by calculation of body mass index (BMI) from self-reported height and weight.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. BMI = weight (kg)/height squared (m<sup>2</sup>); LL/UL 95% CI = lower/upper limit of 95% confidence interval.

LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 2.65b: Prevalence of overweight and obesity<sup>a</sup>, by LGA and sex, Victoria, 2011–12

LGA	Females						
	Overweight (25.0-29.9 kg/m <sup>2</sup> )			Obese (≥ 30 kg/m <sup>2</sup> )			
	%	95% CI		%	95% CI		
LL		UL	LL		UL		
Alpine (S)	34.1	21.5	49.3	12.1	9.0	16.1	
Ararat (RC)	28.2	21.5	36.1	19.9	14.9	26.0	
Ballarat (C)	24.0	18.0	31.3	18.0	12.7	24.9	
Banyule (C)	23.5	18.2	29.9	21.5	15.8	28.5	
Bass Coast (S)	21.2	15.8	27.9	21.2	14.6	29.8	
Baw Baw (S)	26.4	20.5	33.3	20.2	15.4	26.1	
Bayside (C)	22.1	17.0	28.3	8.9	5.6	13.7	
Benalla (RC)	19.5	14.7	25.5	28.1*	16.0	44.7	
Boroondara (C)	19.7	14.7	25.9	8.6	5.3	13.6	
Brimbank (C)	28.5	22.4	35.5	21.3	16.4	27.2	
Buloke (S)	24.2	18.6	30.7	22.8	17.5	29.0	
Campaspe (S)	17.3	13.5	22.0	19.0	13.4	26.4	
Cardinia (S)	29.6	23.1	37.0	19.3	14.0	26.0	
Casey (C)	23.3	18.4	29.1	21.9	16.8	28.0	
Central Goldfields (S)	39.0	32.5	46.0	21.8	15.8	29.4	
Colac-Otway (S)	23.4	18.0	29.9	18.8	14.1	24.6	
Corangamite (S)	35.5	26.4	45.8	14.5	10.5	19.6	
Darebin (C)	24.1	18.5	30.8	12.0	8.8	16.2	
East Gippsland (S)	35.0	26.7	44.4	18.8	12.5	27.3	
Frankston (C)	29.1	21.3	38.4	25.6	19.8	32.3	
Gannawarra (S)	30.1	24.3	36.8	17.2	12.2	23.8	
Glen Eira (C)	16.7	12.7	21.5	11.8	7.9	17.3	
Glenelg (S)	29.7	21.5	39.4	19.2	13.7	26.4	
Golden Plains (S)	28.9	21.9	37.1	17.2	13.1	22.3	
Greater Bendigo (C)	25.9	20.9	31.5	25.5	15.7	38.5	
Greater Dandenong (C)	22.0	16.4	28.9	20.4	15.2	26.8	
Greater Geelong (C)	26.4	20.8	33.0	22.0	16.0	29.5	
Greater Shepparton (C)	32.5	24.4	41.8	27.3	19.8	36.4	
Hepburn (S)	25.9	18.8	34.4	19.7	15.1	25.1	
Hindmarsh (S)	28.1	20.2	37.6	23.7	17.4	31.4	
Hobsons Bay (C)	29.0	22.7	36.2	13.8	10.1	18.7	
Horsham (RC)	24.6	19.1	31.1	27.5	16.5	42.0	
Hume (C)	22.1	17.6	27.4	26.1	20.9	32.2	
Indigo (S)	22.8	16.1	31.3	20.4	14.9	27.3	
Kingston (C)	24.0	17.8	31.6	13.4	9.3	19.0	
Knox (C)	26.0	20.3	32.6	19.7	15.0	25.5	
Latrobe (C)	29.3	22.4	37.4	23.3	18.0	29.5	
Loddon (S)	24.8	17.8	33.4	20.6	15.7	26.5	
Macedon Ranges (S)	28.7	21.3	37.4	17.2	13.5	21.6	
Manningham (C)	27.2	18.7	37.7	10.2	6.6	15.2	
Mansfield (S)	24.5	19.0	31.0	17.5	12.9	23.2	
Maribyrnong (C)	21.5	16.1	28.1	11.6	8.2	16.3	

Table 2.65b: Prevalence of overweight and obesity<sup>a</sup>, by LGA and sex, Victoria, 2011–12 (continued)

LGA	Females					
	Overweight (25.0-29.9 kg/m <sup>2</sup> )			Obese (≥ 30 kg/m <sup>2</sup> )		
	%	95% CI		%	95% CI	
	LL	UL		LL	UL	
Maroondah (C)	24.1	17.3	32.5	16.8	11.8	23.5
Melbourne (C)	18.8	14.1	24.6	4.8*	2.9	8.1
Melton (S)	32.3	26.4	38.8	25.2	19.4	32.0
Mildura (RC)	23.2	17.4	30.1	19.6	15.4	24.6
Mitchell (S)	34.9	27.3	43.2	25.0	19.8	30.9
Moira (S)	29.3	20.6	39.8	19.0	14.4	24.5
Monash (C)	16.2	11.9	21.7	12.9	9.0	18.1
Moonee Valley (C)	26.7	21.0	33.4	13.4	9.2	19.1
Moorabool (S)	27.9	21.7	35.0	21.0	15.4	27.9
Moreland (C)	23.6	18.4	29.8	22.5	17.3	28.6
Mornington Peninsula (S)	28.6	21.5	37.0	16.1	11.7	21.6
Mount Alexander (S)	23.1	14.6	34.5	11.8*	6.4	20.7
Moyne (S)	32.6	23.5	43.2	18.0	14.2	22.4
Murrindindi (S)	37.5	26.9	49.5	18.0	11.2	27.6
Nillumbik (S)	29.3	22.5	37.2	12.6*	7.5	20.4
Northern Grampians (S)	19.1	13.6	26.2	20.9	16.1	26.8
Port Phillip (C)	20.9	14.8	28.8	7.9	5.3	11.7
Pyrenees (S)	28.5	21.1	37.3	19.5	14.1	26.3
Queenscliffe (B)	26.1	17.8	36.4	5.4	3.6	8.0
South Gippsland (S)	22.3	16.4	29.5	18.8	14.1	24.7
Southern Grampians (S)	31.3	23.7	39.9	18.6	13.2	25.4
Stonnington (C)	24.2	18.4	31.3	7.6*	4.5	12.7
Strathbogie (S)	27.5	19.3	37.5	22.5	16.6	29.8
Surf Coast (S)	20.6	13.6	29.9	12.9	8.1	19.9
Swan Hill (RC)	26.3	20.7	32.8	20.0	14.9	26.4
Towong (S)	25.3	20.0	31.5	21.0	15.6	27.6
Wangaratta (RC)	24.2	17.3	32.7	16.2	11.7	22.0
Warrnambool (C)	26.8	19.6	35.5	18.3	13.9	23.8
Wellington (S)	30.1	23.9	37.2	17.2	13.2	22.0
West Wimmera (S)	24.2	18.8	30.6	32.1	24.9	40.2
Whitehorse (C)	17.8	13.7	22.8	11.5	8.4	15.6
Whittlesea (C)	25.1	19.2	32.2	22.4	17.4	28.2
Wodonga (RC)	27.8	20.9	35.9	23.3	18.3	29.1
Wyndham (C)	26.4	21.7	31.8	20.4	15.6	26.2
Yarra (C)	26.0	19.7	33.3	8.4	5.8	12.0
Yarra Ranges (S)	31.0	23.9	39.1	17.7	13.0	23.6
Yarriambiack (S)	31.6	19.2	47.3	28.3	16.9	43.4
<b>Victoria</b>	<b>24.6</b>	<b>23.7</b>	<b>25.6</b>	<b>17.2</b>	<b>16.4</b>	<b>18.0</b>

a. Determined by calculation of body mass index (BMI) from self-reported height and weight.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. BMI = weight (kg)/height squared (m<sup>2</sup>); LL/UL 95% CI = lower/upper limit of 95% confidence interval.

LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.



Table 2.65c: Prevalence of overweight and obesity<sup>a</sup>, by LGA and sex, Victoria, 2011–12

LGA	Persons					
	Overweight (25.0-29.9 kg/m <sup>2</sup> )			Obese (≥ 30 kg/m <sup>2</sup> )		
	%	95% CI		%	95% CI	
	LL	UL		LL	UL	
Alpine (S)	30.8	21.9	41.3	18.9	12.8	27.1
Ararat (RC)	34.3	29.0	40.0	20.9	15.4	27.6
Ballarat (C)	32.9	27.2	39.1	18.8	13.9	24.9
Banyule (C)	28.1	23.3	33.3	17.3	13.5	21.9
Bass Coast (S)	31.7	25.7	38.3	19.5	13.5	27.3
Baw Baw (S)	30.5	25.5	36.1	18.4	14.5	23.2
Bayside (C)	38.8	30.7	47.5	10.1	6.9	14.5
Benalla (RC)	29.9	23.2	37.5	22.5	15.7	31.2
Boroondara (C)	26.8	22.2	32.0	7.6	5.4	10.6
Brimbank (C)	32.7	27.5	38.3	20.4	16.4	24.9
Buloke (S)	34.5	28.3	41.2	23.3	16.6	31.6
Campaspe (S)	34.4	27.9	41.6	18.7	14.8	23.3
Cardinia (S)	32.5	27.6	37.8	17.9	13.9	22.6
Casey (C)	30.6	25.7	36.1	21.2	17.2	25.7
Central Goldfields (S)	38.9	30.1	48.4	25.5	18.7	33.6
Colac-Otway (S)	28.4	22.6	34.9	16.2	12.5	20.7
Corangamite (S)	36.3	28.9	44.4	20.4	16.2	25.4
Darebin (C)	32.5	27.0	38.5	13.7	10.1	18.2
East Gippsland (S)	36.8	30.5	43.5	17.9	13.3	23.6
Frankston (C)	33.8	27.7	40.4	22.2	17.9	27.2
Gannawarra (S)	41.5	33.6	49.9	17.8	13.2	23.4
Glen Eira (C)	28.6	23.8	33.9	11.1	7.8	15.5
Glenelg (S)	36.4	28.9	44.6	21.7	16.5	28.0
Golden Plains (S)	35.1	28.2	42.8	16.2	13.1	19.8
Greater Bendigo (C)	33.0	26.8	40.0	27.0	18.8	37.2
Greater Dandenong (C)	33.4	28.1	39.1	14.6	11.4	18.6
Greater Geelong (C)	36.6	29.4	44.6	19.4	15.3	24.3
Greater Shepparton (C)	32.4	25.2	40.4	26.4	20.7	32.9
Hepburn (S)	29.2	23.3	35.9	16.6	13.3	20.5
Hindmarsh (S)	38.5	30.4	47.4	22.0	16.9	28.1
Hobsons Bay (C)	33.2	27.7	39.3	20.4	15.8	25.9
Horsham (RC)	30.5	25.4	36.0	21.4	13.8	31.7
Hume (C)	31.3	26.7	36.4	26.8	21.6	32.8
Indigo (S)	31.6	24.8	39.3	17.8	14.0	22.4
Kingston (C)	32.2	26.6	38.2	13.2	9.4	18.2
Knox (C)	34.3	28.9	40.1	21.2	16.8	26.4
Latrobe (C)	36.8	31.0	43.1	23.8	19.2	29.0
Loddon (S)	36.8	28.0	46.7	19.7	15.8	24.3
Macedon Ranges (S)	36.4	30.5	42.8	18.2	14.1	23.2
Manningham (C)	31.6	25.6	38.3	12.3	9.0	16.5
Mansfield (S)	30.2	24.5	36.5	15.9	12.3	20.3
Maribyrnong (C)	30.0	24.6	36.0	12.9	10.1	16.3

Table 2.65c: Prevalence of overweight and obesity<sup>a</sup>, by LGA and sex, Victoria, 2011–12 (continued)

LGA	Persons						
	Overweight (25.0-29.9 kg/m <sup>2</sup> )			Obese (≥ 30 kg/m <sup>2</sup> )			
	%	95% CI		%	95% CI		
LL		UL	LL		UL		
Maroondah (C)	32.4	26.6	38.7	16.2	12.4	20.7	
Melbourne (C)	27.0	22.4	32.2	8.5	6.0	11.9	
Melton (S)	35.3	30.3	40.7	26.1	21.6	31.2	
Mildura (RC)	29.4	24.0	35.6	21.1	17.0	25.8	
Mitchell (S)	36.2	29.8	43.1	28.7	23.9	34.1	
Moira (S)	33.8	26.6	41.9	20.3	16.3	25.0	
Monash (C)	26.6	21.0	33.0	14.0	10.6	18.3	
Moonee Valley (C)	34.1	29.3	39.3	16.7	12.0	22.8	
Moorabool (S)	34.9	29.3	40.8	20.7	16.5	25.6	
Moreland (C)	34.0	27.9	40.5	18.1	14.6	22.2	
Mornington Peninsula (S)	37.3	31.0	43.9	18.3	13.7	24.0	
Mount Alexander (S)	26.8	20.3	34.5	17.1	11.1	25.5	
Moyne (S)	34.3	27.9	41.3	18.7	14.4	24.0	
Murrindindi (S)	44.0	35.7	52.7	19.6	14.4	26.2	
Nilumbik (S)	34.7	29.0	40.9	11.1	8.0	15.2	
Northern Grampians (S)	22.7	17.5	28.8	20.6	16.7	25.1	
Port Phillip (C)	29.2	22.6	36.8	10.4	7.3	14.6	
Pyrenees (S)	31.3	25.8	37.4	21.4	16.8	26.9	
Queenscliffe (B)	34.0	25.5	43.8	9.1	6.2	13.1	
South Gippsland (S)	31.5	25.9	37.8	17.9	14.1	22.5	
Southern Grampians (S)	34.0	28.0	40.6	18.5	14.6	23.1	
Stonnington (C)	31.0	26.0	36.6	8.9	5.8	13.4	
Strathbogrie (S)	31.4	25.2	38.2	21.1	16.6	26.6	
Surf Coast (S)	28.5	22.4	35.6	12.5	8.9	17.3	
Swan Hill (RC)	35.0	29.5	40.9	19.3	14.2	25.5	
Towong (S)	37.4	29.3	46.2	20.1	15.5	25.5	
Wangaratta (RC)	36.5	30.1	43.5	14.0	10.8	17.9	
Warrnambool (C)	29.3	24.0	35.3	17.5	14.0	21.5	
Wellington (S)	37.4	31.2	44.1	15.5	12.4	19.2	
West Wimmera (S)	34.1	28.8	39.8	24.3	19.5	29.8	
Whitehorse (C)	29.7	24.6	35.3	13.1	9.4	17.8	
Whittlesea (C)	35.1	29.7	40.9	20.3	16.6	24.6	
Wodonga (RC)	38.8	32.5	45.5	20.7	16.2	26.1	
Wyndham (C)	30.3	25.8	35.3	23.6	19.7	28.1	
Yarra (C)	33.9	26.5	42.3	7.8	5.8	10.6	
Yarra Ranges (S)	39.0	32.6	45.9	18.9	14.7	23.9	
Yarriambiack (S)	36.0	28.1	44.7	30.9	23.5	39.4	
<b>Victoria</b>	<b>32.5</b>	<b>31.6</b>	<b>33.4</b>	<b>17.3</b>	<b>16.7</b>	<b>18.0</b>	

a. Determined by calculation of body mass index (BMI) from self-reported height and weight.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. BMI = weight (kg)/height squared (m<sup>2</sup>); LL/UL 95% CI = lower/upper limit of 95% confidence interval.

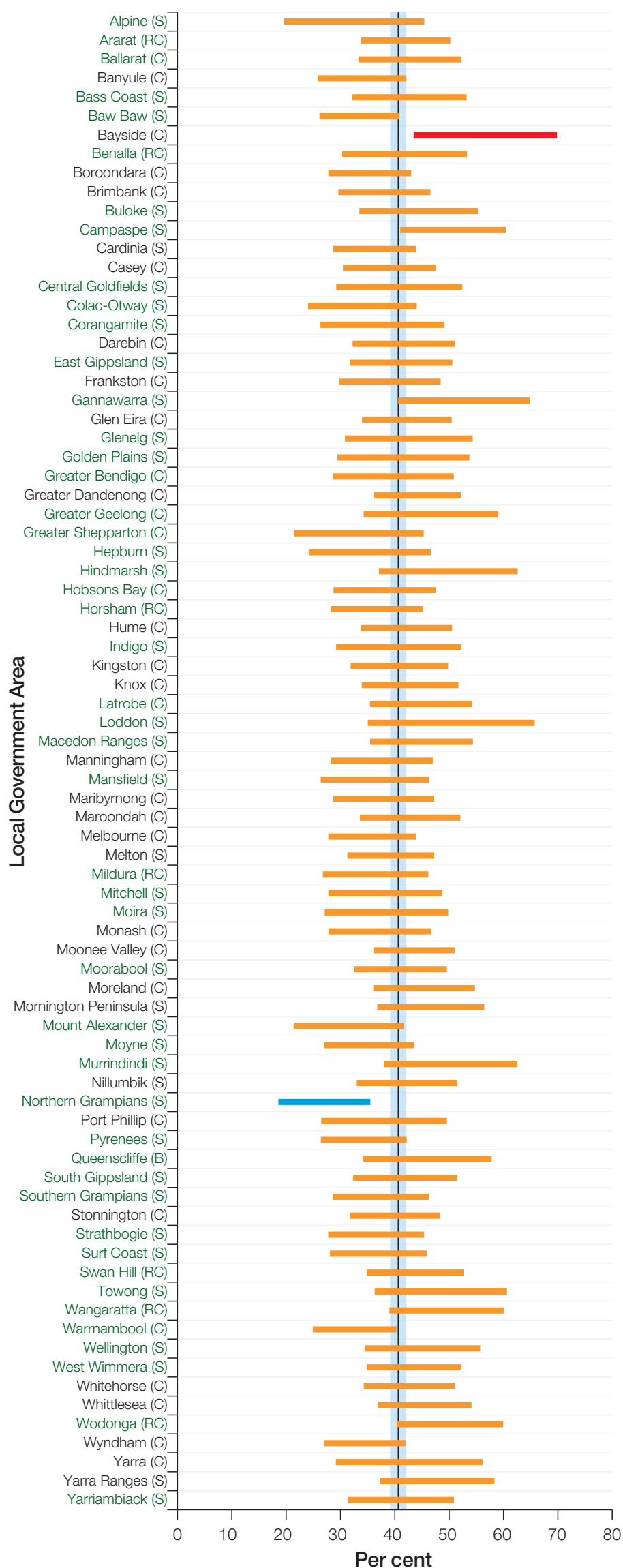
LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Figure 2.27: Prevalence of overweight in men, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Figure 2.28: Prevalence of obesity in men, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

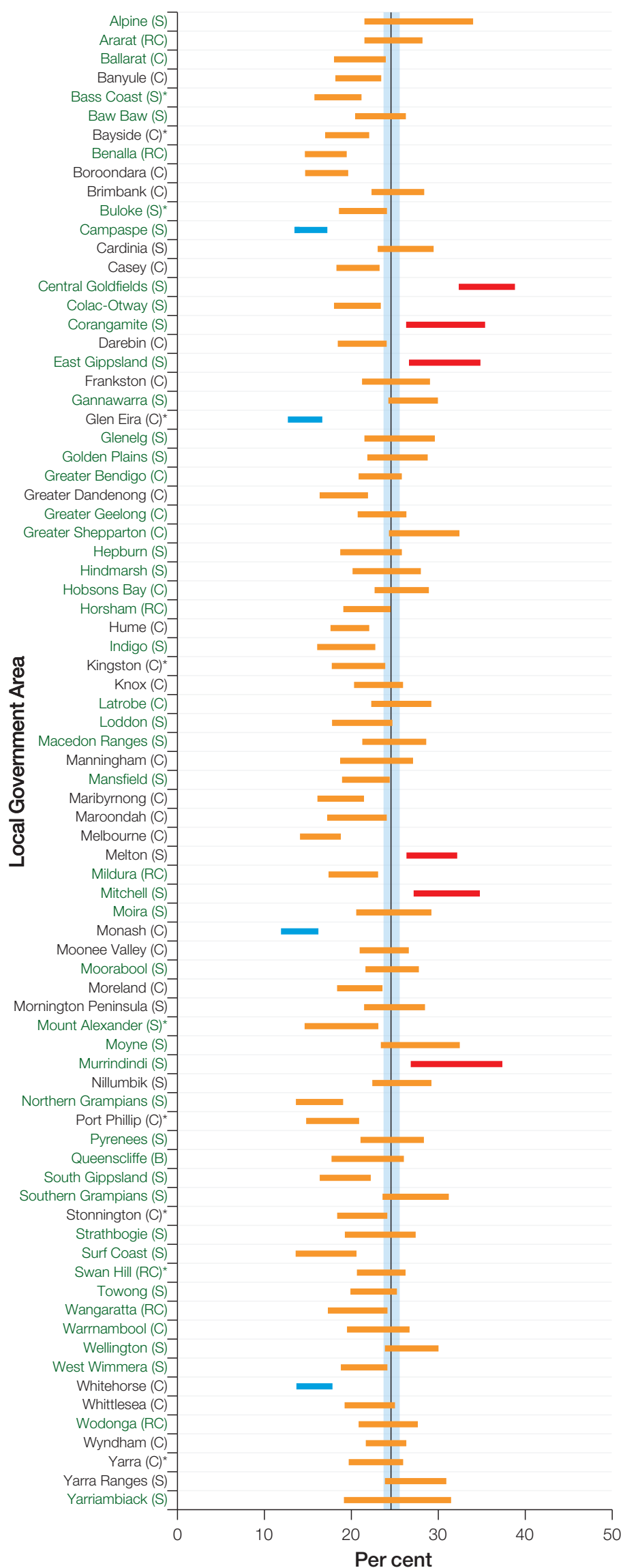
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Figure 2.29: Prevalence of overweight in women, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

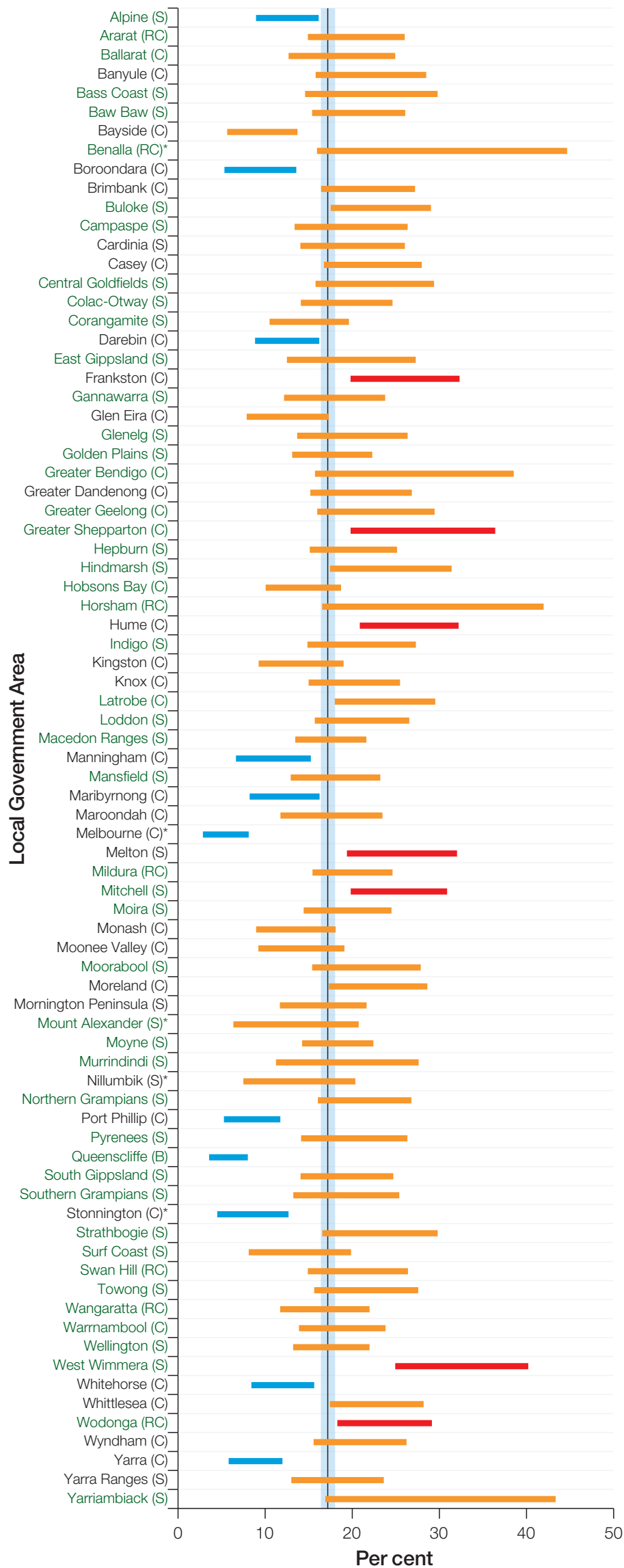
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Figure 2.30: Prevalence of obesity in women, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

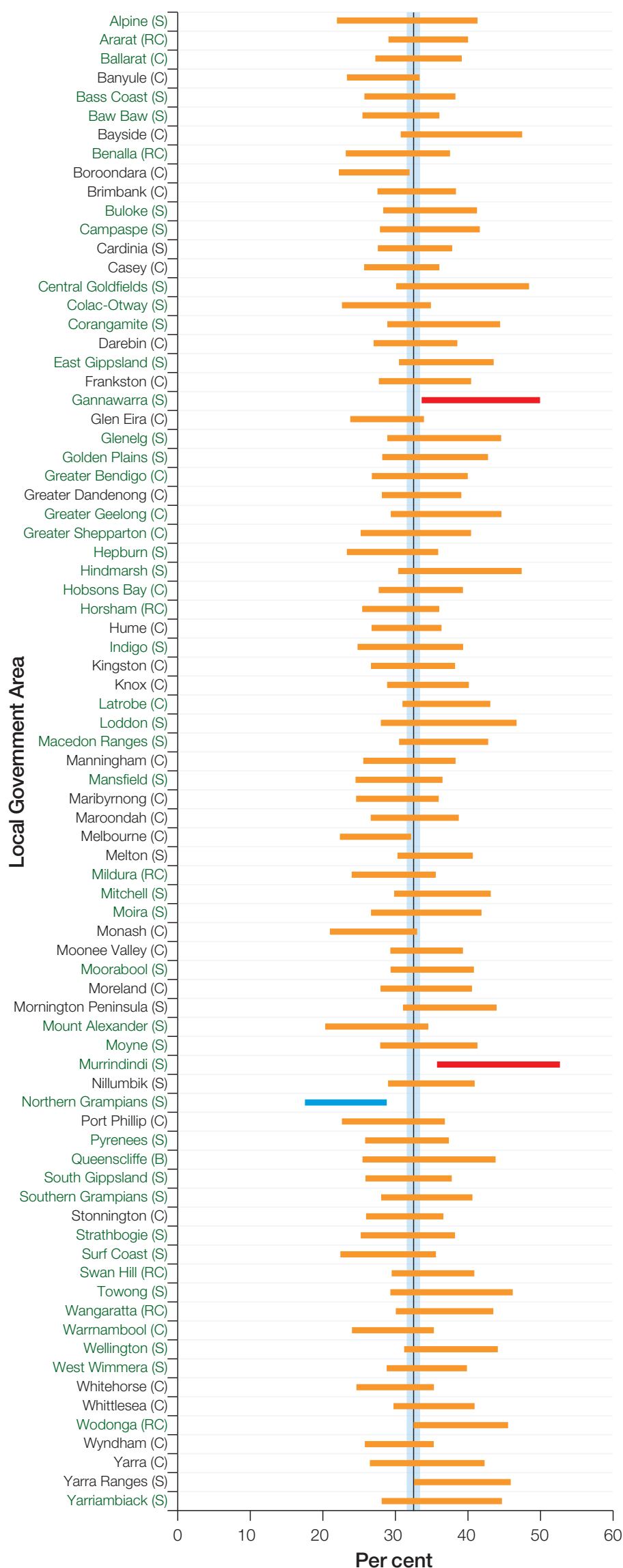
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Figure 2.31: Prevalence of overweight in persons, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

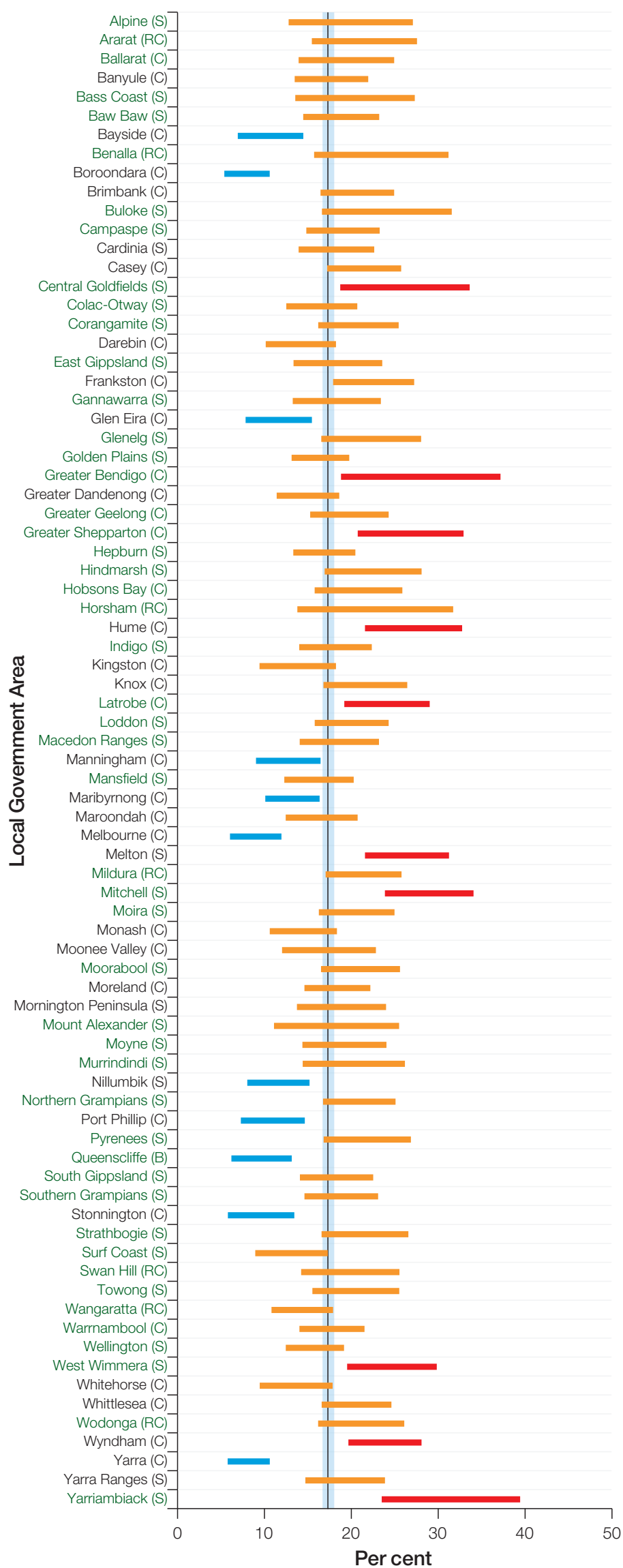
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.



Figure 2.32: Prevalence of obesity in persons, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

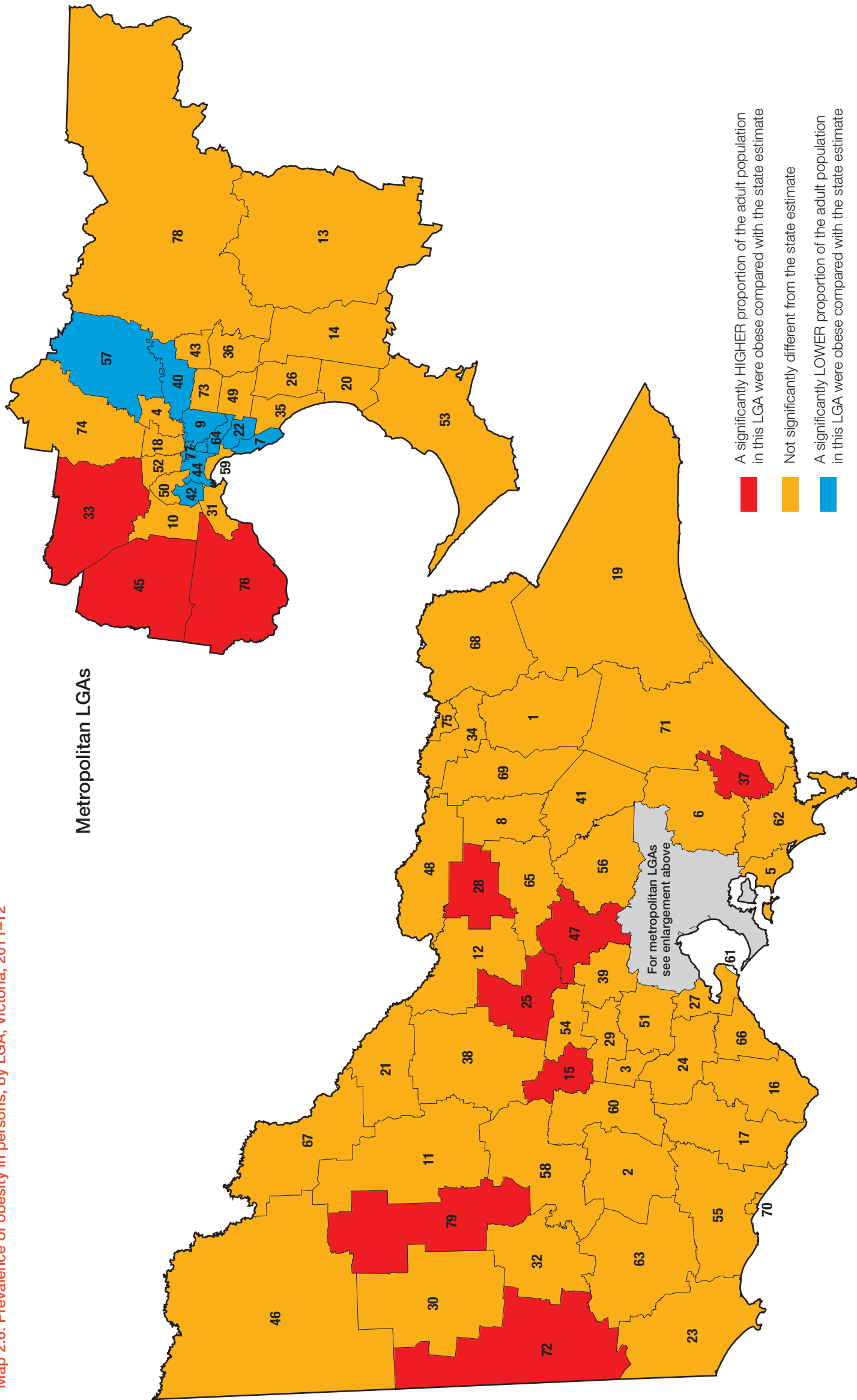
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Map 2.6: Prevalence of obesity in persons, by LGA, Victoria, 2011–12



Note: Local government area (LGA) ID is based on the alphabetical order of LGA names (Table iii).

Table 2.66 shows show body weight status in males and females respectively, by selected socioeconomic determinants, modifiable risk factors and health status.

### **Prevalence of overweight**

When compared with all Victorian men and women respectively, there were no characteristics in men or women for which the prevalence of overweight was significantly higher.

When compared with all Victorian men and women respectively, a significantly lower prevalence of overweight was observed among men and women with the following characteristics:

- very high level of psychological distress
- fair or poor self-reported health status.

When compared with all Victorian women, there were no characteristics in women for which the prevalence of overweight was significantly lower or higher.

### **Prevalence of obesity**

When compared with all Victorian men and women respectively, a significantly higher prevalence of obesity was observed among men and women with the following characteristics:

- primary education
- a very high level of psychological distress
- fair or poor self-reported health status
- diagnosed with diabetes by a doctor.

When compared with all Victorian men, a significantly higher prevalence of obesity was observed among men with the following characteristic:

- insufficiently physically active.

When compared with all Victorian women, a significantly higher prevalence of obesity was observed among women with the following characteristics:

- living in rural Victoria
- total annual household income of less than \$40,000
- high level of psychological distress
- ex-smoker
- good self-reported health status.

When compared with the estimate for all Victorian men and women respectively, a significantly lower prevalence of obesity was observed among men and women with the following characteristics:

- tertiary educated
- excellent or very good self-reported health status.

When compared with the estimate for all Victorian women respectively, a significantly lower prevalence of obesity was observed among women with the following characteristics:

- low level of psychological distress
- total annual household income of greater than \$100,000
- met guidelines for fruit and vegetable consumption.

**Table 2.66: Body weight status<sup>a</sup>, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	Underweight ( $< 18.5 \text{ kg/m}^2$ )			Normal ( $18.5\text{--}24.9 \text{ kg/m}^2$ )			Overweight ( $25.0\text{--}29.9 \text{ kg/m}^2$ )			Obese ( $\geq 30.0 \text{ kg/m}^2$ )		
	95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>	<b>1.1</b>	<b>0.8</b>	<b>1.5</b>	<b>36.4</b>	<b>34.9</b>	<b>37.9</b>	<b>40.9</b>	<b>39.4</b>	<b>42.4</b>	<b>17.6</b>	<b>16.5</b>	<b>18.7</b>
<i>Area of Victoria</i>												
Rural	1.1*	0.5	2.2	31.8	29.1	34.7	41.6	38.7	44.5	20.6	18.4	23.0
Metropolitan	1.1	0.7	1.5	37.5	35.8	39.3	40.8	39.0	42.5	16.7	15.5	18.0
<i>Education level</i>												
Primary	1.3*	0.6	2.8	28.7	26.2	31.5	41.6	38.3	44.9	23.6	20.8	26.5
Secondary	0.7*	0.4	1.2	35.9	33.4	38.4	40.1	37.6	42.6	18.9	17.1	21.0
Tertiary	4.6	4.0	5.2	40.2	37.8	42.6	40.1	37.8	42.4	12.7	11.2	14.3
<i>Total annual household income</i>												
< \$40,000	2.0*	1.0	3.9	35.0	31.1	39.1	38.7	34.4	43.2	19.4	16.6	22.5
\$40,000 to < \$100,000	0.8*	0.5	1.4	38.5	35.9	41.1	39.7	37.3	42.2	17.0	15.3	18.8
$\geq$ \$100,000	0.3*	0.1	0.7	37.3	34.3	40.4	45.3	42.2	48.4	15.3	13.4	17.4
<i>Psychological distress<sup>b</sup></i>												
Low (< 16)	1.2	0.8	1.7	36.5	34.6	38.4	41.3	39.5	43.2	17.0	15.7	18.4
Moderate (16–21)	0.8*	0.4	1.8	36.5	33.5	39.7	41.3	38.2	44.6	18.1	16.0	20.3
High (22–29)	0.8*	0.3	1.8	30.1	25.4	35.3	41.7	36.6	46.9	20.9	17.1	25.4
Very high ( $\geq$ 30)	**	**	**	37.8	29.4	47.0	28.1	20.2	37.6	26.9	20.7	34.2
<i>Physical activity<sup>c,g</sup></i>												
Sedentary	**	**	**	31.8	24.9	39.6	40.0	31.9	48.7	22.2	15.7	30.5
Insufficient time and sessions	1.2*	0.7	2.1	30.0	26.9	33.3	43.8	40.3	47.3	21.2	19.0	23.5
Sufficient time and sessions	1.0	0.7	1.5	39.1	37.3	40.9	40.7	39.0	42.5	15.4	14.2	16.7
<i>Fruit and vegetable intake<sup>d</sup></i>												
Both guidelines	**	**	**	44.2	36.2	52.5	35.0	28.0	42.7	16.7	11.2	24.1
Vegetable guidelines <sup>e</sup>	2.1*	0.8	5.1	42.9	36.3	49.9	36.3	30.3	42.8	15.4	11.0	21.1
Fruit guidelines <sup>e</sup>	0.6*	0.4	1.1	37.9	35.4	40.4	41.2	38.8	43.6	16.7	14.9	18.7
Neither	1.3	0.9	1.9	35.1	33.2	37.1	41.1	39.2	43.0	18.4	17.0	19.8
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>												
Abstainer	1.5*	0.7	3.4	39.9	35.6	44.3	35.6	31.5	39.8	17.3	14.8	20.2
Low risk	0.9	0.6	1.3	36.1	34.4	37.8	41.9	40.3	43.6	17.4	16.2	18.7
Risky or high risk	**	**	**	33.6	27.5	40.3	41.8	35.0	48.8	21.3	16.9	26.5
<i>Smoking status</i>												
Current smoker	1.1*	0.7	2.0	35.7	32.5	39.1	38.6	35.2	42.0	18.5	16.0	21.3
Ex-smoker	0.7*	0.4	1.6	34.6	31.5	37.8	42.9	39.7	46.2	18.9	16.7	21.4
Non-smoker	1.1	0.7	1.6	40.2	38.2	42.2	39.8	37.9	41.8	15.3	14.0	16.6
<i>Self-reported health</i>												
Excellent / very good	1.3	0.8	2.0	43.8	41.6	46.0	41.6	39.5	43.7	10.9	9.6	12.3
Good	0.6*	0.4	1.1	30.8	28.5	33.2	43.8	41.3	46.3	19.3	17.6	21.1
Fair / poor	1.3*	0.8	2.3	27.6	23.9	31.7	32.9	29.4	36.6	33.0	29.3	37.0
<i>Diabetes (excluding gestational)<sup>g</sup></i>												
No diabetes	1.1	0.8	1.5	37.8	36.2	39.3	40.9	39.4	42.5	16.1	15.0	17.2
Diabetes	**	**	**	15.1*	7.5	27.9	45.5	34.7	56.8	37.2	31.8	42.9

a. Determined by calculation of body mass index (BMI) from self-reported height and weight, BMI = weight (kg)/height squared ( $\text{m}^2$ ).

b. Based on the Kessler 10 scale for psychological distress.

c. Based on national guidelines (DoHA 1999).

d. Based on national guidelines (NHMRC 2003a).

e. Includes those meeting both guidelines.

f. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive

problems and dementia, and alcohol dependence.

g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).

Due to small numbers it was not possible to analyse data by employment status.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly

different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\*Estimate has a RSE of greater than 50 per cent and is not reported as it is unreliable for general use.

Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

**Table 2.66: Body weight status<sup>a</sup>, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)**

	Underweight ( $< 18.5 \text{ kg/m}^2$ )			Normal ( $18.5\text{--}24.9 \text{ kg/m}^2$ )			Overweight ( $25.0\text{--}29.9 \text{ kg/m}^2$ )			Obese ( $\geq 30.0 \text{ kg/m}^2$ )		
	95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Females</b>	<b>3.5</b>	<b>2.9</b>	<b>4.1</b>	<b>45.2</b>	<b>44.0</b>	<b>46.5</b>	<b>24.8</b>	<b>23.9</b>	<b>25.8</b>	<b>17.3</b>	<b>16.5</b>	<b>18.1</b>
<i>Area of Victoria</i>												
Rural	3.0	2.1	4.2	<b>38.1</b>	36.0	40.2	27.3	25.7	28.9	<b>20.7</b>	19.1	22.5
Metropolitan	3.6	2.9	4.4	47.3	45.8	48.8	24.2	23.1	25.5	16.2	15.3	17.2
<i>Education level</i>												
Primary	2.0	1.3	3.0	<b>37.0</b>	34.0	40.0	26.9	24.4	29.6	<b>22.0</b>	19.4	24.7
Secondary	3.5	2.8	4.5	44.1	42.1	46.2	24.7	23.1	26.5	18.1	16.7	19.6
Tertiary	5.4	3.5	8.4	<b>50.0</b>	48.0	51.9	24.1	22.5	25.7	<b>13.3</b>	12.1	14.6
<i>Total annual household income</i>												
< \$40,000	2.8	1.9	4.2	41.6	38.6	44.7	24.4	22.4	26.5	<b>21.7</b>	19.3	24.2
\$40,000 to < \$100,000	2.9	2.1	4.1	43.7	41.5	45.9	26.3	24.6	28.2	18.3	16.9	19.9
$\geq$ \$100,000	3.8	2.7	5.4	<b>52.4</b>	49.1	55.6	25.6	23.3	28.1	<b>13.7</b>	11.6	16.0
<i>Psychological distress<sup>b</sup></i>												
Low (< 16)	3.2	2.5	4.1	47.8	46.2	49.5	24.6	23.4	25.9	<b>15.1</b>	14.2	16.1
Moderate (16–21)	3.6	2.7	4.9	44.1	41.7	46.5	25.2	23.2	27.3	18.4	16.8	20.0
High (22–29)	4.9	3.0	7.7	<b>37.2</b>	33.6	40.9	24.7	21.8	27.8	<b>25.5</b>	22.4	28.9
Very high ( $\geq$ 30)	2.6*	1.3	5.1	<b>36.3</b>	30.3	42.7	25.5	20.4	31.4	<b>27.7</b>	22.7	33.5
<i>Physical activity<sup>c,g</sup></i>												
Sedentary	5.0*	2.0	11.8	39.8	33.2	46.8	22.8	18.0	28.4	20.6	17.0	24.7
Insufficient time and sessions	4.0	2.9	5.4	41.9	39.3	44.4	25.1	23.2	27.2	19.7	17.9	21.5
Sufficient time and sessions	3.5	2.8	4.4	48.0	46.5	49.6	25.2	24.0	26.4	15.6	14.6	16.6
<i>Fruit and vegetable intake<sup>d</sup></i>												
Both guidelines	4.4*	2.4	8.0	50.7	46.1	55.4	25.0	21.8	28.5	<b>13.8</b>	11.7	16.1
Vegetable guidelines <sup>e</sup>	3.9*	2.3	6.6	48.8	45.0	52.7	25.7	22.9	28.7	14.9	13.0	17.1
Fruit guidelines <sup>e</sup>	3.3	2.5	4.3	48.0	46.2	49.9	25.2	23.8	26.7	15.8	14.8	16.9
Neither	3.7	3.0	4.7	42.5	40.8	44.3	24.3	22.9	25.7	18.8	17.5	20.1
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>												
Abstainer	4.7	3.3	6.8	41.6	38.7	44.6	23.0	20.9	25.2	19.7	17.8	21.7
Low risk	3.3	2.7	4.0	46.2	44.8	47.7	25.3	24.2	26.4	16.6	15.7	17.6
Risky or high risk	2.8*	1.5	5.2	<b>37.4</b>	32.0	43.1	30.9	24.8	37.8	18.2	13.3	24.4
<i>Smoking status</i>												
Current smoker	5.2	3.7	7.1	41.5	38.4	44.6	24.2	21.7	26.8	17.9	15.8	20.3
Ex-smoker	<b>1.5</b>	1.0	2.1	43.7	39.9	47.5	25.4	23.4	27.4	<b>21.8</b>	18.4	25.6
Non-smoker	3.6	2.9	4.4	47.2	45.7	48.8	24.3	23.1	25.6	16.0	15.1	17.0
<i>Self-reported health</i>												
Excellent / very good	3.6	2.8	4.5	<b>55.1</b>	53.3	56.8	24.5	23.1	25.9	<b>10.2</b>	9.4	11.2
Good	3.5	2.7	4.7	<b>38.4</b>	36.4	40.4	25.9	24.3	27.5	<b>20.8</b>	19.4	22.3
Fair / poor	2.4	1.6	3.4	<b>30.3</b>	27.0	33.8	23.5	20.8	26.4	<b>32.0</b>	28.9	35.3
<i>Diabetes (excluding gestational)<sup>g</sup></i>												
No diabetes	3.7	3.1	4.3	46.6	45.4	47.9	24.5	23.5	25.5	16.1	15.3	17.0
Diabetes	<b>0.1*</b>	0.0	0.2	<b>27.6</b>	18.3	39.3	25.3	20.0	31.4	<b>34.3</b>	29.0	40.1

a. Determined by calculation of body mass index (BMI) from self-reported height and weight, BMI = weight (kg)/height squared (m<sup>2</sup>).

b. Based on the Kessler 10 scale for psychological distress.

c. Based on national guidelines (DoHA 1999).

d. Based on national guidelines (NHMRC 2003a).

e. Includes those meeting both guidelines.

f. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive

problems and dementia, and alcohol dependence.

g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).

Due to small numbers it was not possible to analyse data by employment status.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly

different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

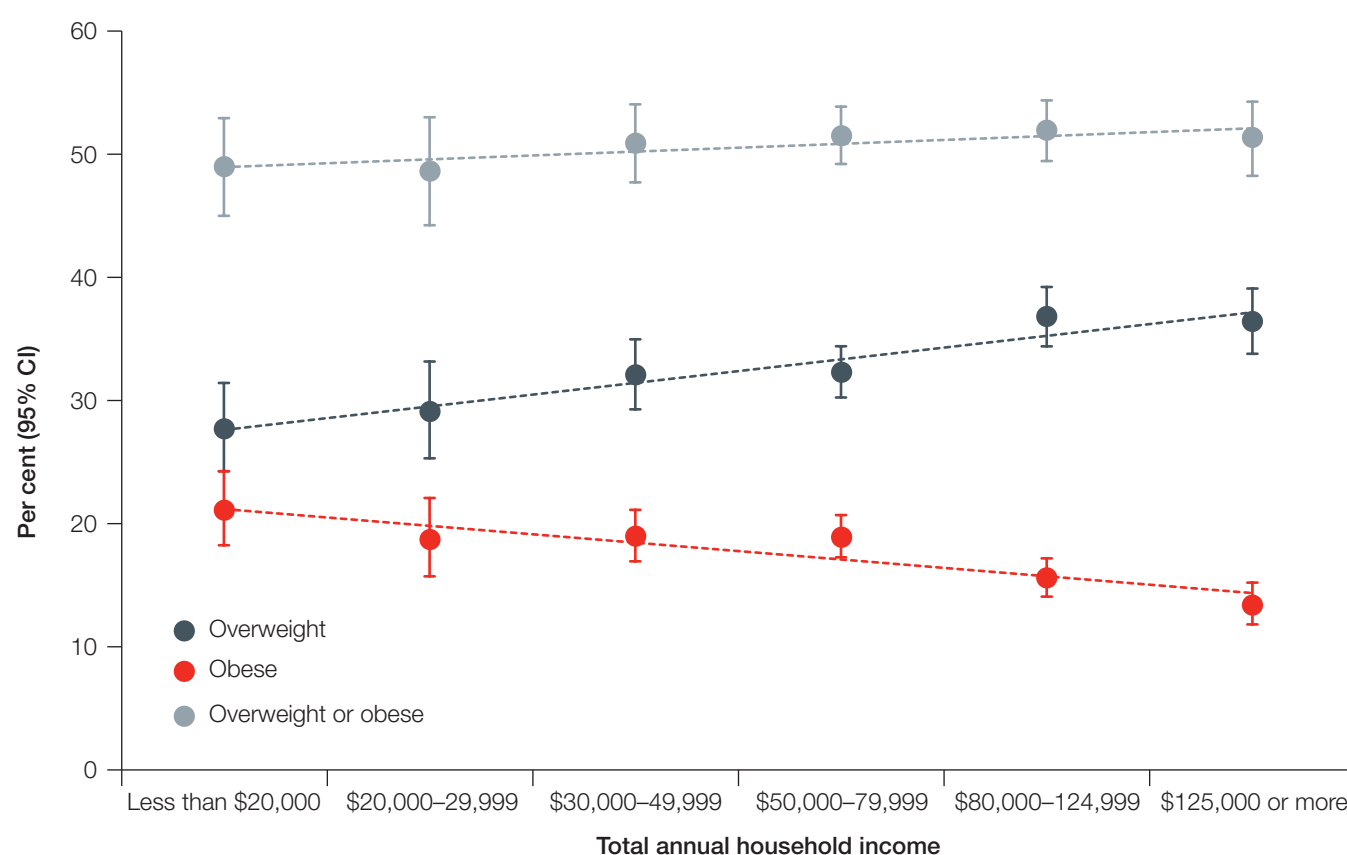
\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\*Estimate has a RSE of greater than 50 per cent and is not reported as it is unreliable for general use.

Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

The relationship, if any, was investigated between SES and the age-adjusted prevalence of overweight, obesity and overweight and obesity combined, using total annual household income as a measure of SES (Figure 2.33). The prevalence of overweight significantly increased with increasing total annual household income. Conversely, the prevalence of obesity decreased with increasing income. When the overweight and obese populations were combined, the prevalence of overweight and obesity followed the same pattern as overweight alone, with the prevalence increasing with increasing income.

**Figure 2.33: Prevalence of overweight and obesity, by total annual household income, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for statistical significance.

## Discussion

### Interpretation of the findings

The data show that men have almost twice the prevalence of overweight (BMI of 25–29.9 kg/m<sup>2</sup>) than women (40.9 per cent compared with 24.8 per cent). However, there was no difference between the sexes in the prevalence of obesity (BMI ≥ 30 kg/m<sup>2</sup>) and almost one in five Victorian adults was obese (17.5 per cent). It is important to note, however, that these estimates underestimate the true prevalence of overweight and obesity because the data are self-reported. The advantage of collecting self-reported data is that it is relatively easy and inexpensive to do so, and is sufficiently robust to enable the accurate measurement of differences between subpopulations and changes over time.

It is typical public health practice to combine the overweight and obese categories of 'unhealthy weight'. However, there are significant differences between the people who are overweight compared with those who are obese. The data show that the overall prevalence of overweight and obesity, where the categories are combined, increased between 2003 and 2011–12. However, this increase in weight was driven by an increasing prevalence of obesity, not overweight, which was observed when the categories were analysed separately. The proportion of the population who are overweight has remained unchanged between 2003 and 2010. As obesity is a more severe form of unhealthy weight, that carries larger risks to health than being overweight, these findings suggest that there are different drivers for overweight and obesity.



From 1980 to 2000, the AIHW analysed the prevalence of measured (as opposed to self-reported) overweight and obesity using three national Risk Factor Surveillance Surveys (1980, 1983 and 1989), the 1995 National Nutrition Survey and the 1999-2000 Australian Diabetes, Obesity and Lifestyle (AusDiab) Study (AIHW). They found a significant increase in the prevalence of both overweight and obesity (analysed separately) from 1980 to 2000. From 2001 to 2008, the ABS analysed the prevalence of self-reported overweight combined with obesity, based on three National Health Surveys (2001, 2004-05 and 2007-08). A significant increase was found in the prevalence of overweight and obesity combined. However, overweight and obesity were not analysed separately and so it is not possible to determine if the prevalence of both overweight and obesity increased during this period, or if the increase was being driven by obesity as has been observed from the analysed data of the Victorian Population Health Survey.

Whether the Victorian Population Health Survey findings of no change in the prevalence of overweight reflects a true plateauing of the historical increase in the prevalence of overweight, and whether this will continue or perhaps even reverse direction, remains to be seen. Moreover, whether the reason for this plateau is due to successful public health interventions (implemented before 2009) or simply the natural reaching of a peak beyond which the remaining population is less susceptible to the obesogenic drivers in current society, also remains to be seen. It may also be possible that these findings represent a change in self-reporting due to changing public perceptions about unhealthy weight that disproportionately affect those who are overweight rather than obese.

The survey findings show that the peak ages for men being overweight or obese were 45 to 64 years, while in women it was 45 years or over. By contrast men and women aged 18-24 years had the lowest prevalence of overweight or obesity. These findings are consistent with the national data and suggest that preventive interventions may be better aimed at the younger age groups while treatment interventions may be more appropriate for those aged 45 years or over.

People who lived in rural Victoria had a significantly higher prevalence of obesity but not overweight, than their metropolitan counterparts. People who lived in Hume Region and Loddon Mallee Region also had a significantly higher prevalence of obesity compared with all adult Victorians, while those who lived in Eastern Metropolitan Region had a lower prevalence. The majority of LGAs in both Hume Region and Loddon Mallee Region are of low SES, with 58 per cent and 90 per cent respectively being in the first or second quintile IRSED, indicating significant disadvantage. By contrast 100 per cent of the LGAs in Eastern Metropolitan Region are in the fourth and fifth IRSED quintiles, indicating high SES. A similar pattern was observed when the data were analysed by LGA. With a few exceptions, the prevalence of overweight people was significantly higher in men and women who lived in LGAs of high SES, whereas the prevalence was significantly lower in those who lived in low SES LGAs. Conversely, the prevalence of obesity was significantly higher in men and women who lived in low SES LGAs, whereas the prevalence was significantly lower in those who lived in high SES LGAs.

Using data from the Victorian Population Health Survey 2008 it has previously been shown, that being overweight is associated with socioeconomic advantage while obesity is associated with socioeconomic disadvantage (Markwick, Vaughan & Ansari 2013). The aforementioned findings are consistent with their being a reverse SES gradient for overweight, where the prevalence increases with increasing total annual household income and there is a typical SES gradient for obesity, where the prevalence decreases with increasing total annual household income. The implication of these findings is that any public health policies or interventions that are informed by the combined indicator of overweight and obesity run the risk of increasing inequalities in health outcomes. If equity is a consideration, then the indicator of obesity alone should be used to inform public health policy and intervention.

### Other sources of data

Table 2.67 shows the major sources of statistical data on the prevalence of overweight and obesity in Victoria.

**Table 2.67: Sources of statistical data on the prevalence of overweight and obesity for Victoria**

Most recent survey	Population (age in years)	Overweight (25.0-29.9 kg/m <sup>2</sup> ) %			Obese (≥ 30 kg/m <sup>2</sup> ) %		
		Males	Females	Persons	Males	Females	Persons
VPHS 2011-12	Victoria (18+)	40.9	24.8	32.7	17.6	17.3	17.5
AHS 2011-12	Australia (18+)	41.9	28.0	35.0	28.4	28.2	28.3
AHS 2011-12	Victoria (18+)	45.6	26.1	35.9	24.4	27.7	26.0
VHM 2009-10	Victoria (18-75)	45.0	31.3	38.1	23.9	25.0	24.5

AHS = Australian Health Survey, data for Victoria (ABS 2013a). In the AHS, BMI is based on measured height and weight. Note that BMI was only calculated for persons for whom height and weight was measured and 16.3% of persons aged 18 years or over did not have their height, weight or both measured  
VHM = Victorian Health Monitor - BMI based on measured height and weight.



## 2.7 Psychological distress

### Introduction

Psychological distress is an important risk factor for a number of diseases and conditions including fatigue, migraine, cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), cerebrovascular disease, injury, obesity, depression and anxiety (Hamer et al. 2012; Holden et al. 2010; Stansfeld et al. 2002). It is also a significant risk factor for the risk factors of risky drinking, smoking and drug use (Holden et al. 2010).

A measure of psychological distress, the Kessler 10 Psychological Distress Scale (K10), has been 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 has been validated as a screening tool for the detection of affective disorders such as depression and anxiety, and is currently in use in general practice in Australia (Andrews & Slade 2001; Furukawa et al. 2003; Kessler et al. 2003).

The K10 covers the dimensions of 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 (that are scored five through to one).

The 10 items are summed to yield scores ranging from 10 to 50. Individuals are categorised to four levels of psychological distress, based on their score: low (10–15), moderate (16–21), high (22–29) and very high (30–50) (Andrews & Slade 2001).

In addition, for the first time, the augmented K10+ scale was used which includes additional questions that are asked when the respondent answers 'a little', 'some', 'most', or 'all of the time' to any of the K10 questions. The purpose is to assess the impact of psychological distress on the respondent's functioning and wellbeing.

### Prevalence of psychological distress (K10 scale)

Table 2.68 shows psychological distress levels, by age group and sex. The proportion of Victorian adults with low levels of psychological distress was 64.6 per cent, significantly higher in men (68.6 per cent) than women (60.7 per cent). The proportion of Victorian adults with moderate, high and very high levels of psychological distress was 21.5, 8.4 and 2.6 per cent respectively; this was significantly higher in women than men. When the categories of 'high' and 'very high' levels of psychological distress were combined, the proportion of Victorian adults with high or very high levels of psychological distress was 11.0 per cent, significantly higher in women (13.0 per cent) than men (9.0 per cent).

There was a significantly higher proportion of men aged 65 years or over and women aged 55 years or over with low levels of psychological distress compared with all Victorian men and women, respectively. By contrast there were significantly higher proportions of men and women aged 18–24 years with high levels of psychological distress compared with all Victorian men and women, respectively.

Table 2.68: Psychological distress,<sup>a</sup> by age group and sex, Victoria, 2011–12

Age group (years)	Low (< 16)			Moderate (16–21)			High (22–29)			Very high (≥ 30)		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	61.5	55.7	66.9	24.3	19.6	29.6	12.1	8.7	16.5	1.5*	0.7	3.1
25–34	65.6	60.7	70.2	23.8	19.9	28.2	6.9	4.7	9.8	1.6*	0.9	3.1
35–44	67.3	64.2	70.3	19.1	16.8	21.7	8.4	6.7	10.6	2.2	1.4	3.4
45–54	70.2	67.5	72.7	19.8	17.6	22.1	5.7	4.5	7.2	1.8	1.2	2.6
55–64	71.8	69.4	74.1	16.4	14.5	18.4	6.9	5.7	8.3	2.2	1.5	3.0
65+	75.7	73.8	77.4	14.6	13.2	16.1	4.3	3.6	5.2	1.2	0.8	1.8
<b>Total</b>	<b>68.6</b>	<b>67.1</b>	<b>70.0</b>	<b>19.7</b>	<b>18.5</b>	<b>21.0</b>	<b>7.3</b>	<b>6.4</b>	<b>8.2</b>	<b>1.7</b>	<b>1.4</b>	<b>2.1</b>
<b>Females</b>												
18–24	51.9	46.5	57.2	27.1	22.8	31.8	14.9	11.4	19.4	4.9*	2.7	8.6
25–34	55.2	51.4	58.9	27.5	24.2	30.9	10.5	8.4	13.1	4.1	2.9	5.9
35–44	61.7	59.3	64.1	23.6	21.6	25.7	9.3	8.0	10.9	3.1	2.3	4.1
45–54	62.3	60.0	64.4	22.4	20.5	24.3	9.5	8.3	11.0	3.4	2.7	4.3
55–64	66.1	64.0	68.1	19.2	17.5	20.9	8.0	6.9	9.2	3.4	2.8	4.2
65+	67.7	66.0	69.3	18.6	17.3	20.1	6.1	5.3	7.0	2.2	1.7	2.9
<b>Total</b>	<b>60.7</b>	<b>59.5</b>	<b>62.0</b>	<b>23.2</b>	<b>22.2</b>	<b>24.4</b>	<b>9.5</b>	<b>8.7</b>	<b>10.3</b>	<b>3.5</b>	<b>3.0</b>	<b>4.1</b>
<b>Persons</b>												
18–24	56.8	52.8	60.7	25.6	22.4	29.2	13.5	10.9	16.5	3.1	1.9	5.1
25–34	60.4	57.3	63.4	25.6	23.0	28.4	8.7	7.1	10.6	2.9	2.1	4.0
35–44	64.5	62.5	66.4	21.4	19.8	23.0	8.9	7.7	10.2	2.6	2.1	3.4
45–54	66.2	64.4	67.8	21.1	19.7	22.6	7.6	6.8	8.6	2.6	2.2	3.2
55–64	68.9	67.3	70.4	17.8	16.6	19.1	7.4	6.6	8.4	2.8	2.3	3.4
65+	71.3	70.1	72.5	16.8	15.8	17.8	5.3	4.8	5.9	1.7	1.4	2.2
<b>Total</b>	<b>64.6</b>	<b>63.6</b>	<b>65.6</b>	<b>21.5</b>	<b>20.7</b>	<b>22.3</b>	<b>8.4</b>	<b>7.8</b>	<b>9.0</b>	<b>2.6</b>	<b>2.3</b>	<b>3.0</b>

a. Based on the Kessler 10 psychological distress scale.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

The trend over time of psychological distress was investigated (Table 2.69 and Figure 2.34). The proportions of men and women with low, moderate or high / very high levels of psychological distress remained unchanged from 2003 to 2011–12.

Table 2.69: Psychological distress<sup>a</sup> from 2003 to 2011–12, by sex, Victoria

Year	Low (< 16)			Moderate (16–21)			High / Very high (≥ 22)		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
2003	70.1	67.9	72.2	19.2	17.4	21.2	9.1	7.9	10.5
2004	68.8	66.5	71.0	19.8	17.9	21.7	9.0	7.7	10.6
2005	63.9	61.5	66.3	23.3	21.2	25.6	9.9	8.5	11.6
2006	67.3	64.8	69.7	19.5	17.5	21.7	9.1	7.7	10.8
2007	69.1	66.6	71.5	18.8	16.8	21.0	8.5	7.0	10.2
2008	65.2	63.9	66.6	21.5	20.4	22.7	9.7	8.9	10.6
2009	65.2	62.9	67.4	21.2	19.3	23.2	10.8	9.4	12.4
2010	68.8	66.3	71.2	19.1	17.1	21.2	8.8	7.4	10.6
<b>2011–12</b>	<b>68.6</b>	<b>67.1</b>	<b>70.0</b>	<b>19.7</b>	<b>18.5</b>	<b>21.0</b>	<b>9.0</b>	<b>8.1</b>	<b>10.0</b>
<b>Females</b>									
2003	63.7	61.7	65.6	21.9	20.2	23.6	12.6	11.3	14.0
2004	61.4	59.5	63.3	21.0	19.4	22.6	15.1	13.7	16.6
2005	57.9	55.9	59.9	25.8	24.0	27.7	13.9	12.5	15.4
2006	59.8	57.8	61.8	24.7	23.0	26.6	12.2	10.9	13.6
2007	58.9	56.9	60.9	25.3	23.5	27.2	12.6	11.3	14.0
2008	59.7	58.6	60.8	24.0	23.0	24.9	13.1	12.3	13.8
2009	56.2	54.3	58.1	24.8	23.1	26.6	15.4	14.1	16.9
2010	59.9	57.9	61.9	23.9	22.2	25.7	12.4	11.0	14.0
<b>2011–12</b>	<b>60.7</b>	<b>59.5</b>	<b>62.0</b>	<b>23.2</b>	<b>22.2</b>	<b>24.4</b>	<b>13.0</b>	<b>12.1</b>	<b>13.9</b>
<b>Persons</b>									
2003	66.7	65.3	68.2	20.6	19.4	21.9	10.8	9.9	11.8
2004	65.0	63.5	66.5	20.5	19.2	21.8	12.1	11.1	13.2
2005	60.9	59.3	62.4	24.6	23.2	26.1	11.9	10.9	13.0
2006	63.5	61.9	65.1	22.2	20.8	23.6	10.6	9.7	11.7
2007	63.8	62.2	65.4	22.1	20.8	23.6	10.6	9.6	11.7
2008	62.4	61.5	63.2	22.8	22.0	23.5	11.4	10.9	12.0
2009	60.7	59.2	62.2	23.0	21.7	24.3	13.1	12.1	14.2
2010	64.3	62.7	65.9	21.6	20.3	23.0	10.6	9.5	11.7
<b>2011–12</b>	<b>64.6</b>	<b>63.6</b>	<b>65.6</b>	<b>21.5</b>	<b>20.7</b>	<b>22.3</b>	<b>11.0</b>	<b>10.4</b>	<b>11.7</b>

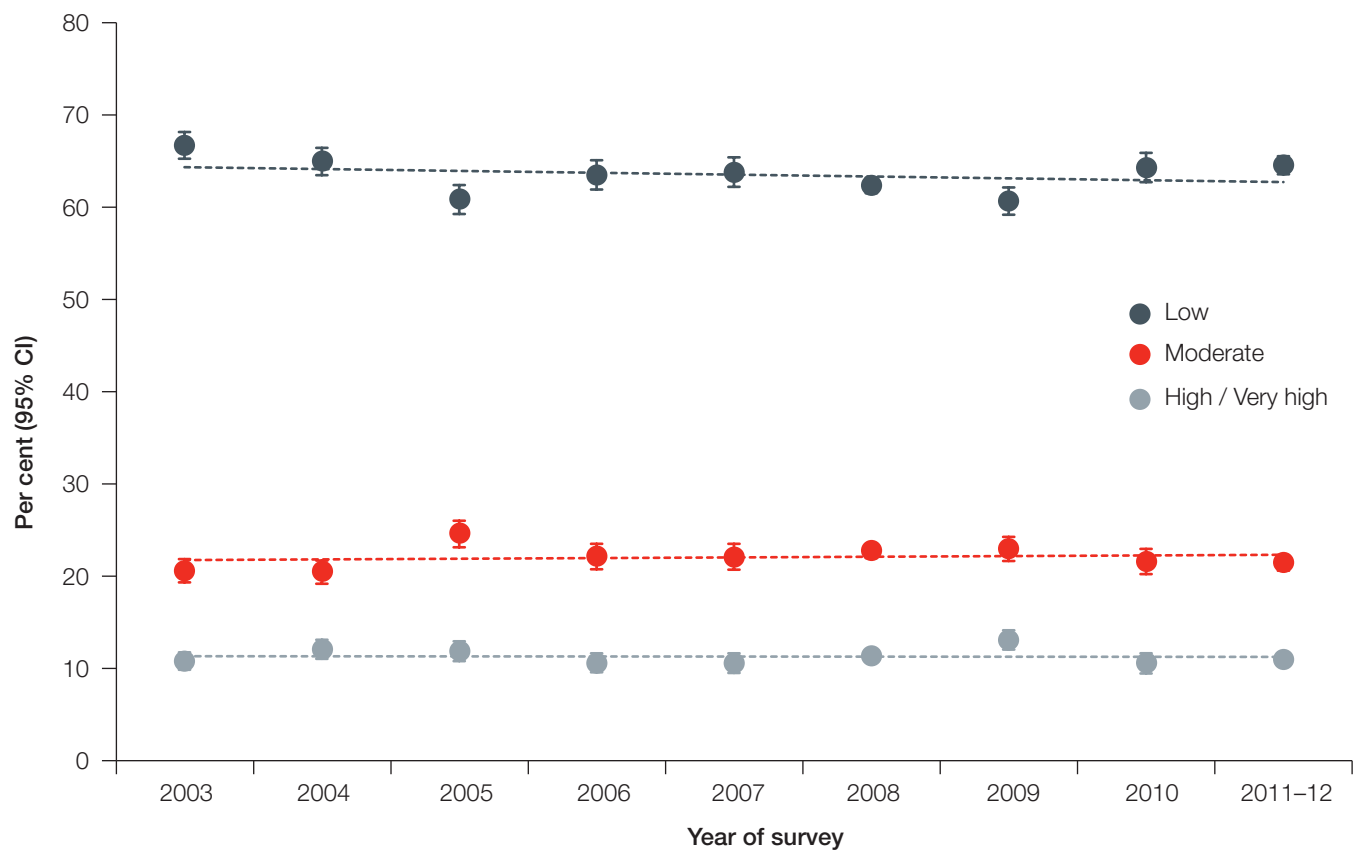
a. Based on the Kessler 10 psychological distress scale.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Figure 2.34: Psychological distress<sup>a</sup> from 2003 to 2011–12, Victoria



a. Based on the Kessler 10 psychological distress scale.  
 Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.

Table 2.70 shows psychological distress, by Department of Health region and sex. There were significantly higher proportions of men who lived in Grampians Region, women who lived in Hume Region and adults who lived in both these regions with low levels of psychological distress compared with all Victorian men, women and adults, respectively.

There were no significant regional differences in the proportions of men or women with moderate, high or very high levels of psychological distress.

Table 2.70: Psychological distress,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12

Region	Low (< 16)			Moderate (16–21)			High (22–29)			Very high (≥ 30)		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
Eastern Metropolitan	71.0	67.4	74.3	19.2	16.3	22.4	5.4	3.8	7.6	1.7*	1.0	2.8
North & West Metropolitan	63.9	61.3	66.5	21.4	19.1	23.8	9.2	7.6	11.1	2.1	1.6	2.9
Southern Metropolitan	71.0	67.8	74.0	18.7	16.2	21.5	6.5	4.9	8.6	1.4*	0.7	2.7
<b>Metropolitan males</b>	68.0	66.2	69.7	19.8	18.4	21.4	7.4	6.4	8.6	1.8	1.4	2.3
Barwon-South Western	70.4	63.5	76.5	18.9	14.8	23.9	7.8*	4.1	14.4	1.0*	0.6	1.7
Gippsland	70.9	66.5	74.9	18.8	15.3	22.8	6.2	4.5	8.4	3.0*	1.7	5.3
Grampians	74.3	70.6	77.7	18.0	15.0	21.5	4.8	3.6	6.5	1.4	0.9	2.0
Hume	71.6	67.8	75.1	18.6	15.5	22.2	6.2	4.7	8.1	1.3	0.8	2.0
Loddon Mallee	69.2	64.0	73.9	20.1	16.1	24.9	6.6	4.7	9.3	2.0*	1.1	3.6
<b>Rural males</b>	71.3	68.9	73.7	18.7	16.9	20.8	6.5	5.2	8.2	1.6	1.3	2.1
<b>Total</b>	<b>68.6</b>	<b>67.1</b>	<b>70.0</b>	<b>19.7</b>	<b>18.5</b>	<b>21.0</b>	<b>7.3</b>	<b>6.4</b>	<b>8.2</b>	<b>1.7</b>	<b>1.4</b>	<b>2.1</b>
<b>Females</b>												
Eastern Metropolitan	62.2	58.6	65.6	21.6	18.8	24.7	10.1	8.0	12.6	2.7	1.7	4.3
North & West Metropolitan	58.0	55.9	60.1	24.6	22.8	26.5	10.0	8.8	11.4	4.1	3.3	5.2
Southern Metropolitan	61.2	58.4	63.9	23.7	21.3	26.2	8.7	7.3	10.4	2.8	1.8	4.3
<b>Metropolitan females</b>	60.2	58.7	61.7	23.5	22.2	24.8	9.6	8.7	10.6	3.3	2.7	4.0
Barwon-South Western	60.3	55.4	64.9	23.6	19.6	28.1	8.2	5.8	11.6	6.3*	3.5	11.1
Gippsland	60.8	57.2	64.2	21.0	18.1	24.3	10.3	7.7	13.7	5.2	3.4	7.8
Grampians	65.7	61.5	69.5	22.3	18.9	26.2	7.8	5.8	10.6	2.6	1.8	3.7
Hume	65.7	62.6	68.7	20.7	18.1	23.7	7.7	6.3	9.4	3.3	2.3	4.7
Loddon Mallee	59.7	55.2	64.1	24.8	21.7	28.2	10.8	7.6	15.2	3.1	2.1	4.5
<b>Rural females</b>	62.2	60.1	64.3	22.5	20.7	24.4	9.1	7.7	10.6	4.3	3.2	5.6
<b>Total</b>	<b>60.7</b>	<b>59.5</b>	<b>62.0</b>	<b>23.2</b>	<b>22.2</b>	<b>24.4</b>	<b>9.5</b>	<b>8.7</b>	<b>10.3</b>	<b>3.5</b>	<b>3.0</b>	<b>4.1</b>
<b>Persons</b>												
Eastern Metropolitan	66.4	63.9	68.8	20.3	18.3	22.4	8.0	6.6	9.7	2.2	1.6	3.0
North & West Metropolitan	60.8	59.1	62.5	23.1	21.6	24.6	9.6	8.6	10.8	3.2	2.6	3.8
Southern Metropolitan	66.0	63.9	68.0	21.2	19.5	23.1	7.6	6.5	8.9	2.1	1.5	3.1
<b>Metropolitan persons</b>	64.0	62.8	65.1	21.7	20.7	22.7	8.6	7.9	9.3	2.5	2.2	3.0
Barwon-South Western	66.0	61.2	70.4	20.6	17.3	24.5	8.0	5.7	11.1	3.7*	2.1	6.5
Gippsland	65.7	62.8	68.5	19.9	17.6	22.4	8.2	6.5	10.4	4.1	2.9	5.8
Grampians	70.2	67.3	72.9	20.0	17.7	22.7	6.3	5.0	7.8	2.0	1.5	2.7
Hume	68.6	66.1	71.0	19.7	17.6	22.0	7.0	5.9	8.2	2.3	1.7	3.1
Loddon Mallee	64.7	60.9	68.3	22.0	19.3	25.1	9.1	6.7	12.1	2.4	1.8	3.2
<b>Rural persons</b>	66.9	65.1	68.6	20.5	19.1	21.9	7.8	6.8	8.9	3.0	2.4	3.7
<b>Total</b>	<b>64.6</b>	<b>63.6</b>	<b>65.6</b>	<b>21.5</b>	<b>20.7</b>	<b>22.3</b>	<b>8.4</b>	<b>7.8</b>	<b>9.0</b>	<b>2.6</b>	<b>2.3</b>	<b>3.0</b>

a. Based on the Kessler 10 psychological distress scale.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.71 and Figure 2.35 show psychological distress, by LGA. There were significantly higher proportions of people with low levels of psychological distress who lived in the LGAs of Ballarat (C), Baw Baw (S), Benalla (RC), Kingston (C), Southern Grampians (S) and Warrnambool (C) compared with all Victorian adults. By contrast there were significantly lower proportions of people with low levels of psychological distress who lived in Greater Dandenong (C), Hume (C), Melton (S), Moreland (C) and Wellington (S) compared with all Victorian adults.

There were significantly higher proportions of people with high or very high levels of psychological distress who lived in the LGAs of Hume (C) and Melton (S) compared with all Victorian adults. By contrast there were significantly lower proportions of people with high or very high levels of psychological distress who lived in Ballarat (C), Benalla (RC), Glen Eira (C), Mansfield (S), Moyne (S), Strathbogie (S) and Warrnambool (C) compared with all Victorian adults.

Table 2.71: Psychological distress,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	%	Low (< 16)		%	Moderate (16–21)		%	High / Very high (≥ 22)	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	73.3	64.0	80.9	13.4	9.9	17.8	11.5*	5.8	21.7
Ararat (RC)	70.7	63.1	77.2	20.5	14.7	27.9	7.2	4.9	10.6
Ballarat (C)	72.4	66.6	77.6	21.0	16.4	26.4	5.9	3.7	9.2
Banyule (C)	62.7	55.9	69.1	18.8	14.5	24.1	14.7	9.6	21.8
Bass Coast (S)	62.6	54.3	70.1	21.6	15.3	29.5	13.4	8.4	20.7
Baw Baw (S)	72.5	66.4	77.9	18.9	14.3	24.6	7.2	4.6	11.3
Bayside (C)	70.4	62.5	77.3	20.0	14.1	27.6	7.6*	4.3	13.1
Benalla (RC)	73.7	67.2	79.4	18.1	13.1	24.5	4.8	3.2	7.3
Boroondara (C)	68.4	61.3	74.7	22.0	16.6	28.7	8.0*	4.7	13.5
Brimbank (C)	60.8	55.1	66.2	20.8	16.4	25.9	14.4	10.6	19.2
Buloke (S)	58.9	51.1	66.3	26.7	19.8	34.9	12.7*	7.1	21.6
Campaspe (S)	65.4	58.7	71.6	24.1	18.5	30.9	8.6	5.8	12.6
Cardinia (S)	70.6	65.1	75.6	21.1	16.7	26.2	7.0	4.6	10.5
Casey (C)	61.7	55.8	67.2	21.1	16.6	26.3	13.0	9.3	18.1
Central Goldfields (S)	67.8	60.5	74.3	20.4	15.0	27.3	9.2	6.2	13.6
Colac-Otway (S)	69.1	61.7	75.6	21.1	15.6	27.8	8.1*	4.4	14.3
Corangamite (S)	67.3	59.2	74.5	23.4	16.8	31.6	7.1	4.5	11.1
Darebin (C)	61.5	55.2	67.4	23.6	18.5	29.6	11.7	8.2	16.4
East Gippsland (S)	65.2	58.2	71.7	19.6	14.5	25.9	14.0	9.7	19.9
Frankston (C)	68.3	62.2	73.8	20.8	16.3	26.1	9.2	6.1	13.6
Gannawarra (S)	71.8	65.1	77.7	15.2	11.3	20.2	11.5	7.3	17.6
Glen Eira (C)	65.6	59.1	71.6	25.6	20.1	31.9	6.1*	3.7	9.8
Glenelg (S)	65.1	56.7	72.7	24.5	17.7	32.9	9.7	6.2	14.8
Golden Plains (S)	65.6	58.2	72.4	21.5	16.9	27.1	11.6	7.1	18.5
Greater Bendigo (C)	64.5	55.9	72.2	21.0	15.6	27.8	13.6*	8.0	22.1
Greater Dandenong (C)	57.7	51.9	63.2	25.5	20.6	31.0	12.0	8.8	16.1
Greater Geelong (C)	64.1	57.0	70.6	19.9	15.1	25.8	14.0	9.6	19.9
Greater Shepparton (C)	70.2	63.7	75.9	16.9	12.2	22.8	10.6	7.4	15.0
Hepburn (S)	68.4	59.7	76.0	18.5	12.5	26.7	10.4	6.9	15.4
Hindmarsh (S)	64.1	56.1	71.4	21.9	15.3	30.4	12.0	7.9	17.9
Hobsons Bay (C)	65.6	59.3	71.4	17.9	13.6	23.2	12.1	8.6	16.9
Horsham (RC)	70.0	59.3	78.9	20.9	13.0	31.9	7.4	4.8	11.2
Hume (C)	57.6	51.5	63.4	22.2	17.9	27.2	15.9	12.0	20.8
Indigo (S)	71.6	65.1	77.3	16.3	12.1	21.6	11.0	7.3	16.2
Kingston (C)	74.1	68.5	79.0	14.6	10.8	19.5	8.2	5.7	11.7
Knox (C)	60.7	54.6	66.4	23.6	18.8	29.2	12.2	8.7	16.9
Latrobe (C)	67.9	61.7	73.5	15.9	11.8	21.0	13.7	9.8	18.9
Loddon (S)	67.5	58.9	75.0	19.3	13.5	26.8	10.6	6.6	16.5
Macedon Ranges (S)	62.7	55.9	69.1	26.4	20.7	33.0	6.9*	4.2	11.1
Manningham (C)	67.3	60.2	73.7	23.0	17.3	29.9	7.5	4.6	12.0
Mansfield (S)	69.0	60.6	76.3	23.2	16.4	31.7	6.4	4.1	9.6
Maribyrnong (C)	61.0	54.6	67.0	25.4	19.7	32.1	10.8	7.3	15.6



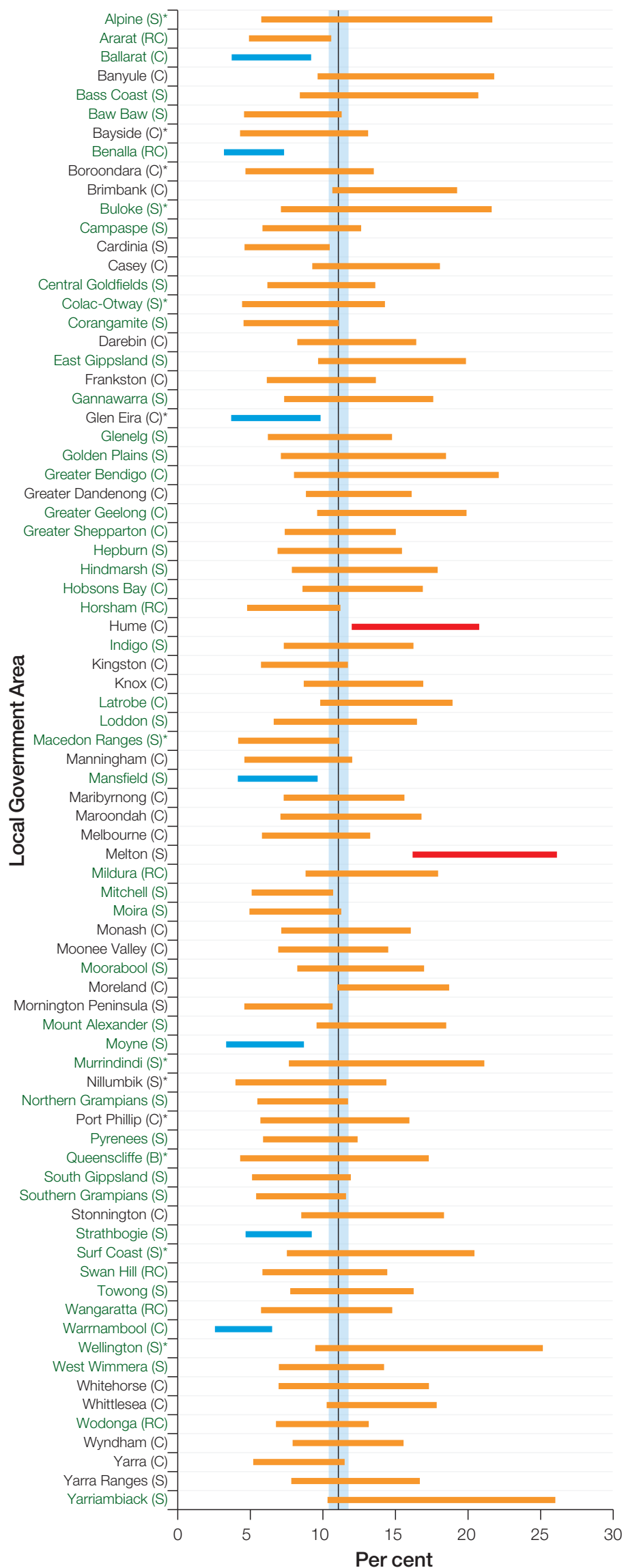
Table 2.71: Psychological distress,<sup>a</sup> by LGA, Victoria, 2011–12 (continued)

LGA	Low (< 16)			Moderate (16–21)			High / Very high (≥ 22)		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Maroondah (C)	68.8	62.4	74.6	17.9	13.6	23.2	11.0	7.1	16.8
Melbourne (C)	64.6	58.6	70.2	25.1	19.8	31.1	8.8	5.8	13.3
Melton (S)	55.7	50.0	61.3	20.0	16.1	24.6	20.7	16.2	26.1
Mildura (RC)	65.4	58.8	71.5	21.1	16.5	26.6	12.7	8.8	17.9
Mitchell (S)	63.9	57.0	70.2	26.1	20.3	32.9	7.4	5.1	10.7
Moira (S)	70.5	62.9	77.0	18.5	13.0	25.8	7.5	4.9	11.3
Monash (C)	67.2	60.9	72.9	18.0	14.0	22.9	10.8	7.1	16.0
Moonee Valley (C)	64.4	58.0	70.3	23.6	18.3	29.9	10.1	6.9	14.5
Moorabool (S)	68.1	61.7	74.0	18.1	13.4	24.0	11.9	8.2	17.0
Moreland (C)	56.9	50.5	63.0	24.8	19.6	30.8	14.4	11.0	18.7
Mornington Peninsula (S)	65.3	58.5	71.6	25.9	20.2	32.6	7.0	4.6	10.7
Mount Alexander (S)	59.5	50.9	67.6	25.4	18.3	34.0	13.4	9.6	18.5
Moyne (S)	68.1	60.1	75.1	25.5	18.8	33.4	5.4	3.3	8.7
Murrindindi (S)	69.9	61.6	77.1	15.1	10.9	20.6	13.0*	7.7	21.1
Nillumbik (S)	69.2	62.0	75.5	21.1	16.0	27.4	7.7*	4.0	14.4
Northern Grampians (S)	72.0	64.3	78.6	17.2	11.7	24.7	8.1	5.5	11.7
Port Phillip (C)	66.5	59.0	73.3	19.0	13.8	25.6	9.7*	5.7	16.0
Pyrenees (S)	66.5	58.5	73.7	23.7	17.1	31.9	8.6	5.9	12.4
Queenscliffe (B)	72.7	61.6	81.4	16.4	10.0	25.7	8.8*	4.3	17.3
South Gippsland (S)	62.9	54.1	70.9	27.0	19.8	35.7	7.9	5.1	11.9
Southern Grampians (S)	74.0	65.9	80.7	15.5	10.2	22.8	8.0	5.4	11.6
Stonnington (C)	67.3	61.0	73.1	18.4	13.9	23.9	12.6	8.5	18.3
Strathbogie (S)	70.1	59.6	78.9	22.1	14.0	33.1	6.6	4.7	9.2
Surf Coast (S)	65.2	57.8	71.9	22.0	16.1	29.1	12.6*	7.5	20.4
Swan Hill (RC)	66.5	59.3	73.1	20.6	15.1	27.4	9.3	5.8	14.4
Towong (S)	68.7	61.8	74.8	18.6	13.8	24.7	11.3	7.7	16.2
Wangaratta (RC)	69.7	62.7	75.9	19.8	14.6	26.3	9.3	5.7	14.8
Warrnambool (C)	72.9	67.2	78.0	21.8	17.2	27.3	4.1	2.6	6.5
Wellington (S)	56.5	49.1	63.6	26.0	19.0	34.4	15.8*	9.5	25.1
West Wimmera (S)	62.6	55.9	68.8	23.9	18.5	30.3	10.0	7.0	14.2
Whitehorse (C)	67.7	60.9	73.8	16.9	12.6	22.3	11.1	6.9	17.3
Whittlesea (C)	62.3	56.6	67.7	20.5	16.2	25.6	13.6	10.3	17.8
Wodonga (RC)	66.2	59.3	72.4	21.1	15.8	27.8	9.5	6.8	13.2
Wyndham (C)	60.8	55.3	66.1	25.8	21.1	31.0	11.2	7.9	15.6
Yarra (C)	60.2	52.1	67.8	28.6	21.6	36.7	7.8	5.2	11.5
Yarra Ranges (S)	63.1	56.3	69.5	21.8	16.7	27.9	11.5	7.8	16.7
Yarriambiack (S)	61.9	53.6	69.5	19.7	13.9	27.2	16.7	10.3	26.0
<b>Victoria</b>	<b>64.6</b>	<b>63.6</b>	<b>65.6</b>	<b>21.5</b>	<b>20.7</b>	<b>22.4</b>	<b>11.1</b>	<b>10.4</b>	<b>11.8</b>

a. Based on the Kessler 10 psychological distress scale.  
 Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.  
 Data were age standardised to the 2011 Victorian population, using 10-year age groups.  
 LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.  
 LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.  
 \* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.  
 Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Figure 2.35: Prevalence of high or very high levels of psychological distress,<sup>a</sup> by LGA, Victoria, 2011–12



a. Based on the Kessler 10 psychological distress scale.

Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

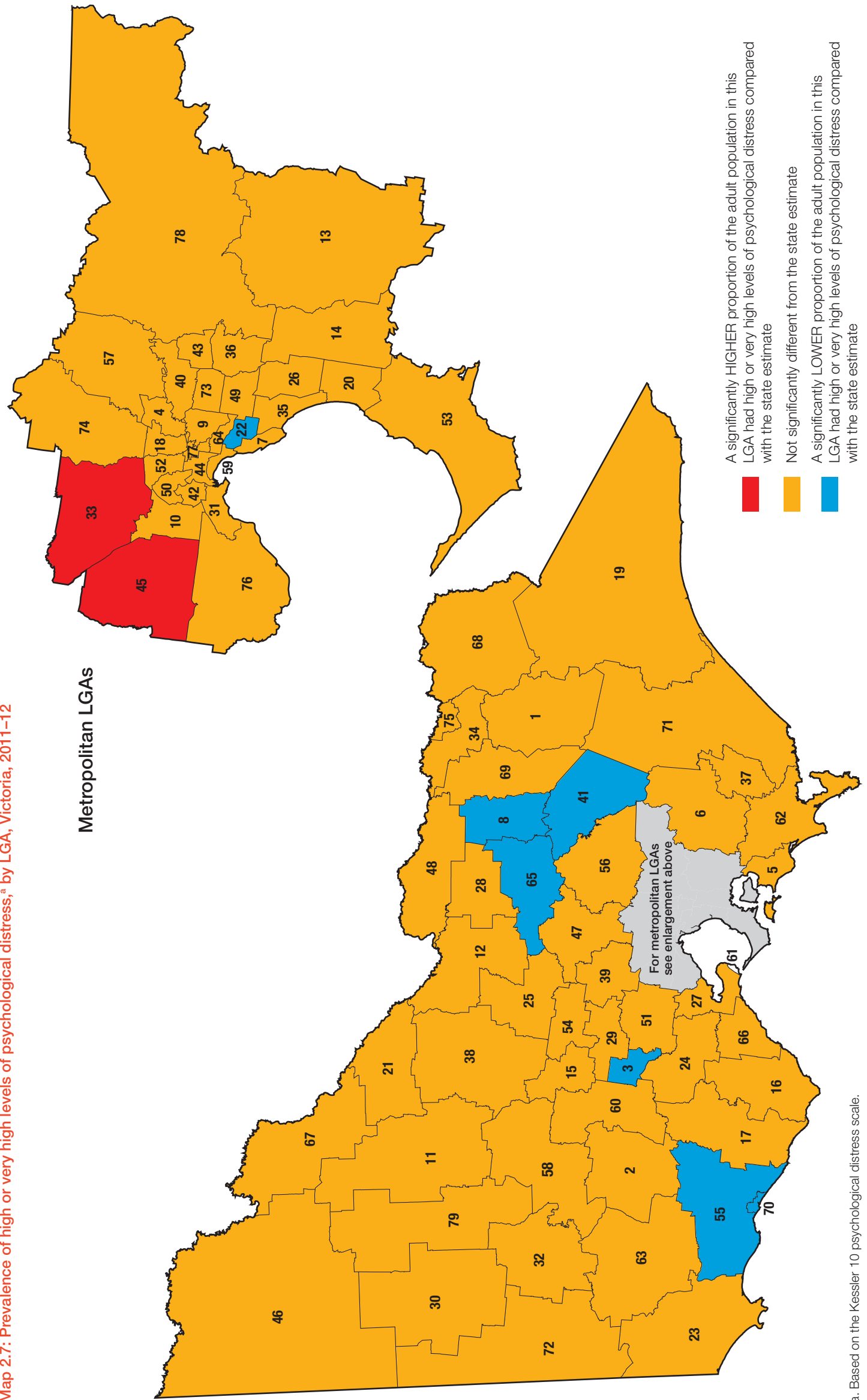
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Map 2.7: Prevalence of high or very high levels of psychological distress,<sup>a</sup> by LGA, Victoria, 2011–12



# Modifiable health risk factors

Table 2.72 shows psychological distress, by selected socioeconomic determinants, modifiable risk factors and health status.

### Low levels of psychological distress

When compared with all Victorian men and women, there were significantly *higher* proportions of men and women with low levels of psychological distress that had the following characteristics:

- total household income of \$100,000 or more
- non-smoker
- excellent or very good self-reported health status.

When compared with all Victorian men, there was a significantly *higher* proportion of men with low levels of psychological distress that had the following characteristic:

- met guidelines for fruit and vegetable consumption.

When compared with all Victorian women, there were significantly *higher* proportions of women with low levels of psychological distress that had the following characteristics:

- tertiary educated
- met fruit consumption guidelines
- normal weight.

When compared with all Victorian men and women, there were significantly *lower* proportions of men and women with low levels of psychological distress that had the following characteristics:

- primary education
- unemployed
- not in the labour force
- total annual household income of less than \$40,000
- current smoker
- abstained from alcohol consumption
- fair or poor self-reported health status
- diagnosed with diabetes by a doctor.

When compared with all Victorian men, there was a significantly *lower* proportion of men with low levels of psychological distress that had the following characteristic:

- at long-term risk of alcohol-related harm.

When compared with all Victorian women, there were significantly *lower* proportions of women with low levels of psychological distress that had the following characteristics:

- sedentary
- met neither fruit nor vegetable consumption guidelines
- good self-reported health status
- obese.

### High / very high levels of psychological distress

When compared with all Victorian men and women there were significantly *higher* proportions of men and women with 'high or very high' levels of psychological distress that had the following characteristics:

- primary education
- unemployed
- not in the labour force
- total annual household income of less than \$40,000
- sedentary
- current smoker
- fair/poor self-reported health
- diagnosed with diabetes by a doctor.

When compared with all Victorian men there were significantly *higher* proportions of men with high or very high levels of psychological distress that had the following characteristics:

- abstained from alcohol consumption, or
- at long-term risk of alcohol-related harm.

When compared with all Victorian women there were significantly *higher* proportions of women with high or very high levels of psychological distress that had the following characteristics:

- ex-smoker
- obese.

When compared with all Victorian men and women, there were significantly *lower* proportions of men and women with high or very high levels of psychological distress that had the following characteristics:

- tertiary educated
- excellent or very good self-reported health status.

When compared with all Victorian women there were significantly *lower* proportions of women with high or very high levels of psychological distress that had the following characteristics:

- total annual household income of \$100,000 or more
- non-smoker
- normal weight.

**Table 2.72: Psychological distress<sup>a</sup>, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	Low (< 16)			Moderate (16–21)			High / Very high (≥ 22)		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>	<b>68.6</b>	<b>67.1</b>	<b>70.0</b>	<b>19.7</b>	<b>18.5</b>	<b>21.0</b>	<b>9.0</b>	<b>8.1</b>	<b>10.0</b>
<i>Area of Victoria</i>									
Rural	71.3	68.9	73.7	18.7	16.9	20.8	8.1	6.7	9.8
Metropolitan	68.0	66.2	69.7	19.8	18.4	21.4	9.2	8.1	10.4
<i>Education level</i>									
Primary	<b>63.7</b>	60.2	66.9	19.8	17.4	22.5	<b>13.7</b>	11.5	16.4
Secondary	68.4	65.9	70.9	19.8	17.7	22.0	9.1	7.6	10.9
Tertiary	70.2	67.8	72.4	22.0	19.9	24.2	<b>5.1</b>	4.1	6.3
<i>Employment status (age &lt; 65 years)</i>									
Employed	70.6	68.6	72.6	19.3	17.7	21.0	7.9	6.7	9.3
Unemployed	<b>46.1</b>	39.0	53.3	<b>28.6</b>	22.2	36.1	<b>20.3</b>	14.9	27.1
Not in labour force	<b>44.8</b>	39.4	50.3	24.4	19.3	30.3	<b>27.5</b>	22.3	33.4
<i>Total annual household income</i>									
< \$40,000	<b>57.4</b>	53.0	61.6	22.0	18.6	25.8	<b>17.4</b>	14.2	21.1
\$40,000 to < \$100,000	69.7	67.2	72.2	20.6	18.5	22.9	7.9	6.6	9.4
≥ \$100,000	<b>74.2</b>	71.2	77.0	18.2	15.9	20.8	6.3	4.7	8.5
<i>Physical activity<sup>b</sup></i>									
Sedentary	68.6	61.8	74.7	<b>11.1</b>	8.2	15.0	<b>15.8</b>	11.2	21.7
Insufficient time and sessions	65.3	62.3	68.2	21.3	18.6	24.3	11.2	9.2	13.7
Sufficient time and sessions	70.4	68.6	72.1	19.7	18.2	21.3	7.7	6.7	8.9
<i>Met fruit / vegetable guidelines<sup>c</sup></i>									
Both guidelines	<b>77.7</b>	70.9	83.2	15.4	10.7	21.7	6.0*	3.1	11.2
Vegetable guidelines <sup>d</sup>	75.4	69.3	80.5	16.8	12.3	22.5	6.7	4.1	10.8
Fruit guidelines <sup>d</sup>	70.9	68.5	73.3	19.2	17.2	21.4	7.3	6.1	8.8
Neither	67.1	65.1	69.0	20.3	18.7	22.1	10.0	8.8	11.4
<i>Smoking status</i>									
Current smoker	<b>59.2</b>	55.8	62.6	22.2	19.4	25.1	<b>15.1</b>	12.8	17.7
Ex-smoker	68.9	64.6	72.9	20.0	16.5	24.2	7.7	5.5	10.7
Non-smoker	<b>72.1</b>	70.2	74.0	18.4	16.8	20.2	7.2	6.1	8.4
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>									
Abstainer	<b>58.8</b>	54.4	63.0	23.2	19.4	27.5	<b>15.2</b>	12.1	18.9
Low risk	70.9	69.3	72.5	19.2	17.8	20.6	7.3	6.4	8.3
Risky or high risk	<b>57.5</b>	50.5	64.2	20.8	15.8	26.8	<b>19.8</b>	14.2	27.0
<i>Self-reported health</i>									
Excellent / very good	<b>78.2</b>	76.1	80.1	<b>15.5</b>	13.9	17.2	<b>4.1</b>	3.1	5.3
Good	66.8	64.4	69.2	21.9	19.9	24.2	8.6	7.2	10.2
Fair / poor	<b>46.2</b>	42.2	50.2	<b>26.1</b>	22.4	30.2	<b>24.3</b>	20.8	28.3
<i>Body weight status<sup>f</sup></i>									
Underweight	72.8	60.7	82.3	17.5*	9.6	29.6	7.6*	4.1	13.8
Normal	69.5	67.2	71.8	19.8	17.9	21.9	7.7	6.4	9.2
Overweight	69.2	66.6	71.7	20.4	18.2	22.8	8.3	6.9	10.0
Obese	67.3	63.4	71.1	18.6	15.9	21.6	10.7	8.3	13.5
<i>Diabetes (excluding GDM)</i>									
No diabetes	69.3	67.8	70.8	19.5	18.2	20.8	8.7	7.8	9.7
Diabetes	<b>51.7</b>	45.1	58.2	15.1	11.1	20.3	<b>20.4</b>	15.8	26.1

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003a).

d. Includes those meeting both guidelines.

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

**Table 2.72: Psychological distress<sup>a</sup>, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)**

	%	Low (< 16)			Moderate (16–21)			High / Very high (≥ 22)		
		95% CI			95% CI			95% CI		
		LL	UL		LL	UL		LL	UL	
<b>Females</b>	<b>60.7</b>	<b>59.5</b>	<b>62.0</b>	<b>23.2</b>	<b>22.2</b>	<b>24.4</b>	<b>13.0</b>	<b>12.1</b>	<b>13.9</b>	
<i>Area of Victoria</i>										
Rural	62.2	60.1	64.3	22.5	20.7	24.4	13.3	11.7	15.2	
Metropolitan	60.2	58.7	61.7	23.5	22.2	24.8	12.9	11.9	14.0	
<i>Education level</i>										
Primary	<b>51.1</b>	48.5	53.7	24.3	21.7	27.1	<b>20.9</b>	18.1	23.9	
Secondary	60.6	58.6	62.6	23.5	21.8	25.3	12.8	11.4	14.3	
Tertiary	<b>67.3</b>	65.3	69.3	21.2	19.5	22.9	<b>9.0</b>	7.8	10.4	
<i>Employment status (age &lt; 65 years)</i>										
Employed	62.1	60.2	63.9	24.5	22.9	26.2	11.6	10.3	13.0	
Unemployed	<b>46.5</b>	39.7	53.4	<b>31.2</b>	25.1	38.0	<b>19.5</b>	15.0	24.9	
Not in labour force	<b>54.2</b>	51.4	57.0	22.5	20.3	25.0	<b>19.7</b>	17.4	22.1	
<i>Total annual household income</i>										
< \$40,000	<b>49.1</b>	46.0	52.3	24.6	21.9	27.6	<b>22.0</b>	19.3	25.0	
\$40,000 to < \$100,000	62.7	60.5	64.9	23.9	22.0	25.9	11.1	9.7	12.7	
≥ \$100,000	<b>67.6</b>	64.8	70.2	22.8	20.4	25.3	<b>8.4</b>	6.9	10.3	
<i>Physical activity<sup>b</sup></i>										
Sedentary	<b>49.2</b>	43.2	55.2	21.4	16.6	27.2	<b>20.3</b>	15.8	25.7	
Insufficient time and sessions	60.1	57.5	62.6	22.1	20.1	24.2	14.2	12.2	16.3	
Sufficient time and sessions	62.4	60.9	64.0	23.8	22.5	25.3	11.6	10.6	12.8	
<i>Met fruit / vegetable guidelines<sup>c</sup></i>										
Both guidelines	64.2	59.1	68.9	25.2	21.0	29.8	8.9	6.3	12.3	
Vegetable guidelines <sup>d</sup>	64.2	60.0	68.2	24.2	20.7	28.0	9.7	7.4	12.6	
Fruit guidelines <sup>d</sup>	<b>64.0</b>	62.1	65.9	22.2	20.6	23.9	11.2	10.0	12.6	
Neither	<b>57.3</b>	55.5	59.0	24.5	23.0	26.1	14.9	13.6	16.3	
<i>Smoking status</i>										
Current smoker	<b>44.7</b>	41.6	47.8	<b>27.9</b>	24.8	31.2	<b>24.2</b>	21.2	27.5	
Ex-smoker	57.6	54.3	60.8	21.7	19.1	24.4	<b>18.8</b>	15.5	22.6	
Non-smoker	<b>63.8</b>	62.2	65.3	22.4	21.1	23.8	<b>10.5</b>	9.5	11.6	
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>										
Abstainer	<b>56.4</b>	53.4	59.3	22.8	20.5	25.3	15.4	13.3	17.7	
Low risk	62.3	60.9	63.8	23.2	22.0	24.5	12.1	11.1	13.2	
Risky or high risk	54.0	47.6	60.2	25.6	19.6	32.6	17.4	12.4	23.8	
<i>Self-reported health</i>										
Excellent / very good	<b>72.6</b>	70.8	74.3	<b>19.2</b>	17.7	20.7	<b>6.4</b>	5.4	7.6	
Good	<b>55.8</b>	53.7	57.8	26.1	24.3	27.9	14.4	12.9	16.0	
Fair / poor	<b>36.1</b>	32.8	39.6	<b>28.4</b>	25.3	31.7	<b>30.6</b>	27.2	34.1	
<i>Body weight status<sup>f</sup></i>										
Underweight	56.6	50.5	62.5	26.2	20.8	32.5	14.9	10.9	20.2	
Normal	<b>64.3</b>	62.5	66.0	22.6	21.1	24.2	<b>10.6</b>	9.5	11.9	
Overweight	60.1	57.4	62.7	24.0	21.7	26.5	12.8	11.0	14.8	
Obese	<b>53.5</b>	49.8	57.0	23.2	20.6	26.1	<b>20.2</b>	17.0	23.9	
<i>Diabetes (excluding GDM)</i>										
No diabetes	61.3	60.0	62.6	23.1	22.0	24.3	12.6	11.7	13.6	
Diabetes	<b>45.8</b>	40.6	51.0	24.2	17.6	32.5	<b>27.6</b>	20.7	35.9	

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003a).

d. Includes those meeting both guidelines.

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

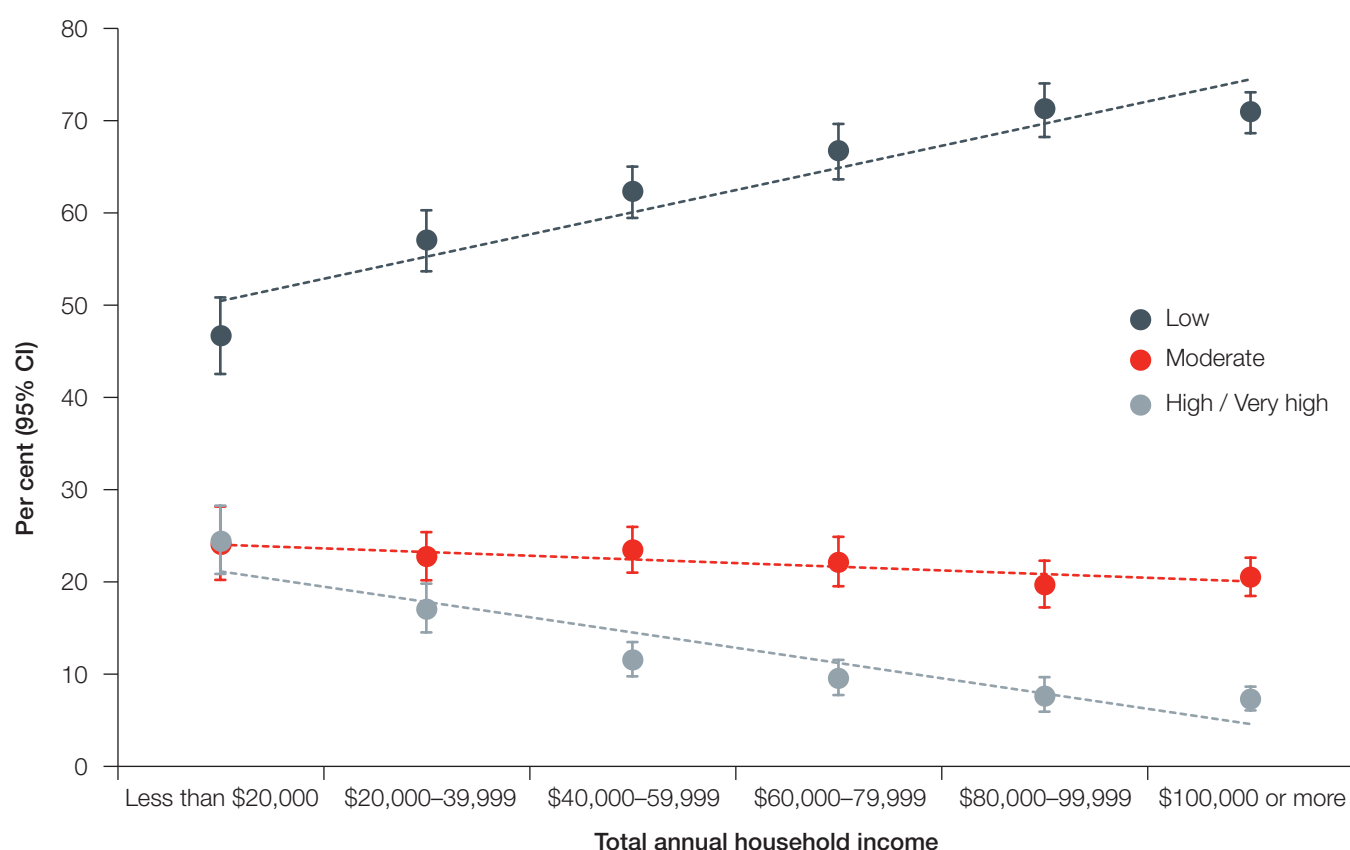
\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.



The relationship, if any, was investigated between SES and psychological distress, using total annual household income as a measure of SES (Figure 2.36). The proportion of people with low levels of psychological distress significantly increased with increasing income, while the proportions of people with moderate, high or very high levels of psychological distress significantly decreased with increasing income.

**Figure 2.36: Psychological distress,<sup>a</sup> by total annual household income, Victoria, 2011–12**



a. Based on the Kessler 10 psychological distress scale.  
95% CI = 95 per cent confidence interval.  
Data were age-standardised to the 2011 Victorian population.  
Ordinary least squares linear regression was used to test for statistical significance.

### Impact of psychological distress (K10+ scale)

Adults who responded ‘a little’, ‘some’, ‘most’ or ‘all of the time’ to at least one of the K10 questions were judged to have experienced some level of psychological distress. They were subsequently asked an additional four questions, which constitutes the K10+ scale, to assess the impact of their psychological distress on their daily lives.

Respondents who had indicated some level of psychological distress in the four weeks prior to the survey were asked how many days this had resulted in a total inability to work, study or to manage day-to-day activities. Table 2.73 shows the inability to work, study or manage day-to-day activities due to psychological distress, by duration, age group and sex.

The majority of adults (87.2 per cent) who had answered at least ‘a little’ to any of the K10 questions reported that they did not experience being totally unable to work, study or manage day-to-day activities in the four weeks prior to the survey. Of those who reported experiencing being totally unable to work, study or

manage day-to-day activities, 1.4 per cent reported that this had lasted for ‘15 to 28 days’, 1.1 per cent for ‘8 to 14 days’ and 9.0 per cent for ‘1 to 7 days’.

There were significantly higher proportions of women aged 18–24 years and people aged 18–34 years who were totally unable to work, study or manage day-to-day activities for a period of one to seven days due to psychological distress compared with all women and adult Victorians, respectively. By contrast the proportions were significantly lower in adults aged 55 years or over.

There was a significantly higher proportion of women aged 55–64 years who were totally unable to work, study or manage day-to-day activities for a period of 15–28 days due to psychological distress compared with all Victorian women.

**Table 2.73: Number of days totally unable to work study or manage day-to-day activities,<sup>a</sup> by age group and sex, Victoria, 2011–12**

Age group (years)	None			1 to 7 days			8 to 14 days			15 to 28 days		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	85.5	80.4	89.5	12.1	8.4	17.2	**	**	**	1.1*	0.4	2.7
25–34	87.4	83.1	90.7	10.6	7.5	14.8	**	**	**	0.6*	0.3	1.5
35–44	89.5	87.1	91.5	6.8	5.2	8.8	0.9*	0.4	1.9	2.2*	1.3	3.7
45–54	90.7	88.7	92.3	6.5	5.1	8.2	0.9*	0.4	2.1	1.3	0.8	2.0
55–64	90.9	89.0	92.4	4.6	3.5	6.0	0.4*	0.2	0.8	2.4	1.7	3.5
65+	90.4	88.9	91.8	5.7	4.6	7.0	1.4	0.9	2.1	0.9	0.5	1.4
<b>Total</b>	<b>88.9</b>	<b>87.6</b>	<b>90.0</b>	<b>7.8</b>	<b>6.8</b>	<b>9.0</b>	<b>0.8</b>	<b>0.6</b>	<b>1.1</b>	<b>1.5</b>	<b>1.2</b>	<b>1.8</b>
<b>Females</b>												
18–24	78.8	73.6	83.2	17.5	13.6	22.2	2.8*	1.1	6.9	**	**	**
25–34	83.1	79.9	85.9	13.0	10.6	16.0	1.3*	0.6	3.0	1.4*	0.7	2.8
35–44	87.5	85.6	89.2	9.0	7.6	10.6	1.7*	1.0	3.0	0.8*	0.5	1.3
45–54	87.0	85.3	88.6	8.5	7.3	9.9	0.6	0.4	1.0	1.8	1.3	2.6
55–64	87.2	85.6	88.7	7.5	6.3	8.8	1.3	0.9	1.9	2.4	1.8	3.2
65+	88.9	87.5	90.2	6.0	5.1	7.0	1.2	0.8	1.7	1.7	1.1	2.5
<b>Total</b>	<b>85.6</b>	<b>84.5</b>	<b>86.6</b>	<b>10.1</b>	<b>9.2</b>	<b>11.0</b>	<b>1.4</b>	<b>1.1</b>	<b>1.9</b>	<b>1.4</b>	<b>1.2</b>	<b>1.7</b>
<b>Persons</b>												
18–24	82.1	78.6	85.2	14.8	12.0	18.1	1.6*	0.7	3.7	0.7*	0.3	1.5
25–34	85.2	82.6	87.4	11.9	9.8	14.3	1.0*	0.5	1.9	1.0*	0.6	1.8
35–44	88.5	87.0	89.8	7.9	6.8	9.2	1.3	0.9	2.1	1.5	1.0	2.2
45–54	88.7	87.4	89.9	7.6	6.6	8.6	0.8*	0.5	1.2	1.6	1.2	2.1
55–64	89.0	87.8	90.1	6.1	5.3	7.0	0.9	0.7	1.2	2.4	1.9	3.1
65+	89.6	88.5	90.5	5.9	5.2	6.7	1.3	0.9	1.7	1.3	1.0	1.8
<b>Total</b>	<b>87.2</b>	<b>86.4</b>	<b>87.9</b>	<b>9.0</b>	<b>8.3</b>	<b>9.7</b>	<b>1.1</b>	<b>0.9</b>	<b>1.4</b>	<b>1.4</b>	<b>1.2</b>	<b>1.7</b>

a. Impact of psychological distress is based on the Kessler 10+ scale.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.74 shows the inability to work, study or manage day-to-day activities due to psychological distress, by duration, Department of Health region and sex. The notable finding was that there was a significantly higher proportion of men who lived in Loddon Mallee Region that had not experienced a total inability to work, study or manage day-to-day activities due to psychological distress for any period of time compared with all Victorian men.

Table 2.74: Number of days totally unable to work study or manage day-to-day activities,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12

Region	%	None		1 to 7 days			8 to 14 days			15 to 28 days		
		95% CI		95% CI			95% CI			95% CI		
		LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>												
Eastern Metropolitan	90.5	87.6	92.7	6.2	4.3	8.9	0.9*	0.4	2.3	1.6*	0.9	2.9
North & West Metropolitan	87.2	84.9	89.3	9.1	7.3	11.4	0.9*	0.6	1.6	1.2	0.8	1.9
Southern Metropolitan	87.8	84.9	90.2	9.3	7.1	12.2	0.7*	0.4	1.3	1.3*	0.7	2.5
<b>Metropolitan males</b>	88.4	86.9	89.7	8.3	7.1	9.7	0.9	0.6	1.3	1.3	1.0	1.8
Barwon-South Western	89.7	83.4	93.8	8.2*	4.4	14.8	0.5*	0.3	1.0	1.1*	0.5	2.2
Gippsland	89.5	86.1	92.2	5.7	3.8	8.4	0.8*	0.4	1.9	2.2*	1.1	4.5
Grampians	90.3	86.3	93.2	5.8	3.9	8.5	0.7*	0.4	1.2	3.1*	1.3	7.0
Hume	91.3	88.4	93.5	4.7	3.4	6.5	0.5*	0.3	0.8	2.6*	1.2	5.4
Loddon Mallee	92.8	90.4	94.6	4.5	3.0	6.7	0.4*	0.2	0.8	1.6	1.0	2.6
<b>Rural males</b>	90.8	88.9	92.4	5.9	4.5	7.8	0.6	0.4	0.8	1.9	1.4	2.7
<b>Total</b>	<b>88.9</b>	<b>87.6</b>	<b>90.0</b>	<b>7.8</b>	<b>6.8</b>	<b>9.0</b>	<b>0.8</b>	<b>0.6</b>	<b>1.1</b>	<b>1.5</b>	<b>1.2</b>	<b>1.8</b>
<b>Females</b>												
Eastern Metropolitan	88.1	85.5	90.4	8.5	6.5	11.0	1.3*	0.6	2.8	1.0*	0.6	1.9
North & West Metropolitan	84.0	82.2	85.6	10.8	9.5	12.3	1.6	1.0	2.5	1.5	1.1	2.2
Southern Metropolitan	85.0	82.6	87.1	11.4	9.4	13.7	0.7*	0.4	1.4	1.3	0.9	1.8
<b>Metropolitan females</b>	85.2	84.0	86.4	10.4	9.4	11.6	1.3	0.9	1.9	1.3	1.1	1.7
Barwon-South Western	85.4	80.1	89.4	8.7	5.6	13.0	3.2*	1.3	7.4	2.0*	0.8	4.8
Gippsland	86.1	82.5	89.0	8.9	6.5	12.2	2.0*	0.9	4.6	1.8	1.2	2.7
Grampians	86.8	83.3	89.7	9.5	7.0	12.8	0.5*	0.3	0.8	1.7	1.1	2.5
Hume	87.3	84.8	89.4	8.7	6.9	10.9	1.5	1.0	2.4	1.4*	0.8	2.5
Loddon Mallee	87.4	82.9	90.8	9.1	5.9	13.7	1.4*	0.8	2.6	1.1*	0.6	2.3
<b>Rural females</b>	86.5	84.6	88.2	9.0	7.5	10.7	1.9	1.2	3.1	1.6	1.1	2.3
<b>Total</b>	<b>85.6</b>	<b>84.5</b>	<b>86.6</b>	<b>10.1</b>	<b>9.2</b>	<b>11.0</b>	<b>1.4</b>	<b>1.1</b>	<b>1.9</b>	<b>1.4</b>	<b>1.2</b>	<b>1.7</b>
<b>Persons</b>												
Eastern Metropolitan	88.9	86.9	90.7	7.6	6.1	9.4	1.2*	0.6	2.2	1.4	0.9	2.2
North & West Metropolitan	85.5	84.1	86.8	10.0	8.9	11.3	1.3	0.9	1.8	1.4	1.1	1.9
Southern Metropolitan	86.3	84.5	88.0	10.4	8.9	12.1	0.7	0.4	1.1	1.3	0.9	1.9
<b>Metropolitan persons</b>	86.7	85.7	87.6	9.4	8.6	10.3	1.1	0.8	1.4	1.3	1.1	1.6
Barwon-South Western	87.5	83.7	90.6	8.3	5.7	11.7	1.9*	0.8	4.5	1.6*	0.8	3.2
Gippsland	87.6	85.1	89.8	7.4	5.7	9.6	1.5*	0.8	2.9	2.0	1.3	3.1
Grampians	88.6	86.0	90.7	7.6	5.9	9.8	0.6	0.4	0.8	2.3*	1.3	3.9
Hume	89.4	87.5	91.0	6.6	5.5	8.0	1.0	0.7	1.5	2.0*	1.2	3.3
Loddon Mallee	90.0	87.0	92.3	7.0	4.8	10.0	0.8	0.5	1.3	1.4	0.9	2.2
<b>Rural persons</b>	88.6	87.2	89.8	7.5	6.4	8.7	1.3	0.8	1.9	1.8	1.4	2.3
<b>Total</b>	<b>87.2</b>	<b>86.4</b>	<b>87.9</b>	<b>9.0</b>	<b>8.3</b>	<b>9.7</b>	<b>1.1</b>	<b>0.9</b>	<b>1.4</b>	<b>1.4</b>	<b>1.2</b>	<b>1.7</b>

a. Impact of psychological distress is based on the Kessler 10+ scale.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data were age standardised to the 2011 Victorian population, using 10-year age groups.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.75 shows the inability to work, study or manage day-to-day activities due to psychological distress, by duration and LGA. There were significantly higher proportions of people who had not experienced a total inability to work, study or manage day-to-day activities due to psychological distress for any period of time in the LGAs of Benalla (RC), Frankston (C), Gannawarra (S), Horsham (RC), Mansfield (S), Mornington Peninsula (S), Moyne (S), Nillumbik (S), South Gippsland (S), Southern Grampians (S), Strathbogie (S), Towong (S), Warrnambool (C) and Wodonga (RC) compared with all Victorian adults.

There were significantly higher proportions of people who had experienced a total inability to work, study or manage day-to-day activities due to psychological distress for a period of one to seven days in the LGAs of Casey (C), Greater Dandenong (C) and Melton (S) compared with all Victorian adults. There was also a significantly higher proportion of people in the LGA of Northern Grampians (S) who had experienced a total inability to work, study or manage day-to-day activities due to psychological distress for a period of 15–28 days.

Table 2.75: Number of days totally unable to work study or manage day-to-day activities,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	%	None		1 to 7 days			8 to 14 days			15 to 28 days		
		95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	85.9	72.8	93.3	10.3*	3.8	24.7	**	**	**	**	**	**
Ararat (RC)	93.0	87.5	96.2	4.4*	1.9	10.3	**	**	**	1.6*	0.6	4.0
Ballarat (C)	88.8	83.2	92.7	7.9	5.0	12.4	**	**	**	**	**	**
Banyule (C)	90.7	84.7	94.5	4.8*	2.3	9.7	**	**	**	0.7*	0.3	1.7
Bass Coast (S)	78.2	70.3	84.4	11.9	7.3	18.7	**	**	**	**	**	**
Baw Baw (S)	91.7	87.0	94.8	6.4*	3.6	11.1	**	**	**	0.8*	0.3	2.0
Bayside (C)	91.3	85.1	95.1	5.4*	2.9	10.0	**	**	**	**	**	**
Benalla (RC)	92.2	88.5	94.7	5.5	3.4	8.7	**	**	**	**	**	**
Boroondara (C)	86.5	79.8	91.2	10.8*	6.5	17.4	**	**	**	**	**	**
Brimbank (C)	82.5	77.1	86.8	13.3	9.4	18.5	**	**	**	1.0*	0.4	2.6
Buloke (S)	86.5	76.8	92.5	11.7*	6.0	21.7	**	**	**	0.7*	0.3	1.7
Campaspe (S)	90.0	86.1	92.9	6.4	4.2	9.6	**	**	**	1.3*	0.6	2.9
Cardinia (S)	90.0	84.8	93.6	7.8*	4.7	12.9	**	**	**	**	**	**
Casey (C)	81.9	76.0	86.5	15.4	11.0	21.1	**	**	**	**	**	**
Central Goldfields (S)	89.7	85.4	92.9	6.0*	3.6	10.0	0.8*	0.4	1.8	2.5*	1.1	5.5
Colac-Otway (S)	89.5	83.2	93.6	8.2*	4.6	14.5	**	**	**	1.0*	0.4	2.5
Corangamite (S)	90.0	83.3	94.2	6.7*	3.3	13.0	**	**	**	1.2*	0.5	2.7
Darebin (C)	87.6	82.6	91.3	8.7	5.4	13.5	1.2*	0.5	2.7	1.5*	0.7	3.4
East Gippsland (S)	86.2	80.6	90.4	8.6	5.3	13.7	**	**	**	2.3*	0.9	6.1
Frankston (C)	93.0	89.4	95.5	4.7*	2.7	8.0	**	**	**	**	**	**
Gannawarra (S)	93.0	89.2	95.5	4.8*	2.8	8.2	**	**	**	**	**	**
Glen Eira (C)	91.0	86.8	94.0	6.1*	3.6	10.3	1.0*	0.4	2.5	**	**	**
Glenelg (S)	83.4	74.8	89.5	13.4*	7.7	22.2	**	**	**	1.2*	0.5	2.7
Golden Plains (S)	84.1	76.6	89.5	10.3*	5.9	17.4	**	**	**	**	**	**
Greater Bendigo (C)	90.6	81.4	95.5	7.6*	3.1	17.5	**	**	**	1.2*	0.5	2.7
Greater Dandenong (C)	77.8	72.2	82.5	14.9	11.0	19.8	2.2*	0.9	5.1	1.8*	0.8	4.3
Greater Geelong (C)	85.7	79.3	90.3	9.1*	5.5	14.8	**	**	**	2.2*	0.9	5.3
Greater Shepparton (C)	87.6	81.7	91.8	7.2*	4.2	11.9	0.6*	0.2	1.4	3.4*	1.3	8.6
Hepburn (S)	82.2	72.0	89.2	13.8*	7.4	24.4	1.9*	1.0	3.9	1.5*	0.7	3.2
Hindmarsh (S)	90.5	85.7	93.9	6.2*	3.6	10.5	**	**	**	**	**	**
Hobsons Bay (C)	84.3	78.7	88.6	13.3	9.3	18.6	**	**	**	0.6*	0.3	1.6
Horsham (RC)	93.3	90.2	95.4	3.4*	1.9	6.0	1.5*	0.6	3.6	1.0*	0.5	2.3
Hume (C)	80.3	74.0	85.4	11.6	7.5	17.5	1.3*	0.6	2.8	**	**	**
Indigo (S)	86.0	79.6	90.7	12.5	8.0	19.0	**	**	**	**	**	**
Kingston (C)	89.9	84.6	93.5	8.2*	4.9	13.6	**	**	**	1.2*	0.5	2.8
Knox (C)	89.2	84.5	92.7	7.5	4.7	11.9	**	**	**	**	**	**
Latrobe (C)	87.9	82.7	91.7	6.8*	4.0	11.4	2.5*	1.0	6.2	1.6*	0.8	3.3
Loddon (S)	91.8	87.7	94.7	6.7*	4.1	10.9	**	**	**	0.9*	0.4	2.1
Macedon Ranges (S)	89.5	83.5	93.5	7.1*	4.0	12.3	**	**	**	**	**	**
Manningham (C)	86.7	79.4	91.8	11.2*	6.5	18.7	**	**	**	**	**	**
Mansfield (S)	93.8	90.4	96.1	3.1*	1.8	5.1	**	**	**	**	**	**
Maribyrnong (C)	85.0	79.8	89.0	11.6	7.9	16.7	**	**	**	**	**	**

**Table 2.75: Number of days totally unable to work study or manage day-to-day activities,<sup>a</sup> by LGA, Victoria, 2011–12**  
(continued)

LGA	%	None		%	1 to 7 days		%	8 to 14 days		%	15 to 28 days	
		95% CI			95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Maroondah (C)	88.3	82.2	92.5	7.1*	4.2	11.9	**	**	**	1.8*	0.8	4.4
Melbourne (C)	89.2	83.9	92.9	8.8	5.4	14.0	**	**	**	**	**	**
Melton (S)	80.7	75.4	85.1	14.0	10.2	18.9	**	**	**	3.0*	1.6	5.7
Mildura (RC)	89.5	85.1	92.7	5.6*	3.4	9.0	**	**	**	2.0*	0.9	4.3
Mitchell (S)	90.2	85.8	93.3	7.2	4.5	11.3	1.6*	0.6	4.1	**	**	**
Moira (S)	87.4	80.6	92.0	7.1*	3.9	12.5	0.7*	0.3	1.7	**	**	**
Monash (C)	90.6	85.2	94.2	6.8*	3.8	12.1	**	**	**	**	**	**
Moonee Valley (C)	89.4	84.8	92.7	6.6	4.2	10.2	**	**	**	1.2*	0.5	2.7
Moorabool (S)	91.9	87.2	94.9	6.2*	3.5	10.8	**	**	**	1.6*	0.7	3.8
Moreland (C)	82.7	77.1	87.2	11.5	7.7	16.7	2.6*	1.2	5.3	**	**	**
Mornington Peninsula (S)	92.8	89.0	95.3	3.2*	1.8	5.5	**	**	**	2.8*	1.2	6.5
Mount Alexander (S)	88.4	81.6	92.9	9.0*	4.8	16.1	**	**	**	1.4*	0.6	2.9
Moyne (S)	94.0	90.7	96.2	3.3*	1.6	6.4	1.2*	0.5	3.1	**	**	**
Murrindindi (S)	84.1	74.8	90.5	9.2*	4.4	18.2	**	**	**	**	**	**
Nillumbik (S)	93.7	89.4	96.3	5.7*	3.2	10.1	**	**	**	**	**	**
Northern Grampians (S)	89.5	85.2	92.7	6.3	3.9	10.2	**	**	**	3.5*	1.9	6.4
Port Phillip (C)	83.7	76.6	88.9	14.3	9.3	21.1	**	**	**	**	**	**
Pyrenees (S)	82.6	69.3	90.9	12.1*	5.0	26.7	**	**	**	2.7*	1.2	6.0
Queenscliffe (B)	91.0	83.6	95.2	8.0*	3.9	15.6	**	**	**	**	**	**
South Gippsland (S)	93.0	88.4	95.8	3.5*	1.6	7.7	**	**	**	1.3*	0.5	3.3
Southern Grampians (S)	93.6	88.6	96.5	4.6*	2.1	9.8	**	**	**	**	**	**
Stonnington (C)	83.1	76.8	87.9	13.8	9.3	19.9	1.3*	0.6	2.8	**	**	**
Strathbogie (S)	94.0	90.2	96.4	3.2*	1.6	6.2	**	**	**	1.3*	0.5	3.1
Surf Coast (S)	90.8	83.9	94.9	7.2*	3.5	14.4	**	**	**	1.2*	0.5	2.9
Swan Hill (RC)	88.5	82.4	92.7	8.0*	4.5	13.8	**	**	**	**	**	**
Towong (S)	93.5	89.6	96.0	3.9*	2.1	7.2	**	**	**	**	**	**
Wangaratta (RC)	89.8	83.7	93.8	7.4*	4.0	13.3	**	**	**	**	**	**
Warrnambool (C)	92.8	88.5	95.6	6.2*	3.6	10.5	**	**	**	**	**	**
Wellington (S)	89.3	82.9	93.5	6.4*	3.1	12.9	**	**	**	2.8*	1.2	6.2
West Wimmera (S)	90.4	86.3	93.3	6.6	4.2	10.3	**	**	**	**	**	**
Whitehorse (C)	90.2	83.6	94.3	5.3*	2.9	9.7	**	**	**	1.2*	0.5	2.8
Whittlesea (C)	85.4	80.8	89.1	8.5	5.8	12.3	**	**	**	2.7*	1.4	4.9
Wodonga (RC)	93.0	89.6	95.3	4.7*	2.8	7.8	**	**	**	**	**	**
Wyndham (C)	87.0	82.6	90.4	7.7	5.3	11.0	**	**	**	2.5*	1.1	5.9
Yarra (C)	87.5	80.2	92.4	9.3*	4.9	16.8	**	**	**	2.1*	0.8	5.3
Yarra Ranges (S)	89.6	84.8	93.1	5.5*	3.1	9.7	**	**	**	2.8*	1.3	5.7
Yarriambiack (S)	84.7	74.7	91.2	11.2*	5.5	21.7	**	**	**	3.3*	1.6	6.8
<b>Victoria</b>	<b>87.2</b>	<b>86.4</b>	<b>87.9</b>	<b>9.0</b>	<b>8.3</b>	<b>9.7</b>	<b>1.1</b>	<b>0.9</b>	<b>1.4</b>	<b>1.4</b>	<b>1.2</b>	<b>1.6</b>

a. Impact of psychological distress is based on the Kessler 10+ scale. Data were age standardised to the 2011 Victorian population, using 10-year age groups. Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval. LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria. \* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution. \*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use. Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.76 shows the inability to work, study or manage day-to-day activities due to psychological distress, by psychological distress level and sex. Overall, the higher the level of psychological distress, the greater its impact. Only 2.9 per cent of people with low psychological distress were unable to work, study or manage their day-to-day activities for a period of time between one to 28 days compared with 42.8 per cent of those with high or very high levels of psychological distress.

**Table 2.76: Number of days totally unable to work study or manage day-to-day activities,<sup>a</sup> by psychological distress level and sex, Victoria, 2011–12**

Psychological distress level <sup>a</sup>	%	None		1 to 7 days			8 to 14 days			15 to 28 days			Don't know or refused to say			
		95% CI		95% CI			95% CI			95% CI			95% CI			
		LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Males</b>																
Low (<16)	96.9	96.0	97.6	2.4	1.8	3.2	**	**	**	0.3*	0.1	0.7	0.3*	0.1	0.4	
Moderate (16–21)	85.9	83.2	88.3	12.0	9.7	14.7	0.7*	0.4	1.3	0.5*	0.3	1.0	0.8*	0.4	1.4	
High / very high (≥22)	55.8	50.9	60.7	26.3	22.0	31.1	5.0	3.3	7.3	9.1	7.1	11.7	3.7	2.3	6.1	
<b>Total</b>	<b>88.9</b>	<b>87.6</b>	<b>90.0</b>	<b>7.8</b>	<b>6.8</b>	<b>9.0</b>	<b>0.8</b>	<b>0.6</b>	<b>1.1</b>	<b>1.5</b>	<b>1.2</b>	<b>1.8</b>	<b>1.0</b>	<b>0.8</b>	<b>1.4</b>	
<b>Females</b>																
Low (<16)	96.5	95.7	97.1	2.9	2.4	3.7	0.1*	0.1	0.2	**	**	**	0.5*	0.3	0.8	
Moderate (16–21)	84.7	82.8	86.4	12.2	10.6	13.9	0.8*	0.5	1.5	0.8	0.5	1.2	1.5	1.1	2.2	
High / very high (≥22)	52.7	49.4	56.0	30.0	26.9	33.2	6.5	4.8	8.9	7.8	6.4	9.6	3.0	2.2	4.0	
<b>Total</b>	<b>85.6</b>	<b>84.5</b>	<b>86.6</b>	<b>10.1</b>	<b>9.2</b>	<b>11.0</b>	<b>1.4</b>	<b>1.1</b>	<b>1.9</b>	<b>1.4</b>	<b>1.2</b>	<b>1.7</b>	<b>1.5</b>	<b>1.2</b>	<b>1.8</b>	
<b>Persons</b>																
Low (<16)	96.7	96.1	97.2	2.7	2.2	3.2	0.1*	0.1	0.3	0.1*	0.1	0.3	0.4	0.2	0.5	
Moderate (16–21)	85.3	83.7	86.8	12.1	10.7	13.6	0.8	0.5	1.2	0.7	0.5	1.0	1.2	0.9	1.7	
High / very high (≥22)	53.9	51.0	56.7	28.4	25.8	31.1	5.7	4.4	7.2	8.7	7.4	10.3	3.3	2.5	4.4	
<b>Total</b>	<b>87.2</b>	<b>86.4</b>	<b>87.9</b>	<b>9.0</b>	<b>8.3</b>	<b>9.7</b>	<b>1.1</b>	<b>0.9</b>	<b>1.4</b>	<b>1.4</b>	<b>1.2</b>	<b>1.7</b>	<b>1.3</b>	<b>1.1</b>	<b>1.5</b>	

a. Based on the Kessler 10+ psychological distress scale.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Respondents who had indicated some level of psychological distress in the four weeks prior to the survey were asked how many days this had caused them to cut down on work, study or day-to-day activities. Table 2.77 shows the number of days of work, study or day-to-day activities that were cut down due to psychological distress, by duration, age group and sex. The majority of adults (79.2 per cent) reported that the psychological distress they had experienced in the four weeks prior to the survey had not impacted on them by causing them to cut down on their usual activities. However, there were significantly higher proportions of men and women aged 18–24 years (20.2 per cent and 23.5 per cent, respectively) who reported that they had cut down on their usual activities for a period of one to seven days due to psychological distress.

There was also a significantly higher proportion of men aged 65 years or over who reported that they had cut down on their usual activities for a period of 15–28 days due to psychological distress compared with all Victorian men.



Table 2.77: Number of days cut down on work, study or day-to-day activities,<sup>a</sup> by age group and sex, Victoria, 2011–12

Age group (years)	None			1 to 7 days			8 to 14 days			15 to 28 days		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	75.1	69.3	80.1	20.2	15.6	25.8	2.7*	1.3	5.5	1.4*	0.6	3.1
25–34	82.7	78.3	86.4	14.5	11.1	18.7	**	**	**	1.2*	0.5	2.6
35–44	85.3	82.6	87.6	11.7	9.7	14.1	0.8*	0.3	1.7	1.6*	0.8	3.0
45–54	86.1	83.8	88.1	10.1	8.3	12.2	1.4	0.9	2.3	1.8	1.2	2.8
55–64	84.6	82.3	86.7	10.4	8.7	12.4	1.2	0.7	1.9	2.0	1.3	3.0
65+	80.3	78.2	82.2	12.7	11.1	14.5	1.6	1.1	2.2	3.3	2.5	4.3
<b>Total</b>	<b>82.3</b>	<b>80.9</b>	<b>83.6</b>	<b>13.3</b>	<b>12.1</b>	<b>14.6</b>	<b>1.3</b>	<b>1.0</b>	<b>1.7</b>	<b>1.9</b>	<b>1.5</b>	<b>2.3</b>
<b>Females</b>												
18–24	68.9	63.6	73.8	23.5	19.2	28.4	4.0*	2.2	7.1	2.7*	1.3	5.5
25–34	72.5	68.9	75.9	19.8	16.9	23.1	3.2	2.0	5.1	3.1	1.9	4.9
35–44	78.4	76.2	80.5	15.7	13.9	17.7	2.0	1.4	2.8	2.6	1.9	3.6
45–54	78.7	76.6	80.6	15.6	13.9	17.5	2.1	1.6	2.9	2.5	1.8	3.4
55–64	79.9	77.9	81.8	13.8	12.2	15.5	2.7	2.1	3.5	2.5	1.8	3.4
65+	77.5	75.8	79.2	14.8	13.4	16.3	2.4	1.8	3.1	2.6	2.0	3.3
<b>Total</b>	<b>76.2</b>	<b>75.0</b>	<b>77.4</b>	<b>17.0</b>	<b>15.9</b>	<b>18.0</b>	<b>2.7</b>	<b>2.3</b>	<b>3.3</b>	<b>2.6</b>	<b>2.2</b>	<b>3.1</b>
<b>Persons</b>												
18–24	72.0	68.1	75.6	21.9	18.6	25.5	3.4	2.1	5.3	2.0*	1.2	3.5
25–34	77.5	74.6	80.1	17.2	14.9	19.8	2.0	1.3	3.0	2.1	1.4	3.2
35–44	81.7	80.0	83.3	13.8	12.4	15.3	1.4	1.0	2.0	2.1	1.6	2.9
45–54	82.1	80.6	83.6	13.0	11.8	14.4	1.8	1.4	2.4	2.2	1.7	2.8
55–64	82.2	80.7	83.6	12.2	11.0	13.5	2.0	1.6	2.5	2.3	1.8	2.9
65+	78.7	77.4	80.0	13.9	12.8	15.0	2.0	1.6	2.5	2.9	2.4	3.5
<b>Total</b>	<b>79.2</b>	<b>78.3</b>	<b>80.1</b>	<b>15.2</b>	<b>14.4</b>	<b>16.0</b>	<b>2.0</b>	<b>1.8</b>	<b>2.4</b>	<b>2.3</b>	<b>2.0</b>	<b>2.6</b>

a. Impact of psychological distress is based on the Kessler 10+ scale.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.78 shows the number of days of work, study or day-to-day activities that were cut down because of psychological distress, by duration, Department of Health region and sex. There was a significantly higher proportion of adults in rural Victoria who reported that they had not cut down on their usual activities due to psychological distress compared with their metropolitan counterparts.

There was a significantly higher proportion of adults in North & West Metropolitan Region who reported cutting down on work, study or day-to-day activities for a period of one to seven days due to psychological distress, while there was a significantly lower proportion of those who lived in Hume Region compared with all adult Victorians.

**Table 2.78: Number of days cut down on work, study or day-to-day activities,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12**

Region	None			1 to 7 days			8 to 14 days			15 to 28 days		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
Eastern Metropolitan	81.5	77.9	84.6	14.3	11.6	17.5	1.9*	1.0	3.9	0.8*	0.4	1.5
North & West Metropolitan	79.0	76.3	81.4	16.4	14.1	19.0	1.1	0.7	1.8	2.1	1.5	3.0
Southern Metropolitan	84.4	81.6	86.8	11.3	9.1	13.9	0.8*	0.4	1.4	2.4	1.5	3.6
<b>Metropolitan males</b>	81.3	79.7	82.9	14.3	12.8	15.8	1.2	0.8	1.7	1.8	1.4	2.4
Barwon-South Western	86.1	80.0	90.5	8.8*	5.0	15.0	2.1*	1.1	3.7	2.6*	1.4	4.8
Gippsland	86.8	83.5	89.5	7.6	5.8	10.1	2.1*	1.2	3.7	2.8*	1.5	5.1
Grampians	83.8	79.3	87.5	12.8	9.3	17.3	1.1	0.7	1.7	1.6*	0.9	2.9
Hume	88.9	86.4	91.0	7.7	6.1	9.5	**	**	**	1.4*	0.9	2.4
Loddon Mallee	82.1	77.3	86.0	14.4	10.7	19.2	1.2*	0.7	1.9	1.5*	0.9	2.5
<b>Rural males</b>	85.6	83.4	87.5	10.2	8.4	12.3	1.6	1.1	2.2	2.0	1.5	2.7
<b>Total</b>	<b>82.3</b>	<b>80.9</b>	<b>83.6</b>	<b>13.3</b>	<b>12.1</b>	<b>14.6</b>	<b>1.3</b>	<b>1.0</b>	<b>1.7</b>	<b>1.9</b>	<b>1.5</b>	<b>2.3</b>
<b>Females</b>												
Eastern Metropolitan	78.0	74.9	80.9	15.1	12.8	17.7	2.7*	1.6	4.7	2.4	1.5	3.6
North & West Metropolitan	74.0	71.9	75.9	19.2	17.5	21.1	2.7	2.0	3.7	2.5	1.9	3.2
Southern Metropolitan	76.1	73.4	78.6	16.6	14.4	19.1	2.7	1.9	3.8	3.3	2.3	4.8
<b>Metropolitan females</b>	75.6	74.1	77.0	17.5	16.3	18.8	2.6	2.1	3.2	2.7	2.2	3.3
Barwon-South Western	77.9	72.6	82.4	14.6	11.3	18.6	4.0*	1.7	8.8	2.8*	1.3	6.3
Gippsland	74.7	70.7	78.3	18.2	15.0	21.9	3.1*	1.6	5.7	2.3	1.4	3.6
Grampians	79.7	75.8	83.1	14.2	11.0	18.0	2.7*	1.5	4.8	2.2*	1.3	3.8
Hume	79.4	76.5	82.0	13.6	11.5	16.0	3.1*	1.9	5.3	2.8	2.0	3.9
Loddon Mallee	78.5	75.2	81.5	16.2	13.5	19.4	2.4*	1.4	3.9	2.0	1.4	2.9
<b>Rural females</b>	78.1	76.2	80.0	15.2	13.7	16.8	3.1	2.2	4.5	2.5	1.8	3.4
<b>Total</b>	<b>76.2</b>	<b>75.0</b>	<b>77.4</b>	<b>17.0</b>	<b>15.9</b>	<b>18.0</b>	<b>2.7</b>	<b>2.3</b>	<b>3.3</b>	<b>2.6</b>	<b>2.2</b>	<b>3.1</b>
<b>Persons</b>												
Eastern Metropolitan	79.2	76.7	81.4	15.0	13.1	17.1	2.3	1.5	3.5	1.6	1.1	2.3
North & West Metropolitan	76.4	74.7	78.0	17.9	16.4	19.4	2.0	1.5	2.5	2.3	1.8	2.8
Southern Metropolitan	80.0	78.1	81.8	14.1	12.5	15.8	1.8	1.3	2.4	2.9	2.1	3.8
<b>Metropolitan persons</b>	78.3	77.2	79.4	15.9	15.0	17.0	2.0	1.6	2.3	2.3	1.9	2.7
Barwon-South Western	82.1	78.0	85.6	11.5	8.8	14.8	3.1*	1.7	5.9	2.6*	1.5	4.5
Gippsland	80.5	77.8	83.0	13.1	11.0	15.4	2.6	1.7	4.1	2.5	1.7	3.9
Grampians	81.7	78.6	84.4	13.5	11.0	16.4	2.0	1.3	3.1	1.9	1.3	2.9
Hume	84.3	82.3	86.1	10.6	9.2	12.1	2.1*	1.3	3.5	2.1	1.6	2.8
Loddon Mallee	80.7	77.8	83.3	14.8	12.4	17.6	1.8	1.2	2.7	1.7	1.3	2.3
<b>Rural persons</b>	81.9	80.4	83.3	12.7	11.5	13.9	2.4	1.8	3.1	2.2	1.8	2.7
<b>Total</b>	<b>79.2</b>	<b>78.3</b>	<b>80.1</b>	<b>15.2</b>	<b>14.4</b>	<b>16.0</b>	<b>2.0</b>	<b>1.8</b>	<b>2.4</b>	<b>2.3</b>	<b>2.0</b>	<b>2.6</b>

a. Impact of psychological distress is based on the Kessler 10+ scale.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data were age standardised to the 2011 Victorian population, using 10-year age groups.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.79 shows the number of days of work, study or day-to-day activities that were cut down because of psychological distress, by duration and LGA. There were significantly higher proportions of adults who had not cut down on any days of work, study or day-to-day activities in the LGAs of Alpine (S), Frankston (C), Mansfield (S), Mitchell (S), Moira (S) and Port Phillip (C) compared with all Victorian adults.

There were significantly higher proportions of adults who reported cutting down on usual activities for a period of one to seven days due to psychological distress in the LGAs of Bass Coast (S) and Moreland (C) compared with all Victorian adults.

There was a significantly higher proportion of adults who reported cutting down on usual activities for a period of 15–28 days due to psychological distress in the LGA of Hume (C) compared with all Victorian adults.

Table 2.79: Number of days cut down on work, study or day-to-day activities,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	None			1 to 7 days			8 to 14 days			15 to 28 days		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	85.0	80.2	88.9	12.1	8.5	16.9	0.7*	0.3	1.6	1.7*	0.9	3.4
Ararat (RC)	84.4	78.5	88.9	11.8	7.8	17.6	**	**	**	2.3*	1.2	4.6
Ballarat (C)	81.3	74.9	86.4	14.8	10.1	21.1	**	**	**	1.4*	0.6	3.4
Banyule (C)	80.5	73.2	86.2	15.1	9.8	22.6	1.7*	0.9	3.3	**	**	**
Bass Coast (S)	70.7	62.3	78.0	25.6	18.7	34.0	1.0*	0.4	2.4	**	**	**
Baw Baw (S)	82.7	76.8	87.3	13.5	9.4	19.2	1.0*	0.4	2.6	2.4*	1.2	4.9
Bayside (C)	84.1	77.0	89.4	10.8	7.2	15.9	**	**	**	**	**	**
Benalla (RC)	82.6	71.1	90.2	13.4*	6.5	25.7	1.5*	0.8	3.0	1.9*	1.0	3.8
Boroondara (C)	77.6	70.4	83.5	14.2	10.1	19.5	**	**	**	1.7*	0.8	3.5
Brimbank (C)	78.4	73.0	83.0	16.6	12.3	22.0	1.7*	0.8	3.7	1.2*	0.5	2.6
Buloke (S)	82.0	73.2	88.3	14.5*	8.6	23.3	1.1*	0.4	2.8	2.0*	0.9	4.3
Campaspe (S)	82.2	76.1	87.0	13.9	9.6	19.7	**	**	**	1.9*	0.9	3.9
Cardinia (S)	80.9	74.9	85.7	17.9	13.2	23.8	0.0	.	.	1.0*	0.4	2.5
Casey (C)	77.9	71.8	83.0	14.1	9.8	19.8	**	**	**	4.3*	2.3	7.7
Central Goldfields (S)	79.5	73.0	84.7	15.4	11.2	20.9	1.3*	0.7	2.4	**	**	**
Colac-Otway (S)	78.4	71.0	84.4	17.6	12.0	24.9	**	**	**	2.0*	0.8	5.0
Corangamite (S)	78.1	68.6	85.3	12.0	7.3	19.2	4.1*	1.8	8.9	**	**	**
Darebin (C)	75.3	68.7	80.9	18.8	13.9	24.9	1.2*	0.5	3.0	3.8*	1.7	8.4
East Gippsland (S)	82.3	76.0	87.2	11.2	7.4	16.6	2.1*	0.8	5.2	**	**	**
Frankston (C)	86.2	81.4	89.9	10.1	6.8	14.5	**	**	**	1.8*	0.8	3.7
Gannawarra (S)	82.1	74.8	87.7	12.2*	7.3	19.6	**	**	**	3.8*	1.9	7.6
Glen Eira (C)	76.6	69.9	82.3	18.7	13.5	25.2	1.4*	0.7	2.9	**	**	**
Glenelg (S)	77.9	69.7	84.4	17.9	11.8	26.2	**	**	**	2.5*	1.3	4.6
Golden Plains (S)	80.3	72.6	86.3	12.6	8.0	19.4	5.3*	2.3	11.8	**	**	**
Greater Bendigo (C)	81.5	74.4	87.0	15.5	10.4	22.5	1.6*	0.6	4.2	1.0*	0.4	2.2
Greater Dandenong (C)	71.7	65.6	77.0	18.7	14.2	24.3	2.7*	1.2	5.7	4.6*	2.5	8.3
Greater Geelong (C)	82.7	76.6	87.4	10.9	7.2	16.0	3.7*	1.7	7.8	2.4*	1.2	5.0
Greater Shepparton (C)	85.3	79.5	89.7	7.3	4.8	10.8	**	**	**	2.3*	1.2	4.5
Hepburn (S)	83.6	77.9	88.1	10.3	6.6	15.8	3.0*	1.6	5.3	2.1*	1.0	4.3
Hindmarsh (S)	80.7	73.9	86.0	12.8	8.9	18.1	0.9*	0.4	2.2	4.9*	2.1	11.0
Hobsons Bay (C)	80.2	74.5	85.0	12.2	8.4	17.5	2.4*	1.1	4.9	3.8*	2.3	6.2
Horsham (RC)	84.2	78.5	88.6	12.3	8.3	17.9	1.4*	0.6	3.3	1.6*	0.7	3.6
Hume (C)	74.7	68.2	80.3	18.8	13.7	25.1	0.9*	0.4	2.0	4.9*	2.8	8.5
Indigo (S)	82.2	75.9	87.2	15.3	10.6	21.6	**	**	**	1.5*	0.6	3.7
Kingston (C)	84.9	78.9	89.4	11.2	7.1	17.1	2.2*	0.9	5.3	1.2*	0.5	2.6
Knox (C)	78.6	72.7	83.6	15.3	11.0	20.8	2.8*	1.2	6.1	2.1*	0.8	5.3
Latrobe (C)	82.8	77.6	86.9	10.1	7.2	13.9	3.5*	1.5	8.1	2.7*	1.3	5.6
Loddon (S)	82.0	73.8	88.0	10.5	7.3	15.0	2.1*	1.1	4.2	**	**	**
Macedon Ranges (S)	78.8	72.3	84.1	14.3	10.0	20.1	3.3*	1.3	8.4	2.0*	0.9	4.3
Manningham (C)	79.9	72.7	85.5	13.9	9.5	20.0	**	**	**	2.6*	1.3	5.1
Mansfield (S)	84.8	80.1	88.5	10.7	7.7	14.7	**	**	**	2.2*	1.2	4.1
Maribyrnong (C)	77.1	71.1	82.2	18.1	13.6	23.8	**	**	**	3.1*	1.6	6.1

Table 2.79: Number of days cut down on work, study or day-to-day activities,<sup>a</sup> by LGA, Victoria, 2011–12 (continued)

LGA	%	None		%	1 to 7 days		%	8 to 14 days		%	15 to 28 days	
		95% CI			95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Maroondah (C)	74.0	66.6	80.2	20.4	14.9	27.4	**	**	**	3.7*	1.4	9.2
Melbourne (C)	79.4	73.1	84.4	16.1	11.4	22.2	**	**	**	2.0*	0.9	4.1
Melton (S)	76.3	70.4	81.2	18.6	14.1	24.3	1.7*	0.8	3.8	1.8*	0.8	3.9
Mildura (RC)	84.6	79.4	88.7	11.7	8.0	16.8	0.9*	0.4	2.2	1.2*	0.5	3.0
Mitchell (S)	85.8	81.0	89.5	9.5	6.5	13.7	2.0*	0.9	4.3	1.5*	0.6	3.6
Moira (S)	88.9	84.8	92.1	7.6	4.9	11.7	1.4*	0.7	2.9	1.7*	0.8	3.3
Monash (C)	79.7	73.5	84.7	17.1	12.4	23.2	**	**	**	1.1*	0.5	2.6
Moonee Valley (C)	74.0	67.3	79.7	18.8	13.7	25.2	4.6*	2.3	8.9	1.5*	0.6	3.7
Moorabool (S)	82.7	76.9	87.2	11.9	8.4	16.7	**	**	**	3.1*	1.4	6.7
Moreland (C)	71.3	65.3	76.7	22.8	17.9	28.6	3.0*	1.7	5.2	1.8*	0.7	4.5
Mornington Peninsula (S)	80.0	72.4	85.8	12.7	8.0	19.5	1.4*	0.6	3.3	**	**	**
Mount Alexander (S)	77.6	70.1	83.6	17.6	12.0	25.1	1.0*	0.5	2.3	**	**	**
Moyne (S)	84.9	78.6	89.6	11.8	7.4	18.2	**	**	**	1.2*	0.5	2.6
Murrindindi (S)	81.6	72.3	88.2	15.9*	9.5	25.3	1.2*	0.5	2.7	**	**	**
Nillumbik (S)	76.3	68.7	82.4	17.9	12.5	24.9	**	**	**	1.2*	0.6	2.6
Northern Grampians (S)	84.6	79.6	88.6	11.2	7.9	15.6	2.8*	1.2	6.3	0.8*	0.3	2.1
Port Phillip (C)	85.5	80.8	89.2	9.5	6.6	13.5	1.6*	0.8	3.4	2.3*	1.0	5.5
Pyrenees (S)	73.8	61.4	83.2	13.4	8.3	20.8	**	**	**	**	**	**
Queenscliffe (B)	80.4	71.1	87.2	16.6	10.3	25.6	**	**	**	0.9*	0.4	2.4
South Gippsland (S)	77.7	68.7	84.7	11.2*	6.7	17.9	2.6*	1.2	5.6	**	**	**
Southern Grampians (S)	86.0	78.0	91.4	11.1*	6.1	19.2	**	**	**	2.0*	0.9	4.5
Stonnington (C)	72.1	65.6	77.8	19.4	14.4	25.7	3.2*	1.5	6.3	4.3*	2.1	8.6
Strathbogie (S)	82.4	74.1	88.5	11.4*	6.3	19.8	1.0*	0.4	2.5	3.2*	1.7	6.2
Surf Coast (S)	84.6	76.8	90.1	9.3*	5.6	14.9	**	**	**	**	**	**
Swan Hill (RC)	76.7	69.1	82.8	17.6	12.1	24.8	2.1*	0.9	4.7	2.8*	1.1	6.8
Towong (S)	82.9	77.7	87.1	12.5	8.9	17.2	**	**	**	**	**	**
Wangaratta (RC)	81.3	74.2	86.9	15.5	10.4	22.6	**	**	**	1.4*	0.6	3.1
Warrnambool (C)	83.7	78.6	87.7	9.4	6.4	13.7	3.5*	1.7	7.1	1.9*	0.9	4.1
Wellington (S)	76.5	67.3	83.7	14.0*	7.9	23.5	4.8*	2.2	10.0	3.8*	1.4	9.6
West Wimmera (S)	81.5	76.6	85.6	13.1	9.5	17.7	**	**	**	3.5*	2.0	6.2
Whitehorse (C)	81.1	74.5	86.3	15.3	10.5	21.7	**	**	**	**	**	**
Whittlesea (C)	74.0	68.2	79.1	18.4	14.1	23.7	2.2*	0.9	5.3	2.3*	1.2	4.5
Wodonga (RC)	83.7	78.5	87.8	10.8	7.4	15.4	1.7*	0.8	3.3	2.9*	1.4	5.9
Wyndham (C)	78.6	73.3	83.1	15.5	11.6	20.4	0.8*	0.3	2.0	3.0*	1.7	5.4
Yarra (C)	77.1	69.2	83.5	18.7	12.7	26.6	0.9*	0.4	2.2	1.6*	0.7	4.0
Yarra Ranges (S)	80.3	74.2	85.1	12.5	9.0	17.0	4.8*	2.2	10.2	0.9*	0.3	2.2
Yarriambiack (S)	81.4	74.2	86.9	13.6	8.7	20.6	3.0*	1.4	6.3	1.4*	0.7	2.9
<b>Victoria</b>	<b>79.0</b>	<b>78.1</b>	<b>79.9</b>	<b>15.3</b>	<b>14.5</b>	<b>16.2</b>	<b>2.0</b>	<b>1.8</b>	<b>2.4</b>	<b>2.3</b>	<b>2.0</b>	<b>2.6</b>

a. Impact of psychological distress is based on the Kessler 10+ scale. Data were age standardised to the 2011 Victorian population, using 10-year age groups. Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval. LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria. \* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution. \*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use. Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.80 shows the number of days of work, study or day-to-day activities that were cut down because of psychological distress, by psychological distress level and sex. Overall, the higher the level of psychological distress the greater its impact. Only 7.6 per cent of people with low psychological distress levels cut down on work, study or day-to-day activities due to their distress compared with 52.9 per cent of those with high or very high levels of psychological distress.

**Table 2.80: Number of days cut down on work, study or manage day-to-day activities by psychological distress level and sex, Victoria, 2011–12**

Psychological distress level <sup>a</sup>	%	None		1 to 7 days			8 to 14 days			15 to 28 days			Don't know or refused to say		
		95% CI		95% CI			95% CI			95% CI			95% CI		
		LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>															
Low (<16)	92.2	91.0	93.3	6.4	5.4	7.6	0.4*	0.2	0.8	0.8	0.5	1.1	0.3	0.1	0.5
Moderate (16–21)	72.2	69.1	75.2	22.3	19.5	25.3	1.4	0.9	2.1	2.1	1.5	3.0	2.0	1.1	3.5
High / very high (≥22)	46.5	41.8	51.2	32.5	27.9	37.6	7.2	5.1	10.0	9.4	6.9	12.6	4.4	2.9	6.6
<b>Total</b>	<b>82.3</b>	<b>80.9</b>	<b>83.6</b>	<b>13.3</b>	<b>12.1</b>	<b>14.6</b>	<b>1.3</b>	<b>1.0</b>	<b>1.7</b>	<b>1.9</b>	<b>1.5</b>	<b>2.3</b>	<b>1.2</b>	<b>0.9</b>	<b>1.7</b>
<b>Females</b>															
Low (<16)	90.8	89.7	91.8	7.7	6.8	8.7	0.4*	0.2	0.7	0.7*	0.4	1.2	0.4	0.3	0.6
Moderate (16–21)	65.3	62.9	67.6	27.4	25.2	29.7	2.5	1.8	3.5	2.9	2.2	3.8	2.0	1.4	2.8
High / very high (≥22)	40.3	37.0	43.8	34.1	30.9	37.5	12.4	10.3	15.0	9.8	7.9	12.1	3.3	2.5	4.5
<b>Total</b>	<b>76.2</b>	<b>75.0</b>	<b>77.4</b>	<b>17.0</b>	<b>15.9</b>	<b>18.0</b>	<b>2.7</b>	<b>2.3</b>	<b>3.3</b>	<b>2.6</b>	<b>2.2</b>	<b>3.1</b>	<b>1.5</b>	<b>1.2</b>	<b>1.8</b>
<b>Persons</b>															
Low (<16)	91.5	90.7	92.3	7.0	6.4	7.8	0.4*	0.2	0.6	0.7	0.5	1.0	0.3	0.2	0.5
Moderate (16–21)	68.5	66.6	70.4	25.0	23.2	26.9	2.0	1.5	2.6	2.5	2.0	3.1	2.0	1.5	2.8
High / very high (≥22)	43.3	40.4	46.2	33.3	30.5	36.1	10.3	8.7	12.2	9.3	7.8	11.1	3.8	2.9	4.9
<b>Total</b>	<b>79.2</b>	<b>78.3</b>	<b>80.1</b>	<b>15.2</b>	<b>14.4</b>	<b>16.0</b>	<b>2.0</b>	<b>1.8</b>	<b>2.4</b>	<b>2.3</b>	<b>2.0</b>	<b>2.6</b>	<b>1.3</b>	<b>1.1</b>	<b>1.6</b>

a. Based on the Kessler 10+ psychological distress scale.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Respondents who had indicated some level of psychological distress in the four weeks prior to the survey were asked whether this had resulted in them seeking help from a health professional. Table 2.81 shows the frequency of visiting a health professional about psychological distress, by frequency, age group and sex. The majority of adults (88.0 per cent) did not visit a health professional about their psychological distress.

There were few differences by age group, with the exception that there was a significantly lower proportion of men aged 65 years or over who did not visit a health professional about their psychological distress compared with all Victorian men. However, there were significant differences between the sexes with significantly higher proportions of women having visited a health professional about their psychological distress in the four weeks prior to the survey, either once, twice or more often compared with their male counterparts.

**Table 2.81: Number of visits to a health professional due to psychological distress,<sup>a</sup> by age group and sex, Victoria, 2011–12**

Age group (years)	None			Once			Twice			More than twice		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	93.9	90.6	96.1	3.4*	1.8	6.4	**	**	**	1.6*	0.7	3.7
25–34	91.4	87.9	94.0	5.4	3.4	8.5	**	**	**	1.3*	0.6	2.5
35–44	91.2	88.9	93.0	3.7	2.6	5.2	2.6	1.6	4.0	2.4	1.5	3.9
45–54	90.6	88.6	92.3	5.2	4.0	6.8	1.7	1.0	2.8	1.6	1.0	2.6
55–64	89.4	87.5	91.1	5.8	4.6	7.3	2.4	1.6	3.4	1.5	1.0	2.3
65+	87.1	85.3	88.6	7.2	6.1	8.6	2.7	2.0	3.6	1.6	1.1	2.3
<b>Total</b>	<b>90.2</b>	<b>89.2</b>	<b>91.2</b>	<b>5.3</b>	<b>4.6</b>	<b>6.1</b>	<b>2.0</b>	<b>1.6</b>	<b>2.4</b>	<b>1.8</b>	<b>1.4</b>	<b>2.2</b>
<b>Females</b>												
18–24	86.6	82.4	90.0	7.4	5.1	10.6	3.6*	1.9	6.7	2.4*	1.1	4.9
25–34	86.0	83.0	88.5	6.6	5.0	8.6	3.5	2.2	5.5	3.1*	1.9	5.0
35–44	85.8	83.8	87.6	7.0	5.8	8.5	3.7	2.8	5.0	2.7	2.0	3.5
45–54	85.5	83.7	87.1	7.6	6.4	9.0	3.0	2.3	4.0	3.2	2.5	4.2
55–64	85.9	84.1	87.4	7.3	6.2	8.6	3.5	2.7	4.5	2.4	1.8	3.2
65+	86.7	85.2	88.0	7.2	6.2	8.2	2.4	1.9	3.1	2.6	2.0	3.6
<b>Total</b>	<b>86.0</b>	<b>85.0</b>	<b>86.9</b>	<b>7.2</b>	<b>6.6</b>	<b>7.9</b>	<b>3.3</b>	<b>2.8</b>	<b>3.9</b>	<b>2.8</b>	<b>2.4</b>	<b>3.3</b>
<b>Persons</b>												
18–24	90.3	87.6	92.4	5.4	3.9	7.4	2.1*	1.2	3.8	2.0*	1.1	3.5
25–34	88.6	86.4	90.5	6.0	4.6	7.7	2.4	1.6	3.6	2.2	1.5	3.3
35–44	88.3	86.9	89.7	5.4	4.6	6.4	3.2	2.5	4.1	2.6	2.0	3.3
45–54	87.9	86.5	89.1	6.5	5.6	7.5	2.4	1.9	3.1	2.5	2.0	3.1
55–64	87.5	86.3	88.7	6.6	5.8	7.5	3.0	2.4	3.7	2.0	1.6	2.5
65+	86.8	85.7	87.9	7.2	6.5	8.0	2.5	2.1	3.1	2.2	1.7	2.8
<b>Total</b>	<b>88.0</b>	<b>87.3</b>	<b>88.6</b>	<b>6.3</b>	<b>5.8</b>	<b>6.8</b>	<b>2.6</b>	<b>2.3</b>	<b>3.0</b>	<b>2.3</b>	<b>2.0</b>	<b>2.6</b>

a. Impact of psychological distress is based on the Kessler 10+ scale.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.82 shows the frequency of visiting a health professional about psychological distress, by Department of Health region and sex. There were no significant regional differences in Victoria in the proportion of men or women who visited a health professional about psychological distress.



**Table 2.82: Number of visits to a health professional due to psychological distress,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12**

Region	None			Once			Twice			More than twice		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
Eastern Metropolitan	89.6	86.9	91.8	5.8	4.1	8.1	1.8*	1.1	3.0	2.5	1.6	4.1
North & West Metropolitan	89.2	87.3	90.8	5.2	4.1	6.6	2.2	1.4	3.3	2.0	1.4	2.9
Southern Metropolitan	91.5	89.0	93.4	5.1	3.5	7.3	1.5*	0.9	2.5	1.2*	0.7	2.2
<b>Metropolitan males</b>	90.1	88.8	91.2	5.2	4.4	6.2	1.9	1.4	2.5	1.9	1.4	2.4
Barwon-South Western	91.2	88.0	93.6	5.9	3.9	9.0	1.8*	1.0	3.3	0.8*	0.4	1.5
Gippsland	89.7	86.6	92.1	6.0	4.0	8.9	2.0*	1.2	3.4	1.8*	1.1	3.1
Grampians	91.1	87.5	93.7	4.6	3.2	6.7	3.0*	1.3	6.8	1.2*	0.8	2.0
Hume	91.2	88.4	93.4	5.4	3.8	7.7	1.0	0.6	1.7	2.0*	0.9	4.4
Loddon Mallee	91.3	88.7	93.4	4.1	2.8	5.9	2.6*	1.4	4.8	1.4*	0.8	2.5
<b>Rural males</b>	90.9	89.6	92.1	5.3	4.4	6.4	2.1	1.5	2.8	1.4	1.0	1.8
<b>Total</b>	<b>90.2</b>	<b>89.2</b>	<b>91.2</b>	<b>5.3</b>	<b>4.6</b>	<b>6.1</b>	<b>2.0</b>	<b>1.6</b>	<b>2.4</b>	<b>1.8</b>	<b>1.4</b>	<b>2.2</b>
<b>Females</b>												
Eastern Metropolitan	88.3	86.0	90.2	6.5	5.0	8.3	2.6	1.8	3.9	2.3	1.4	3.7
North & West Metropolitan	85.0	83.3	86.6	7.1	6.1	8.4	3.4	2.6	4.4	3.3	2.6	4.2
Southern Metropolitan	85.2	83.2	87.0	7.9	6.6	9.4	3.8	2.9	5.0	2.0	1.5	2.7
<b>Metropolitan females</b>	85.9	84.7	86.9	7.2	6.5	8.1	3.3	2.8	4.0	2.7	2.2	3.2
Barwon-South Western	85.9	81.2	89.5	5.8	3.9	8.4	2.6	1.6	4.1	5.4*	2.8	10.1
Gippsland	84.3	80.5	87.4	8.7	6.3	11.9	3.7	2.4	5.8	3.0	1.8	4.8
Grampians	87.2	83.4	90.2	7.6	5.0	11.4	2.7*	1.6	4.5	2.2	1.4	3.2
Hume	88.1	85.7	90.1	6.3	4.7	8.3	2.7	1.9	3.8	2.4	1.5	3.7
Loddon Mallee	84.9	80.3	88.6	8.0	6.1	10.4	4.7*	2.1	10.3	2.1	1.3	3.3
<b>Rural females</b>	85.8	84.0	87.5	7.2	6.2	8.4	3.3	2.4	4.6	3.2	2.3	4.6
<b>Total</b>	<b>86.0</b>	<b>85.0</b>	<b>86.9</b>	<b>7.2</b>	<b>6.6</b>	<b>7.9</b>	<b>3.3</b>	<b>2.8</b>	<b>3.9</b>	<b>2.8</b>	<b>2.4</b>	<b>3.3</b>
<b>Persons</b>												
Eastern Metropolitan	88.7	86.9	90.3	6.2	5.0	7.7	2.3	1.6	3.1	2.5	1.8	3.5
North & West Metropolitan	87.0	85.7	88.1	6.2	5.4	7.1	2.8	2.2	3.5	2.7	2.2	3.4
Southern Metropolitan	88.1	86.6	89.5	6.6	5.5	7.8	2.7	2.1	3.5	1.7	1.3	2.2
<b>Metropolitan persons</b>	87.8	87.0	88.6	6.3	5.7	6.9	2.6	2.3	3.1	2.3	2.0	2.7
Barwon-South Western	88.1	84.9	90.7	5.9	4.4	7.8	2.2	1.5	3.2	3.5*	1.8	6.5
Gippsland	86.8	84.3	89.0	7.5	5.7	9.7	2.9	2.1	4.2	2.4	1.6	3.4
Grampians	89.0	86.4	91.1	6.2	4.5	8.6	2.8*	1.7	4.6	1.7	1.3	2.4
Hume	89.8	88.0	91.3	5.7	4.6	7.2	1.9	1.4	2.5	2.2	1.4	3.3
Loddon Mallee	87.7	84.5	90.3	6.2	5.0	7.7	3.9*	2.0	7.6	1.8	1.2	2.5
<b>Rural persons</b>	88.2	86.9	89.4	6.3	5.6	7.1	2.7	2.1	3.5	2.4	1.8	3.2
<b>Total</b>	<b>88.0</b>	<b>87.3</b>	<b>88.6</b>	<b>6.3</b>	<b>5.8</b>	<b>6.8</b>	<b>2.6</b>	<b>2.3</b>	<b>3.0</b>	<b>2.3</b>	<b>2.0</b>	<b>2.6</b>

a. Impact of psychological distress is based on the Kessler 10+ scale.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data were age standardised to the 2011 Victorian population

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.83 shows the frequency of visiting a health professional about psychological distress, by LGA. There were significantly higher proportions of adults who had not visited a health professional about their psychological distress in the LGAs of Alpine (S), Golden Plains (S), Hepburn (S), Indigo (S), Mornington Peninsula (S), Towong (S) and Wodonga (RC) compared with all Victorian adults.

There was a significantly higher proportion of adults who visited a health professional about their psychological distress more than twice in the LGA of Stonnington (C) compared with all adult Victorians.

Table 2.83: Number of visits to a health professional due to psychological distress,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	%	None		%	Once		%	Twice		%	More than twice	
		95% CI			95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	92.3	89.0	94.7	5.5	3.5	8.5	0.9*	0.3	2.4	0.7*	0.3	1.7
Ararat (RC)	89.5	85.6	92.4	6.8	4.5	10.2	1.6*	0.7	3.5	2.0*	0.9	4.4
Ballarat (C)	87.4	81.5	91.6	7.7*	4.4	13.1	3.6*	1.5	8.4	1.4*	0.6	2.9
Banyule (C)	84.8	78.6	89.5	8.9	5.4	14.3	1.8*	0.9	3.6	1.7*	0.8	3.5
Bass Coast (S)	82.5	74.5	88.3	10.7*	5.9	18.8	4.3*	1.9	9.2	2.2*	0.8	5.5
Baw Baw (S)	91.9	88.2	94.5	4.9*	2.9	8.1	1.2*	0.5	3.0	2.1*	1.0	4.1
Bayside (C)	89.7	84.3	93.4	5.5*	3.0	9.6	2.7*	1.0	6.8	2.1*	0.9	5.2
Benalla (RC)	88.3	75.5	94.9	**	**	**	1.2*	0.5	3.0	1.1*	0.5	2.5
Boroondara (C)	86.9	80.5	91.4	7.5*	4.2	12.9	1.9*	1.0	3.7	3.6*	1.5	8.6
Brimbank (C)	87.5	82.7	91.1	7.5	4.6	11.9	2.2*	1.0	4.8	2.0*	0.9	4.2
Buloke (S)	88.4	78.6	94.0	1.9*	1.0	3.5	4.8*	1.8	12.3	**	**	**
Campaspe (S)	90.4	86.1	93.5	4.4*	2.4	7.9	3.6*	1.9	6.8	1.4*	0.6	3.2
Cardinia (S)	89.3	85.1	92.4	7.0	4.5	10.9	**	**	**	1.8*	0.9	3.6
Casey (C)	86.6	82.0	90.1	7.8	5.1	11.9	3.6*	2.0	6.5	0.7*	0.3	1.8
Central Goldfields (S)	90.7	87.1	93.3	5.9	3.9	9.0	1.6*	0.6	4.0	1.3*	0.7	2.7
Colac-Otway (S)	89.6	83.2	93.7	7.9*	4.2	14.4	1.1*	0.5	2.1	**	**	**
Corangamite (S)	90.9	85.6	94.3	3.6*	1.8	7.0	2.0*	0.8	4.8	3.3*	1.3	8.2
Darebin (C)	86.9	82.0	90.7	6.1*	3.5	10.6	3.6*	2.1	6.3	2.8*	1.3	5.8
East Gippsland (S)	87.4	82.6	91.0	6.9	4.4	10.5	4.2*	2.2	8.1	**	**	**
Frankston (C)	90.8	87.0	93.6	4.3*	2.4	7.3	2.9*	1.4	5.9	1.2*	0.6	2.4
Gannawarra (S)	88.1	82.8	91.9	6.5	4.1	10.2	2.4*	1.0	5.6	2.8*	1.1	7.3
Glen Eira (C)	88.0	83.4	91.4	4.6*	2.6	7.9	4.0*	2.1	7.6	2.5*	1.3	4.8
Glenelg (S)	90.6	87.2	93.1	5.7	3.7	8.5	1.4*	0.6	3.1	2.2*	1.1	4.5
Golden Plains (S)	92.4	89.4	94.7	3.1*	1.7	5.6	1.6*	0.8	3.3	2.5*	1.3	4.6
Greater Bendigo (C)	89.8	80.8	94.9	3.4*	2.0	5.7	**	**	**	1.8*	0.8	3.7
Greater Dandenong (C)	85.6	80.8	89.4	6.3	4.1	9.6	2.3*	1.1	4.9	2.8*	1.3	5.9
Greater Geelong (C)	86.7	81.4	90.7	5.7	3.6	9.0	2.5*	1.4	4.3	4.6*	2.1	10.0
Greater Shepparton (C)	88.8	83.3	92.6	4.7*	2.5	8.7	2.0*	1.0	3.7	3.7*	1.5	9.0
Hepburn (S)	92.1	89.2	94.2	3.7	2.3	5.9	1.6*	0.8	3.0	2.0*	1.0	3.8
Hindmarsh (S)	89.1	83.3	93.0	6.7*	3.8	11.6	**	**	**	**	**	**
Hobsons Bay (C)	90.3	85.9	93.4	6.3	3.9	10.0	2.1*	1.1	4.0	**	**	**
Horsham (RC)	89.0	84.3	92.4	6.8*	4.0	11.3	2.7*	1.4	5.1	1.2*	0.5	3.1
Hume (C)	81.6	76.6	85.7	9.1	6.6	12.5	2.2*	1.0	4.6	3.4*	1.5	7.5
Indigo (S)	93.0	89.0	95.6	5.5*	3.1	9.6	1.0*	0.4	2.2	0.5*	0.2	1.1
Kingston (C)	88.5	83.6	92.1	7.8	4.8	12.5	2.3*	1.2	4.4	**	**	**
Knox (C)	87.7	83.0	91.1	8.2	5.4	12.2	1.7*	0.8	4.0	2.2*	0.9	5.2
Latrobe (C)	86.3	81.2	90.1	6.0*	3.6	9.8	3.4*	1.9	6.2	3.7*	1.8	7.5
Loddon (S)	91.0	86.9	93.9	6.2*	3.7	10.3	1.2*	0.6	2.7	1.3*	0.5	3.1
Macedon Ranges (S)	89.4	83.8	93.3	7.2*	3.9	12.9	**	**	**	1.6*	0.8	3.3
Manningham (C)	89.4	84.2	93.1	5.2	3.3	8.1	**	**	**	2.1*	0.9	4.8
Mansfield (S)	91.5	86.0	95.0	4.6*	2.8	7.6	1.2*	0.5	2.8	**	**	**
Maribyrnong (C)	87.6	83.1	90.9	5.4	3.4	8.4	3.1*	1.4	6.5	3.0*	1.6	5.4

Table 2.83: Number of visits to a health professional due to psychological distress,<sup>a</sup> by LGA, Victoria, 2011–12 (continued)

LGA	%	None		%	Once		%	Twice		%	More than twice	
		95% CI			95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Maroondah (C)	87.6	81.5	91.9	5.6*	3.0	10.4	4.4*	2.0	9.6	1.9*	0.8	4.3
Melbourne (C)	89.3	84.3	92.8	6.4*	3.8	10.4	**	**	**	2.1*	0.8	5.0
Melton (S)	86.3	81.6	90.0	6.4	4.0	10.0	4.0*	2.2	7.0	3.0*	1.5	6.0
Mildura (RC)	83.6	77.8	88.1	8.9	5.9	13.4	4.5*	2.2	9.2	1.9*	0.9	4.2
Mitchell (S)	88.8	84.7	91.9	7.4	5.0	11.0	2.4*	1.2	4.6	**	**	**
Moira (S)	92.9	87.6	96.0	3.8*	1.5	9.4	1.7*	0.7	4.2	**	**	**
Monash (C)	90.9	86.9	93.8	5.5*	3.2	9.3	1.2*	0.5	2.7	2.1*	1.0	4.2
Moonee Valley (C)	89.3	85.3	92.2	5.3	3.5	8.2	1.2*	0.5	3.0	3.8*	2.0	7.1
Moorabool (S)	91.9	88.1	94.5	4.5*	2.5	8.2	1.8*	1.0	3.5	1.6*	0.8	3.2
Moreland (C)	84.5	78.7	88.9	6.3	3.9	10.2	5.2*	2.4	10.7	2.9*	1.6	5.3
Mornington Peninsula (S)	92.8	89.1	95.3	4.2*	2.4	7.2	1.6*	0.7	3.4	**	**	**
Mount Alexander (S)	86.4	79.7	91.1	8.9*	5.2	15.0	0.9*	0.4	2.3	3.4*	1.4	8.1
Moyne (S)	90.7	86.2	93.9	5.2*	2.8	9.6	2.0*	1.0	3.9	1.8*	0.8	4.0
Murrindindi (S)	85.0	76.9	90.6	8.6*	4.6	15.6	2.0*	1.0	4.0	**	**	**
Nillumbik (S)	90.4	84.4	94.2	4.2*	2.3	7.5	1.2*	0.6	2.6	**	**	**
Northern Grampians (S)	90.9	87.5	93.5	5.8	3.7	9.0	1.9*	0.9	3.8	**	**	**
Port Phillip (C)	87.0	80.1	91.8	9.0*	4.9	15.8	3.1*	1.5	6.3	0.5*	0.2	1.2
Pyrenees (S)	81.1	68.3	89.6	6.4	4.0	9.9	**	**	**	**	**	**
Queenscliffe (B)	88.7	81.6	93.4	4.7*	2.6	8.3	5.7*	2.3	13.6	**	**	**
South Gippsland (S)	89.5	85.2	92.7	5.2	3.4	8.0	2.9*	1.3	6.5	2.1*	0.9	5.2
Southern Grampians (S)	88.3	77.3	94.3	4.3	2.8	6.8	**	**	**	**	**	**
Stonnington (C)	83.7	78.3	87.9	8.9	6.0	13.1	**	**	**	5.0*	2.8	8.8
Strathbogie (S)	90.3	83.9	94.3	3.3*	2.0	5.5	**	**	**	2.2*	1.0	5.0
Surf Coast (S)	90.0	83.3	94.2	6.6*	3.3	12.6	**	**	**	1.4*	0.7	2.9
Swan Hill (RC)	89.4	83.5	93.3	8.3*	4.7	14.2	0.8*	0.3	1.9	**	**	**
Towong (S)	92.8	89.4	95.2	4.5*	2.6	7.8	1.8*	0.9	3.6	**	**	**
Wangaratta (RC)	87.8	81.4	92.2	8.2*	4.5	14.5	2.8*	1.4	5.5	**	**	**
Warrnambool (C)	90.9	86.9	93.8	5.6*	3.3	9.4	2.3*	1.2	4.4	1.2*	0.5	2.8
Wellington (S)	84.0	74.3	90.6	11.4*	5.5	22.2	**	**	**	2.7*	1.2	5.9
West Wimmera (S)	88.0	82.9	91.8	6.6	4.1	10.4	2.7*	1.3	5.8	1.1*	0.5	2.5
Whitehorse (C)	90.1	85.7	93.2	5.3	3.3	8.5	2.6*	1.1	5.6	2.0*	0.8	5.1
Whittlesea (C)	88.1	84.3	91.1	3.6*	2.2	5.8	3.5*	2.1	6.1	2.9*	1.5	5.6
Wodonga (RC)	92.2	88.9	94.6	4.2	2.7	6.6	**	**	**	2.4*	1.2	4.9
Wyndham (C)	86.8	82.3	90.2	6.1	3.9	9.6	2.5*	1.3	4.5	3.3*	1.7	6.3
Yarra (C)	90.1	85.7	93.3	5.6*	3.0	9.9	1.1*	0.5	2.4	2.7*	1.6	4.6
Yarra Ranges (S)	88.8	83.6	92.4	5.2*	2.6	9.9	2.3*	1.1	5.0	2.9*	1.3	6.3
Yarriambiack (S)	85.1	74.9	91.6	4.7	3.0	7.4	3.4*	1.8	6.1	**	**	**
<b>Victoria</b>	<b>88.1</b>	<b>87.5</b>	<b>88.8</b>	<b>6.2</b>	<b>5.7</b>	<b>6.7</b>	<b>2.6</b>	<b>2.3</b>	<b>3.0</b>	<b>2.3</b>	<b>2.0</b>	<b>2.6</b>

a. Impact of psychological distress is based on the Kessler 10+ scale. Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. Data are age standardised to the 2011 Victorian population, using 10-year age groups. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval. LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria. \* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution. \*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use. Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.84 shows the frequency of visiting a health professional about psychological distress, by level of psychological distress and sex. The higher the level of psychological distress the more frequently a health professional was visited. Overall, 37.3 per cent of people who had high or very high levels of psychological distress visited a health professional in relation to their distress compared with only 4.1 per cent of people with low levels of psychological distress. There were no differences between men and women.

**Table 2.84: Number of visits to a health professional due to psychological distress,<sup>a</sup> by level of psychological distress and sex, Victoria, 2011–12**

Psychological distress level <sup>a</sup>	%	None		1 to 7 days			8 to 14 days			15 to 28 days			Don't know or refused to say		
		95% CI		95% CI			95% CI			95% CI			95% CI		
		LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>															
Low (<16)	96.2	95.4	96.8	2.7	2.1	3.5	0.4	0.3	0.6	0.3	0.2	0.6	0.4	0.2	0.6
Moderate (16–21)	87.7	85.5	89.5	6.8	5.4	8.5	3.2	2.2	4.6	1.9	1.3	2.8	0.5	0.2	1.1
High / very high (≥22)	65.6	60.9	70.0	16.1	12.8	19.9	6.9	5.1	9.2	8.9	6.6	11.8	2.6	1.3	5.0
<b>Total</b>	<b>90.2</b>	<b>89.2</b>	<b>91.2</b>	<b>5.3</b>	<b>4.6</b>	<b>6.1</b>	<b>2.0</b>	<b>1.6</b>	<b>2.4</b>	<b>1.8</b>	<b>1.4</b>	<b>2.2</b>	<b>0.8</b>	<b>0.6</b>	<b>1.1</b>
<b>Females</b>															
Low (<16)	95.1	94.1	95.9	3.1	2.6	3.7	1.2	0.7	1.9	0.4	0.2	0.7	0.2	0.1	0.6
Moderate (16–21)	83.1	81.2	84.8	10.1	8.7	11.6	3.6	2.7	4.6	2.5	1.9	3.3	0.8	0.4	1.3
High / very high (≥22)	58.7	55.6	61.8	17.3	15.1	19.7	10.9	9.1	13.1	12.2	10.2	14.7	0.9	0.5	1.5
<b>Total</b>	<b>86.0</b>	<b>85.0</b>	<b>86.9</b>	<b>7.2</b>	<b>6.6</b>	<b>7.9</b>	<b>3.3</b>	<b>2.8</b>	<b>3.9</b>	<b>2.8</b>	<b>2.4</b>	<b>3.3</b>	<b>0.8</b>	<b>0.6</b>	<b>1.0</b>
<b>Persons</b>															
Low (<16)	95.7	95.1	96.2	2.9	2.5	3.4	0.8	0.5	1.1	0.4	0.2	0.5	0.3	0.2	0.5
Moderate (16–21)	85.2	83.8	86.5	8.6	7.6	9.7	3.4	2.7	4.2	2.2	1.8	2.8	0.7	0.4	1.0
High / very high (≥22)	61.1	58.3	63.8	16.9	14.9	19.1	9.3	7.9	10.9	11.1	9.5	13.0	1.5	0.9	2.5
<b>Total</b>	<b>88.0</b>	<b>87.3</b>	<b>88.6</b>	<b>6.3</b>	<b>5.8</b>	<b>6.8</b>	<b>2.6</b>	<b>2.3</b>	<b>3.0</b>	<b>2.3</b>	<b>2.0</b>	<b>2.6</b>	<b>0.8</b>	<b>0.6</b>	<b>1.0</b>

a. Based on the Kessler 10+ psychological distress scale.

Data have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Respondents who had indicated some level of psychological distress in the four weeks prior to the survey were asked if physical ill-health was the main cause of their distress. Table 2.85 shows the number of times that physical ill-health was the main cause of psychological distress, by age group and sex.

Overall, the majority of adults indicated that physical ill-health was not the main cause of their psychological distress (72.3 per cent). This was significantly higher in men (76.4 per cent) compared with women (68.6 per cent), in men aged 18–24 years compared with all Victorian men, and in people aged 18–24 and 35–44 years compared with all Victorian adults.

Physical ill-health as the main cause of psychological distress was strongly related to age, with significantly higher proportions of men aged 55 years or over and women aged 65 years or over reporting that physical ill-health was the main cause of their psychological distress all or most of the time compared with all Victorian men and women, respectively.

Table 2.85: Physical ill-health as the main cause of psychological distress,<sup>a</sup> by age group and sex, Victoria, 2011–12

Age group (years)	None of the time			All or most of the time			Some of the time			A little of the time		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	85.6	80.5	89.6	2.7*	1.3	5.5	3.8*	1.7	8.1	7.5	4.9	11.4
25–34	80.1	75.7	83.9	3.7	2.3	5.8	6.5	4.2	10.0	9.0	6.6	12.1
35–44	79.2	76.1	82.0	6.7	5.1	8.6	6.2	4.4	8.6	7.9	6.2	10.0
45–54	78.3	75.7	80.7	7.5	6.0	9.4	4.7	3.6	6.1	8.5	7.0	10.2
55–64	72.1	69.4	74.7	10.8	9.1	12.8	6.5	5.2	8.0	9.3	7.7	11.2
65+	66.6	64.2	68.9	11.5	10.0	13.1	7.2	6.1	8.6	12.2	10.7	13.9
<b>Total</b>	<b>76.4</b>	<b>75.0</b>	<b>77.8</b>	<b>7.2</b>	<b>6.6</b>	<b>8.0</b>	<b>6.0</b>	<b>5.2</b>	<b>7.0</b>	<b>9.2</b>	<b>8.3</b>	<b>10.1</b>
<b>Females</b>												
18–24	73.4	68.1	78.0	6.2	4.2	9.1	8.5	5.5	12.8	11.6	8.6	15.4
25–34	71.1	67.4	74.5	9.8	7.7	12.5	5.7	4.2	7.7	12.5	10.1	15.4
35–44	71.9	69.5	74.1	10.1	8.6	11.8	6.5	5.3	8.1	10.6	9.2	12.2
45–54	68.5	66.3	70.7	11.5	10.1	13.2	7.0	5.9	8.3	12.4	10.9	14.0
55–64	66.0	63.7	68.2	12.1	10.6	13.7	9.4	8.1	10.9	11.7	10.3	13.4
65+	60.9	59.0	62.9	14.0	12.6	15.5	8.7	7.7	9.8	14.0	12.6	15.4
<b>Total</b>	<b>68.6</b>	<b>67.4</b>	<b>69.8</b>	<b>10.8</b>	<b>10.0</b>	<b>11.6</b>	<b>7.5</b>	<b>6.8</b>	<b>8.3</b>	<b>12.1</b>	<b>11.3</b>	<b>13.0</b>
<b>Persons</b>												
18–24	79.5	75.9	82.7	4.5	3.2	6.3	6.2	4.2	8.9	9.6	7.5	12.2
25–34	75.4	72.6	78.0	6.9	5.5	8.5	6.1	4.6	8.0	10.8	9.1	12.9
35–44	75.4	73.4	77.2	8.5	7.4	9.7	6.4	5.2	7.7	9.3	8.2	10.6
45–54	73.0	71.3	74.7	9.7	8.6	10.9	5.9	5.1	6.9	10.6	9.5	11.8
55–64	68.9	67.1	70.6	11.5	10.4	12.7	8.0	7.0	9.0	10.6	9.5	11.8
65+	63.4	61.9	64.9	12.9	11.8	14.0	8.1	7.3	8.9	13.2	12.2	14.3
<b>Total</b>	<b>72.3</b>	<b>71.4</b>	<b>73.2</b>	<b>9.1</b>	<b>8.6</b>	<b>9.6</b>	<b>6.8</b>	<b>6.3</b>	<b>7.4</b>	<b>10.7</b>	<b>10.1</b>	<b>11.3</b>

a. Based on the Kessler 10+ psychological distress scale.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.86 shows the number of times that physical ill-health was the main cause of psychological distress, by Department of Health region and sex. There were no significant regional differences among men or women.

**Table 2.86: Physical ill-health as the main cause of psychological distress,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12**

Region	None of the time			All or most of the time			Some of the time			A little of the time		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
Eastern Metropolitan	76.0	72.5	79.2	6.6	5.1	8.4	5.9	4.3	8.2	11.1	8.9	13.9
North & West Metropolitan	75.1	72.4	77.5	6.8	5.7	8.1	6.5	4.9	8.5	10.5	8.9	12.3
Southern Metropolitan	78.9	75.9	81.5	8.7	6.8	10.9	4.6	3.3	6.4	6.7	5.4	8.4
<b>Metropolitan males</b>	76.4	74.7	78.0	7.3	6.4	8.2	5.8	4.8	7.0	9.4	8.4	10.6
Barwon-South Western	76.3	69.7	81.8	5.9	4.0	8.7	7.4	5.0	10.8	9.1*	5.1	15.6
Gippsland	77.0	73.1	80.5	8.0	6.1	10.5	6.6	4.6	9.4	8.0	5.9	10.7
Grampians	74.4	70.2	78.3	8.5	6.2	11.5	7.1	5.0	10.1	8.6	6.4	11.6
Hume	77.1	73.6	80.3	7.3	5.3	10.0	4.5	3.3	6.0	9.2	7.3	11.6
Loddon Mallee	77.9	73.7	81.6	7.6	5.9	9.6	5.6*	3.3	9.4	7.9	6.2	10.1
<b>Rural males</b>	76.6	74.2	78.8	7.3	6.3	8.5	6.2	5.1	7.5	8.7	7.1	10.5
<b>Total</b>	<b>76.4</b>	<b>75.0</b>	<b>77.8</b>	<b>7.2</b>	<b>6.6</b>	<b>8.0</b>	<b>6.0</b>	<b>5.2</b>	<b>7.0</b>	<b>9.2</b>	<b>8.3</b>	<b>10.1</b>
<b>Females</b>												
Eastern Metropolitan	71.6	68.6	74.4	8.9	7.3	10.7	6.7	5.4	8.4	12.2	10.1	14.5
North & West Metropolitan	67.0	64.9	69.0	11.1	9.8	12.5	8.3	7.1	9.6	12.4	11.0	13.9
Southern Metropolitan	68.7	65.9	71.3	10.9	9.3	12.8	7.1	5.7	8.9	12.1	10.3	14.1
<b>Metropolitan females</b>	68.5	67.1	70.0	10.5	9.7	11.5	7.7	6.8	8.6	12.1	11.1	13.2
Barwon-South Western	68.9	63.5	73.8	11.2	7.8	15.8	8.2	5.7	11.6	11.0	8.3	14.4
Gippsland	67.1	63.4	70.6	13.9	11.5	16.8	6.8	5.3	8.6	11.4	9.2	14.2
Grampians	69.4	65.2	73.3	10.7	8.2	13.9	6.6	4.2	10.2	12.4	10.0	15.3
Hume	68.8	65.7	71.8	12.2	9.9	14.8	7.0	5.5	8.9	11.2	9.6	13.0
Loddon Mallee	66.5	61.8	70.8	10.7	8.7	13.2	7.5	6.1	9.3	14.3	10.7	18.9
<b>Rural females</b>	68.2	66.1	70.2	11.6	10.2	13.2	7.2	6.2	8.4	12.2	10.7	13.7
<b>Total</b>	<b>68.6</b>	<b>67.4</b>	<b>69.8</b>	<b>10.8</b>	<b>10.0</b>	<b>11.6</b>	<b>7.5</b>	<b>6.8</b>	<b>8.3</b>	<b>12.1</b>	<b>11.3</b>	<b>13.0</b>
<b>Persons</b>												
Eastern Metropolitan	73.2	70.8	75.4	7.8	6.8	9.1	6.8	5.5	8.3	11.7	10.1	13.5
North & West Metropolitan	70.7	69.0	72.3	9.1	8.2	10.0	7.4	6.4	8.6	11.5	10.5	12.7
Southern Metropolitan	73.5	71.5	75.4	9.9	8.6	11.3	6.0	4.9	7.2	9.5	8.4	10.8
<b>Metropolitan persons</b>	72.2	71.1	73.3	9.0	8.4	9.7	6.8	6.2	7.6	10.9	10.1	11.6
Barwon-South Western	72.4	68.2	76.3	8.7	6.5	11.7	7.8	5.9	10.3	9.9	7.4	13.0
Gippsland	72.0	69.2	74.5	11.1	9.4	12.9	6.7	5.4	8.3	9.7	8.1	11.6
Grampians	71.6	68.3	74.6	9.8	7.9	12.1	7.0	5.1	9.5	10.6	8.8	12.7
Hume	72.9	70.5	75.2	9.8	8.2	11.6	5.7	4.7	6.9	10.3	9.0	11.8
Loddon Mallee	71.9	68.5	75.0	9.2	7.8	10.9	6.3	5.0	8.0	11.7	9.2	14.8
<b>Rural persons</b>	72.3	70.6	73.8	9.6	8.7	10.6	6.7	5.9	7.6	10.4	9.4	11.6
<b>Total</b>	<b>72.3</b>	<b>71.4</b>	<b>73.2</b>	<b>9.1</b>	<b>8.6</b>	<b>9.6</b>	<b>6.8</b>	<b>6.3</b>	<b>7.4</b>	<b>10.7</b>	<b>10.1</b>	<b>11.3</b>

a. Based on the Kessler 10+ psychological distress scale.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data were age standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.



Table 2.87 shows the number of times that physical ill-health was the main cause of psychological distress, by LGA. There were significantly higher proportions of adults who reported that physical ill-health was not the main cause of their psychological distress in the LGAs of Moyne (S) and Warrnambool (C) compared with all Victorian adults.

There were significantly higher proportions of adults who reported that physical ill-health was the main cause of their psychological distress all or most of the time in the LGAs of Bass Coast (S) and Greater Dandenong (C) compared with all Victorian adults.

Table 2.87: Physical ill-health as the main cause of psychological distress,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	None of the time			All or most of the time			Some of the time			A little of the time		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	62.4	53.5	70.6	13.4*	5.8	27.7	5.0*	3.0	8.1	18.2*	9.8	31.2
Ararat (RC)	72.3	64.8	78.8	8.9	6.4	12.2	5.7	3.6	8.9	12.4*	7.5	20.0
Ballarat (C)	69.0	62.3	75.1	10.9	7.2	16.0	8.7*	5.3	14.1	10.6	7.3	15.1
Banyule (C)	70.8	65.0	76.1	12.0	8.8	16.3	5.9	3.9	8.6	9.7	6.4	14.5
Bass Coast (S)	63.4	55.1	71.0	16.0	10.4	23.8	8.6*	4.9	14.7	11.3	7.5	16.6
Baw Baw (S)	75.7	70.0	80.6	7.3	5.2	10.2	7.2*	4.4	11.7	9.6	6.5	13.8
Bayside (C)	73.9	65.6	80.9	10.0	6.3	15.5	7.4*	3.1	16.5	7.7	5.1	11.6
Benalla (RC)	79.3	72.7	84.7	5.6	3.9	7.9	2.7*	1.4	4.9	10.6*	6.2	17.5
Boroondara (C)	72.9	67.0	78.1	7.6	5.1	11.1	7.6*	4.5	12.5	11.2	8.2	15.2
Brimbank (C)	68.9	62.6	74.5	9.9	7.0	13.9	9.2	6.0	14.0	11.2	7.8	15.8
Buloke (S)	71.0	62.0	78.5	7.4	4.7	11.4	9.3*	4.2	19.3	12.0	7.4	19.0
Campaspe (S)	76.7	70.9	81.7	9.0	5.8	13.8	3.9*	2.3	6.3	10.0	6.9	14.4
Cardinia (S)	75.0	69.1	80.1	9.9	6.4	14.9	4.6*	2.6	8.0	8.9	6.2	12.7
Casey (C)	76.0	70.3	80.9	8.3	5.5	12.3	7.0*	4.2	11.4	7.6	5.0	11.4
Central Goldfields (S)	74.4	68.9	79.2	7.8	5.4	11.1	7.3*	4.3	12.0	8.8	5.8	13.2
Colac-Otway (S)	76.0	70.3	80.9	8.2	5.5	12.1	7.1*	2.3	7.3	10.9	7.3	15.9
Corangamite (S)	69.3	60.0	77.3	9.1	6.4	12.9	12.0*	6.2	21.9	8.6*	4.7	15.0
Darebin (C)	68.4	62.0	74.1	8.7	5.7	13.1	8.2	5.2	12.9	13.9	10.2	18.8
East Gippsland (S)	71.9	65.3	77.7	12.2	8.1	18.1	5.2	3.3	8.1	10.3	7.0	14.9
Frankston (C)	75.9	70.0	81.0	11.4	7.6	16.7	3.7*	1.9	6.9	8.2	5.6	11.9
Gannawarra (S)	69.8	60.7	77.5	11.5	7.5	17.2	4.9*	2.9	8.1	13.7*	7.7	23.1
Glen Eira (C)	72.9	66.3	78.7	7.3	4.7	11.2	8.8*	5.1	14.7	9.6	6.8	13.4
Glenelg (S)	72.4	65.6	78.3	10.6	7.7	14.4	8.7*	4.7	15.5	7.7	5.5	10.7
Golden Plains (S)	77.3	71.0	82.6	6.8	4.8	9.7	7.1*	3.9	12.6	8.5	5.3	13.5
Greater Bendigo (C)	72.5	63.6	79.9	8.9	6.2	12.5	5.7*	3.1	10.3	12.3*	6.8	21.4
Greater Dandenong (C)	65.6	59.7	71.0	13.9	10.2	18.6	5.8	3.8	8.9	13.3	9.7	17.9
Greater Geelong (C)	70.0	63.1	76.1	9.3	6.0	14.0	9.1	6.1	13.3	9.9	6.3	15.3
Greater Shepparton (C)	74.7	68.0	80.5	11.0	6.8	17.2	5.2*	2.8	9.6	6.8	4.7	9.7
Hepburn (S)	75.0	66.3	82.1	6.5	4.6	9.3	4.5	2.9	6.7	8.9	6.2	12.5
Hindmarsh (S)	72.3	64.3	79.1	7.6	4.8	12.0	7.3	4.9	10.6	9.2	6.1	13.7
Hobsons Bay (C)	75.4	69.3	80.7	8.3	5.7	11.9	4.8*	2.5	8.9	10.5	6.8	15.7
Horsham (RC)	67.0	56.3	76.2	9.2	6.0	13.9	6.2*	3.3	11.4	16.9*	8.8	30.1
Hume (C)	67.6	62.0	72.7	13.0	9.6	17.5	7.9	5.3	11.5	10.3	7.4	14.2
Indigo (S)	77.9	72.3	82.6	7.0	4.6	10.5	3.8*	2.2	6.6	9.7	6.5	14.4
Kingston (C)	73.5	66.9	79.1	6.8*	4.0	11.3	7.4	4.5	11.8	10.9	7.1	16.4
Knox (C)	75.6	70.1	80.3	8.4	5.8	12.1	8.6	5.6	13.2	7.2	4.9	10.4
Latrobe (C)	74.1	68.5	79.0	11.4	8.1	15.8	5.2	3.3	7.9	8.7	5.8	12.8
Loddon (S)	69.6	60.7	77.2	11.8*	6.6	20.3	5.2*	3.1	8.7	12.8*	7.2	21.7
Macedon Ranges (S)	71.5	64.8	77.4	9.1	5.7	14.3	8.3	5.1	13.1	9.5	6.1	14.3
Manningham (C)	73.5	66.4	79.5	7.1*	4.0	12.2	5.9*	3.5	9.8	12.9	8.6	18.9
Mansfield (S)	75.2	68.5	80.8	8.3	5.5	12.4	4.6*	2.7	7.7	11.2	7.1	17.2
Maribyrnong (C)	72.7	66.9	77.7	8.1	5.5	12.0	6.4	4.3	9.6	12.0	8.4	16.9

Table 2.87: Physical ill-health as the main cause of psychological distress,<sup>a</sup> by LGA, Victoria, 2011–12 (continued)

LGA	None of the time			All or most of the time			Some of the time			A little of the time		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Maroondah (C)	65.9	58.6	72.5	7.6	5.1	11.3	9.3*	5.5	15.3	16.9	11.8	23.6
Melbourne (C)	74.2	67.8	79.8	5.9	4.0	8.8	8.8*	5.3	14.2	8.8	5.8	13.2
Melton (S)	70.9	65.1	76.0	10.7	7.8	14.4	8.4	5.5	12.7	9.2	6.1	13.7
Mildura (RC)	71.9	66.0	77.1	9.4	6.5	13.4	6.3	3.9	9.9	11.5	8.2	16.0
Mitchell (S)	70.8	64.9	76.1	8.4	5.6	12.2	8.4	5.8	12.1	12.0	8.5	16.7
Moira (S)	75.2	68.0	81.2	10.3	6.5	16.0	5.5*	2.6	11.4	7.9	5.3	11.8
Monash (C)	76.1	70.4	81.0	5.3	3.4	8.3	5.9*	3.2	10.5	11.7	8.4	16.1
Moonee Valley (C)	74.1	68.4	79.1	6.4	4.2	9.5	7.9*	4.8	12.8	11.3	8.3	15.4
Moorabool (S)	77.9	72.1	82.8	7.7	5.4	11.0	3.7*	1.9	7.3	9.7	6.3	14.7
Moreland (C)	66.7	60.2	72.7	8.4	5.8	12.2	8.0*	4.4	14.2	15.6	11.8	20.3
Mornington Peninsula (S)	76.4	70.2	81.6	9.6	6.5	13.8	4.0*	2.4	6.5	9.6	5.9	15.4
Mount Alexander (S)	72.8	64.8	79.6	8.5*	4.7	14.8	5.0	3.3	7.6	13.3	8.4	20.4
Moyne (S)	79.5	73.6	84.3	5.5	3.7	8.2	4.4*	2.4	7.8	10.3	6.6	15.7
Murrindindi (S)	63.2	53.6	71.9	13.0*	7.8	21.0	7.7*	3.4	16.7	15.4	10.0	23.0
Nillumbik (S)	76.6	70.1	82.1	5.7	3.6	9.0	7.2*	4.3	11.8	9.4*	5.7	15.1
Northern Grampians (S)	71.6	65.3	77.2	12.2	8.9	16.6	3.5*	2.1	5.8	10.3	7.6	13.9
Port Phillip (C)	77.5	71.0	82.8	10.2	6.4	16.1	4.5*	2.7	7.3	7.3	4.7	11.4
Pyrenees (S)	74.6	67.8	80.4	9.1	6.5	12.6	6.3	4.0	9.7	9.5*	5.3	16.2
Queenscliffe (B)	79.5	72.5	85.0	8.5*	4.9	14.5	4.2*	2.4	7.2	6.9*	3.8	12.2
South Gippsland (S)	70.1	62.3	76.9	11.8	8.2	16.8	7.5*	4.3	12.8	10.2*	6.0	16.8
Southern Grampians (S)	81.4	73.0	87.6	3.1*	1.8	5.3	9.6*	4.9	18.1	5.7*	3.0	10.8
Stonnington (C)	70.2	63.6	76.0	9.9	6.4	15.0	6.2*	3.3	11.3	11.7	7.9	17.1
Strathbogie (S)	75.5	68.0	81.7	6.7	4.7	9.4	7.4*	4.3	12.6	9.7*	5.6	16.4
Surf Coast (S)	73.3	64.6	80.4	4.6	3.1	6.7	7.5*	4.0	13.9	14.5	8.9	22.7
Swan Hill (RC)	64.2	56.6	71.2	10.5	6.8	15.9	9.6	5.8	15.4	13.9	9.4	20.1
Towong (S)	72.1	66.4	77.1	9.2	6.3	13.2	8.5	5.7	12.4	9.4	6.6	13.4
Wangaratta (RC)	71.6	64.7	77.6	8.0	5.3	11.9	7.0*	3.7	12.8	10.7	7.6	14.8
Warrnambool (C)	79.7	74.9	83.8	7.0	4.8	10.2	4.1*	2.4	6.9	9.2	6.4	13.1
Wellington (S)	72.2	65.9	77.7	9.9	7.1	13.8	8.3*	4.7	14.1	8.8	5.5	13.9
West Wimmera (S)	73.4	67.0	79.0	9.4	6.2	14.0	6.5*	3.8	10.9	9.5	6.2	14.4
Whitehorse (C)	74.9	68.4	80.5	8.1	5.5	11.6	6.3*	3.1	12.4	10.4	7.1	15.0
Whittlesea (C)	65.8	60.0	71.1	12.5	9.2	16.8	7.3	4.9	10.7	12.4	8.9	17.0
Wodonga (RC)	74.4	68.2	79.8	8.9	6.1	12.8	4.6	2.9	7.4	11.7	7.8	17.3
Wyndham (C)	71.7	65.8	76.8	7.8	5.4	11.2	5.3	3.3	8.2	12.3	8.7	17.1
Yarra (C)	77.8	72.6	82.2	8.4	5.6	12.5	5.3*	3.1	8.9	7.9	5.4	11.4
Yarra Ranges (S)	68.5	61.2	75.0	11.6	8.2	16.3	4.3	2.6	6.9	15.1	9.9	22.5
Yarriambiack (S)	67.9	59.4	75.3	11.0	7.9	15.0	6.4*	3.4	11.8	14.5	8.9	22.7
<b>Victoria</b>	<b>72.4</b>	<b>71.5</b>	<b>73.3</b>	<b>9.0</b>	<b>8.5</b>	<b>9.6</b>	<b>6.8</b>	<b>6.2</b>	<b>7.4</b>	<b>10.8</b>	<b>10.2</b>	<b>11.4</b>

a. Based on the Kessler 10+ psychological distress scale.  
 Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.  
 Data were age standardised to the 2011 Victorian population, using 10-year age groups.  
 LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.  
 LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.  
 \* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.  
 Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.88 shows physical ill-health as the main cause of psychological distress, by level of psychological distress and sex. The proportion of men and women who cited physical ill-health as the main cause of their psychological distress increased with increasing levels of psychological distress. Overall, 58.4 per cent of respondents with high or very high levels of psychological distress reported that physical ill-health was the main cause of their distress compared with only 15.0 per cent of those with low levels of psychological distress.

**Table 2.88: Physical ill-health as the main cause of psychological distress,<sup>a</sup> by level of psychological distress and sex, Victoria, 2011–12**

Psychological distress level <sup>a</sup>	None of the time			All or most of the time			Some of the time			A little of the time			Don't know or refused to say		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>															
Low (<16)	86.1	84.6	87.5	3.5	2.9	4.2	2.8	2.0	3.8	6.9	6.0	8.1	0.7	0.5	1.0
Moderate (16–21)	66.8	63.8	69.6	9.7	8.2	11.3	9.3	7.4	11.7	13.6	11.9	15.7	0.6	0.4	1.2
High / very high (≥22)	44.5	39.8	49.3	23.8	20.5	27.3	17.9	14.4	22.0	11.6	8.9	15.0	2.3	1.1	4.8
<b>Total</b>	<b>76.4</b>	<b>75.0</b>	<b>77.8</b>	<b>7.2</b>	<b>6.6</b>	<b>8.0</b>	<b>6.0</b>	<b>5.2</b>	<b>7.0</b>	<b>9.2</b>	<b>8.3</b>	<b>10.1</b>	<b>1.1</b>	<b>0.8</b>	<b>1.4</b>
<b>Females</b>															
Low (<16)	82.9	81.5	84.1	5.1	4.4	6.0	3.0	2.4	3.6	8.5	7.6	9.5	0.5	0.4	0.8
Moderate (16–21)	57.5	55.2	59.8	13.3	11.9	14.9	10.2	8.9	11.6	17.8	16.0	19.7	1.2	0.8	1.8
High / very high (≥22)	37.5	34.3	40.9	28.0	25.3	30.9	19.0	16.4	21.9	14.6	12.5	17.1	0.8	0.5	1.5
<b>Total</b>	<b>68.6</b>	<b>67.4</b>	<b>69.8</b>	<b>10.8</b>	<b>10.0</b>	<b>11.6</b>	<b>7.5</b>	<b>6.8</b>	<b>8.3</b>	<b>12.1</b>	<b>11.3</b>	<b>13.0</b>	<b>1.0</b>	<b>0.8</b>	<b>1.3</b>
<b>Persons</b>															
Low (<16)	84.5	83.5	85.4	4.3	3.8	4.8	2.9	2.4	3.5	7.8	7.1	8.5	0.6	0.5	0.8
Moderate (16–21)	61.8	59.9	63.6	11.6	10.6	12.7	9.8	8.6	11.1	15.8	14.6	17.2	1.0	0.7	1.3
High / very high (≥22)	40.2	37.4	43.0	26.4	24.3	28.7	18.5	16.3	20.9	13.5	11.7	15.5	1.4	0.8	2.5
<b>Total</b>	<b>72.3</b>	<b>71.4</b>	<b>73.2</b>	<b>9.1</b>	<b>8.6</b>	<b>9.6</b>	<b>6.8</b>	<b>6.3</b>	<b>7.4</b>	<b>10.7</b>	<b>10.1</b>	<b>11.3</b>	<b>1.1</b>	<b>0.9</b>	<b>1.3</b>

a. Based on the Kessler 10+ psychological distress scale.

Data have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

## Discussion

### Interpretation of the findings

Psychological distress continues to be overlooked as a modifiable risk factor, exemplified by a recent systematic analysis of the burden of disease and injury due to 67 risk factors for the global burden of disease study 2010 in which psychological distress was not included (Lim et al. 2012). However, the evidence shows that psychological distress is not only an important risk factor in exacerbating poorer health outcomes for those already diagnosed with certain physical diseases but also a risk factor for the incident development of certain diseases. For example, psychological distress confers an increased risk of developing coronary heart disease and stroke (Hamer et al. 2012; Stansfeld et al. 2002).

The survey findings show that the majority of Victorians had low levels of psychological distress (approximately 65 per cent), while approximately 11.0 per cent of Victorians had high or very high levels of psychological distress, with women overall and young men and women aged 18–24 years disproportionately over-represented. Age appears to be a protective factor against psychological distress. This suggests that policies and interventions designed to address high levels of psychological distress may best be targeted at young adults.

There were no significant changes in psychological distress levels of either men or women in Victoria between 2003 and 2011–12. While high levels of psychological distress are not increasing among adults in Victoria, there is still scope to reduce the ongoing levels, which would be likely to generate positive gains in overall health status of the population.

There were few notable differences in the proportion of Victorian adults with high or very high levels of psychological distress by geographic area, with the exception of the LGAs of Hume (C) and Melton (S) where there were significantly higher proportions compared with Victoria. Hume (C) is a low SES LGA that falls in the first IRSED quintile, indicating high disadvantage, while Melton (S) lies in the third IRSED quintile, indicating that it is neither a high nor low SES LGA.

People who had not completed a secondary school education who were unemployed or not in the labour force, reported total annual household incomes of less than \$40,000, had a sedentary lifestyle, smoked, reported fair or poor health status and/or had been diagnosed by a doctor with diabetes were also more likely to have high or very high levels of psychological distress. Since these characteristics are associated with low SES, the potential relationship was investigated between psychological distress and SES, using total annual household income as an indicator of SES.

Typical SES gradients were observed in Victorian adults with moderate and high or very high levels of psychological distress, where the proportion of people decreased with increasing income. By contrast a reverse gradient was found for those with low levels of psychological distress, where the proportion of people increased with increasing household income. Therefore low SES people in Victoria are more likely to experience high or very high levels of psychological distress than their higher SES counterparts.

Psychological distress is another modifiable risk factor, along with smoking, poor diet, physical inactivity and obesity, that may contribute significantly to the disproportionate burden of ill-health that people of low SES continue to experience.

Additional questions were included to assess the impact and cause of psychological distress on the respondent. These questions constitute the K10+ scale. If a respondent answered that they had experienced one of the items on the K10 scale at least 'a little of the time' they were then asked additional questions.

The first two questions related to the ability to work, study and manage usual day-to-day activities. The findings show that approximately 43 per cent of people with high or very high levels of psychological distress were totally unable to work, study or manage their day-to-day activities for varying periods of time (ranging from one to 28 days), while approximately 53 per cent had to cut down on such activities, the potential consequences of which are likely to be considerable.

The third question was about health-seeking behaviours and showed that approximately 37 per cent of those with high or very high levels of psychological distress sought help from a health professional for their distress one or more times in the 28 days prior to the survey. This means that 61.1 per cent did not seek any help and is a cause of concern, particularly given the health risks associated with high or very high levels of psychological distress. This is consistent with the findings of the 2007 National Survey of Mental Health and Wellbeing, which

found that about two-thirds (65.1 per cent) of people who had experienced a mental disorder in the previous 12 months did not use any health services for their mental health problems (Slade et al. 2009).

The fourth question sought to determine the relative contribution of underlying physical ill-health to psychological distress and showed that 58.4 per cent of people with high or very high levels of psychological distress cited underlying physical ill-health as the main cause of their distress. Given that the evidence shows that psychological distress can exacerbate pre-existing diseases and conditions, leading to poorer health outcomes, the implication of this is that intervening to reduce psychological distress levels may significantly improve health outcomes in those with a comorbid condition.

### Other sources of data

There are two national surveys that collect data on psychological distress using the Kessler 10 scale: the National Survey of Mental Health and Wellbeing (NSMHWB) and the National Health Survey, both conducted by the ABS. To date two NSMHWB have been conducted, the first in 1997 and the second in 2007. The NSMHWB seeks to obtain national data of the prevalence of mental health disorders in Australians aged 16–85 years. Psychological distress was evaluated in the context of various mental health disorders rather than as a separate indicator of overall wellbeing.

The National Health Survey is a general health survey, the most recent being conducted as part of the Australian Health Survey in 2011–12. The 2011–12 Australian Health Survey reports that 70.1 per cent of Australians aged 18 years or over had low psychological distress levels and 10.8 per cent had high or very high psychological distress levels (ABS 2012). Since the ABS does not report 95 per cent confidence intervals it is not possible to directly compare between these findings and those in the Victorian Population Health Survey, as direct comparison of point estimates is not scientifically valid. However, the Victorian Population Health Survey finding that 11.0 per cent of adult Victorians had high or very high psychological distress levels appears to be consistent with the national findings. The 2011–12 Australian Health Survey also reports the data by state and Table 2.89 shows the prevalence of psychological distress, by level, age group, sex and survey.

Table 2.89: Prevalence of psychological distress<sup>a</sup> in Victorian adults aged 18 years or over, by survey

Age group (years)	18-24		25-34		35-44		45-54		55-64		65+ years		Total	
	AHS <sup>b</sup>	VPHS <sup>c</sup>	AHS <sup>b</sup>	VPHS <sup>c</sup>	AHS <sup>b</sup>	VPHS <sup>c</sup>	AHS <sup>b</sup>	VPHS <sup>c</sup>	AHS <sup>b</sup>	VPHS <sup>c</sup>	AHS <sup>b</sup>	VPHS <sup>c</sup>	AHS <sup>b</sup>	VPHS <sup>c</sup>
Psychological distress level <sup>a</sup>	%	%	%	%	%	%	%	%	%	%	%	%	%	%
<b>Males</b>														
Low (<16)	61.4	61.5	74.6	65.6	71.2	67.3	73.7	70.2	72.4	71.8	81.6	75.7	72.8	68.6
Moderate (16-21)	20.1	24.3	16.0	23.8	14.3	19.1	18.1	19.8	18.1	16.4	11.6*	14.6	16.2	19.7
High / very high (≥ 22)	17.0	13.6	8.6	8.5	14.0	10.6	8.2	7.5	9.2*	9.0	5.7*	5.5	10.3	9.0
<b>Females</b>														
Low (<16)	60.3	51.9	67.2	55.2	69.0	61.7	69.1	62.3	70.5	66.1	74.5	67.7	68.8	60.7
Moderate (16-21)	28.4	27.1	16.2	27.5	20.4	23.6	18.1	22.4	14.5	19.2	15.0	18.6	18.3	23.2
High / very high (≥ 22)	11.3*	19.8	16.7	14.7	10.6	12.4	12.2	12.9	14.1	11.4	10.1	8.3	12.5	13.0
<b>Persons</b>														
Low (<16)	60.9	56.8	70.9	60.4	70.1	64.5	71.3	66.2	71.4	68.9	77.8	71.3	70.8	64.6
Moderate (16-21)	24.1	25.6	16.1	25.6	17.4	21.4	18.1	21.1	16.2	17.8	13.4	16.8	17.3	21.5
High / very high (≥ 22)	14.2	16.6	12.6	11.6	12.3	11.5	10.2	10.3	11.7	10.3	8.0	7.0	11.4	11.0

a. Based on the Kessler 10 scale for psychological distress.

b. 2011-12 AHS, data for Victoria (ABS 2013a)

c. 2011-12 VPHS

\* Estimate has a relative standard error (RSE) of 25% to 50% and should be used with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say', responses not reported here.

### Concluding remarks

Psychological distress is often viewed as a risk factor for mental but not physical ill-health. However, the evidence shows that psychological distress may have profound effects on physical health, resulting in poorer physical health outcomes. There are several hypotheses as to how psychological distress may mediate its effects (Stansfeld et al. 2002):

- Psychological distress may increase the risk of unhealthy behaviours such as smoking, poor diet and lack of exercise.
- Social isolation may be a behavioural consequence of psychological distress and exert its effects through the consequences of social isolation.
- Psychological distress may be an outcome of low perceived control both at home and at work due to low SES. Therefore it may either be an intervening factor on the pathway to certain diseases or an index of low control or low SES.
- Psychological distress may exert direct effects by neurohumoral activation related to catecholamine secretion or hypothalamic–pituitary–adrenal axis activation and secondary metabolic disturbance.
- A combination of one or more of the above.



## 2.8 Hypertension

### Introduction

Hypertension, commonly known as ‘high blood pressure’ is a chronic medical condition in which the blood pressure in the arteries is elevated. A person is clinically diagnosed with hypertension if their systolic blood pressure is 140 mmHg or more or their diastolic blood pressure is 90 mmHg or more (Sutters 2007).

Hypertension is an important risk factor for cardiovascular disease and the risk of disease increases with increasing blood pressure levels. Adults are advised to have their blood pressure checked regularly.

These are several modifiable causes of high blood pressure including poor nutrition (especially a diet high in salt), low levels of physical activity, obesity and high levels of alcohol consumption.

Survey respondents were asked if they had ever been told by a doctor that they had high blood pressure, distinguishing between gestational hypertension and hypertension in women. If they responded ‘yes’ they were then asked to indicate what they were doing to treat their condition.

### Prevalence of hypertension

Survey respondents were asked ‘Have you ever been told by a doctor that you have high blood pressure?’. Table 2.90 shows the prevalence of hypertension, by age group and sex. Overall, the prevalence of hypertension was 24.7 per cent, and was not significantly different in men (25.1 per cent) and women (24.4 per cent).

The prevalence of hypertension was age-related, increasing with age to 57.1 per cent of people aged 65 years or over compared with 3.3 per cent of people aged 18–24 years.

The overall prevalence of hypertension during pregnancy was 5.7 per cent. The prevalence was highest in women aged 25–34 and 35–44 years compared with all Victorian women.

Table 2.90: Prevalence of hypertension, by age group and sex, Victoria, 2011–12

Age group (years)	Hypertension			Hypertension during pregnancy only			No hypertension		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
18–24	3.2*	1.9	5.2				96.8	94.7	98.1
25–34	9.4	6.8	12.8				90.6	87.2	93.2
35–44	17.5	15.2	20.0				82.4	79.9	84.7
45–54	27.0	24.5	29.6				72.6	70.0	75.0
55–64	40.6	38.1	43.2				59.0	56.4	61.6
65+	54.1	52.0	56.2				45.6	43.5	47.7
<b>Total</b>	<b>25.5</b>	<b>24.5</b>	<b>26.6</b>				<b>74.3</b>	<b>73.2</b>	<b>75.3</b>
<b>Females</b>									
18–24	3.3*	1.8	6.0	5.2	3.3	7.9	91.5	88.1	94.0
25–34	5.5	4.1	7.4	9.7	7.8	11.9	84.8	82.1	87.1
35–44	9.1	7.7	10.7	8.6	7.4	10.0	82.1	80.2	83.9
45–54	23.2	21.4	25.2	5.2	4.4	6.3	71.5	69.4	73.4
55–64	40.4	38.3	42.5	3.4	2.7	4.3	55.9	53.7	58.0
65+	59.5	57.7	61.2	1.6	1.2	2.1	38.6	36.8	40.3
<b>Total</b>	<b>23.7</b>	<b>23.0</b>	<b>24.4</b>	<b>5.8</b>	<b>5.2</b>	<b>6.4</b>	<b>70.4</b>	<b>69.5</b>	<b>71.3</b>
<b>Persons</b>									
18–24	3.3	2.2	4.8				94.2	92.3	95.7
25–34	7.5	5.9	9.3				87.7	85.6	89.5
35–44	13.2	11.9	14.7				82.3	80.7	83.7
45–54	25.1	23.5	26.7				72.0	70.4	73.6
55–64	40.5	38.8	42.2				57.4	55.7	59.1
65+	57.1	55.7	58.4				41.7	40.4	43.1
<b>Total</b>	<b>24.7</b>	<b>24.0</b>	<b>25.3</b>				<b>72.3</b>	<b>71.6</b>	<b>72.9</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95% confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

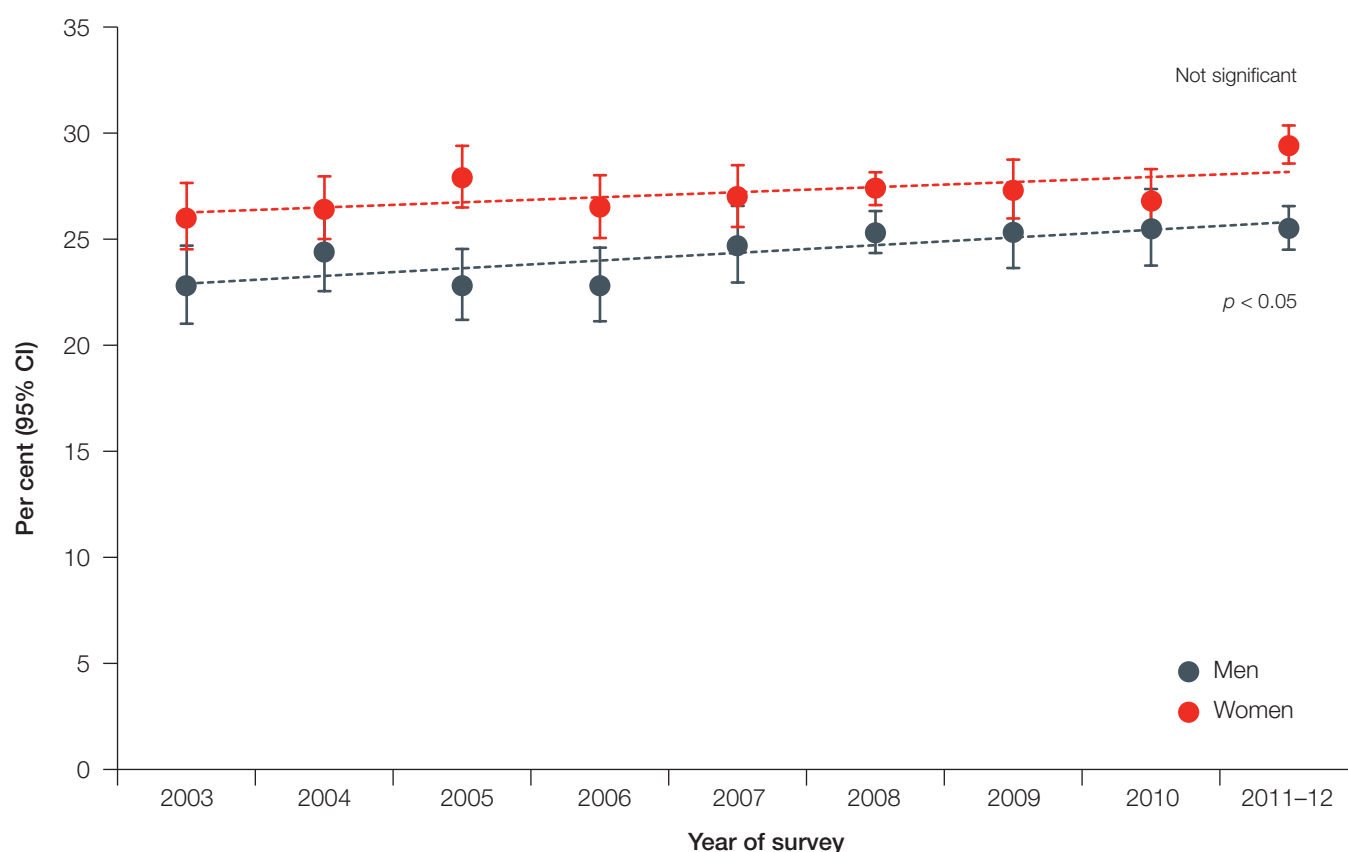
Table 2.91 and Figure 2.37 show the prevalence of hypertension from 2003 to 2011–12, by sex. The prevalence of hypertension significantly increased in men and all persons from 2003 to 2011–12. However, in women it remained unchanged.

**Table 2.91: Prevalence of hypertension from 2003 to 2011–12, by sex, Victoria**

Year	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
2003	22.8	21.0	24.7	26.0	24.5	27.6	24.7	23.5	25.9
2004	24.4	22.5	26.3	26.4	25.0	28.0	25.7	24.6	27.0
2005	22.8	21.2	24.5	27.9	26.5	29.4	25.6	24.5	26.7
2006	22.8	21.1	24.6	26.5	25.0	28.0	24.8	23.7	26.0
2007	24.7	22.9	26.6	27.0	25.6	28.5	25.9	24.8	27.1
2008	25.3	24.3	26.3	27.4	26.6	28.1	26.4	25.8	27.1
2009	25.3	23.6	27.0	27.3	26.0	28.7	26.3	25.3	27.5
2010	25.5	23.7	27.4	26.8	25.4	28.3	26.2	25.1	27.4
<b>2011–12</b>	<b>25.5</b>	<b>24.5</b>	<b>26.6</b>	<b>29.4</b>	<b>28.6</b>	<b>30.4</b>	<b>27.6</b>	<b>26.9</b>	<b>28.3</b>

Data were age-standardised to the 2011 Victorian population.  
 LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.

**Figure 2.37: Prevalence of hypertension from 2003 to 2011–12, by sex, Victoria**



Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares regression was used to test for trends over time.

Table 2.92 shows the prevalence of hypertension, by Department of Health region and sex. The prevalence of hypertension was significantly higher in people who lived in Gippsland Region and Hume Region. Overall, the prevalence of hypertension was significantly higher in people who lived in rural Victoria compared with metropolitan Victoria.

Table 2.92: Prevalence of hypertension, by Department of Health region and sex, Victoria, 2011–12

Region	Hypertension			Hypertension during pregnancy only			No hypertension		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
Eastern Metropolitan	22.8	20.5	25.3				77.0	74.5	79.2
North & West Metropolitan	25.8	23.9	27.8				73.9	71.9	75.8
Southern Metropolitan	25.1	23.1	27.2				74.7	72.6	76.6
<b>Metropolitan males</b>	24.8	23.6	26.0				75.0	73.7	76.2
Barwon-South Western	24.9	21.4	28.8				74.9	71.0	78.4
Gippsland	31.0	27.6	34.6				68.9	65.3	72.3
Grampians	25.5	22.6	28.7				74.4	71.2	77.3
Hume	28.7	25.7	31.8				71.2	68.1	74.1
Loddon Mallee	29.4	25.1	34.1				70.4	65.6	74.7
<b>Rural males</b>	27.7	25.8	29.8				72.1	70.1	74.0
<b>Total</b>	<b>25.5</b>	<b>24.5</b>	<b>26.6</b>				<b>74.3</b>	<b>73.2</b>	<b>75.3</b>
<b>Females</b>									
Eastern Metropolitan	22.2	20.3	24.2	5.8	4.3	7.8	71.8	69.2	74.3
North & West Metropolitan	25.1	23.7	26.5	5.4	4.6	6.5	69.3	67.7	70.9
Southern Metropolitan	22.3	20.8	23.9	5.1	3.9	6.6	72.5	70.5	74.4
<b>Metropolitan females</b>	23.3	22.4	24.2	5.4	4.7	6.1	71.1	70.0	72.2
Barwon-South Western	23.5	20.6	26.6	6.7	4.8	9.2	69.8	66.0	73.3
Gippsland	25.0	23.0	27.1	6.2	4.5	8.5	68.6	65.8	71.2
Grampians	25.2	22.6	28.1	7.2	5.4	9.5	67.3	64.0	70.4
Hume	25.4	23.8	27.0	8.2	6.6	10.2	66.1	63.8	68.4
Loddon Mallee	24.5	22.6	26.5	6.1	4.8	7.8	69.2	66.8	71.6
<b>Rural females</b>	24.7	23.6	25.8	6.9	6.1	7.9	68.2	66.8	69.6
<b>Total</b>	<b>23.7</b>	<b>23.0</b>	<b>24.4</b>	<b>5.8</b>	<b>5.2</b>	<b>6.4</b>	<b>70.4</b>	<b>69.5</b>	<b>71.3</b>
<b>Persons</b>									
Eastern Metropolitan	22.5	21.0	24.1				74.5	72.8	76.1
North & West Metropolitan	25.5	24.3	26.7				71.5	70.3	72.8
Southern Metropolitan	23.8	22.6	25.1				73.4	72.0	74.8
<b>Metropolitan persons</b>	24.1	23.4	24.9				73.0	72.1	73.8
Barwon-South Western	24.2	21.8	26.7				72.1	69.3	74.7
Gippsland	27.9	25.9	29.9				68.8	66.5	71.0
Grampians	25.5	23.5	27.7				70.6	68.3	72.8
Hume	27.0	25.4	28.8				68.6	66.6	70.5
Loddon Mallee	27.4	24.4	30.7				69.2	65.9	72.3
<b>Rural persons</b>	26.3	25.1	27.5				70.0	68.7	71.3
<b>Total</b>	<b>24.7</b>	<b>24.0</b>	<b>25.3</b>				<b>72.3</b>	<b>71.6</b>	<b>72.9</b>

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

Table 2.93, Figure 2.38 and Map 2.8 show the prevalence of hypertension, by LGA. The prevalence of hypertension was significantly higher in people who lived in the LGAs of Buloke (S), Glenelg (S), Hume (C), Latrobe (C) and Mitchell (S) compared with all Victorian adults. By contrast the prevalence was significantly lower in people who lived in Boroondara (C), Melbourne (C), Port Phillip (C), Surf Coast (S), Warrnambool (C) and Whitehorse (C) compared with all Victorian adults.

Table 2.93: Prevalence of hypertension, by LGA, Victoria, 2011–12

LGA	Hypertension			LGA	Hypertension		
	%	95% CI			%	95% CI	
		LL	UL			LL	UL
Alpine (S)	22.7	19.0	26.9	Mansfield (S)	23.7	20.3	27.5
Ararat (RC)	26.5	23.0	30.3	Maribyrnong (C)	21.2	17.9	25.0
Ballarat (C)	26.6	22.7	31.0	Maroondah (C)	22.1	18.2	26.7
Banyule (C)	26.5	22.4	31.0	Melbourne (C)	17.4	14.2	21.2
Bass Coast (S)	24.8	19.9	30.4	Melton (S)	25.7	22.2	29.5
Baw Baw (S)	26.8	22.4	31.8	Mildura (RC)	27.9	23.4	32.9
Bayside (C)	21.7	18.5	25.4	Mitchell (S)	32.3	26.7	38.5
Benalla (RC)	26.0	22.5	29.8	Moira (S)	26.6	22.7	30.9
Boroondara (C)	19.4	16.7	22.4	Monash (C)	23.4	19.7	27.5
Brimbank (C)	27.7	23.3	32.6	Moonee Valley (C)	21.0	17.8	24.4
Buloke (S)	33.8	26.5	41.9	Moorabool (S)	25.0	21.2	29.3
Campaspe (S)	26.1	22.0	30.7	Moreland (C)	26.8	22.7	31.4
Cardinia (S)	23.9	19.9	28.5	Mornington Peninsula (S)	21.3	17.8	25.4
Casey (C)	27.3	23.8	31.1	Mount Alexander (S)	25.4	21.2	30.1
Central Goldfields (S)	29.0	24.6	33.9	Moyne (S)	23.5	19.8	27.7
Colac-Otway (S)	24.4	20.6	28.7	Murrindindi (S)	25.9	22.0	30.3
Corangamite (S)	25.3	21.8	29.2	Nillumbik (S)	24.2	20.5	28.3
Darebin (C)	21.9	18.8	25.4	Northern Grampians (S)	24.7	21.5	28.2
East Gippsland (S)	28.3	23.2	33.9	Port Phillip (C)	19.6	16.4	23.2
Frankston (C)	27.0	23.3	31.2	Pyrenees (S)	23.1	19.8	26.8
Gannawarra (S)	31.6	24.6	39.7	Queenscliffe (B)	20.7	17.2	24.7
Glen Eira (C)	21.7	17.6	26.5	South Gippsland (S)	22.8	19.5	26.4
Glenelg (S)	29.0	25.6	32.7	Southern Grampians (S)	23.6	20.3	27.4
Golden Plains (S)	24.5	20.6	28.9	Stonnington (C)	22.2	18.6	26.3
Greater Bendigo (C)	26.7	20.3	34.2	Strathbogie (S)	26.6	21.6	32.2
Greater Dandenong (C)	25.7	21.8	30.0	Surf Coast (S)	20.1	17.0	23.4
Greater Geelong (C)	24.4	20.8	28.3	Swan Hill (RC)	23.6	18.6	29.3
Greater Shepparton (C)	25.6	22.3	29.2	Towong (S)	31.0	23.7	39.4
Hepburn (S)	20.8	17.9	23.9	Wangaratta (RC)	26.7	21.5	32.5
Hindmarsh (S)	25.7	21.8	30.0	Warrnambool (C)	20.2	17.4	23.2
Hobsons Bay (C)	25.9	21.6	30.7	Wellington (S)	28.4	24.5	32.6
Horsham (RC)	26.0	18.2	35.7	West Wimmera (S)	28.4	24.5	32.7
Hume (C)	31.2	26.3	36.6	Whitehorse (C)	18.9	15.9	22.2
Indigo (S)	21.1	18.0	24.6	Whittlesea (C)	28.9	24.8	33.4
Kingston (C)	22.2	18.9	25.9	Wodonga (RC)	27.5	23.0	32.5
Knox (C)	26.1	22.4	30.2	Wyndham (C)	26.8	23.2	30.6
Latrobe (C)	31.6	27.1	36.4	Yarra (C)	22.9	19.1	27.2
Loddon (S)	26.8	22.9	31.2	Yarra Ranges (S)	25.3	20.8	30.5
Macedon Ranges (S)	27.0	22.4	32.1	Yarriambiack (S)	27.3	22.6	32.7
Manningham (C)	21.7	17.8	26.2	<b>Victoria</b>	<b>24.5</b>	<b>23.9</b>	<b>25.1</b>

Data were age-standardised to the 2011 Victorian population using 10-year age groups.

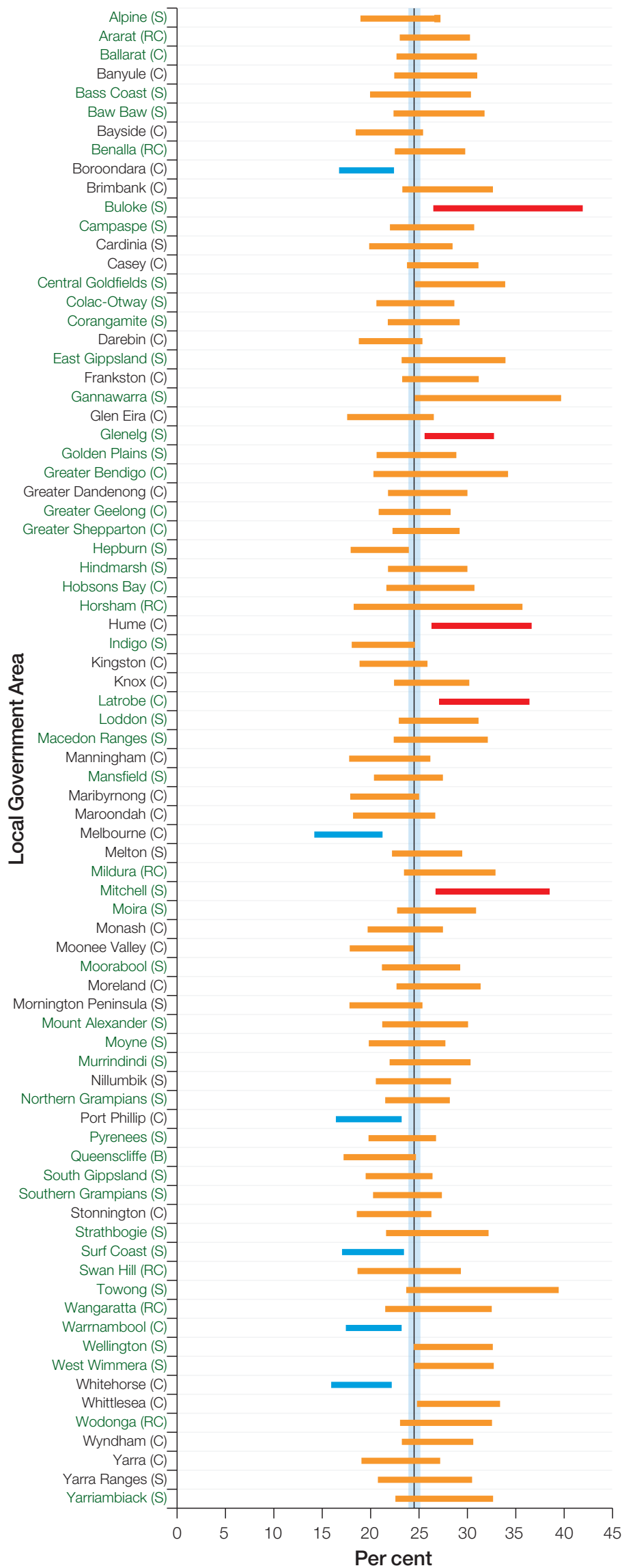
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Figure 2.38: Prevalence of hypertension, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

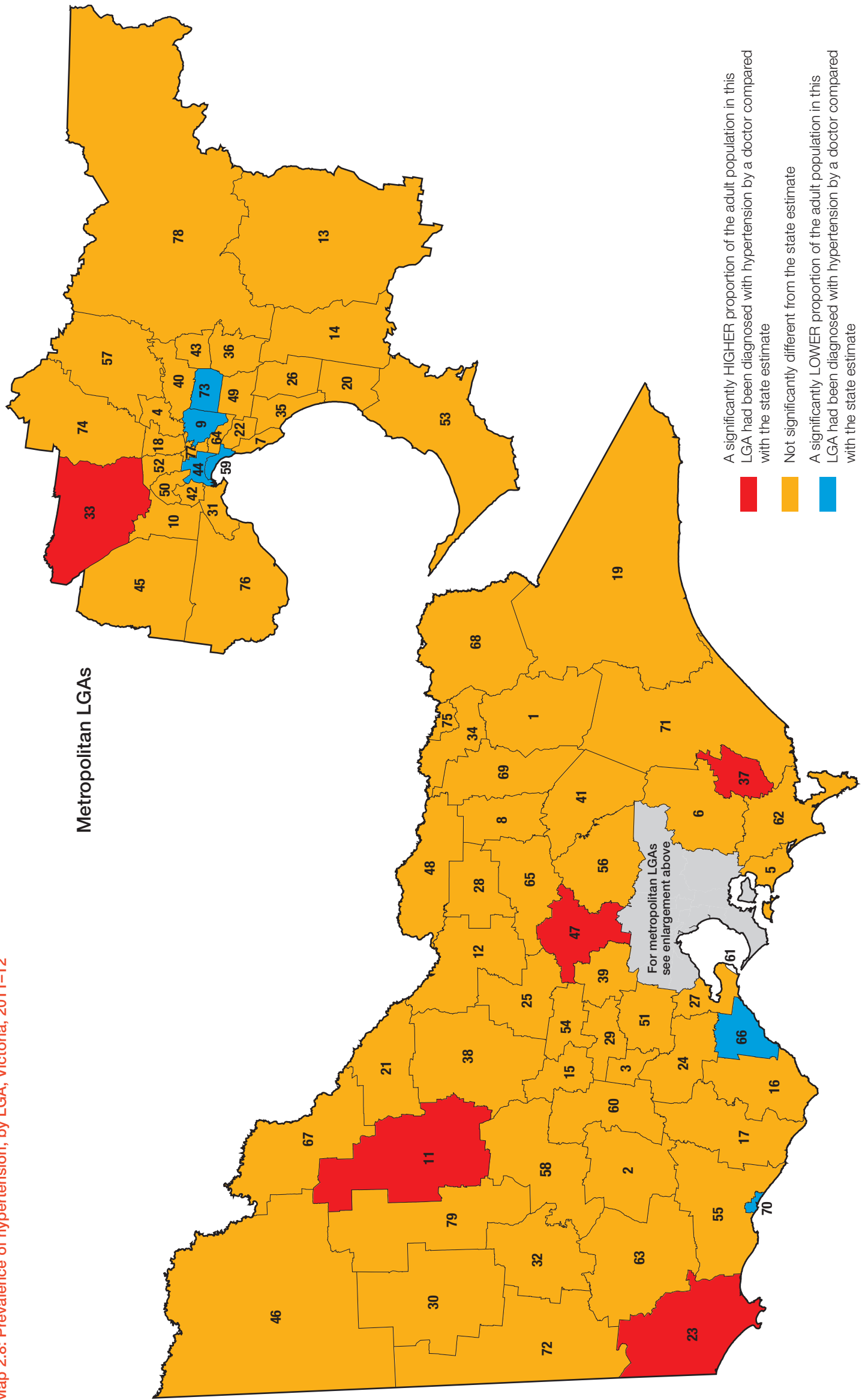
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.



Map 2.8: Prevalence of hypertension, by LGA, Victoria, 2011–12



Note: Local government area (LGA) ID is based on the alphabetical order of LGA names (Table iii).

Table 2.94 and Table 2.95 show the prevalence of hypertension in males and females respectively, by selected socioeconomic determinants, modifiable risk factors and health status.

When compared with all Victorian men and women, a significantly higher prevalence of hypertension was observed among men and women with the following characteristics:

- high or very high levels of psychological distress
- diagnosed with diabetes by a doctor
- good, fair or poor self-reported health status
- obesity.

When compared with all Victorian men and women, a significantly lower prevalence of hypertension was observed among men and women with the following characteristics:

- employed
- total annual household income of \$100,000 or more
- excellent or very good self-reported health status
- normal body weight.

When compared with all Victorian men, a significantly higher prevalence of hypertension was observed among men with the following characteristic:

- at long-term risk of alcohol-related harm.

When compared with all Victorian women, a significantly higher prevalence of hypertension (not related to pregnancy) was observed among women with the following characteristics:

- completed a primary education
- a total annual household income of less than \$40,000.

When compared with all Victorian women, a significantly lower prevalence of hypertension (not related to pregnancy) was observed among women with the following characteristics:

- not in the labour force
- low level of psychological distress
- underweight.

**Table 2.94 Prevalence of hypertension in males, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	%	Hypertension	
		95% CI	
		LL	UL
<b>Males</b>	<b>25.5</b>	<b>24.5</b>	<b>26.6</b>
<i>Area of Victoria</i>			
Rural	27.7	25.8	29.8
Metropolitan	24.8	23.6	26.0
<i>Education level</i>			
Primary	28.3	25.8	31.0
Secondary	25.7	24.0	27.5
Tertiary	23.4	21.8	25.0
<i>Employment status (age &lt; 65 years)</i>			
Employed	19.0	17.7	20.4
Unemployed	19.0	13.8	25.5
Not in labour force	20.6	16.7	25.2
<i>Total annual household income</i>			
< \$40,000	27.4	24.9	29.9
\$40,000 to < \$100,000	25.6	23.7	27.5
≥ \$100,000	21.7	19.8	23.7
<i>Psychological distress<sup>a</sup></i>			
Low (<16)	24.1	22.9	25.3
Moderate (16–21)	28.1	25.9	30.4
High (22–29)	32.3	28.4	36.4
Very high (≥ 30)	34.4	28.4	40.9
<i>Physical activity<sup>b</sup></i>			
Sedentary	27.3	22.2	33.0
Insufficient time and sessions	26.7	24.7	28.7
Sufficient time and sessions	24.8	23.6	26.0
<i>Met fruit / vegetable guidelines<sup>c</sup></i>			
Both guidelines	23.7	18.3	30.0
Vegetable guidelines <sup>d</sup>	23.5	19.0	28.7
Fruit guidelines <sup>d</sup>	24.2	22.6	25.8
Neither	26.4	25.0	27.8
<i>Diabetes status<sup>e</sup></i>			
No diabetes	23.9	22.8	24.9
Diabetes	48.1	41.6	54.6
<i>Smoking status</i>			
Current smoker	23.3	20.9	26.0
Ex-smoker	27.4	25.0	29.8
Non-smoker	25.0	23.6	26.4
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>			
Abstainer	24.4	21.6	27.5
Low risk	25.3	24.1	26.4
Risky or high risk	35.0	29.6	40.9
<i>Self-reported health</i>			
Excellent / very good	19.5	18.2	20.8
Good	28.4	26.7	30.2
Fair / poor	34.7	31.7	37.8
<i>Body weight status<sup>f</sup></i>			
Underweight	16.8	10.3	26.1
Normal	17.7	16.3	19.2
Overweight	25.4	23.9	26.9
Obese	41.1	37.7	44.7

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003a).

d. Includes those meeting both guidelines.

e. Based on national guidelines (NHMRC 2001).

f. Based on body mass index (BMI).

g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

**Table 2.95: Prevalence of hypertension in females, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	Hypertension			Hypertension during pregnancy only		
	%	95% CI		%	95% CI	
		LL	UL		LL	UL
<b>Females</b>	<b>23.7</b>	<b>23.0</b>	<b>24.4</b>	<b>5.8</b>	<b>5.2</b>	<b>6.4</b>
<i>Area of Victoria</i>						
Rural	24.7	23.6	25.8	6.9	6.1	7.9
Metropolitan	23.3	22.4	24.2	5.4	4.7	6.1
<i>Education level</i>						
Primary	<b>26.1</b>	24.6	27.6	6.1	4.9	7.6
Secondary	24.1	22.8	25.5	6.2	5.3	7.3
Tertiary	<b>20.9</b>	19.6	22.2	5.1	4.4	6.0
<i>Employment status (age &lt; 65 years)</i>						
Employed	<b>14.7</b>	13.7	15.6	6.2	5.3	7.1
Unemployed	20.3	16.1	25.3	6.7*	4.0	11.0
Not in labour force	<b>17.5</b>	16.0	19.2	<b>8.0</b>	6.7	9.6
<i>Total annual household income</i>						
< \$40,000	<b>27.0</b>	25.1	29.0	6.1	4.6	8.0
\$40,000 to < \$100,000	23.0	21.7	24.4	6.5	5.5	7.7
≥ \$100,000	<b>18.0</b>	15.2	21.3	5.7	4.4	7.3
<i>Psychological distress<sup>a</sup></i>						
Low (<16)	<b>21.7</b>	20.9	22.6	5.6	4.9	6.4
Moderate (16–21)	25.7	24.2	27.3	6.1	5.0	7.4
High (22–29)	<b>30.1</b>	27.4	33.0	6.0	4.3	8.3
Very high (≥ 30)	<b>29.4</b>	25.4	33.9	3.7*	1.9	6.7
<i>Physical activity<sup>b</sup></i>						
Sedentary	25.8	22.7	29.0	5.1	3.4	7.6
Insufficient time and sessions	24.3	23.1	25.5	4.8	3.9	6.0
Sufficient time and sessions	22.8	21.8	23.8	6.0	5.3	6.8
<i>Met fruit / vegetable guidelines<sup>c</sup></i>						
Both guidelines	25.1	22.3	28.0	8.7	5.7	13.0
Vegetable guidelines <sup>d</sup>	24.9	22.5	27.3	7.5	5.1	11.0
Fruit guidelines <sup>d</sup>	23.8	22.8	25.0	5.5	4.7	6.3
Neither	23.4	22.4	24.5	5.9	5.1	6.8
<i>Diabetes status<sup>g</sup></i>						
No diabetes	22.5	21.7	23.2	5.8	5.3	6.5
Diabetes	<b>47.6</b>	42.6	52.8	4.5*	1.9	10.2
<i>Smoking status</i>						
Current smoker	23.1	21.0	25.4	5.5	4.1	7.3
Ex-smoker	23.6	22.3	25.0	5.4	4.3	6.8
Non-smoker	23.9	23.0	24.8	5.9	5.2	6.7
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>						
Abstainer	25.3	23.8	26.9	6.2	5.0	7.5
Low risk	23.1	22.2	23.9	5.5	4.9	6.2
Risky or high risk	24.6	21.0	28.6	5.3*	2.7	9.9
<i>Self-reported health</i>						
Excellent / very good	<b>17.4</b>	16.5	18.4	6.0	5.2	7.0
Good	<b>27.3</b>	26.1	28.6	5.0	4.2	5.9
Fair / poor	<b>33.2</b>	31.1	35.3	6.9	5.2	9.1
<i>Body weight status<sup>f</sup></i>						
Underweight	<b>13.2</b>	10.0	17.2	3.4*	1.8	6.1
Normal	<b>17.2</b>	16.2	18.2	5.4	4.7	6.3
Overweight	25.0	23.6	26.6	5.7	4.6	6.9
Obese	<b>34.4</b>	32.4	36.4	6.5	5.2	8.1

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003a).

d. Includes those meeting both guidelines

e. Based on national guidelines (NHMRC 2001).

f. Based on body mass index (BMI).

g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

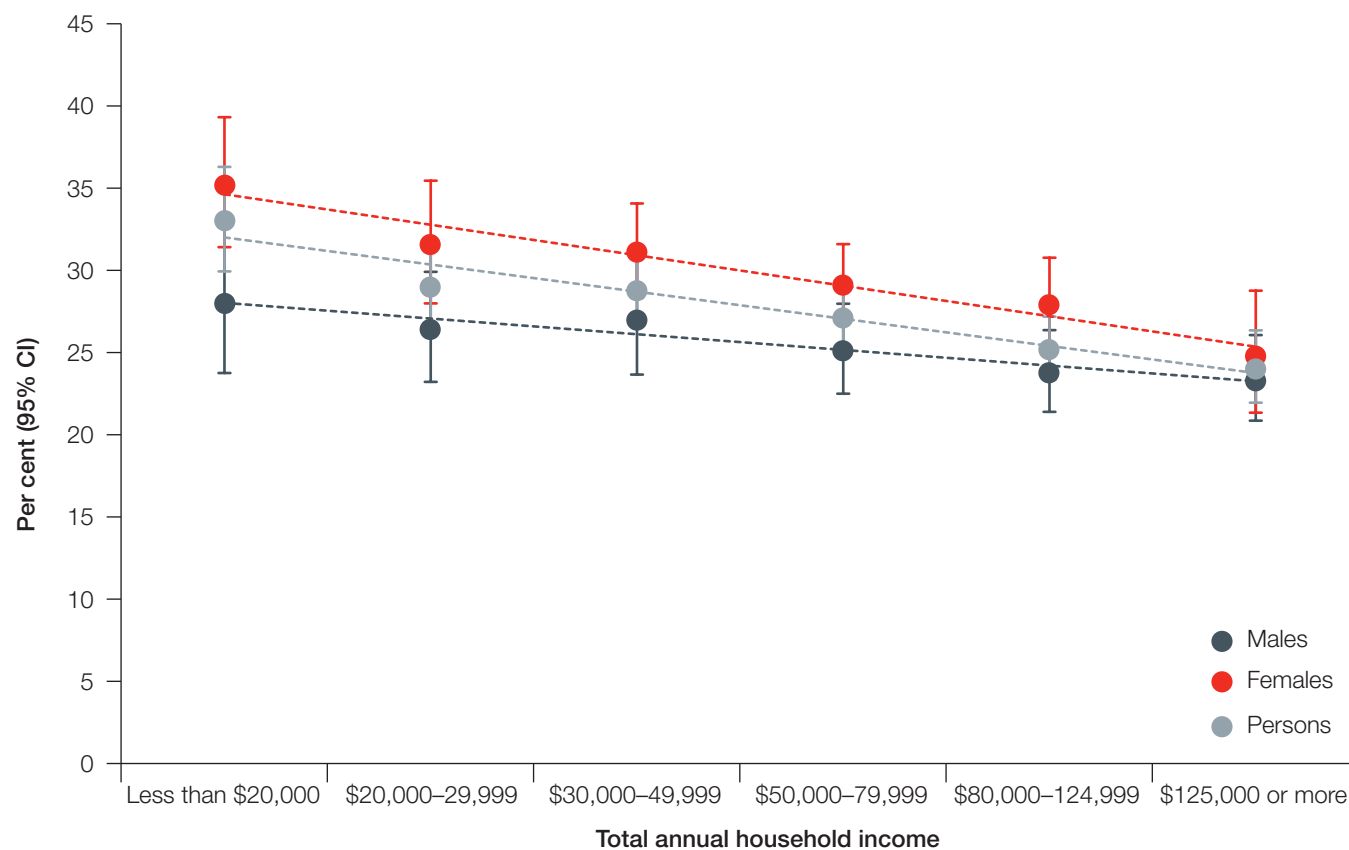
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

The relationship, if any, was investigated between SES and the age-adjusted prevalence of hypertension, using total annual household income as a measure of SES (Figure 2.39). The prevalence of hypertension significantly decreased with increasing income in both men and women.

**Figure 2.39: Prevalence of hypertension, by total annual household income and sex, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.

Survey respondents who indicated that they had been diagnosed with hypertension by a doctor at some point in their lifetime (with the exception of women who had experienced gestational hypertension) were asked to select what treatment modality(ies) they had pursued. Table 2.96 shows the prevalence of the various treatment modalities, by age group, sex and whether they lived in rural or metropolitan Victoria.

Overall, 52.9 per cent of people responded that their hypertension was being treated with medication, and this was not significantly different between men and women. This increased with age, with 88.5 per cent of people aged 65 years or over taking medication to reduce their blood pressure.

The next most common adjustment to lifestyle to control hypertension was exercise, with 49.1 per cent of people reporting that they exercised to control their blood pressure. The next most common lifestyle adjustment was changes to dietary intake, with 42.2 per cent of people reporting that they had modified their diet to help control their blood pressure.

Weight reduction was the next most common adjustment to lifestyle, with 39.5 per cent of people reporting that they were attempting to reduce their weight. The least common lifestyle adjustment was stress management, which was reported by 38.9 per cent of people. The lifestyle adjustment that significantly differed between men and women was stress management, with 46.6 per cent of women compared with 35.7 per cent of men reporting that they had tried to reduce stress in their lives to assist in controlling their blood pressure.

Table 2.96: Treatment modality<sup>a</sup> for hypertension, by age group, sex and area of state, Victoria, 2011–12

Age group (years)	Diet			Weight reduction			Exercise			Medicine use			Stress management			Other			No longer hypertensive		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>																					
18–24	48.9*	25.7	72.7	50.6	27.2	73.8	62.7	38.3	82.0	27.0*	8.9	58.5	35.2*	16.6	59.7	0.0	0.0	0.0	0.0	**	**
25–34	32.9	19.7	49.7	34.1	20.6	50.9	41.0	26.1	57.8	21.2*	10.0	39.4	24.2*	13.0	40.6	**	**	**	15.1*	6.0	33.4
35–44	44.3	37.0	52.0	47.1	39.6	54.7	51.3	43.7	58.8	31.7	24.9	39.4	38.5	31.4	46.1	2.8*	1.2	6.5	9.3*	5.5	15.2
45–54	49.0	43.6	54.5	42.2	36.9	47.6	57.6	52.1	62.9	64.7	59.4	69.6	42.8	37.4	48.3	0.7*	0.3	1.8	6.5	4.1	9.9
55–64	47.6	43.5	51.6	40.6	36.7	44.6	55.0	50.9	59.0	78.2	74.7	81.4	41.1	37.2	45.1	1.6*	0.8	3.3	4.3	3.0	6.2
65+	34.5	31.9	37.3	29.4	26.9	32.1	53.0	50.1	55.8	88.8	86.9	90.4	37.3	34.6	40.1	0.5*	0.3	0.8	2.3	1.7	3.1
Metropolitan areas	42.4	36.3	48.8	38.6	33.4	44.0	49.2	43.5	55.0	51.2	46.2	56.2	36.9	30.9	43.2	1.0*	0.5	1.9	5.8	3.7	8.9
Rural areas	36.2	31.9	40.8	35.2	30.3	40.6	51.7	46.4	57.0	48.5	43.6	53.3	33.1	28.7	37.8	1.3*	0.6	2.8	10.9*	6.5	17.9
<b>Total</b>	<b>40.7</b>	<b>36.6</b>	<b>45.0</b>	<b>37.8</b>	<b>34.0</b>	<b>41.8</b>	<b>50.8</b>	<b>46.4</b>	<b>55.2</b>	<b>50.8</b>	<b>46.5</b>	<b>55.1</b>	<b>35.7</b>	<b>31.7</b>	<b>39.9</b>	<b>1.0*</b>	<b>0.6</b>	<b>1.7</b>	<b>7.4</b>	<b>5.0</b>	<b>10.8</b>
<b>Females</b>																					
18–24	47.5*	21.5	75.0	29.6	11.7	57.0	34.2*	13.0	64.5	**	**	**	38.7*	17.0	66.1	0.0	0.0	0.0	**	**	**
25–34	56.9	42.5	70.3	45.5	31.4	60.3	50.3	35.8	64.7	24.8*	14.1	39.8	48.6	34.2	63.2	0.0	0.0	0.0	13.0*	6.5	24.3
35–44	46.3	38.0	54.7	45.2	37.1	53.6	44.4	36.4	52.8	54.2	45.8	62.3	47.1	38.8	55.6	2.1*	0.8	5.2	5.1*	3.0	8.3
45–54	43.9	39.3	48.6	48.8	44.1	53.5	48.3	43.6	52.9	62.2	57.6	66.6	45.1	40.6	49.8	2.4*	1.1	5.0	8.6	6.2	11.9
55–64	44.4	41.1	47.8	47.3	43.9	50.7	53.3	49.9	56.7	77.2	74.2	79.9	47.0	43.7	50.4	1.5	0.9	2.4	4.7	3.5	6.4
65+	32.4	30.4	34.6	29.3	27.3	31.4	47.6	45.3	49.8	88.3	86.8	89.6	38.5	36.4	40.7	0.7	0.4	1.2	3.8	3.0	4.8
Metropolitan areas	45.8	40.1	51.5	41.3	35.9	46.9	47.2	42.0	52.5	58.6	52.6	64.4	43.0	37.2	49.0	1.2*	0.6	2.2	8.9	5.5	14.0
Rural areas	48.6	43.5	53.7	49.1	43.7	54.5	55.7	51.1	60.2	57.4	52.3	62.3	53.1	48.3	57.8	1.4*	0.8	2.3	7.9	5.4	11.4
<b>Total</b>	<b>47.6</b>	<b>43.1</b>	<b>52.1</b>	<b>44.1</b>	<b>39.9</b>	<b>48.4</b>	<b>49.4</b>	<b>44.7</b>	<b>54.1</b>	<b>58.5</b>	<b>53.8</b>	<b>63.1</b>	<b>46.6</b>	<b>42.1</b>	<b>51.2</b>	<b>1.2</b>	<b>0.8</b>	<b>1.9</b>	<b>8.7</b>	<b>5.9</b>	<b>12.5</b>
<b>Persons</b>																					
18–24	48.3	29.8	67.2	40.1	23.2	59.7	48.5	30.0	67.5	26.0*	11.5	48.7	36.9	21.6	55.4	0.0	0.0	0.0	**	**	**
25–34	41.8	30.8	53.6	38.3	27.8	50.1	44.4	33.2	56.3	22.5	13.8	34.6	33.2	23.3	44.8	**	**	**	14.3*	7.4	25.8
35–44	45.0	39.4	50.8	46.4	40.7	52.2	48.9	43.2	54.6	39.6	34.0	45.4	41.5	36.0	47.3	2.6*	1.3	4.9	7.8	5.2	11.7
45–54	46.6	43.0	50.3	45.3	41.7	48.9	53.2	49.6	56.8	63.5	60.0	66.9	43.9	40.3	47.5	1.5*	0.8	2.8	7.5	5.7	9.7
55–64	46.0	43.3	48.6	44.0	41.4	46.7	54.2	51.5	56.8	77.7	75.4	79.8	44.1	41.5	46.7	1.5	1.0	2.4	4.5	3.6	5.7
65+	33.3	31.7	35.0	29.4	27.8	31.0	49.9	48.1	51.7	88.5	87.3	89.5	38.0	36.3	39.7	0.6	0.4	0.9	3.1	2.6	3.8
Metropolitan areas	42.2	37.8	46.9	39.4	35.8	43.0	47.7	43.5	51.9	53.9	49.2	58.6	38.1	34.0	42.4	1.1	0.7	1.8	8.1	5.5	11.7
Rural areas	40.1	36.0	44.5	39.6	35.3	44.1	52.6	48.8	56.5	51.6	47.8	55.4	39.6	35.4	44.0	1.3	0.8	2.1	10.2	6.5	15.6
<b>Total</b>	<b>42.2</b>	<b>38.8</b>	<b>45.6</b>	<b>39.5</b>	<b>36.6</b>	<b>42.5</b>	<b>49.1</b>	<b>45.8</b>	<b>52.5</b>	<b>52.9</b>	<b>49.3</b>	<b>56.4</b>	<b>38.9</b>	<b>35.7</b>	<b>42.2</b>	<b>1.1</b>	<b>0.8</b>	<b>1.6</b>	<b>8.7</b>	<b>6.3</b>	<b>11.9</b>

a. Respondents could select multiple responses. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

## Discussion

### Interpretation of results

Hypertension is an important modifiable risk factor rating second only to tobacco use (Begg et al. 2008b). Tobacco use is responsible for 7.8 per cent of the total health loss associated with all causes of disease and injury, while hypertension is responsible for 7.6 per cent. Hypertension is the most significant risk factor for cardiovascular disease, for which it is responsible for 42.1 per cent of the health loss due to cardiovascular disease.

While 24.7 per cent of adult Victorians had been diagnosed with hypertension by a doctor there was no difference between the sexes in overall prevalence. The prevalence of hypertension increased with increasing age, with the highest prevalence of 57.1 per cent being in men and women aged 65 years or over.

The lifetime prevalence of hypertension significantly increased in men and women between 2003 and 2011–12. As the estimates were adjusted for age, this increase is not due to the ageing of the population. There are two possible reasons that this may be occurring: improved diagnosis of hypertension due to improvements in healthcare services and health-seeking behaviour; and/or an increase in the incidence of hypertension. Given that obesity is a significant risk factor for developing hypertension and its incidence is increasing, it may be possible that one of the consequences of the obesity epidemic is an increase in the incidence of hypertension.

Some geographic differences were observed in the prevalence of hypertension. A higher prevalence of hypertension was observed in adults living in Gippsland and Hume Region, and rural Victoria overall compared with their metropolitan counterparts. A significantly higher prevalence of hypertension was observed in people who lived in the LGAs of Buloke (S), Glenelg (S), Hume (C), Latrobe (C) and Mitchell (S). All five LGAs are socioeconomically disadvantaged, being in the first or second IRSED quintile.

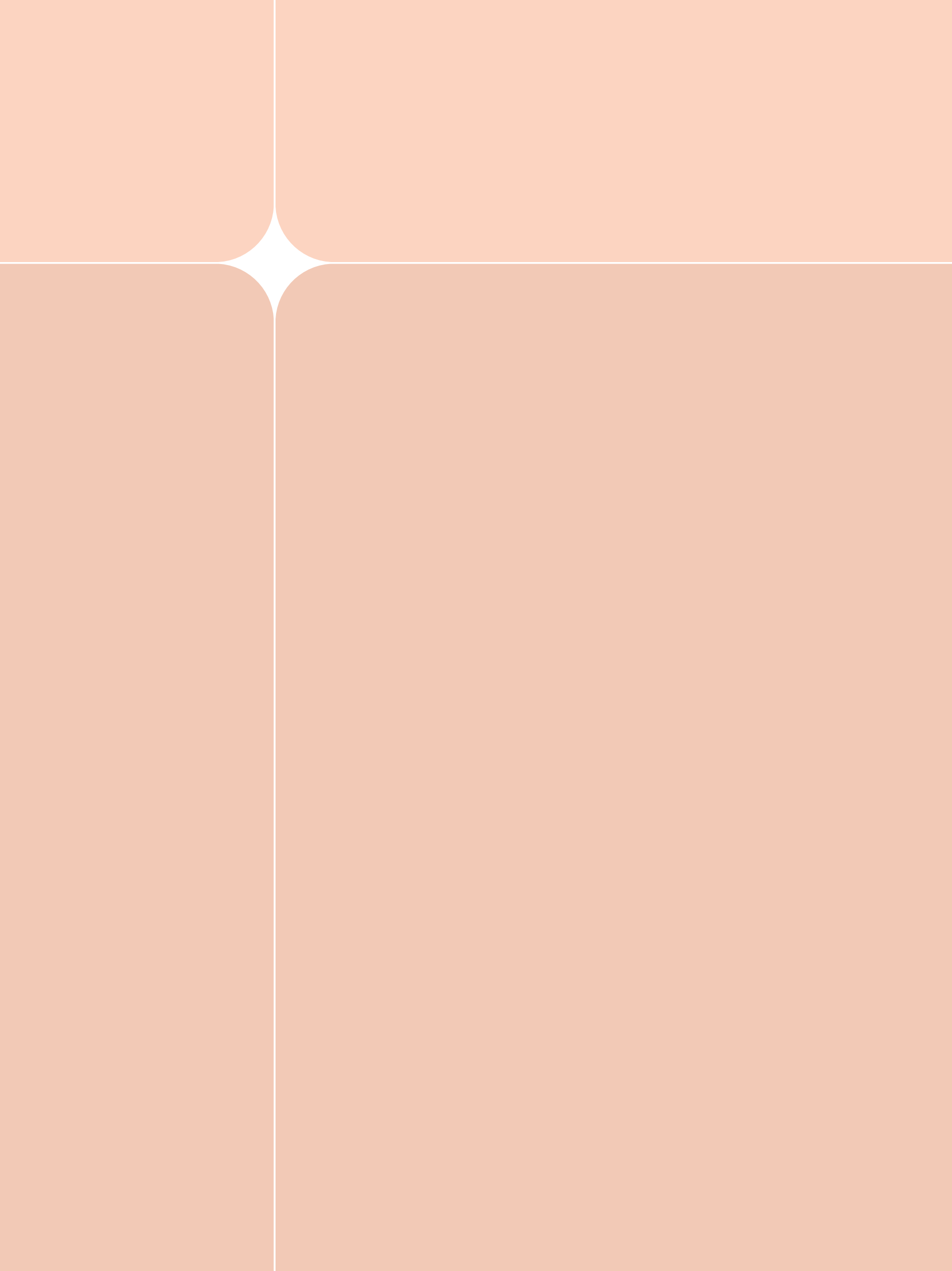
The prevalence of hypertension was significantly higher in men and women with high or very high levels of psychological distress who did not smoke, had been diagnosed with diabetes by a doctor, had fair or poor self-reported health status, were obese, had an inadequate intake of fruit and vegetables and/or did not undertake adequate physical activity. While the prevalence of hypertension was significantly higher in men at long-term risk of alcohol-related harm, this was not observed in women.



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### 3. Biomedical checks and cancer screening

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK







## 3. Biomedical checks and cancer screening

### Introduction

Respondents were asked about visits to their general practitioner (GP), checks for blood pressure, blood cholesterol levels, blood glucose levels and cancer screening for bowel, cervical and breast cancer. Chapter 6 contains additional data in relation to vision testing and chapter 9 reports on individuals who sought professional help for a mental health problem.

### Survey results

#### Visits to a doctor or general practitioner

- A higher proportion of women aged 18 years or over (64.7 per cent) had consulted a doctor or GP about their own health in the three months preceding the survey compared with their male (55.0 per cent) counterparts.
- A lower proportion of adults who live in rural Victoria reported visiting a doctor or GP in the three months preceding the survey compared with those who lived in metropolitan Victoria.
- A higher proportion of adults who live in the LGAs of Hume (C), Moonee Valley (C), Wellington (S) and Wyndham (C) reported they had visited a doctor or GP less than three months prior to the survey compared with all Victorians.
- There were four LGAs where the proportion of adults who reported they had visited a doctor or GP less than three months prior to the survey was lower compared with all Victorians – Benalla (RC), Colac-Otway (S), Hindmarsh (S) and Indigo (S).

#### Biomedical checks

- In 2011–12, 82.3 per cent of Victorian adults reported having had their blood pressure checked, 60.8 per cent reported having had their blood cholesterol checked and more than half (56.1 per cent) reported having had their blood glucose checked in the two years preceding the survey.
- The proportion of adults who had had a blood pressure check or blood glucose check in the previous two years was similar between metropolitan and rural areas of the state. A higher proportion of adults from metropolitan areas of Victoria reported having had a cholesterol check in the previous two years compared with rural Victoria.
- A higher proportion of adults in the LGA of Moreland (C) reported having had a blood pressure check in the two years preceding the survey compared with all Victorian adults. By contrast the proportion of adults who reported having had a blood pressure check in the previous two years was lower in the LGAs of Pyrenees (S) and Surf Coast (S) compared with all Victorian adults.
- The proportion of adults who reported having had a cholesterol check in the preceding two years was higher in the LGAs of Greater Dandenong (C), Melton (S) and Whittlesea (C) compared with all Victorian adults.

- By contrast there were 17 LGAs where the proportion of adults who reported having had a cholesterol check in the previous two years was lower compared with all Victorian adults – Alpine (S), Ballarat (C), Baw Baw (S), Central Goldfields (S), Colac-Otway (S), Golden Plains (S), Hindmarsh (S), Indigo (S), Loddon (S), Mansfield (S), Mount Alexander (S), Pyrenees (S), Queenscliffe (B), South Gippsland (S), Southern Grampians (S), Surf Coast (S) and West Wimmera (S).
- A higher proportion of adults who lived in the LGAs of Greater Dandenong (C), Latrobe (C), Melton (S) and Whittlesea (C) reported having had a blood glucose check in the previous two years compared with all Victorian adults. By contrast there were 10 LGAs where the proportion of people who reported having had a blood glucose check in the previous two years was lower compared with all Victorian adults – Benalla (RC), Boroondara (C), Golden Plains (S), Hepburn (S), Mansfield (S), Queenscliffe (B), South Gippsland (S), Southern Grampians (S), Surf Coast (S) and Yarra (C).

#### Bowel cancer screening and detection

- Among the Victorian adults surveyed who were aged 50 years or over, 48.6 per cent indicated they had received a faecal occult blood test (FOBT) kit in the mail. Of these, 61.2 per cent indicated that they had completed and returned the kit for testing. Overall, a higher proportion of people aged 50 years or over who lived in rural compared with metropolitan Victoria completed and returned the FOBT kits for testing.
- Specifically, there were 10 LGAs where a higher proportion of people aged 50 years or over completed and returned the FOBT kits for testing compared with all Victorians aged 50 years or over – Baw Baw (S), Benalla (RC), East Gippsland (S), Gannawarra (S), Greater Dandenong (C), Greater Shepparton (C), Indigo (S), Queenscliffe (B), Wodonga (RC) and Yarra Ranges (S).
- By contrast there were six LGAs where a lower proportion of people completed and returned the FOBT kits for testing compared with all Victorian people, aged 50 years or over – Campaspe (S), Casey (C), Hume (C), Knox (C), Moira (S) and Moorabool (S).
- Furthermore, 30.5 per cent of all Victorian adults aged 50 years or over reported having a bowel examination to detect cancer in the two years preceding the survey. Of these, 69.7 per cent reported having had a colonoscopy, with a higher proportion of women reporting having had a colonoscopy compared with their male counterparts.
- A higher proportion of people aged 50 years or over who live in metropolitan Victoria reported having had a colonoscopy in the two years preceding the survey compared with those who live in rural Victoria.

### Breast cancer screening and detection

- Among women aged 50 years or over, 88.2 per cent indicated having ever had a mammogram as a health check. Of these, 69.7 per cent reported having a mammogram in the previous two years. The proportion of mammogram health checks was significantly higher in those aged 60–79 years compared with all Victorian women aged 50 years or over.
- The majority of mammograms were carried out through BreastScreen Victoria (68.5 per cent), and this was highest in women aged 60–69 years (76.1 per cent). There was no difference in the proportion of women who received mammograms through BreastScreen Victoria in rural compared with metropolitan Victoria.
- There were seven LGAs where a higher proportion of women aged 50 years or over reported having had a mammogram in the previous two years compared with all Victorian women aged 50 years or over – Brimbank (C), Glenelg (S), Mansfield (S), Monash (C), Southern Grampians (S), Swan Hill (RC) and Wangaratta (RC).
- By contrast the proportion of women aged 50 years or over who reported having had a mammogram in the previous two years was lower in the LGAs of Cardinia (S), Hepburn (S) and Moorabool (S) compared with all Victorian women aged 50 years or over.
- Of the women aged 50 years or over who reported having had a mammogram in the previous two years, 85.2 per cent indicated this was as a routine health check. This included women who indicated they had a genetic predisposition to breast cancer or were on hormone replacement therapy. Of the remaining women, 7.4 per cent indicated that they had breast cancer and needed to be checked regularly, 6.4 per cent had a lump or symptom that was being investigated and 0.8 per cent gave other reasons.

### Cervical cancer screening

- Overall, 86.2 per cent of Victorian women aged 18 years or over have had a Pap test at some time. Of these, 70.8 per cent reported having one in the previous two years.
- Overall, a higher proportion of women aged 18 years or over who live in rural compared with metropolitan Victoria have had a Pap test. However, a lower proportion of women who live in rural compared with metropolitan Victoria reported having had a Pap test in the two years preceding the survey.
- There were seven LGAs where the proportion of women aged 18 years or over who reported having had a Pap test in the previous two years was higher compared with all Victorian women – Bayside (C), Glen Eira (C), Hobsons Bay (C), Melbourne (C), Mount Alexander (S), Stonnington (C) and Yarra (C).
- By contrast there were seven LGAs where a lower proportion of women reported having had a Pap test in the previous two years compared with all Victorian women – Central Goldfields (S), Corangamite (S), Hindmarsh (S), Moorabool (S), South Gippsland (S), Warrnambool (S) and Wodonga (S).

### 3.1 Visits to a doctor or general practitioner

Respondents were asked ‘When was the last time you consulted a doctor or general practitioner (GP) about your own health?’ Table 3.1 shows the most recent visit to a doctor or GP, by age group and sex. The majority of men (55.0 per cent) and women (64.7 per cent) had visited a doctor or GP less than three months prior to the survey. By contrast almost no one had not visited a doctor or GP and 15.7 per cent of men and 7.7 per cent of women had visited a doctor or GP 12 months or more prior to the survey.

A significantly higher proportion of women, particularly those aged 18–54 years, had visited a doctor or GP less than three months prior to the survey compared with their male counterparts. There was no difference between the sexes for those who had visited a doctor or GP three to less than six months prior to the interview. By contrast a significantly higher proportion of men, particularly those aged 45–54 and 65 years or over, had visited a doctor or GP six to less than 12 months prior to the survey interview compared with their female counterparts. Similarly, a significantly higher proportion of men, particularly those aged 18–54 years, had visited a doctor or GP 12 months or more prior to the survey interview compared with their female counterparts.

The proportion of men and women aged 55 years or over who had visited their doctor or GP less than three months prior to the interview was significantly higher compared with all Victorian men and women. By contrast the proportion of men and women aged 18–44 years and people aged 18–54 years was significantly lower compared with all Victorian men, women and people, respectively.



Table 3.1: Last visit to a doctor or general practitioner, by age group and sex, Victoria, 2011–12

Age group (years)	< 3 months ago			3 to < 6 months ago			6 to < 12 months ago			12 months ago or more			Have never consulted a doctor		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>															
18–24	38.4	33.0	44.1	21.4	17.3	26.2	13.6	9.8	18.7	25.1	20.4	30.6	**	**	**
25–34	43.7	38.7	48.8	17.9	14.4	22.1	14.3	11.3	17.9	22.6	18.5	27.2	**	**	**
35–44	45.3	42.2	48.5	18.7	16.4	21.4	15.3	13.1	17.8	19.8	17.4	22.4	0.4*	0.2	0.8
45–54	51.1	48.3	53.8	19.8	17.6	22.2	12.9	11.3	14.8	15.7	13.7	17.9	**	**	**
55–64	67.2	64.7	69.6	15.8	14.0	17.8	8.6	7.2	10.3	8.1	6.8	9.6	**	**	**
65+	81.9	80.2	83.5	10.4	9.2	11.8	4.3	3.6	5.3	3.2	2.6	4.0	0.0	-	-
<b>Total</b>	<b>55.0</b>	<b>53.5</b>	<b>56.5</b>	<b>17.0</b>	<b>15.9</b>	<b>18.2</b>	<b>11.6</b>	<b>10.6</b>	<b>12.7</b>	<b>15.7</b>	<b>14.4</b>	<b>17.0</b>	<b>0.0</b>	<b>-</b>	<b>-</b>
<b>Females</b>															
18–24	58.1	52.7	63.4	22.0	17.7	27.0	12.3	9.0	16.5	7.2	5.0	10.5	0.0	-	-
25–34	59.6	55.8	63.3	21.2	18.1	24.6	10.3	8.2	12.8	8.4	6.6	10.7	**	**	**
35–44	54.1	51.7	56.5	20.8	18.9	22.8	13.2	11.7	15.0	11.5	10.1	13.1	**	**	**
45–54	62.4	60.2	64.5	17.5	15.9	19.2	9.8	8.6	11.2	10.2	9.0	11.6	**	**	**
55–64	68.8	66.7	70.7	17.4	15.8	19.1	6.7	5.7	7.9	6.9	5.9	8.1	**	**	**
65+	84.2	82.9	85.5	10.5	9.5	11.6	2.8	2.3	3.4	2.2	1.7	2.8	**	**	**
<b>Total</b>	<b>64.7</b>	<b>63.4</b>	<b>65.9</b>	<b>18.1</b>	<b>17.1</b>	<b>19.2</b>	<b>9.1</b>	<b>8.4</b>	<b>10.0</b>	<b>7.7</b>	<b>7.1</b>	<b>8.4</b>	<b>0.0</b>	<b>-</b>	<b>-</b>
<b>Persons</b>															
18–24	48.0	44.1	52.0	21.7	18.6	25.1	13.0	10.4	16.2	16.4	13.6	19.7	**	**	**
25–34	51.6	48.4	54.7	19.5	17.2	22.2	12.3	10.4	14.4	15.5	13.2	18.2	**	**	**
35–44	49.8	47.8	51.8	19.8	18.2	21.4	14.2	12.9	15.7	15.6	14.2	17.1	0.2*	0.1	0.4
45–54	56.8	55.0	58.6	18.6	17.2	20.0	11.3	10.3	12.5	12.9	11.7	14.2	**	**	**
55–64	68.0	66.4	69.6	16.7	15.4	17.9	7.7	6.8	8.6	7.5	6.7	8.4	**	**	**
65+	83.2	82.1	84.2	10.5	9.6	11.3	3.5	3.0	4.0	2.7	2.3	3.1	**	**	**
<b>Total</b>	<b>59.9</b>	<b>58.9</b>	<b>60.9</b>	<b>17.5</b>	<b>16.8</b>	<b>18.3</b>	<b>10.4</b>	<b>9.7</b>	<b>11.0</b>	<b>11.7</b>	<b>11.0</b>	<b>12.5</b>	<b>0.0</b>	<b>-</b>	<b>-</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 3.2 shows the most recent visit to a doctor or GP, by Department of Health region and sex. There was a significantly lower proportion of people who had visited a doctor or GP in the three months prior to the interview who lived in rural compared with metropolitan Victoria. There were no other significant regional differences with the exception that the proportion of people residing in the Eastern Metropolitan Region who consulted a doctor or GP six to less than 12 months prior to the interview was significantly higher compared with all Victorians.

Table 3.2: Last visit to a doctor or GP, by Department of Health region and sex, Victoria, 2011–12

Region	< 3 months ago			3 to < 6 months ago			6 to < 12 months ago			12 months ago or more			Have never consulted a doctor		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>															
Eastern Metropolitan	55.0	51.2	58.6	15.5	12.8	18.6	14.7	11.9	17.9	14.2	11.6	17.2	**	**	**
North & West Metropolitan	56.2	53.6	58.8	18.0	16.0	20.2	10.0	8.5	11.7	15.5	13.4	17.8	**	**	**
Southern Metropolitan	55.8	52.5	59.0	16.0	13.8	18.5	10.9	9.1	13.0	16.0	13.5	18.8	**	**	**
<b>Metropolitan males</b>	55.8	54.0	57.6	16.8	15.5	18.2	11.5	10.4	12.8	15.2	13.8	16.7	0.4*	0.2	0.9
Barwon-South Western	51.5	44.5	58.4	17.1	12.9	22.3	13.6	8.8	20.4	17.5	11.5	25.8	**	**	**
Gippsland	52.7	48.3	57.0	16.7	13.2	20.8	12.2	9.4	15.7	17.8	14.2	22.2	**	**	**
Grampians	54.0	49.1	58.8	18.8	14.9	23.5	11.4	8.7	14.8	14.7	11.7	18.2	**	**	**
Hume	53.3	48.9	57.7	19.6	15.9	23.8	9.3	7.3	11.7	17.0	14.0	20.4	**	**	**
Loddon Mallee	49.8	45.5	54.1	16.6	13.5	20.2	13.9	10.3	18.5	18.7	13.4	25.5	**	**	**
<b>Rural males</b>	52.4	49.4	55.3	17.8	15.9	20.0	12.0	9.8	14.5	17.1	14.6	20.0	0.3*	0.1	0.5
<b>Total</b>	<b>55.0</b>	<b>53.5</b>	<b>56.5</b>	<b>17.0</b>	<b>15.9</b>	<b>18.2</b>	<b>11.6</b>	<b>10.6</b>	<b>12.7</b>	<b>15.7</b>	<b>14.4</b>	<b>17.0</b>	<b>0.4*</b>	<b>0.2</b>	<b>0.7</b>
<b>Females</b>															
Eastern Metropolitan	63.1	59.5	66.6	18.1	15.5	20.9	10.9	8.6	13.7	7.6	6.1	9.4	0.0	-	-
North & West Metropolitan	67.7	65.6	69.7	16.4	14.9	18.1	8.5	7.2	9.9	7.2	6.0	8.5	**	**	**
Southern Metropolitan	64.7	61.9	67.3	19.7	17.4	22.2	8.3	6.9	9.9	7.1	5.9	8.6	0.0	-	-
<b>Metropolitan females</b>	65.5	64.0	66.9	17.9	16.7	19.2	9.0	8.1	10.0	7.3	6.6	8.2	**	**	**
Barwon-South Western	60.4	54.9	65.7	21.9	17.2	27.5	7.5	5.4	10.3	9.6	7.4	12.3	**	**	**
Gippsland	64.8	61.2	68.1	16.0	13.4	19.0	10.8	8.6	13.5	8.0	6.5	9.8	0.0	-	-
Grampians	63.2	59.2	67.1	18.0	14.9	21.6	8.9	7.0	11.4	9.1	6.9	12.0	**	**	**
Hume	63.1	59.9	66.1	17.9	15.3	20.9	9.3	7.6	11.3	9.6	8.0	11.5	0.0	-	-
Loddon Mallee	62.9	58.3	67.3	18.7	14.8	23.3	10.6	7.9	14.2	7.5	5.9	9.4	**	**	**
<b>Rural females</b>	62.5	60.4	64.6	18.8	16.8	20.8	9.4	8.3	10.7	8.9	7.9	9.9	0.1	0.0	0.1
<b>Total</b>	<b>64.7</b>	<b>63.4</b>	<b>65.9</b>	<b>18.1</b>	<b>17.1</b>	<b>19.2</b>	<b>9.1</b>	<b>8.4</b>	<b>10.0</b>	<b>7.7</b>	<b>7.1</b>	<b>8.4</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Table 3.2: Last visit to a doctor or GP, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	< 3 months ago			3 to < 6 months ago			6 to < 12 months ago			12 months ago or more			Have never consulted a doctor		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Persons</b>															
Eastern Metropolitan	59.1	56.5	61.6	16.7	14.8	18.7	12.9	11.0	15.1	10.8	9.3	12.6	**	**	**
North & West Metropolitan	62.0	60.3	63.6	17.2	15.9	18.6	9.2	8.2	10.3	11.3	10.1	12.7	0.1*	0.0	0.2
Southern Metropolitan	60.3	58.1	62.3	17.9	16.3	19.7	9.6	8.5	10.9	11.5	10.0	13.1	**	**	**
<b>Metropolitan persons</b>	60.7	59.5	61.8	17.3	16.4	18.2	10.2	9.5	11.0	11.3	10.4	12.2	0.2*	0.1	0.4
<b>Barwon-South Western</b>	56.2	51.2	61.1	19.3	15.8	23.4	10.2	7.3	14.1	13.8	10.2	18.4	0.1*	0.1	0.3
<b>Gippsland</b>	59.0	56.0	61.9	16.2	14.0	18.7	11.3	9.5	13.5	12.9	10.9	15.3	**	**	**
<b>Grampians</b>	58.6	55.3	61.8	18.5	15.9	21.6	10.1	8.3	12.2	11.9	10.0	14.2	**	**	**
<b>Hume</b>	58.0	55.2	60.7	18.9	16.6	21.5	9.2	7.9	10.7	13.4	11.6	15.4	**	**	**
<b>Loddon Mallee</b>	56.3	52.7	59.7	17.5	14.7	20.6	12.5	10.0	15.6	13.1	9.8	17.3	**	**	**
<b>Rural persons</b>	57.5	55.6	59.3	18.2	16.8	19.7	10.7	9.4	12.0	13.1	11.6	14.7	0.2*	0.1	0.3
<b>Total</b>	<b>59.9</b>	<b>58.9</b>	<b>60.9</b>	<b>17.5</b>	<b>16.8</b>	<b>18.3</b>	<b>10.4</b>	<b>9.7</b>	<b>11.0</b>	<b>11.7</b>	<b>11.0</b>	<b>12.5</b>	<b>0.2*</b>	<b>0.1</b>	<b>0.4</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

# Biomedical checks and cancer screening

Table 3.3 shows the most recent visit to a doctor or GP, by LGA. The proportion of people who had visited a doctor or GP less than three months prior to the survey was significantly higher in those who lived in the LGAs of Hume (C), Moonee Valley (C), Wellington (S) and Wyndham (C) compared with all Victorians. By contrast the proportion of people who had visited a doctor or GP less than three months prior to the survey was significantly lower in those who lived in the LGAs of Benalla (RC), Colac-Otway (S), Hindmarsh (S) and Indigo (S) compared with all Victorians.

The proportion of people who had visited a doctor or GP 12 months or more prior to the survey interview was significantly higher in those who lived in the LGAs of Indigo (S) and Mansfield (S) compared with all Victorians.

Table 3.3: Last visit to a doctor or GP, by LGA, Victoria, 2011–12

LGA	< 3 months ago			3 to < 6 months ago			6 to < 12 months ago			12 months ago or more		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	60.7	50.5	70.1	13.0	9.3	17.9	7.9	5.2	12.0	18.3*	10.9	29.2
Ararat (RC)	66.1	59.1	72.5	15.3	10.8	21.2	10.7	6.8	16.5	7.5	4.8	11.7
Ballarat (C)	62.8	56.3	68.9	17.0	12.2	23.2	9.1	6.2	13.2	10.6	7.3	15.2
Banyule (C)	64.6	58.3	70.4	15.3	10.9	21.2	11.4	7.3	17.3	8.7	5.4	13.8
Bass Coast (S)	68.2	59.9	75.5	13.5	8.4	21.0	6.2	3.8	10.0	11.6	7.1	18.4
Baw Baw (S)	55.7	49.2	62.0	17.6	12.8	23.6	11.6	7.9	16.5	13.5	9.2	19.5
Bayside (C)	54.4	46.7	62.0	17.4	12.0	24.6	13.3	8.2	20.7	14.6	9.2	22.5
Benalla (RC)	49.1	39.6	58.6	21.0	13.4	31.5	9.7	7.0	13.3	18.8	12.2	27.9
Boroondara (C)	60.1	53.4	66.5	13.6	9.5	19.0	15.7	11.0	21.7	10.2	6.5	15.8
Brimbank (C)	57.3	51.7	62.7	20.1	15.7	25.5	10.3	7.3	14.3	11.6	8.2	16.1
Buloke (S)	59.0	50.9	66.6	21.6	15.2	29.7	7.9	5.4	11.6	11.4	7.6	16.6
Campaspe (S)	52.9	46.1	59.6	19.7	14.0	27.1	12.1	7.3	19.2	14.4	9.9	20.5
Cardinia (S)	57.3	51.6	62.8	19.6	15.1	25.0	11.1	8.0	15.1	11.7	8.3	16.2
Casey (C)	63.0	57.1	68.5	17.0	12.8	22.3	6.5	4.4	9.5	12.3	8.4	17.6
Central Goldfields (S)	54.7	47.8	61.4	19.0	11.7	29.3	14.3*	6.7	27.7	9.5	6.2	14.3
Colac-Otway (S)	50.8	43.7	57.8	20.5	15.1	27.2	13.4	8.5	20.4	15.1	10.9	20.5
Corangamite (S)	52.8	44.9	60.6	22.7	15.9	31.4	11.3	7.4	17.0	13.2	10.0	17.2
Darebin (C)	57.8	51.8	63.6	16.5	12.4	21.6	10.5	7.5	14.6	15.2	10.7	21.0
East Gippsland (S)	55.7	48.6	62.6	18.0	13.0	24.3	14.2	9.3	21.1	12.1	8.5	17.0
Frankston (C)	58.9	52.3	65.2	19.8	14.8	25.8	10.4	7.3	14.6	10.9	7.1	16.4
Gannawarra (S)	57.8	49.3	65.9	15.8	10.4	23.4	12.3	7.8	18.8	13.5	8.9	20.0
Glen Eira (C)	59.2	52.6	65.4	17.2	13.0	22.3	15.8	11.3	21.7	7.8	4.9	12.3
Glenelg (S)	55.8	50.6	60.9	16.5	10.9	24.2	11.9*	6.6	20.7	15.5	9.4	24.5
Golden Plains (S)	52.4	45.2	59.5	20.1	14.7	27.0	10.2	6.2	16.3	16.8	11.1	24.6
Greater Bendigo (C)	56.0	47.8	64.0	15.2	9.9	22.7	13.0	8.1	20.2	15.0*	8.3	25.5
Greater Dandenong (C)	63.2	57.6	68.5	18.8	14.6	24.0	7.7	5.1	11.4	8.8	5.8	13.1
Greater Geelong (C)	55.7	48.0	63.1	20.9	15.8	27.1	9.5*	5.2	17.0	13.5	8.6	20.5
Greater Shepparton (C)	57.6	49.6	65.3	24.3	17.2	33.1	6.6	4.5	9.7	10.3	6.6	15.7
Hepburn (S)	52.6	44.7	60.3	18.1	12.7	25.0	13.2*	6.8	24.0	15.9*	8.8	27.2
Hindmarsh (S)	49.2	43.8	54.5	24.7	17.5	33.6	13.0*	7.4	21.8	11.5*	6.6	19.2
Hobsons Bay (C)	59.1	52.6	65.3	15.6	11.7	20.4	12.5	8.6	17.7	12.9	8.5	19.0
Horsham (RC)	55.9	45.8	65.6	22.9	13.8	35.7	7.5	4.9	11.2	11.9	7.9	17.5
Hume (C)	67.5	61.8	72.8	15.4	11.5	20.4	6.6	4.3	10.0	10.0	6.7	14.6
Indigo (S)	50.9	43.9	57.9	18.2	13.2	24.6	11.9	7.8	17.8	18.3	12.7	25.7
Kingston (C)	59.1	52.2	65.5	18.4	13.4	24.9	8.1	5.2	12.3	14.4	9.9	20.5
Knox (C)	56.5	50.5	62.4	19.3	15.0	24.4	13.5	9.4	19.0	9.5	6.7	13.3
Latrobe (C)	58.5	52.3	64.4	15.6	11.4	21.0	11.8	8.3	16.6	13.9	9.6	19.8
Loddon (S)	58.4	49.3	66.9	21.2	13.4	31.9	10.1	6.3	15.8	9.3	6.2	13.7
Macedon Ranges (S)	56.7	49.9	63.3	13.9	10.4	18.3	13.1	9.0	18.7	15.2	10.4	21.6
Manningham (C)	63.6	56.4	70.2	18.0	12.8	24.6	9.2	6.0	13.9	9.2	5.6	14.5
Mansfield (S)	51.8	44.4	59.2	15.1	10.3	21.5	10.0	6.6	14.8	23.1	16.1	31.8
Maribyrnong (C)	61.2	54.6	67.5	17.4	13.3	22.4	10.3	6.9	15.1	10.6	7.1	15.5

Table 3.3: Last visit to a doctor or GP, by LGA, Victoria, 2011–12 (continued)

LGA	< 3 months ago			3 to < 6 months ago			6 to < 12 months ago			12 months ago or more		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Maroondah (C)	61.2	54.8	67.3	14.6	10.8	19.3	11.7	7.7	17.5	12.2	8.7	16.9
Melbourne (C)	57.8	51.7	63.7	18.7	14.3	24.1	8.1	5.3	12.1	15.2	10.7	21.1
Melton (S)	63.4	57.8	68.8	19.6	15.2	24.8	6.8	4.7	9.8	9.6	6.7	13.5
Mildura (RC)	62.3	55.5	68.6	19.1	13.8	26.0	9.0	5.9	13.3	9.7*	5.5	16.4
Mitchell (S)	63.5	56.6	69.9	12.8	8.6	18.5	7.8	5.2	11.4	15.6	10.6	22.4
Moira (S)	51.9	44.5	59.1	19.3	14.5	25.1	15.0	9.5	23.0	11.0	7.2	16.3
Monash (C)	54.1	47.8	60.3	18.3	13.7	23.9	12.3	8.1	18.4	14.4	10.1	20.1
Moonee Valley (C)	69.6	63.1	75.4	11.8	8.6	15.9	9.6	6.2	14.6	8.9*	5.1	15.0
Moorabool (S)	53.8	47.5	60.1	19.8	14.9	25.9	12.1	8.1	17.5	12.0	8.1	17.5
Moreland (C)	59.2	52.8	65.2	20.7	15.7	26.8	9.2	6.1	13.5	10.7	6.6	16.9
Mornington Peninsula (S)	55.2	48.2	62.0	16.3	11.3	23.0	13.7	9.0	20.4	14.0	9.7	19.7
Mount Alexander (S)	57.9	50.0	65.4	16.7	11.5	23.7	16.3	10.3	24.7	9.0*	5.3	14.8
Moyne (S)	57.2	49.0	65.1	16.6	10.9	24.4	9.3	5.8	14.5	16.9	11.4	24.2
Murrindindi (S)	66.4	57.9	73.9	15.4	9.6	23.6	6.7*	3.9	11.3	11.4	7.8	16.4
Nilumbik (S)	56.2	49.5	62.7	20.6	15.3	27.2	9.7	6.1	15.1	13.4	9.6	18.5
Northern Grampians (S)	57.5	47.4	66.9	23.7	14.1	36.9	8.7*	4.5	16.1	10.0	6.8	14.5
Port Phillip (C)	61.9	54.4	68.8	18.7	13.7	25.0	5.2	3.5	7.8	11.7	7.3	18.1
Pyrenees (S)	61.8	50.2	72.2	19.4*	10.4	33.4	6.8*	4.1	11.0	11.2*	6.1	19.7
Queenscliffe (B)	53.1	43.3	62.6	19.3	12.8	28.1	10.1*	5.3	18.4	17.5*	9.9	29.2
South Gippsland (S)	53.2	44.7	61.6	15.3	11.3	20.5	12.2	7.4	19.4	16.7	10.3	26.0
Southern Grampians (S)	57.7	48.4	66.4	15.1	9.2	23.7	13.6	9.6	18.9	12.1	8.5	17.0
Stonnington (C)	59.9	53.5	66.1	20.1	15.4	25.7	8.5	5.6	12.8	10.3	6.7	15.5
Strathbogie (S)	55.3	44.6	65.5	21.5*	12.1	35.4	9.8*	5.2	17.6	13.3	8.6	20.0
Surf Coast (S)	60.2	51.9	68.0	16.2	11.1	23.0	12.6*	7.6	20.3	10.7	6.5	17.1
Swan Hill (RC)	57.1	49.8	64.1	20.8	15.0	28.1	10.4	7.2	14.7	11.3	7.5	16.6
Towong (S)	52.8	45.0	60.6	17.5	13.7	22.0	10.7	7.5	14.9	19.0	12.5	27.9
Wangaratta (RC)	53.4	46.4	60.2	23.6	17.7	30.7	9.7	6.3	14.8	13.2	9.0	18.8
Warrnambool (C)	58.5	52.3	64.5	16.2	11.8	21.8	10.1	6.6	15.3	14.3	9.7	20.6
Wellington (S)	67.1	60.9	72.8	14.0	10.3	18.8	8.9	6.4	12.2	9.9	6.6	14.6
West Wimmera (S)	55.6	49.2	61.8	14.0	10.2	19.0	15.2	10.3	21.7	14.6	10.3	20.3
Whitehorse (C)	57.9	51.2	64.3	18.4	13.5	24.7	13.5	9.1	19.7	9.9	6.7	14.3
Whittlesea (C)	63.6	58.0	68.8	17.1	13.3	21.7	7.2	4.7	11.0	12.1	8.5	16.9
Wodonga (RC)	61.2	54.5	67.5	18.8	13.4	25.6	8.8	5.7	13.4	10.8	6.7	17.0
Wyndham (C)	66.5	61.0	71.5	17.8	13.7	22.7	5.8	3.7	8.9	9.4	6.3	13.9
Yarra (C)	62.2	54.3	69.5	16.4	11.9	22.3	10.6*	6.1	17.8	10.1	7.0	14.3
Yarra Ranges (S)	62.6	55.7	69.0	16.3	11.2	23.0	10.9	7.4	15.8	10.3	7.0	14.7
Yarriambiack (S)	61.9	53.7	69.5	20.1	14.3	27.5	9.4*	5.3	16.1	8.5	5.8	12.3
<b>Victoria</b>	<b>59.8</b>	<b>58.8</b>	<b>60.8</b>	<b>17.6</b>	<b>16.8</b>	<b>18.4</b>	<b>10.3</b>	<b>9.7</b>	<b>11.0</b>	<b>11.8</b>	<b>11.0</b>	<b>12.5</b>

Data are age standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' or 'never' responses, not reported here.



## 3.2 Biomedical checks

A variety of tests may be done by a health professional during a routine physical examination, depending on the individual's age, family history and state of health. Some of the following tests may be done each time the patient visits the doctor and some are necessary only when specific complaints or concerns are raised, or when an individual reaches a certain age or risk category.

Survey respondents were asked whether, in the two years prior to the survey, they had had a blood pressure check, a blood test for cholesterol or a test for diabetes or high glucose (blood sugar) levels.

Table 3.4 shows the proportion of men and women who reported having had a blood pressure, cholesterol or blood glucose check in the previous two years, by age group and sex.

Overall, 82.3 per cent of Victorian adults had had their blood pressure checked in the previous two years and this was significantly higher for women (85.1 per cent) compared with men (79.5 per cent). There was a significantly higher proportion of men, women and adults aged 45 years or over who had had their blood pressure checked compared with all men, women and Victorian adults, respectively. By contrast the proportion was significantly lower in men and people aged 18–34 years and women aged 18–44 years.

Overall, 60.8 per cent of Victorian adults had had their cholesterol checked in the previous two years and this was significantly higher for men (62.6 per cent) compared with women (59.2 per cent). There was a significantly higher proportion of men, women and adults aged 45 years or over who had had their cholesterol checked compared with all men, women and Victorian adults, respectively. By contrast the proportion was significantly lower in men aged 18–34 years and women and adults aged 18–44 years.

Overall, 56.1 per cent of Victorian adults had had their blood glucose checked in the previous two years and there was no difference between men and women. There was a significantly higher proportion of men, women and adults aged 45 years or over who had had their blood glucose checked compared with all men, women and Victorian adults, respectively. By contrast the proportion was significantly lower in men aged 18–34 years and women and people aged 18–44 years.

Table 3.4: Biomedical checks in the past two years, by age group and sex, Victoria, 2011–12

Age group (years)	Blood pressure			Cholesterol			Blood glucose		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
18–24	46.5	40.8	52.2	22.7	18.1	28.1	20.3	15.9	25.6
25–34	67.8	63.0	72.3	35.5	30.9	40.4	34.2	29.5	39.2
35–44	78.5	75.8	81.1	61.2	58.0	64.3	52.4	49.2	55.6
45–54	88.5	86.6	90.1	76.5	74.1	78.8	65.9	63.2	68.4
55–64	94.2	92.8	95.3	87.2	85.3	88.8	77.7	75.4	79.8
65+	96.5	95.7	97.2	90.0	88.7	91.2	79.1	77.3	80.8
<b>Total</b>	<b>79.5</b>	<b>78.1</b>	<b>80.8</b>	<b>62.6</b>	<b>61.1</b>	<b>63.9</b>	<b>55.5</b>	<b>54.0</b>	<b>56.9</b>
<b>Females</b>									
18–24	67.8	62.5	72.7	22.5	18.5	27.1	23.0	18.9	27.7
25–34	80.5	77.2	83.4	35.8	32.3	39.5	50.7	46.9	54.4
35–44	81.8	79.8	83.6	53.5	51.1	55.9	52.5	50.2	54.9
45–54	89.3	87.9	90.5	73.7	71.7	75.6	64.2	62.1	66.3
55–64	93.1	91.8	94.1	82.2	80.5	83.8	71.4	69.4	73.3
65+	96.6	95.9	97.2	85.6	84.4	86.8	74.7	73.1	76.2
<b>Total</b>	<b>85.1</b>	<b>84.0</b>	<b>86.1</b>	<b>59.2</b>	<b>58.0</b>	<b>60.3</b>	<b>56.8</b>	<b>55.6</b>	<b>57.9</b>
<b>Persons</b>									
18–24	56.9	52.9	60.8	22.6	19.5	26.1	21.6	18.6	25.1
25–34	74.1	71.2	76.8	35.7	32.7	38.7	42.4	39.3	45.5
35–44	80.2	78.5	81.8	57.3	55.3	59.3	52.5	50.5	54.5
45–54	88.9	87.7	89.9	75.1	73.5	76.5	65.0	63.4	66.7
55–64	93.6	92.7	94.4	84.7	83.4	85.8	74.5	73.0	75.9
65+	96.5	96.0	97.0	87.6	86.7	88.4	76.7	75.5	77.8
<b>Total</b>	<b>82.3</b>	<b>81.4</b>	<b>83.1</b>	<b>60.8</b>	<b>59.9</b>	<b>61.7</b>	<b>56.1</b>	<b>55.1</b>	<b>57.0</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 3.5 shows the proportion of men and women who had had a blood pressure, cholesterol or blood glucose (blood sugar) check in the previous two years, by Department of Health region and sex.

There were no significant regional differences in the proportion of men or women who had had a blood pressure check in the previous two years, with the exception of people who lived in Grampians Region, where the proportion was significantly lower compared with all Victorian adults.

The proportion of men, women and adults who had had a cholesterol check was significantly higher for those who lived in metropolitan compared with rural Victoria. There was also a significantly higher proportion of women who lived in North &

West Metropolitan Region who had had a cholesterol check compared with all women. By contrast a significantly lower proportion of men had had a cholesterol check in the previous two years who lived in Barwon-South Western Region, along with women who lived in Grampians Region and people who lived in Barwon-South Western Region and Grampians Region compared with all men, women and Victorian adults, respectively.

There were no significant regional differences in the proportion of men or people who had had a blood glucose check in the previous two years. However, there was a significantly lower proportion of women who lived in Barwon-South Western Region who had had a blood glucose check compared with all women.

Table 3.5: Biomedical checks in the past two years, by Department of Health region and sex, Victoria, 2011–12

Region	Blood pressure			Cholesterol			Blood glucose		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
Eastern Metropolitan	78.2	74.7	81.4	62.3	58.8	65.7	53.0	49.5	56.5
North & West Metropolitan	80.4	78.1	82.5	63.5	61.1	65.8	56.9	54.5	59.3
Southern Metropolitan	80.4	77.4	83.0	64.9	61.9	67.9	56.3	53.2	59.3
<b>Metropolitan males</b>	79.9	78.3	81.4	63.8	62.1	65.4	55.7	54.0	57.4
Barwon-South Western	77.8	69.5	84.4	55.5	51.0	59.9	57.6	49.5	65.3
Gippsland	78.4	74.0	82.3	61.0	56.9	65.0	58.3	53.8	62.6
Grampians	74.1	69.3	78.4	57.3	53.2	61.3	50.9	46.7	55.0
Hume	79.8	75.2	83.8	60.5	56.4	64.6	54.3	50.1	58.4
Loddon Mallee	79.7	75.2	83.5	61.1	56.7	65.4	53.7	49.5	57.8
<b>Rural males</b>	78.0	75.1	80.6	58.8	56.6	60.9	55.1	52.1	58.1
<b>Total</b>	<b>79.5</b>	<b>78.1</b>	<b>80.8</b>	<b>62.6</b>	<b>61.1</b>	<b>63.9</b>	<b>55.5</b>	<b>54.0</b>	<b>56.9</b>
<b>Females</b>									
Eastern Metropolitan	87.7	84.9	90.1	57.6	54.5	60.6	54.6	51.4	57.8
North & West Metropolitan	84.9	83.2	86.5	62.5	60.6	64.3	59.6	57.7	61.6
Southern Metropolitan	84.7	82.3	86.8	59.8	57.3	62.2	56.9	54.3	59.5
<b>Metropolitan females</b>	85.5	84.2	86.7	60.4	59.0	61.7	57.6	56.1	59.0
Barwon-South Western	82.2	77.7	86.0	54.6	49.7	59.4	50.7	46.1	55.3
Gippsland	86.2	83.3	88.6	58.1	54.5	61.7	58.2	54.5	61.8
Grampians	83.2	79.7	86.3	53.2	49.6	56.9	54.8	50.9	58.6
Hume	86.0	83.1	88.4	56.3	53.4	59.0	53.5	50.5	56.5
Loddon Mallee	85.1	80.9	88.5	56.2	53.1	59.3	56.8	53.4	60.2
<b>Rural females</b>	84.1	82.2	85.8	55.6	53.7	57.4	54.5	52.7	56.4
<b>Total</b>	<b>85.1</b>	<b>84.0</b>	<b>86.1</b>	<b>59.2</b>	<b>58.0</b>	<b>60.3</b>	<b>56.8</b>	<b>55.6</b>	<b>57.9</b>
<b>Persons</b>									
Eastern Metropolitan	82.9	80.5	84.9	59.9	57.6	62.2	54.0	51.6	56.4
North & West Metropolitan	82.7	81.3	84.1	63.0	61.5	64.5	58.3	56.7	59.8
Southern Metropolitan	82.5	80.6	84.2	62.3	60.3	64.2	56.6	54.6	58.6
<b>Metropolitan persons</b>	82.7	81.7	83.7	62.0	60.9	63.1	56.6	55.5	57.7
Barwon-South Western	79.3	74.2	83.6	54.6	51.1	58.1	54.1	49.2	58.9
Gippsland	82.3	79.7	84.7	59.5	56.7	62.2	58.2	55.2	61.1
Grampians	78.4	75.1	81.3	55.0	52.1	57.7	52.6	49.8	55.5
Hume	82.9	80.2	85.3	58.3	55.8	60.7	53.9	51.3	56.4
Loddon Mallee	81.7	78.2	84.7	58.3	55.6	61.0	54.6	51.7	57.5
<b>Rural persons</b>	80.9	79.1	82.5	57.0	55.6	58.4	54.7	53.0	56.5
<b>Total</b>	<b>82.3</b>	<b>81.4</b>	<b>83.1</b>	<b>60.8</b>	<b>59.9</b>	<b>61.7</b>	<b>56.1</b>	<b>55.1</b>	<b>57.0</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Table 3.6 shows the proportion of men and women who had had a blood pressure, cholesterol or blood glucose (blood sugar) check in the previous two years, by LGA.

The proportion of people who lived in the LGA of Moreland (C) and had had a blood pressure check in the previous two years was significantly higher compared with all Victorian adults. By contrast the proportion was significantly lower in people who lived in the LGAs of Pyrenees (S) and Surf Coast (S) compared with all Victorian adults.

The proportion of people who lived in the LGAs of Greater Dandenong (C), Melton (S) and Whittlesea (C) and who had had a cholesterol check in the previous two years was significantly higher compared with all Victorian adults. By contrast the proportion of people who lived in Alpine (S), Ballarat (C), Baw Baw (S), Central Goldfields (S), Colac-Otway (S), Golden Plains (S), Hindmarsh (S), Indigo (S), Loddon (S), Mansfield (S), Mount Alexander (S), Pyrenees (S), Queenscliffe (B), South Gippsland (S), Southern Grampians (S), Surf Coast (S) and West Wimmera (S) was significantly lower compared with all Victorian adults.

The proportion of people who lived in the LGAs of Greater Dandenong (C), Latrobe (C), Melton (S) and Whittlesea (C) and who had had a blood glucose check in the previous two years was significantly higher compared with all Victorian adults. By contrast the proportion of people who lived in Benalla (RC), Boroondara (C), Golden Plains (S), Hepburn (S), Mansfield (S), Queenscliffe (B), South Gippsland (S), Southern Grampians (S), Surf Coast (S) and Yarra (C) was significantly lower compared with all Victorian adults.

Table 3.6: Biomedical checks in the past two years, by LGA, Victoria, 2011–12

LGA	Blood pressure check			Cholesterol check			Blood glucose check		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	87.5	80.4	92.2	48.8	44.1	53.6	49.8	43.5	56.1
Ararat (RC)	79.7	71.8	85.8	59.9	52.7	66.8	58.0	51.3	64.3
Ballarat (C)	79.4	73.0	84.5	53.8	48.5	59.1	51.2	45.7	56.7
Banyule (C)	87.2	81.0	91.6	63.0	56.4	69.1	58.5	51.8	64.9
Bass Coast (S)	85.3	77.1	90.9	62.9	55.4	69.8	62.0	54.1	69.4
Baw Baw (S)	81.5	75.0	86.5	53.2	48.0	58.4	51.7	45.9	57.5
Bayside (C)	85.6	76.3	91.6	60.7	53.3	67.7	52.6	45.3	59.8
Benalla (RC)	74.8	64.3	83.1	57.7	47.9	66.8	46.7	40.7	52.7
Boroondara (C)	83.3	77.0	88.2	56.0	49.9	61.9	45.6	39.6	51.7
Brimbank (C)	75.6	70.0	80.4	65.9	60.9	70.5	60.6	55.2	65.8
Buloke (S)	84.7	76.9	90.2	56.9	48.9	64.5	55.0	47.0	62.7
Campaspe (S)	77.3	70.2	83.2	59.2	53.1	65.1	53.6	47.2	59.9
Cardinia (S)	82.9	78.0	87.0	57.4	52.3	62.3	49.7	44.5	54.9
Casey (C)	79.9	74.2	84.7	65.0	59.6	70.0	61.5	55.9	66.9
Central Goldfields (S)	79.5	68.4	87.4	51.7	46.6	56.7	57.0	45.8	67.5
Colac-Otway (S)	79.4	72.0	85.3	46.0	41.5	50.6	48.6	42.0	55.3
Corangamite (S)	79.2	70.8	85.6	53.6	47.4	59.7	58.4	50.8	65.7
Darebin (C)	79.5	73.6	84.4	59.7	54.7	64.6	54.4	48.7	60.0
East Gippsland (S)	82.3	75.4	87.5	55.5	49.5	61.4	53.9	47.1	60.4
Frankston (C)	86.5	80.8	90.8	61.8	55.8	67.3	55.5	49.5	61.4
Gannawarra (S)	83.9	75.3	89.9	64.8	56.2	72.6	60.2	51.6	68.2
Glen Eira (C)	83.7	77.8	88.3	62.7	56.4	68.6	51.8	45.3	58.1
Glenelg (S)	81.1	71.9	87.8	57.7	50.3	64.9	58.3	50.6	65.6
Golden Plains (S)	77.2	69.4	83.5	51.3	44.3	58.2	47.8	42.9	52.7
Greater Bendigo (C)	81.6	73.0	87.9	56.7	50.1	63.0	52.8	46.0	59.5
Greater Dandenong (C)	77.9	72.7	82.3	67.1	61.9	71.9	62.6	57.4	67.5
Greater Geelong (C)	78.3	70.6	84.4	56.4	51.0	61.8	56.0	48.5	63.2
Greater Shepparton (C)	81.7	73.0	88.0	62.0	54.3	69.1	56.5	48.9	63.9
Hepburn (S)	77.1	66.3	85.2	51.7	43.8	59.5	45.4	40.3	50.7
Hindmarsh (S)	80.6	71.5	87.4	51.4	45.8	56.8	52.5	46.4	58.6
Hobsons Bay (C)	82.7	76.5	87.6	60.7	54.4	66.7	54.5	48.5	60.4
Horsham (RC)	78.8	67.4	87.0	56.5	47.3	65.2	57.3	47.8	66.4
Hume (C)	80.3	74.9	84.7	66.2	60.6	71.5	55.9	50.0	61.6
Indigo (S)	78.3	71.0	84.2	49.9	44.4	55.3	48.6	42.7	54.7
Kingston (C)	78.4	71.8	83.8	57.4	51.8	62.7	55.1	48.8	61.3
Knox (C)	85.4	80.3	89.3	59.8	54.2	65.2	53.9	48.1	59.6
Latrobe (C)	79.8	73.8	84.7	66.6	60.6	72.1	65.8	59.8	71.4
Loddon (S)	82.9	72.9	89.7	53.3	48.0	58.6	56.7	48.3	64.7
Macedon Ranges (S)	79.1	72.5	84.4	58.6	52.7	64.3	51.6	47.1	56.0
Manningham (C)	85.0	78.2	90.0	63.5	56.7	69.7	57.0	50.7	63.2
Mansfield (S)	88.0	80.4	92.9	50.7	45.9	55.5	48.4	43.4	53.5

Table 3.6: Biomedical checks in the past two years, by LGA, Victoria, 2011–12 (continued)

LGA	Blood pressure check			Cholesterol check			Blood glucose check		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Maribyrnong (C)	82.0	75.4	87.2	58.7	53.4	63.7	60.9	54.9	66.6
Maroondah (C)	86.2	80.5	90.4	61.5	55.1	67.5	59.5	52.8	65.8
Melbourne (C)	81.7	76.0	86.3	60.3	54.7	65.6	53.9	48.4	59.3
Melton (S)	78.2	73.0	82.6	67.7	62.1	72.8	64.7	59.4	69.7
Mildura (RC)	84.9	78.2	89.8	63.5	56.9	69.5	60.9	53.9	67.5
Mitchell (S)	82.4	75.4	87.7	62.0	55.2	68.4	49.8	44.2	55.5
Moira (S)	76.0	67.5	82.8	53.4	46.9	59.8	52.3	44.3	60.1
Monash (C)	79.9	73.5	85.1	63.0	56.7	68.9	56.6	50.2	62.7
Moonee Valley (C)	85.5	79.4	90.0	57.2	51.2	63.0	53.9	47.7	60.0
Moorabool (S)	74.1	68.1	79.4	58.1	52.1	64.0	52.1	46.0	58.1
Moreland (C)	90.3	85.5	93.6	61.3	55.7	66.7	58.7	52.6	64.5
Mornington Peninsula (S)	82.3	75.7	87.4	56.8	50.4	62.9	52.0	46.3	57.7
Mount Alexander (S)	79.6	70.7	86.4	50.9	44.7	57.1	49.4	41.6	57.3
Moyne (S)	81.6	73.5	87.6	54.9	49.4	60.3	52.8	45.9	59.6
Murrindindi (S)	79.7	70.8	86.4	61.2	52.7	69.0	56.0	47.6	64.1
Nillumbik (S)	86.6	79.8	91.4	57.1	51.7	62.4	50.3	44.2	56.4
Northern Grampians (S)	79.7	69.9	86.9	64.2	53.9	73.4	59.8	49.8	69.0
Port Phillip (C)	81.7	74.5	87.2	60.3	53.3	67.0	52.8	45.5	59.9
Pyrenees (S)	71.6	64.9	77.4	52.2	47.3	57.0	57.0	50.3	63.4
Queenscliffe (B)	74.5	63.5	83.1	51.0	45.6	56.3	47.3	40.8	54.0
South Gippsland (S)	78.1	69.9	84.6	51.2	45.2	57.2	47.5	42.1	52.9
Southern Grampians (S)	80.4	70.0	87.9	46.3	40.5	52.2	44.5	38.6	50.5
Stonnington (C)	84.8	78.8	89.4	61.1	55.0	66.9	53.8	47.4	60.1
Strathbogie (S)	84.2	75.1	90.4	54.6	49.4	59.7	55.5	47.0	63.7
Surf Coast (S)	69.3	61.4	76.3	45.7	41.3	50.2	40.9	35.8	46.2
Swan Hill (RC)	82.8	75.7	88.2	60.8	53.7	67.4	56.5	49.6	63.1
Towong (S)	85.6	77.2	91.3	56.4	51.5	61.1	55.5	48.4	62.3
Wangaratta (RC)	87.0	80.7	91.4	55.0	49.3	60.6	52.6	45.8	59.2
Warrnambool (C)	84.6	78.7	89.0	59.2	53.8	64.4	53.9	48.1	59.7
Wellington (S)	87.6	81.4	91.9	57.1	51.1	62.9	55.1	47.4	62.6
West Wimmera (S)	78.7	71.7	84.3	53.2	48.2	58.1	52.0	46.4	57.6
Whitehorse (C)	80.1	73.7	85.3	56.3	51.0	61.5	51.6	46.5	56.6
Whittlesea (C)	81.7	76.5	85.9	69.2	63.6	74.2	66.2	60.6	71.4
Wodonga (RC)	87.1	81.4	91.2	58.7	53.5	63.8	53.6	48.3	58.9
Wyndham (C)	83.8	79.3	87.5	60.8	56.2	65.2	59.7	54.7	64.4
Yarra (C)	85.1	77.7	90.4	58.4	52.0	64.5	45.9	40.7	51.2
Yarra Ranges (S)	82.6	75.5	87.9	57.3	51.1	63.3	52.3	45.9	58.6
Yarriambiack (S)	86.6	80.2	91.2	57.7	50.2	64.9	56.5	49.0	63.8
<b>Victoria</b>	<b>81.9</b>	<b>81.0</b>	<b>82.8</b>	<b>60.4</b>	<b>59.5</b>	<b>61.3</b>	<b>55.6</b>	<b>54.6</b>	<b>56.5</b>

Data were age standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

### 3.3 Bowel cancer screening

Screening is defined as the examination of a group of usually asymptomatic individuals to detect those who may have an undiagnosed pathologic condition or are at high risk of that condition. Most diseases and conditions have a better prognosis if caught and treated in the early stages. Therefore the purpose of screening is to identify individuals in the early stages of the disease so that treatment can be initiated, thus improving health outcomes and reducing mortality.

Bowel cancer is one of the most common forms of cancer in Australia, and around 80 Australians die each week from the disease. Bowel cancer can be treated successfully if detected in its early stages, but currently fewer than 40 per cent of bowel cancers are detected early (DoHA 2013b).

In 2006 the Australian Government commenced a limited bowel cancer screening program, which continues to be expanded. When fully implemented it is expected that all Australians between the ages of 50 and 74 years will be offered free biennial screening. People eligible for the program receive a written

invitation in the mail to complete an FOBT, which they return by mail to a designated pathology laboratory for analysis. If the test is positive they are advised to consult their doctor who will generally recommend a follow-up colonoscopy. Currently, people aged 50, 55, 60 or 65 years who hold a Medicare or DVA card are being invited to participate (DoHA 2013b).

Respondents aged 50 years or over were asked whether they had received an FOBT kit from the National Bowel Cancer Screening Program (NBCSP) in the mail. Table 3.7 shows the proportion of people who had received an FOBT kit, by age group and sex.

Overall, 48.6 per cent of people aged 50 years or over had received an FOBT kit in the mail, with a significantly higher proportion being men (50.0 per cent) compared with women (47.3 per cent). The highest proportion of men (73.8 per cent) and women (73.0 per cent) who had received an FOBT kit were aged 50–59 years.

**Table 3.7: Received faecal occult blood test (FOBT) kit in mail from NBCSP,<sup>a</sup> by age group and sex, Victoria, 2011–12**

Age group (years)	Received FOBT kit in mail from NBCSP						
	%	Yes		%	No		
		95% CI			95% CI		
		LL	UL		LL	UL	
<b>Males</b>							
50–59	73.8	71.3	76.1	24.5	22.2	27.0	
60–69	51.4	48.8	53.9	46.8	44.3	49.4	
70–79	25.6	22.9	28.5	70.1	67.1	72.9	
80+	9.2	6.9	12.0	86.4	83.0	89.2	
<b>Total</b>	<b>50.0</b>	<b>48.7</b>	<b>51.3</b>	<b>47.4</b>	<b>46.1</b>	<b>48.8</b>	
<b>Females</b>							
50–59	73.0	71.0	75.0	25.9	24.0	27.9	
60–69	50.6	48.5	52.8	48.5	46.3	50.7	
70–79	19.0	17.1	21.1	79.5	77.3	81.5	
80+	8.0	6.3	10.0	89.9	87.8	91.7	
<b>Total</b>	<b>47.3</b>	<b>46.2</b>	<b>48.3</b>	<b>51.4</b>	<b>50.4</b>	<b>52.5</b>	
<b>Persons</b>							
50–59	73.4	71.8	74.9	25.2	23.7	26.8	
60–69	51.0	49.3	52.6	47.7	46.0	49.4	
70–79	22.0	20.4	23.7	75.2	73.4	76.9	
80+	8.5	7.1	10.1	88.4	86.5	90.0	
<b>Total</b>	<b>48.6</b>	<b>47.7</b>	<b>49.4</b>	<b>49.5</b>	<b>48.7</b>	<b>50.4</b>	

a. National Bowel Cancer Screening Program

Only respondents aged 50 years and over were asked whether they had received an FOBT kit in the mail.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.



Respondents were subsequently asked if they had completed and returned the FOBT kit for testing.

Table 3.8 shows the people who received an FOBT kit in the mail and the proportion who had returned the FOBT kit for testing, by age group and sex.

Overall, 61.2 per cent of adults who had received an FOBT kit in the mail had completed and returned the kit for testing. There was no significant difference between men and women. The proportion that had completed and returned the kits for testing increased with age, with the highest proportion being people aged 80 years or over (72.9 per cent).

**Table 3.8: Returned faecal occult blood test (FOBT) kit sent by NBCSP,<sup>a</sup> by age group and sex, Victoria, 2011–12**

Age group (years)	Returned FOBT kit sent by NBCSP						
	%	Yes		%	No		
		95% CI			95% CI		
		LL	UL		LL	UL	
<b>Males</b>							
50–59	50.8	47.6	54.0	48.6	45.5	51.8	
60–69	61.5	58.0	65.0	38.2	34.7	41.8	
70–79	71.8	65.6	77.2	26.6	21.3	32.7	
80+	67.8	53.4	79.5	27.7	17.3	41.2	
<b>Total</b>	<b>59.5</b>	<b>56.8</b>	<b>62.2</b>	<b>39.2</b>	<b>36.6</b>	<b>41.9</b>	
<b>Females</b>							
50–59	51.7	49.1	54.2	48.3	45.8	50.9	
60–69	63.9	60.9	66.8	35.8	32.9	38.8	
70–79	72.6	66.7	77.7	26.7	21.6	32.5	
80+	77.5	64.8	86.6	20.9*	12.1	33.7	
<b>Total</b>	<b>62.7</b>	<b>60.5</b>	<b>64.9</b>	<b>36.9</b>	<b>34.7</b>	<b>39.2</b>	
<b>Persons</b>							
50–59	51.3	49.2	53.3	48.5	46.4	50.5	
60–69	62.7	60.4	65.0	37.0	34.7	39.3	
70–79	72.1	67.9	76.0	26.7	22.9	30.8	
80+	72.9	63.6	80.5	24.1	17.0	33.0	
<b>Total</b>	<b>61.2</b>	<b>59.4</b>	<b>62.9</b>	<b>38.0</b>	<b>36.3</b>	<b>39.8</b>	

a. National Bowel Cancer Screening Program

Only respondents aged 50 years and over were asked whether they had returned an FOBT kit sent by NBCSP.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

If a respondent stated that they did not complete and return the FOBT kit for testing, they were asked to provide up to three reasons for not doing so. Table 3.9 lists the reasons given by age group and sex.

The most common reason given for not completing and returning the FOBT kit for testing was 'lack of time / being too busy' for men (30.7 per cent) and women (29.6 per cent) aged 50–59 years. The second most common reason given for both men (25.1 per cent) and women (27.2 per cent) was that they had 'already had another bowel test(s)'. The third most common reason for men (12.4 per cent) and women (9.4 per cent) was that they had 'forgot or did not want to'. There were no significant differences between the sexes. Together these three reasons account for more than 70 per cent of the responses provided by this age group.

Similarly the three reasons given above for the 50–59 age group were also the top three reasons given by the 60–69 age group, although with a switch in order. There were also no differences between the sexes. In this age group having already had another test was the most common reason and 'lack of time / too busy' fell to second place.

The same findings were observed for the 70-plus age group. However, the proportion reporting 'lack of time / too busy' fell to 18.5 per cent, with almost half of that being reported for those aged 50–59 years. However, there were no significant differences between the 60–69 and 70-plus age groups in the proportion reporting that they had 'already had another bowel test(s)'. Therefore the total contribution of these three reasons dropped to 47.2 per cent of the total responses. A fourth reason emerged as an important contributor in the 70-plus age group and that was 'lack of symptoms / feeling well / no family history', which contributed an additional 12.3 per cent to the total responses. This may point to a need to improve the health literacy regarding bowel cancer in this age group.

Table 3.9: Reason(s) for not completing or returning the FOBT kit, by age group and sex, 2011–12, Victoria

Reason(s) for not completing or returning the FOBT kit	50–59 years			60–69 years			70+ years			Total (50–70+)		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>												
Lack of time / too busy	30.7	26.6	35.1	23.4	18.4	29.3	18.9	12.0	28.6	27.9	24.8	31.2
Already had another bowel test(s)	25.1	21.4	29.2	33.7	28.3	39.6	36.4	26.4	47.8	28.3	25.3	31.5
Forgot or didn't want to	12.4	9.7	15.7	6.8	4.8	9.7	10.0*	5.7	17.0	10.6	8.7	12.9
No reason in particular	5.1	3.3	7.8	4.9*	2.8	8.6	**	**	**	5.0	3.6	7.0
Lack of symptoms / feeling well / no family history	4.4	2.7	7.1	8.1	5.5	11.8	11.3*	5.2	22.8	5.9	4.4	7.9
Embarrassment / distaste with stool collection	3.4	2.2	5.3	3.7*	1.9	6.9	**	**	**	3.4	2.4	4.8
Did not understand instructions	2.8*	1.6	4.9	3.3*	1.6	6.6	**	**	**	3.1	2.0	4.7
Only recently received kit in mail and haven't had a chance yet	1.7*	0.9	3.5	**	**	**	**	**	**	1.3*	0.7	2.4
Prefer to see GP/doctor about it	1.7*	0.9	3.1	2.4*	1.2	4.8	**	**	**	1.9	1.2	2.9
Lazy/couldn't be bothered	1.6*	0.9	2.9	3.7*	1.9	6.9	**	**	**	2.2	1.5	3.4
Don't know enough about the test	1.6*	0.7	3.5	**	**	**	**	**	**	1.5*	0.8	2.7
Don't know/refused	1.4*	0.6	2.9	**	**	**	**	**	**	1.5*	0.8	2.6
Fear of positive results of cancer	1.3*	0.7	2.5	**	**	**	**	**	**	1.0*	0.5	1.7
Defective/faulty/recalled kit	1.2*	0.6	2.3	0.3*	0.1	0.6	**	**	**	0.9*	0.5	1.7
Too sick/ill/unwell (with illness other than bowel cancer or unspecified illness)	1.1*	0.5	2.3	1.4*	0.6	3.5	**	**	**	1.2*	0.7	2.2
Other	1.1*	0.5	2.3	**	**	**	**	**	**	1.3*	0.7	2.4
Already had or currently have bowel cancer/undergoing treatment or surgery	0.7*	0.3	1.7	1.0*	0.5	2.3	**	**	**	0.7*	0.4	1.4
Have a haemorrhoid (or other condition) so test would have blood anyway	0.6*	0.1	2.5	**	**	**	**	**	**	**	**	**
About to do it	0.6*	0.2	1.5	**	**	**	0.0	-	-	0.6*	0.3	1.3
Concerned about incorrect positive diagnosis	**	**	**	**	**	**	0.0	-	-	**	**	**
Physically to complete kit/too complicated	**	**	**	**	**	**	**	**	**	**	**	**
Fear of further tests or surgery	**	**	**	**	**	**	0.0	-	-	**	**	**
Afraid won't collect samples correctly	**	**	**	**	**	**	0.0	-	-	0.2*	0.1	0.5
Too personal/family member died of cancer	**	**	**	**	**	**	0.0	-	-	**	**	**

Only respondents aged 50 years and over were asked their reasons for not returning an FOBT kit sent by NBCSP. \*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.  
 LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.  
 \* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 3.9: Reason(s) for not completing or returning the FOBT kit, by age group and sex, 2011–12, Victoria (continued)

Reason(s) for not completing or returning the FOBT kit	50–59 years			60–69 years			70+ years			Total (50–70+)		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Females</b>												
Lack of time / too busy	29.6	26.2	33.2	20.3	16.2	25.2	18.1*	10.5	29.4	26.4	23.8	29.2
Already had another bowel test(s)	27.2	24.0	30.6	29.0	24.6	33.9	28.6	19.9	39.2	27.8	25.2	30.5
Forgot or didn't want to	9.4	7.5	11.6	12.1	8.9	16.3	14.9*	8.6	24.4	10.4	8.8	12.4
Embarrassment / distaste with stool collection	6.6	4.9	8.8	4.2	2.7	6.5	**	**	**	5.8	4.5	7.4
No reason in particular	4.3	3.0	6.0	3.0*	1.7	5.3	9.9*	4.4	20.9	4.3	3.2	5.6
Lack of symptoms / feeling well / no family history	3.2	2.2	4.7	5.5	3.6	8.3	13.4*	7.2	23.6	4.4	3.4	5.7
Defective/faulty/recalled kit	2.4	1.5	3.9	2.6*	1.4	4.6	0.0	-	-	2.3	1.6	3.4
Did not understand instructions	2.4	1.5	3.7	4.2	2.6	6.8	**	**	**	2.9	2.1	4.0
Prefer to see GP/doctor about it	1.7*	1.0	2.9	1.8*	0.7	4.6	**	**	**	1.7	1.1	2.7
Too sick/ill/unwell (with illness other than bowel cancer or unspecified illness)	1.7*	1.0	2.8	**	**	**	**	**	**	1.5	1.0	2.4
Fear of positive results of cancer	1.6*	0.8	3.1	1.9*	0.8	4.8	**	**	**	1.8*	1.1	2.9
Lazy/couldn't be bothered	1.5*	0.9	2.6	2.1*	1.0	4.7	**	**	**	1.6	1.0	2.5
Only recently received kit in mail and haven't had a chance yet	1.5*	0.7	3.1	1.6*	0.7	3.6	**	**	**	1.5*	0.8	2.6
Other	1.4*	0.8	2.7	1.1*	0.5	2.5	**	**	**	1.4	0.8	2.2
About to do it	0.9*	0.4	1.8	**	**	**	**	**	**	0.8*	0.4	1.4
Too personal / family member died of cancer	**	**	**	**	**	**	0.0	-	-	0.6*	0.2	1.4
Concerned about incorrect positive diagnosis	0.6*	0.2	1.7	**	**	**	0.0	-	-	0.5*	0.2	1.2
Don't know enough about the test	**	**	**	1.2*	0.5	2.5	**	**	**	0.7*	0.4	1.4
Afraid won't collect samples correctly	**	**	**	1.9*	0.8	4.0	0.0	-	-	0.9*	0.5	1.7
Already had or currently have bowel cancer/undergoing treatment or surgery	**	**	**	0.5*	0.2	1.1	**	**	**	0.5*	0.2	1.1
Don't know/refused	0.6*	0.3	1.1	1.4*	0.6	3.1	**	**	**	0.8*	0.5	1.3
Have a haemorrhoid (or other condition) so test would have blood anyway	**	**	**	**	**	**	**	**	**	0.6*	0.3	1.3
Physically to complete kit/too complicated	0.4*	0.2	0.9	1.1*	0.5	2.5	**	**	**	0.6*	0.3	1.0
Fear of further tests or surgery	**	**	**	**	**	**	0.0	-	-	0.2*	0.1	0.5

Table 3.9: Reason(s) for not completing or returning the FOBT kit, by age group and sex, 2011–12, Victoria (continued)

Reason(s) for not completing or returning the FOBT kit	50–59 years			60–69 years			70+ years			Total (50–70+)		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Persons</b>												
Lack of time / too busy	30.1	27.5	32.9	21.9	18.6	25.6	18.5	13.1	25.5	27.1	25.1	29.3
Already had another bowel test(s)	26.2	23.7	28.8	31.4	27.9	35.1	32.7	25.8	40.5	28.0	26.1	30.1
Forgot or didn't want to	10.8	9.2	12.8	9.5	7.5	11.9	12.3	8.3	17.8	10.5	9.2	12.0
Embarrassment / distaste with stool collection	5.0	3.9	6.4	3.9	2.7	5.7	3.9*	1.2	6.9	4.6	3.7	5.6
No reason in particular	4.7	3.5	6.2	4.0	2.6	6.0	6.9*	3.6	12.9	4.6	3.7	5.8
Lack of symptoms / feeling well / no family history	3.8	2.8	5.2	6.8	5.1	9.0	12.3	7.5	19.4	5.2	4.2	6.3
Did not understand instructions	2.6	1.8	3.7	3.8	2.5	5.7	**	**	**	3.0	2.3	3.9
Defective/faulty/recalled kit	1.8	1.2	2.7	1.4*	0.8	2.4	**	**	**	1.6	1.2	2.3
Prefer to see GP/doctor about it	1.7	1.1	2.5	2.1*	1.2	3.7	1.8*	0.7	4.7	1.8	1.3	2.5
Only recently received kit in mail and haven't had a chance yet	1.6*	1.0	2.7	1.0*	0.5	2.0	**	**	**	1.4	0.9	2.1
Lazy/couldn't be bothered	1.6	1.1	2.3	2.9*	1.8	4.8	**	**	**	1.9	1.4	2.6
Fear of positive results of cancer	1.5	0.9	2.3	1.1*	0.5	2.5	**	**	**	1.4	0.9	2.0
Too sick / ill / unwell (with illness other than bowel cancer or unspecified illness)	1.4	0.9	2.1	1.4*	0.7	2.7	**	**	**	1.4	1.0	2.0
Other	1.3	0.8	2.1	1.4*	0.6	3.3	1.2*	0.5	3.1	1.3	0.9	2.0
Don't know enough about the test	1.1*	0.6	2.0	1.1*	0.5	2.2	**	**	**	1.1	0.7	1.8
Don't know/refused	1.0*	0.5	1.7	1.6*	0.8	3.1	**	**	**	1.1	0.7	1.7
About to do it	0.7*	0.4	1.3	0.7*	0.3	1.7	**	**	**	0.7	0.5	1.1
Already had or currently have bowel cancer/undergoing treatment or surgery	0.6*	0.3	1.2	0.7*	0.4	1.4	**	**	**	0.6*	0.4	1.0
Concerned about incorrect positive diagnosis	0.6*	0.2	1.5	**	**	**	0.0	-	-	0.4*	0.2	1.0
Have a haemorrhoid (or other condition) so test would have blood anyway	0.5*	0.2	1.3	0.7*	0.3	1.6	**	**	**	0.6*	0.3	1.1
Physically to complete kit/too complicated	0.4*	0.2	0.9	0.7*	0.3	1.5	**	**	**	0.5*	0.3	0.8
Too personal / family member died of cancer	**	**	**	**	**	**	0.0	-	-	0.3*	0.1	0.7
Afraid won't collect samples correctly	0.4*	0.2	0.9	1.1*	0.5	2.2	0.0	-	-	0.6*	0.3	1.0
Fear of further tests or surgery	0.2*	0.1	0.6	0.4*	0.2	0.9	0.0	-	-	0.3*	0.1	0.5

Only respondents aged 50 years and over were asked their reasons for not returning an FOBT kit sent by NBCSP. \*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.  
 LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.  
 \* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 3.10 shows the proportion of people who received an FOBT kit, by Department of Health region and sex. There were no regional or sex differences in the proportion who had received an FOBT kit in the mail, suggesting that the distribution is equitable across the various jurisdictions of Victoria.

Table 3.10: Received faecal occult blood test (FOBT) kit in mail from NBCSP,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12

Region	Received FOBT kit in mail from NBCSP					
	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
<b>Males</b>						
Eastern Metropolitan	48.2	45.1	51.4	49.4	46.1	52.6
North & West Metropolitan	50.5	47.8	53.2	46.8	44.0	49.6
Southern Metropolitan	49.9	46.7	53.1	47.5	44.3	50.6
<b>Metropolitan males</b>	49.7	47.9	51.4	47.7	45.9	49.5
Barwon-South Western	54.4	49.8	58.9	43.7	39.2	48.2
Gippsland	51.6	48.0	55.1	46.4	42.9	50.0
Grampians	48.5	44.8	52.2	49.3	45.7	53.0
Hume	47.3	44.5	50.0	50.0	47.1	52.9
Loddon Mallee	51.0	47.9	54.2	45.4	42.2	48.7
<b>Rural males</b>	50.9	49.2	52.6	46.6	44.9	48.4
<b>Total</b>	<b>50.0</b>	<b>48.7</b>	<b>51.3</b>	<b>47.4</b>	<b>46.1</b>	<b>48.8</b>
<b>Females</b>						
Eastern Metropolitan	49.1	46.6	51.7	50.0	47.4	52.5
North & West Metropolitan	46.9	44.8	49.0	51.4	49.2	53.5
Southern Metropolitan	47.6	45.3	49.9	51.5	49.2	53.8
<b>Metropolitan females</b>	47.7	46.4	49.1	51.1	49.7	52.4
Barwon-South Western	42.2	38.1	46.5	55.5	51.2	59.6
Gippsland	47.8	45.2	50.5	51.2	48.5	53.8
Grampians	47.7	44.7	50.6	51.2	48.2	54.1
Hume	47.6	45.2	49.9	51.7	49.3	54.0
Loddon Mallee	47.2	44.4	49.9	51.3	48.5	54.2
<b>Rural females</b>	46.4	44.9	47.8	52.2	50.7	53.7
<b>Total</b>	<b>47.3</b>	<b>46.2</b>	<b>48.3</b>	<b>51.4</b>	<b>50.4</b>	<b>52.5</b>
<b>Persons</b>						
Eastern Metropolitan	48.6	46.6	50.7	49.8	47.8	51.9
North & West Metropolitan	48.6	46.9	50.3	49.2	47.5	50.9
Southern Metropolitan	48.7	46.8	50.7	49.6	47.6	51.5
<b>Metropolitan persons</b>	48.6	47.5	49.7	49.5	48.4	50.6
Barwon-South Western	48.2	45.0	51.5	49.7	46.4	52.9
Gippsland	49.6	47.4	51.8	48.9	46.7	51.1
Grampians	48.1	45.7	50.6	50.2	47.8	52.6
Hume	47.5	45.6	49.3	50.8	48.9	52.7
Loddon Mallee	49.1	47.0	51.2	48.5	46.3	50.6
<b>Rural persons</b>	48.6	47.4	49.7	49.5	48.3	50.6
<b>Total</b>	<b>48.6</b>	<b>47.7</b>	<b>49.4</b>	<b>49.5</b>	<b>48.7</b>	<b>50.4</b>

a. National Bowel Cancer Screening Program

Only respondents aged 50 years and over were asked whether they had received an FOBT kit sent by NBCSP.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.



Table 3.11 shows the people who received the FOBT kit in the mail and the proportion who returned the FOBT kit for testing, by Department of Health region and sex.

A significantly higher proportion of women and adults aged 50 years or over who lived in Gippsland Region and Hume Region completed and returned the FOBT kits for testing compared with all Victorian women and adults aged 50 years or over, respectively. Overall, a significantly higher proportion of people who lived in rural compared with metropolitan Victoria completed and returned the FOBT kits for testing.

Table 3.11: Returned faecal occult blood test (FOBT) kit sent by NBCSP,<sup>a</sup> by Department of Health region, Victoria, 2011–12

Region	Returned FOBT kit sent by NBCSP					
	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
<b>Males</b>						
Eastern Metropolitan	55.5	49.7	61.1	43.7	38.1	49.4
North & West Metropolitan	56.8	51.1	62.3	41.7	36.2	47.4
Southern Metropolitan	57.1	51.0	63.0	40.3	34.8	46.0
<b>Metropolitan males</b>	57.9	54.2	61.5	40.4	36.9	43.9
Barwon-South Western	61.9	54.0	69.1	37.8	30.5	45.6
Gippsland	67.2	61.1	72.7	32.8	27.2	38.8
Grampians	62.9	55.7	69.5	37.1	30.5	44.3
Hume	64.4	58.5	69.9	34.4	28.9	40.3
Loddon Mallee	57.2	50.0	64.2	41.9	35.0	49.1
<b>Rural males</b>	63.2	59.8	66.5	36.3	33.0	39.7
<b>Total</b>	<b>59.5</b>	<b>56.8</b>	<b>62.2</b>	<b>39.2</b>	<b>36.6</b>	<b>41.9</b>
<b>Females</b>						
Eastern Metropolitan	60.4	54.5	66.0	37.7	32.7	42.9
North & West Metropolitan	61.2	55.8	66.2	38.5	33.5	43.9
Southern Metropolitan	62.9	58.7	67.0	37.1	33.0	41.3
<b>Metropolitan females</b>	61.2	58.2	64.1	38.4	35.5	41.3
Barwon-South Western	58.6	50.9	65.8	41.4	34.1	49.0
Gippsland	71.9	67.1	76.3	28.0	23.7	32.8
Grampians	66.8	61.2	72.1	32.9	27.7	38.5
Hume	69.2	65.4	72.8	30.4	26.9	34.2
Loddon Mallee	66.5	60.6	71.9	33.4	28.0	39.3
<b>Rural females</b>	66.2	63.1	69.2	33.6	30.7	36.7
<b>Total</b>	<b>62.7</b>	<b>60.5</b>	<b>64.9</b>	<b>36.9</b>	<b>34.7</b>	<b>39.2</b>
<b>Persons</b>						
Eastern Metropolitan	59.2	54.5	63.8	39.5	35.1	44.2
North & West Metropolitan	59.2	55.3	63.1	39.9	36.1	43.8
Southern Metropolitan	59.7	55.5	63.7	39.2	35.4	43.1
<b>Metropolitan persons</b>	59.8	57.4	62.1	39.2	36.9	41.5
Barwon-South Western	60.4	54.4	66.1	39.3	33.6	45.3
Gippsland	69.3	65.3	73.0	30.7	27.0	34.6
Grampians	64.9	60.0	69.5	34.9	30.4	39.8
Hume	67.6	64.2	70.8	31.7	28.5	35.1
Loddon Mallee	61.7	56.6	66.5	37.8	33.0	42.8
<b>Rural persons</b>	64.6	62.2	66.9	35.0	32.7	37.4
<b>Total</b>	<b>61.2</b>	<b>59.4</b>	<b>62.9</b>	<b>38.0</b>	<b>36.3</b>	<b>39.8</b>

a. National Bowel Cancer Screening Program

Only respondents aged 50 years and over were asked whether they had returned an FOBT kit sent by NBCSP.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

The various reasons people aged 50 years or over offered for not completing and returning the FOBT kits in metropolitan and rural regions are presented in Table 3.12. More than 20 different reasons were provided, the five most common reasons, which accounted for 76.1 per cent of the total responses by Victorian adults, were:

- already had another bowel test(s)
- lack of time / too busy
- forgot or didn't want to
- lack of symptoms / feeling well / no family history
- no particular reason.

A significantly higher proportion of people who responded that they had 'Already had another bowel test(s)' lived in metropolitan compared with rural Victoria (32.5 per cent versus 24.5 per cent). Whether this reflects greater difficulties in accessing healthcare in rural Victoria or a greater tendency not to seek medical attention remains to be determined. However, given that a significantly higher proportion of Victorians who lived in the rural regions completed and returned the FOBT kits would argue against the latter explanation.

By contrast the proportion of people responding 'No reason in particular' was significantly higher in people who lived in rural compared with metropolitan Victoria. The proportion of people responding with 'Lack of time / too busy', 'Forgot or didn't want to' and 'Lack of symptoms / feeling well / no family history' did not significantly differ between rural and metropolitan Victoria.

Table 3.12: Reason(s) for persons not returning FOBT kit, by metropolitan and rural region, Victoria, 2011–12

Persons	Metropolitan regions			Rural regions			Victoria		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Already had another bowel test(s)	32.5	28.7	36.4	24.5	21.1	28.3	29.5	26.5	32.6
Lack of time / too busy	23.3	20.3	26.4	24.4	20.6	28.6	23.4	21.1	25.9
Forgot or didn't want to	9.8	7.7	12.3	11.6	9.5	14.0	10.2	8.6	12.1
Lack of symptoms / feeling well / no family history	7.3	5.1	10.2	6.8	4.8	9.7	7.4	5.6	9.8
No reason in particular	3.1	2.2	4.2	9.7	6.6	14.0	5.5	3.8	8.0
Embarrassment / distaste with stool collection	3.8	2.8	5.1	4.4	2.9	6.4	4.0	3.1	5.0
Did not understand instructions	3.7	2.3	5.8	1.3*	0.8	2.1	2.9	2.0	4.2
Lazy/couldn't be bothered	1.8*	1.1	3.0	2.9*	1.4	5.8	2.1	1.4	3.3
Too sick/ill/unwell (with illness other than bowel cancer or unspecified illness)	**	**	**	0.9*	0.5	1.5	2.0*	0.7	5.2
Don't know enough about the test	**	**	**	1.4*	0.7	3.0	1.9*	0.7	5.0
Prefer to see GP/doctor about it	1.4	0.9	2.1	2.7*	1.5	4.8	1.8	1.2	2.5
Defective/faulty/recalled kit	1.4	0.9	2.1	1.1	0.7	1.6	1.3	0.9	1.8
Don't know/refused	1.3*	0.7	2.4	1.1*	0.7	1.9	1.3	0.8	2.1
Fear of positive results of cancer	1.7*	0.8	3.6	0.9*	0.5	1.6	1.3*	0.8	2.3
Other reason	1.0*	0.6	1.8	1.5*	0.8	2.6	1.2	0.8	1.8
Only recently received kit in mail and haven't had a chance yet	0.8*	0.5	1.4	1.2	0.7	1.9	0.9	0.6	1.4
Already had or currently have bowel cancer/undergoing treatment or surgery	0.4*	0.2	0.9	0.9*	0.5	1.6	0.6*	0.4	1.0
About to do it	0.6*	0.3	1.0	0.5*	0.3	0.8	0.5	0.3	0.8
Have a haemorrhoid (or other condition) so test would have blood anyway	0.3*	0.1	0.8	0.9*	0.5	1.8	0.5*	0.3	0.9
Physically to complete kit/too complicated	0.4*	0.2	0.9	0.7*	0.3	1.7	0.5*	0.3	0.9
Afraid won't collect samples correctly	0.4*	0.2	0.8	0.3*	0.1	0.6	0.4*	0.2	0.7
Concerned about incorrect positive diagnosis	0.3*	0.1	0.8	0.1*	0.0	0.3	0.3*	0.1	0.6
Fear of further tests or surgery	**	**	**	0.3*	0.2	0.5	0.2*	0.1	0.4
Too personal/family member died of cancer	**	**	**	0.1*	0.1	0.2	0.2*	0.1	0.4
<b>Total</b>	<b>100</b>			<b>100</b>			<b>100</b>		

Only respondents aged 50 years and over were asked their reasons for not returning an FOBT kit sent by NBCSP.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

# Biomedical checks and cancer screening

Table 3.13 shows the proportion of people who received an FOBT kit, by LGA. The proportion of people aged 50 years or over who had received the FOBT kit in the mail was significantly higher in those who lived in the LGAs of Ararat (RC), Banyule (C), Nillumbik (S) and Stonnington (C) compared with the proportion in all Victorian people, aged 50 years or over. By contrast the proportion was significantly lower in people who lived Hume (C), Kingston (C), Mitchell (S) and Southern Grampians (S) compared with all Victorian adults aged 50 years or over.

Table 3.13: Received faecal occult blood test (FOBT) kit in mail from NBCSP,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	Received FOBT kit in mail from NBCSP						
	%	Yes 95% CI		%	No 95% CI		
		LL	UL		LL	UL	
Alpine (S)	52.3	47.2	57.4	46.6	41.5	51.7	
Ararat (RC)	56.0	50.1	61.7	43.2	37.5	49.1	
Ballarat (C)	48.2	42.5	53.9	50.8	45.2	56.4	
Banyule (C)	63.2	56.7	69.2	35.1	29.1	41.6	
Bass Coast (S)	51.5	46.8	56.3	46.9	42.1	51.7	
Baw Baw (S)	50.0	44.3	55.7	48.6	42.9	54.4	
Bayside (C)	52.0	46.0	57.9	47.0	41.0	53.1	
Benalla (RC)	48.1	42.8	53.4	50.0	44.7	55.3	
Boroondara (C)	54.8	49.0	60.5	43.7	38.1	49.4	
Brimbank (C)	47.8	41.9	53.7	51.5	45.6	57.4	
Buloke (S)	47.0	41.3	52.7	50.7	45.0	56.4	
Campaspe (S)	49.9	44.6	55.2	49.4	44.1	54.7	
Cardinia (S)	43.8	37.6	50.3	55.8	49.3	62.1	
Casey (C)	45.8	40.1	51.6	53.4	47.6	59.0	
Central Goldfields (S)	46.5	41.0	52.1	52.5	46.9	58.1	
Colac-Otway (S)	50.3	45.1	55.4	48.4	43.2	53.7	
Corangamite (S)	48.1	43.0	53.2	48.6	43.3	53.9	
Darebin (C)	50.1	43.6	56.6	47.3	40.9	53.7	
East Gippsland (S)	54.2	48.8	59.4	44.9	39.6	50.3	
Frankston (C)	49.8	43.8	55.8	48.9	42.9	55.0	
Gannawarra (S)	46.3	41.0	51.7	51.3	46.2	56.5	
Glen Eira (C)	51.8	45.8	57.8	45.6	39.6	51.8	
Glenelg (S)	47.5	41.8	53.2	51.5	45.6	57.3	
Golden Plains (S)	50.3	43.6	56.9	47.8	41.4	54.2	
Greater Bendigo (C)	52.4	47.0	57.8	44.4	39.1	49.8	
Greater Dandenong (C)	49.5	43.4	55.6	48.7	42.7	54.7	
Greater Geelong (C)	49.7	44.0	55.5	47.8	42.1	53.6	
Greater Shepparton (C)	50.2	44.6	55.8	47.6	42.0	53.3	
Hepburn (S)	48.8	43.7	54.1	50.1	44.9	55.3	
Hindmarsh (S)	46.1	40.7	51.5	53.2	47.7	58.5	
Hobsons Bay (C)	50.7	45.0	56.4	47.1	41.3	53.0	
Horsham (RC)	46.8	41.4	52.3	49.9	44.4	55.4	
Hume (C)	40.6	34.9	46.6	56.3	50.2	62.2	
Indigo (S)	45.2	39.5	50.9	53.9	47.9	59.8	
Kingston (C)	39.4	33.3	45.8	56.9	50.5	63.1	
Knox (C)	49.5	44.0	55.1	50.2	44.7	55.7	
Latrobe (C)	51.2	45.7	56.7	47.3	41.8	52.8	
Loddon (S)	45.8	40.4	51.3	53.3	47.8	58.7	
Macedon Ranges (S)	50.9	45.2	56.6	46.7	41.1	52.4	
Manningham (C)	49.3	43.7	54.9	49.5	43.8	55.1	
Mansfield (S)	49.6	44.2	55.0	49.7	44.3	55.1	
Maribyrnong (C)	43.6	37.3	50.1	53.7	47.3	59.9	



Table 3.13: Received faecal occult blood test (FOBT) kit in mail from NBCSP,<sup>a</sup> by LGA, Victoria, 2011–12 (continued)

LGA	Received FOBT kit in mail from NBCSP						
	%	Yes 95% CI		%	No 95% CI		
		LL	UL		LL	UL	
Maroondah (C)	49.5	43.6	55.5	48.4	42.5	54.4	
Melbourne (C)	48.5	41.9	55.1	49.2	42.6	55.8	
Melton (S)	47.8	41.4	54.3	51.2	44.6	57.8	
Mildura (RC)	47.3	41.4	53.3	50.0	43.8	56.1	
Mitchell (S)	41.4	35.4	47.6	57.0	50.7	63.1	
Moira (S)	46.4	40.9	52.0	50.1	44.7	55.5	
Monash (C)	48.4	42.8	54.0	49.2	43.5	54.9	
Moonee Valley (C)	51.5	44.9	58.0	46.0	39.5	52.7	
Moorabool (S)	50.4	44.7	56.2	47.9	42.2	53.7	
Moreland (C)	47.4	41.3	53.6	49.3	43.0	55.5	
Mornington Peninsula (S)	52.4	46.5	58.2	47.0	41.3	52.9	
Mount Alexander (S)	49.7	44.3	55.0	47.3	41.8	52.8	
Moyne (S)	48.6	43.2	54.0	49.1	43.6	54.5	
Murrindindi (S)	50.3	44.8	55.7	48.7	43.4	54.2	
Nillumbik (S)	55.6	50.5	60.6	43.2	38.2	48.4	
Northern Grampians (S)	49.8	44.1	55.4	47.3	41.8	52.9	
Port Phillip (C)	53.2	47.4	58.9	43.7	37.9	49.7	
Pyrenees (S)	44.0	38.4	49.9	53.4	47.4	59.2	
Queenscliffe (B)	49.4	43.3	55.5	50.4	44.3	56.5	
South Gippsland (S)	47.1	41.9	52.3	49.9	44.9	55.0	
Southern Grampians (S)	42.0	36.5	47.7	56.1	50.3	61.7	
Stonnington (C)	56.1	50.1	61.8	43.2	37.5	49.2	
Strathbogie (S)	44.5	38.6	50.7	53.7	47.5	59.7	
Surf Coast (S)	46.5	41.1	52.0	50.8	45.4	56.2	
Swan Hill (RC)	47.5	42.0	53.0	51.7	46.2	57.2	
Towong (S)	48.1	42.6	53.6	50.9	45.5	56.4	
Wangaratta (RC)	48.2	42.5	54.0	50.6	44.7	56.4	
Warrnambool (C)	48.3	42.5	54.1	50.1	44.2	55.9	
Wellington (S)	46.7	41.1	52.3	52.4	46.7	58.0	
West Wimmera (S)	45.9	40.1	51.8	52.4	46.6	58.2	
Whitehorse (C)	50.5	44.9	56.1	48.9	43.2	54.5	
Whittlesea (C)	47.2	41.0	53.5	50.2	43.8	56.5	
Wodonga (RC)	50.8	45.1	56.5	48.7	43.0	54.3	
Wyndham (C)	43.8	37.9	49.8	54.9	48.8	60.9	
Yarra (C)	50.4	44.5	56.3	46.5	40.2	53.0	
Yarra Ranges (S)	42.5	37.0	48.3	54.5	48.6	60.4	
Yarriambiack (S)	46.6	40.9	52.5	51.5	45.6	57.3	
<b>Victoria</b>	<b>49.1</b>	<b>48.3</b>	<b>50.0</b>	<b>49.0</b>	<b>48.2</b>	<b>49.9</b>	

a. National Bowel Cancer Screening Program

Only respondents aged 50 years and over were asked whether they had received an FOBT kit sent by NBCSP.

Data were age standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

# Biomedical checks and cancer screening

Table 3.14 shows the proportion of people who received an FOBT kit in the mail who then returned the FOBT kit for testing, by LGA. A significantly higher proportion of people aged 50 years or over who lived in the LGAs of Baw Baw (S), Benalla (RC), East Gippsland (S), Gannawarra (S), Greater Dandenong (C), Greater Shepparton (C), Indigo (S), Queenscliffe (B), Wodonga (RC) and Yarra Ranges (S) completed and returned the FOBT kits for testing compared with all Victorian people aged 50 years or over. By contrast a significantly lower proportion of people who lived in Campaspe (S), Casey (C), Hume (C), Knox (C), Moira (S) and Moorabool (S) completed and returned the FOBT kits for testing compared with all Victorian people aged 50 years or over.

Table 3.14: Returned faecal occult blood test (FOBT) kit sent by NBCSP,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	Returned FOBT kit sent by NBCSP						
	%	Yes		%	No		
		95% CI			95% CI		
		LL	UL		LL	UL	
Alpine (S)	63.4	54.4	71.5	35.7	27.6	44.7	
Ararat (RC)	64.5	53.6	74.1	35.0	25.5	45.9	
Ballarat (C)	68.8	56.6	78.8	31.2	21.2	43.4	
Banyule (C)	62.8	55.1	69.9	37.2	30.1	44.9	
Bass Coast (S)	69.0	57.9	78.3	31.0	21.7	42.1	
Baw Baw (S)	72.0	64.0	78.8	28.0	21.2	36.0	
Bayside (C)	65.3	56.2	73.4	34.7	26.6	43.8	
Benalla (RC)	75.8	68.2	82.0	24.2	18.0	31.8	
Boroondara (C)	56.9	47.3	66.0	42.0	33.1	51.5	
Brimbank (C)	59.4	47.9	70.0	40.6	30.0	52.1	
Buloke (S)	67.1	58.4	74.7	30.8	23.5	39.3	
Campaspe (S)	47.1	38.8	55.6	52.9	44.4	61.2	
Cardinia (S)	67.7	58.5	75.7	31.3	23.4	40.5	
Casey (C)	47.2	38.0	56.6	40.4	31.4	50.0	
Central Goldfields (S)	61.9	53.1	69.9	37.2	29.2	46.1	
Colac-Otway (S)	61.5	50.7	71.3	38.1	28.4	48.9	
Corangamite (S)	68.8	58.6	77.5	30.7	22.0	41.0	
Darebin (C)	61.4	50.8	71.0	38.6	29.0	49.2	
East Gippsland (S)	75.7	68.3	81.7	24.3	18.3	31.7	
Frankston (C)	55.7	46.7	64.3	44.3	35.7	53.3	
Gannawarra (S)	71.2	63.5	77.8	28.8	22.2	36.5	
Glen Eira (C)	54.1	44.1	63.7	45.9	36.3	55.9	
Glenelg (S)	69.4	60.9	76.8	29.9	22.6	38.4	
Golden Plains (S)	69.2	60.4	76.8	30.8	23.2	39.6	
Greater Bendigo (C)	59.8	47.4	71.1	39.6	28.3	52.0	
Greater Dandenong (C)	71.7	63.1	78.9	28.3	21.1	36.9	
Greater Geelong (C)	60.6	49.0	71.1	39.4	28.9	51.0	
Greater Shepparton (C)	75.2	67.3	81.7	24.8	18.3	32.7	
Hepburn (S)	68.0	59.0	75.8	32.0	24.2	41.0	
Hindmarsh (S)	66.6	58.3	73.9	33.4	26.1	41.7	
Hobsons Bay (C)	64.1	52.5	74.3	35.1	25.1	46.8	
Horsham (RC)	54.0	45.8	61.9	46.0	38.1	54.2	
Hume (C)	49.7	42.1	57.2	36.8	29.5	44.7	
Indigo (S)	71.4	63.3	78.3	28.6	21.7	36.7	
Kingston (C)	55.1	42.3	67.2	37.1	27.2	48.2	
Knox (C)	50.3	41.1	59.5	49.7	40.5	58.9	
Latrobe (C)	69.3	60.8	76.8	30.7	23.2	39.2	
Loddon (S)	54.5	44.2	64.4	45.5	35.6	55.8	
Macedon Ranges (S)	61.1	52.2	69.3	38.9	30.7	47.8	
Manningham (C)	63.8	55.6	71.3	35.3	27.9	43.5	
Mansfield (S)	60.2	51.5	68.2	39.8	31.8	48.5	
Maribyrnong (C)	53.9	45.4	62.1	45.3	37.1	53.8	

Table 3.14: Returned faecal occult blood test (FOBT) kit sent by NBCSP,<sup>a</sup> by LGA, Victoria, 2011–12 (continued)

LGA	Returned FOBT kit sent by NBCSP						
	%	Yes 95% CI		%	No 95% CI		
		LL	UL		LL	UL	
Maroondah (C)	59.6	50.0	68.5	39.5	30.7	49.0	
Melbourne (C)	56.9	46.7	66.6	43.1	33.4	53.3	
Melton (S)	52.2	40.7	63.6	47.8	36.4	59.3	
Mildura (RC)	55.8	46.9	64.4	31.8	23.6	41.2	
Mitchell (S)	62.1	53.5	70.0	37.9	30.0	46.5	
Moira (S)	50.6	41.6	59.4	35.0	26.8	44.1	
Monash (C)	53.2	44.8	61.4	45.2	37.3	53.4	
Moonee Valley (C)	62.9	53.9	71.1	36.2	28.1	45.1	
Moorabool (S)	40.8	32.8	49.3	59.2	50.7	67.2	
Moreland (C)	64.0	52.9	73.7	35.2	25.5	46.3	
Mornington Peninsula (S)	64.3	54.1	73.3	35.7	26.7	45.9	
Mount Alexander (S)	65.2	55.3	73.9	34.8	26.1	44.7	
Moyne (S)	53.1	42.5	63.4	46.5	36.2	57.1	
Murrindindi (S)	59.0	50.2	67.4	38.1	29.6	47.5	
Nillumbik (S)	53.4	46.2	60.4	34.2	27.4	41.6	
Northern Grampians (S)	67.9	58.4	76.2	31.7	23.5	41.2	
Port Phillip (C)	53.3	44.9	61.5	34.2	26.4	43.0	
Pyrenees (S)	64.4	52.5	74.7	35.6	25.3	47.5	
Queenscliffe (B)	74.8	66.4	81.8	23.2	16.6	31.3	
South Gippsland (S)	54.8	43.9	65.2	44.6	34.2	55.5	
Southern Grampians (S)	62.1	52.8	70.6	37.9	29.4	47.2	
Stonnington (C)	57.2	47.3	66.6	42.8	33.4	52.7	
Strathbogie (S)	65.8	56.2	74.3	31.2	23.3	40.5	
Surf Coast (S)	61.9	52.4	70.6	37.0	28.3	46.6	
Swan Hill (RC)	70.2	59.4	79.1	29.8	20.9	40.6	
Towong (S)	66.1	58.2	73.3	33.9	26.7	41.8	
Wangaratta (RC)	67.6	58.7	75.4	32.4	24.6	41.3	
Warrnambool (C)	57.1	46.3	67.2	42.9	32.8	53.7	
Wellington (S)	63.4	54.8	71.3	36.2	28.3	44.9	
West Wimmera (S)	61.9	53.1	70.0	37.5	29.5	46.3	
Whitehorse (C)	59.0	49.4	67.9	38.3	28.9	48.7	
Whittlesea (C)	58.5	47.8	68.4	34.9	25.1	46.1	
Wodonga (RC)	72.2	63.1	79.8	26.9	19.4	35.9	
Wyndham (C)	53.8	45.0	62.4	33.7	25.6	43.0	
Yarra (C)	59.8	52.0	67.1	40.2	32.9	48.0	
Yarra Ranges (S)	72.9	65.1	79.4	27.1	20.6	34.9	
Yarriambiack (S)	63.5	53.8	72.2	36.0	27.4	45.8	
<b>Victoria</b>	<b>61.2</b>	<b>59.6</b>	<b>62.9</b>	<b>38.0</b>	<b>36.4</b>	<b>39.6</b>	

a. National Bowel Cancer Screening Program

Only respondents aged 50 years and over were asked whether they had returned an FOBT kit sent by NBCSP.

Data were age standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

In order to determine the level of health literacy regarding bowel cancer, respondents aged 50 years or over were asked if they agreed or disagreed with a set of statements. These statements were:

1. Bowel cancer symptoms are noticeable and easy to detect.
2. I am too embarrassed to seek help or information on bowel cancer.
3. Treating bowel cancer in the early stages increases a person's chance of survival.
4. I am concerned or worried about getting bowel cancer.
5. It is important to check for bowel cancer even if I have no symptoms.

The proportion agreeing with each of the statements is shown in Table 3.15, by age group and sex. Overall, 24.6 per cent of adults agreed with the statement that bowel cancer was easy to detect; 7.4 per cent were too embarrassed to seek help; 95.0 per cent agreed with the statement that early treatment increased a person's chance of survival; 31.4 per cent were worried about getting bowel cancer; and 88.0 per cent agreed that it is important to check for bowel cancer even in the absence of symptoms. The proportion of men who were concerned about getting bowel cancer (33.4 per cent) was significantly higher than the proportion of women (29.7 per cent). However, there were no significant differences between the sexes for the remaining three statements.

Given that by the time any symptoms of bowel cancer become noticeable it is likely to have gone beyond the early stages thereby rendering treatment more difficult and survival more precarious, agreement with the statement 'Bowel cancer symptoms are noticeable and easy to detect' is an indication of low health literacy. The older the respondent the higher was the proportion who agreed with this statement, indicating that health literacy may decline with age.

Similarly, disagreement with the statements 'Treating bowel cancer in the early stages increases a person's chance of survival', 'I am concerned or worried about getting bowel cancer' and 'It is important to check for bowel cancer even if I have no symptoms' are indicative of low health literacy and these were also age-related, with significantly lower proportions of the older age groups agreeing with these statements.

Table 3.15: Health literacy on bowel cancer, by age group and sex, Victoria, 2011–12

Age group (years)	Bowel cancer symptoms are noticeable and easy to detect			I am too embarrassed to seek help or information on bowel cancer			Treating bowel cancer in the early stages increases a person's chance of survival			I am concerned or worried about getting bowel cancer			It is important to check for bowel cancer even if I have no symptoms		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>															
50–59	22.0	19.8	24.4	8.9	7.4	10.7	96.4	95.1	97.3	37.1	34.4	39.8	91.6	89.9	93.1
60–69	23.9	21.8	26.1	5.4	4.4	6.7	95.2	94.0	96.3	35.4	33.0	37.9	90.4	88.8	91.8
70–79	28.0	25.3	31.0	7.1	5.6	8.9	94.0	92.2	95.4	31.7	28.8	34.7	86.8	84.5	88.9
80+	31.4	27.3	35.9	10.2	7.8	13.1	88.8	85.0	91.8	20.5	16.9	24.6	75.4	71.1	79.2
<b>Total</b>	<b>24.9</b>	<b>23.6</b>	<b>26.3</b>	<b>7.6</b>	<b>6.8</b>	<b>8.5</b>	<b>94.7</b>	<b>93.9</b>	<b>95.4</b>	<b>33.4</b>	<b>31.9</b>	<b>34.8</b>	<b>89.0</b>	<b>88.0</b>	<b>90.0</b>
<b>Females</b>															
50–59	21.7	20.0	23.5	7.1	6.0	8.3	97.0	96.2	97.6	34.1	32.0	36.2	90.6	89.3	91.8
60–69	24.2	22.3	26.1	6.9	5.9	8.1	95.2	94.1	96.0	30.8	28.8	32.9	87.7	86.1	89.0
70–79	27.1	24.9	29.5	6.4	5.3	7.7	94.1	92.7	95.3	27.0	24.7	29.4	83.4	81.3	85.2
80+	28.4	25.1	31.9	8.9	7.0	11.1	92.2	90.2	93.9	17.2	14.6	20.2	77.2	74.1	80.0
<b>Total</b>	<b>24.3</b>	<b>23.2</b>	<b>25.4</b>	<b>7.2</b>	<b>6.5</b>	<b>7.8</b>	<b>95.3</b>	<b>94.7</b>	<b>95.7</b>	<b>29.7</b>	<b>28.5</b>	<b>30.9</b>	<b>87.0</b>	<b>86.2</b>	<b>87.8</b>
<b>Persons</b>															
50–59	21.8	20.4	23.3	8.0	7.0	9.0	96.7	96.0	97.3	35.5	33.8	37.2	91.1	90.1	92.1
60–69	24.0	22.6	25.5	6.2	5.5	7.0	95.2	94.4	95.9	33.1	31.5	34.7	89.0	87.9	90.0
70–79	27.5	25.8	29.4	6.7	5.8	7.7	94.0	93.0	95.0	29.1	27.3	31.0	84.9	83.4	86.3
80+	29.7	27.1	32.5	9.4	7.9	11.2	90.7	88.7	92.4	18.7	16.5	21.1	76.4	73.9	78.8
<b>Total</b>	<b>24.6</b>	<b>23.7</b>	<b>25.4</b>	<b>7.4</b>	<b>6.9</b>	<b>7.9</b>	<b>95.0</b>	<b>94.5</b>	<b>95.4</b>	<b>31.4</b>	<b>30.5</b>	<b>32.4</b>	<b>88.0</b>	<b>87.3</b>	<b>88.6</b>

Only respondents aged 50 years and over were asked questions relating to health literacy on bowel cancer.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.



Table 3.16 shows health literacy for bowel cancer, by Department of Health region and sex.

There were no regional differences in the proportions of men and women who responded affirmatively to the statements 'Bowel cancer symptoms are noticeable and easy to detect' and 'I am too embarrassed to seek help or information on bowel cancer'.

There were significantly higher proportions of men and women who lived in rural compared with metropolitan Victoria who agreed with the statements that 'Treating bowel cancer in the early stages increases a person's chance of survival' and 'It is important to check for bowel cancer even if I have no symptoms'. This indicates that Victorians who lived in the rural regions have a higher level of health literacy regarding bowel cancer than their metropolitan counterparts. This is also supported by the previous finding that higher proportions of those who lived in rural Victoria completed and returned the FOBT kits for testing compared with their metropolitan counterparts. Rural regions of particular note include Barwon-South Western Region, Gippsland Region, Grampians Region and Hume Region.

By contrast there were significantly higher proportions of men and adults who lived in metropolitan Victoria who agreed with the statement 'I am concerned or worried about getting bowel cancer' compared with their rural counterparts. This suggests a higher level of anxiety, though not knowledge, in people who lived in metropolitan Victoria compared with their rural counterparts. This was particularly notable in men and women who lived in North & West Metropolitan Region.

Table 3.16: Health literacy on bowel cancer, by Department of Health region and sex, Victoria, 2011–12

Region	Bowel cancer symptoms are noticeable and easy to detect			I am too embarrassed to seek help or information on bowel cancer			Treating bowel cancer in the early stages increases a person's chance of survival			I am concerned or worried about getting bowel cancer			It is important to check for bowel cancer even if I have no symptoms			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Males</b>																
Eastern Metropolitan	24.2	21.1	27.7	5.9	4.2	8.2	94.1	91.7	95.8	29.5	26.0	33.2	88.7	86.0	90.9	
North & West Metropolitan	26.1	23.4	29.0	8.8	7.1	10.9	94.4	92.7	95.7	<b>38.1</b>	35.1	41.2	86.5	84.1	88.6	
Southern Metropolitan	25.2	22.2	28.4	7.6	5.9	9.8	93.6	91.6	95.1	33.5	30.2	36.9	87.9	85.4	90.0	
<b>Metropolitan males</b>	25.3	23.6	27.1	7.6	6.5	8.8	94.0	92.9	94.9	34.1	32.2	36.0	87.7	86.3	89.0	
<i>Barwon-South Western</i>	25.7	20.8	31.2	7.7	5.3	11.0	96.4	92.5	98.3	33.1	28.0	38.7	89.5	86.1	92.1	
<i>Gippsland</i>	22.0	18.8	25.6	9.4	7.1	12.5	<b>97.6</b>	96.1	98.5	29.9	26.3	33.8	90.8	88.2	92.8	
<i>Grampians</i>	26.4	22.4	30.8	6.7	5.1	8.7	96.0	94.1	97.4	32.5	28.4	36.9	91.2	88.8	93.1	
<i>Hume</i>	23.9	21.2	26.9	6.3	4.8	8.2	96.0	94.4	97.1	30.6	27.5	33.8	89.8	87.6	91.6	
<i>Loddon Mallee</i>	23.4	20.3	26.8	8.2	6.1	11.0	95.6	93.5	97.0	32.5	28.9	36.4	90.2	87.6	92.2	
<b>Rural males</b>	24.2	22.4	26.1	7.7	6.7	8.9	96.3	95.3	97.1	31.8	29.9	33.8	90.1	88.9	91.2	
<b>Total</b>	<b>24.9</b>	<b>23.6</b>	<b>26.3</b>	<b>7.6</b>	<b>6.8</b>	<b>8.5</b>	<b>94.7</b>	<b>93.9</b>	<b>95.4</b>	<b>33.4</b>	<b>31.9</b>	<b>34.8</b>	<b>88.4</b>	<b>87.4</b>	<b>89.4</b>	

Only respondents aged 50 years and over were asked questions relating to health literacy on bowel cancer.

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/*rural*.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above**/*below* Victoria.

Table 3.16: Health literacy on bowel cancer, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Bowel cancer symptoms are noticeable and easy to detect			I am too embarrassed to seek help or information on bowel cancer			Treating bowel cancer in the early stages increases a person's chance of survival			I am concerned or worried about getting bowel cancer			It is important to check for bowel cancer even if I have no symptoms			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Females</b>																
Eastern Metropolitan	23.3	20.8	26.0	6.9	5.4	8.7	96.1	94.7	97.1	28.9	26.1	32.0	86.9	84.7	88.8	
North & West Metropolitan	25.7	23.5	28.1	9.1	7.7	10.8	92.6	91.2	93.8	35.4	33.0	37.9	82.8	80.8	84.7	
Southern Metropolitan	24.5	22.2	26.9	5.7	4.6	7.0	95.6	94.4	96.5	29.0	26.5	31.6	87.2	85.4	88.8	
<b>Metropolitan females</b>	24.6	23.2	26.0	7.2	6.4	8.1	94.6	93.9	95.3	31.4	29.9	32.9	85.6	84.4	86.6	
Barwon-South Western	24.9	20.9	29.3	5.3	3.6	7.8	97.7	96.1	98.7	25.8	21.9	30.1	89.0	85.4	91.7	
Gippsland	22.6	20.0	25.5	7.9	6.3	10.0	96.2	94.7	97.2	26.9	24.0	29.9	85.3	82.9	87.5	
Grampians	22.8	19.9	26.0	8.0	6.2	10.2	96.9	95.6	97.8	25.9	22.7	29.3	91.8	90.0	93.3	
Hume	23.3	21.2	25.6	6.3	5.1	7.8	96.6	95.6	97.4	26.6	24.3	29.1	89.4	87.8	90.8	
Loddon Mallee	23.2	20.7	25.9	8.1	6.5	10.1	95.7	93.8	97.1	24.1	21.4	27.1	88.9	86.5	90.9	
<b>Rural females</b>	23.5	22.1	25.0	7.0	6.2	7.9	96.7	96.1	97.2	25.6	24.2	27.1	88.7	87.5	89.8	
<b>Total</b>	<b>24.3</b>	<b>23.2</b>	<b>25.4</b>	<b>7.2</b>	<b>6.5</b>	<b>7.8</b>	<b>95.3</b>	<b>94.7</b>	<b>95.7</b>	<b>29.7</b>	<b>28.5</b>	<b>30.9</b>	<b>86.5</b>	<b>85.7</b>	<b>87.3</b>	

Only respondents aged 50 years and over were asked questions relating to health literacy on bowel cancer.

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Table 3.16: Health literacy on bowel cancer, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Bowel cancer symptoms are noticeable and easy to detect			I am too embarrassed to seek help or information on bowel cancer			Treating bowel cancer in the early stages increases a person's chance of survival			I am concerned or worried about getting bowel cancer			It is important to check for bowel cancer even if I have no symptoms			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Persons</b>																
Eastern Metropolitan	23.7	21.7	25.9	6.4	5.2	7.8	95.2	93.9	96.2	29.2	26.9	31.6	87.8	86.1	89.3	
North & West Metropolitan	25.9	24.1	27.7	9.0	7.8	10.3	93.4	92.4	94.4	36.6	34.7	38.6	84.6	83.1	86.1	
Southern Metropolitan	24.8	23.0	26.8	6.6	5.6	7.8	94.6	93.5	95.5	31.1	29.0	33.2	87.4	85.9	88.7	
<b>Metropolitan persons</b>	24.9	23.8	26.0	7.4	6.7	8.1	94.3	93.7	94.9	32.7	31.5	33.9	86.6	85.7	87.4	
Barwon-South Western	25.2	22.0	28.8	6.4	4.9	8.4	97.1	95.0	98.3	29.3	26.0	32.8	89.4	86.9	91.4	
Gippsland	22.1	20.0	24.4	8.7	7.2	10.4	96.7	95.7	97.5	28.3	26.0	30.8	87.9	86.2	89.5	
Grampians	24.5	22.0	27.2	7.4	6.1	8.8	96.6	95.4	97.4	29.1	26.4	31.9	91.6	90.2	92.8	
Hume	23.6	21.8	25.4	6.2	5.3	7.3	96.2	95.3	97.0	28.6	26.6	30.5	89.6	88.2	90.7	
Loddon Mallee	23.3	21.3	25.4	8.2	6.8	9.9	95.7	94.4	96.7	28.2	25.9	30.7	89.4	87.7	90.9	
<b>Rural persons</b>	23.8	22.7	25.0	7.4	6.7	8.1	96.5	95.9	97.0	28.6	27.4	29.9	89.4	88.6	90.2	
<b>Total</b>	<b>24.6</b>	<b>23.7</b>	<b>25.4</b>	<b>7.4</b>	<b>6.9</b>	<b>7.9</b>	<b>95.0</b>	<b>94.5</b>	<b>95.4</b>	<b>31.4</b>	<b>30.5</b>	<b>32.4</b>	<b>87.4</b>	<b>86.7</b>	<b>88.0</b>	

Only respondents aged 50 years and over were asked questions relating to health literacy on bowel cancer.

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

### 3.4 Bowel cancer detection

In contrast to screening, people who present with symptoms of concern are usually referred for investigation. Respondents were asked 'In the last two years have you had a bowel examination to detect bowel cancer?'. Given the wording of the question it is not possible to know if all the affirmative respondents were symptomatic or had merely participated in the NBCSP and therefore the estimates are likely to reflect both. However, the subsequent question regarding the nature of the investigation received will give a better indication of the proportion that presented with symptoms, since it is highly unlikely that a person would be the recipient of a colonoscopy in the absence of symptoms, unless they were to have had one performed privately.

Table 3.17 shows the proportion of adults aged 50 years or over who responded affirmatively that they had had an examination to detect bowel cancer in the previous two years, by age group and sex.

Overall, 30.5 per cent of all Victorian adults aged 50 years or over had had a bowel examination to detect cancer in the two years prior to the survey. This was significantly higher in men (33.1 per cent) than women (28.2 per cent). A significantly higher proportion of people aged 60–79 years had had a bowel examination to detect cancer compared with all Victorian people aged 50 years or over.

**Table 3.17: Had examination to detect bowel cancer, by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
50–59	29.6	27.1	32.1	26.8	24.9	28.8	28.1	26.6	29.7
60–69	36.6	34.2	39.0	31.1	29.1	33.1	<b>33.7</b>	32.2	35.3
70–79	37.0	34.0	40.1	30.3	28.0	32.7	<b>33.3</b>	31.5	35.2
80+	30.2	26.1	34.5	24.3	21.4	27.5	<b>26.9</b>	24.5	29.5
<b>Total</b>	<b>33.1</b>	<b>31.7</b>	<b>34.6</b>	<b>28.2</b>	<b>27.1</b>	<b>29.4</b>	<b>30.5</b>	<b>29.6</b>	<b>31.4</b>

Only respondents aged 50 years and over were asked whether they had a test for bowel cancer screening in the past two years.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Respondents aged 50 years or over who reported having had a bowel examination for cancer in the previous two years were subsequently asked to indicate whether they had had a colonoscopy, FOBT or barium enema. Table 3.18 shows the type of examination received by respondents who reported that they had had an examination to detect bowel cancer in the previous two years, by age group and sex.

Overall, 69.7 per cent of all Victorian people aged 50 years or over had had a colonoscopy, 3.0 per cent had had a barium enema and 34.3 per cent had had an FOBT. While those who had had a colonoscopy or barium enema were most likely to have presented with symptoms, it is not possible to distinguish between those who were asymptomatic and participating in the NBCSP and those who had had an FOBT in response to having symptoms.

Table 3.18 shows the proportion of men and women who had had an examination to detect bowel cancer in the previous two years, by the type of examination. Overall, 69.7 per cent of Victorian adults who had had a bowel examination in the previous two years had had a colonoscopy; higher in women than men. There was no difference between the sexes in the proportion who had had a barium enema. By contrast a significantly higher proportion of men compared with women had had an FOBT.

The proportion of people who had had a colonoscopy or barium enema increased with age. This is unsurprising since the incidence of bowel cancer increases with age. By contrast the proportion who had had an FOBT declined with age, most likely reflecting those who were participants of the NBCSP since there is an upper age limit for eligibility.

**Table 3.18: Type of examination in previous two years to detect bowel cancer, by age group and sex, Victoria, 2011–12**

Age group (years)	Colonoscopy			Barium enema			FOBT		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
50–59	57.8	52.7	62.7	2.4*	1.4	4.2	49.0	44.0	54.0
60–69	66.8	63.0	70.4	3.6	2.2	5.9	34.7	31.1	38.5
70–79	71.8	66.9	76.3	3.6*	2.1	6.1	30.2	25.7	35.0
80+	78.7	71.6	84.5	5.5*	2.8	10.7	19.2	13.7	26.2
<b>Total</b>	<b>65.6</b>	<b>63.1</b>	<b>68.1</b>	<b>3.4</b>	<b>2.6</b>	<b>4.4</b>	<b>37.3</b>	<b>34.9</b>	<b>39.9</b>
<b>Females</b>									
50–59	70.1	66.2	73.7	1.9*	1.1	3.2	38.2	34.2	42.3
60–69	74.4	71.0	77.5	2.4*	1.3	4.2	31.0	27.6	34.6
70–79	78.2	74.0	81.9	3.2	1.9	5.1	22.9	19.3	26.9
80+	79.5	73.2	84.7	4.8*	2.5	9.2	22.7	17.3	29.2
<b>Total</b>	<b>74.1</b>	<b>71.9</b>	<b>76.1</b>	<b>2.5</b>	<b>1.9</b>	<b>3.3</b>	<b>31.0</b>	<b>28.9</b>	<b>33.2</b>
<b>Persons</b>									
50–59	63.8	60.5	66.9	2.1	1.4	3.2	43.7	40.4	47.0
60–69	70.4	67.9	72.8	3.0	2.1	4.4	32.9	30.4	35.6
70–79	75.0	71.8	77.9	3.4	2.4	4.9	26.5	23.6	29.7
80+	79.1	74.5	83.1	5.2	3.2	8.2	21.0	17.0	25.6
<b>Total</b>	<b>69.7</b>	<b>68.0</b>	<b>71.3</b>	<b>3.0</b>	<b>2.4</b>	<b>3.6</b>	<b>34.3</b>	<b>32.7</b>	<b>36.0</b>

Only respondents aged 50 years and over were asked whether they had a test for bowel cancer screening in the past two years.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Note: Estimates do not add to 100 per cent because multiple responses were allowed.

Table 3.19 shows the proportion of Victorians aged 50 years or over who had had a colonoscopy in the previous two years, by Department of Health region and sex. There was a significantly higher proportion of people aged 50 years or over who lived in metropolitan compared with rural Victoria who had had a colonoscopy in the previous two years, and this was particularly notable in Southern Metropolitan Region. By contrast there was a significantly lower proportion of people who lived in Barwon-South Western Region, Grampians Region and Loddon Mallee Region who had had a colonoscopy in the previous two years compared with all Victorian adults.

**Table 3.19: Had colonoscopy to detect bowel cancer, by Department of Health region and sex, Victoria, 2011–12**

Region	%	Males		%	Females		%	Persons	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Eastern Metropolitan	69.5	63.2	75.2	76.6	70.9	81.5	72.7	68.3	76.6
North & West Metropolitan	66.3	60.4	71.8	76.8	72.4	80.8	71.5	67.8	75.0
Southern Metropolitan	72.2	66.5	77.2	79.5	75.2	83.2	<b>75.7</b>	72.2	79.0
<b>Metropolitan regions</b>	69.7	66.4	72.9	77.6	75.0	80.1	<b>73.6</b>	71.4	75.6
Barwon-South Western	<b>46.7</b>	37.4	56.3	<b>63.6</b>	55.9	70.7	<b>55.6</b>	49.0	62.1
Gippsland	58.1	51.0	65.0	67.8	61.6	73.4	64.7	59.6	69.5
Grampians	60.7	52.2	68.6	<b>62.8</b>	55.8	69.4	<b>61.4</b>	55.7	66.8
Hume	61.4	55.3	67.2	72.0	67.4	76.1	66.3	62.3	70.1
Loddon Mallee	<b>56.6</b>	49.9	63.0	<b>59.4</b>	53.4	65.1	<b>58.0</b>	53.4	62.4
<b>Rural regions</b>	<b>56.9</b>	53.2	60.6	<b>65.0</b>	61.8	68.1	<b>60.7</b>	58.1	63.1
<b>Total</b>	<b>65.6</b>	<b>63.1</b>	<b>68.1</b>	<b>74.1</b>	<b>71.9</b>	<b>76.1</b>	<b>69.7</b>	<b>68.0</b>	<b>71.3</b>

Only respondents aged 50 years and over were asked whether they had a test for bowel cancer screening in the past two years.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

### 3.5 Breast cancer screening and detection

Breast cancer is a major health issue for women and is the second most common cause of cancer-related death in Australian women. A total of 2,680 Australian women died from breast cancer in 2007. The lifetime risk of women developing breast cancer before the age of 75 years is one in 11. Well-organised mammographic screening can substantially reduce deaths from breast cancer (DoHA 2013a). BreastScreen Victoria offers free biennial breast screening for asymptomatic women over the age of 40 years; however, the target age is 50–69 years (DoHA 2013a).

Women aged 50 years or over were asked ‘Have you ever had a mammogram as a health check?’. It should be noted that this question does not necessarily distinguish between symptomatic and asymptomatic women who had had a mammogram and therefore most likely reflects a composite of both screening and detection.

Table 3.20 shows the proportion of women aged 50 years or over who had had a mammogram at some point in their lives, by age group. Overall, 88.2 per cent of women aged 50 years or over had had a mammogram. The proportion in those aged 60–79 years was significantly higher compared with all Victorian women aged 50 years or over.



**Table 3.20: Ever had a mammogram, by age group, Victoria, 2011–12**

Age group (years)	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
50–59	85.3	83.6	86.8	14.5	13.0	16.1
60–69	<b>93.5</b>	92.4	94.5	<b>6.3</b>	5.3	7.4
70–79	<b>91.6</b>	89.9	92.9	<b>7.8</b>	6.5	9.4
80+	81.7	79.0	84.2	17.0	14.6	19.6
<b>Total</b>	<b>88.2</b>	<b>87.4</b>	<b>89.0</b>	<b>11.3</b>	<b>10.5</b>	<b>12.1</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Respondents who indicated that they had had a mammogram were subsequently asked if they had had a mammogram in the previous two years. Overall, 69.7 per cent of women who had ever had a mammogram had had a mammogram in the

previous two years. This was significantly higher in those aged 50–69 years compared with all Victorian women aged 50 years or over.

**Table 3.21: Had a mammogram in previous two years, by age group, Victoria, 2011–12**

Age group (years)	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
50–59	<b>82.2</b>	80.4	84.0	<b>17.6</b>	15.9	19.4
60–69	<b>83.9</b>	82.2	85.5	<b>15.5</b>	14.0	17.2
70–79	<b>52.3</b>	49.6	55.0	<b>46.4</b>	43.8	49.1
80+	<b>24.3</b>	21.0	27.9	<b>74.0</b>	70.3	77.4
<b>Total</b>	<b>69.7</b>	<b>68.6</b>	<b>70.7</b>	<b>29.6</b>	<b>28.6</b>	<b>30.7</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

In order to be able to distinguish between women who were asymptomatic and being screened from women who were symptomatic or being followed-up for previous symptoms or disease, the respondent who reported having had a mammogram in the previous two years was asked to indicate the reason. Table 3.22 shows the proportion of women aged 50 years or over who had had a mammogram in the previous two years, by reason and age group.

Overall, 78.8 per cent said they had had a mammogram as a 'routine health check', suggesting that they may have been asymptomatic and were being screened. A further 6.0 per cent indicated having had a genetic predisposition to breast cancer and were presumably also asymptomatic. A further 0.4 per cent of women were on hormone replacement therapy, for which it has been suggested increases the risk of developing breast cancer, and were also presumably asymptomatic. Therefore 85.2 per cent of women aged 50 years or over

who had had a mammogram in the previous two years were asymptomatic and being screened, although not necessarily through BreastScreen Victoria.

Of the remaining women, 7.4 per cent said they had breast cancer and needed to be checked regularly, 6.4 per cent had a lump or symptom that was being investigated and 0.8 per cent gave other reasons.

A significantly higher proportion of women aged 60–69 years said they'd had a mammogram as a routine health check compared with all Victorian women aged 50 years or over. By contrast there was a significantly lower proportion of women aged 80 years or over who had had a mammogram compared with all Victorian women aged 50 years or over.

The proportion of women who reported having had breast cancer increased with age and was highest in those aged 80 years or over.

Table 3.22: Reasons for having a mammogram in last two years, by age group, Victoria, 2011–12

Age group (years)	Had a lump / symptom			A routine health check			Have had breast cancer and need to be checked regularly			Have a family history / genetic predisposition to breast cancer			On hormone replacement therapy			Other reason		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
50–59	7.5	6.2	9.2	79.6	77.3	81.6	3.9	3.1	5.0	8.0	6.7	9.5	0.4*	0.2	0.9	0.5*	0.2	1.3
60–69	4.3	3.4	5.5	86.2	84.3	87.8	4.9	3.9	6.1	3.6	2.8	4.7	0.5	0.2	1.2	0.4*	0.2	0.9
70–79	5.7	4.3	7.5	76.5	73.2	79.5	10.4	8.3	13.1	6.3	4.7	8.4	**	**	**	**	**	**
80+	9.3	5.8	14.6	66.4	58.1	73.7	18.2	12.4	25.7	**	**	**	0.0	-	-	**	**	**
<b>Total</b>	<b>6.4</b>	<b>5.5</b>	<b>7.3</b>	<b>78.8</b>	<b>77.1</b>	<b>80.4</b>	<b>7.4</b>	<b>6.3</b>	<b>8.8</b>	<b>6.0</b>	<b>5.1</b>	<b>7.0</b>	<b>0.4</b>	<b>0.3</b>	<b>0.7</b>	<b>0.8*</b>	<b>0.4</b>	<b>1.8</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

In order to determine the proportion of women who had had a screening mammogram through BreastScreen Victoria, respondents who had had a mammogram in the previous two years were asked to indicate where they had had the mammogram performed. Table 3.23 shows the proportion of women aged 50 years or over who had had a mammogram in the previous two years, by service provider and age.

The majority of mammograms were carried out through BreastScreen Victoria (68.5 per cent). This proportion was significantly highest in women aged 60–69 years (76.1 per cent).

**Table 3.23: Service provider of mammogram, by age group, Victoria, 2011–12**

Age group (years)	Private imaging clinic			Breastscreen Victoria clinic			Public imaging clinic			Other		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
50–59	14.7	12.9	16.8	70.9	68.4	73.3	12.5	10.9	14.3	0.5*	0.2	0.9
60–69	9.4	8.1	10.9	76.1	74.0	78.1	12.7	11.2	14.4	0.3*	0.2	0.6
70–79	15.3	12.8	18.3	65.1	61.5	68.5	16.9	14.4	19.8	1.4*	0.8	2.5
80+	21.8	15.5	29.8	48.0	40.0	56.2	24.5	18.5	31.7	**	**	**
<b>Total</b>	<b>13.9</b>	<b>12.6</b>	<b>15.2</b>	<b>68.5</b>	<b>66.7</b>	<b>70.2</b>	<b>15.0</b>	<b>13.7</b>	<b>16.4</b>	<b>0.6</b>	<b>0.4</b>	<b>0.9</b>

LL/UL 95% CI = lower/upper limit of 95% confidence interval

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 3.24 shows the proportion of women aged 50 years or over who had ever had a mammogram, by Department of Health region and sex. There was no difference between women who lived in rural compared with metropolitan Victoria. There were no regional differences with the exception that there was a significantly lower proportion of women aged 50 years or over who lived in Grampians Region who had ever had a mammogram compared with all women aged 50 years or over.

**Table 3.24: Ever had a mammogram, by Department of Health region, Victoria, 2011–12**

Region	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Eastern Metropolitan	89.1	86.9	90.9	10.6	8.7	12.7
North & West Metropolitan	88.1	86.3	89.7	11.2	9.7	12.9
Southern Metropolitan	89.0	87.2	90.7	10.6	9.0	12.5
<b>Metropolitan females</b>	88.7	87.6	89.6	10.9	9.9	11.9
Barwon-South Western	86.6	82.8	89.7	12.8	9.8	16.6
Gippsland	87.4	85.0	89.4	12.4	10.4	14.8
Grampians	84.5	81.4	87.2	14.3	11.7	17.4
Hume	88.1	86.2	89.7	11.8	10.2	13.6
Loddon Mallee	88.7	86.6	90.5	11.0	9.2	13.1
<b>Rural females</b>	87.1	85.9	88.3	12.4	11.3	13.7
<b>Total</b>	<b>88.2</b>	<b>87.4</b>	<b>89.0</b>	<b>11.3</b>	<b>10.5</b>	<b>12.1</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Table 3.25 shows the proportion of women aged 50 years or over who had had a mammogram in the previous two years, by Department of Health region and sex. There was no significant difference between women who lived in rural compared with metropolitan Victoria, nor was there any significant regional difference compared with all Victorian women aged 50 years or over.

**Table 3.25: Had a mammogram in last two years, by Department of Health region, Victoria, 2011–12**

Region	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Eastern Metropolitan	69.9	67.1	72.5	29.5	26.9	32.3
North & West Metropolitan	69.3	67.1	71.4	30.1	28.1	32.3
Southern Metropolitan	69.6	67.2	71.9	29.5	27.3	31.9
<b>Metropolitan females</b>	69.6	68.2	70.9	29.8	28.4	31.1
Barwon-South Western	67.7	63.3	71.9	32.0	27.8	36.5
Gippsland	67.7	64.8	70.5	31.3	28.5	34.2
Grampians	67.1	63.7	70.4	31.5	28.1	35.1
Hume	72.9	70.6	75.1	26.1	23.9	28.4
Loddon Mallee	73.0	70.6	75.2	26.3	23.9	28.7
<b>Rural females</b>	69.9	68.4	71.5	29.3	27.8	30.9
<b>Total</b>	<b>69.7</b>	<b>68.6</b>	<b>70.7</b>	<b>29.6</b>	<b>28.6</b>	<b>30.7</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Table 3.26 shows the proportion of women aged 50 years or over who had had a mammogram in the previous two years, by reason and Department of Health region. There were no differences between women by reason given for their mammogram across regions or between those who lived in rural compared with metropolitan Victoria.

Table 3.26: Reasons for having mammogram in last two years, by Department of Health region, Victoria, 2011–12

Region	Had a lump / symptom			A routine health check			Have had breast cancer and need to be checked regularly			Have a family history / genetic predisposition to breast cancer			On hormone replacement therapy			Other reason		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Eastern Metropolitan	6.2	4.4	8.6	79.3	75.4	82.7	8.4	6.2	11.4	4.6	3.2	6.6	**	**	**	**	**	**
North & West Metropolitan	6.6	4.9	8.7	81.5	78.4	84.3	7.1	5.1	9.7	4.1	3.1	5.4	0.5*	0.2	1.0	**	**	**
Southern Metropolitan	6.6	4.9	8.9	75.7	71.7	79.3	6.7	5.0	9.0	8.5	6.1	11.7	0.3*	0.1	0.6	**	**	**
<b>Metropolitan females</b>	6.5	5.4	7.7	78.9	76.7	80.8	7.1	5.8	8.7	5.9	4.7	7.3	0.5*	0.3	0.9	1.0*	0.4	2.6
Barwon-South Western	6.0*	3.5	9.7	76.2	69.8	81.7	10.0	6.3	15.5	7.6	4.7	11.9	0.0	0.0	0.0	**	**	**
Gippsland	5.8	4.0	8.2	79.8	76.1	83.0	6.7	4.8	9.3	7.0	5.2	9.3	**	**	**	**	**	**
Grampians	6.8	4.5	10.1	81.7	77.3	85.3	4.7	3.1	7.1	5.3	3.7	7.6	**	**	**	**	**	**
Hume	7.1	5.4	9.2	79.6	76.6	82.3	5.3	3.9	7.1	7.5	5.8	9.6	**	**	**	0.2*	0.1	0.4
Loddon Mallee	6.0	4.0	8.9	79.7	75.8	83.1	8.4	6.2	11.4	4.3	3.0	6.3	**	**	**	**	**	**
<b>Rural females</b>	6.3	5.1	7.6	78.7	75.9	81.2	8.0	5.9	10.7	6.3	5.3	7.5	0.2*	0.1	0.4	0.4*	0.2	0.8
<b>Total</b>	<b>6.4</b>	<b>5.5</b>	<b>7.3</b>	<b>78.8</b>	<b>77.1</b>	<b>80.4</b>	<b>7.4</b>	<b>6.3</b>	<b>8.8</b>	<b>6.0</b>	<b>5.1</b>	<b>7.0</b>	<b>0.4</b>	<b>0.3</b>	<b>0.7</b>	<b>0.8*</b>	<b>0.4</b>	<b>1.8</b>

LL/UL 95% CI = lower/upper limit of 95% confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 3.27 shows the proportion of women aged 50 years or over who had had a mammogram in the previous two years, by service provider and Department of Health region. While there was no significant difference between women who lived in rural compared with metropolitan Victoria in the proportion of women who had had a mammogram through BreastScreen Victoria, there was a significantly lower proportion of women who lived in Gippsland Region. However, Gippsland Region had a significantly higher proportion of women who had had a mammogram at a public imaging clinic, suggesting that public imaging clinics in Gippsland are fulfilling some of the role of BreastScreen Victoria.

**Table 3.27: Service provider of mammogram, by Department of Health region, Victoria, 2011–12**

Region	Private imaging clinic			BreastScreen Victoria clinic			Public imaging clinic			Other		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Eastern Metropolitan	15.8	13.0	19.2	72.2	68.0	76.1	9.1	6.9	11.9	0.4*	0.2	1.1
North & West Metropolitan	14.2	11.7	17.3	65.8	62.3	69.2	16.9	14.4	19.7	0.7*	0.3	1.7
Southern Metropolitan	17.5	14.9	20.5	65.9	61.8	69.7	13.3	10.5	16.6	0.6*	0.3	1.4
<b>Metropolitan females</b>	15.7	14.1	17.4	67.7	65.4	69.9	13.6	11.9	15.5	0.6*	0.4	1.0
Barwon-South Western	9.6	7.1	13.1	74.6	69.5	79.1	12.1	9.0	16.2	**	**	**
Gippsland	5.7	4.2	7.8	60.8	56.8	64.6	31.7	28.2	35.5	**	**	**
Grampians	12.7	9.4	17.0	67.8	63.9	71.6	17.4	13.9	21.4	0.2*	0.1	0.5
Hume	10.6	8.8	12.8	67.7	64.1	71.1	20.4	17.5	23.7	0.6*	0.3	1.3
Loddon Mallee	10.4	7.8	13.8	73.8	69.6	77.5	14.5	11.6	18.0	**	**	**
<b>Rural females</b>	9.4	8.1	10.9	70.3	67.8	72.7	18.4	16.5	20.5	0.5	0.3	0.7
<b>Total</b>	<b>13.9</b>	<b>12.6</b>	<b>15.2</b>	<b>68.5</b>	<b>66.7</b>	<b>70.2</b>	<b>15.0</b>	<b>13.7</b>	<b>16.4</b>	<b>0.6</b>	<b>0.4</b>	<b>0.9</b>

LL/UL 95% CI = lower/upper limit of 95% confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 3.28 shows the proportion of women aged 50 years or over who had had a mammogram in the previous two years, by LGA. There were significantly higher proportions of women aged 50 years or over who had had a mammogram in the previous two years and lived in the LGAs of Brimbank (C), Glenelg (S), Mansfield (S), Monash (C), Southern Grampians (S), Swan Hill (RC) and Wangaratta (RC) compared with all Victorian women aged 50 years or over. By contrast there were significantly lower proportions of women in those who lived in Cardinia (S), Hepburn (S) and Moorabool (S) compared with all Victorian women aged 50 years or over.



Table 3.28: Had a mammogram in last two years, by LGA, Victoria, 2011–12

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Alpine (S)	71.9	66.4	76.8	26.8	21.9	32.4
Ararat (RC)	68.5	61.0	75.1	31.3	24.6	38.8
Ballarat (C)	68.9	61.2	75.7	29.8	22.9	37.8
Banyule (C)	64.2	57.1	70.7	35.0	28.6	41.9
Bass Coast (S)	62.5	54.8	69.5	36.6	29.5	44.2
Baw Baw (S)	64.8	56.9	72.1	33.1	25.8	41.3
Bayside (C)	70.3	63.5	76.2	28.1	22.2	34.9
Benalla (RC)	72.3	65.7	78.0	27.7	22.0	34.3
Boroondara (C)	70.6	62.2	77.7	28.6	21.5	36.9
Brimbank (C)	79.5	71.3	85.8	20.5	14.2	28.7
Buloke (S)	76.2	70.1	81.4	22.5	17.5	28.4
Campaspe (S)	74.6	68.7	79.7	24.9	19.8	30.8
Cardinia (S)	60.6	52.0	68.5	39.4	31.5	48.0
Casey (C)	75.6	67.5	82.2	23.6	17.1	31.6
Central Goldfields (S)	63.6	56.3	70.4	35.8	29.0	43.2
Colac-Otway (S)	65.7	57.9	72.8	33.5	26.5	41.4
Corangamite (S)	69.2	61.5	75.9	29.5	22.9	37.0
Darebin (C)	68.7	60.8	75.7	31.3	24.3	39.2
East Gippsland (S)	71.9	64.4	78.4	28.1	21.6	35.6
Frankston (C)	69.0	62.3	74.9	30.3	24.3	36.9
Gannawarra (S)	76.1	69.3	81.8	23.9	18.2	30.7
Glen Eira (C)	65.8	57.6	73.2	34.2	26.8	42.4
Glenelg (S)	79.8	72.3	85.7	20.2	14.3	27.7
Golden Plains (S)	71.7	62.8	79.2	26.2	18.4	36.0
Greater Bendigo (C)	75.7	68.6	81.6	23.3	17.4	30.5
Greater Dandenong (C)	69.4	61.5	76.3	28.6	22.0	36.2
Greater Geelong (C)	64.3	56.1	71.7	35.7	28.3	43.9
Greater Shepparton (C)	74.8	67.9	80.6	24.5	18.8	31.3
Hepburn (S)	56.6	48.7	64.2	41.6	33.9	49.8
Hindmarsh (S)	64.5	57.0	71.5	34.6	27.8	42.0
Hobsons Bay (C)	67.3	59.5	74.3	32.7	25.7	40.5
Horsham (RC)	73.8	67.1	79.6	25.2	19.5	32.0
Hume (C)	66.1	58.0	73.3	33.9	26.7	42.0
Indigo (S)	68.2	61.2	74.4	31.8	25.6	38.8
Kingston (C)	66.0	57.9	73.2	34.0	26.8	42.1
Knox (C)	61.7	53.2	69.6	37.6	29.6	46.2
Latrobe (C)	68.9	62.3	74.9	30.4	24.5	37.0
Loddon (S)	68.6	61.8	74.7	31.4	25.3	38.2
Macedon Ranges (S)	73.2	66.3	79.1	26.3	20.4	33.1
Manningham (C)	71.5	63.3	78.6	28.5	21.4	36.7
Mansfield (S)	79.5	72.0	85.4	18.9	13.2	26.3
Maribyrnong (C)	65.9	55.5	75.0	32.2	23.1	42.9

Table 3.28: Had a mammogram in last two years, by LGA, Victoria, 2011–12 (continued)

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Maroondah (C)	74.9	67.4	81.1	24.5	18.3	31.9
Melbourne (C)	72.4	65.4	78.5	26.9	20.9	33.9
Melton (S)	76.6	65.8	84.8	23.4	15.2	34.2
Mildura (RC)	71.6	65.9	76.7	28.4	23.3	34.1
Mitchell (S)	77.3	68.9	83.9	19.9	13.6	28.1
Moira (S)	71.3	64.4	77.3	28.0	22.0	34.9
Monash (C)	80.6	74.6	85.5	18.7	14.0	24.6
Moonee Valley (C)	73.6	66.5	79.7	23.8	17.5	31.4
Moorabool (S)	60.6	52.3	68.3	39.4	31.7	47.7
Moreland (C)	65.5	57.9	72.3	33.9	27.1	41.5
Mornington Peninsula (S)	74.4	67.5	80.2	25.6	19.8	32.5
Mount Alexander (S)	70.0	63.0	76.2	29.8	23.6	36.8
Moyne (S)	66.4	59.5	72.6	33.0	26.7	40.0
Murrindindi (S)	70.1	62.1	77.0	29.4	22.5	37.4
Nillumbik (S)	71.0	61.1	79.3	29.0	20.7	38.9
Northern Grampians (S)	66.6	60.4	72.2	33.4	27.8	39.6
Port Phillip (C)	71.1	62.8	78.2	27.4	20.5	35.6
Pyrenees (S)	66.6	58.5	73.8	32.0	24.8	40.0
Queenscliffe (B)	69.2	61.8	75.7	30.6	24.1	38.0
South Gippsland (S)	72.5	65.8	78.3	26.9	21.1	33.6
Southern Grampians (S)	78.5	71.2	84.4	21.5	15.6	28.8
Stonnington (C)	72.1	65.5	77.9	25.6	19.8	32.4
Strathbogie (S)	63.6	56.4	70.3	34.0	27.6	41.1
Surf Coast (S)	68.2	61.2	74.5	31.8	25.5	38.8
Swan Hill (RC)	78.7	71.9	84.2	19.5	14.2	26.4
Towong (S)	67.2	59.6	74.1	31.5	24.8	39.1
Wangaratta (RC)	79.9	73.2	85.2	19.5	14.1	26.3
Warrnambool (C)	68.2	60.9	74.8	30.9	24.3	38.3
Wellington (S)	66.9	60.1	73.1	31.3	25.1	38.2
West Wimmera (S)	71.0	63.6	77.4	28.4	22.0	35.9
Whitehorse (C)	71.0	63.3	77.7	28.1	21.6	35.7
Whittlesea (C)	71.8	64.2	78.4	27.7	21.2	35.4
Wodonga (RC)	72.6	64.7	79.3	25.9	19.3	33.9
Wyndham (C)	72.4	62.9	80.2	27.0	19.2	36.4
Yarra (C)	67.5	60.3	74.0	31.3	24.9	38.4
Yarra Ranges (S)	63.0	55.6	69.8	36.0	29.2	43.5
Yarriambiack (S)	74.8	69.2	79.6	24.6	19.7	30.3
<b>Victoria</b>	<b>70.1</b>	<b>69.0</b>	<b>71.1</b>	<b>29.3</b>	<b>28.2</b>	<b>30.3</b>

Data were age standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

### 3.6 Cervical cancer screening

Cervical cancer is one of the few cancers where screening can detect pre-cancerous lesions that can be effectively treated. The most common type of cervical cancer (squamous) usually takes more than 10 years to develop. A Pap test every two years can prevent the most common form of cervical cancer in up to 90 per cent of cases and is the best protection against cervical cancer. The National Cervical Screening Program recommends that all women who have ever had sexual intercourse need to have regular Pap tests, including those who no longer have sex. Women should have their first Pap test around the age of 18–20 years, or a year or two after first having sexual intercourse, and to continue to be screened throughout their lifetime until the age of 70 years. At 70 years, a woman's general practitioner may advise that it is safe to stop having Pap tests if previous tests have been normal (DoHA 2013c).

In the survey, female respondents were asked if they had ever had a Pap test. Table 3.29 shows the proportion of women who had ever had a Pap test, by age group. Overall, 86.2 per cent of women had ever had a Pap test, while 13.4 per cent had not.

The proportion of women aged 35 years or over who responded 'yes' was significantly higher than the proportion of all Victorian women overall. In contrast the proportion of women aged 18–24 years who answered 'yes' was significantly lower compared with the proportion of all Victorian women.

Table 3.29: Ever had a Pap smear, by age group, Victoria, 2011–12

Age group (years)	Yes				No		
	%	95% CI		%	95% CI		
		LL	UL		LL	UL	
18–24	36.8	31.9	42.0	63.2	58.0	68.1	
25–34	87.6	84.4	90.2	11.9	9.3	15.0	
35–44	96.8	95.8	97.6	2.8	2.1	3.7	
45–54	97.7	96.9	98.3	2.1	1.6	2.9	
55–64	97.9	97.2	98.4	2.0	1.5	2.7	
65+	91.9	91.0	92.8	7.4	6.6	8.3	
<b>Total</b>	<b>86.2</b>	<b>85.2</b>	<b>87.1</b>	<b>13.4</b>	<b>12.4</b>	<b>14.4</b>	

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Totals', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Female respondents who indicated that they had ever had a Pap test were subsequently asked if they had had the test in the previous two years. Table 3.30 shows the proportion of women who had had a Pap test in the previous two years, by age group. Overall, 70.8 per cent of women who had ever had a Pap test had had one in the previous two years.

There were significantly higher proportions of women aged 18–54 years who had had a Pap test in the previous two years compared with all Victorian women, with the highest proportion being in those aged 18–24 years. By contrast there were significantly lower proportions of women aged 55 years or over who had had a Pap test in the previous two years compared with all Victorian women.

**Table 3.30: Had a Pap smear in the past two years,<sup>a</sup> by age group, Victoria, 2011–12**

Age group (years)	%	Yes		%	No	
		95% CI			95% CI	
		LL	UL		LL	UL
18–24	94.0	90.1	96.4	5.8*	3.4	9.7
25–34	82.6	79.6	85.3	17.1	14.4	20.2
35–44	79.7	77.6	81.6	19.4	17.5	21.5
45–54	76.1	74.1	78.0	21.1	19.3	23.1
55–64	67.1	65.0	69.1	27.8	25.9	29.7
65+	34.5	32.7	36.3	59.0	57.2	60.9
<b>Total</b>	<b>70.8</b>	<b>69.9</b>	<b>71.8</b>	<b>26.6</b>	<b>25.7</b>	<b>27.5</b>

a. Female survey participants were able to select 'not applicable' as a response to this question. They have been excluded from the denominator when calculating estimates.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Data are age-specific estimates, except for 'Totals', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 3.31 shows the proportion of women who had ever had a Pap test, by Department of Health region. Overall, there were significantly higher proportions of women who lived in rural compared with metropolitan Victoria that had ever had a Pap test, with significantly higher proportions of women living in Grampians Region and Hume Region who had ever had a Pap test compared with all Victorian women.

**Table 3.31: Ever had a Pap smear, by Department of Health region, Victoria, 2011–12**

Region	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Eastern Metropolitan	84.6	81.1	87.5	14.9	12.0	18.4
North & West Metropolitan	84.3	82.6	85.8	15.0	13.5	16.6
Southern Metropolitan	87.9	85.9	89.6	11.9	10.2	13.9
<b>Metropolitan females</b>	85.6	84.4	86.7	13.9	12.8	15.0
Barwon-South Western	85.9	84.2	87.5	13.7	12.2	15.4
Gippsland	89.2	86.2	91.6	10.7	8.3	13.7
Grampians	<b>90.5</b>	87.9	92.5	<b>9.3</b>	7.2	11.8
Hume	<b>90.9</b>	88.4	93.0	<b>8.9</b>	6.9	11.5
Loddon Mallee	88.1	83.6	91.4	11.8	8.4	16.2
<b>Rural females</b>	88.5	86.9	89.8	11.3	10.0	12.9
<b>Total</b>	<b>86.2</b>	<b>85.2</b>	<b>87.1</b>	<b>13.4</b>	<b>12.4</b>	<b>14.4</b>

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Table 3.32 shows the proportion of women who had had a Pap test in the previous two years, by Department of Health region. There were significantly lower proportions of women who lived in rural compared with metropolitan Victoria who had had a Pap test in the previous two years, particularly those women who lived in Grampians Region.

**Table 3.32: Had a Pap smear in the past two years,<sup>a</sup> by Department of Health region, Victoria, 2011–12**

Region	%	Yes		%	No	
		95% CI			95% CI	
		LL	UL		LL	UL
Eastern Metropolitan	71.4	68.7	74.0	26.2	23.7	28.9
North & West Metropolitan	71.9	70.2	73.5	25.5	23.9	27.3
Southern Metropolitan	71.6	69.5	73.6	25.8	23.8	27.9
<b>Metropolitan females</b>	71.7	70.5	72.8	25.8	24.6	26.9
Barwon-South Western	66.7	62.3	70.8	31.1	27.0	35.5
Gippsland	70.4	67.9	72.7	27.1	24.8	29.5
Grampians	63.3	60.4	66.0	33.7	31.0	36.6
Hume	69.8	67.2	72.3	27.5	25.0	30.0
Loddon Mallee	66.8	63.2	70.2	30.4	27.0	33.9
<b>Rural females</b>	68.4	67.0	69.8	29.0	27.6	30.4
<b>Total</b>	<b>70.8</b>	<b>69.9</b>	<b>71.8</b>	<b>26.6</b>	<b>25.7</b>	<b>27.5</b>

a. Female survey participants were able to select 'not applicable' as a response to this question. They have been excluded from the denominator when calculating estimates.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Table 3.33 shows the proportion of women who had had a Pap test in the previous two years, by LGA. There were significantly higher proportions of women who had had a Pap test in the previous two years who lived in the LGAs of Bayside (C), Glen Eira (C), Hobsons Bay (C), Melbourne (C), Mount Alexander (S), Stonnington (C) and Yarra (C) compared with all Victorian women. By contrast there were significantly lower proportions of women who had had a Pap test in the previous two years who lived in Central Goldfields (S), Corangamite (S), Hindmarsh (S), Moorabool (S), South Gippsland (S), Warrnambool (C) and Wodonga (RC) compared with all Victorian women.

Table 3.33: Had a Pap smear in the past two years,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Alpine (S)	68.5	52.2	81.2	29.9*	17.4	46.4
Ararat (RC)	68.7	63.0	73.9	27.8	22.8	33.3
Ballarat (C)	68.3	62.8	73.3	28.7	23.8	34.1
Banyule (C)	75.6	70.9	79.7	23.0	19.0	27.7
Bass Coast (S)	70.9	62.5	78.0	27.7	20.6	36.1
Baw Baw (S)	72.1	67.3	76.5	24.9	20.6	29.6
Bayside (C)	<b>77.5</b>	73.0	81.4	<b>21.0</b>	17.1	25.5
Benalla (RC)	74.3	69.3	78.8	22.6	18.3	27.7
Boroondara (C)	75.0	69.4	80.0	23.2	18.3	28.8
Brimbank (C)	65.3	56.5	73.2	33.1	25.3	42.0
Buloke (S)	66.5	57.3	74.7	30.2	22.3	39.5
Campaspe (S)	64.3	55.0	72.6	33.7	25.5	43.1
Cardinia (S)	68.2	60.9	74.6	28.2	21.9	35.4
Casey (C)	68.4	62.5	73.8	28.9	23.7	34.8
Central Goldfields (S)	<b>62.5</b>	56.9	67.8	33.0	27.8	38.6
Colac-Otway (S)	69.5	63.1	75.3	29.0	23.3	35.5
Corangamite (S)	<b>62.4</b>	55.3	69.0	<b>35.3</b>	28.7	42.4
Darebin (C)	68.2	59.9	75.5	26.6	19.7	34.9
East Gippsland (S)	74.4	69.0	79.2	23.6	19.0	29.0
Frankston (C)	64.3	56.2	71.6	32.2	25.0	40.3
Gannawarra (S)	68.7	62.7	74.2	27.3	22.2	33.2
Glen Eira (C)	<b>80.0</b>	76.1	83.4	<b>18.3</b>	15.1	22.0
Glenelg (S)	72.7	67.8	77.2	25.4	21.1	30.4
Golden Plains (S)	68.6	63.5	73.3	28.3	23.6	33.5
Greater Bendigo (C)	69.8	62.4	76.2	26.9	20.5	34.4
Greater Dandenong (C)	65.4	57.0	72.9	33.0	25.5	41.4
Greater Geelong (C)	69.3	63.9	74.1	28.8	24.0	34.1
Greater Shepparton (C)	75.5	70.3	80.0	22.3	17.8	27.5
Hepburn (S)	69.1	64.1	73.6	28.3	23.8	33.2
Hindmarsh (S)	<b>47.2</b>	35.4	59.2	<b>48.6</b>	36.8	60.6
Hobsons Bay (C)	<b>75.7</b>	71.6	79.3	23.4	19.8	27.5
Horsham (RC)	68.9	60.9	76.0	27.7	20.8	35.9
Hume (C)	63.8	56.8	70.2	32.9	26.1	40.4
Indigo (S)	68.5	59.4	76.4	30.6	22.8	39.7
Kingston (C)	64.5	55.4	72.7	34.0	25.9	43.1
Knox (C)	63.7	55.5	71.2	32.2	24.9	40.6
Latrobe (C)	70.2	64.3	75.6	27.8	22.5	33.8
Loddon (S)	64.1	56.0	71.5	31.4	24.2	39.6
Macedon Ranges (S)	66.0	54.7	75.7	30.1	20.7	41.7
Manningham (C)	75.3	69.7	80.2	<b>20.5</b>	16.3	25.4
Mansfield (S)	74.5	67.8	80.2	23.9	18.2	30.6
Maribyrnong (C)	75.3	69.8	80.1	22.4	17.7	27.8



Table 3.33: Had a Pap smear in the past two years,<sup>a</sup> by LGA, Victoria, 2011–12 (continued)

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Maroondah (C)	71.4	65.8	76.3	26.9	22.0	32.5
Melbourne (C)	77.7	72.3	82.3	21.0	16.4	26.5
Melton (S)	72.7	66.9	77.7	24.2	19.4	29.7
Mildura (RC)	66.4	59.0	73.0	32.2	25.6	39.6
Mitchell (S)	68.5	61.9	74.3	29.5	23.8	36.0
Moira (S)	65.4	56.6	73.3	32.6	24.8	41.4
Monash (C)	72.1	62.2	80.2	26.5	18.5	36.4
Moonee Valley (C)	73.7	68.4	78.4	23.0	18.2	28.7
Moorabool (S)	57.7	48.2	66.7	40.2	31.3	49.8
Moreland (C)	74.6	69.7	78.9	22.2	18.0	27.0
Mornington Peninsula (S)	74.3	68.8	79.1	22.8	18.1	28.3
Mount Alexander (S)	77.8	73.3	81.7	20.4	16.6	24.9
Moyne (S)	72.7	68.4	76.6	22.8	19.2	27.0
Murrindindi (S)	73.6	68.1	78.5	23.9	19.2	29.4
Nillumbik (S)	77.5	69.2	84.0	21.4	14.9	29.8
Northern Grampians (S)	71.0	66.0	75.5	25.3	21.0	30.3
Port Phillip (C)	73.8	67.0	79.6	23.4	17.8	30.0
Pyrenees (S)	62.1	52.5	70.9	33.2	24.7	43.0
Queenscliffe (B)	67.1	53.4	78.3	31.9	20.7	45.7
South Gippsland (S)	60.6	51.5	69.0	36.9	28.6	45.9
Southern Grampians (S)	66.0	56.7	74.1	29.8	21.9	39.2
Stonnington (C)	79.9	75.9	83.4	16.4	13.1	20.3
Strathbogie (S)	67.7	58.7	75.6	24.3	20.6	28.5
Surf Coast (S)	69.8	64.4	74.7	29.3	24.3	34.8
Swan Hill (RC)	61.8	51.9	70.8	34.9	26.2	44.7
Towong (S)	69.0	62.1	75.1	29.1	23.0	36.0
Wangaratta (RC)	76.6	71.2	81.3	20.9	16.5	26.1
Warrnambool (C)	59.7	49.2	69.3	38.0	28.5	48.6
Wellington (S)	69.3	64.0	74.2	26.3	21.6	31.7
West Wimmera (S)	65.5	58.0	72.3	32.8	26.0	40.3
Whitehorse (C)	71.2	65.7	76.1	25.9	21.1	31.4
Whittlesea (C)	69.0	61.6	75.6	28.0	21.6	35.4
Wodonga (RC)	60.3	50.8	69.0	34.3	25.8	43.9
Wyndham (C)	70.3	64.6	75.5	27.1	21.9	32.9
Yarra (C)	78.9	74.3	82.8	20.1	16.2	24.6
Yarra Ranges (S)	72.5	65.6	78.5	25.8	19.9	32.8
Yarriambiack (S)	57.6	43.6	70.5	39.8	27.1	54.1
<b>Victoria</b>	<b>70.6</b>	<b>69.6</b>	<b>71.6</b>	<b>26.8</b>	<b>25.8</b>	<b>27.9</b>

a Female survey participants were able to select 'not applicable' as a response to this question. They have been excluded from the denominator when calculating estimates.

Data were age standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

## References

DoHA (Department of Health and Ageing) 2013a, National Bowel Cancer Screening Program. Online. Viewed: <http://www.cancerscreening.gov.au/internet/screening/publishing.nsf/Content/bowel-about> 23 May 2013.

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## 4. Oral health

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSCLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSCLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSCLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK





## 4. Oral health

### Introduction

Oral health is important for overall health and wellbeing. Oral diseases place a considerable burden on individuals, families and the community. The impact of oral disease comes from the four main conditions of tooth decay, gum disease, oral cancer and oral trauma. About 90 per cent of all tooth loss can be attributed to tooth decay and gum disease health problems (AIHW 2011). Tooth decay is amenable to prevention through good nutrition, exposure to fluoride (such as in water and toothpastes), maintenance of adequate oral hygiene and access to regular dental visits.

Oral health is linked to overall health and well-being in a number of ways. The ability to chew and swallow our food is essential for obtaining the nutrients we need for good health. Other adverse impacts of poor dental health include problems with speech and low self-esteem. Moreover the impact of poor dental health is not just on the individual but also on the broader community through the health system and high associated economic costs. For example, dental health conditions are the highest cause of avoidable hospital admissions in young people aged up to 19 years in Victoria (Rogers & Morgan 2012).

For the first time, questions were included in the Victorian Population Health Survey to measure self-rated oral health, the period of time since the last visit to a dental professional, and avoidance or delaying a dental visit because of cost. Analyses of the answers to these questions will assist in identifying which Victorians are at higher risk of poorer oral health and what can be done to address this. Inclusion of these questions in future Victorian Population Health Surveys will allow monitoring of trends and the impact of oral health promotion interventions.

### Survey results

#### Self-rated dental health

- Overall, 15.9 per cent of Victorian adults rated their dental health as excellent. A further 27.4 per cent rated their dental health as very good, while 31.7 per cent rated their dental health as good. Among all Victorian adults, 5.6 per cent reported having no natural teeth.
- A lower proportion of men rated their dental health as excellent compared with their female counterparts. Fewer people aged 65 years or over rated their dental health as excellent, very good or good compared with all Victorian adults.
- Self-rated dental health was similar between adults who lived in rural and metropolitan Victoria. However, a significantly higher proportion of adults in rural Victoria did not have any natural teeth compared with their metropolitan counterparts.
- A higher proportion of adults in the LGAs of Banyule (C), Boroondara (C), Glen Eira (C), Melbourne (C), Queenscliffe (B), Stonnington (C) and Yarra (C) rated their dental health as excellent compared with all Victorian adults.
- In contrast, the proportion of adults who rated their dental health as poor was higher in the LGAs of Brimbank (C), Central Goldfields (S), Hindmarsh (S), Melton (S), Mount Alexander (S) and Yarriambiack (S) compared with all Victorian adults.

#### Visits to a dental professional

- In 2011–12, just over half (56.7 per cent) of Victorian adults reported they had visited a dental professional within the preceding 12 months. A further 18.2 per cent of adults reported that they visited a dental professional between 12 months to less than two years prior to the survey. Just over 10 per cent of Victorian adults reported that it was five or more years since they last visited a dental professional.
- A higher proportion of adults who lived in metropolitan Victoria had visited a dental professional within the preceding 12 months compared with their rural counterparts.
- There were eight LGAs where a higher proportion of adults reported they had visited a dental professional within the previous 12 months compared with all Victorian adults – Bayside (C), Boroondara (C), Glen Eira (C), Manningham (C), Port Phillip (C), Queenscliffe (B), Stonnington (C) and Yarra (C).
- In contrast, there were 17 LGAs where the proportion of adults who reported they had visited a dental professional within the previous 12 months was lower compared with all Victorian adults – Campaspe (S), Cardinia (S), Casey (C), Corangamite (S), Gannawarra (S), Greater Bendigo (S), Greater Dandenong (C), Indigo (S), Knox (C), Loddon (S), Mitchell (S), Moira (S), Moorabool (S), Northern Grampians (S), South Gippsland (S), Swan Hill (RC) and Yarriambiack (S).
- A substantial proportion (30.1 per cent) of Victorian adults had avoided or delayed visiting a dental professional during the 12 months prior to the survey due to the cost. This was higher among women (33.3 per cent) compared with their male counterparts (26.7 per cent).

#### Self-rated dental health

Initially respondents were asked 'How would you rate your dental health?' Table 4.1 and Figures 4.1 and 4.2 show self-rated dental health, by age group and sex. Overall, 15.9 per cent of people rated their dental health as being 'excellent', 27.4 per cent responded 'very good', 31.7 per cent responded 'good', 13.5 per cent responded 'fair', 5.7 per cent responded 'poor' and the question was not applicable to 5.6 per cent as they had no natural teeth. There was a significant difference between men and women with higher proportions of men who rated their dental health as good, fair or poor and a lower proportion who rated their dental health as excellent.

Overall poor dental health appeared to be age-related. There were significantly lower proportions of men and women aged 65 years or over who reported excellent, very good or good dental health compared with all men and women. This is partly because 21.5 per cent of people in this age group had no natural teeth, suggesting a history of poor dental health. Significantly higher proportions of men and women aged 55–64 years also reported poor dental health compared with all men and women. By contrast significantly higher proportions of women aged 35–44 years reported excellent or very good dental health compared with all women and significantly higher proportions of men and women aged 18–24 years reported very good dental health compared with all men and women.



Table 4.1: Self-rated dental health, by age group and sex, Victoria, 2011–12

Age group (years)	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%
	LL	UL		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL	
<b>Males</b>																		
18–24	15.3	11.4	20.2	30.3	41.0	36.5	31.1	42.3	10.0	7.1	13.9	2.3*	1.2	4.4	0.0	-	-	-
25–34	14.3	11.2	18.1	24.8	34.1	35.5	30.7	40.6	14.9	11.9	18.6	5.5	3.8	8.1	**	**	**	**
35–44	14.4	12.4	16.7	25.6	31.3	35.0	32.0	38.2	15.9	13.6	18.3	5.9	4.5	7.8	0.4*	0.2	0.9	0.9
45–54	11.7	10.0	13.6	24.0	28.9	33.4	30.8	36.0	17.5	15.5	19.8	8.4	7.0	10.1	2.5	1.8	3.5	3.5
55–64	11.7	10.2	13.4	23.3	25.7	33.1	30.6	35.6	16.7	14.8	18.7	8.6	7.3	10.2	6.5	5.4	7.8	7.8
65+	9.6	8.4	10.9	18.5	20.2	28.5	26.7	30.5	16.7	15.2	18.4	6.9	5.9	8.0	19.4	17.8	21.1	21.1
<b>Total</b>	<b>12.8</b>	<b>11.7</b>	<b>13.9</b>	<b>26.5</b>	<b>27.9</b>	<b>33.6</b>	<b>32.1</b>	<b>35.1</b>	<b>15.5</b>	<b>14.4</b>	<b>16.6</b>	<b>6.3</b>	<b>5.7</b>	<b>7.0</b>	<b>5.2</b>	<b>4.8</b>	<b>5.6</b>	<b>5.6</b>
<b>Females</b>																		
18–24	24.1	19.8	29.0	33.0	43.4	31.2	26.2	36.6	4.3	2.8	6.5	2.0*	1.1	3.8	**	**	**	**
25–34	20.4	17.4	23.8	25.6	32.2	33.2	29.7	36.9	12.3	10.0	14.9	4.2	2.9	6.2	**	**	**	**
35–44	23.5	21.5	25.5	34.6	36.9	25.8	23.8	28.0	10.3	8.8	11.9	5.3	4.2	6.6	0.5*	0.2	1.0	1.0
45–54	19.5	17.8	21.3	27.8	29.8	31.4	29.4	33.5	14.1	12.6	15.7	5.7	4.7	6.9	1.5	1.1	2.0	2.0
55–64	16.3	14.8	18.0	24.6	26.4	30.5	28.6	32.6	13.8	12.3	15.4	7.3	6.2	8.5	7.3	6.3	8.4	8.4
65+	11.0	9.9	12.1	19.0	20.5	27.1	25.6	28.7	13.7	12.5	15.0	5.5	4.7	6.5	23.3	21.9	24.8	24.8
<b>Total</b>	<b>19.0</b>	<b>18.0</b>	<b>20.1</b>	<b>28.3</b>	<b>29.4</b>	<b>29.9</b>	<b>28.7</b>	<b>31.1</b>	<b>11.5</b>	<b>10.8</b>	<b>12.2</b>	<b>5.0</b>	<b>4.5</b>	<b>5.5</b>	<b>6.0</b>	<b>5.7</b>	<b>6.3</b>	<b>6.3</b>
<b>Persons</b>																		
18–24	19.6	16.6	23.0	33.1	40.5	33.9	30.2	37.8	7.2	5.5	9.4	2.2	1.4	3.4	**	**	**	**
25–34	17.3	15.1	19.8	26.2	32.0	34.3	31.3	37.5	13.6	11.7	15.8	4.9	3.7	6.4	**	**	**	**
35–44	19.0	17.6	20.5	29.8	33.4	30.4	28.5	32.3	13.0	11.7	14.5	5.6	4.7	6.7	0.4*	0.2	0.8	0.8
45–54	15.7	14.5	17.0	27.1	28.7	32.4	30.7	34.1	15.8	14.5	17.1	7.0	6.2	8.0	2.0	1.6	2.5	2.5
55–64	14.1	12.9	15.3	24.0	25.4	31.8	30.2	33.4	15.2	14.0	16.5	7.9	7.1	8.9	6.9	6.1	7.7	7.7
65+	10.4	9.6	11.2	18.8	19.9	27.8	26.6	29.0	15.1	14.1	16.1	6.1	5.5	6.9	21.5	20.5	22.6	22.6
<b>Total</b>	<b>15.9</b>	<b>15.2</b>	<b>16.7</b>	<b>27.4</b>	<b>28.3</b>	<b>31.7</b>	<b>30.7</b>	<b>32.7</b>	<b>13.5</b>	<b>12.8</b>	<b>14.1</b>	<b>5.7</b>	<b>5.3</b>	<b>6.1</b>	<b>5.6</b>	<b>5.4</b>	<b>5.9</b>	<b>5.9</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

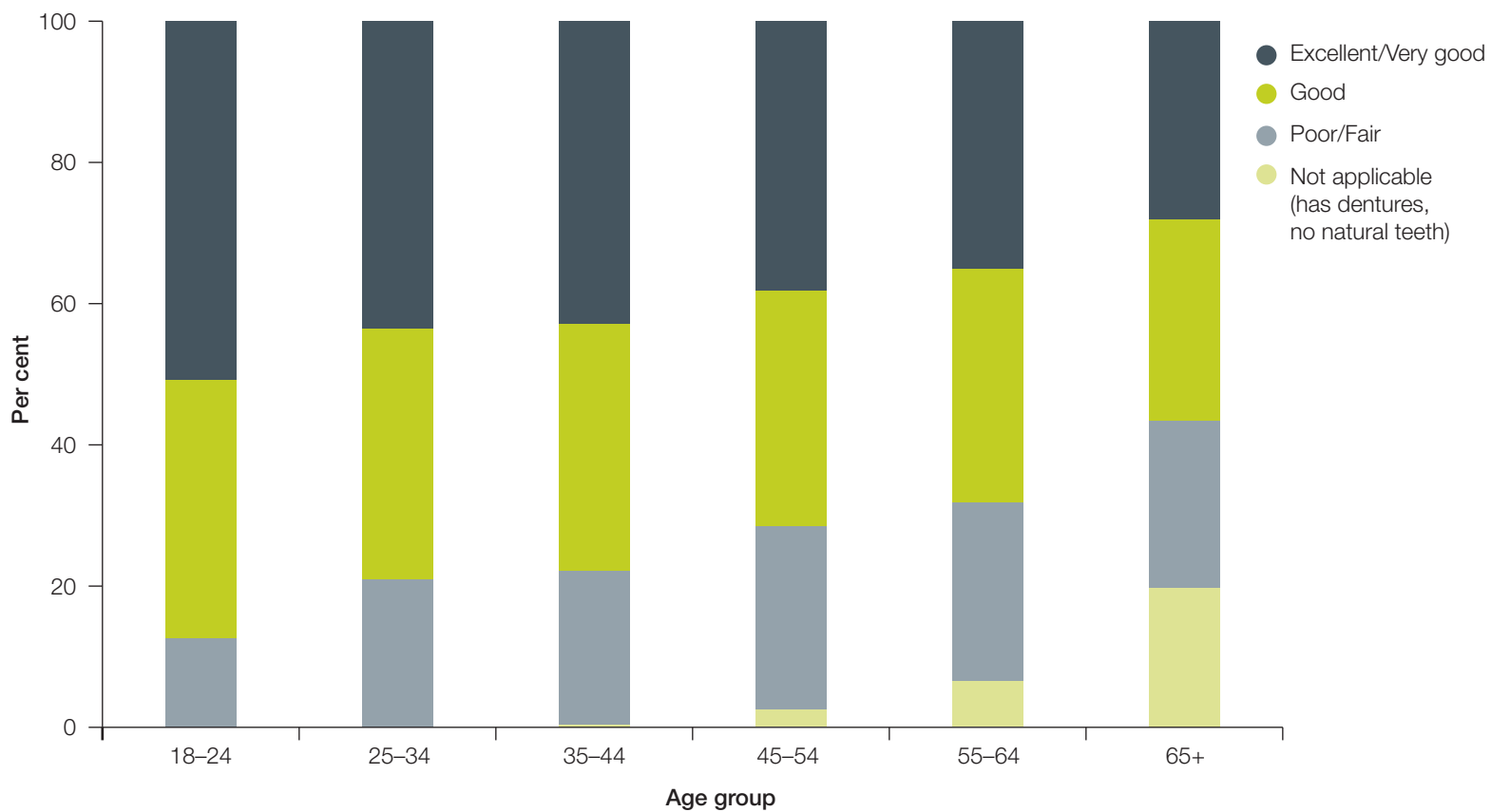
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

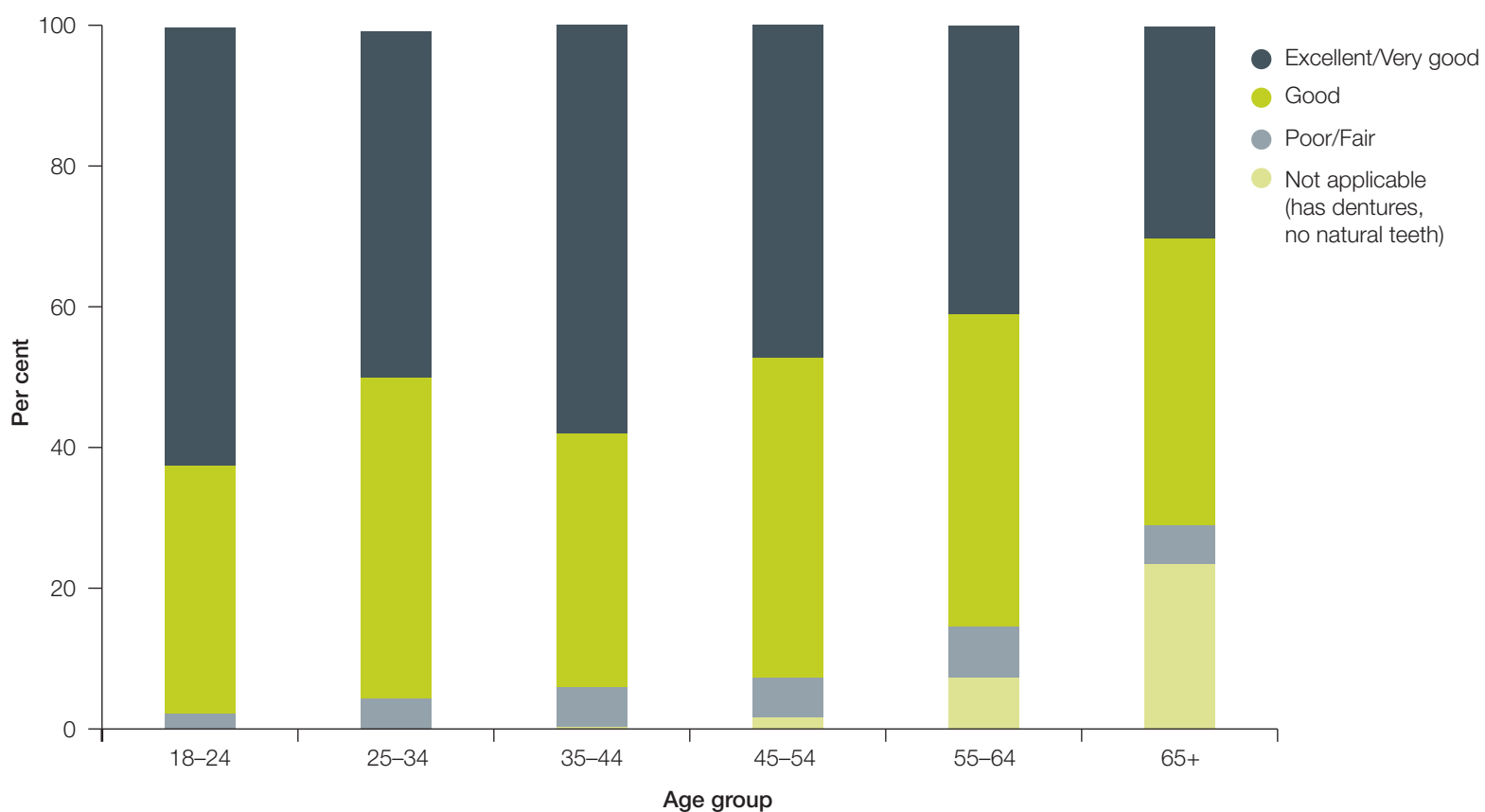
\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Figure 4.1: Self-rated dental health in males, by age group, Victoria, 2011–12



Data are age-specific estimates.

Figure 4.2: Self-rated dental health in females, by age group, Victoria, 2011–12



Data are age-specific estimates.

Table 4.2 shows self-rated dental health, by Department of Health region and sex. Overall there were no significant differences in the self-rated dental health of men or women who lived in rural compared with metropolitan Victoria. However, there were significantly higher proportions of men and women in rural Victoria who did not have any natural teeth compared with their metropolitan counterparts. This suggests that people who lived in rural Victoria have a greater history of poor dental health than those who lived in metropolitan Victoria. Attitudes to dental health and access to dental care may be explanatory factors.

There were significantly lower proportions of people who lived Gippsland Region and Loddon Mallee Region who reported their dental health as excellent compared with all Victorian adults. By contrast there was a significantly higher proportion of women who lived in North & West Metropolitan Region who reported their dental health as poor compared with all women.



Table 4.2: Self-rated dental health, by Department of Health region and sex, Victoria, 2011–12

Region	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>																		
Eastern Metropolitan	15.6	12.9	18.8	28.1	24.7	31.7	32.9	29.4	36.5	12.4	10.3	14.9	7.1	5.5	9.2	3.5	2.7	4.6
North & West Metropolitan	11.3	9.8	13.1	27.1	24.7	29.6	32.4	29.9	35.0	16.8	15.0	18.8	6.8	5.6	8.2	5.5	4.7	6.5
Southern Metropolitan	15.1	12.7	17.8	25.0	22.4	27.8	33.6	30.5	36.8	16.5	14.1	19.1	5.1	4.1	6.4	4.6	3.8	5.5
<b>Metropolitan males</b>	13.5	12.3	14.9	27.0	25.4	28.7	32.8	31.1	34.6	15.5	14.3	16.8	6.4	5.6	7.2	4.6	4.1	5.2
Barwon-South Western	10.0	6.5	14.9	22.5	18.3	27.4	<b>42.8</b>	35.6	50.2	15.6	11.1	21.6	4.2	2.8	6.2	4.9	3.9	6.1
Gippsland	11.2	8.6	14.7	22.0	18.3	26.3	34.3	29.9	38.9	17.5	14.5	21.1	7.5	5.5	10.1	7.2	6.0	8.5
Grampians	12.3	9.1	16.3	28.1	23.8	32.9	29.1	25.0	33.6	15.5	12.0	19.8	6.5	5.0	8.4	<b>8.4</b>	6.8	10.4
Hume	10.7	8.3	13.7	25.1	21.2	29.3	36.6	32.2	41.2	13.6	11.6	15.9	7.2	5.5	9.3	6.3	5.4	7.4
Loddon Mallee	<b>8.7</b>	6.9	10.8	26.4	21.5	32.0	36.9	32.1	41.9	14.7	12.1	17.8	6.4	5.1	8.0	6.8	5.5	8.2
<b>Rural males</b>	10.3	8.7	12.0	24.7	22.4	27.1	36.7	33.7	39.7	15.4	13.7	17.4	6.3	5.5	7.1	<b>6.5</b>	6.0	7.2
<b>Total</b>	<b>12.8</b>	<b>11.7</b>	<b>13.9</b>	<b>26.5</b>	<b>25.1</b>	<b>27.9</b>	<b>33.6</b>	<b>32.1</b>	<b>35.1</b>	<b>15.5</b>	<b>14.4</b>	<b>16.6</b>	<b>6.3</b>	<b>5.7</b>	<b>7.0</b>	<b>5.2</b>	<b>4.8</b>	<b>5.6</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 4.2: Self-rated dental health, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Females</b>																			
Eastern Metropolitan	20.3	17.4	23.7	29.1	25.9	32.5	29.0	25.9	32.3	12.6	10.8	14.5	4.3	3.3	5.7	4.4	3.8	5.2	5.2
North & West Metropolitan	18.4	16.7	20.1	26.5	24.7	28.4	30.3	28.3	32.3	11.9	10.7	13.2	6.7	5.8	7.9	5.7	5.1	6.5	6.5
Southern Metropolitan	19.8	17.8	22.1	30.8	28.3	33.4	28.8	26.3	31.3	11.0	9.4	12.9	4.1	3.2	5.2	5.2	4.4	6.0	6.0
<b>Metropolitan females</b>	19.4	18.2	20.7	28.3	26.9	29.7	29.7	28.3	31.1	11.8	10.9	12.7	5.2	4.7	5.9	5.1	4.7	5.6	5.6
Barwon-South Western	20.8	16.1	26.4	29.5	24.9	34.6	29.4	24.7	34.6	8.9	6.7	11.7	4.1	2.8	6.0	7.2	6.0	8.7	8.7
Gippsland	14.1	11.8	16.8	27.9	24.5	31.6	32.8	29.2	36.6	10.5	8.6	12.7	5.0	3.7	6.9	9.6	8.5	10.8	10.8
Grampians	20.6	17.4	24.3	28.3	24.6	32.4	26.4	22.7	30.5	11.0	8.5	14.1	4.6	3.6	5.9	8.9	7.8	10.1	10.1
Hume	18.7	16.0	21.7	27.9	25.1	30.9	28.5	25.7	31.5	13.0	11.0	15.3	4.1	3.3	5.2	7.4	6.7	8.3	8.3
Loddon Mallee	14.5	12.4	16.9	27.6	24.5	30.9	35.4	31.7	39.2	10.7	9.1	12.6	4.5	3.4	6.1	7.3	6.5	8.2	8.2
<b>Rural females</b>	17.8	16.1	19.7	28.3	26.5	30.3	30.7	28.6	32.8	10.6	9.6	11.7	4.4	3.8	5.1	8.0	7.5	8.5	8.5
<b>Total</b>	<b>19.0</b>	<b>18.0</b>	<b>20.1</b>	<b>28.3</b>	<b>27.1</b>	<b>29.4</b>	<b>29.9</b>	<b>28.7</b>	<b>31.1</b>	<b>11.5</b>	<b>10.8</b>	<b>12.2</b>	<b>5.0</b>	<b>4.5</b>	<b>5.5</b>	<b>6.0</b>	<b>5.7</b>	<b>6.3</b>	<b>6.3</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 4.2: Self-rated dental health, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Persons</b>																			
Eastern Metropolitan	17.8	15.8	20.0	28.7	26.3	31.1	30.8	28.4	33.2	12.7	11.2	14.3	5.8	4.7	7.0	4.0	3.5	4.7	4.7
North & West Metropolitan	14.9	13.7	16.2	26.8	25.3	28.4	31.3	29.7	32.9	14.3	13.2	15.5	6.8	6.0	7.7	5.6	5.1	6.2	6.2
Southern Metropolitan	17.6	16.0	19.3	27.9	26.1	29.9	31.1	29.1	33.1	13.7	12.2	15.2	4.6	3.9	5.5	4.9	4.3	5.5	5.5
<b>Metropolitan persons</b>	16.5	15.6	17.5	27.7	26.6	28.8	31.2	30.1	32.3	13.6	12.9	14.4	5.8	5.3	6.3	4.9	4.6	5.2	5.2
Barwon-South Western	15.3	12.2	19.0	26.5	22.9	30.4	36.3	31.5	41.4	11.7	9.2	14.6	4.2	3.2	5.6	6.0	5.2	6.9	6.9
Gippsland	12.5	10.6	14.6	25.0	22.4	27.8	33.7	30.8	36.7	13.9	12.1	16.0	6.2	5.0	7.8	8.5	7.7	9.4	9.4
Grampians	16.7	14.2	19.5	28.1	25.2	31.3	27.6	24.8	30.6	13.2	10.9	16.0	5.5	4.6	6.6	8.7	7.7	9.8	9.8
Hume	14.8	12.8	16.9	26.5	24.1	29.1	32.4	29.7	35.1	13.4	11.9	15.0	5.7	4.7	6.8	6.9	6.3	7.5	7.5
Loddon Mallee	11.3	9.9	12.9	27.0	23.9	30.3	36.2	33.0	39.7	12.8	11.2	14.6	5.5	4.5	6.6	7.1	6.4	7.9	7.9
<b>Rural persons</b>	14.0	12.8	15.3	26.5	25.0	28.1	33.7	31.8	35.7	12.9	11.9	14.0	5.3	4.8	5.9	7.3	6.9	7.7	7.7
<b>Total</b>	<b>15.9</b>	<b>15.2</b>	<b>16.7</b>	<b>27.4</b>	<b>26.5</b>	<b>28.3</b>	<b>31.7</b>	<b>30.7</b>	<b>32.7</b>	<b>13.5</b>	<b>12.8</b>	<b>14.1</b>	<b>5.7</b>	<b>5.3</b>	<b>6.1</b>	<b>5.6</b>	<b>5.4</b>	<b>5.9</b>	<b>5.9</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

# Oral health

Table 4.3 shows self-rated dental health, by LGA. There were significantly higher proportions of people who lived in the LGAs of Banyule (C), Boroondara (C), Glen Eira (C), Melbourne (C), Queenscliffe (B), Stonnington (C) and Yarra (C) who reported excellent dental health compared with all Victorian adults. With the exception of Yarra (C), which was neither a high nor low SES LGA according to the 2006 IRSED, the remaining LGAs were of high SES being in the fourth or fifth IRSED quintile.

By contrast there were significantly lower proportions of people who lived in the LGAs of Alpine (S), Benalla (RC), Brimbank (C), Corangamite (S), Gannawarra (S), Greater Bendigo (C), Greater Dandenong (C), Hindmarsh (S), Hume (C), Melton (S), Pyrenees (S), Swan Hill (RC), Whittlesea (C) and Yarriambiack (S) who reported excellent dental health compared with all Victorian adults. With the exception of Melton (S), which was neither a high nor low SES LGA according to the 2006 IRSED, the remaining LGAs were of low SES being in the first or second IRSED quintile.

There were significantly higher proportions of people who lived in the LGAs of Brimbank (C), Central Goldfields (S), Hindmarsh (S), Melton (S), Mount Alexander (S) and Yarriambiack (S) who reported poor dental health compared with all Victorian adults. These LGAs were in the first or second IRSED quintile indicating low SES, with the exception of Melton (S), which was in the third IRSED quintile. By contrast there were significantly lower proportions of people who lived in the LGAs of Boroondara (C), Glen Eira (C), Greater Shepparton (C), Moyne (S), Nillumbik (S) and Southern Grampians (S) who reported poor dental health compared with all Victorian adults. While three of the latter LGAs were in the fifth quintile indicating very high SES, the remaining three LGAs were in the first, second and third IRSED quintiles.

Figure 4.3 and Map 4.1 show the proportion of Victorian adults who reported their dental health as poor, by LGA.

Table 4.3: Self-rated dental health, by LGA, Victoria, 2011–12

Region	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	95% CI			95% CI			95% CI			95% CI			95% CI			95% CI		
	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%
Alpine (S)	7.0	14.9	23.1	17.6	29.5	40.5	31.9	49.7	15.7*	9.3	25.3	4.7	3.0	7.3	5.8	4.4	7.6	7.6
Ararat (RC)	12.7	26.1	25.4	19.3	32.6	28.2	21.8	35.5	11.5	7.7	16.8	6.3	3.9	10.0	9.9	6.9	14.1	14.1
Ballarat (C)	15.8	26.4	25.4	20.1	31.5	28.4	22.9	34.6	13.0	8.7	18.8	3.7*	2.1	6.4	8.8	6.7	11.4	11.4
Banyule (C)	18.1	29.8	29.3	23.5	35.9	27.1	21.5	33.5	10.4	7.0	15.1	4.5*	2.2	9.2	5.2	3.9	7.0	7.0
Bass Coast (S)	10.3	20.7	25.0	18.8	32.4	33.0	25.7	41.3	14.4	9.1	21.9	6.9*	3.6	13.0	5.8	4.5	7.4	7.4
Baw Baw (S)	8.4	16.0	22.8	17.8	28.7	38.6	32.5	45.1	11.6	8.1	16.3	6.1*	3.6	10.3	9.1	7.2	11.5	11.5
Bayside (C)	14.8	26.0	35.8	28.6	43.6	32.9	25.5	41.3	8.0*	4.4	14.2	**	**	**	1.8	1.1	2.9	2.9
Benalla (RC)	6.8	13.5	29.5	20.9	39.9	32.3	23.7	42.3	16.2	11.0	23.4	5.0	3.3	7.3	6.5	4.9	8.6	8.6
Boroondara (C)	19.8	33.0	32.4	26.2	39.2	28.6	22.7	35.2	8.3	5.6	12.0	2.0*	1.1	3.7	2.8	1.9	4.1	4.1
Brimbank (C)	5.1	10.6	23.8	19.2	29.1	34.5	29.2	40.3	17.2	13.7	21.4	9.6	6.9	13.3	7.2	5.2	9.9	9.9
Buloke (S)	10.6	25.3	21.0	15.0	28.6	31.0	24.5	38.4	13.6	10.2	17.9	7.7	4.9	11.9	9.9	7.9	12.2	12.2
Campaspe (S)	9.1	21.1	27.1	20.8	34.5	29.6	23.7	36.2	14.3	9.8	20.4	6.7	4.1	10.8	8.2	6.4	10.4	10.4
Cardinia (S)	12.2	21.1	25.9	21.1	31.4	34.9	29.7	40.6	11.9	8.7	16.2	5.6	3.8	8.3	5.4	3.8	7.5	7.5
Casey (C)	11.4	21.0	27.2	22.1	32.9	32.3	26.9	38.2	13.3	10.0	17.4	4.5	2.9	7.0	6.7	4.9	9.1	9.1
Central Goldfields (S)	11.2	33.0	20.1	13.5	28.9	25.3	19.0	33.0	14.1	10.5	18.6	13.2	8.0	20.9	7.3	5.8	9.2	9.2
Colac-Otway (S)	11.3	22.8	27.8	21.8	34.6	29.4	23.0	36.7	14.5	9.7	21.0	4.0	2.5	6.3	8.1	6.5	10.0	10.0
Corangamite (S)	7.9	14.6	27.5	20.8	35.4	33.4	25.9	41.9	14.5	10.6	19.5	5.5*	3.1	9.6	8.0	6.3	10.2	10.2
Darebin (C)	12.1	20.9	27.8	22.4	33.9	24.7	19.9	30.2	19.3	14.6	25.2	6.6	4.2	10.2	5.4	4.0	7.3	7.3
East Gippsland (S)	8.4	17.7	22.2	16.8	28.7	37.4	30.8	44.6	11.8	8.5	16.3	8.3	5.1	13.5	7.9	5.7	10.8	10.8
Frankston (C)	10.5	19.2	29.5	23.7	36.1	30.1	24.3	36.6	14.1	10.4	18.7	4.3*	2.6	7.1	7.0	4.8	10.1	10.1
Gannawarra (S)	4.7	11.3	31.2	23.5	40.1	30.0	23.0	38.0	17.0	11.4	24.5	4.2	2.7	6.6	10.2	8.0	13.0	13.0
Glen Eira (C)	16.9	28.4	30.4	24.8	36.6	29.5	24.2	35.4	11.2	7.5	16.4	2.7*	1.3	5.2	4.1	2.9	5.9	5.9
Glenelg (S)	8.6	19.6	29.0	22.4	36.7	35.2	27.7	43.6	11.5	8.2	15.8	3.3	2.1	5.3	7.8	6.0	10.0	10.0
Golden Plains (S)	8.9	19.7	36.3	30.0	43.0	25.9	21.5	30.8	10.9	8.0	14.8	6.7	4.6	9.7	6.7	4.9	9.0	9.0

Table 4.3: Self-rated dental health, by LGA, Victoria, 2011–12 (continued)

Region	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Greater Bendigo (C)	9.5	7.1	12.4	25.8	19.6	33.1	<b>43.0</b>	37.1	49.1	10.7	7.8	14.4	4.1*	2.3	7.2	6.9	5.3	8.9
Greater Dandenong (C)	8.7	6.0	12.5	<b>20.1</b>	15.8	25.3	37.7	32.3	43.4	17.9	13.9	22.9	7.9	5.5	11.2	7.3	5.7	9.3
Greater Geelong (C)	16.0	11.0	22.7	24.0	18.9	30.0	39.5	32.3	47.2	11.1	7.7	15.8	4.5	2.9	6.9	4.8	3.5	6.6
Greater Shepparton (C)	14.4	9.9	20.4	25.7	18.8	34.1	36.2	28.6	44.5	11.5	8.8	14.9	<b>3.2</b>	2.0	5.1	<b>8.7</b>	6.8	11.1
Hepburn (S)	11.6	7.6	17.5	<b>41.9</b>	35.3	48.9	<b>21.4</b>	17.2	26.2	11.9	9.1	15.5	7.0	5.0	9.5	6.1	4.7	7.9
Hindmarsh (S)	<b>7.7*</b>	4.5	12.8	26.2	18.8	35.3	25.6	20.2	31.9	16.8	11.5	24.0	<b>11.1*</b>	6.3	18.8	<b>12.6</b>	10.5	14.9
Hobsons Bay (C)	12.6	9.2	17.1	29.3	23.8	35.4	31.3	25.6	37.7	13.0	9.3	17.8	8.2	5.5	11.9	5.5	4.1	7.4
Horsham (RC)	15.8	10.3	23.4	35.0	27.1	43.8	26.5	21.4	32.3	9.8	7.0	13.5	4.5	2.9	6.9	<b>8.3</b>	6.7	10.4
Hume (C)	<b>10.3</b>	7.4	14.3	22.6	18.0	28.0	36.1	30.7	41.9	14.1	10.7	18.3	8.8	5.8	13.1	6.7	4.6	9.5
Indigo (S)	16.2	11.5	22.3	33.6	26.8	41.2	<b>24.1</b>	18.8	30.4	11.1	8.0	15.2	8.8*	5.1	14.9	5.4	3.7	7.9
Kingston (C)	19.8	14.9	25.9	27.3	21.6	33.8	25.7	20.7	31.4	17.1	12.2	23.4	5.0*	3.0	8.4	5.0	3.6	7.0
Knox (C)	14.3	10.7	18.8	28.4	23.1	34.3	27.7	22.6	33.4	14.9	11.3	19.4	8.6	5.6	12.9	5.4	4.0	7.4
Latrobe (C)	13.9	9.9	19.0	26.0	20.7	32.0	29.9	24.2	36.1	15.8	12.2	20.3	4.4	2.7	6.9	<b>10.0</b>	8.1	12.3
Loddon (S)	16.7*	9.5	27.6	26.1	19.2	34.4	28.6	23.0	34.9	<b>8.2</b>	6.0	11.1	9.8*	5.1	18.2	<b>10.6</b>	8.5	13.2
Macedon Ranges (S)	12.3	9.4	16.1	<b>36.6</b>	30.2	43.5	32.7	26.6	39.5	10.5	7.7	14.1	3.9	2.5	6.0	3.8	2.6	5.6
Manningham (C)	17.2	12.3	23.5	28.5	22.8	34.9	34.1	27.9	40.9	13.2	9.4	18.1	4.7*	2.7	7.9	<b>2.2</b>	1.4	3.5
Mansfield (S)	13.9	10.1	18.8	33.0	25.4	41.7	24.8	18.9	31.8	17.0	11.3	24.8	5.4	3.3	8.7	5.8	4.4	7.6
Maribyrnong (C)	16.4	12.3	21.5	22.2	17.1	28.2	33.9	27.2	41.3	16.0	11.8	21.3	5.8	3.7	9.0	5.6	3.6	8.7
Maroondah (C)	16.2	12.3	21.0	30.8	24.9	37.4	29.3	23.6	35.7	14.2	10.2	19.4	5.8	3.5	9.4	3.7	2.5	5.4
Melbourne (C)	<b>22.8</b>	18.0	28.4	33.5	27.8	39.6	27.6	22.4	33.5	8.9	6.4	12.3	5.1	3.2	8.1	<b>1.9*</b>	1.1	3.2
Melton (S)	<b>10.1</b>	7.5	13.4	23.4	19.0	28.3	35.4	29.9	41.3	13.8	10.6	17.6	<b>8.6</b>	6.0	12.2	<b>8.8</b>	6.4	12.1

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 4.3: Self-rated dental health, by LGA, Victoria, 2011–12 (continued)

Region	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%
	LL	UL		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL	
Mildura (RC)	11.8	8.5	16.1	29.1	22.8	36.2	32.7	26.5	39.7	14.2	10.6	18.8	4.1	2.6	6.6	7.8	5.4	11.0
Mitchell (S)	14.1	9.8	19.8	23.1	17.8	29.4	34.5	28.2	41.5	15.0	11.1	20.1	6.2*	3.6	10.3	6.6	4.9	8.7
Moira (S)	15.9	10.3	23.9	23.6	17.7	30.7	29.0	23.2	35.5	13.3	8.7	19.6	10.7*	6.0	18.3	7.0	5.5	8.8
Monash (C)	16.6	11.7	22.9	28.4	22.8	34.7	32.8	27.1	39.1	12.7	9.4	17.0	5.4	3.6	7.8	3.9	2.7	5.6
Moonee Valley (C)	17.6	13.1	23.3	32.1	26.2	38.5	25.0	20.1	30.6	14.8	11.3	19.1	6.9*	3.6	12.8	3.5	2.3	5.2
Moorabool (S)	14.8	10.4	20.6	28.1	22.5	34.5	27.6	22.2	33.7	14.1	10.1	19.2	7.2	4.7	10.8	8.3	6.4	10.6
Moreland (C)	14.8	10.4	20.6	29.6	23.8	36.0	30.8	25.5	36.7	12.1	9.3	15.6	7.0	4.5	10.8	5.7	4.3	7.6
Mornington Peninsula (S)	17.6	12.8	23.8	30.1	23.8	37.3	30.1	24.0	37.0	14.0	9.8	19.6	3.6*	2.1	6.2	3.8	2.7	5.3
Mount Alexander (S)	19.8	13.3	28.6	19.1	13.8	25.7	30.0	22.3	39.0	16.0	11.7	21.6	10.1	6.1	16.2	5.0	3.7	6.8
Moynes (S)	12.8	9.0	17.8	34.1	26.6	42.5	30.8	24.3	38.1	12.4	8.8	17.2	3.0*	1.8	5.0	7.0	5.5	9.0
Murrindindi (S)	12.0	8.3	17.2	21.2	15.0	29.1	35.8	27.8	44.7	19.8	13.7	27.8	5.5*	3.2	9.5	5.5	4.2	7.2
Nilumbik (S)	17.9	13.6	23.3	33.9	27.5	41.0	31.6	25.4	38.5	11.1	7.2	16.8	2.7	1.7	4.4	2.7*	1.4	4.8
Northern Grampians (S)	13.2	8.9	19.1	31.3	22.4	41.8	26.9	20.7	34.3	10.8	7.2	16.0	8.6*	4.8	15.2	8.9	6.9	11.5
Port Phillip (C)	21.3	16.6	26.9	30.1	24.0	37.1	27.6	21.2	35.1	12.6	8.1	19.1	5.1	3.3	7.8	3.3	2.1	5.2
Pyrenees (S)	6.8	4.6	10.0	25.2	16.0	37.5	34.1	24.1	45.7	16.8	11.6	23.6	6.8*	4.0	11.2	10.2	7.5	13.6
Queenscliffe (B)	25.5	17.9	35.1	33.2	23.4	44.7	25.3	18.6	33.3	5.5	3.8	7.9	6.1*	2.4	14.9	4.4	3.0	6.2
South Gippsland (S)	10.0	6.1	15.8	30.0	22.3	39.0	31.6	23.7	40.6	13.0	9.3	17.9	7.6	5.0	11.5	7.4	5.8	9.4
Southern Grampians (S)	24.7	15.8	36.6	24.8	17.3	34.1	27.5	22.4	33.3	12.4	8.4	18.0	2.3*	1.3	4.0	8.1	6.5	10.1
Stonnington (C)	25.0	19.8	31.1	30.1	24.9	36.0	25.8	20.5	32.0	12.0	8.1	17.3	5.0*	2.5	9.7	2.0*	1.1	3.7
Strathbogie (S)	13.9*	8.3	22.3	36.8	29.2	45.1	23.9	18.5	30.4	12.6	8.8	17.6	6.6	4.1	10.5	5.3	4.1	6.7
Surf Coast (S)	14.7	10.6	20.0	39.5	31.7	47.9	26.9	20.2	35.0	9.9	6.7	14.4	4.1*	2.5	6.9	4.8	3.4	6.7
Swan Hill (RC)	8.0	4.9	13.0	24.6	18.7	31.8	36.0	29.5	43.2	18.0	13.3	23.8	5.7	3.7	8.6	7.6	6.1	9.5
Towong (S)	17.4	11.4	25.5	26.2	20.8	32.4	35.5	28.2	43.6	10.7	7.9	14.3	5.1	3.2	7.9	5.1	3.7	6.9
Wangaratta (RC)	15.3	10.6	21.6	25.5	20.0	31.9	32.8	26.5	39.8	14.7	10.9	19.5	4.3	2.7	6.6	6.0	4.6	7.8



Table 4.3: Self-rated dental health, by LGA, Victoria, 2011–12 (continued)

Region	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Warrnambool (C)	17.9	13.0	24.0	31.8	26.3	37.9	28.1	22.5	34.4	10.4	7.5	14.2	3.1*	1.8	5.4	8.5	6.7	10.8
Wellington (S)	7.9	5.7	10.8	23.6	17.1	31.7	36.4	28.7	44.8	16.5	11.3	23.4	6.1*	3.2	11.2	9.4	7.6	11.5
West Wimmera (S)	13.9	10.0	18.9	27.8	22.0	34.5	24.4	18.9	30.9	18.0	13.7	23.3	5.7*	3.4	9.5	10.2	8.2	12.5
Whitehorse (C)	17.4	13.4	22.4	28.0	22.1	34.7	32.3	26.1	39.2	12.0	8.8	16.2	5.5*	3.2	9.3	4.5	3.2	6.3
Whittlesea (C)	10.2	7.2	14.3	24.4	19.7	29.9	36.3	30.8	42.2	17.6	13.6	22.3	5.2	3.5	7.9	6.0	4.3	8.3
Wodonga (RC)	16.0	11.4	21.8	31.7	25.3	38.7	26.9	21.2	33.4	11.2	7.5	16.6	6.3	4.0	9.8	7.9	6.4	9.9
Wyndham (C)	14.1	10.6	18.6	23.0	18.8	27.7	36.4	31.3	41.8	13.4	10.1	17.6	7.2	4.6	11.2	5.9	4.1	8.6
Yarra (C)	24.6	18.7	31.6	32.1	25.0	40.1	20.3	16.1	25.3	13.8	9.3	19.9	6.0	3.7	9.4	2.9	1.8	4.6
Yarra Ranges (S)	13.7	10.1	18.3	24.2	18.7	30.8	33.9	27.6	40.9	13.8	9.9	18.9	7.6	4.8	11.8	6.0	4.3	8.4
Yarriambiack (S)	9.3	6.7	12.7	32.9	25.5	41.3	24.5	18.2	32.0	11.7	8.2	16.3	10.9*	6.5	17.7	10.7	8.8	12.8
<b>Victoria</b>	<b>15.9</b>	<b>15.2</b>	<b>16.7</b>	<b>27.6</b>	<b>26.7</b>	<b>28.5</b>	<b>31.7</b>	<b>30.7</b>	<b>32.7</b>	<b>13.4</b>	<b>12.8</b>	<b>14.0</b>	<b>5.6</b>	<b>5.2</b>	<b>6.0</b>	<b>5.6</b>	<b>5.3</b>	<b>5.8</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

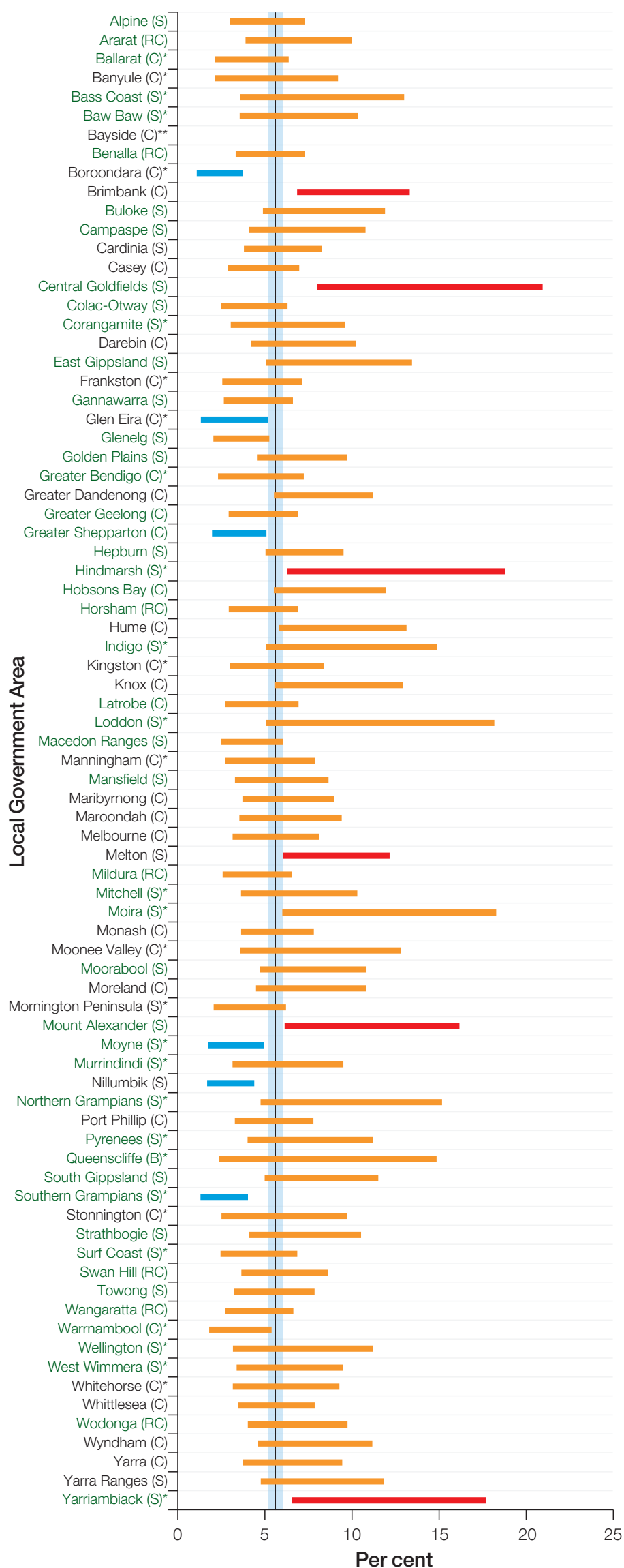
LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Figure 4.3: Prevalence of poor self-rated dental health, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

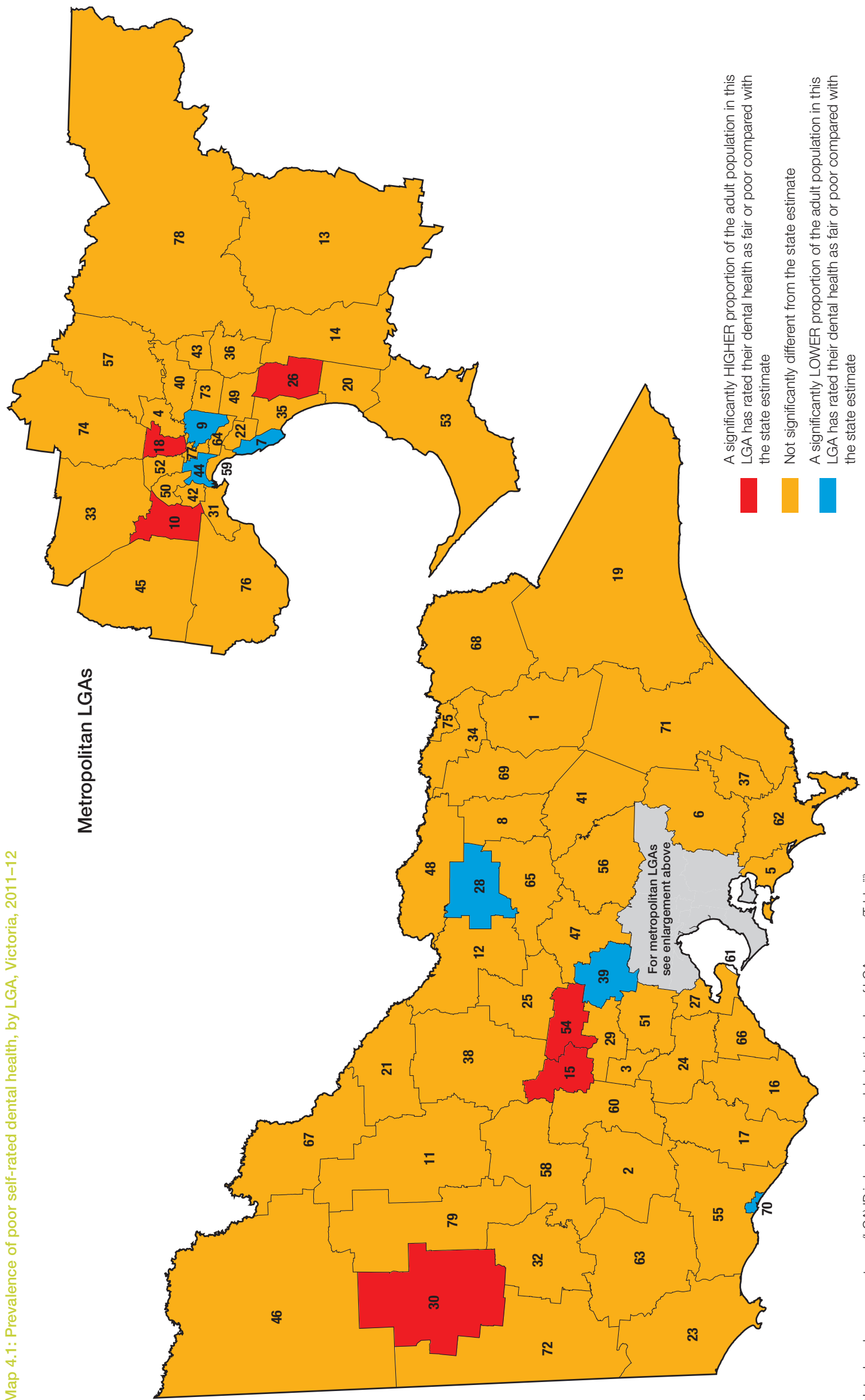
95% CI = 95 per cent confidence interval; LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Map 4.1: Prevalence of poor self-rated dental health, by LGA, Victoria, 2011–12



# Oral health

Table 4.4 shows self-rated dental health by selected socioeconomic determinants, modifiable risk factors and health status.

When compared with all Victorian men and women, a significantly *higher* prevalence of 'excellent' dental health was reported among men and women with the following characteristics:

- tertiary education
- total annual household income of \$100,000 or more
- excellent or very good self-reported health status.

When compared with all Victorian women, a significantly *higher* prevalence of 'excellent' dental health was reported among women with the following characteristics:

- employed
- low level of psychological distress
- sufficiently physically active
- met guidelines for vegetable or both fruit and vegetable consumption.

When compared with all Victorian men and women, a significantly *lower* prevalence of 'excellent' dental health was reported among men and women with the following characteristics:

- only completed a primary education
- unemployed
- total annual household income of less than \$40,000
- high level of psychological distress
- sedentary or insufficiently physically active
- current smoker
- good, fair or poor self-reported health status.

When compared with all Victorian women, a significantly *lower* prevalence of 'excellent' dental health was reported among women with the following characteristics:

- very high level of psychological distress
- abstained from alcohol consumption
- obese.

When compared with all Victorian men and women, a significantly *higher* prevalence of 'poor' dental health was reported in men and women with the following characteristics:

- only completed a primary education
- not in the labour force
- total annual household income of less than \$40,000
- high or very high levels of psychological distress
- sedentary
- current smoker
- fair or poor self-reported health status
- underweight.

When compared with all Victorian men, a significantly *higher* prevalence of 'poor' dental health was reported among men with the following characteristic:

- at long-term risk of alcohol-related harm.

When compared with all Victorian women, a significantly *higher* prevalence of 'poor' dental health was reported among women with the following characteristics:

- unemployed
- abstained from consumption of alcohol.

Table 4.4: Self-rated dental health, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12

	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	95% CI			95% CI			95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>	12.8	11.7	13.9	26.5	25.1	27.9	33.6	32.1	35.1	15.5	14.4	16.6	6.3	5.7	7.0	5.2	4.8	5.6
<i>Area of Victoria</i>																		
Rural	10.3	8.7	12.0	24.7	22.4	27.1	36.7	33.7	39.7	15.4	13.7	17.4	6.3	5.5	7.1	6.5	6.0	7.2
Metropolitan	13.5	12.3	14.9	27.0	25.4	28.7	32.8	31.1	34.6	15.5	14.3	16.8	6.4	5.6	7.2	4.6	4.1	5.2
<i>Education level</i>																		
Primary	9.0	7.2	11.1	19.1	16.8	21.7	36.1	33.0	39.4	18.4	16.3	20.7	9.9	8.3	11.8	7.3	6.6	8.0
Secondary	10.9	9.4	12.6	27.7	25.4	30.1	34.3	31.8	36.9	15.3	13.5	17.3	6.8	5.7	8.2	4.6	4.0	5.4
Tertiary	17.5	15.5	19.7	33.3	31.0	35.7	31.0	28.6	33.4	12.6	11.2	14.2	3.4	2.7	4.3	2.2	1.7	2.9
<i>Employment status (age &lt; 65 years)</i>																		
Employed	14.0	12.5	15.7	28.8	26.9	30.8	35.7	33.6	37.8	14.7	13.4	16.0	5.1	4.4	5.9	1.4	1.2	1.8
Unemployed	6.3*	3.7	10.6	17.8	13.0	23.8	45.4	38.1	52.9	19.3	14.1	25.8	9.0	6.0	13.2	2.3*	1.2	4.4
Not in labour force	11.9	8.9	15.8	21.4	17.2	26.3	29.7	24.3	35.7	16.6	12.3	21.9	17.2	12.7	23.0	3.2	2.2	4.6
<i>Total annual household income</i>																		
< \$40,000	7.6	5.7	10.2	18.2	14.8	22.2	32.2	28.2	36.4	21.5	18.1	25.4	12.5	10.2	15.3	7.6	6.7	8.6
\$40,000 to < \$100,000	11.1	9.6	12.7	25.6	23.3	28.0	37.2	34.7	39.9	16.0	14.3	17.8	6.4	5.3	7.8	3.6	2.9	4.4
≥ \$100,000	18.3	15.8	21.1	33.2	30.2	36.3	30.9	28.0	33.9	11.7	10.0	13.7	3.2	2.3	4.6	2.6	1.8	3.9
<i>Psychological distress level<sup>a</sup></i>																		
Low (< 16)	13.9	12.6	15.3	29.6	27.8	31.4	33.7	31.8	35.6	13.4	12.3	14.7	4.3	3.8	5.0	4.9	4.5	5.5
Moderate (16–21)	12.0	9.8	14.6	23.3	20.6	26.2	32.7	29.7	35.9	18.2	16.0	20.7	8.4	6.8	10.2	5.4	4.5	6.4
High (22–29)	5.8	3.8	8.8	14.8	11.2	19.2	32.1	27.1	37.5	23.9	19.4	29.0	15.3	11.5	20.2	7.3	5.7	9.2
Very high (≥ 30)	7.8*	3.8	15.4	9.7	6.1	15.3	37.2	28.8	46.5	18.7	13.0	26.1	20.4	15.0	27.1	6.1	3.9	9.6
<i>Physical activity<sup>b</sup></i>																		
Sedentary	6.0	3.6	9.6	16.2	11.7	22.1	37.7	31.4	44.4	18.8	14.5	24.2	12.9	9.9	16.6	8.2	6.2	10.7
Insufficient time and sessions	9.4	7.7	11.5	25.3	22.4	28.4	35.1	31.8	38.6	17.2	15.0	19.6	7.3	6.1	8.6	5.4	4.7	6.2
Sufficient time and sessions	14.4	13.1	15.8	28.1	26.4	29.8	33.0	31.2	34.8	14.5	13.3	15.8	5.3	4.6	6.2	4.5	4.1	5.1
<i>Met fruit / vegetable guidelines<sup>c</sup></i>																		
Both guidelines	13.6	9.4	19.4	35.7	29.1	43.0	30.4	24.2	37.4	11.7	7.6	17.6	4.3	2.6	6.9	4.2	2.7	6.5
Vegetable guidelines <sup>d</sup>	16.8	12.5	22.3	34.0	28.3	40.2	27.6	22.7	33.2	12.0	8.5	16.5	5.0	3.3	7.4	4.6	3.3	6.4
Fruit guidelines <sup>d</sup>	15.0	13.1	17.1	28.6	26.3	30.9	33.3	30.9	35.9	13.5	12.0	15.1	4.7	3.9	5.7	4.7	4.2	5.3
Neither	11.3	10.1	12.7	25.0	23.2	26.8	34.1	32.1	36.1	16.7	15.3	18.1	7.4	6.5	8.4	5.4	4.9	6.0

Table 4.4: Self-rated dental health, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)

	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	95% CI			95% CI			95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Smoking status</b>																		
Current smoker	8.4	6.6	10.7	17.1	14.6	20.0	33.3	29.9	36.9	19.4	16.8	22.3	13.0	11.0	15.3	8.6	7.2	10.2
Ex-smoker	14.6	11.3	18.6	21.9	18.9	25.1	32.9	28.9	37.3	17.4	15.1	20.1	7.0	5.6	8.7	5.9	5.3	6.6
Non-smoker	14.5	13.0	16.0	31.1	29.1	33.1	34.9	32.9	36.9	12.9	11.7	14.2	3.3	2.7	3.9	3.3	2.9	3.8
<b>Long-term risk of alcohol-related harm<sup>e</sup></b>																		
Abstainer	9.6	7.2	12.6	21.2	17.8	25.1	36.0	31.8	40.5	15.8	12.9	19.2	8.4	6.5	10.9	8.7	7.5	10.1
Low risk	13.3	12.1	14.6	27.6	26.1	29.2	33.9	32.2	35.6	15.1	14.0	16.3	5.7	5.0	6.5	4.3	3.9	4.7
Risky or high risk	13.4	9.0	19.7	23.8	18.3	30.5	21.3	16.5	27.0	23.1	17.9	29.3	11.0	7.9	15.2	6.0	4.1	8.6
<b>Self-reported health status</b>																		
Excellent / very good	20.1	18.3	22.0	36.3	34.1	38.5	27.6	25.6	29.8	9.2	8.0	10.6	2.5	2.0	3.1	4.2	3.7	4.9
Good	7.5	6.2	9.1	21.4	19.3	23.6	42.8	40.3	45.4	16.5	14.9	18.3	6.4	5.3	7.6	5.0	4.4	5.7
Fair / poor	4.7	3.1	7.0	10.6	8.3	13.4	30.0	26.0	34.3	30.3	26.7	34.2	16.7	14.2	19.6	7.3	6.4	8.5
<b>Body weight status<sup>f</sup></b>																		
Underweight	10.9*	4.9	22.4	37.2	25.1	51.1	18.1	11.7	26.8	9.1*	5.2	15.3	17.8*	9.6	30.6	7.0*	4.2	11.3
Normal	14.8	13.1	16.7	26.9	24.7	29.2	32.2	29.9	34.6	15.0	13.3	16.8	6.4	5.4	7.7	4.5	3.9	5.3
Overweight	13.3	11.4	15.4	26.6	24.3	29.1	35.2	32.7	37.8	14.1	12.6	15.8	5.6	4.6	6.8	5.0	4.5	5.7
Obese	10.4	8.0	13.4	22.3	19.1	25.9	35.0	31.2	39.0	18.4	15.6	21.6	7.3	6.0	9.0	6.3	5.4	7.4
<b>Diabetes (excluding gestational)<sup>g</sup></b>																		
No diabetes	13.1	12.0	14.2	27.0	25.6	28.5	33.4	31.9	35.0	15.3	14.3	16.4	6.1	5.4	6.8	4.9	4.5	5.4
Diabetes	10.6*	3.9	25.5	30.1	19.6	43.2	31.9	25.1	39.6	15.8	10.6	22.7	5.5	4.3	7.2	6.0	5.1	7.1

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003a).

d. Includes those meeting both guidelines.

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups). Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 4.4: Self-rated dental health, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)

	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	95% CI			95% CI			95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Females</b>	<b>19.0</b>	<b>18.0</b>	<b>20.1</b>	<b>28.3</b>	<b>27.1</b>	<b>29.4</b>	<b>29.9</b>	<b>28.7</b>	<b>31.1</b>	<b>11.5</b>	<b>10.8</b>	<b>12.2</b>	<b>5.0</b>	<b>4.5</b>	<b>5.5</b>	<b>6.0</b>	<b>5.7</b>	<b>6.3</b>
<i>Area of Victoria</i>																		
Rural	17.8	16.1	19.7	28.3	26.5	30.3	30.7	28.6	32.8	10.6	9.6	11.7	4.4	3.8	5.1	<b>8.0</b>	7.5	8.5
Metropolitan	19.4	18.2	20.7	28.3	26.9	29.7	29.7	28.3	31.1	11.8	10.9	12.7	5.2	4.7	5.9	<b>5.1</b>	4.7	5.6
<i>Education level</i>																		
Primary	<b>12.4</b>	10.6	14.5	<b>22.4</b>	19.9	25.1	31.9	29.0	35.1	<b>16.8</b>	14.9	19.0	<b>7.8</b>	6.4	9.3	<b>8.0</b>	7.2	8.8
Secondary	17.8	16.3	19.4	28.6	26.8	30.5	32.0	30.0	34.0	11.2	10.0	12.6	5.1	4.4	6.0	<b>5.0</b>	4.4	5.6
Tertiary	<b>24.7</b>	22.9	26.7	<b>33.6</b>	31.8	35.5	26.9	25.2	28.8	<b>8.4</b>	7.4	9.6	<b>3.2</b>	2.6	4.0	<b>2.8</b>	2.2	3.5
<i>Employment status (age &lt; 65 years)</i>																		
Employed	<b>22.9</b>	21.2	24.6	<b>31.6</b>	29.9	33.4	30.4	28.6	32.2	10.1	9.2	11.1	3.8	3.2	4.5	<b>1.1</b>	0.9	1.4
Unemployed	<b>12.7</b>	9.0	17.6	22.4	17.0	28.9	<b>39.7</b>	33.3	46.3	13.1	9.5	17.7	<b>10.3</b>	7.3	14.1	<b>2.0*</b>	1.2	3.2
Not in labour force	18.1	16.0	20.4	27.6	25.4	30.0	29.8	27.2	32.5	13.7	11.9	15.8	<b>7.4</b>	6.1	8.8	<b>2.8</b>	2.3	3.5
<i>Total annual household income</i>																		
< \$40,000	<b>12.1</b>	10.2	14.4	<b>21.9</b>	19.3	24.8	31.9	28.8	35.2	<b>15.9</b>	13.9	18.1	<b>10.2</b>	8.5	12.2	<b>7.7</b>	7.1	8.3
\$40,000 to < \$100,000	17.4	15.8	19.1	29.6	27.7	31.7	33.2	31.1	35.5	11.7	10.4	13.1	4.3	3.6	5.1	<b>3.6</b>	2.9	4.4
≥ \$100,000	<b>29.9</b>	26.6	33.5	<b>34.4</b>	31.2	37.7	26.2	23.5	29.1	<b>5.9</b>	4.8	7.1	<b>1.8</b>	1.1	2.9	<b>1.9*</b>	1.0	3.4
<i>Psychological distress level<sup>a</sup></i>																		
Low (< 16)	<b>21.5</b>	20.1	23.0	30.8	29.2	32.4	28.8	27.2	30.4	10.0	9.1	11.0	<b>3.0</b>	2.5	3.7	5.5	5.2	5.9
Moderate (16–21)	17.0	15.1	19.2	27.1	25.0	29.4	30.4	28.2	32.7	12.6	11.2	14.1	6.2	5.2	7.4	6.4	5.7	7.3
High (22–29)	<b>11.0</b>	8.8	13.7	<b>20.5</b>	17.6	23.7	<b>36.1</b>	32.5	39.9	<b>16.0</b>	13.7	18.6	<b>8.8</b>	7.1	10.9	7.2	6.0	8.6
Very high (≥ 30)	<b>11.3</b>	7.5	16.6	<b>16.8</b>	12.4	22.5	26.6	20.8	33.3	<b>16.5</b>	12.6	21.3	<b>20.3</b>	16.2	25.0	<b>8.5</b>	6.5	11.1
<i>Physical activity<sup>b</sup></i>																		
Sedentary	<b>8.4</b>	5.4	12.9	<b>15.8</b>	11.3	21.8	31.7	25.7	38.4	<b>20.4</b>	15.6	26.3	<b>11.5</b>	7.6	17.1	<b>9.8</b>	7.4	12.8
Insufficient time and sessions	<b>15.8</b>	14.1	17.7	26.8	24.5	29.2	<b>33.6</b>	31.2	36.2	11.8	10.4	13.3	5.5	4.6	6.7	6.1	5.6	6.7
Sufficient time and sessions	<b>21.6</b>	20.2	23.0	30.6	29.1	32.1	28.0	26.6	29.4	10.4	9.6	11.3	4.2	3.7	4.8	<b>5.1</b>	4.7	5.6
<i>Met fruit / vegetable guidelines<sup>c</sup></i>																		
Both guidelines	<b>27.6</b>	23.0	32.6	28.3	24.1	33.0	26.7	22.9	30.9	<b>7.4</b>	5.5	10.0	4.6*	2.7	7.9	5.3	4.4	6.4
Vegetable guidelines <sup>d</sup>	<b>26.0</b>	22.2	30.1	28.0	24.4	32.0	26.4	23.0	30.0	9.4	7.5	11.8	4.8	3.1	7.5	5.4	4.6	6.3
Fruit guidelines <sup>d</sup>	20.4	18.8	22.1	28.4	26.7	30.1	30.7	28.9	32.5	10.5	9.5	11.7	4.4	3.7	5.2	5.4	5.0	5.8
Neither	17.6	16.2	19.1	28.1	26.5	29.8	29.1	27.5	30.8	12.2	11.2	13.3	5.7	5.0	6.5	6.9	6.3	7.5



Table 4.4: Self-rated dental health, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)

	Excellent			Very good			Good			Fair			Poor			Not applicable (has dentures, no natural teeth)		
	95% CI			95% CI			95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Smoking status</b>																		
Current smoker	11.9	9.8	14.3	21.0	18.4	23.9	31.1	28.0	34.4	15.1	13.2	17.4	11.7	9.6	14.1	9.0	7.5	10.7
Ex-smoker	18.4	15.3	22.1	29.5	26.2	33.0	29.3	25.5	33.4	12.3	10.5	14.3	4.2	3.0	5.9	6.2	5.6	6.9
Non-smoker	20.6	19.3	22.0	29.2	27.8	30.7	29.7	28.2	31.2	10.5	9.6	11.4	4.3	3.7	5.0	5.3	4.9	5.7
<b>Long-term risk of alcohol-related harm<sup>e</sup></b>																		
Abstainer	13.7	11.7	15.9	21.6	19.3	24.1	34.1	31.3	37.0	13.9	12.2	15.7	7.9	6.4	9.6	8.3	7.5	9.1
Low risk	20.5	19.3	21.7	30.4	29.0	31.7	29.0	27.7	30.3	10.7	9.9	11.6	4.3	3.8	4.8	5.0	4.6	5.4
Risky or high risk	23.3	18.3	29.3	24.9	20.0	30.5	25.3	19.9	31.6	12.9	8.7	18.8	8.8*	5.2	14.3	4.6	3.1	6.7
<b>Self-reported health status</b>																		
Excellent / very good	27.8	26.1	29.5	34.5	32.9	36.2	24.4	22.8	26.0	6.2	5.4	7.1	1.9	1.5	2.3	4.9	4.4	5.3
Good	11.8	10.5	13.3	25.2	23.4	27.1	39.4	37.4	41.4	12.7	11.5	14.0	4.6	3.9	5.5	6.1	5.6	6.6
Fair / poor	8.5	6.9	10.6	16.2	13.4	19.5	25.7	22.6	29.2	24.8	22.1	27.7	15.6	13.1	18.4	8.4	7.4	9.4
<b>Body weight status<sup>f</sup></b>																		
Underweight	22.3	17.4	28.1	22.2	17.6	27.5	29.2	23.9	35.2	9.1	6.2	13.0	8.5	5.7	12.7	8.2	5.9	11.3
Normal	21.4	19.8	23.0	30.5	28.8	32.2	28.2	26.6	29.9	10.9	9.8	12.0	4.5	3.8	5.3	4.5	4.1	5.0
Overweight	17.8	15.6	20.1	28.7	26.3	31.3	31.6	28.9	34.3	11.1	9.7	12.6	4.4	3.6	5.3	6.3	5.7	6.9
Obese	14.1	12.0	16.5	25.0	21.9	28.3	33.3	29.8	37.1	13.1	11.3	15.1	6.8	5.5	8.5	7.5	6.6	8.5
<b>Diabetes (excluding gestational)<sup>g</sup></b>																		
No diabetes	19.2	18.2	20.3	28.7	27.5	29.9	29.9	28.7	31.1	11.4	10.6	12.1	4.9	4.4	5.4	5.6	5.3	6.0
Diabetes	20.3	16.6	24.5	12.1	8.8	16.4	33.4	26.0	41.8	19.1	12.6	27.7	6.0	3.7	9.7	9.0	7.6	10.6

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003a).

d. Includes those meeting both guidelines.

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

g. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups). Note that the figures may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

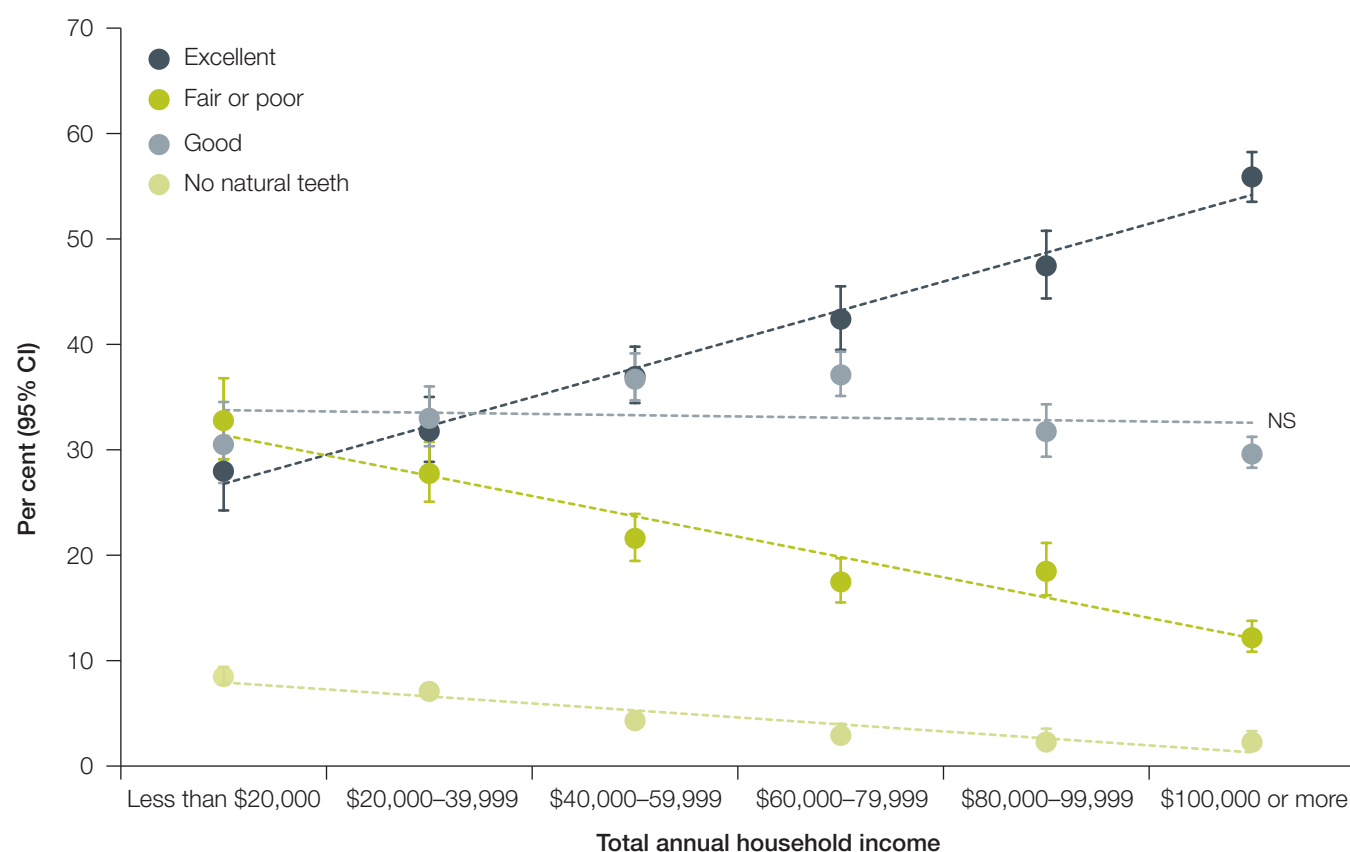
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

The relationship, if any, was investigated between SES and the age-adjusted prevalence of self-rated dental health, using total annual household income as a measure of SES (Figure 4.4). Self-rated dental health was strongly related to SES. The prevalence of excellent or very good dental health significantly increased with increasing total annual household income, in both men and women. Conversely, the prevalence of both fair or poor dental health and not having any natural teeth decreased with increasing income. There was no relationship between the prevalence of good self-rated dental health and total annual household income. In conclusion, self-rated dental health status follows a typical SES gradient, where poorer outcomes are associated with declining SES.

**Figure 4.4: Self-rated dental health, by total annual household income, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.

### Visits to a dental professional

Respondents were next asked ‘How long ago did you last visit a dental professional about your teeth, dentures or gums?’. Table 4.5 shows the recency of the last visit to a dental health professional, by age group and sex. Just over half (56.7 per cent) of Victorian adults had visited a dental professional within the previous 12 months, with a further 18.2 per cent one to less than two years previously. Just over 10 per cent of Victorian adults had not seen a dental professional within the previous five years.

There did not appear to be any particular age-related pattern with the exception that there were significantly higher proportions of men and women aged 65 years or over who had not been to a dental professional in the previous 10 years.

Table 4.5: Last visit to a dental professional, by age group and sex, Victoria, 2011–12

Age group (years)	Less than 12 months ago			1 year to less than 2 years ago			2 years to less than 5 years ago			5 years to less than 10 years ago			10 years ago or more			Never visited a dental professional		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>																		
18–24	58.0	52.2	63.6	21.9	17.2	27.4	12.1	9.0	16.1	6.1	3.9	9.5	1.0*	0.4	2.4	**	**	**
25–34	46.9	41.9	52.0	19.7	15.9	24.2	17.7	14.3	21.7	6.9	4.8	9.8	7.2	4.7	10.7	1.3*	0.6	2.8
35–44	49.9	46.7	53.1	20.7	18.2	23.5	17.0	14.7	19.7	5.7	4.4	7.2	6.0	4.7	7.6	**	**	**
45–54	54.5	51.7	57.2	17.9	15.8	20.1	16.5	14.4	18.7	5.3	4.1	6.6	5.9	4.7	7.3	**	**	**
55–64	58.0	55.4	60.6	16.1	14.2	18.1	14.3	12.5	16.2	5.5	4.5	6.7	5.6	4.6	6.8	**	**	**
65+	55.7	53.6	57.8	13.8	12.4	15.3	13.0	11.7	14.5	6.7	5.7	7.8	9.9	8.8	11.1	**	**	**
<b>Total</b>	<b>52.9</b>	<b>51.3</b>	<b>54.5</b>	<b>18.3</b>	<b>17.1</b>	<b>19.6</b>	<b>15.5</b>	<b>14.4</b>	<b>16.7</b>	<b>6.1</b>	<b>5.4</b>	<b>6.9</b>	<b>6.3</b>	<b>5.6</b>	<b>7.1</b>	<b>0.4*</b>	<b>0.2</b>	<b>0.7</b>
<b>Females</b>																		
18–24	67.5	62.2	72.3	17.6	13.7	22.2	11.2	8.1	15.2	2.0*	1.0	3.9	1.5*	0.7	3.1	**	**	**
25–34	57.0	53.2	60.6	21.8	18.9	25.0	12.8	10.6	15.3	3.8	2.7	5.3	3.7	2.5	5.7	0.7*	0.3	1.6
35–44	61.1	58.7	63.4	18.4	16.6	20.2	14.0	12.4	15.7	3.1	2.4	4.1	2.8	2.1	3.7	0.3*	0.1	0.7
45–54	65.1	62.9	67.2	18.8	17.1	20.6	10.8	9.5	12.2	3.0	2.4	3.9	1.7	1.3	2.3	**	**	**
55–64	64.6	62.5	66.6	15.7	14.2	17.4	11.7	10.4	13.1	4.4	3.6	5.3	3.1	2.5	3.9	**	**	**
65+	54.4	52.7	56.2	14.9	13.7	16.3	14.5	13.3	15.8	7.0	6.1	7.9	8.2	7.4	9.1	**	**	**
<b>Total</b>	<b>60.6</b>	<b>59.4</b>	<b>61.9</b>	<b>18.1</b>	<b>17.1</b>	<b>19.1</b>	<b>12.7</b>	<b>11.9</b>	<b>13.5</b>	<b>4.1</b>	<b>3.7</b>	<b>4.5</b>	<b>3.8</b>	<b>3.4</b>	<b>4.2</b>	<b>0.3*</b>	<b>0.2</b>	<b>0.5</b>
<b>Persons</b>																		
18–24	62.6	58.7	66.4	19.8	16.7	23.3	11.7	9.4	14.4	4.1	2.8	6.0	1.3*	0.7	2.2	**	**	**
25–34	51.9	48.7	55.1	20.7	18.3	23.4	15.2	13.2	17.6	5.4	4.1	7.0	5.5	4.0	7.4	1.0*	0.6	1.8
35–44	55.6	53.6	57.6	19.5	18.0	21.2	15.5	14.0	17.0	4.4	3.6	5.3	4.3	3.6	5.2	0.3*	0.2	0.6
45–54	59.9	58.1	61.6	18.3	17.0	19.7	13.6	12.4	14.9	4.1	3.5	4.9	3.8	3.1	4.5	**	**	**
55–64	61.4	59.7	63.0	15.9	14.7	17.2	13.0	11.9	14.1	4.9	4.3	5.7	4.3	3.7	5.0	0.1*	0.0	0.2
65+	55.0	53.7	56.3	14.4	13.5	15.4	13.8	12.9	14.8	6.8	6.2	7.5	9.0	8.3	9.7	0.1*	0.0	0.2
<b>Total</b>	<b>56.7</b>	<b>55.7</b>	<b>57.7</b>	<b>18.2</b>	<b>17.4</b>	<b>19.1</b>	<b>14.2</b>	<b>13.5</b>	<b>14.9</b>	<b>5.1</b>	<b>4.7</b>	<b>5.6</b>	<b>5.0</b>	<b>4.6</b>	<b>5.5</b>	<b>0.4</b>	<b>0.2</b>	<b>0.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 4.6 shows the recency of the last visit to a dental professional, by Department of Health region and sex.

There were significantly higher proportions of men and women who lived in metropolitan Victoria who had visited a dental professional within the previous 12 months compared with their rural counterparts. This was also reflected in significantly lower proportions of people who lived in all rural Department of Health regions, with the exception of Barwon-South Western Region, who had visited a dental professional within the previous 12 months compared with all Victorian adults. By contrast there were significantly higher proportions of people who lived in all rural Department of Health regions, with the exception of Barwon-South Western Region, who had not visited a dental professional within the previous 10 years compared with all Victorian adults. Taken together, these findings suggest that people who live in rural Victoria are seen less often by a dental health professional than people who live in metropolitan Victoria.

There was a significantly higher proportion of people who lived in Eastern Metropolitan Region who had visited a dental professional within the previous 12 months compared with all Victorian adults.

Table 4.6: Last visit to a dental professional, by Department of Health region and sex, Victoria, 2011–12

Region	Less than 12 months ago			1 year to less than 2 years ago			2 years to less than 5 years ago			5 years to less than 10 years ago			10 years ago or more			Never visited a dental professional		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>																		
Eastern Metropolitan	58.6	54.8	62.3	16.7	13.8	20.0	14.6	12.1	17.5	5.4	3.9	7.5	4.0	2.9	5.5	**	**	**
North & West Metropolitan	54.5	51.9	57.1	16.6	14.8	18.6	16.2	14.3	18.4	6.0	4.8	7.4	5.7	4.6	6.9	0.7*	0.3	1.5
Southern Metropolitan	53.5	50.2	56.8	19.3	16.8	22.1	14.9	12.6	17.5	6.2	4.5	8.3	5.6	4.4	7.0	**	**	**
<b>Metropolitan males</b>	55.3	53.5	57.2	17.4	16.0	18.8	15.4	14.1	16.8	5.8	5.0	6.7	5.3	4.6	6.1	0.4*	0.2	0.8
Barwon-South Western	46.2	41.3	51.3	25.0	19.2	31.9	12.7	9.5	16.7	5.0	3.6	7.1	9.5*	5.2	16.4	**	**	**
Gippsland	49.5	44.8	54.2	18.5	15.3	22.3	16.2	13.0	20.0	6.9	5.0	9.4	8.1	6.3	10.4	**	**	**
Grampians	49.6	44.6	54.5	17.9	14.4	22.1	14.8	12.1	18.0	8.7	5.9	12.7	8.0	6.4	10.0	**	**	**
Hume	46.6	42.4	50.9	19.8	16.5	23.5	17.3	14.5	20.6	7.0	5.1	9.5	8.3	6.7	10.2	0.6*	0.3	1.5
Loddon Mallee	40.9	36.2	45.8	24.6	19.3	30.9	16.0	13.3	19.1	7.5	5.7	10.0	9.8	7.3	13.0	**	**	**
<b>Rural males</b>	46.2	43.4	48.9	21.5	18.7	24.7	15.2	13.7	16.8	6.9	5.8	8.2	9.0	6.9	11.7	0.4*	0.2	1.0
<b>Total</b>	<b>52.9</b>	<b>51.3</b>	<b>54.5</b>	<b>18.3</b>	<b>17.1</b>	<b>19.6</b>	<b>15.5</b>	<b>14.4</b>	<b>16.7</b>	<b>6.1</b>	<b>5.4</b>	<b>6.9</b>	<b>6.3</b>	<b>5.6</b>	<b>7.1</b>	<b>0.4*</b>	<b>0.2</b>	<b>0.7</b>

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 4.6: Last visit to a dental professional, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Less than 12 months ago			1 year to less than 2 years ago			2 years to less than 5 years ago			5 years to less than 10 years ago			10 years ago or more			Never visited a dental professional		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Females</b>																		
Eastern Metropolitan	63.9	60.3	67.2	17.9	15.3	20.8	11.2	9.0	13.8	3.7	2.8	5.0	3.0	2.1	4.3	**	**	**
North & West Metropolitan	61.0	58.9	63.0	18.2	16.6	19.9	12.9	11.6	14.3	4.0	3.3	4.9	2.7	2.1	3.4	0.5*	0.3	1.0
Southern Metropolitan	63.6	60.9	66.3	18.6	16.4	21.0	10.5	8.9	12.4	3.0	2.3	3.9	3.9	3.0	5.0	**	**	**
<b>Metropolitan females</b>	62.9	61.4	64.3	18.1	16.9	19.3	11.5	10.6	12.5	3.6	3.1	4.1	3.2	2.7	3.7	0.3*	0.2	0.6
Barwon-South Western	58.1	53.0	63.0	18.9	14.6	24.2	14.0	11.6	16.8	4.6	3.5	6.2	4.0	2.8	5.7	**	**	**
Gippsland	51.2	47.4	55.0	17.9	15.5	20.7	18.3	15.2	21.9	6.8	5.5	8.5	5.4	4.2	6.8	0.0	.	.
Grampians	53.9	49.8	58.0	17.2	14.6	20.3	15.5	13.1	18.4	5.2	3.7	7.2	7.5	5.3	10.4	**	**	**
Hume	53.3	50.1	56.5	19.7	17.4	22.3	16.0	13.9	18.4	5.8	4.3	7.8	4.5	3.7	5.5	0.2*	0.1	0.4
Loddon Mallee	55.3	50.8	59.7	16.8	13.7	20.4	17.1	13.7	21.3	4.8	3.6	6.3	5.6	4.5	6.9	**	**	**
<b>Rural females</b>	54.5	52.4	56.6	18.2	16.5	20.1	16.2	14.7	17.7	5.4	4.8	6.1	5.2	4.6	5.9	0.1*	0.0	0.1
<b>Total</b>	<b>60.6</b>	<b>59.4</b>	<b>61.9</b>	<b>18.1</b>	<b>17.1</b>	<b>19.1</b>	<b>12.7</b>	<b>11.9</b>	<b>13.5</b>	<b>4.1</b>	<b>3.7</b>	<b>4.5</b>	<b>3.8</b>	<b>3.4</b>	<b>4.2</b>	<b>0.3*</b>	<b>0.2</b>	<b>0.5</b>

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 4.6: Last visit to a dental professional, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Less than 12 months ago			1 year to less than 2 years ago			2 years to less than 5 years ago			5 years to less than 10 years ago			10 years ago or more			Never visited a dental professional			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Persons</b>																			
Eastern Metropolitan	61.2	58.7	63.7	17.1	15.1	19.2	12.9	11.2	14.9	4.7	3.7	6.0	3.5	2.7	4.4	**	**	**	
North & West Metropolitan	57.7	56.0	59.4	17.5	16.2	18.8	14.6	13.4	15.9	5.0	4.3	5.8	4.2	3.6	4.9	0.6*	0.4	1.0	
Southern Metropolitan	58.7	56.6	60.8	18.9	17.2	20.7	12.7	11.3	14.3	4.5	3.6	5.7	4.7	3.9	5.5	0.2*	0.1	0.4	
<b>Metropolitan persons</b>	59.1	57.9	60.2	17.7	16.8	18.7	13.5	12.7	14.4	4.7	4.2	5.2	4.2	3.8	4.7	0.4	0.2	0.6	
Barwon-South Western	51.9	47.7	56.2	21.9	17.5	26.9	13.4	11.2	15.8	4.8	3.9	6.1	7.1*	4.1	12.0	**	**	**	
Gippsland	50.2	47.2	53.3	18.1	16.0	20.4	17.5	15.1	20.1	7.0	5.7	8.4	6.7	5.6	8.0	**	**	**	
Grampians	51.7	48.3	55.0	17.6	15.2	20.3	15.2	13.3	17.3	7.1	5.2	9.6	7.5	6.2	9.1	**	**	**	
Hume	49.9	47.2	52.7	19.7	17.7	22.0	16.8	15.0	18.8	6.4	5.2	7.9	6.4	5.5	7.4	0.4*	0.2	0.8	
Loddon Mallee	48.0	44.3	51.8	20.8	17.2	24.9	16.7	14.2	19.6	6.1	5.0	7.5	7.4	6.1	9.0	**	**	**	
<b>Rural persons</b>	50.2	48.4	52.1	20.0	18.2	21.9	15.7	14.6	16.9	6.1	5.5	6.8	7.1	5.9	8.7	0.2*	0.1	0.5	
<b>Total</b>	56.7	55.7	57.7	18.2	17.4	19.1	14.2	13.5	14.9	5.1	4.7	5.6	5.0	4.6	5.5	0.4	0.2	0.5	

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

# Oral health



Table 4.7 shows the recency of the last visit to a dental professional, by LGA. There were significantly higher proportions of people who lived in the LGAs of Bayside (C), Boroondara (C), Glen Eira (C), Manningham (C), Port Phillip (C), Queenscliffe (B), Stonnington (C) and Yarra (C) who had visited a dental professional within the previous 12 months compared with all Victorian adults. All of these LGAs with the exception of two were of high SES being in the fifth IRSED quintile. Of the remaining two, one was in the fourth quintile also indicating higher SES, while the other was in the third quintile indicating neither low nor high SES.

There were significantly lower proportions of people who lived in the LGAs of Campaspe (S), Cardinia (S), Casey (C), Corangamite (S), Gannawarra (S), Greater Bendigo (C), Greater Dandenong (C), Indigo (S), Knox (C), Loddon (S), Mitchell (S), Moira (S), Moorabool (S), Northern Grampians (S), South Gippsland (S), Swan Hill (RC) and Yarriambiack (S) who had visited a dental professional within the previous 12 months compared with all Victorian adults. Ten of these 17 LGAs were of low SES (IRSED quintile 1 or 2), five were neither low nor high SES (IRSED quintile 3), and two LGAs were of high SES (IRSED quintile 4).

There were significantly higher proportions of people who lived in the LGAs of Campaspe (S), Central Goldfields (S), Corangamite (S), Gannawarra (S), Golden Plains (S), Hindmarsh (S), Indigo (S), Latrobe (C), Loddon (S), Moira (S), Moorabool (S), Swan Hill (RC), Wellington (S), West Wimmera (S) and Yarriambiack (S) who had not visited a dental professional in the previous 10 years compared with all Victorian adults. The majority of these 15 LGAs were of low SES (IRSED quintile 1 or 2), while the remaining three were neither high nor low SES (IRSED quintile 3).

There were significantly lower proportions of people who lived in the LGAs of Bayside (C), Darebin (C), Manningham (C), Monash (C), Moreland (C), Nillumbik (S) and Port Phillip (C) who had not visited a dental professional in the previous 10 years compared with all Victorian adults. Of these seven LGAs, five were of high SES (IRSED quintile 4 or 5) and two were of low SES (IRSED quintile 1 or 2). Figure 4.5 shows the proportion of people who had not visited a dental professional in the previous 10 years, by LGA.

Table 4.7: Last visit to a dental professional, by LGA, Victoria, 2011–12

LGA	Less than 12 months ago			1 year to less than 2 years ago			2 years to less than 5 years ago			5 years to less than 10 years ago			10 years ago or more			Never visited a dental professional			
	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	
Alpine (S)	52.5	43.4	61.4	18.5	14.4	23.5	19.1	11.9	29.4	5.7	3.8	8.4	3.7	2.5	5.4	5.4	2.5	5.4	**
Ararat (RC)	55.5	48.0	62.8	23.8	17.6	31.3	<b>9.4</b>	6.9	12.6	5.6	3.7	8.4	5.0	3.4	7.4	7.4	3.4	7.4	**
Bairat (C)	56.4	49.9	62.6	15.2	11.4	19.9	13.2	10.0	17.3	6.8*	3.5	12.8	7.6	5.1	11.2	11.2	5.1	11.2	**
Banyule (C)	61.8	55.2	68.0	21.2	15.9	27.7	10.3	7.1	14.7	<b>2.1*</b>	1.2	3.5	4.0*	2.3	6.7	6.7	2.3	6.7	**
Bass Coast (S)	49.1	41.4	56.9	19.8	13.7	27.7	18.4	13.2	25.1	6.3*	3.5	11.2	5.6*	3.4	9.1	9.1	3.4	9.1	0.0
Baw Baw (S)	51.9	45.4	58.5	21.0	15.9	27.2	14.2	10.3	19.3	6.5	4.2	9.8	5.1	3.3	7.8	7.8	3.3	7.8	0.0
Bayside (C)	<b>70.5</b>	62.9	77.1	12.7	8.7	18.2	9.6	6.2	14.7	6.0*	2.5	13.8	<b>1.0*</b>	0.4	2.5	2.5	0.4	2.5	0.0
Benalla (RC)	47.9	38.3	57.6	23.1	15.2	33.4	17.3	11.2	25.9	5.8	3.6	9.3	5.3	3.4	8.1	8.1	3.4	8.1	0.0
Boroondara (C)	<b>73.1</b>	66.8	78.6	13.7	9.6	19.2	<b>7.9</b>	5.4	11.5	2.1*	0.8	5.5	3.1*	1.3	7.0	7.0	1.3	7.0	0.0
Brimbank (C)	53.9	48.2	59.5	18.0	14.1	22.7	15.3	11.5	20.2	4.3*	2.6	7.0	5.7*	3.4	9.4	9.4	3.4	9.4	<b>1.8*</b>
Buloke (S)	53.0	45.4	60.5	16.7	11.6	23.4	15.1	11.2	20.1	7.4	4.6	11.7	6.8	4.4	10.3	10.3	4.4	10.3	**
Campaspe (S)	<b>44.1</b>	36.9	51.6	22.3	16.3	29.6	14.7	11.0	19.4	6.9*	4.2	11.1	<b>10.3</b>	7.3	14.5	14.5	7.3	14.5	0.0
Cardinia (S)	<b>49.9</b>	44.2	55.7	18.4	14.6	22.8	18.0	14.0	23.0	<b>8.8</b>	6.0	12.9	4.8	3.0	7.5	7.5	3.0	7.5	0.0
Casey (C)	<b>48.7</b>	42.8	54.5	22.4	17.7	27.8	15.3	11.2	20.6	5.9*	3.4	10.3	6.8	4.6	10.0	10.0	4.6	10.0	**
Central Goldfields (S)	55.1	48.1	61.9	14.2	10.0	19.9	16.2	12.1	21.3	6.2	3.8	10.1	<b>7.8</b>	5.5	11.0	11.0	5.5	11.0	**
Colac-Otway (S)	49.9	42.6	57.3	17.9	12.8	24.5	15.8	11.2	21.8	6.3	4.0	9.9	7.4	5.3	10.2	10.2	5.3	10.2	0.0
Corangamite (S)	<b>40.1</b>	32.6	48.2	20.0	14.4	27.2	<b>21.4</b>	16.0	28.0	8.5*	4.1	17.1	<b>8.4</b>	6.0	11.7	11.7	6.0	11.7	**
Darebin (C)	56.8	50.5	62.9	19.0	14.6	24.4	16.3	11.9	21.8	5.6	3.5	8.7	<b>1.9*</b>	1.1	3.3	3.3	1.1	3.3	0.0
East Gippsland (S)	54.4	47.9	60.7	19.3	14.6	25.1	13.5	9.7	18.5	6.5	4.1	10.0	6.3	4.0	10.0	10.0	4.0	10.0	0.0
Frankston (C)	54.4	48.2	60.5	22.0	17.1	27.8	13.3	9.7	17.9	3.0*	1.8	5.1	6.9	4.4	10.6	10.6	4.4	10.6	**
Gannawarra (S)	<b>42.3</b>	34.4	50.5	19.4	12.7	28.6	20.6	14.0	29.2	8.9	5.4	14.2	<b>8.2</b>	6.0	11.1	11.1	6.0	11.1	**
Glen Eira (C)	<b>67.5</b>	61.1	73.3	17.6	13.1	23.2	<b>7.4</b>	4.6	11.7	3.5*	1.8	6.8	3.5*	1.9	6.5	6.5	1.9	6.5	0.0
Glenelg (S)	60.0	54.4	65.3	<b>13.6</b>	10.6	17.3	13.9	10.3	18.5	4.9	3.4	7.2	6.4	3.9	10.2	10.2	3.9	10.2	**
Golden Plains (S)	55.1	47.9	62.2	14.7	11.5	18.5	17.4	11.7	25.1	3.6*	2.1	6.0	<b>8.9</b>	6.0	13.0	13.0	6.0	13.0	0.0

Table 4.7: Last visit to a dental professional, by LGA, Victoria, 2011–12 (continued)

LGA	Less than 12 months ago			1 year to less than 2 years ago			2 years to less than 5 years ago			5 years to less than 10 years ago			10 years ago or more			Never visited a dental professional		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL
Greater Bendigo (C)	45.3	37.3	53.5	24.0	16.0	34.3	17.2	11.7	24.6	5.3	3.3	8.6	8.1	5.3	12.1	**	**	**
Greater Dandenong (C)	48.1	42.5	53.8	23.0	18.4	28.3	16.0	12.3	20.6	5.5	3.7	8.2	6.4	4.1	9.9	**	**	**
Greater Geelong (C)	52.8	46.6	58.9	24.2	18.3	31.4	12.0	9.0	15.7	4.1	2.7	6.1	6.0*	2.3	14.6	0.0	-	-
Greater Shepparton (C)	56.2	49.1	63.1	18.1	13.4	24.0	12.2	8.5	17.0	7.4*	4.4	12.2	5.3	3.8	7.3	**	**	**
Hepburn (S)	48.8	39.7	57.8	17.2	12.1	23.7	18.9	11.8	28.8	8.5*	4.6	15.1	6.3	4.4	9.0	0.0	-	-
Hindmarsh (S)	51.7	43.9	59.4	14.5	10.2	20.3	14.7	11.4	18.9	9.5*	5.0	17.4	8.5	6.1	11.9	**	**	**
Hobsons Bay (C)	58.2	51.8	64.4	16.0	12.0	21.0	13.8	9.8	19.1	4.5*	2.6	7.9	6.8*	3.9	11.4	**	**	**
Horsham (RC)	46.0	35.8	56.6	23.9	15.1	35.8	17.2	13.6	21.5	5.2	3.5	7.8	6.4	4.2	9.7	**	**	**
Hume (C)	52.8	46.8	58.8	18.4	14.5	22.9	15.6	11.6	20.7	7.0	4.6	10.3	4.8	3.1	7.4	**	**	**
Indigo (S)	47.1	40.1	54.3	16.9	12.7	22.1	21.2	15.6	28.2	4.9*	2.8	8.3	9.7	6.0	15.2	0.0	-	-
Kingston (C)	62.4	56.0	68.4	15.9	11.7	21.2	12.6	8.7	17.8	3.8*	1.9	7.6	4.6*	2.7	7.7	0.0	-	-
Knox (C)	49.8	43.9	55.7	20.3	15.7	25.8	16.1	12.0	21.3	7.6	4.9	11.8	5.0	3.3	7.5	**	**	**
Latrobe (C)	51.8	45.8	57.8	15.8	12.1	20.3	17.3	13.0	22.7	7.0	4.5	10.6	7.9	5.7	10.8	0.0	-	-
Loddon (S)	45.7	37.4	54.2	12.7	8.9	17.7	25.4	17.4	35.4	5.8*	3.5	9.4	10.1	7.2	14.0	0.0	-	-
Macedon Ranges (S)	54.9	48.1	61.5	17.6	12.9	23.6	16.8	12.0	23.1	6.1*	3.6	10.2	4.3	2.7	6.8	0.0	-	-
Manningham (C)	68.4	61.7	74.4	14.2	9.8	20.1	13.0	9.0	18.4	2.2*	0.9	5.2	1.8*	0.8	4.2	0.0	-	-
Mansfield (S)	48.7	40.8	56.7	17.1	12.3	23.3	20.5	13.9	29.1	5.7*	2.3	13.2	7.8*	4.5	13.2	**	**	**
Maribyrnong (C)	62.3	55.9	68.3	12.1	8.8	16.4	14.2	10.8	18.3	6.6*	3.6	12.1	3.5*	2.0	5.9	**	**	**
Maroondah (C)	59.6	53.0	66.0	15.0	11.1	20.0	16.3	11.7	22.3	3.9*	2.4	6.5	4.6*	2.8	7.6	0.0	-	-
Melbourne (C)	61.8	55.7	67.6	15.2	11.1	20.4	15.4	11.3	20.7	4.5*	2.5	7.9	2.3*	1.1	4.6	**	**	**
Melton (S)	55.2	49.7	60.6	16.3	13.0	20.4	15.7	12.2	20.1	7.0	4.3	11.0	4.6*	2.7	7.5	**	**	**

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 4.7: Last visit to a dental professional, by LGA, Victoria, 2011–12 (continued)

LGA	Less than 12 months ago			1 year to less than 2 years ago			2 years to less than 5 years ago			5 years to less than 10 years ago			10 years ago or more			Never visited a dental professional		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Mildura (RC)	52.2	45.2	59.1	15.6	11.9	20.1	17.9	13.6	23.2	7.6*	3.7	15.1	5.3	3.6	7.7	0.0	-	-
Mitchell (S)	45.7	39.2	52.4	22.6	16.8	29.7	19.3	14.8	24.6	6.0*	3.7	9.8	5.9	4.0	8.7	**	**	**
Moira (S)	44.2	36.5	52.1	20.7	15.0	27.8	16.5	11.8	22.5	7.6*	4.1	13.9	9.4*	5.6	15.2	**	**	**
Monash (C)	61.7	55.1	67.8	20.4	15.2	26.7	12.8	8.7	18.5	2.5*	1.4	4.5	2.0*	1.0	4.0	0.0	-	-
Moonee Valley (C)	63.1	56.7	69.2	17.4	13.2	22.7	13.5	8.9	19.9	2.6*	1.5	4.6	3.1*	1.8	5.3	0.0	-	-
Moorabool (S)	48.4	42.0	54.9	18.8	13.9	24.8	16.2	11.8	21.8	6.2	4.2	9.2	9.0	6.1	13.0	**	**	**
Moreland (C)	64.6	58.4	70.2	19.3	14.6	25.1	11.5	8.6	15.3	2.0*	1.0	3.9	2.2*	1.1	4.4	**	**	**
Mornington Peninsula (S)	55.9	48.8	62.8	19.7	14.3	26.5	15.7	10.8	22.1	3.4*	1.7	7.0	5.2*	2.6	10.0	0.0	-	-
Mount Alexander (S)	52.0	43.7	60.3	25.7	18.5	34.5	10.8	8.0	14.5	5.6*	2.6	11.5	5.5	3.4	8.8	0.0	-	-
Moyne (S)	48.9	40.9	57.0	18.3	13.4	24.7	18.8	13.6	25.5	6.5*	3.8	10.8	7.4	4.7	11.7	0.0	-	-
Murrindindi (S)	51.2	42.7	59.7	22.1	15.2	30.9	16.9	11.4	24.5	5.0*	2.4	10.0	4.0	2.7	6.0	**	**	**
Nilumbik (S)	57.8	50.7	64.5	23.9	18.1	30.8	11.7	7.5	17.7	4.6*	2.1	10.1	1.9*	0.9	4.0	0.0	-	-
Northern Grampians (S)	38.0	31.4	45.1	23.4	15.7	33.5	20.0	14.8	26.5	11.4*	6.6	18.8	6.2	4.4	8.8	**	**	**
Port Phillip (C)	69.2	61.7	75.9	14.9	9.9	21.8	9.0	5.6	14.2	4.4*	1.9	10.0	2.3*	1.3	4.1	**	**	**
Pyrenees (S)	52.1	44.6	59.6	14.7	10.1	20.9	18.3	13.3	24.8	7.8	5.0	12.0	6.7	4.4	10.1	**	**	**
Queenscliffe (B)	69.9	60.0	78.2	7.2	4.7	10.9	9.1*	5.1	15.9	10.6*	4.9	21.3	3.2*	1.5	6.5	0.0	-	-
South Gippsland (S)	42.5	34.3	51.1	21.4	15.7	28.5	20.2	13.2	29.7	9.1	6.0	13.5	6.5	4.1	10.1	**	**	**
Southern Grampians (S)	64.5	57.4	70.9	13.8	9.3	20.0	10.0	6.9	14.4	4.2	2.7	6.5	6.4	4.8	8.4	0.0	-	-
Stonnington (C)	74.5	68.3	79.8	14.3	10.3	19.5	6.4*	3.5	11.6	2.3*	1.0	5.3	2.3*	1.1	5.1	0.0	-	-
Strathbogie (S)	56.0	45.6	66.0	20.4	12.8	31.0	11.9	8.1	17.2	5.2*	2.9	9.3	6.2	4.0	9.6	0.0	-	-
Surf Coast (S)	58.1	50.1	65.8	13.9	9.9	19.1	18.2	12.6	25.6	4.3*	2.2	8.2	5.2	3.4	7.8	0.0	-	-
Swan Hill (RC)	46.5	39.6	53.5	18.4	13.4	24.7	16.2	12.0	21.5	6.7*	4.0	10.9	9.1	6.1	13.2	**	**	**
Towong (S)	48.6	40.7	56.6	19.2	14.9	24.4	16.7	10.4	25.7	7.9*	4.2	14.2	6.9	4.8	9.9	**	**	**
Wangaratta (RC)	53.0	46.0	59.9	15.3	11.1	20.8	18.8	14.0	24.7	5.5*	3.2	9.3	7.3	4.6	11.4	0.0	-	-

Table 4.7: Last visit to a dental professional, by LGA, Victoria, 2011–12 (continued)

LGA	Less than 12 months ago			1 year to less than 2 years ago			2 years to less than 5 years ago			5 years to less than 10 years ago			10 years ago or more			Never visited a dental professional		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Warrnambool (C)	53.0	46.9	59.0	17.7	13.5	22.7	13.6	10.6	17.3	7.3	4.6	11.2	8.4	5.4	13.1	0.0	-	-
Wellington (S)	49.9	41.9	58.0	15.7	11.7	20.8	18.9	12.3	28.0	6.4*	3.7	11.0	7.7	5.5	10.5	0.0	-	-
West Wimmera (S)	50.6	44.0	57.3	18.4	13.3	24.9	12.2	9.1	16.2	9.3	6.0	14.2	8.4	5.6	12.5	0.0	-	-
Whitehorse (C)	63.0	56.5	69.1	15.5	11.4	20.7	10.5	7.4	14.8	5.6*	3.2	9.6	5.0*	2.9	8.6	**	**	**
Whittlesea (C)	51.9	46.1	57.6	17.1	13.2	21.8	20.5	16.1	25.9	5.7*	3.2	10.0	4.0	2.5	6.4	**	**	**
Wodonga (RC)	51.0	44.3	57.7	20.7	15.3	27.4	18.1	13.2	24.2	4.1	2.6	6.4	5.1*	3.1	8.3	**	**	**
Wyndham (C)	52.2	46.7	57.7	15.7	12.3	19.8	16.8	13.1	21.2	5.6	3.7	8.5	7.2	4.5	11.5	**	**	**
Yarra (C)	71.7	64.4	78.0	13.3	8.6	20.0	7.2	5.0	10.2	4.7*	2.2	9.5	2.5*	1.1	5.8	0.0	-	-
Yarra Ranges (S)	58.4	51.7	64.8	16.3	12.0	21.7	13.2	9.6	17.9	7.8	4.8	12.4	3.8*	2.2	6.5	0.0	-	-
Yarriambiack (S)	47.5	39.6	55.6	18.9	12.8	27.0	16.6	12.1	22.3	8.0	5.6	11.4	7.9	5.8	10.8	0.0	-	-
<b>Victoria</b>	<b>57.1</b>	<b>56.1</b>	<b>58.1</b>	<b>18.1</b>	<b>17.3</b>	<b>19.0</b>	<b>14.0</b>	<b>13.3</b>	<b>14.7</b>	<b>5.1</b>	<b>4.6</b>	<b>5.5</b>	<b>4.9</b>	<b>4.5</b>	<b>5.4</b>	<b>0.3</b>	<b>0.2</b>	<b>0.5</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

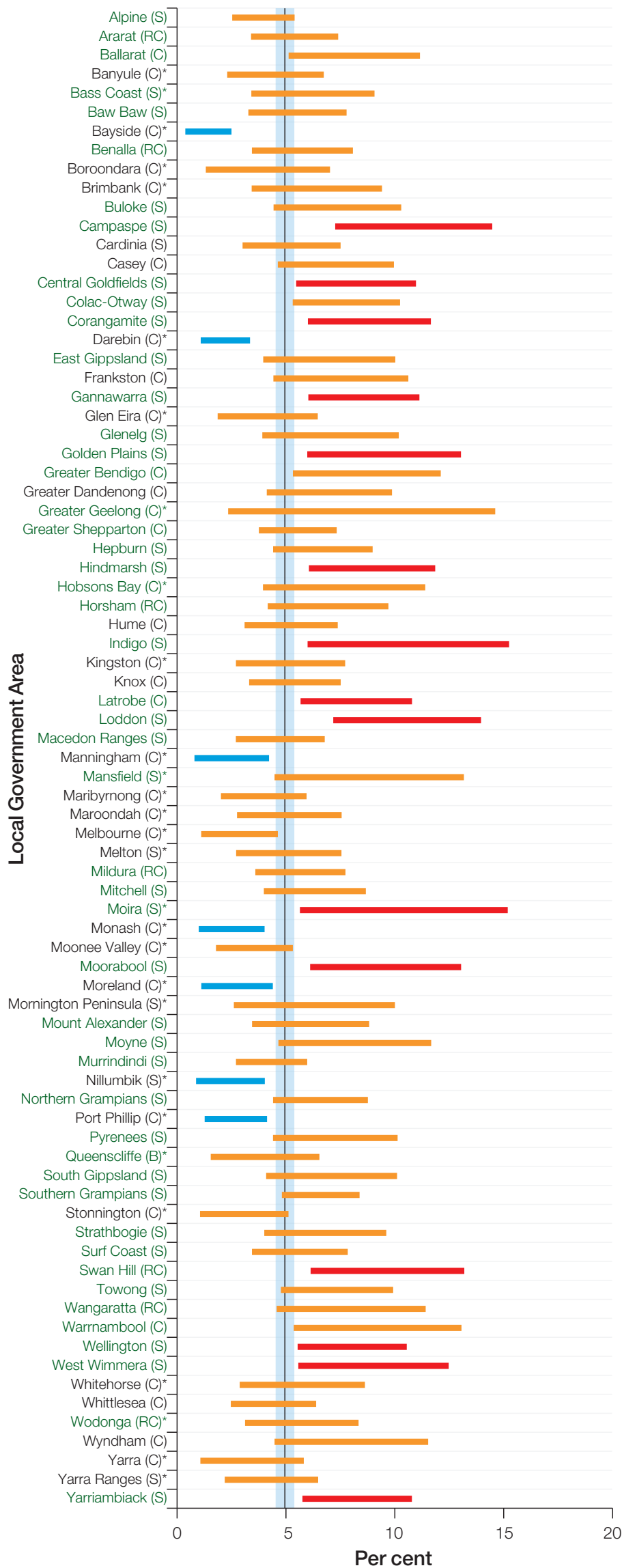
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Figure 4.5: Proportion of people who had not visited a dental professional in the previous 10 years, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10 year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Respondents were next asked 'During the last 12 months, have you avoided or delayed visiting a dental professional because of the cost?'. Table 4.8 shows the proportion of people who avoided or delayed visiting a dental professional due to cost, by age group and sex.

A substantial proportion (30.1 per cent) of Victorian adults had avoided or delayed visiting a dental professional due to the cost. This was significantly higher for women (33.3 per cent) compared with their male counterparts (26.7 per cent).

There were significantly higher proportions of women aged 25–54 years and men aged 25–44 years who had avoided or delayed visiting a dental professional due to the cost compared with all Victorian men and women respectively.

**Table 4.8: Avoided or delayed visiting a dental professional due to cost, by age group and sex, Victoria, 2011–12**

Age group (years)	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
<b>Males</b>						
18–24	19.2	15.0	24.3	80.5	75.5	84.8
25–34	36.1	31.5	41.0	63.8	58.9	68.4
35–44	33.5	30.5	36.6	66.3	63.2	69.3
45–54	30.3	27.8	32.9	69.6	67.0	72.1
55–64	21.4	19.3	23.6	78.3	76.1	80.4
65+	15.7	14.2	17.4	83.9	82.2	85.4
<b>Total</b>	<b>26.7</b>	<b>25.4</b>	<b>28.2</b>	<b>73.0</b>	<b>71.6</b>	<b>74.4</b>
<b>Females</b>						
18–24	28.3	23.8	33.2	71.5	66.5	76.0
25–34	40.8	37.2	44.5	58.8	55.1	62.5
35–44	39.5	37.2	41.9	60.2	57.9	62.6
45–54	37.9	35.8	40.1	61.8	59.6	64.0
55–64	30.9	28.9	32.9	68.8	66.8	70.8
65+	20.1	18.7	21.6	79.4	77.9	80.8
<b>Total</b>	<b>33.3</b>	<b>32.1</b>	<b>34.5</b>	<b>66.4</b>	<b>65.2</b>	<b>67.6</b>
<b>Persons</b>						
18–24	23.7	20.5	27.1	76.1	72.6	79.3
25–34	38.5	35.5	41.5	61.3	58.3	64.3
35–44	36.6	34.7	38.5	63.2	61.3	65.1
45–54	34.2	32.5	35.9	65.6	63.9	67.3
55–64	26.2	24.8	27.7	73.5	71.9	74.9
65+	18.1	17.1	19.2	81.4	80.3	82.5
<b>Total</b>	<b>30.1</b>	<b>29.2</b>	<b>31.0</b>	<b>69.6</b>	<b>68.7</b>	<b>70.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 4.9 shows the proportion of people who had avoided or delayed visiting a dental professional due to cost, by Department of Health region and sex. There were no significant differences between men or women who lived in rural compared with metropolitan Victoria. The only significant regional differences observed were in Gippsland Region for women and Eastern Metropolitan Region for people. There was a significantly higher proportion of women who lived in Gippsland Region who had avoided or delayed visiting a dental professional due to the cost compared with all Victorian women. By contrast there was a significantly lower proportion of people who lived in Eastern Metropolitan Region who had avoided or delayed visiting a dental professional due to the cost compared with all Victorian adults.



**Table 4.9: Avoided or delayed visiting a dental professional because of the cost, by Department of Health region and sex, Victoria, 2011–12**

Region	%	Yes 95% CI		%	No 95% CI		
		LL	UL		LL	UL	
<b>Males</b>							
Eastern Metropolitan	22.7	19.7	26.0	76.9	73.6	80.0	
North & West Metropolitan	28.0	25.7	30.4	71.7	69.3	74.0	
Southern Metropolitan	27.6	24.7	30.7	72.2	69.1	75.2	
<b>Metropolitan males</b>	26.5	24.9	28.1	73.3	71.6	74.8	
Barwon-South Western	28.5	21.7	36.3	71.5	63.7	78.3	
Gippsland	27.3	23.2	31.8	72.7	68.2	76.8	
Grampians	25.1	21.5	29.1	74.1	70.1	77.7	
Hume	26.1	22.7	29.8	73.8	70.0	77.2	
Loddon Mallee	31.2	26.5	36.3	68.6	63.5	73.3	
<b>Rural males</b>	27.7	24.9	30.7	72.1	69.1	74.9	
<b>Total</b>	<b>26.7</b>	<b>25.4</b>	<b>28.2</b>	<b>73.0</b>	<b>71.6</b>	<b>74.4</b>	
<b>Females</b>							
Eastern Metropolitan	30.7	27.5	34.1	68.9	65.5	72.1	
North & West Metropolitan	34.2	32.2	36.2	65.3	63.2	67.2	
Southern Metropolitan	33.3	30.8	36.0	66.5	63.8	69.1	
<b>Metropolitan females</b>	33.0	31.6	34.4	66.6	65.2	68.1	
Barwon-South Western	30.6	25.9	35.7	69.4	64.3	74.1	
Gippsland	39.7	36.0	43.5	60.1	56.3	63.8	
Grampians	31.7	27.9	35.7	68.2	64.2	72.0	
Hume	36.6	33.5	39.7	63.3	60.1	66.4	
Loddon Mallee	35.8	32.4	39.5	64.0	60.3	67.5	
<b>Rural females</b>	34.6	32.6	36.5	65.3	63.4	67.2	
<b>Total</b>	<b>33.3</b>	<b>32.1</b>	<b>34.5</b>	<b>66.4</b>	<b>65.2</b>	<b>67.6</b>	
<b>Persons</b>							
Eastern Metropolitan	26.8	24.6	29.1	72.8	70.5	75.0	
North & West Metropolitan	31.2	29.6	32.7	68.4	66.8	70.0	
Southern Metropolitan	30.5	28.6	32.6	69.3	67.3	71.3	
<b>Metropolitan persons</b>	29.8	28.7	30.9	69.9	68.8	70.9	
Barwon-South Western	29.0	24.7	33.9	71.0	66.1	75.3	
Gippsland	33.6	30.7	36.6	66.3	63.3	69.2	
Grampians	28.1	25.5	30.9	71.5	68.7	74.1	
Hume	31.4	29.0	33.9	68.5	66.0	70.9	
Loddon Mallee	34.2	30.8	37.7	65.6	62.1	69.0	
<b>Rural persons</b>	31.2	29.4	33.0	68.7	66.8	70.4	
<b>Total</b>	<b>30.1</b>	<b>29.2</b>	<b>31.0</b>	<b>69.6</b>	<b>68.7</b>	<b>70.5</b>	

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

# Oral health

Table 4.10 and Figure 4.6 show the proportion of people who had avoided or delayed visiting a dental professional due to cost, by LGA. Significantly higher proportions of people who lived in the LGAs of Casey (C), Macedon Ranges (S), Melton (S), Moreland (C) and Mount Alexander (S) had avoided or delayed visiting a dental professional due to cost compared with all Victorian adults. There was no notable pattern in the LGAs by IRSED quintile.

By contrast significantly lower proportions of people who lived in the LGAs of Banyule (C), Boroondara (C), Glen Eira (C), Glenelg (S), Hindmarsh (S), Horsham (RC), Manningham (C), Melbourne (C), Southern Grampians (S), Stonnington (C), Warrnambool (C) and West Wimmera (S) had avoided or delayed visiting a dental professional due to cost compared with all Victorian adults. There was no notable pattern in the LGAs by IRSED quintile.

Table 4.10: Avoided or delayed visiting a dental professional due to cost, by LGA, Victoria, 2011–12

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Alpine (S)	34.0	25.1	44.2	65.9	55.7	74.8
Ararat (RC)	24.3	19.0	30.5	75.5	69.2	80.8
Ballarat (C)	27.0	22.3	32.2	72.8	67.5	77.5
Banyule (C)	20.8	15.8	26.8	79.1	73.1	84.1
Bass Coast (S)	33.1	26.1	40.9	66.8	59.0	73.9
Baw Baw (S)	35.5	29.6	41.9	64.5	58.1	70.4
Bayside (C)	23.8	17.8	31.1	76.2	68.9	82.2
Benalla (RC)	33.9	25.0	44.2	65.7	55.5	74.7
Boroondara (C)	18.4	14.2	23.4	81.6	76.6	85.8
Brimbank (C)	31.6	26.7	36.9	67.6	62.2	72.5
Buloke (S)	26.7	21.1	33.3	72.9	66.3	78.5
Campaspe (S)	36.2	29.3	43.7	63.7	56.1	70.6
Cardinia (S)	33.1	28.2	38.4	66.9	61.6	71.8
Casey (C)	36.7	31.1	42.7	63.3	57.3	68.9
Central Goldfields (S)	32.8	25.6	40.9	66.9	58.8	74.1
Colac-Otway (S)	31.1	24.8	38.3	68.9	61.7	75.2
Corangamite (S)	27.9	21.0	36.0	72.1	64.0	79.0
Darebin (C)	33.3	27.7	39.4	66.3	60.3	71.9
East Gippsland (S)	33.9	27.4	41.0	66.1	59.0	72.6
Frankston (C)	36.4	30.4	42.8	63.5	57.1	69.5
Gannawarra (S)	35.0	27.6	43.3	65.0	56.7	72.4
Glen Eira (C)	21.1	16.3	27.0	78.4	72.6	83.3
Glenelg (S)	18.1	14.7	22.2	81.9	77.8	85.3
Golden Plains (S)	34.3	27.2	42.2	65.7	57.8	72.8
Greater Bendigo (C)	31.1	23.4	40.0	68.2	59.4	76.0
Greater Dandenong (C)	33.7	28.5	39.4	66.2	60.5	71.4
Greater Geelong (C)	33.0	26.2	40.7	67.0	59.3	73.8
Greater Shepparton (C)	24.4	19.1	30.6	75.5	69.4	80.8
Hepburn (S)	37.9	29.0	47.7	57.4	47.6	66.6
Hindmarsh (S)	19.1	13.6	26.3	80.9	73.7	86.4
Hobsons Bay (C)	29.8	24.3	35.9	69.8	63.7	75.3
Horsham (RC)	19.6	15.0	25.3	80.4	74.7	85.0
Hume (C)	36.0	30.7	41.7	62.3	56.6	67.8
Indigo (S)	26.5	20.8	33.1	73.5	66.9	79.2
Kingston (C)	30.1	24.2	36.7	69.9	63.3	75.8
Knox (C)	35.4	29.8	41.4	64.4	58.4	70.0
Latrobe (C)	32.0	26.4	38.3	67.9	61.7	73.5
Loddon (S)	27.5	20.7	35.7	72.3	64.2	79.2
Macedon Ranges (S)	38.0	31.6	44.9	62.0	55.1	68.4
Manningham (C)	22.0	16.9	28.0	76.7	70.4	81.9
Mansfield (S)	36.2	28.7	44.4	63.6	55.4	71.1
Maribyrnong (C)	33.0	27.0	39.7	66.7	60.1	72.8

Table 4.10: Avoided or delayed visiting a dental professional due to cost, by LGA, Victoria, 2011–12 (continued)

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Maroondah (C)	31.2	25.3	37.9	68.8	62.1	74.7
Melbourne (C)	22.1	17.6	27.3	77.7	72.4	82.2
Melton (S)	40.3	34.9	46.0	59.7	54.0	65.1
Mildura (RC)	34.0	27.9	40.6	66.0	59.4	72.1
Mitchell (S)	33.9	28.2	40.2	65.9	59.6	71.7
Moira (S)	33.7	26.4	41.8	65.9	57.8	73.2
Monash (C)	23.9	18.9	29.7	75.5	69.7	80.5
Moonee Valley (C)	24.1	18.6	30.8	75.1	68.4	80.8
Moorabool (S)	34.3	28.4	40.7	65.4	59.0	71.3
Moreland (C)	37.0	31.0	43.3	63.0	56.7	69.0
Mornington Peninsula (S)	32.9	26.5	40.0	66.5	59.4	72.9
Mount Alexander (S)	42.1	33.8	50.8	57.9	49.2	66.2
Moyne (S)	23.3	17.6	30.3	76.7	69.7	82.4
Murrindindi (S)	29.6	22.1	38.4	70.3	61.6	77.8
Nillumbik (S)	27.6	21.5	34.6	71.9	64.8	78.1
Northern Grampians (S)	22.6	16.9	29.6	77.3	70.3	83.1
Port Phillip (C)	24.3	18.6	31.0	75.7	69.0	81.4
Pyrenees (S)	25.2	20.3	30.8	74.8	69.2	79.7
Queenscliffe (B)	22.3	14.5	32.7	77.7	67.3	85.5
South Gippsland (S)	33.9	25.9	42.9	66.1	57.1	74.1
Southern Grampians (S)	18.7	12.9	26.4	81.2	73.6	87.0
Stonnington (C)	21.6	16.4	27.8	78.4	72.2	83.6
Strathbogie (S)	26.0	20.0	33.0	74.0	67.0	80.0
Surf Coast (S)	27.7	21.1	35.3	72.3	64.6	78.9
Swan Hill (RC)	34.6	28.1	41.7	65.4	58.3	71.9
Towong (S)	24.2	19.5	29.5	75.8	70.5	80.5
Wangaratta (RC)	32.2	26.2	39.0	67.8	61.0	73.8
Warrnambool (C)	17.1	13.2	21.9	82.9	78.1	86.8
Wellington (S)	32.6	25.1	41.1	67.0	58.5	74.5
West Wimmera (S)	22.4	17.6	28.1	77.1	71.4	82.0
Whitehorse (C)	25.1	19.8	31.3	74.7	68.5	80.0
Whittlesea (C)	34.7	29.7	40.1	64.9	59.6	69.9
Wodonga (RC)	34.8	28.4	41.9	65.0	58.0	71.4
Wyndham (C)	33.2	28.3	38.5	66.1	60.8	71.0
Yarra (C)	23.6	17.8	30.7	76.4	69.3	82.2
Yarra Ranges (S)	30.3	24.6	36.6	69.3	63.0	75.0
Yarriambiack (S)	23.1	17.5	29.9	76.3	69.5	81.9
<b>Victoria</b>	<b>29.8</b>	<b>28.9</b>	<b>30.7</b>	<b>70.0</b>	<b>69.0</b>	<b>70.9</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

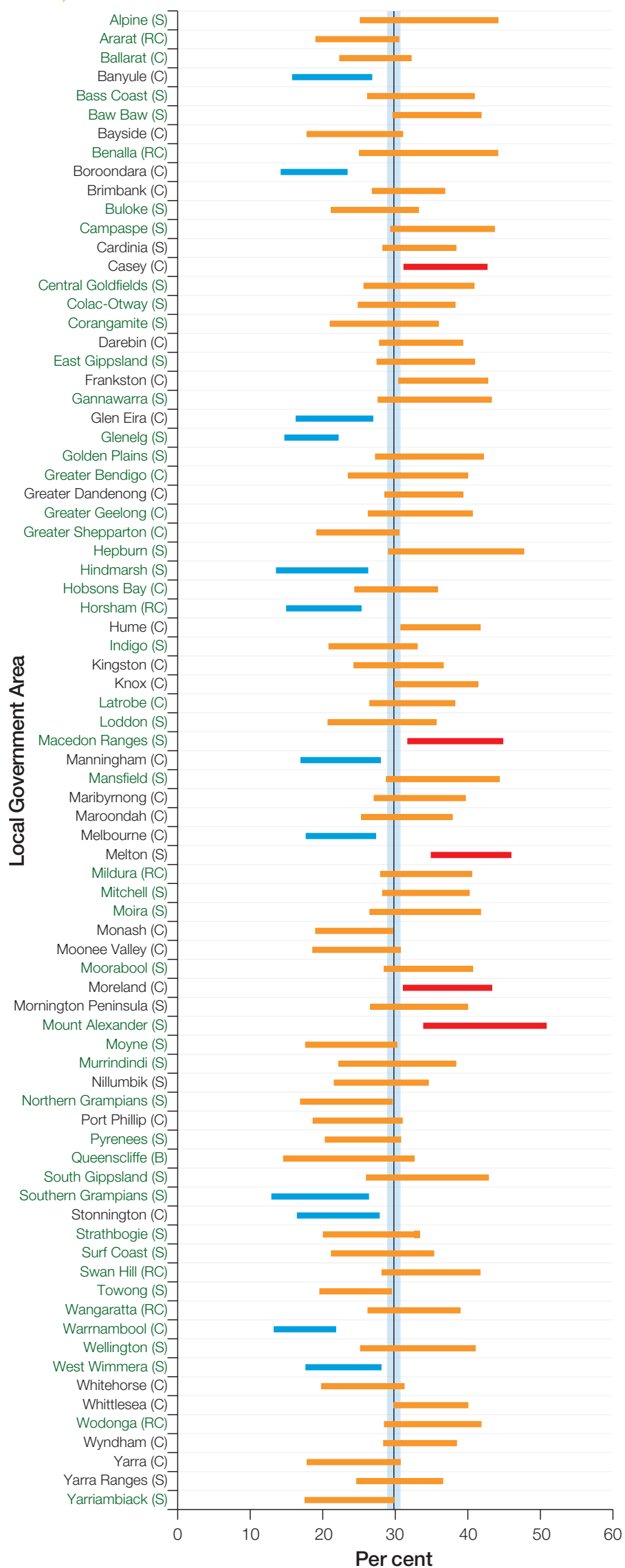
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Figure 4.6: Proportion of the adult population who avoided or delayed visiting a dental professional due to cost, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10 year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

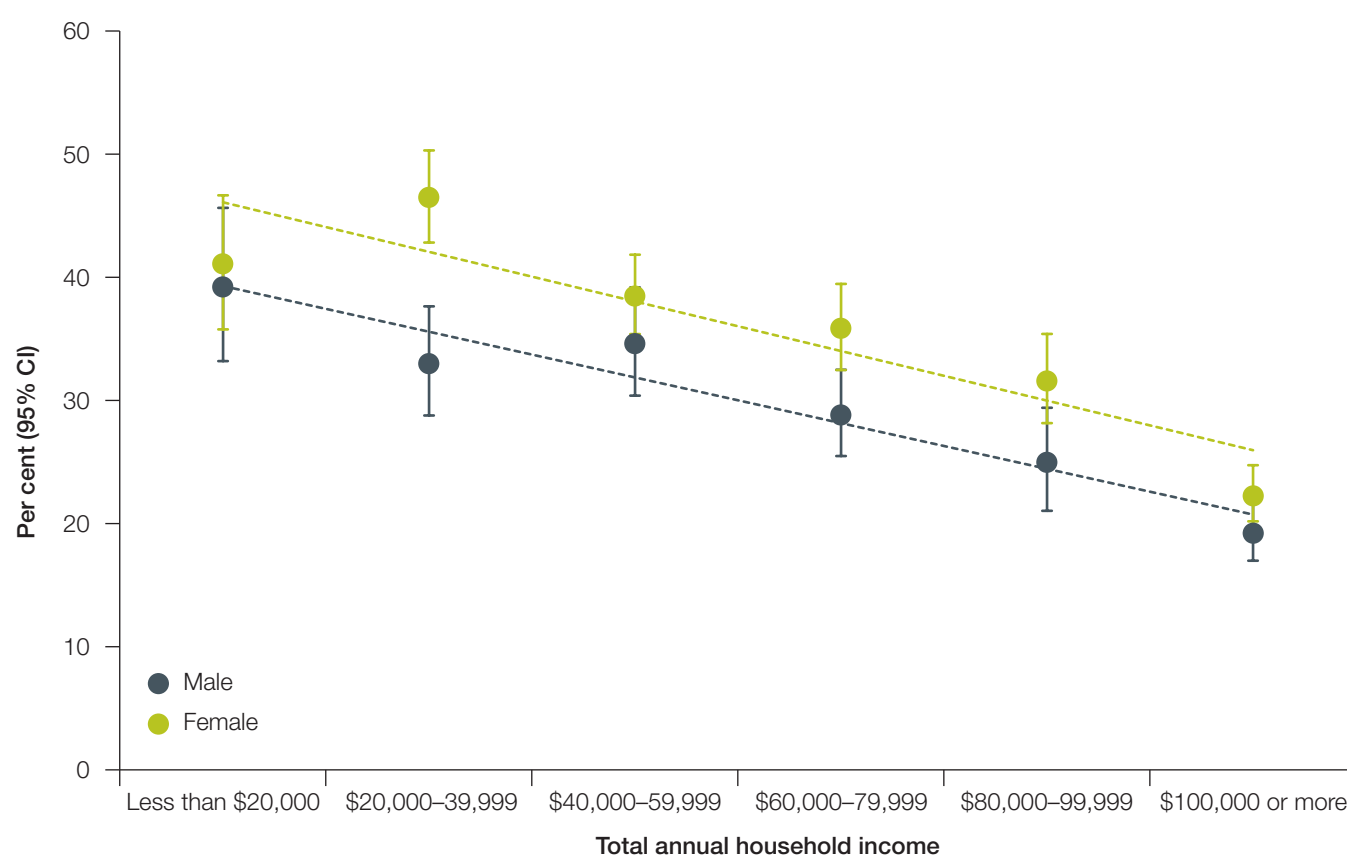
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

We investigated the relationship, if any, between SES and the age-adjusted prevalence of the proportion of people who avoided or delayed visiting a dental professional due to the cost, using total annual household income as a measure of SES (Figure 4.7). We found that the proportion of people who avoided or delayed visiting a dental professional due to the cost significantly decreased with increasing total annual household income, in both men and women. This suggests that those with lower household incomes may have been avoiding or delaying seeking dental care due to lack of affordability.

**Figure 4.7: Proportion of people who avoided or delayed visiting a dental professional due to cost, by total annual household income and sex, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for statistical significance.

## Discussion

### Interpretation of the findings

The term 'oral' will be used in this section as it better captures all the conditions of the mouth, not just the teeth (dental). While most Victorians reported that they enjoyed good oral health (approximately 75 per cent), attended the dentist at least every two years (74 per cent) and did not avoid or delay a dental visit due to cost (70 per cent), there was a significant minority who had poor oral health and did not make regular dental visits. One-quarter (25 per cent) of people reported that their oral health was fair, poor or that they had no natural teeth.

Table 4.11 summarises the factors associated with poorer oral health in Victoria. The key factors are gender, age, SES and geographic location. Men were more likely to report fair or poor self-rated oral health and less likely to have visited a

dentist in the preceding 12 months compared with their female counterparts. Almost a third of adult Victorians reported that they had avoided or delayed a dental visit because of the cost, significantly higher in women than men. Older people reported poorer oral health; those aged 65 years or over were more than twice as likely to have reported fair or poor dental health compared with those aged 18–24 years.

There was a strong socioeconomic gradient in self-rated oral health where the proportion reporting fair or poor oral health significantly declined with increasing total annual household income. Fair or poor self-rated oral health was also associated with lower educational levels, high or very high psychological distress levels, physical inactivity, not meeting fruit and vegetable consumption guidelines, smoking and fair or poor self-reported

general health status. In women, fair or poor self-rated oral health was also associated with obesity and diabetes, while in men it was associated with not being in the labour force, long-term risk of alcohol-related harm and underweight. There were also strong socioeconomic gradients for recency of dental visit and cost being a barrier to dental care.

Rural and metropolitan residents had similar levels of self-rated oral health; however, more rural residents reported having no natural teeth. Considerable variations were found at the LGA level, which generally was associated with the SES of residents as measured by the IRSED quintile indicator of the LGA. For example Hindmarsh, which is in the lowest IRSED quintile, had three times the proportion of residents with poorer oral health than Boroondara, which is in the highest IRSED quintile (42 per cent versus 13 per cent).

There was a strong gender bias in the self-rated oral health status of people who said that they had diabetes. Approximately one-third (34 per cent) of females with diabetes rated their oral health as poor compared with approximately one-fifth (22 per cent) of those without diabetes. There was no appreciable difference in the self-rated oral health of men with (27 per cent) or without (26 per cent) diabetes. As people with diabetes have a greater risk of gum disease, it may be that men who have been diagnosed by a doctor with diabetes, are not aware of their gum disease.

**Table 4.11: Summary of factors associated with poorer oral health**

Factors	Fair or poor self-rated oral health	Less recent dental visit	Cost as a barrier to accessing dental care
<b>Gender</b>	Men	Men	Women
<b>Age</b>	Older people	Older people	Middle aged people
<b>Socioeconomic status (SES)</b>	Low SES	Low SES	Low SES
<b>Residence – metropolitan or rural</b>	*	*	*
<b>Residence – by LGA</b>	Low SES	Low SES	Low SES

\* not significantly different

### Other sources of data

Table 4.12 summarises the comparison of survey findings with other data sources. The National Survey of Adult Oral Health (NSAOH) 2004–06 includes similar questions to the Victorian Population Health Survey (AIHW Dental Statistics and Research Unit 2008; Slade 2007). However, it is not possible to compare these statistics with the Victorian Population Health Survey findings for all age groups. The Victorian Population Health Survey interviewed adults aged 18 or over, while the NSAOH surveyed a nationally representative sample of Australians aged 15 or over. The data was reported by the following age groups: 15–34, 35–54 and 55 years or over. Victoria participated in the NSAOH that was conducted from 2004 to 2006. It is anticipated this will be repeated, as recommended by the National oral health plan, in the period 2014–2016. The NSAOH reported that Victorians were equally as likely as other Australians (aged 15 years or over) to report that their oral health was fair or poor (13.9 per cent and 16.4 per cent, respectively). The difference was not statistically significant. However, both NSAOH estimates were significantly lower than the estimate reported in the 2011–12 Victorian Population Health Survey. Whether this is largely due to methodological differences between the two surveys and/or reflects a decline in oral health since 2006 cannot be determined.

Over the past 25 years there has been a general increase in the proportion of adults visiting dental professionals within the previous 12 months of the survey. In the NSAOH the time since the last dental visit was also assessed in the interview by asking ‘How long ago did you last see a dental professional about your teeth, dentures or gums?’ A little less than 60 per cent (59.7 per cent versus 59.4 per cent) of Victorians and other Australians had visited a dental professional within the preceding 12 months. The NSAOH noted that being dentate, insured, residing in the metropolitan region, living in high SES areas and being ineligible for public dental care were all associated with a recent dental visit. Cost as a barrier was also assessed in the NSAOH, with almost a third of Victorians (29.2 per cent) as likely as other Australians (30.0 per cent) aged 15 years or over to have avoided or delayed a dental visit because of cost. The NSAOH also observed that women were more likely than men to report cost as a barrier in the same direction as reported in the 2011–12 Victorian Population Health Survey.

The Australian Research Centre for Population Oral Health (ARCPOH) conducted the National Dental Telephone Interview Survey in 2010, including questions about insurance and use of dental services (AIHW 2011). ARCPOH reported that approximately two-thirds (64 per cent) of Australians aged five



or over had visited a dental professional within the preceding 12 months. This number was higher among females (67.4 per cent) than males (60.6 per cent), while 28.2 per cent of Australians reported cost as a barrier for avoiding or delaying a dental visit. They also observed a significant relationship with SES, which is similar to the 2011–12 Victorian Population Health Survey.

**Table 4.12: Comparison with other data sources**

Data sources	Fair or poor self-rated oral health		Visited a dentist within previous 12 months		Cost as a barrier to accessing dental care	
	%	95% CI	%	95% CI	%	95% CI
VPHS 2011–12	19.1	(18.4–19.9)	56.7	(55.7–57.7)	30.1	(29.2–31.0)
NSAOH 2004–06 (Victoria)	13.9	(12.2–15.8)	59.7	(57.9–62.3)	29.2	(27.0–31.5)
NSAOH 2004–06 (Australia)	16.4	(15.5–17.4)	59.4	(58.2–60.5)	30.0	(28.9–31.2)
NDTIS (Australia)	-		64.0	(62.5–65.5)	28.2	(26.7–29.6)

NSAOH = National Survey of Adult Oral Health; NDTIS = National Dental Telephone Interview Survey.  
95% CI = 95 per cent confidence interval.

### Concluding remarks

While the majority of Victorians enjoy good oral health there is a significant minority who are burdened by oral disease. Lower socioeconomic groups are more likely to report poorer oral health and that cost is a barrier to dental visits. They are less likely to make regular dental visits.

These results are consistent with national and international evidence that the broader determinants of oral health are those that affect the general health of individuals. The 'upstream' factors such as economic, social and environmental conditions are crucial because they impact on resources and oral health knowledge, skills and behaviour (Department of Health 2013). Population-wide as well as targeted approaches are required to improve the health of all Victorians.

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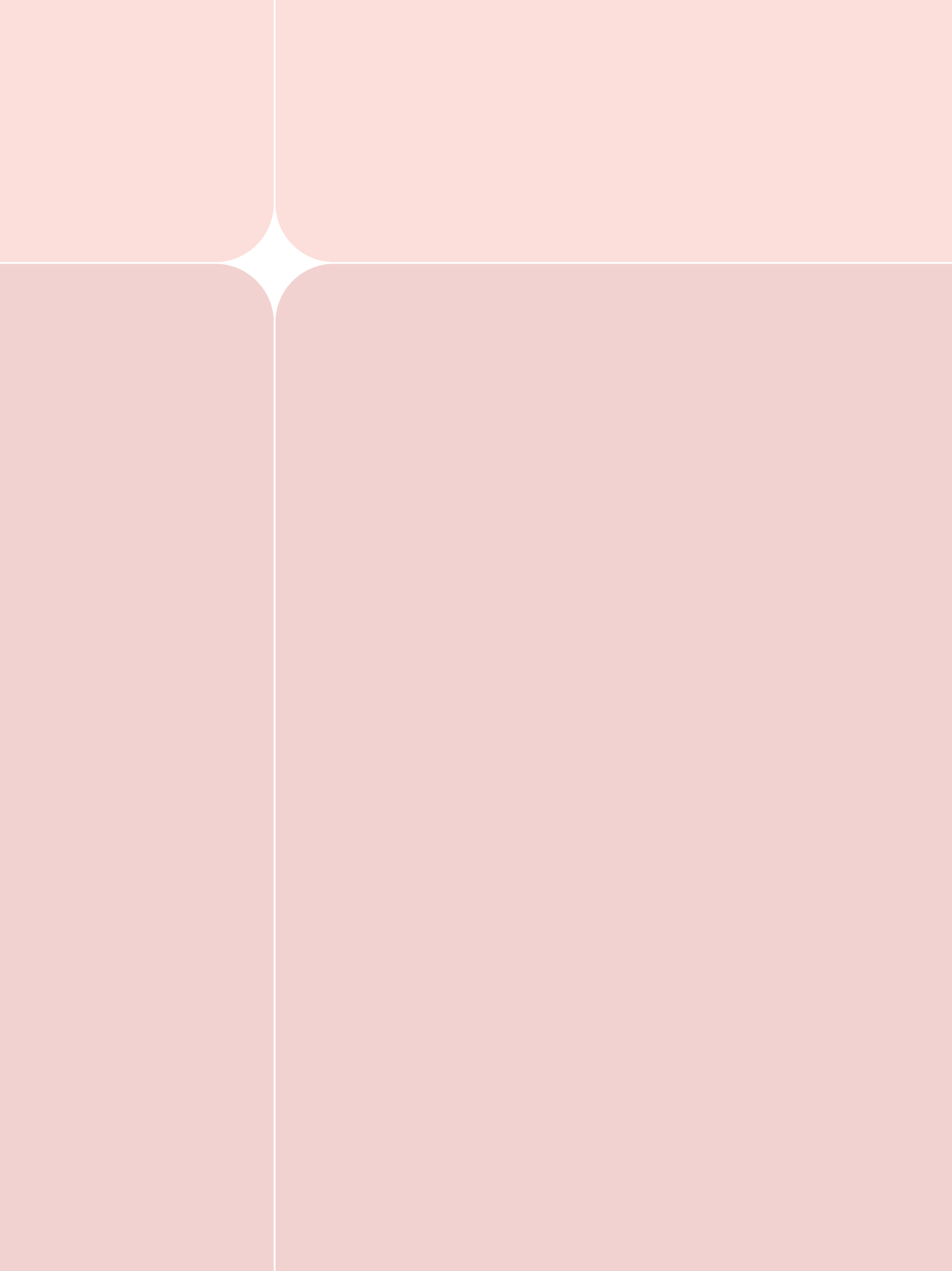
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## 5. Self-reported health and selected chronic diseases

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK





## 5. Self-reported health and selected chronic diseases

### Introduction

Self-reported health status has been shown to be a reliable predictor of ill-health, future healthcare use and premature mortality, independent of other medical, behavioural or psychosocial risk factors (Burstrom & Fredlund 2001; Idler & Benyamini 1997; Miilunpalo et al. 1997). Survey respondents were asked to state their perception of their current health status by indicating whether, in general, they would say their health was excellent, very good, good, fair or poor.

Respondents were also asked whether they had at any time in their life been told by a doctor that they had any of the following conditions: heart disease, stroke, cancer, osteoporosis, arthritis and, for the first time, systemic lupus erythematosus (SLE). If respondents indicated that they had been told by a doctor that they had arthritis, they were then asked about the type of arthritis that they had.

### Survey results

#### Self-reported health

- Almost half (46.6 per cent) of Victorian adults reported their health status as excellent or very good. A further 37.2 per cent reported their health status as good, while 16.0 per cent reported their health status as fair or poor. There was no difference in self-reported health status between males and females.
- Self-reported health, regardless of health status category, has remained constant in Victoria from 2005 to 2011–12.
- Self-reported health status was similar between adults who lived in rural and metropolitan Victoria.
- There were 12 LGAs where the proportion of adults who reported excellent or very good health was higher compared with all Victorian adults – Bayside (C), Boroondara (C), Frankston (C), Glen Eira (C), Melbourne (C), Mount Alexander (C), Moyne (S), Nillumbik (S), Port Phillip (C), Queenscliffe (B), Strathbogie (S) and Yarra (C).
- In contrast, the proportion of adults who reported fair or poor health was higher in the LGAs of Brimbank (C), Greater Dandenong (C), Hume (C), Whittlesea (C) and Yarriambiack (S) compared with all Victorian adults.

#### Selected chronic diseases

- In 2011–12 the prevalence of heart disease in Victorian adults was 7.0 per cent, stroke was 2.4 per cent, cancer was 7.0 per cent, osteoporosis was 5.3 per cent, SLE was 0.4 per cent and arthritis was 19.9 per cent.
- Regarding specific types of arthritis there was a higher prevalence of osteoarthritis (14.1 per cent) compared with rheumatoid arthritis (3.3 per cent). The prevalence of both types of arthritis was higher among women compared with men. Among obese adult Victorians, there was a higher prevalence of all types of arthritis compared with the prevalence of arthritis in all Victorians.

- The prevalence of heart disease was higher in men compared with women, while the prevalence of SLE and arthritis was higher in women compared with men. The prevalence of osteoporosis was higher in men aged 65 years or over and women and adults 55 years or over compared with the prevalence in all Victorian men, women and adults, respectively. There was no difference in the prevalence of stroke and cancer between the sexes.
- The prevalence of heart disease, stroke, cancer, osteoporosis or SLE was similar between adults who lived in rural and metropolitan Victoria, regardless of gender. In contrast, there was a higher prevalence of arthritis in men and adults but not women who lived in rural compared with metropolitan Victoria.
- Compared with all Victorian adults the prevalence of heart disease was higher in adults who lived in the LGAs of Casey (C) and Whittlesea (C).
- The prevalence of cancer was higher in adults who lived in the LGAs of Alpine (S), Gannawarra (S) and Strathbogie (S) compared with all Victorian adults.
- There was a higher prevalence of osteoporosis among people who lived in the LGAs of Hume (C) and Strathbogie (S) compared with all Victorian adults.
- The prevalence of SLE was higher in people who lived in the LGAs of Glenelg (S) and West Wimmera (S) compared with all Victorian adults.
- There were nine LGAs where the prevalence of arthritis was higher compared with all Victorian adults – Banyule (C), Central Goldfields (S), Gannawarra (S), Glenelg (S), Greater Bendigo (C), Pyrenees (S), Strathbogie (S), West Wimmera (S) and Yarriambiack (S).

## Self-reported health

Table 5.1 shows self-reported health status, by sex. Overall, 11.7 per cent of people reported their health status as being 'excellent', 34.9 per cent reported their health status as 'very good', 37.2 per cent reported their health status as 'good', 13.0 per cent reported their health status as 'fair' and 3.0 per cent reported their health status as 'poor'. There were no significant differences between the sexes.

**Table 5.1: Self-reported health status, by sex, Victoria, 2011–12**

	Excellent			Very good			Good			Fair			Poor		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>	11.7	10.8	12.7	33.7	32.2	35.2	38.1	36.6	39.6	13.6	12.7	14.7	2.7	2.2	3.3
<b>Females</b>	11.5	10.8	12.2	36.1	34.9	37.4	36.5	35.3	37.8	12.3	11.5	13.1	3.4	3.0	3.8
<b>Persons</b>	11.7	11.1	12.3	34.9	33.9	35.9	37.2	36.3	38.2	13.0	12.4	13.6	3.0	2.7	3.4

Data are age standardised to the 2011 Victorian population

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.



Table 5.2 shows self-reported health status, by age group and sex. In this table and those that follow, 'excellent' and 'very good' health status have been combined, as have 'fair' and 'poor' health status. Overall, the proportion of Victorian adults who reported excellent or very good health was 46.6 per cent, the proportion who reported good health was 37.2 per cent, and the proportion who reported fair or poor health was 16.0 per cent. There was no difference between the sexes.

There appeared to be an age-related pattern in the proportion of both men and women who reported fair or poor health, where the proportion increased with age. A significantly lower proportion of men and women aged 18–24 years reported fair

or poor health, while a significantly higher proportion of those aged 65 years or over reported fair or poor health compared with all men and women, respectively. This would be expected given that health usually deteriorates with age.

By contrast there did not appear to be an incremental age-related pattern in the proportion of adults who reported excellent or very good health, although a significantly lower proportion of those aged 65 years or over reported excellent or very good health.

**Table 5.2: Self-reported health status, by age group and sex, Victoria, 2011–12**

Age group (years)	Excellent / Very good			Good			Fair / Poor		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
18–24	53.1	47.4	58.8	37.2	31.8	42.9	9.7	6.6	14.0
25–34	46.2	41.2	51.3	40.1	35.3	45.2	13.7	10.7	17.4
35–44	47.0	43.8	50.2	37.9	34.9	41.0	15.1	12.8	17.7
45–54	45.4	42.6	48.1	38.6	35.9	41.3	16.0	14.1	18.2
55–64	42.8	40.2	45.4	38.1	35.5	40.7	18.8	16.9	20.9
65+	39.8	37.8	41.9	37.1	35.1	39.2	22.3	20.6	24.1
<b>Total</b>	<b>45.4</b>	<b>43.8</b>	<b>46.9</b>	<b>38.1</b>	<b>36.6</b>	<b>39.6</b>	<b>16.4</b>	<b>15.3</b>	<b>17.5</b>
<b>Females</b>									
18–24	48.0	42.6	53.4	43.1	37.9	48.6	8.9	6.5	12.1
25–34	45.9	42.2	49.7	40.9	37.2	44.7	13.1	10.7	15.9
35–44	54.8	52.4	57.2	32.0	29.8	34.2	13.1	11.5	15.0
45–54	49.1	46.9	51.3	33.7	31.7	35.9	17.0	15.4	18.8
55–64	46.7	44.6	48.9	35.0	33.0	37.1	17.9	16.3	19.6
65+	41.7	40.0	43.4	35.2	33.5	36.9	22.6	21.1	24.2
<b>Total</b>	<b>47.6</b>	<b>46.3</b>	<b>48.9</b>	<b>36.5</b>	<b>35.3</b>	<b>37.8</b>	<b>15.6</b>	<b>14.8</b>	<b>16.5</b>
<b>Persons</b>									
18–24	50.6	46.7	54.6	40.1	36.3	44.0	9.3	7.2	11.9
25–34	46.1	42.9	49.2	40.5	37.5	43.7	13.4	11.4	15.7
35–44	51.0	49.0	53.0	34.9	33.0	36.8	14.1	12.7	15.7
45–54	47.3	45.5	49.0	36.1	34.4	37.8	16.5	15.2	17.9
55–64	44.8	43.1	46.5	36.5	34.9	38.2	18.4	17.1	19.7
65+	40.8	39.5	42.2	36.1	34.8	37.4	22.5	21.3	23.6
<b>Total</b>	<b>46.6</b>	<b>45.6</b>	<b>47.6</b>	<b>37.2</b>	<b>36.3</b>	<b>38.2</b>	<b>16.0</b>	<b>15.3</b>	<b>16.7</b>

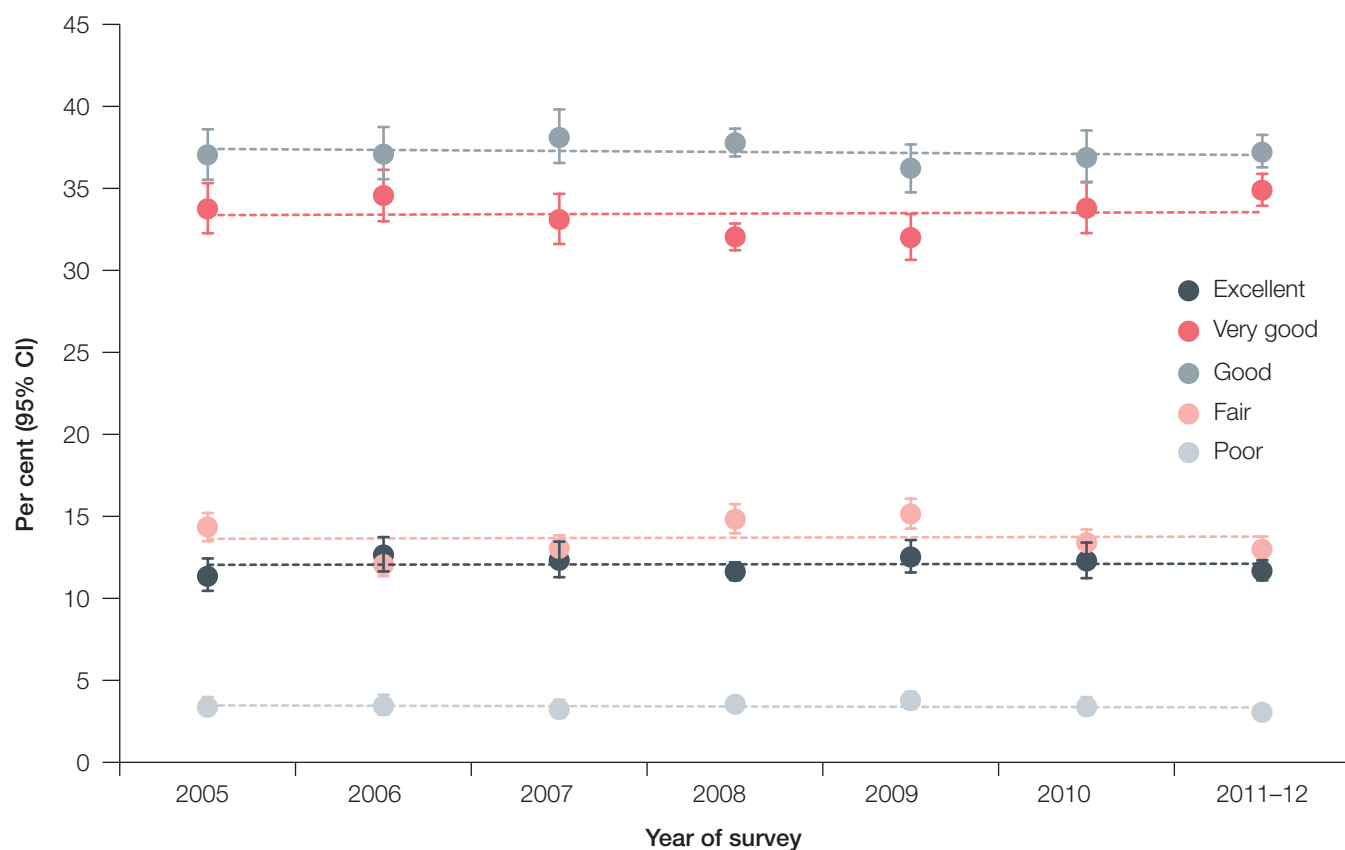
Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

The trend over time of age-adjusted self-reported health status is presented in Figure 5.1. Self-reported health regardless of health status category remained constant in Victoria from 2005 to 2011–12.

**Figure 5.1: Self-reported health status from 2005 to 2011–12, Victoria**



Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares regression was used to test for trends over time.

Table 5.3 shows self-reported health status by Department of Health region and sex. There were no significant differences in self-reported health status between men or women who lived in rural Victoria compared with their metropolitan counterparts. However, the proportion of women and adults who reported fair or poor health was significantly higher in women and people who lived in North & West Metropolitan Region compared with all Victorian women and adults, respectively.



Table 5.3: Self-reported health status, by Department of Health region and sex, Victoria, 2011–12

Region	Excellent / Very good			Good			Fair / Poor		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
Eastern Metropolitan	48.9	45.1	52.7	37.2	33.6	40.9	13.7	11.5	16.4
North & West Metropolitan	43.5	40.9	46.2	36.9	34.4	39.5	19.4	17.4	21.6
Southern Metropolitan	46.8	43.5	50.1	37.9	34.9	41.1	15.2	13.1	17.7
<b>Metropolitan males</b>	46.0	44.2	47.8	37.3	35.6	39.1	16.6	15.3	17.9
Barwon-South Western	41.8	34.9	49.1	43.9	37.1	51.0	13.8	10.8	17.5
Gippsland	40.2	35.7	44.9	44.2	39.6	48.8	15.5	12.9	18.5
Grampians	48.7	43.7	53.7	35.9	31.2	40.9	15.2	12.6	18.1
Hume	42.5	38.6	46.5	42.4	38.5	46.5	14.8	12.4	17.4
Loddon Mallee	46.7	41.7	51.8	34.9	30.8	39.3	18.3	14.0	23.5
<b>Rural males</b>	43.5	40.5	46.5	40.8	37.7	43.9	15.5	13.7	17.4
<b>Total</b>	<b>45.4</b>	<b>43.8</b>	<b>46.9</b>	<b>38.1</b>	<b>36.6</b>	<b>39.6</b>	<b>16.4</b>	<b>15.3</b>	<b>17.5</b>
<b>Females</b>									
Eastern Metropolitan	48.1	44.5	51.6	37.9	34.4	41.5	13.8	12.1	15.7
North & West Metropolitan	44.3	42.3	46.4	36.9	34.8	38.9	18.6	17.1	20.3
Southern Metropolitan	49.6	46.8	52.3	34.9	32.3	37.7	15.3	13.5	17.3
<b>Metropolitan females</b>	47.3	45.7	48.8	36.2	34.8	37.7	16.3	15.3	17.4
Barwon-South Western	51.3	45.9	56.7	34.7	29.6	40.1	13.9	10.5	18.1
Gippsland	47.1	43.6	50.5	37.8	34.2	41.5	14.9	12.5	17.7
Grampians	47.4	43.5	51.4	38.4	34.4	42.5	13.8	11.2	16.9
Hume	50.5	47.2	53.7	35.0	32.0	38.1	14.3	12.3	16.6
Loddon Mallee	45.0	41.4	48.7	41.9	38.4	45.5	12.9	11.1	15.1
<b>Rural females</b>	48.4	46.4	50.4	37.4	35.4	39.5	13.9	12.6	15.4
<b>Total</b>	<b>47.6</b>	<b>46.3</b>	<b>48.9</b>	<b>36.5</b>	<b>35.3</b>	<b>37.8</b>	<b>15.6</b>	<b>14.8</b>	<b>16.5</b>
<b>Persons</b>									
Eastern Metropolitan	48.7	46.1	51.3	37.0	34.5	39.5	14.1	12.6	15.8
North & West Metropolitan	43.9	42.2	45.6	36.9	35.2	38.5	19.1	17.8	20.4
Southern Metropolitan	48.2	46.1	50.4	36.4	34.4	38.5	15.2	13.8	16.8
<b>Metropolitan persons</b>	46.7	45.5	47.9	36.7	35.5	37.9	16.5	15.6	17.3
Barwon-South Western	46.7	41.8	51.6	39.1	34.3	44.2	13.9	11.4	16.9
Gippsland	43.6	40.7	46.6	41.1	38.2	44.2	15.0	13.2	17.1
Grampians	48.2	44.9	51.6	36.9	33.7	40.2	14.5	12.6	16.6
Hume	46.5	43.9	49.2	38.7	36.1	41.4	14.5	12.9	16.2
Loddon Mallee	45.3	41.8	48.8	38.8	35.5	42.1	15.8	12.9	19.3
<b>Rural persons</b>	45.9	44.1	47.8	39.1	37.2	41.0	14.7	13.5	16.0
<b>Total</b>	<b>46.6</b>	<b>45.6</b>	<b>47.6</b>	<b>37.2</b>	<b>36.3</b>	<b>38.2</b>	<b>16.0</b>	<b>15.3</b>	<b>16.7</b>

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

## Self-reported health and selected chronic diseases

Table 5.4, Figure 5.2 and Map 5.1 show self-reported health status by LGA. The proportion of adults who reported excellent or very good health was significantly higher in the LGAs of Bayside (C), Boroondara (C), Frankston (C), Glen Eira (C), Melbourne (C), Mount Alexander (S), Moyne (S), Nillumbik (S), Port Phillip (C), Queenscliffe (B), Strathbogie (S) and Yarra (C) compared with all Victorian adults. With the exception of the LGAs of Mount Alexander (S) and Strathbogie (S), which are of low SES (IRSED quintile 1 or 2), seven of the 12 LGAs are of high SES (IRSED quintile 4 or 5) and the remaining three are neither low nor high SES (IRSED quintile 3). This is not a surprising finding given that better health outcomes are associated with higher SES.

By contrast the proportion of adults who reported excellent or very good health was significantly lower in the LGAs of Bass Coast (S), Brimbank (C), Greater Dandenong (C) and Whittlesea (C) compared with all Victorian adults. These LGAs are of low SES (IRSED quintile 1 or 2).

The proportion of adults who reported fair or poor health was significantly higher in the LGAs of Brimbank (C), Greater Dandenong (C), Hume (C), Whittlesea (C) and Yarriambiack (S) compared with all Victorian adults. These LGAs are of low SES (IRSED quintile 1 or 2).

By contrast the proportion of adults who reported fair or poor health was significantly lower in the LGAs of Benalla (RC), Boroondara (C), Colac-Otway (S), Glen Eira (C), Hepburn (S), Manningham (C), Mansfield (S), Nillumbik (S), Queenscliffe (B), Southern Grampians (S), Surf Coast (S), Towong (S), Wangaratta (RC) and Warrnambool (C) compared with all Victorian adults. There was no pattern in the SES level of the latter LGAs, determined by ISRED quintile.

Table 5.4: Self-reported health status, by LGA, Victoria, 2011–12

LGA	Excellent / Very good			Good			Fair / Poor		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	47.0	37.6	56.6	33.6	25.3	43.1	19.3	11.7	30.0
Ararat (RC)	44.6	37.5	51.8	41.0	33.9	48.5	14.4	10.3	19.6
Ballarat (C)	50.9	44.4	57.4	36.4	30.2	43.0	12.3	9.0	16.5
Banyule (C)	52.2	46.2	58.2	31.0	25.8	36.7	16.7	12.3	22.3
Bass Coast (S)	35.7	29.1	42.9	46.6	38.6	54.6	17.7	12.1	25.2
Baw Baw (S)	49.7	43.3	56.0	37.4	31.5	43.7	12.9	9.4	17.3
Bayside (C)	60.4	52.4	67.9	31.0	24.3	38.5	8.5*	4.2	16.4
Benalla (RC)	50.1	41.1	59.0	40.0	31.4	49.3	9.8	7.2	13.0
Boroondara (C)	56.7	49.6	63.5	33.0	26.6	40.0	10.3	7.5	13.9
Brimbank (C)	35.2	30.0	40.7	41.1	35.5	46.9	23.8	19.4	28.8
Buloke (S)	40.8	33.1	49.0	37.6	31.3	44.2	21.6	14.9	30.1
Campaspe (S)	45.9	38.8	53.1	39.1	32.9	45.6	15.0	10.2	21.6
Cardinia (S)	48.0	42.3	53.8	38.4	32.9	44.2	12.9	9.8	16.7
Casey (C)	41.6	35.7	47.7	41.1	35.4	47.2	17.3	13.6	21.8
Central Goldfields (S)	40.7	30.6	51.7	41.2	31.3	51.9	18.0	13.9	23.0
Colac-Otway (S)	52.7	45.7	59.6	37.8	31.3	44.9	9.3	6.8	12.6
Corangamite (S)	43.0	35.4	50.9	42.6	34.9	50.6	14.3	10.7	18.9
Darebin (C)	42.4	36.7	48.3	36.7	30.9	43.0	20.8	16.5	26.0
East Gippsland (S)	43.4	36.5	50.5	38.7	32.0	45.9	17.9	13.2	23.7
Frankston (C)	54.0	47.7	60.2	31.8	26.4	37.8	13.9	10.2	18.6
Gannawarra (S)	39.3	31.5	47.7	45.5	37.6	53.6	14.9	10.5	20.8
Glen Eira (C)	55.4	49.0	61.6	34.7	28.8	41.1	9.6	7.1	12.8
Glenelg (S)	45.4	37.6	53.4	39.9	32.3	48.0	14.7	11.5	18.7
Golden Plains (S)	53.2	46.8	59.5	31.9	26.0	38.5	14.9	11.5	19.1
Greater Bendigo (C)	43.8	36.1	51.8	38.9	31.1	47.3	17.2	11.2	25.5
Greater Dandenong (C)	31.0	25.9	36.6	39.8	34.4	45.6	29.1	24.1	34.6
Greater Geelong (C)	45.1	37.9	52.5	39.1	32.0	46.6	15.2	11.3	20.2
Greater Shepparton (C)	45.1	37.9	52.5	39.6	32.5	47.2	15.1	11.5	19.8
Hepburn (S)	50.1	41.9	58.2	38.2	30.3	46.6	11.5	8.9	14.7
Hindmarsh (S)	44.0	35.9	52.5	36.0	29.1	43.5	19.6	13.9	27.0
Hobsons Bay (C)	42.9	36.8	49.2	41.3	35.3	47.6	15.8	12.3	20.2
Horsham (RC)	43.9	33.7	54.5	37.0	29.3	45.3	18.7	11.4	29.2
Hume (C)	39.8	34.3	45.7	38.0	32.5	43.8	21.8	17.5	26.9
Indigo (S)	52.8	45.4	60.0	33.8	27.2	41.1	13.4	9.1	19.5
Kingston (C)	46.5	39.8	53.3	36.2	30.0	42.9	17.4	13.0	22.8
Knox (C)	42.7	37.0	48.6	39.8	34.2	45.8	17.4	13.4	22.2
Latrobe (C)	40.7	34.8	46.9	43.7	37.6	49.9	15.3	12.1	19.3
Loddon (S)	46.6	38.3	55.1	34.7	28.0	42.1	18.4	12.6	26.0
Macedon Ranges (S)	51.1	44.6	57.6	35.7	29.5	42.3	13.1	9.5	17.8
Manningham (C)	53.2	46.3	59.9	37.3	30.7	44.4	9.1	6.7	12.2
Mansfield (S)	53.2	44.8	61.5	36.7	28.7	45.5	9.9	7.1	13.5
Maribyrnong (C)	49.0	42.8	55.3	33.9	28.1	40.3	16.9	13.4	21.1

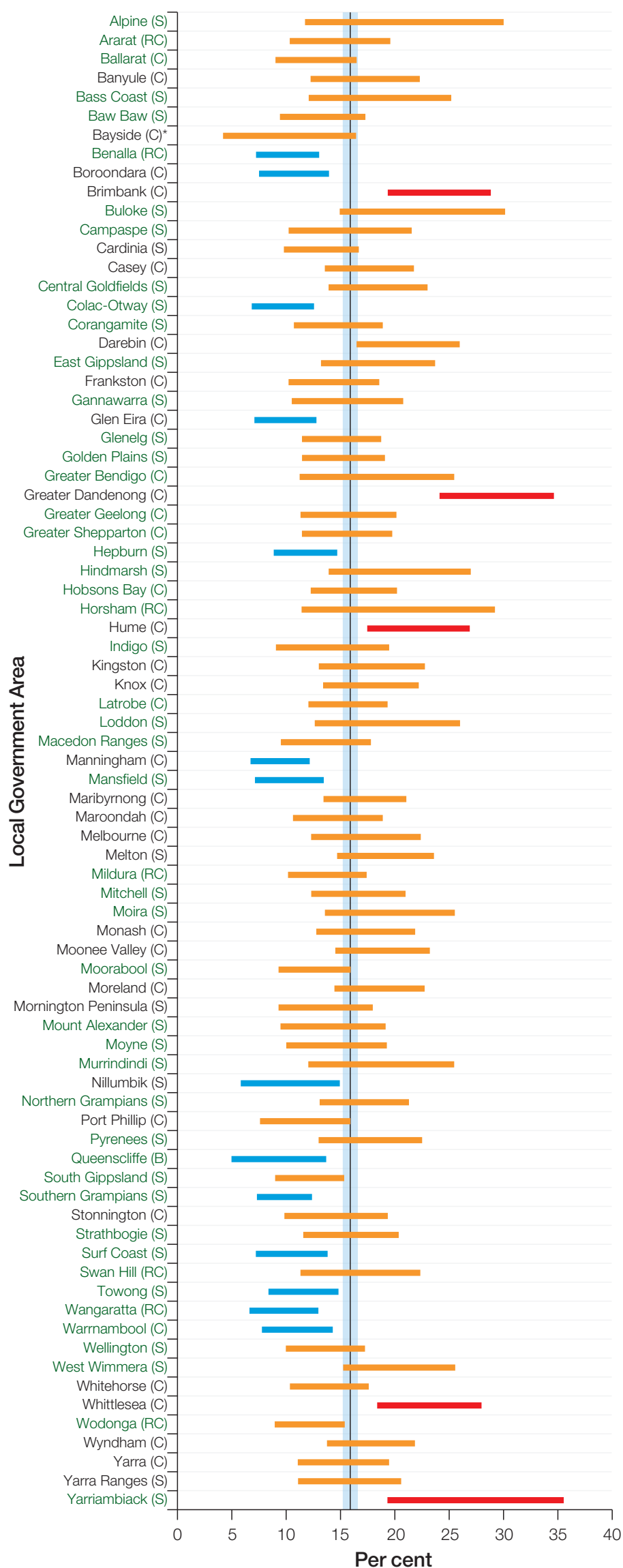
Table 5.4: Self-reported health status, by LGA, Victoria, 2011–12 (continued)

LGA	Excellent / Very good			Good			Fair / Poor		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Maroondah (C)	51.0	44.4	57.5	34.7	28.7	41.2	14.3	10.6	18.9
Melbourne (C)	57.3	51.2	63.2	25.9	21.0	31.5	16.7	12.3	22.4
Melton (S)	40.7	35.1	46.4	40.6	35.2	46.3	18.7	14.7	23.6
Mildura (RC)	48.1	41.5	54.8	38.2	32.0	44.9	13.4	10.2	17.4
Mitchell (S)	42.6	36.0	49.4	40.9	34.3	47.9	16.2	12.3	21.0
Moira (S)	40.2	32.8	48.0	40.7	33.3	48.5	18.8	13.6	25.5
Monash (C)	43.2	36.9	49.7	39.6	33.4	46.2	16.8	12.8	21.9
Moonee Valley (C)	46.8	40.3	53.5	34.7	28.5	41.5	18.5	14.5	23.2
Moorabool (S)	47.5	41.1	53.9	39.8	33.6	46.3	12.2	9.3	15.9
Moreland (C)	42.4	36.4	48.6	39.3	33.3	45.7	18.2	14.4	22.7
Mornington Peninsula (S)	46.7	40.7	52.9	40.2	34.4	46.4	13.0	9.3	18.0
Mount Alexander (S)	55.9	47.8	63.7	30.4	23.4	38.3	13.6	9.5	19.2
Moyne (S)	54.7	47.9	61.3	31.3	25.8	37.4	14.0	10.0	19.3
Murrindindi (S)	40.6	32.3	49.5	40.9	33.1	49.3	17.8	12.0	25.5
Nillumbik (S)	56.6	49.6	63.2	33.4	27.4	40.1	9.4	5.8	14.9
Northern Grampians (S)	50.3	42.6	58.1	32.6	25.8	40.1	16.8	13.1	21.3
Port Phillip (C)	58.8	51.8	65.4	29.9	24.1	36.6	11.1	7.6	15.9
Pyrenees (S)	43.0	32.0	54.7	39.6	28.7	51.6	17.2	13.0	22.5
Queenscliffe (B)	59.0	48.4	68.9	32.5	23.5	43.0	8.4*	5.0	13.7
South Gippsland (S)	49.8	43.5	56.0	38.1	32.0	44.7	11.8	9.0	15.3
Southern Grampians (S)	54.1	44.6	63.3	36.2	27.4	46.0	9.6	7.3	12.4
Stonnington (C)	51.1	44.8	57.5	34.8	28.8	41.3	13.9	9.8	19.4
Strathbogie (S)	57.3	51.5	63.0	27.1	22.0	32.9	15.5	11.6	20.4
Surf Coast (S)	54.6	46.4	62.6	35.3	27.7	43.6	10.0	7.2	13.8
Swan Hill (RC)	45.9	38.8	53.1	38.1	31.3	45.3	16.1	11.3	22.3
Towong (S)	54.6	46.6	62.3	34.1	26.9	42.2	11.2	8.4	14.8
Wangaratta (RC)	48.0	41.3	54.8	42.3	35.7	49.2	9.3	6.6	13.0
Warrnambool (C)	52.6	46.2	58.9	36.8	30.7	43.3	10.6	7.8	14.3
Wellington (S)	42.7	35.5	50.3	43.8	36.4	51.4	13.2	10.0	17.3
West Wimmera (S)	42.0	35.5	48.8	37.2	30.9	44.0	19.9	15.3	25.6
Whitehorse (C)	50.9	44.2	57.6	35.2	28.9	42.0	13.6	10.4	17.6
Whittlesea (C)	34.4	29.2	39.9	42.3	36.7	48.2	22.8	18.4	28.0
Wodonga (RC)	47.9	41.0	54.8	40.1	33.5	47.0	11.8	9.0	15.4
Wyndham (C)	40.1	34.9	45.6	42.0	36.7	47.5	17.4	13.8	21.9
Yarra (C)	57.6	50.2	64.6	27.6	21.3	34.9	14.8	11.1	19.5
Yarra Ranges (S)	44.3	37.5	51.3	40.2	33.8	46.9	15.2	11.1	20.6
Yarriambiack (S)	40.0	32.9	47.6	33.2	26.2	41.0	26.7	19.3	35.5
<b>Victoria</b>	<b>46.6</b>	<b>45.6</b>	<b>47.6</b>	<b>37.3</b>	<b>36.4</b>	<b>38.3</b>	<b>15.9</b>	<b>15.2</b>	<b>16.6</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.  
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.  
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.  
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.  
\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

Figure 5.2: Prevalence of fair or poor self-reported health, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

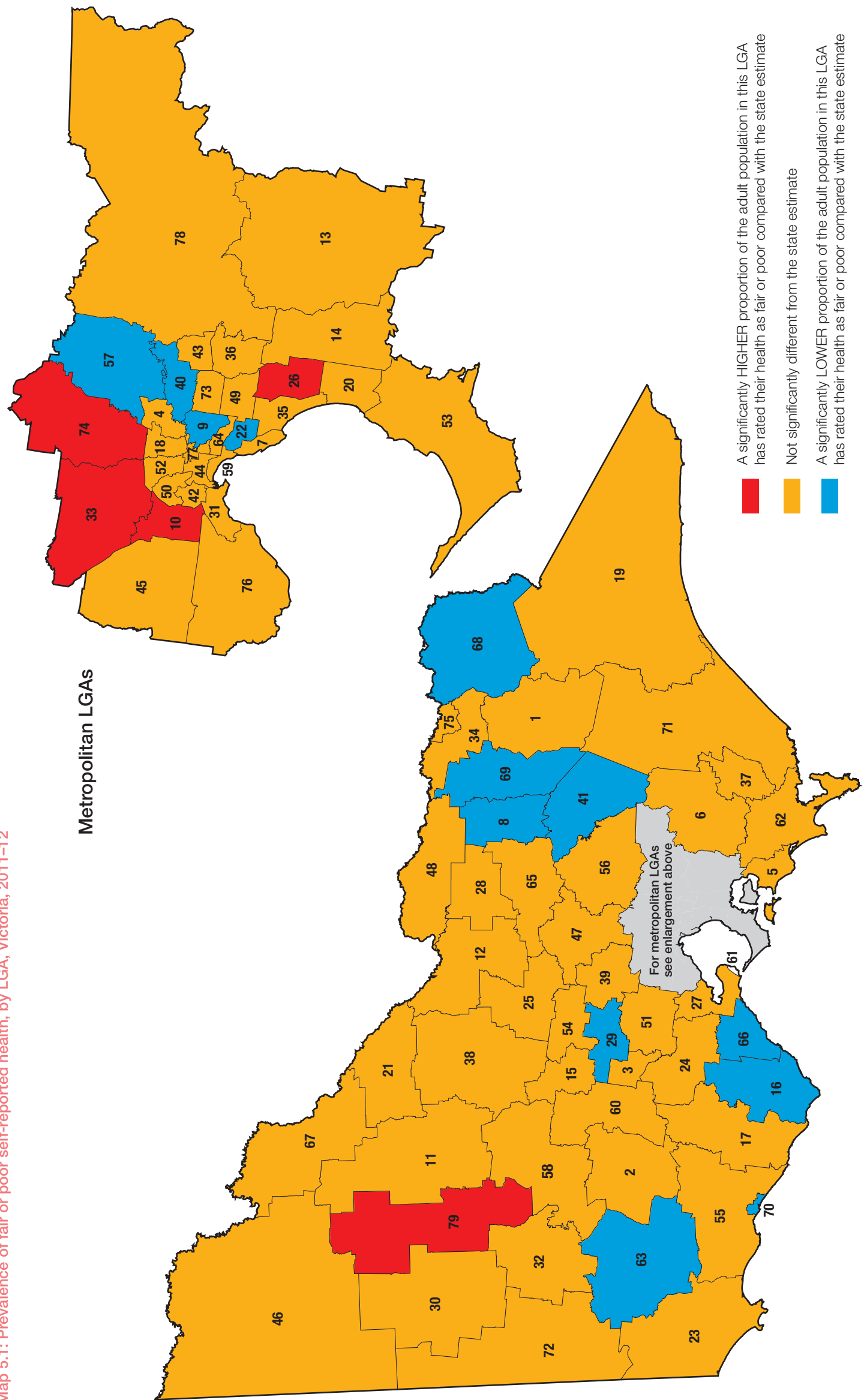
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Map 5.1: Prevalence of fair or poor self-reported health, by LGA, Victoria, 2011–12



## Self-reported health and selected chronic diseases

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Table 5.5 shows self-reported health status by selected socioeconomic determinants, modifiable risk factors and health status.

### Excellent or very good health

When compared with all Victorian men and women there were significantly *higher* proportions of men and women who reported excellent or very good health with the following characteristics:

- tertiary educated
- total annual household income of \$100,000 or more
- low level of psychological distress
- sufficiently physically active
- met fruit and vegetable consumption guidelines
- BMI in the normal weight range.

When compared with all Victorian men there were significantly *higher* proportions of men who reported excellent or very good health with the following characteristics:

- non-smoker
- BMI in the underweight range.

When compared with all Victorian women there were significantly *higher* proportions of women who reported excellent or very good health with the following characteristics:

- employed
- low long-term risk of alcohol-related harm.

When compared with all Victorian men and women there were significantly *lower* proportions of men and women who reported excellent or very good health with the following characteristics:

- primary education only
- unemployed or not in the labour force
- total annual household income less than \$40,000
- moderate, high or very high levels of psychological distress
- sedentary or insufficiently physically active
- met neither fruit nor vegetable consumption guidelines
- current smoker
- abstainer from alcohol
- obese
- diagnosed with diabetes by a doctor.

When compared with all Victorian men there were significantly *lower* proportions of men who reported excellent or very good health with the following characteristics:

- at long-term risk of alcohol-related harm.

### Fair or poor health

When compared with all Victorian men and women there were significantly *higher* proportions of men and women who reported fair or poor health with the following characteristics:

- primary education only
- not in the labour force
- total annual household income less than \$40,000
- moderate, high or very high levels of psychological distress
- sedentary or insufficiently physically active
- met neither fruit nor vegetable consumption guidelines
- current smoker
- abstainer from alcohol
- obese
- diagnosed with diabetes by a doctor.

When compared with all Victorian women there was a significantly *higher* proportion of women who reported fair or poor health with the following characteristic:

- unemployed.

When compared with all Victorian men and women there were significantly *lower* proportions of men and women who reported fair or poor health with the following characteristics:

- tertiary educated
- currently employed
- total annual household income of \$100,000 or more
- low level of psychological distress
- sufficiently physically active
- met fruit guidelines
- BMI in the normal weight range.

When compared with all Victorian men there was a significantly *lower* proportion of men who reported fair or poor health with the following characteristics:

- non-smoker
- BMI in the overweight range.

When compared with all Victorian women there was a significantly *lower* proportion of women who reported fair or poor health with the following characteristics:

- total annual household income between \$40,000 to less than \$100,000
- met both fruit and vegetable guidelines
- low long-term risk of alcohol-related harm.

**Table 5.5: Self-reported health status, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	Excellent / Very good			Good			Fair / Poor		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>	<b>45.4</b>	<b>43.8</b>	<b>46.9</b>	<b>38.1</b>	<b>36.6</b>	<b>39.6</b>	<b>16.4</b>	<b>15.3</b>	<b>17.5</b>
<i>Area of Victoria</i>									
Rural	43.5	40.5	46.5	40.8	37.7	43.9	15.5	13.7	17.4
Metropolitan	46.0	44.2	47.8	37.3	35.6	39.1	16.6	15.3	17.9
<i>Education level</i>									
Primary	<b>37.5</b>	34.4	40.7	40.6	37.4	43.8	<b>21.7</b>	19.2	24.4
Secondary	43.8	41.2	46.5	39.4	36.9	42.0	16.6	14.7	18.7
Tertiary	<b>55.2</b>	52.7	57.7	<b>33.3</b>	31.0	35.8	<b>11.2</b>	9.8	12.8
<i>Employment status (age &lt; 65 years)</i>									
Employed	48.4	46.3	50.6	38.6	36.5	40.7	<b>12.9</b>	11.6	14.4
Unemployed	<b>34.3</b>	27.5	41.8	<b>47.4</b>	39.6	55.2	18.3	13.5	24.2
Not in labour force	<b>37.4</b>	32.0	43.1	32.6	27.1	38.7	<b>29.8</b>	24.6	35.5
<i>Total annual household income</i>									
< \$40,000	<b>33.1</b>	28.9	37.5	39.9	35.5	44.4	<b>26.9</b>	23.6	30.4
\$40,000 to < \$100,000	44.9	42.3	47.5	41.1	38.5	43.8	13.8	12.0	15.7
≥ \$100,000	<b>57.2</b>	54.1	60.2	<b>32.8</b>	30.0	35.7	<b>10.0</b>	8.2	12.1
<i>Psychological distress level <sup>a</sup></i>									
Low (< 16)	<b>51.7</b>	49.7	53.6	37.1	35.2	39.0	<b>11.2</b>	10.1	12.3
Moderate (16–21)	<b>35.6</b>	32.4	38.8	42.1	38.9	45.4	<b>22.1</b>	19.5	24.9
High (22–29)	<b>21.4</b>	17.3	26.2	38.9	33.8	44.3	<b>39.3</b>	34.1	44.8
Very high (≥ 30)	<b>9.8*</b>	5.9	15.8	31.8	23.9	40.8	<b>58.4</b>	49.1	67.1
<i>Physical activity <sup>b</sup></i>									
Sedentary	<b>24.6</b>	19.1	31.0	42.4	35.7	49.5	<b>32.9</b>	26.9	39.5
Insufficient time and sessions	<b>34.6</b>	31.5	37.8	42.7	39.4	46.1	<b>22.6</b>	19.9	25.5
Sufficient time and sessions	<b>51.4</b>	49.5	53.2	36.5	34.7	38.3	<b>11.9</b>	10.8	13.1
<i>Met fruit / vegetable guidelines <sup>c</sup></i>									
Both guidelines	<b>68.2</b>	60.7	74.9	<b>20.7</b>	16.4	25.7	11.1*	6.5	18.4
Vegetable guidelines <sup>d</sup>	<b>64.4</b>	58.1	70.3	<b>25.1</b>	20.4	30.5	10.3	6.7	15.6
Fruit guidelines <sup>d</sup>	<b>51.5</b>	49.0	54.1	36.5	34.1	39.0	<b>11.9</b>	10.5	13.4
Neither	<b>41.3</b>	39.3	43.4	39.3	37.4	41.3	<b>19.1</b>	17.6	20.7
<i>Smoking status</i>									
Current smoker	<b>30.0</b>	27.0	33.1	<b>45.2</b>	41.6	48.8	<b>24.7</b>	21.8	27.8
Ex-smoker	48.9	45.5	52.4	35.2	32.0	38.6	15.7	13.9	17.7
Non-smoker	<b>50.9</b>	48.8	52.9	36.1	34.2	38.1	<b>12.8</b>	11.5	14.3
<i>Long-term risk of alcohol-related harm <sup>e</sup></i>									
Abstainer	<b>38.1</b>	33.9	42.5	40.3	36.0	44.8	<b>21.5</b>	17.8	25.7
Low risk	47.3	45.6	49.1	37.8	36.1	39.5	14.7	13.6	15.9
Risky or high risk	<b>32.7</b>	25.7	40.6	39.4	32.6	46.7	<b>27.8</b>	22.3	34.2
<i>Body weight status <sup>f</sup></i>									
Underweight	<b>56.8</b>	47.6	65.5	<b>22.0</b>	16.9	28.0	21.3	14.6	30.0
Normal	<b>54.9</b>	52.5	57.3	<b>32.5</b>	30.3	34.8	<b>12.4</b>	10.9	14.1
Overweight	45.1	42.4	47.7	41.4	38.8	44.1	<b>13.3</b>	11.8	15.0
Obese	28.5	24.8	32.6	41.1	37.2	45.2	<b>30.2</b>	26.5	34.1
<i>Diabetes (excluding gestational)</i>									
No diabetes	47.0	45.4	48.6	37.7	36.2	39.3	15.1	14.0	16.2
Diabetes	<b>18.1</b>	14.8	22.1	45.4	38.8	52.2	<b>26.8</b>	20.5	34.1

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003).

d. Includes those meeting both guidelines.

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers,

cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

**Table 5.5: Self-reported health status, by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)**

	Excellent / Very good			Good			Fair / Poor		
	95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL
<b>Females</b>	<b>47.6</b>	<b>46.3</b>	<b>48.9</b>	<b>36.5</b>	<b>35.3</b>	<b>37.8</b>	<b>15.6</b>	<b>14.8</b>	<b>16.5</b>
<i>Area of Victoria</i>									
Rural	48.4	46.4	50.4	37.4	35.4	39.5	13.9	12.6	15.4
Metropolitan	47.3	45.7	48.8	36.2	34.8	37.7	16.3	15.3	17.4
<i>Education level</i>									
Primary	<b>35.8</b>	33.3	38.5	39.3	36.2	42.4	<b>24.8</b>	22.1	27.6
Secondary	47.9	45.9	50.0	37.6	35.6	39.6	14.4	13.0	15.8
Tertiary	<b>54.8</b>	51.8	57.8	34.4	31.5	37.4	<b>10.5</b>	9.4	11.7
<i>Employment status (age &lt; 65 years)</i>									
Employed	<b>52.5</b>	50.6	54.4	36.8	35.0	38.7	<b>10.7</b>	9.6	11.8
Unemployed	<b>35.9</b>	29.7	42.7	40.3	33.8	47.2	<b>23.2</b>	18.2	29.2
Not in labour force	<b>42.7</b>	40.0	45.5	36.3	33.7	39.1	<b>20.8</b>	18.7	23.0
<i>Total annual household income</i>									
< \$40,000	<b>35.5</b>	32.5	38.6	38.6	35.6	41.8	<b>25.7</b>	23.1	28.3
\$40,000 to < \$100,000	50.0	47.8	52.2	36.6	34.4	38.8	<b>13.3</b>	11.9	14.8
≥ \$100,000	<b>65.4</b>	62.3	68.4	<b>27.2</b>	24.4	30.1	<b>7.4</b>	6.0	9.1
<i>Psychological distress level <sup>a</sup></i>									
Low (< 16)	<b>56.9</b>	55.2	58.6	<b>33.5</b>	31.9	35.2	<b>9.5</b>	8.6	10.4
Moderate (16–21)	<b>39.1</b>	36.7	41.5	<b>41.0</b>	38.6	43.4	<b>19.7</b>	18.0	21.5
High (22–29)	<b>25.5</b>	22.1	29.2	41.0	37.3	44.8	<b>33.4</b>	30.1	36.9
Very high (≥ 30)	<b>13.8</b>	9.8	19.3	36.8	30.6	43.5	<b>49.1</b>	42.9	55.4
<i>Physical activity <sup>b</sup></i>									
Sedentary	<b>24.1</b>	19.2	29.7	35.6	30.5	41.0	<b>36.1</b>	30.7	41.9
Insufficient time and sessions	<b>38.5</b>	36.2	40.9	<b>41.3</b>	38.8	43.8	<b>20.1</b>	18.2	22.1
Sufficient time and sessions	<b>54.1</b>	52.5	55.7	34.2	32.7	35.8	<b>11.5</b>	10.6	12.5
<i>Met fruit / vegetable guidelines <sup>c</sup></i>									
Both guidelines	<b>61.0</b>	56.2	65.5	<b>29.8</b>	25.6	34.4	<b>9.2</b>	6.9	12.2
Vegetable guidelines <sup>d</sup>	<b>58.7</b>	54.7	62.6	<b>30.4</b>	26.8	34.3	<b>10.8</b>	8.6	13.4
Fruit guidelines <sup>d</sup>	<b>53.4</b>	51.5	55.3	33.9	32.0	35.7	<b>12.6</b>	11.5	13.8
Neither	<b>41.6</b>	39.9	43.4	39.4	37.6	41.2	<b>18.8</b>	17.5	20.1
<i>Smoking status</i>									
Current smoker	<b>32.3</b>	29.3	35.4	<b>43.6</b>	40.3	47.0	<b>23.9</b>	21.3	26.8
Ex-smoker	47.9	43.9	51.9	36.5	32.5	40.6	15.5	13.1	18.2
Non-smoker	50.2	48.7	51.8	34.8	33.3	36.4	14.7	13.7	15.8
<i>Long-term risk of alcohol-related harm <sup>e</sup></i>									
Abstainer	<b>36.9</b>	34.1	39.8	39.1	36.2	42.1	<b>23.7</b>	21.5	26.0
Low risk	<b>50.9</b>	49.4	52.3	35.9	34.5	37.3	<b>13.2</b>	12.3	14.1
Risky or high risk	48.5	41.8	55.3	33.6	28.0	39.7	17.5	12.6	23.9
<i>Body weight status <sup>f</sup></i>									
Underweight	48.6	42.2	55.1	35.1	29.2	41.6	15.9	12.2	20.5
Normal	<b>58.3</b>	56.5	60.1	<b>31.1</b>	29.3	32.8	<b>10.5</b>	9.5	11.6
Overweight	46.1	43.4	48.8	38.8	36.1	41.5	15.0	13.2	16.9
Obese	<b>27.5</b>	24.6	30.7	<b>42.7</b>	39.0	46.4	<b>29.6</b>	26.3	33.1
<i>Diabetes (excluding gestational)</i>									
No diabetes	49.0	47.7	50.2	36.5	35.2	37.8	14.4	13.6	15.2
Diabetes	<b>16.4</b>	12.2	21.7	37.0	32.6	41.6	<b>45.9</b>	40.2	51.7

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003).

d. Includes those meeting both guidelines.

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers,

cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

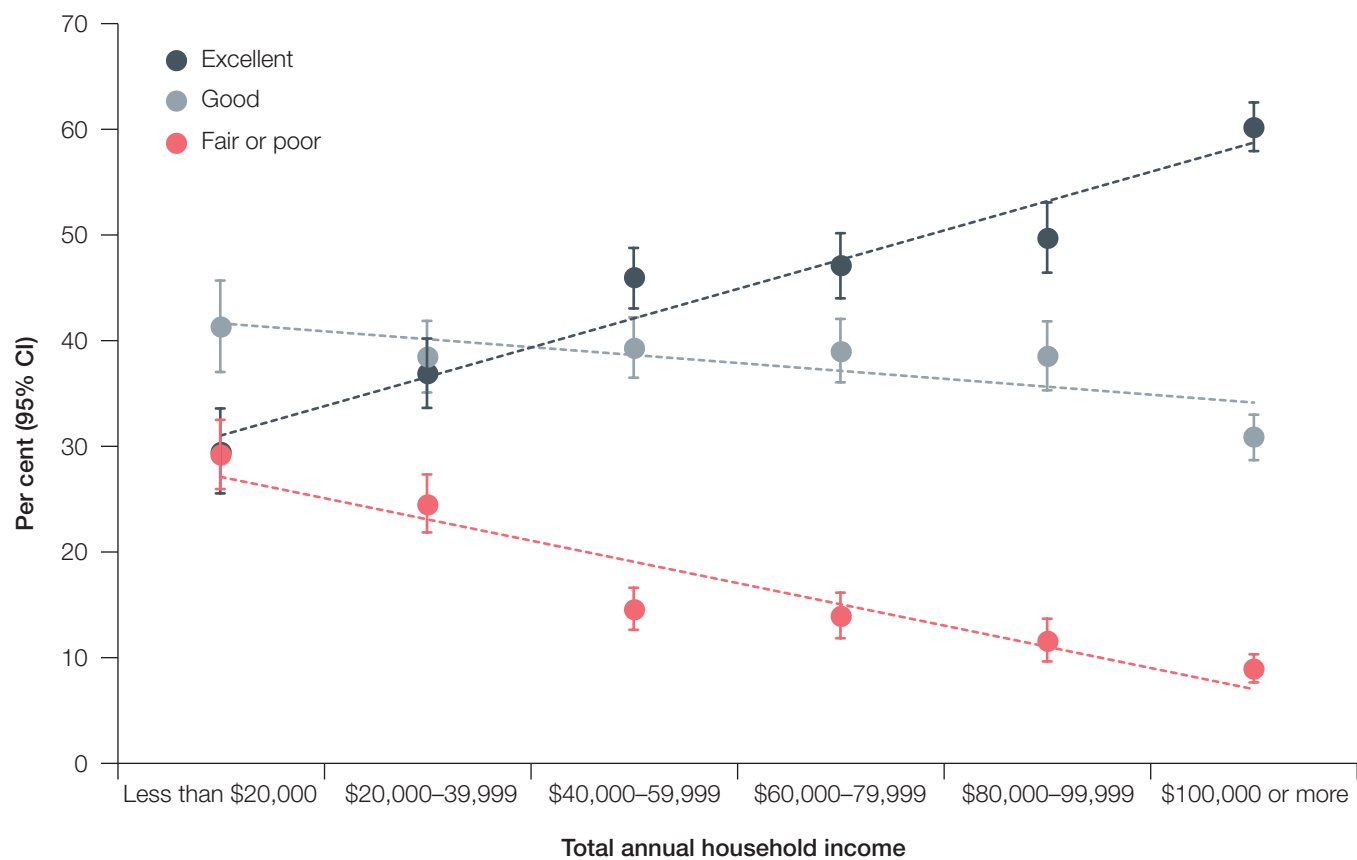
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Further analysis was undertaken of the relationship between SES and age-adjusted self-reported health status by health status category using total annual household income as a measure of SES (Figure 5.3). The proportion of men and women who reported excellent or very good health significantly increased with increasing total annual household income. While there was no significant association between total annual household income and the proportion of men who reported good health, the proportion of women significantly declined with increasing total annual household income. The proportion of men and women who reported fair or poor health significantly declined with increasing total annual household income. These findings are consistent with the literature where poorer health outcomes are almost always associated with declining SES. These findings are presented in Table 5.5.

**Figure 5.3: Self-reported health status, by total annual household income, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.

## Selected chronic diseases

Table 5.6 shows the lifetime prevalence of self-reported doctor-diagnosed heart disease, stroke, cancer, osteoporosis, SLE and arthritis, by age group and sex. Overall, the prevalence of heart disease in Victorian adults was 7.0 per cent, stroke 2.4 per cent, cancer 7.0 per cent, osteoporosis 5.3 per cent, SLE 0.4 per cent and arthritis 19.9 per cent.

### Heart disease

The prevalence of heart disease was significantly higher in men compared with women. There was also an age-related increase in the prevalence of heart disease with men aged 55 years or over and women aged 65 years or over having a significantly higher prevalence compared with all Victorian men and women, respectively.

### Stroke

Overall, the prevalence of stroke was not significantly different between the sexes. However, there was a significantly higher prevalence of stroke in men aged 65 years or over compared with women aged 65 years or over. Stroke was rarely reported in men and women aged 18–44 years but increasingly reported with increasing age thereafter. There was a significantly higher prevalence of stroke in both men and women aged 65 years or over compared with all Victorian men and women, respectively.

### Cancer

The prevalence of cancer was not significantly different between the sexes. There was an age-related increase in the prevalence of cancer in both men and women, with men and women aged 55 years or over having a significantly higher prevalence compared with all Victorian men and women, respectively.

### Osteoporosis

The prevalence of osteoporosis was significantly higher in men aged 65 years or over and women and adults 55 years or over compared with the prevalence in all Victorian men, women and adults, respectively. In contrast, the prevalence was significantly lower in men aged 35–44 years and women and adults aged 25–54 years compared with the prevalence in all Victorian men, women and adults, respectively.

### Systemic lupus erythematosus

The prevalence of SLE was significantly higher in women compared with men. SLE is an autoimmune disease and autoimmune diseases tend to be more common in females compared with males. There was a significantly higher prevalence of SLE in women aged 55–64 years compared with all Victorian women.

### Arthritis

The prevalence of arthritis was significantly higher in women compared with men. There was an age-related increase in the prevalence of arthritis in both men and women, with men and women aged 55 years or over having a significantly higher prevalence compared with all Victorian men and women, respectively.

Table 5.6: Prevalence of selected chronic diseases, by age group and sex, Victoria, 2011–12

Age group (years)	Heart disease			Stroke			Cancer			Osteoporosis			Systemic Lupus Erythematosus			Arthritis		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>																		
18–24	0.9*	0.4	2.0	**	**	**	**	**	**	**	**	0.0	-	-	0.0	0.8*	0.4	1.8
25–34	1.3*	0.5	3.4	**	**	**	1.8*	0.7	4.5	**	**	**	**	**	**	4.0*	2.2	7.3
35–44	2.5	1.6	3.7	0.8*	0.4	1.7	2.5	1.7	3.5	3.5	0.6*	0.3	1.3	**	**	6.8	5.4	8.4
45–54	4.6	3.5	5.9	1.1	0.7	1.8	5.4	4.3	6.8	6.8	1.7	2.6	**	**	**	12.4	10.8	14.3
55–64	13.2	11.5	15.1	3.3	2.5	4.3	9.5	8.1	11.1	11.1	3.4	4.4	0.3*	0.1	0.6	27.5	25.2	29.8
65+	27.9	26.1	29.8	8.6	7.5	9.8	19.8	18.2	21.4	21.4	7.4	8.5	0.3*	0.2	0.6	40.4	38.4	42.5
<b>Total</b>	<b>8.7</b>	<b>8.2</b>	<b>9.3</b>	<b>2.6</b>	<b>2.3</b>	<b>2.9</b>	<b>6.7</b>	<b>6.2</b>	<b>7.3</b>	<b>7.3</b>	<b>2.4</b>	<b>2.7</b>	<b>0.2*</b>	<b>0.1</b>	<b>0.3</b>	<b>15.6</b>	<b>14.8</b>	<b>16.5</b>
<b>Females</b>																		
18–24	1.1*	0.5	2.5	**	**	**	**	**	**	**	**	**	**	**	**	2.2*	1.0	4.8
25–34	0.8*	0.4	1.7	1.0*	0.5	2.1	1.9*	1.0	3.7	3.7	0.7*	0.4	1.5	0.0	0.3	4.9	3.6	6.7
35–44	1.5	0.9	2.4	0.7*	0.4	1.2	3.7	2.9	4.6	4.6	1.0	0.7	1.6	0.3	1.1	6.9	5.9	8.2
45–54	3.0	2.3	3.8	1.5	1.0	2.1	7.4	6.3	8.7	8.7	4.7	3.9	5.7	0.6	1.4	23.0	21.2	24.9
55–64	6.9	5.9	8.1	3.0	2.3	3.9	11.9	10.6	13.4	13.4	13.3	11.9	14.9	0.8	1.7	43.4	41.2	45.5
65+	17.7	16.4	19.1	6.1	5.3	7.1	16.8	15.6	18.2	18.2	26.2	24.6	27.7	0.6	1.3	61.2	59.5	63.0
<b>Total</b>	<b>5.5</b>	<b>5.1</b>	<b>5.9</b>	<b>2.2</b>	<b>2.0</b>	<b>2.5</b>	<b>7.3</b>	<b>6.7</b>	<b>7.8</b>	<b>7.8</b>	<b>8.0</b>	<b>7.6</b>	<b>8.4</b>	<b>0.6</b>	<b>0.8</b>	<b>23.7</b>	<b>23.1</b>	<b>24.4</b>
<b>Persons</b>																		
18–24	1.0*	0.6	1.7	**	**	**	**	**	**	**	**	**	**	**	**	1.5*	0.8	2.7
25–34	1.0*	0.5	2.0	0.7*	0.3	1.4	1.9*	1.1	3.3	3.3	0.5*	0.3	1.1	**	**	4.5	3.2	6.2
35–44	2.0	1.5	2.7	0.8	0.5	1.2	3.1	2.5	3.7	3.7	0.8	0.6	1.2	0.3*	0.6	6.8	6.0	7.8
45–54	3.8	3.1	4.5	1.3	1.0	1.7	6.5	5.6	7.4	7.4	3.2	2.7	3.9	0.5	0.7	17.8	16.5	19.2
55–64	10.0	9.0	11.1	3.1	2.6	3.8	10.7	9.8	11.8	11.8	8.4	7.6	9.4	0.5	1.0	35.6	34.0	37.2
65+	22.3	21.2	23.5	7.2	6.6	8.0	18.2	17.1	19.2	19.2	17.6	16.6	18.7	0.6	0.8	51.8	50.5	53.2
<b>Total</b>	<b>7.0</b>	<b>6.7</b>	<b>7.3</b>	<b>2.4</b>	<b>2.2</b>	<b>2.6</b>	<b>7.0</b>	<b>6.6</b>	<b>7.4</b>	<b>7.4</b>	<b>5.3</b>	<b>5.1</b>	<b>5.6</b>	<b>0.4</b>	<b>0.5</b>	<b>19.9</b>	<b>19.4</b>	<b>20.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

The trend over time from 2003 to 2011–12 of the age-adjusted and crude prevalence of heart disease (Figure 5.4), stroke, cancer (Figure 5.5), osteoporosis (Figure 5.6) and arthritis was investigated. The purpose of adjusting for age is to eliminate age as a possible explanation for any observed changes. As the Victorian population age structure is changing with an increasing proportion of Victorians falling into the older age categories, and the aforementioned diseases are age-related (i.e. increasing in prevalence with age), the crude prevalence estimates give a realistic picture of any absolute increases that are observed. Crude prevalence estimates are also useful for service planning purposes. Therefore both age-adjusted prevalence estimates (also known as age-standardised) and crude prevalence estimates are presented for the following health conditions.

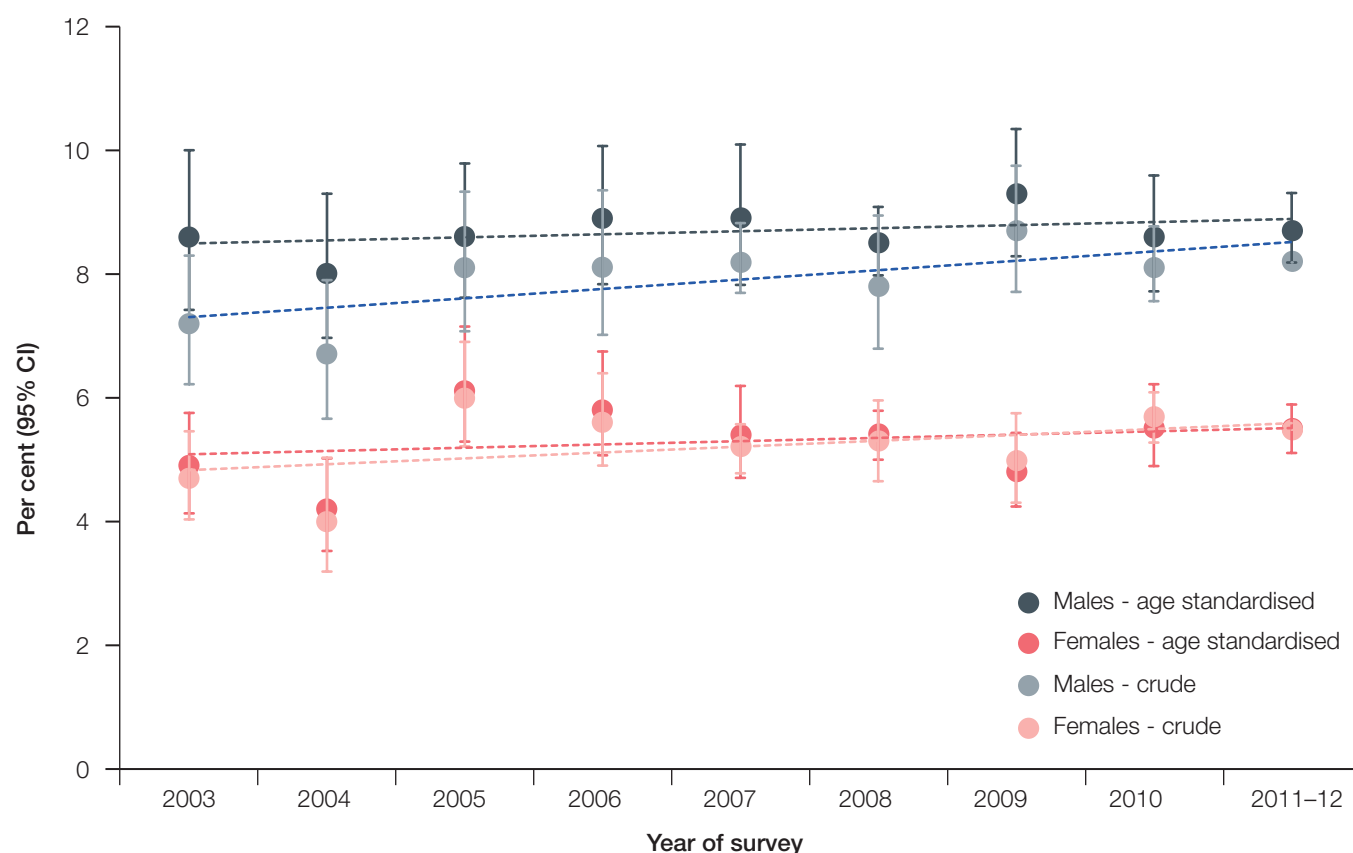
### Stroke

The lifetime prevalence of self-reported doctor-diagnosed stroke remained constant between 2003 and 2011–12 irrespective of whether the estimates were adjusted for age or not.

### Heart disease

The lifetime prevalence of self-reported doctor-diagnosed heart disease remained constant in women and adults between 2003 and 2011–12 irrespective of whether the estimates were adjusted for age or not. However, while the age-adjusted prevalence of heart disease in men also remained unchanged, the crude prevalence significantly increased between 2003 and 2011–12. The increase appears to be due to the increasing proportion of older men in Victoria.

Figure 5.4: Prevalence of heart disease, from 2003 to 2011–12, Victoria



Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares regression was used to test for trends over time.



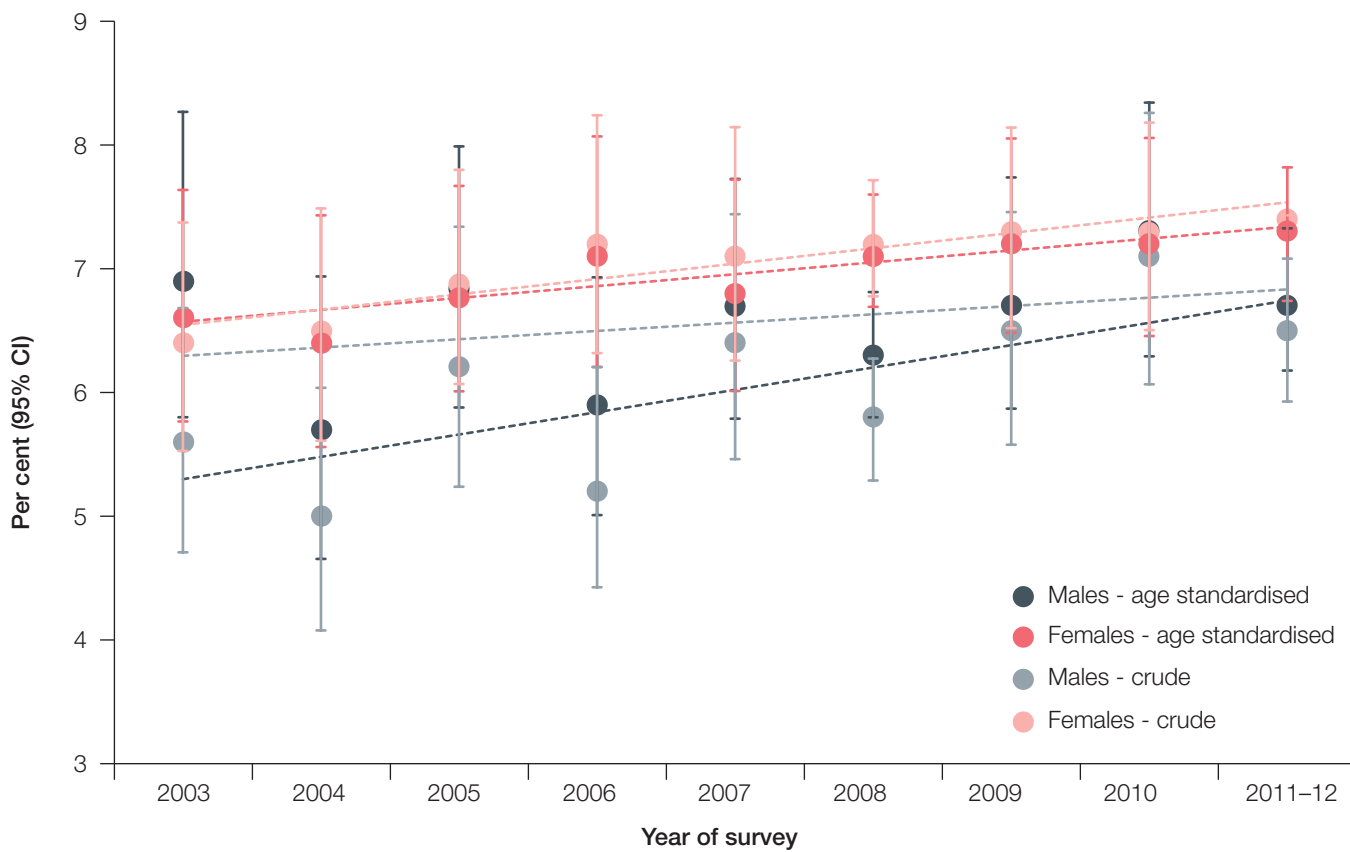
## Cancer

The lifetime prevalence of self-reported doctor-diagnosed cancer significantly increased in women and adults between 2003 and 2011–12 irrespective of whether the estimates were adjusted for age or not. By contrast while the crude prevalence of cancer also significantly increased in men, the age-adjusted prevalence remained constant, suggesting that the increase in cancer in men is primarily due to the increasing proportion of older men in Victoria. However, the findings for women suggest that there is an increase in the prevalence of cancer in women above and beyond what would be expected due to the increase in the ageing population.

Breast cancer is the most common form of cancer in Australian women, accounting for more than 27 per cent of cases. Moreover Australian statistics show that while the crude incidence rate of breast cancer is increasing (presumably due

to the increase in the ageing population), the incidence of age-adjusted breast cancer stabilised after 1995. However, there has been much attention recently to the finding that there is substantial over-diagnosis of invasive breast cancer due to breast cancer screening by mammography, with 15–25 per cent of breast cancers detected and treated that may not become clinically apparent during a woman’s lifetime (Kalager et al. 2012). Given that there has been a substantial increase in mammographic screening over the past decade, it is possible that the finding from the Victorian Population Health Survey of a significant increase in self-reported, age-adjusted cancer reflects an increase in diagnosis (BreastScreen Victoria 2013).

Figure 5.5: Prevalence of cancer, from 2003 to 2011–12, Victoria



Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

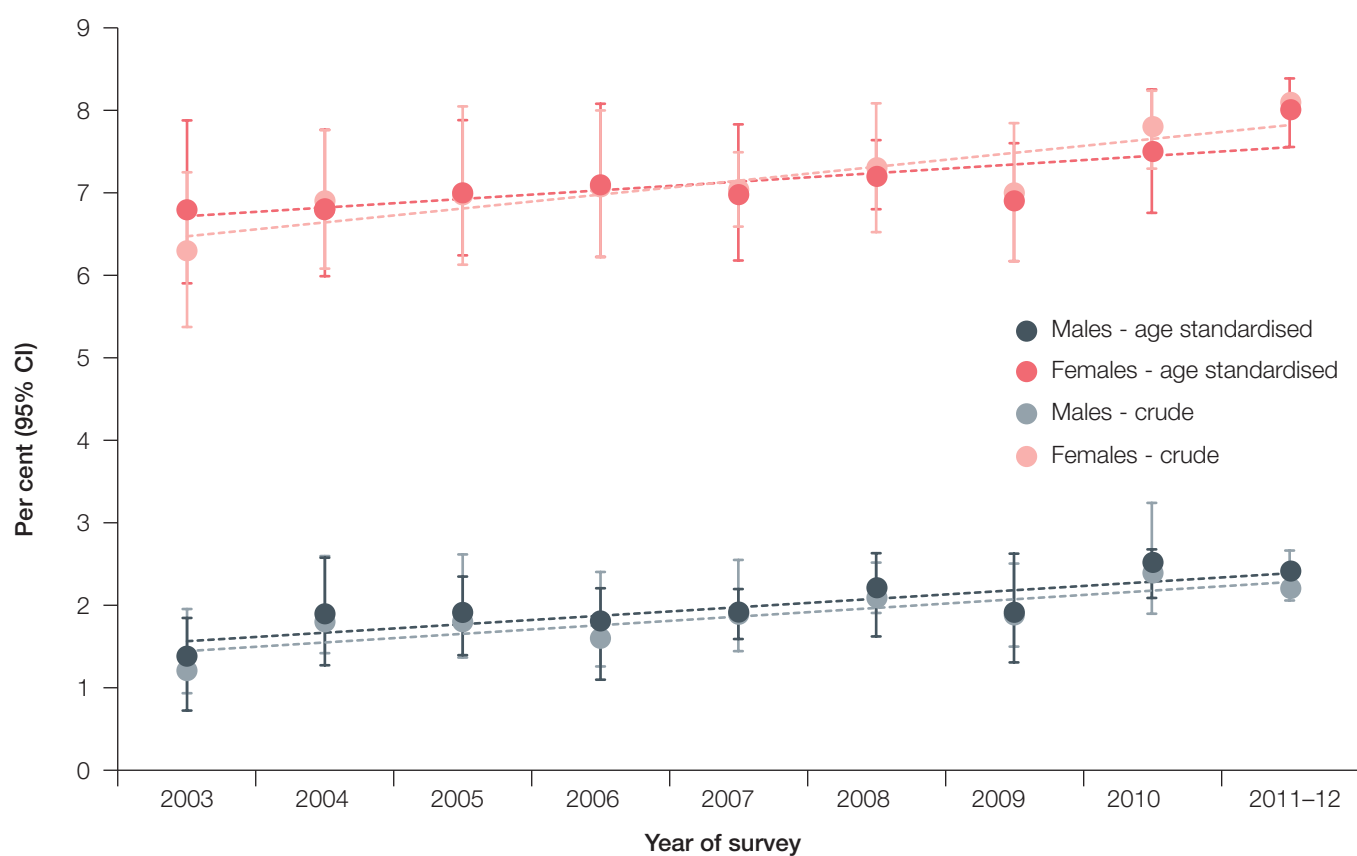
Ordinary least squares regression was used to test for trends over time.



## Osteoporosis

The lifetime prevalence of self-reported doctor-diagnosed osteoporosis significantly increased in both men and women between 2003 and 2011–12 irrespective of whether the estimates were adjusted for age or not. The increase in prevalence of osteoporosis is above and beyond the increase that would be expected due to the increase in the ageing population. Osteoporosis is a condition known to be significantly under-diagnosed and hence there has been a major change in its management by medical practitioners over the decade from 1998 to 2008, with the management rate doubling due to greater awareness by medical practitioners (AIHW 2011). The findings from the Victorian Population Health Survey may reflect an increase in diagnosis.

Figure 5.6: Prevalence of osteoporosis, from 2003 to 2011–12, Victoria



Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares regression was used to test for trends over time..

## Arthritis

The lifetime prevalence of self-reported doctor-diagnosed arthritis remained constant between 2003 and 2011–12 irrespective of whether the estimates were adjusted for age or not.

Table 5.7 shows the lifetime prevalence of self-reported doctor diagnosed heart disease, stroke, cancer, osteoporosis, SLE and arthritis, by Department of Health region and sex.

## Heart disease

There were no significant differences in the prevalence of heart disease in men or women who lived in rural compared with metropolitan Victoria. Similarly, there were no significant regional differences in the prevalence of heart disease in either men or women.

## Stroke

There were no significant differences in the prevalence of stroke in men or women who lived in rural compared with metropolitan Victoria. However, there was a significantly higher prevalence of stroke in men and adults who lived in Grampians Region compared with all Victorian men and adults, respectively.

## Cancer

There were no significant differences in the prevalence of cancer in men or women who lived in rural compared with metropolitan Victoria. Similarly, there were no significant regional differences in the prevalence of cancer in either men or women.

## Osteoporosis

There were no significant differences in the prevalence of osteoporosis in men or women who lived in rural compared with metropolitan Victoria. Similarly, there were no significant regional differences in the prevalence of osteoporosis in either men or women.

## Systemic lupus erythematosus

There were no significant differences in the prevalence of SLE in men or women who lived in rural compared with metropolitan Victoria. However, there was a significantly higher prevalence of SLE in women who lived in Gippsland Region compared with all Victorian women.

## Arthritis

There was a significantly higher prevalence of arthritis in men and adults but not women, who lived in rural compared with metropolitan Victoria. There was also a significantly higher prevalence of arthritis in men who lived in Gippsland Region, Grampians Region and Loddon Mallee Region compared with all Victorian men. By contrast there was a significantly lower prevalence in men who lived in Southern Metropolitan Region compared with all Victorian men.

Table 5.7: Prevalence of selected chronic diseases, by Department of Health region and sex, Victoria, 2011–12

Region	Heart disease			Stroke			Cancer			Osteoporosis			Systemic Lupus Erythematosus			Arthritis			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Males</b>																			
Eastern Metropolitan	8.1	6.9	9.5	2.1	1.5	2.9	7.0	5.6	8.7	2.0	1.5	2.8	**	**	**	14.7	13.0	16.4	
North & West Metropolitan	8.4	7.4	9.5	2.6	2.0	3.3	6.2	5.2	7.5	2.8	2.2	3.5	**	**	**	15.2	13.8	16.7	
Southern Metropolitan	9.7	8.4	11.1	2.6	1.8	3.7	5.9	4.9	7.1	1.9	1.3	2.7	**	**	**	13.0	11.7	14.5	
<b>Metropolitan males</b>	8.7	8.0	9.4	2.4	2.0	2.9	6.4	5.7	7.1	2.3	1.9	2.7	0.2*	0.1	0.3	14.4	13.5	15.3	
Barwon-South Western	9.8	6.7	14.0	2.7	1.9	3.8	7.7	5.8	10.0	2.3	1.5	3.7	**	**	**	19.9	14.5	26.6	
Gippsland	9.8	8.1	11.8	2.8	2.0	3.8	7.0	5.7	8.6	2.0	1.3	3.0	**	**	**	19.5	17.1	22.3	
Grampians	9.0	7.7	10.4	4.0	3.0	5.4	7.7	6.5	9.2	2.8	2.1	3.6	0.1*	0.0	0.3	19.6	17.0	22.5	
Hume	9.3	8.1	10.7	2.4	1.8	3.1	8.1	6.8	9.7	2.3	1.7	2.9	0.4*	0.2	0.8	16.5	14.9	18.3	
Loddon Mallee	7.4	6.3	8.8	2.9	2.1	4.0	7.3	6.1	8.7	3.4	2.5	4.6	**	**	**	19.4	17.3	21.8	
<b>Rural males</b>	9.0	8.0	10.2	2.9	2.5	3.3	7.5	6.8	8.3	2.6	2.2	3.0	0.2*	0.1	0.3	19.4	17.0	22.0	
<b>Total</b>	<b>8.7</b>	<b>8.2</b>	<b>9.3</b>	<b>2.6</b>	<b>2.3</b>	<b>2.9</b>	<b>6.7</b>	<b>6.2</b>	<b>7.3</b>	<b>2.4</b>	<b>2.1</b>	<b>2.7</b>	<b>0.2*</b>	<b>0.1</b>	<b>0.3</b>	<b>15.6</b>	<b>14.8</b>	<b>16.5</b>	

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 5.7: Prevalence of selected chronic diseases, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Heart disease			Stroke			Cancer			Osteoporosis			Systemic Lupus Erythematosus			Arthritis		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL
<b>Females</b>																		
Eastern Metropolitan	5.0	3.9	6.2	2.1	1.6	2.8	7.6	6.5	8.9	7.8	6.9	8.8	0.6*	0.3	1.0	22.9	21.3	24.5
North & West Metropolitan	5.8	5.0	6.6	2.2	1.7	2.7	6.4	5.6	7.2	9.1	8.3	10.0	0.4	0.3	0.7	24.6	23.4	25.9
Southern Metropolitan	5.5	4.7	6.4	2.2	1.7	2.9	8.3	7.0	9.8	7.0	6.2	8.0	0.6*	0.3	1.0	22.0	20.6	23.4
<b>Metropolitan females</b>	5.4	4.9	5.9	2.2	1.9	2.5	7.4	6.7	8.1	8.1	7.6	8.6	0.5	0.4	0.7	23.3	22.5	24.1
Barwon-South Western	5.4	4.2	6.9	2.8*	1.3	6.0	7.1	5.5	9.2	7.4	6.0	9.1	0.9*	0.5	1.7	25.1	22.8	27.6
Gippsland	4.8	4.0	5.7	2.2	1.5	3.3	6.7	5.7	7.9	8.3	7.2	9.6	1.2	0.8	1.9	22.8	20.9	24.7
Grampians	7.0	5.5	8.8	2.9	2.0	4.0	6.6	5.6	7.8	7.0	6.0	8.2	0.6*	0.3	1.1	25.0	22.9	27.1
Hume	5.4	4.7	6.3	1.9	1.5	2.4	7.2	6.3	8.2	7.9	7.0	8.8	0.9*	0.5	1.4	24.9	23.4	26.5
Loddon Mallee	5.8	4.8	6.9	2.3	1.8	3.0	6.6	5.6	7.7	8.0	7.0	9.2	0.8*	0.5	1.4	27.3	23.6	31.3
<b>Rural females</b>	5.6	5.1	6.2	2.4	1.8	3.2	6.9	6.3	7.6	7.7	7.2	8.3	0.9	0.7	1.1	25.1	23.8	26.5
<b>Total</b>	<b>5.5</b>	<b>5.1</b>	<b>5.9</b>	<b>2.2</b>	<b>2.0</b>	<b>2.5</b>	<b>7.3</b>	<b>6.7</b>	<b>7.8</b>	<b>8.0</b>	<b>7.6</b>	<b>8.4</b>	<b>0.6</b>	<b>0.5</b>	<b>0.8</b>	<b>23.7</b>	<b>23.1</b>	<b>24.4</b>

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

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\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 5.7: Prevalence of selected chronic diseases, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Heart disease			Stroke			Cancer			Osteoporosis			Systemic Lupus Erythematosus			Arthritis			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Persons</b>																			
Eastern Metropolitan	6.3	5.6	7.2	2.1	1.7	2.6	7.3	6.4	8.3	5.2	4.6	5.8	0.3*	0.2	0.6	19.1	18.0	20.4	
North & West Metropolitan	7.0	6.4	7.7	2.3	2.0	2.8	6.3	5.6	7.1	6.1	5.6	6.8	0.3	0.2	0.4	20.1	19.2	21.1	
Southern Metropolitan	7.4	6.7	8.2	2.4	1.9	3.0	7.1	6.3	8.0	4.7	4.1	5.3	0.5*	0.3	0.8	17.8	16.8	18.8	
<b>Metropolitan persons</b>	6.9	6.5	7.3	2.3	2.0	2.6	6.9	6.4	7.4	5.4	5.1	5.7	0.3	0.3	0.5	19.1	18.5	19.7	
<i>Barwon-South Western</i>	7.4	5.8	9.5	2.6	1.7	3.9	7.2	6.0	8.7	5.0	4.1	6.0	0.5*	0.3	0.9	23.1	19.2	27.5	
<i>Gippsland</i>	7.0	6.1	8.1	2.4	1.9	3.1	6.8	6.0	7.8	5.3	4.6	6.1	0.7	0.5	1.0	21.2	19.6	22.8	
<i>Grampians</i>	7.8	6.9	8.9	3.4	2.7	4.3	7.1	6.3	8.0	5.0	4.4	5.7	0.4*	0.2	0.6	22.5	20.7	24.3	
<i>Hume</i>	7.4	6.7	8.2	2.1	1.8	2.6	7.6	6.8	8.5	5.2	4.6	5.7	0.6	0.4	1.0	20.8	19.6	22.0	
<i>Loddon Mallee</i>	6.6	5.9	7.5	2.6	2.1	3.2	6.9	6.1	7.9	5.9	5.1	6.7	0.5	0.3	0.8	23.6	21.0	26.3	
<b>Rural persons</b>	7.3	6.7	7.9	2.6	2.3	3.0	7.2	6.7	7.7	5.3	4.9	5.7	0.5	0.4	0.7	22.4	20.9	24.0	
<b>Total</b>	<b>7.0</b>	<b>6.7</b>	<b>7.3</b>	<b>2.4</b>	<b>2.2</b>	<b>2.6</b>	<b>7.0</b>	<b>6.6</b>	<b>7.4</b>	<b>5.3</b>	<b>5.1</b>	<b>5.6</b>	<b>0.4</b>	<b>0.3</b>	<b>0.5</b>	<b>19.9</b>	<b>19.4</b>	<b>20.5</b>	

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

## Self-reported health and selected chronic diseases

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Table 5.8 shows the lifetime prevalence of self-reported doctor diagnosed heart disease, stroke, cancer, osteoporosis, SLE and arthritis, by LGA.

### **Heart disease**

The prevalence of heart disease was significantly higher in people who lived in the LGAs of Casey (C) and Whittlesea (C) compared with all Victorian adults. By contrast the prevalence was significantly lower in people who lived in Boroondara (C), Maribyrnong (C), Southern Grampians (S) and Swan Hill (RC) compared with all Victorian adults. Figure 5.7 shows the prevalence of heart disease, by LGA.

### **Stroke**

Overall the majority of stroke prevalence estimates by LGA had relative standard errors between 25 and 50 per cent, indicating that their reliability is questionable. This is due to the very low numbers. However, there were a few notable findings. The prevalence of stroke was significantly higher in people who lived in the LGA of Ballarat (C) compared with all Victorian adults. By contrast the prevalence was significantly lower in people who lived in Brimbank (C) compared with all Victorian adults.

### **Cancer**

The prevalence of cancer was significantly higher in people who lived in the LGAs of Alpine (S), Gannawarra (S) and Strathbogie (S) compared with all Victorian adults. By contrast the prevalence was significantly lower in people who lived in Brimbank (C), Southern Grampians (S) and Warrnambool (C) compared with all Victorian adults. Figure 5.8 shows the prevalence of cancer, by LGA.

### **Osteoporosis**

The prevalence of osteoporosis was significantly higher in people who lived in the LGAs of Hume (C) and Strathbogie (S) compared with all Victorian adults. By contrast the prevalence was significantly lower in people who lived in the LGAs of Mornington Peninsula (S), Queenscliffe (B) and Southern Grampians (S) compared with all Victorian adults. Figure 5.9 shows the prevalence of osteoporosis, by LGA.

### **Systemic lupus erythematosus**

The prevalence of SLE was significantly higher in people who lived in the LGAs of Glenelg (S) and West Wimmera (S) compared with all Victorian adults. However, since the prevalence of SLE in the general population is very low, the analysis of the data by LGA resulted in small numbers. Most estimates could not be reported because they had relative standard errors in excess of 50 per cent.

### **Arthritis**

The prevalence of arthritis was significantly higher in people who lived in the LGAs of Banyule (C), Central Goldfields (S), Gannawarra (S), Glenelg (S), Greater Bendigo (C), Pyrenees (S), Strathbogie (S), West Wimmera (S) and Yarriambiack (S) compared with all Victorian adults. By contrast the prevalence was significantly lower in people who lived in Bayside (C), Glen Eira (C) and Port Phillip (C) compared with all Victorian adults. Figure 5.10 shows the prevalence of arthritis, by LGA.

Table 5.8: Prevalence of selected chronic diseases, by LGA, Victoria, 2011–12

LGA	Heart disease			Stroke			Cancer			Osteoporosis			Systemic Lupus Erythematosus			Arthritis		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL		LL	UL
Alpine (S)	6.8	5.0	9.3	1.1	3.3	<b>9.7</b>	7.5	12.5	5.2	3.6	7.5	**	**	**	**	19.3	16.4	22.6
Ararat (RC)	5.7	4.2	7.5	1.1	3.6	7.3	5.4	9.6	5.2	3.8	7.2	**	**	**	**	23.4	19.1	28.3
Ballarat (C)	8.1	6.2	10.6	3.1	6.9	6.3	4.8	8.4	4.4	3.1	6.3	**	**	**	**	21.9	18.6	25.5
Banyule (C)	6.8	4.9	9.4	1.5	4.3	7.0	5.1	9.5	5.5	3.9	7.7	**	**	**	<b>24.6</b>	20.5	29.2	
Bass Coast (S)	7.0	5.5	8.9	1.5*	2.5	7.3	4.9	10.6	3.8	2.4	6.0	0.5*	1.1	22.3	18.0	27.3		
Baw Baw (S)	6.6	4.8	9.0	1.5	4.0	6.9	4.9	9.5	4.2	3.0	5.9	**	**	**	**	21.8	17.9	26.2
Bayside (C)	5.3	4.0	7.0	1.6	4.5	6.5	4.6	9.0	4.4	3.0	6.4	**	**	**	<b>15.9</b>	13.3	18.9	
Benalla (RC)	6.3	4.4	8.8	1.2	3.4	6.8	4.9	9.3	5.8	4.3	7.7	**	**	**	**	22.6	19.3	26.1
Boroondara (C)	<b>4.8</b>	3.5	6.6	1.2*	2.2	9.6	6.7	13.5	4.6	3.4	6.3	**	**	**	**	16.2	13.4	19.5
Brimbank (C)	6.2	4.2	9.1	<b>1.0*</b>	2.0	<b>4.0</b>	2.5	6.2	7.1	5.2	9.6	**	**	**	**	16.4	13.6	19.7
Buloke (S)	7.7	5.7	10.5	1.7	4.2	12.4*	7.0	21.0	7.1	5.5	9.1	**	**	**	**	21.5	18.3	25.1
Campaspe (S)	6.5	4.9	8.6	1.5*	2.7	6.0	4.5	8.1	5.9	4.2	8.3	**	**	**	**	20.6	17.0	24.7
Cardinia (S)	6.8	4.7	9.7	0.9	4.3	5.5	3.7	8.0	4.0	2.5	6.2	**	**	**	**	19.0	15.5	23.1
Casey (C)	<b>10.1</b>	7.8	13.1	1.4	4.6	7.4	5.3	10.1	5.6	4.0	7.9	**	**	**	**	18.6	15.7	21.9
Central Goldfields (S)	7.5	5.8	9.7	1.6	4.1	7.4	5.6	9.7	5.9	4.4	8.0	**	**	**	<b>24.2</b>	20.3	28.5	
Colac-Otway (S)	7.9	6.1	10.1	1.7	4.4	9.0	6.4	12.4	5.9	4.4	7.8	**	**	**	**	21.0	17.8	24.7
Corangamite (S)	9.5*	4.9	17.6	1.0	3.2	6.5	4.7	8.9	4.5	3.1	6.6	**	**	**	**	20.7	17.4	24.4
Darebin (C)	6.6	4.9	9.0	1.1	3.6	6.7	4.8	9.2	6.8	5.1	9.1	0.0	-	-	21.0	17.6	24.9	
East Gippsland (S)	9.0	5.9	13.6	1.3	3.7	6.8	5.0	9.2	6.4	4.4	9.5	0.8*	0.4	1.6	19.0	15.5	23.0	
Frankston (C)	7.6	5.4	10.6	0.9	3.8	9.5	5.9	14.9	4.0	2.8	5.7	**	**	**	**	20.8	17.6	24.5
Gannawarra (S)	8.7	6.6	11.4	1.3*	2.5	<b>10.2</b>	7.6	13.4	6.0	4.4	8.3	**	**	**	<b>24.5</b>	20.5	28.8	
Glen Eira (C)	6.5	4.9	8.7	1.8*	3.3	6.9	5.0	9.5	4.8	3.0	7.6	1.1*	0.4	2.8	<b>16.6</b>	14.3	19.1	
Glenelg (S)	7.2	5.5	9.5	1.7*	3.2	7.3	5.4	9.7	6.9	4.8	9.6	<b>1.7*</b>	0.8	3.4	<b>27.0</b>	23.4	30.9	
Golden Plains (S)	7.8	5.8	10.4	1.5*	3.2	6.6	4.7	9.3	4.9	3.1	7.4	**	**	**	**	21.6	18.4	25.2



Table 5.8: Prevalence of selected chronic diseases, by LGA, Victoria, 2011–12 (continued)

LGA	Heart disease			Stroke			Cancer			Osteoporosis			Systemic Lupus Erythematosus			Arthritis		
	%	LL	UL	%	LL	UL	95% CI	LL	UL	%	LL	UL	95% CI	LL	UL	%	LL	UL
Greater Bendigo (C)	6.1	4.4	8.4	3.4	2.2	5.2	6.4	4.7	8.6	6.3	4.7	8.5	**	**	**	27.8	21.9	34.6
Greater Dandenong (C)	9.1	6.7	12.1	2.8*	1.7	4.7	6.1	4.3	8.5	6.4	4.3	9.3	0.0	-	-	17.5	14.6	20.9
Greater Geelong (C)	7.9	5.1	12.0	2.7*	1.5	4.7	7.5	5.6	10.1	4.8	3.4	6.7	0.5*	0.2	1.3	23.2	17.6	30.0
Greater Shepparton (C)	8.1	6.2	10.4	2.3*	1.4	3.9	7.5	5.6	9.9	4.6	3.3	6.3	**	**	**	19.0	16.1	22.3
Hepburn (S)	8.8	6.9	11.2	3.2	2.1	4.9	8.1	6.1	10.9	5.2	3.8	7.0	**	**	**	19.4	16.6	22.5
Hindmarsh (S)	7.8	6.1	9.9	2.0*	1.2	3.3	7.9	5.7	10.8	5.5	4.1	7.5	**	**	**	21.0	18.0	24.3
Hobsons Bay (C)	8.1	5.9	11.1	3.1	2.0	4.7	6.5	4.7	8.9	5.1	3.6	7.1	**	**	**	17.7	14.9	20.9
Horsham (RC)	6.5	4.8	8.7	3.3	2.1	5.2	8.4	5.9	11.9	5.3	3.9	7.4	**	**	**	26.3	18.5	36.0
Hume (C)	7.4	5.3	10.3	3.8*	2.1	6.8	6.6*	3.5	12.2	7.8	5.6	10.8	**	**	**	23.1	20.0	26.6
Indigo (S)	6.9	4.7	10.2	3.2*	1.9	5.4	8.5*	5.1	13.8	3.7	2.6	5.3	0.0	-	-	20.3	17.1	24.0
Kingston (C)	6.3	4.3	9.1	2.7*	1.6	4.7	7.0	5.0	9.7	4.5	3.0	6.8	0.0	-	-	18.2	15.5	21.1
Knox (C)	6.4	4.7	8.7	2.4*	1.4	4.0	7.0	5.1	9.4	4.6	3.1	6.7	**	**	**	23.3	20.1	27.0
Latrobe (C)	5.6	4.1	7.5	2.9*	1.5	5.4	6.1	4.5	8.2	6.9	5.2	9.1	**	**	**	22.3	19.2	25.7
Loddon (S)	5.3	3.8	7.3	3.0	1.9	4.7	5.1	3.7	7.0	5.6	4.2	7.6	**	**	**	22.8	19.3	26.6
Macedon Ranges (S)	6.4	4.8	8.6	1.2*	0.6	2.5	6.1	4.5	8.3	4.7	3.1	7.0	**	**	**	20.5	17.7	23.6
Manningham (C)	7.5	5.2	10.6	2.4*	1.5	4.0	6.6	4.9	8.8	5.9	4.3	8.0	**	**	**	21.6	17.8	25.8
Mansfield (S)	8.0	6.1	10.6	3.4*	1.8	6.4	8.4	6.0	11.6	5.0	3.6	6.9	**	**	**	20.7	17.5	24.3
Maribyrnong (C)	3.9	2.5	6.1	2.0*	1.0	4.2	6.7	4.7	9.5	5.3	3.7	7.5	0.0	-	-	19.3	16.2	22.8
Maroondah (C)	6.8	4.7	9.9	2.2*	1.3	3.6	8.9	6.8	11.5	5.1	3.7	7.0	0.0	-	-	16.1	13.2	19.6
Melbourne (C)	6.2	4.4	8.5	1.5*	0.6	3.5	6.7	4.9	9.0	6.1	4.2	8.9	0.0	-	-	16.8	13.9	20.1
Melton (S)	5.3	3.2	8.5	2.9*	1.4	6.0	5.2	3.2	8.3	5.7	3.8	8.5	**	**	**	22.2	18.7	26.1
Mildura (RC)	8.1	5.9	11.1	3.4	2.1	5.4	7.4	5.6	9.9	5.6	4.0	7.7	**	**	**	21.0	17.7	24.8

Data are age-standardised to the 2011 Victorian population, using 10-year age groups.

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LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 5.8: Prevalence of selected chronic diseases, by LGA, Victoria, 2011–12 (continued)

LGA	Heart disease			Stroke			Cancer			Osteoporosis			Systemic Lupus Erythematosus			Arthritis		
	95% CI			95% CI			95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Mitchell (S)	6.7	5.0	9.0	2.0*	1.1	3.4	6.9	5.0	9.6	5.0	3.5	6.9	**	**	**	21.9	18.8	25.5
Moira (S)	8.8	6.6	11.7	2.0	1.3	3.2	6.4	4.8	8.5	5.3	4.0	7.0	**	**	**	19.9	17.1	23.0
Monash (C)	5.8	4.3	7.8	2.1*	1.2	3.6	6.9	5.2	9.0	4.6	3.4	6.2	**	**	**	18.3	15.6	21.2
Moonee Valley (C)	8.0	5.8	11.0	2.5*	1.4	4.1	7.2	5.0	10.1	5.9	4.3	8.1	0.0	-	-	21.6	18.1	25.6
Moorabool (S)	8.5	6.5	11.1	3.1	2.0	4.9	7.9	5.9	10.5	5.9	4.4	7.8	**	**	**	20.0	16.2	24.5
Moreland (C)	6.7	5.0	9.0	2.9	1.8	4.5	5.4	3.9	7.6	6.6	5.0	8.8	0.6*	0.2	1.5	19.6	16.8	22.8
Mornington Peninsula (S)	6.9	5.2	9.0	1.9*	1.1	3.2	9.3	6.3	13.7	3.0	2.1	4.3	**	**	**	17.5	14.5	20.8
Mount Alexander (S)	6.0	4.3	8.4	2.5	1.5	3.9	8.8*	5.3	14.3	4.5	3.3	6.1	0.4*	0.1	0.9	19.5	16.1	23.5
Moyne (S)	7.4	5.4	10.0	2.0*	1.2	3.5	7.4	5.6	9.7	5.5	3.6	8.2	0.0	-	-	23.3	19.9	27.1
Murrindindi (S)	5.9	4.0	8.6	1.6*	0.9	2.6	8.0	6.2	10.3	5.5	4.0	7.6	**	**	**	21.9	18.6	25.6
Nillumbik (S)	7.0	4.9	9.8	3.2*	1.7	5.9	7.2	5.3	9.8	3.8	2.5	5.8	**	**	**	18.7	15.5	22.5
Northern Grampians (S)	8.9	6.4	12.3	2.9*	1.7	4.7	7.6	5.3	10.9	7.0	5.4	9.0	**	**	**	23.7	20.1	27.7
Port Phillip (C)	5.5	3.9	7.8	1.8*	0.7	4.1	5.8	4.2	7.9	4.6	3.3	6.5	**	**	**	13.8	11.5	16.4
Pyrenees (S)	6.2	4.8	8.1	2.5	1.6	3.9	8.1	4.9	12.9	4.8	3.5	6.6	**	**	**	31.9	22.3	43.3
Queenscliffe (B)	5.5	3.9	7.7	2.0*	1.1	3.4	7.7	5.8	10.1	3.0	2.0	4.4	**	**	**	17.3	13.9	21.3
South Gippsland (S)	8.2	6.2	10.6	1.8	1.1	2.8	7.7	5.7	10.4	4.4	3.3	5.9	**	**	**	20.6	17.5	24.0
Southern Grampians (S)	4.5	3.3	6.1	2.2*	1.3	3.9	4.6	3.4	6.4	3.0	2.0	4.5	**	**	**	20.8	15.9	26.7
Stonnington (C)	7.5	5.4	10.4	**	**	**	7.0	5.2	9.3	5.4	3.9	7.4	**	**	**	16.8	14.1	19.9
Strathbogie (S)	7.2	4.9	10.4	2.4	1.6	3.6	10.4	7.8	13.8	8.6	6.2	11.8	**	**	**	25.5	20.6	31.2
Surf Coast (S)	5.6	4.1	7.7	2.6*	1.5	4.3	7.6	5.7	10.1	5.3	3.5	8.0	**	**	**	20.0	16.9	23.6
Swan Hill (RC)	4.7	3.4	6.4	3.0*	1.7	5.0	4.8	3.4	6.9	5.3	4.0	7.1	**	**	**	19.7	16.4	23.6
Towong (S)	5.5	4.0	7.5	1.6*	0.9	3.0	10.9*	5.5	20.4	4.0	2.8	5.6	**	**	**	19.3	16.3	22.7
Wangaratta (RC)	6.4	4.8	8.6	1.5*	0.8	2.9	6.6	4.9	8.9	4.8	3.4	6.6	**	**	**	18.6	15.3	22.4
Warrnambool (C)	8.3	6.5	10.5	2.3*	1.4	3.9	4.2	2.9	6.0	6.0	4.3	8.2	**	**	**	18.9	16.2	21.9
Wellington (S)	7.0	4.8	10.1	3.0	2.0	4.6	6.8	4.7	9.8	5.0	3.5	6.9	0.7*	0.3	1.7	20.1	16.3	24.6

Table 5.8: Prevalence of selected chronic diseases, by LGA, Victoria, 2011–12 (continued)

LGA	Heart disease			Stroke			Cancer			Osteoporosis			Systemic Lupus Erythematosus			Arthritis		
	%	LL	UL	%	LL	UL	95% CI	LL	UL	%	LL	UL	95% CI	LL	UL	%	LL	UL
West Wimmera (S)	7.4	5.3	10.1	3.3*	1.6	6.9	8.5	6.0	11.8	4.6	3.3	6.2	2.9*	1.4	6.0	26.4	22.7	30.4
Whitehorse (C)	7.7	5.8	10.2	2.4*	1.4	4.1	7.2*	4.0	12.6	5.3	4.0	7.1	0.8*	0.3	1.9	17.2	14.5	20.2
Whittlesea (C)	9.8	7.4	12.9	3.0*	1.7	5.2	8.4	6.1	11.5	6.8	5.0	9.2	**	**	**	22.0	18.6	25.9
Wodonga (RC)	9.2	6.2	13.6	2.3*	1.4	3.8	8.3	6.2	11.0	5.8	4.1	8.2	**	**	**	24.2	19.7	29.4
Wyndham (C)	5.6	3.8	8.1	2.4*	1.3	4.6	5.9	4.0	8.6	5.8	3.9	8.4	0.0	-	-	18.1	14.9	21.7
Yarra (C)	7.0	4.2	11.2	2.9*	1.7	4.9	7.1	5.1	10.0	5.7	4.1	7.8	**	**	**	18.0	15.0	21.4
Yarra Ranges (S)	6.7	4.8	9.2	2.0*	1.0	4.2	5.4	3.9	7.4	5.5	4.0	7.6	**	**	**	21.3	18.4	24.5
Yarriambiack (S)	9.6*	5.4	16.5	2.6	1.6	4.1	7.8	5.7	10.7	5.1	3.8	6.8	0.0	-	-	26.5	21.7	32.0
<b>Victoria</b>	<b>6.9</b>	<b>6.6</b>	<b>7.3</b>	<b>2.4</b>	<b>2.2</b>	<b>2.6</b>	<b>7.0</b>	<b>6.6</b>	<b>7.4</b>	<b>5.3</b>	<b>5.0</b>	<b>5.6</b>	<b>0.4</b>	<b>0.3</b>	<b>0.5</b>	<b>19.8</b>	<b>19.2</b>	<b>20.3</b>

Data are age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

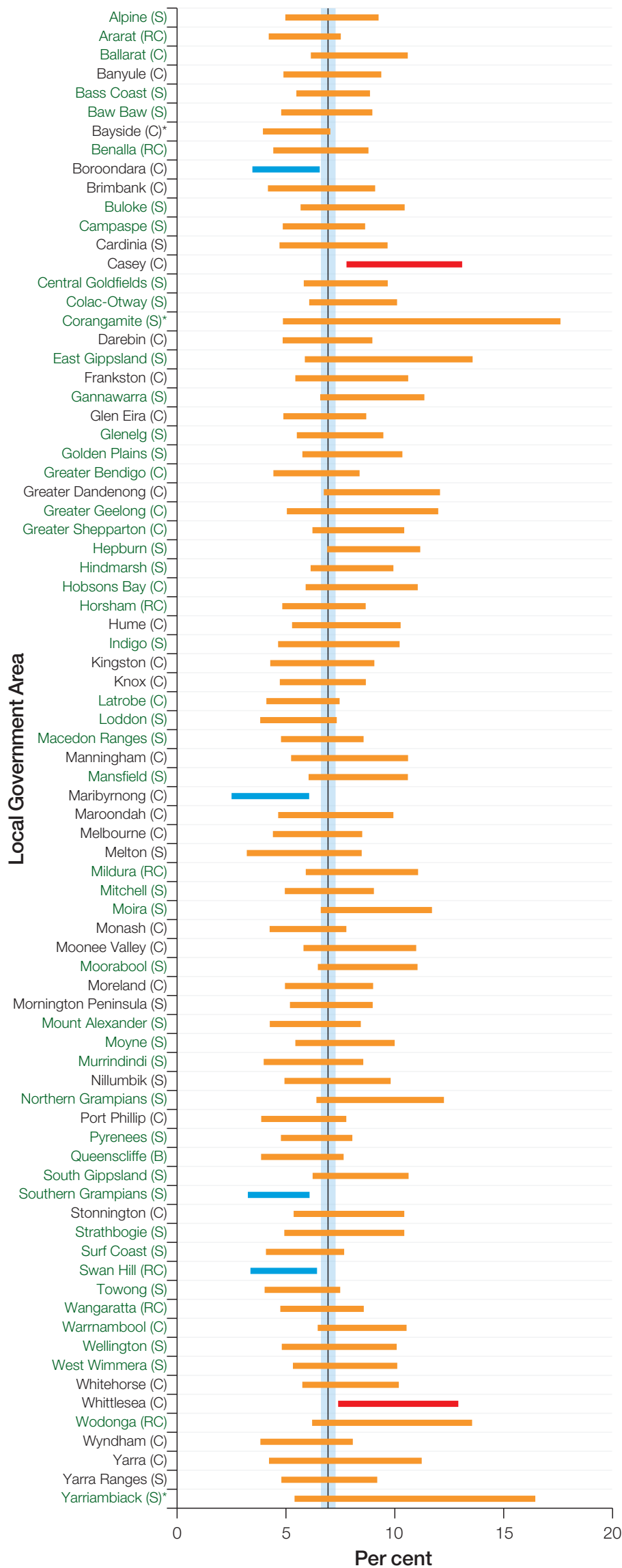
LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Figure 5.7: Prevalence of heart disease, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

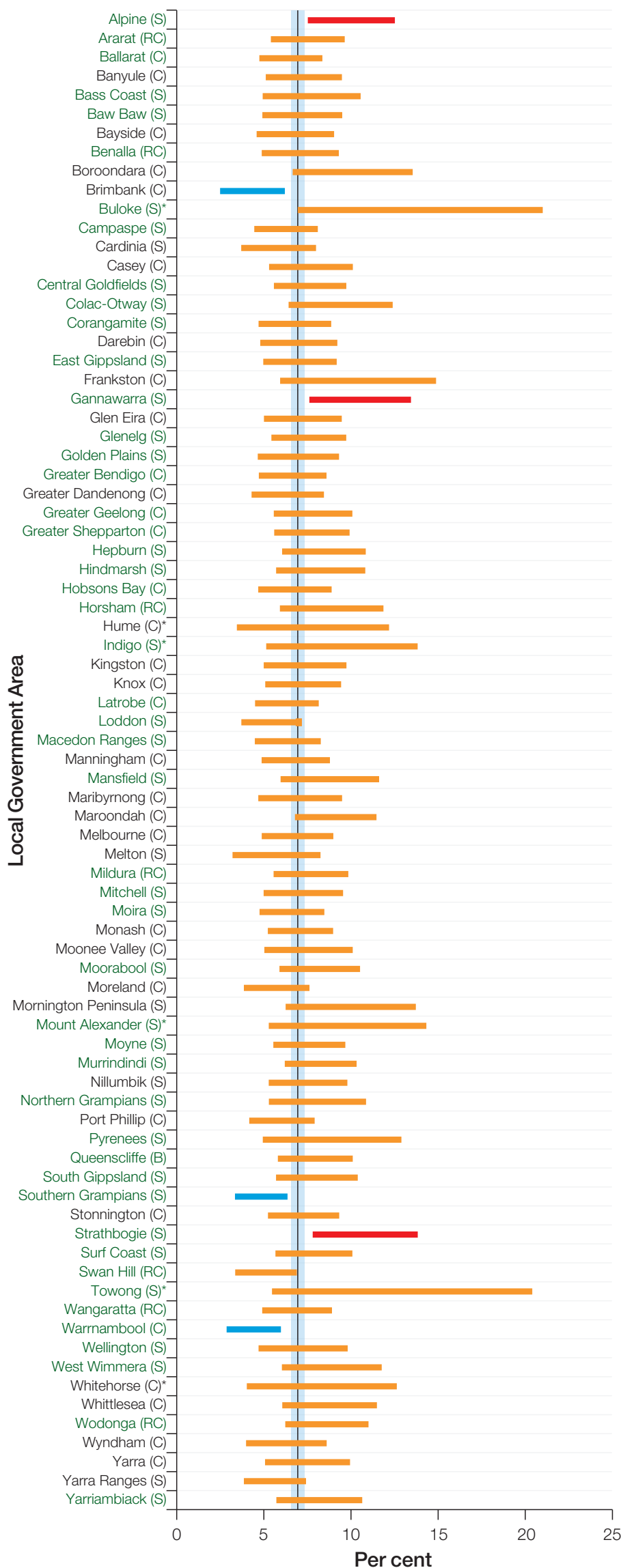
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Figure 5.8: Prevalence of cancer by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Figure 5.9: Prevalence of osteoporosis by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

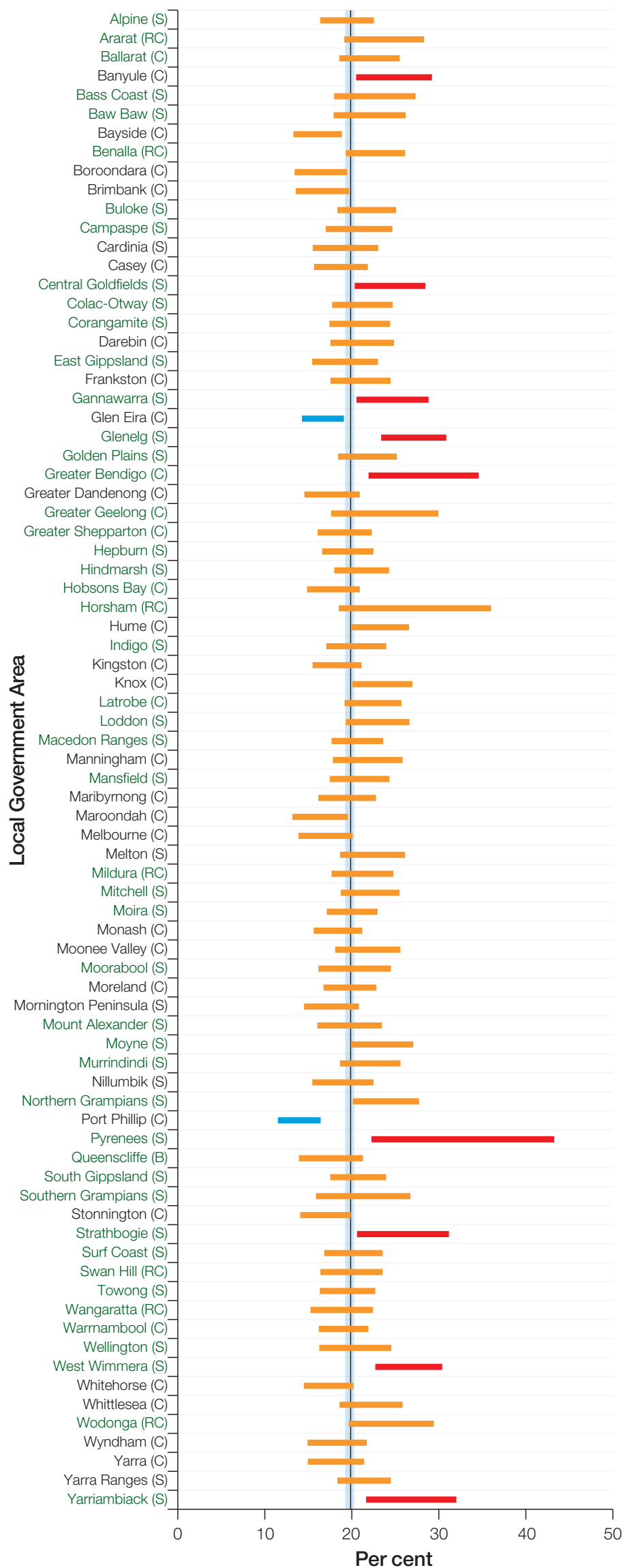
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Figure 5.10: Prevalence of arthritis by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/*rural*.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

## Type of arthritis

Respondents who indicated that they had arthritis were asked to specify the type of arthritis. Table 5.9 shows the prevalence of self-reported arthritis, by type and sex. Overall, there was a significantly higher prevalence of osteoarthritis (14.1 per cent) compared with rheumatoid arthritis (3.3 per cent). The prevalence in women of osteoarthritis (17.4 per cent) and rheumatoid arthritis (3.9 per cent) was significantly higher compared with the prevalence in men of osteoarthritis (10.4 per cent) and rheumatoid arthritis (2.5 per cent), respectively.

**Table 5.9: Prevalence of self-reported arthritis, by type and sex, Victoria, 2011–12**

Type of arthritis	%	Arthritis 95% CI	
		LL	UL
<b>Males</b>			
No arthritis	84.4	83.5	85.2
Osteoarthritis	10.4	9.9	11.0
Rheumatoid Arthritis	2.5	2.2	2.9
Other	0.9*	0.5	1.6
<b>Females</b>			
No arthritis	76.3	75.6	76.9
Osteoarthritis	17.4	16.8	18.0
Rheumatoid Arthritis	3.9	3.6	4.3
Other	0.6	0.5	0.8
<b>Persons</b>			
No arthritis	80.1	79.5	80.6
Osteoarthritis	14.1	13.7	14.5
Rheumatoid Arthritis	3.3	3.0	3.5
Other	0.8	0.5	1.1

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

## Arthritis by body weight

Excess body weight or obesity is a risk factor for both osteoarthritis and rheumatoid arthritis (ARC 2009; Symmons & Harrison 2000). The prevalence of self-reported arthritis by type of arthritis, BMI category and sex is presented in Table 5.10.

There was a significantly higher prevalence of all types of arthritis in obese men, women and adults compared with the prevalence in all Victorian men, women and adults. In contrast, there was a significantly lower prevalence in men and adults with a BMI in the normal weight range and women in the under and normal weight ranges compared with all Victorian men, adults and women, respectively.

There was a significantly higher prevalence of osteoarthritis in obese men, women and adults compared with all Victorian men, women and adults. By contrast there was a significantly lower prevalence of osteoarthritis in men, women and adults with a BMI in the normal weight range compared with all Victorian men, women and adults, respectively.

There was a significantly higher prevalence of rheumatoid arthritis in obese people compared with Victorian adults.



Table 5.10: Prevalence of self-reported arthritis, by type of arthritis, BMI category and sex, Victoria, 2011–12

Body weight status	No arthritis			Arthritis (all)			Osteoarthritis			Rheumatoid Arthritis			Other		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>															
Underweight	85.7	77.2	91.3	14.3	8.7	22.8	8.3*	3.9	16.9	4.8*	2.4	9.3	0.0	-	-
Normal	<b>86.8</b>	85.5	87.9	<b>13.2</b>	12.1	14.5	<b>8.3</b>	7.4	9.2	2.2	1.7	2.9	0.7*	0.4	1.2
Overweight	83.9	82.3	85.3	16.1	14.7	17.7	11.0	10.1	11.9	2.5	2.0	3.1	1.2*	0.4	3.1
Obese	<b>80.4</b>	78.5	82.1	<b>19.6</b>	17.9	21.5	<b>13.0</b>	11.7	14.5	3.6	2.7	4.9	0.8*	0.5	1.3
<b>Total</b>	<b>84.4</b>	<b>83.5</b>	<b>85.2</b>	<b>15.6</b>	<b>14.8</b>	<b>16.5</b>	<b>10.4</b>	<b>9.9</b>	<b>11.0</b>	<b>2.5</b>	<b>2.2</b>	<b>2.9</b>	<b>0.9*</b>	<b>0.5</b>	<b>1.6</b>
<b>Females</b>															
Underweight	<b>81.9</b>	77.9	85.3	<b>18.1</b>	14.7	22.1	13.6	10.4	17.5	3.7*	2.1	6.2	**	**	**
Normal	<b>79.9</b>	78.9	80.8	<b>20.1</b>	19.2	21.1	<b>15.0</b>	14.1	15.9	3.1	2.7	3.6	0.4*	0.3	0.8
Overweight	75.7	74.5	77.0	24.3	23.0	25.5	17.4	16.4	18.4	4.6	3.8	5.5	0.6	0.4	1.0
Obese	<b>68.2</b>	65.1	71.1	<b>31.8</b>	28.9	34.9	<b>24.2</b>	21.3	27.3	5.0	4.2	6.0	0.8	0.5	1.2
<b>Total</b>	<b>76.3</b>	<b>75.6</b>	<b>76.9</b>	<b>23.7</b>	<b>23.1</b>	<b>24.4</b>	<b>17.4</b>	<b>16.8</b>	<b>18.0</b>	<b>3.9</b>	<b>3.6</b>	<b>4.3</b>	<b>0.6</b>	<b>0.5</b>	<b>0.8</b>
<b>Persons</b>															
Underweight	83.4	80.0	86.4	16.6	13.6	20.0	11.5	8.9	14.7	4.0	2.6	6.3	**	**	**
Normal	<b>82.8</b>	82.0	83.6	<b>17.2</b>	16.4	18.0	<b>12.1</b>	11.5	12.8	2.8	2.4	3.2	0.6	0.4	0.8
Overweight	80.4	79.2	81.5	19.6	18.5	20.8	13.7	13.1	14.4	3.3	2.9	3.8	1.0*	0.4	2.3
Obese	<b>74.0</b>	72.3	75.7	<b>26.0</b>	24.3	27.7	<b>18.7</b>	17.2	20.3	<b>4.4</b>	3.7	5.3	0.8	0.6	1.1
<b>Total</b>	<b>80.1</b>	<b>79.5</b>	<b>80.6</b>	<b>19.9</b>	<b>19.4</b>	<b>20.5</b>	<b>14.1</b>	<b>13.7</b>	<b>14.5</b>	<b>3.3</b>	<b>3.0</b>	<b>3.5</b>	<b>0.8</b>	<b>0.5</b>	<b>1.1</b>

Data were age-standardised to the 2011 Victorian population

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

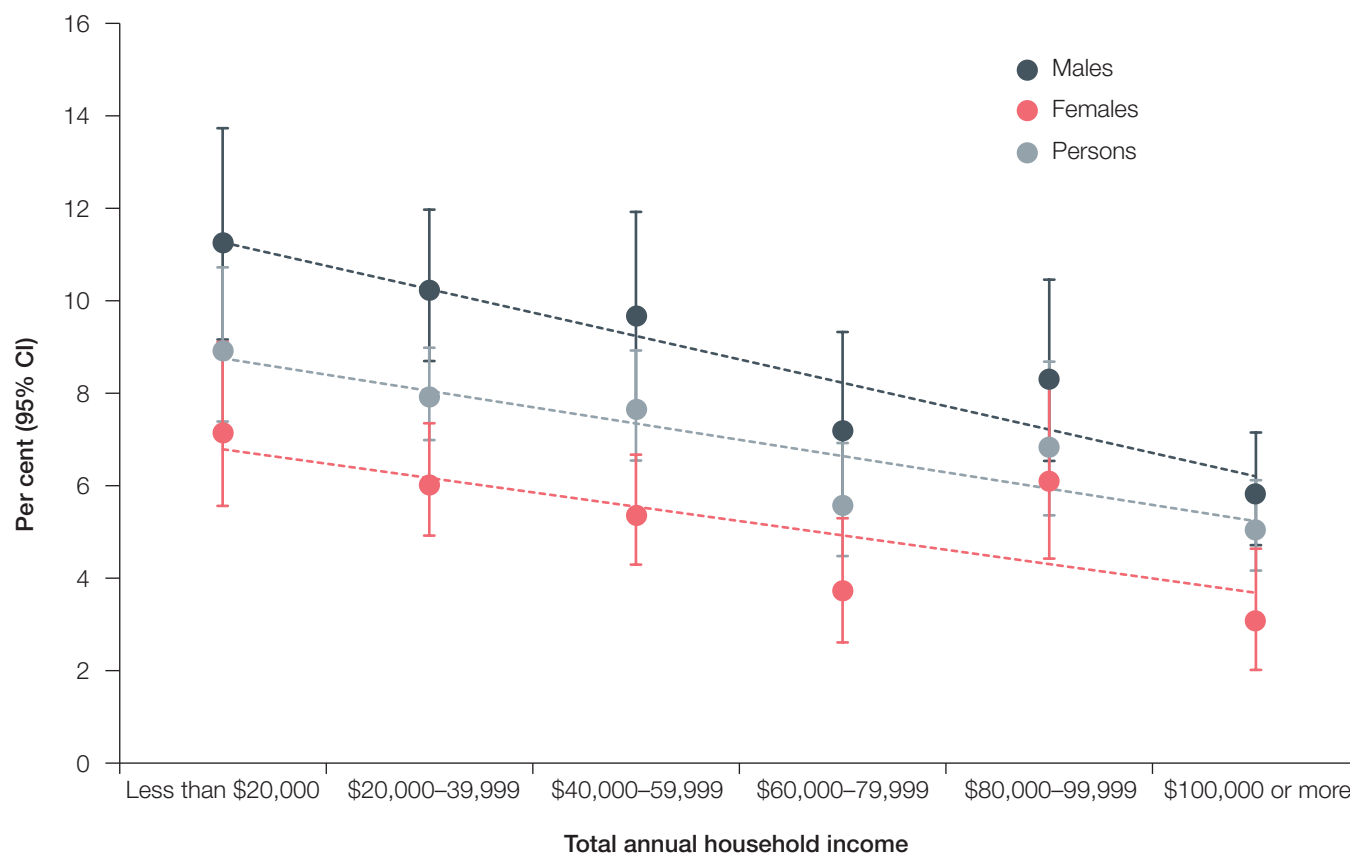
\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

The relationship was investigated between SES and the age-adjusted lifetime prevalence of self-reported doctor-diagnosed heart disease, stroke, cancer, osteoporosis and arthritis, using total annual household income as a measure of SES. This was not undertaken for SLE as the prevalence estimates were too low to allow for this type of analysis. As previously noted, most health outcomes follow a *typical* SES gradient whereby poorer health outcomes are associated with declining SES.

### Heart disease

Statistically significant typical SES gradients were observed for men and adults in the prevalence of heart disease, where prevalence declined with increasing total annual household income. However, no significant SES gradient was observed in women. This is depicted in Figure 5.11.

**Figure 5.11: Prevalence of heart disease, by total annual household income, Victoria, 2011–12**

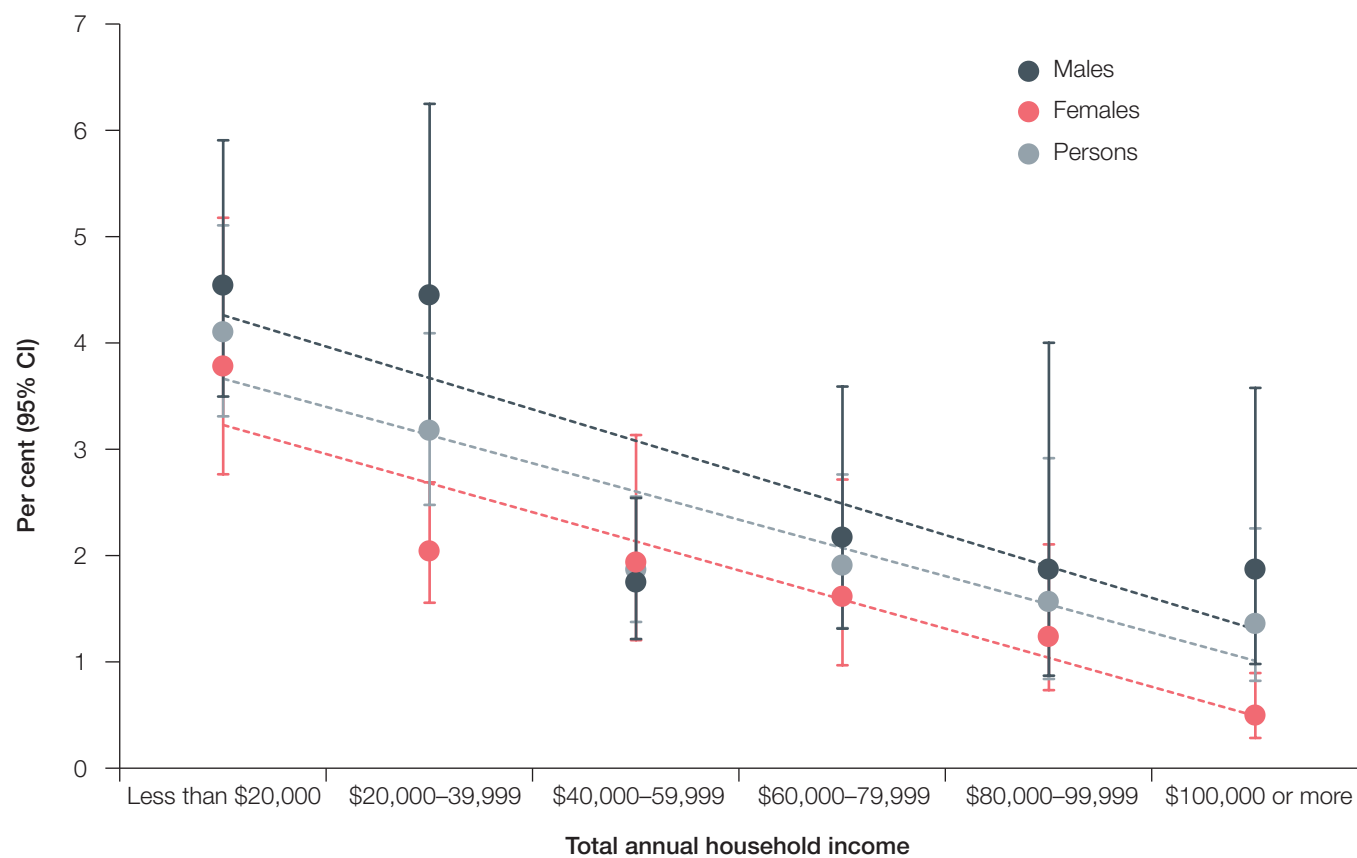


Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval; NS = not significant.  
 Ordinary least squares linear regression was used to test for statistical significance.

## Stroke

Statistically significant typical SES gradients were observed for men, women and adults in the prevalence of stroke, where prevalence declined with increasing total annual household income. This is depicted in Figure 5.12.

Figure 5.12: Prevalence of stroke, by total annual household income, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for statistical significance.

## Cancer

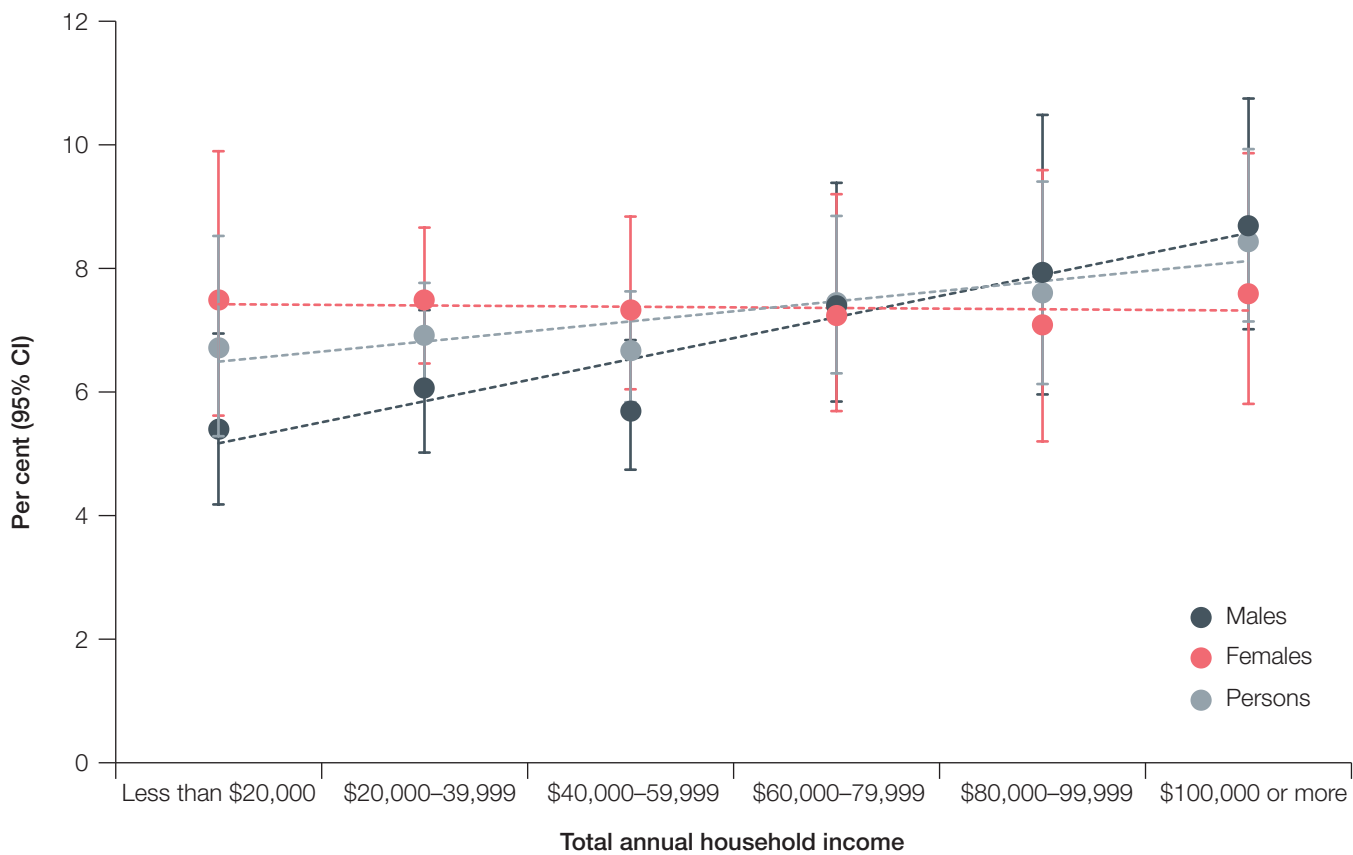
Statistically significant typical SES gradients were not observed for men, women and adults in the prevalence of cancer. By contrast statistically significant reverse gradients were observed in men and adults, where the prevalence of cancer increased with increasing total annual household income. There was no association between the prevalence of cancer and SES in women. This is depicted in Figure 5.13.

Prostate cancer is the most common form of cancer in men and higher SES men are at greater risk of prostate cancer, which may be partly explained by higher rates of screening for prostate cancer (Rundle et al. 2013). It is possible that this, at least in part, may explain the Victorian Population Health Survey finding in men. However, prevalence is not the same as mortality and

it is well documented that men of lower SES are more likely to die from prostate cancer due to the disease being diagnosed at a more advanced stage and having less access to more aggressive treatments (Cheng et al. 2009; Rapiti et al. 2009).

Breast cancer is the most common form of cancer in women (Cancer Australia 2013). No significant differences by SES have been observed in the detection of breast cancer conducted by breast cancer screening programs in Australia (AIHW 2013). However, breast cancer is one of the relatively rare health outcomes that has repeatedly been shown to follow a reverse SES gradient, with higher SES women experiencing a higher incidence (Dano et al. 2003).

Figure 5.13: Prevalence of cancer, by total annual household income, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population.

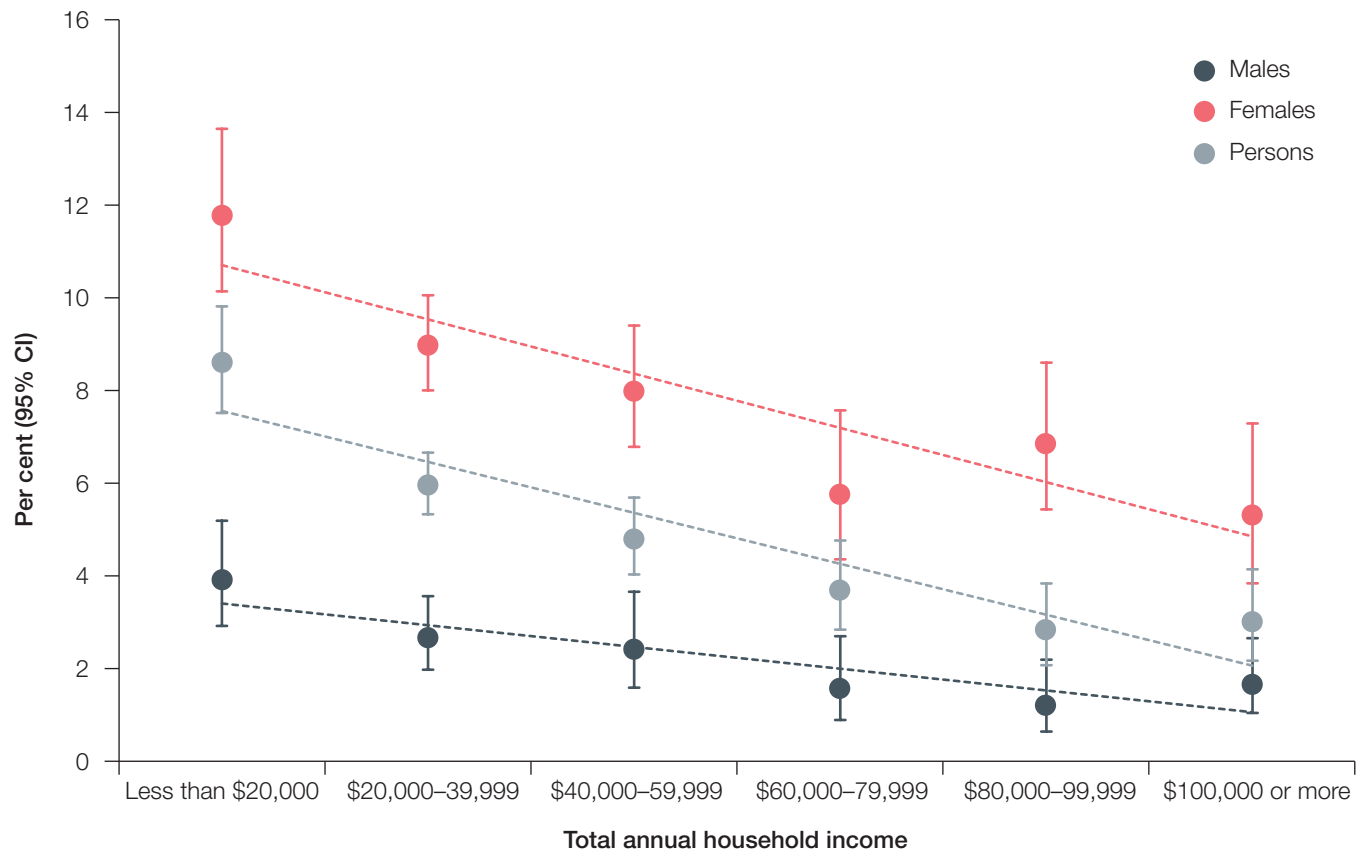
95% CI = 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for statistical significance.

## Osteoporosis

Statistically significant typical SES gradients were observed for men, women and adults in the prevalence of osteoporosis, where prevalence declined with increasing total annual household income. This is depicted in Figure 5.14.

Figure 5.14: Prevalence of osteoporosis, by total annual household income, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population.

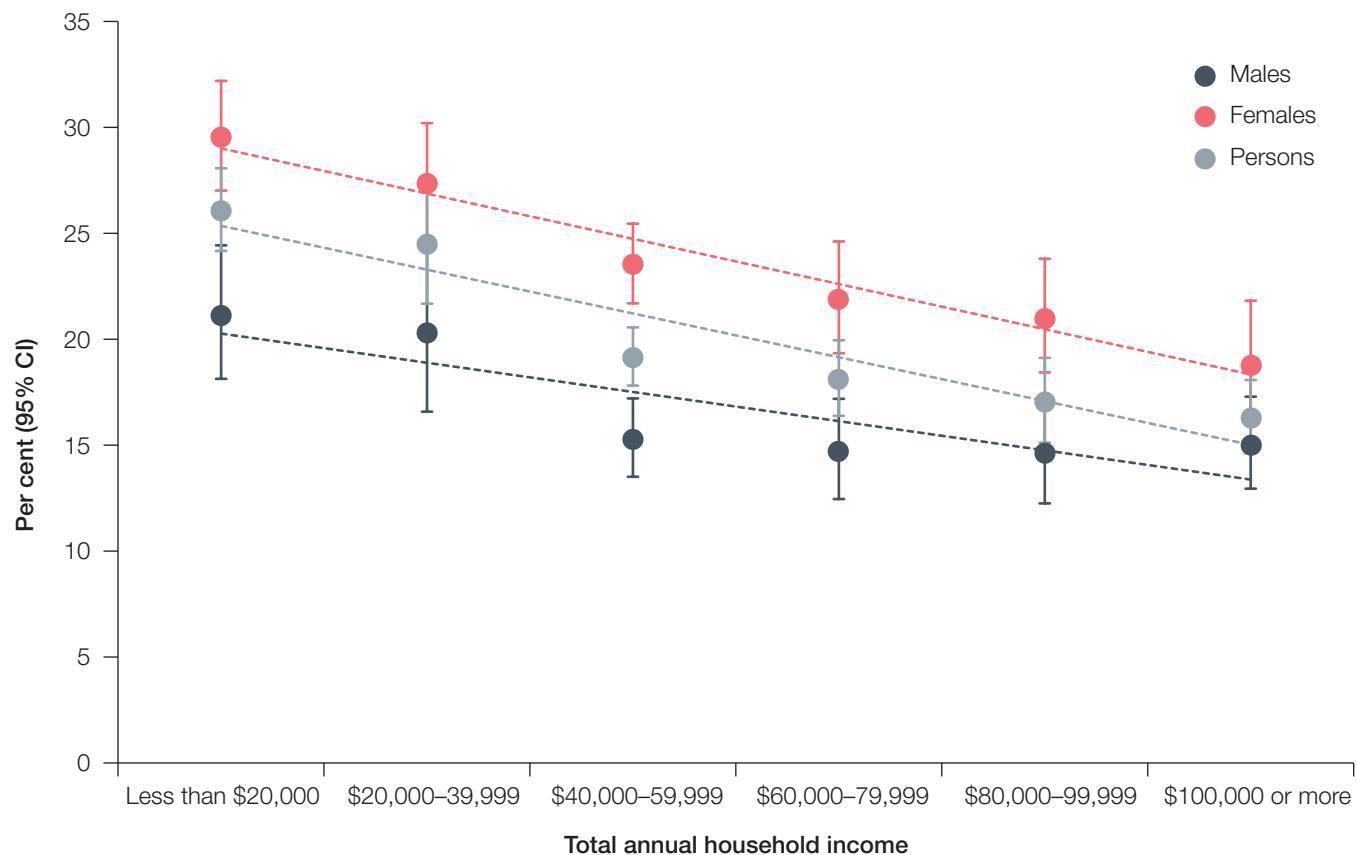
95% CI = 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for statistical significance.

## Arthritis

Statistically significant typical SES gradients were observed for men, women and adults in the prevalence of arthritis, where prevalence declined with increasing total annual household income. This is depicted in Figure 5.15.

Figure 5.15: Prevalence of arthritis, by total annual household income, Victoria, 2011–12



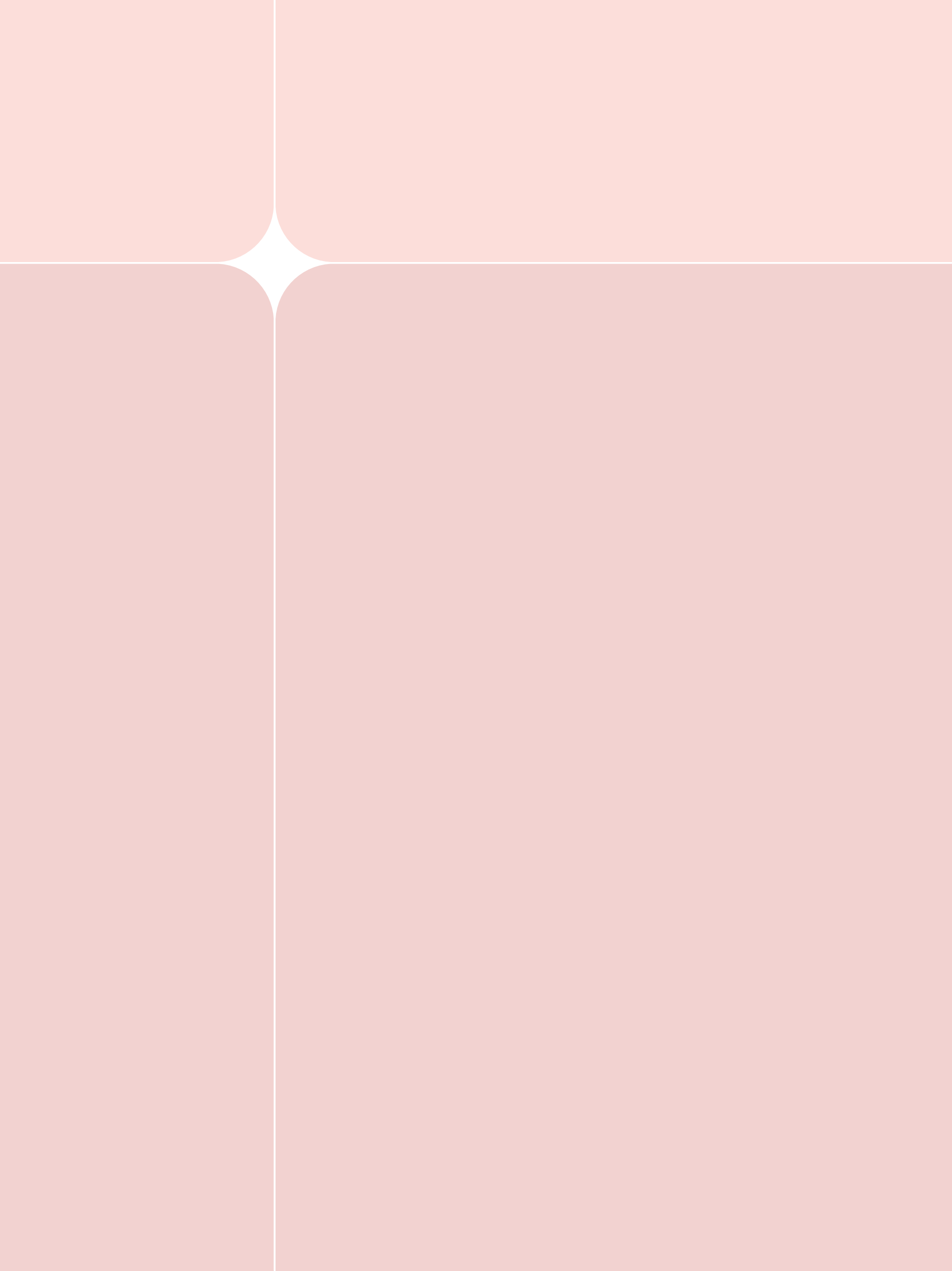
Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares linear regression was used to test for statistical significance.

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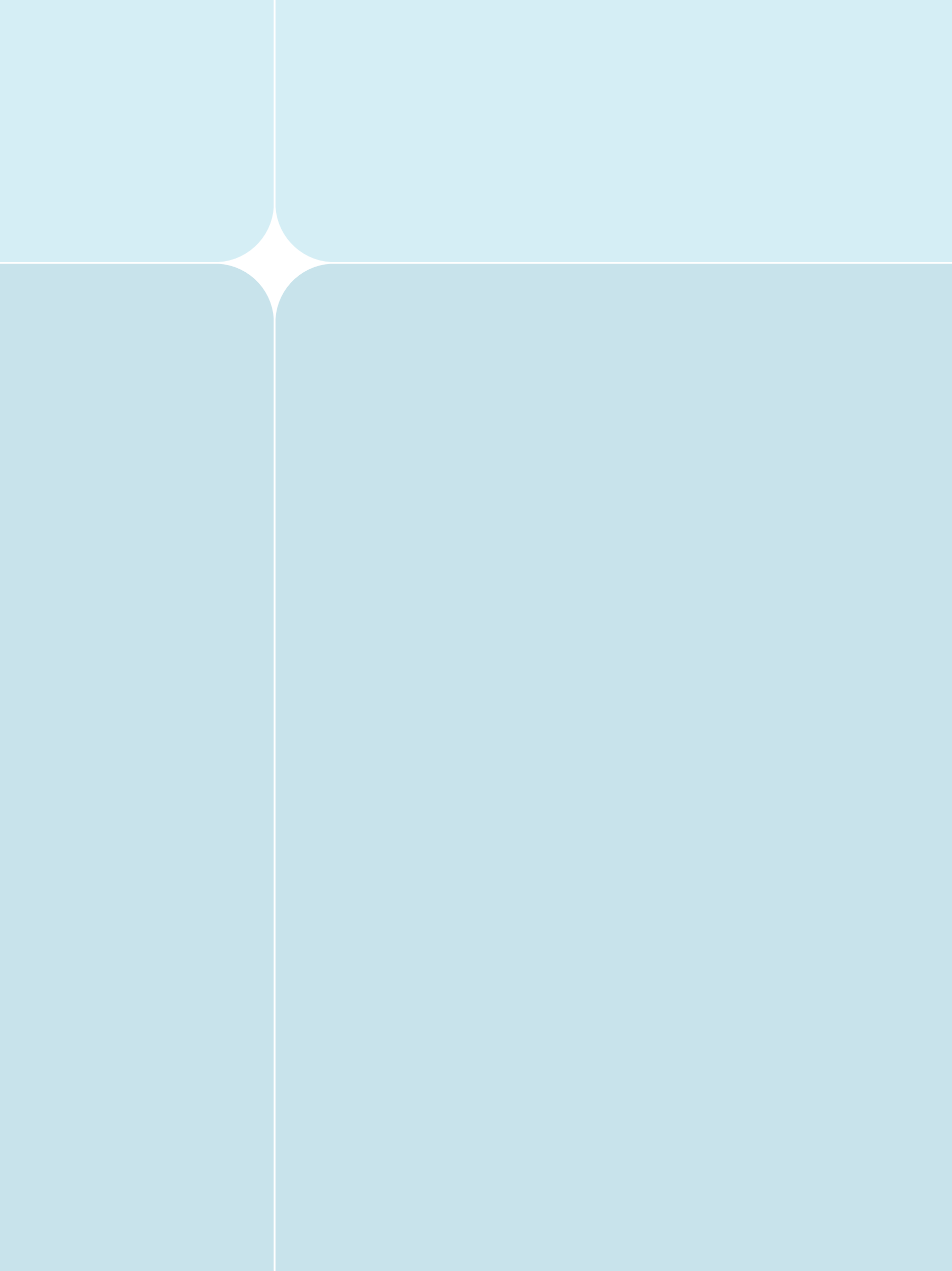




## 6. Eye health

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK





## 6. Eye health

### Introduction

Good eyesight is an important part of wellbeing and a significant factor in retaining independence and quality of life as we get older. Eye health is also an important issue for Victoria's ageing population. A report by Access Economics estimated that in 2009 there were almost 145,370 people aged 40 or over with vision loss in Victoria, accounting for more than 5.9 per cent of the population in this age group. Of these, around 16,940 people were blind (Access Economics 2010).

Without appropriate action, it is projected that the number of people with vision loss aged 40 years or over in Victoria will rise to more than 201,000 and those who are blind will rise to 26,400 by 2020 (Access Economics 2010).

Eighty per cent of vision loss and blindness is associated with five main eye conditions: age-related macular degeneration, cataract, diabetic retinopathy, glaucoma and uncorrected refractive error (Access Economics 2010). Approximately 60 per cent of this vision loss is related to uncorrected refractive error, which can usually be corrected through glasses prescribed by an eye health professional. The good news is that 75 per cent of vision loss is preventable or treatable if detected early (Access Economics 2010).

Many eye conditions have no symptoms in their early stages. Regular eye tests with an eye health professional are important to ensure early detection and treatment to prevent avoidable sight loss.

People over the age of 40, smokers, people with diabetes, those with a family history of eye disease and Aboriginal and/or Torres Strait Islander people are more at risk of developing eye conditions that can lead to vision loss. Regular eye tests are particularly important for these at-risk groups.

In 2011–12 survey respondents were asked a series of questions about eye health including whether respondents had ever seen an eye specialist, the timing of their last visit, whether they had been diagnosed with a specific eye condition and whether they usually wore a hat or sunglasses when out in the sun.

### Survey results

#### Sun-protective behaviours

- Overall, 39.3 per cent of people usually wear both sunglasses and a hat when they go out in the sun, while 15.6 per cent wear neither. A higher proportion of men wear both a hat and sunglasses compared with their female counterparts; however, men were also more likely than women not to wear either.
- The proportion of women and Victorian adults overall who usually wear a hat and sunglasses declined between 2003 and 2011–12, while no such decline was observed in men. However, the proportion of men and women who did not engage in sun protection for eye health remained constant between 2003 and 2011–12.

- A higher proportion of men and women living in rural Victoria wore both a hat and sunglasses when exposed to sunlight compared with their metropolitan counterparts.
- There were 26 LGAs, all located in rural Victoria, where a higher proportion of adults engaged in appropriate eye health sun protection behaviours (wearing both a hat and sunglasses) compared with all Victorian adults – Alpine (S), Ararat (RC), Ballarat (C), Bass Coast (S), Benalla (RC), Buloke (S), Campaspe (S), Corangamite (S), Gannawarra (S), Glenelg (S), Hindmarsh (S), Horsham (RC), Indigo (S), Macedon Ranges (S), Mansfield (S), Mildura (RC), Mitchell (S), Moira (S), Moyne (S), Murrindindi (S), Queenscliffe (B), Strathbogie (S), Surf Coast (S), Towong (S), West Wimmera (S) and Yarriambiack (S).

#### Change in vision

- In 2011–12, 42.1 per cent of Victorian adults indicated they had noticed significant changes in their vision in the previous 12 months; this was higher in women compared with men and increased with age.
- The proportion of adults who had noticed a change in their vision in the previous 12 months was similar between the metropolitan and rural areas of the state.

#### Contact with an eye health professional

- The majority of Victorians (79.6 per cent) indicated that they had ever seen an eye health professional (optician, optometrist, ophthalmologist or eye clinic); this was higher among women compared with men and increased with age.
- There was no difference in the proportion of men and women who had ever seen an eye health professional between those who lived in rural compared with metropolitan Victoria.
- A higher proportion of people who had never seen an eye health professional lived in the LGAs of Campaspe (S), Mitchell (S) and Queenscliffe (B) compared with all Victorian adults.

#### Most recent visit to an eye health professional

- Of those who had ever visited an eye health professional, 29.3 per cent had done so less than six months preceding the survey. A further 25.0 per cent reported visiting an eye health professional between six months and one year prior to the survey, 19.7 per cent more than one year but less than two years prior, 15.1 per cent more than two years but less than five years prior, and 10.6 per cent five years or more prior.
- A higher proportion of women reported visiting an eye health professional between six months and one year prior to the survey compared with their male counterparts. A lower proportion of adults living in rural Victoria had last visited an eye health professional in the previous six months compared with their metropolitan counterparts.
- There were 10 LGAs where a lower proportion of people reported having visited an eye health professional less than six months prior to the survey compared with all Victorian adults – East Gippsland (S), Greater Bendigo (C), Hindmarsh (S), Loddon (S), Mansfield (S), Mount Alexander (S), Pyrenees (S), South Gippsland (S), Surf Coast (S) and Towong (S).

### Selected eye diseases

- Overall, 8.9 per cent of Victorian adults reported having ever had a cataract, 2.2 per cent reported glaucoma, 0.5 per cent reported diabetic retinopathy, and 1.8 per cent reported macular degeneration.
- The prevalence of cataract was higher in women compared with men, but there was no difference between men and women for glaucoma, diabetic retinopathy or macular degeneration. The prevalence of all the selected eye diseases increased with age.
- The prevalence of cataract was higher among women and adults who lived in metropolitan Victoria compared with their rural counterparts. The prevalence of glaucoma, diabetic retinopathy or macular degeneration did not differ between the metropolitan and rural areas of the state.

### Sun-protective behaviours

Cataracts are a form of eye damage in which a loss of transparency in the lens of the eye clouds the vision of the eye. If left untreated, cataracts can lead to blindness. Research has shown that cumulative exposure to ultraviolet (UV) radiation increases the risk of developing cataracts as well as pterygium (tissue growth that can block vision), skin cancer around the eyes and degeneration of the macula (the part of the retina where visual perception is most acute). Eye protection when out in sunlight is strongly recommended by health professionals as a means of reducing the risk of the aforementioned adverse outcomes. Such protection should include UV-blocking sunglasses and a hat.

Survey respondents were asked 'When you go out in the sun do you usually wear a hat and do you usually wear sunglasses?'. Table 6.1 shows the proportion of Victorian adults who wore appropriate sun protection, by age group and sex. Overall, 39.3 per cent of people wore both sunglasses and a hat, while 15.6 per cent wore neither. A significantly higher proportion of men wore both a hat and sunglasses compared with their female counterparts. However, men were also more likely than women not to wear either (17.9 per cent versus 13.3 per cent). Women were more likely to wear sunglasses than men (80.3 per cent versus 66.6 per cent), while men were more likely to wear hats than women (59.1 per cent versus 40.9 per cent).

There was an age-related pattern, where significantly lower proportions of men and women aged 18–34 years wore a hat and sunglasses compared with all Victorian men and women, while significantly higher proportions of men and women aged 35–65 years or over wore a hat and sunglasses. Men and women aged 18–24 years were a particularly at-risk group, with 41.5 per cent of men and 20.2 per cent of women choosing not to wear either a hat or sunglasses.

Table 6.1: Sun-protective behaviours, by age group and sex, Victoria, 2011–12

Age group (years)	Hat and sunglasses			Neither			Hat only			Sunglasses only		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
<b>Males</b>												
18–24	20.1	16.0	25.1	41.5	35.9	47.2	28.7	23.9	34.0	49.9	44.1	55.6
25–34	35.4	30.8	40.3	22.1	18.2	26.6	45.6	40.7	50.7	67.5	62.5	72.1
35–44	53.9	50.7	57.1	10.4	8.5	12.6	65.9	62.8	68.9	77.4	74.6	80.0
45–54	52.2	49.4	54.9	12.4	10.6	14.4	65.9	63.2	68.6	73.4	70.8	75.8
55–64	50.5	47.8	53.1	12.6	10.9	14.4	69.6	67.1	72.0	67.8	65.3	70.2
65+	48.5	46.4	50.6	13.0	11.5	14.5	74.6	72.7	76.5	60.7	58.7	62.8
<b>Total</b>	<b>43.9</b>	<b>42.5</b>	<b>45.4</b>	<b>17.9</b>	<b>16.7</b>	<b>19.3</b>	<b>59.1</b>	<b>57.6</b>	<b>60.6</b>	<b>66.6</b>	<b>65.1</b>	<b>68.1</b>
<b>Females</b>												
18–24	14.6	11.6	18.3	20.2	16.1	25.0	19.8	16.1	24.2	74.0	68.7	78.6
25–34	29.4	26.1	33.0	13.8	11.4	16.7	33.9	30.4	37.5	81.6	78.4	84.4
35–44	40.5	38.2	42.9	9.7	8.3	11.2	45.3	42.9	47.7	85.4	83.6	87.0
45–54	40.1	37.9	42.3	10.0	8.7	11.4	45.3	43.1	47.5	84.7	83.1	86.3
55–64	42.1	40.0	44.3	11.4	10.1	12.7	49.4	47.2	51.6	81.0	79.3	82.6
65+	40.0	38.3	41.7	14.9	13.7	16.3	49.3	47.5	51.0	75.3	73.7	76.7
<b>Total</b>	<b>34.8</b>	<b>33.7</b>	<b>35.9</b>	<b>13.3</b>	<b>12.3</b>	<b>14.2</b>	<b>40.9</b>	<b>39.7</b>	<b>42.0</b>	<b>80.3</b>	<b>79.2</b>	<b>81.3</b>
<b>Persons</b>												
18–24	17.5	14.8	20.5	31.0	27.4	34.9	24.4	21.2	27.8	61.6	57.7	65.4
25–34	32.4	29.6	35.4	18.0	15.6	20.6	39.8	36.7	42.9	74.5	71.5	77.3
35–44	47.1	45.1	49.1	10.0	8.8	11.3	55.5	53.5	57.4	81.5	79.8	83.0
45–54	46.0	44.2	47.8	11.1	10.0	12.4	55.5	53.7	57.2	79.2	77.6	80.6
55–64	46.2	44.5	47.9	11.9	10.9	13.1	59.3	57.6	60.9	74.6	73.1	76.0
65+	43.9	42.5	45.2	14.0	13.1	15.0	60.8	59.4	62.1	68.7	67.4	69.9
<b>Total</b>	<b>39.3</b>	<b>38.4</b>	<b>40.2</b>	<b>15.6</b>	<b>14.9</b>	<b>16.5</b>	<b>49.7</b>	<b>48.8</b>	<b>50.7</b>	<b>73.6</b>	<b>72.6</b>	<b>74.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

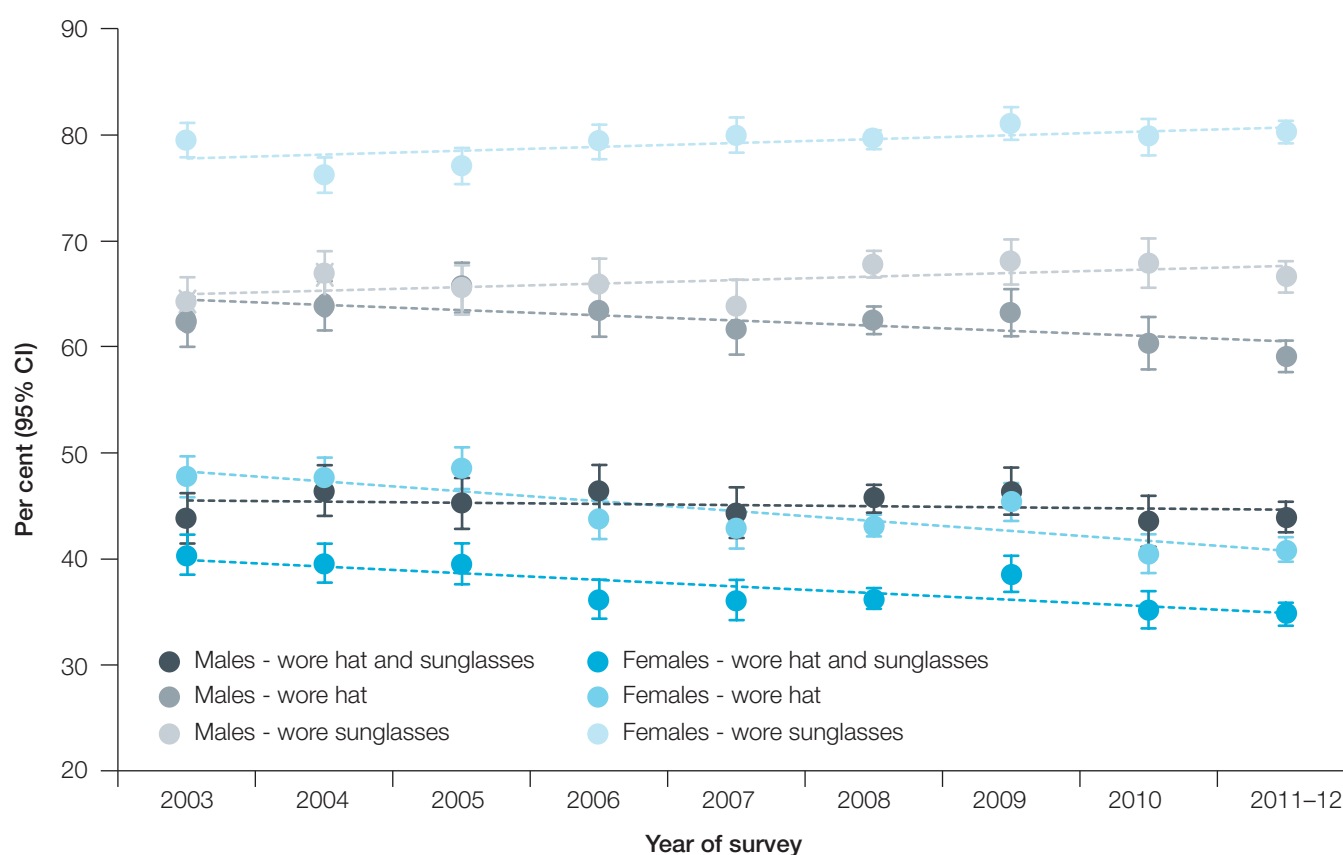
The trend over time of the age-adjusted prevalence of sun-protective behaviours is presented in Figure 6.1. The proportion of women and Victorians adults overall who usually wear a hat and sunglasses significantly declined between 2003 and 2011–12, while no such decline was observed in men. However, the proportions of men and women who did not engage in sun protection remained constant between 2003 and 2011–12.

The explanation for these seemingly paradoxical findings is that the proportion of both men and women who wore a hat (irrespective of whether they also wore sunglasses) also significantly declined during this period. By contrast while there were no significant changes in men and women who

wore sunglasses, overall there was a significant increase in the proportion of Victorian adults who wore sunglasses. Given that there is a significant decline in the proportion of men wearing a hat, it may be that in the near future this will manifest itself in an overall significant decline in men wearing both a hat and sunglasses, as observed in women.

These findings may suggest that public health messages about the advantages of wearing a hat are slowly waning and may point to a call for action, particularly since wearing a hat not only provides eye protection but also protection from the sun for the skin on the face and neck.

**Figure 6.1: Sun-protective behaviours from 2003 to 2011–12, Victoria**



Data were age-standardised to the 2011 Victorian population.  
95% CI = 95 per cent confidence interval.  
Ordinary least squares regression was used to test for trends over time.

Table 6.2 shows the proportion of Victorian adults who wore appropriate sun protection, by Department of Health region and sex. Significantly higher proportions of men and women who lived in rural Victoria wore both a hat and sunglasses when exposed to sunlight compared with their metropolitan counterparts. Moreover this was reflected in every rural Department of Health region for men. There were significantly higher proportions of women who lived in Grampians Region and Hume Region who wore both a hat and sunglasses compared with all Victorian women.

A significantly higher proportion of men and adults, but not women, who lived in North & West Metropolitan Region did not protect their eyes from the sun.



Table 6.2: Sun-protective behaviours, by Department of Health region and sex, Victoria, 2011–12

Region	Hat and sunglasses			Neither		
	%	95% CI		%	95% CI	
		LL	UL		LL	UL
<b>Males</b>						
Eastern Metropolitan	40.5	37.1	43.9	18.9	16.0	22.3
North & West Metropolitan	38.9	36.5	41.3	22.6	20.3	25.1
Southern Metropolitan	43.0	40.0	46.0	17.3	14.8	20.0
<b>Metropolitan males</b>	<b>40.8</b>	39.2	42.5	19.9	18.4	21.5
Barwon-South Western	56.9	48.9	64.6	12.0	7.8	18.0
Gippsland	51.1	46.8	55.4	11.3	8.4	15.0
Grampians	52.2	47.2	57.1	13.9	10.6	18.0
Hume	56.7	52.2	61.0	10.1	7.6	13.4
Loddon Mallee	55.7	50.7	60.5	9.8	7.2	13.2
<b>Rural males</b>	<b>54.6</b>	51.6	57.6	<b>11.2</b>	9.5	13.1
<b>Total</b>	<b>43.9</b>	<b>42.5</b>	<b>45.4</b>	<b>17.9</b>	<b>16.7</b>	<b>19.3</b>
<b>Females</b>						
Eastern Metropolitan	35.7	32.3	39.1	14.2	12.0	16.8
North & West Metropolitan	31.6	29.9	33.4	15.6	14.0	17.3
Southern Metropolitan	34.8	32.5	37.2	11.7	9.8	13.8
<b>Metropolitan females</b>	<b>33.6</b>	32.3	34.9	14.0	12.9	15.2
Barwon-South Western	37.1	32.4	42.1	10.3	7.6	13.9
Gippsland	36.9	33.8	40.1	12.2	10.1	14.7
Grampians	42.1	38.1	46.2	10.7	8.7	13.2
Hume	42.0	38.9	45.1	9.6	8.1	11.3
Loddon Mallee	37.5	34.0	41.2	10.4	8.5	12.7
<b>Rural females</b>	<b>38.6</b>	36.8	40.5	<b>10.7</b>	9.5	11.9
<b>Total</b>	<b>34.8</b>	<b>33.7</b>	<b>35.9</b>	<b>13.3</b>	<b>12.3</b>	<b>14.2</b>
<b>Persons</b>						
Eastern Metropolitan	37.9	35.6	40.3	17.0	15.0	19.2
North & West Metropolitan	35.1	33.7	36.6	19.2	17.7	20.7
Southern Metropolitan	38.8	36.9	40.7	14.4	12.8	16.1
<b>Metropolitan persons</b>	<b>37.1</b>	36.1	38.2	17.0	16.1	18.0
Barwon-South Western	46.3	41.2	51.5	11.0	8.5	14.1
Gippsland	43.6	40.9	46.3	11.9	10.0	14.1
Grampians	47.2	43.9	50.5	12.3	10.1	15.0
Hume	49.2	46.5	52.0	9.9	8.3	11.7
Loddon Mallee	46.0	42.7	49.3	10.0	8.3	12.0
<b>Rural persons</b>	<b>46.4</b>	44.6	48.3	<b>10.9</b>	9.9	12.1
<b>Total</b>	<b>39.3</b>	<b>38.4</b>	<b>40.2</b>	<b>15.6</b>	<b>14.9</b>	<b>16.5</b>

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

# Eye health



Table 6.3 shows the proportion of Victorian adults who did or did not wear appropriate sun protection, by LGA. There were significantly higher proportions of adult Victorians who did not wear any sun protection in the LGAs of Darebin (C), Greater Dandenong (C) and Melbourne (C) compared with all Victorian adults.

However, there were significantly higher proportions of people who engaged in appropriate sun protection by wearing both a hat and sunglasses in the LGAs of Alpine (S), Ararat (RC), Ballarat (C), Bass Coast (S), Benalla (RC), Buloke (S), Campaspe (S), Corangamite (S), Gannawarra (S), Glenelg (S), Hindmarsh (S), Horsham (RC), Indigo (S), Macedon Ranges (S), Mansfield (S), Mildura (RC), Mitchell (S), Moira (S), Moyne (S), Murrindindi (S), Queenscliffe (B), Strathbogie (S), Surf Coast (S), Towong (S), West Wimmera (S), and Yarriambiack (S) compared with all Victorian adults. All of these LGAs are located in rural Victoria.

Figure 6.2 shows the proportion of Victorian adults who engaged in adequate sun protection by usually wearing both a hat and sunglasses when out in the sun, by LGA.

Table 6.3: Sun-protective behaviours, by LGA, Victoria, 2011–12

LGA	Wore both a hat and sunglasses			Wore neither		
	%	95% CI		%	95% CI	
		LL	UL		LL	UL
Alpine (S)	49.9	40.1	59.7	10.6*	4.8	21.9
Ararat (RC)	48.7	42.3	55.0	13.7	8.4	21.6
Ballarat (C)	46.9	40.6	53.4	13.3	9.0	19.3
Banyule (C)	38.6	33.1	44.5	11.5	7.4	17.5
Bass Coast (S)	51.8	44.0	59.5	12.7	8.3	19.0
Baw Baw (S)	44.3	38.0	50.8	11.5	7.9	16.5
Bayside (C)	43.4	35.9	51.2	13.2	8.2	20.6
Benalla (RC)	49.7	40.7	58.7	5.8	3.9	8.5
Boroondara (C)	35.7	29.4	42.6	21.2	15.8	28.0
Brimbank (C)	32.6	27.7	37.9	20.4	16.0	25.6
Buloke (S)	50.5	42.6	58.3	16.0	10.5	23.6
Campaspe (S)	53.3	46.3	60.2	11.9	7.7	18.0
Cardinia (S)	41.6	36.3	47.0	12.1	8.8	16.5
Casey (C)	38.1	32.9	43.6	14.7	10.7	20.0
Central Goldfields (S)	47.6	37.7	57.8	14.7	8.9	23.1
Colac-Otway (S)	42.0	35.3	49.0	16.4	11.1	23.5
Corangamite (S)	59.4	53.1	65.4	7.7	5.6	10.4
Darebin (C)	31.9	27.6	36.6	23.7	18.8	29.5
East Gippsland (S)	45.3	38.6	52.1	10.3	6.7	15.7
Frankston (C)	44.1	37.7	50.6	10.6	6.6	16.6
Gannawarra (S)	52.8	45.5	60.0	6.5*	3.7	11.0
Glen Eira (C)	38.6	32.7	44.7	13.7	9.5	19.3
Glenelg (S)	49.5	41.7	57.4	14.7*	8.6	24.0
Golden Plains (S)	45.7	39.1	52.3	15.2	9.8	22.9
Greater Bendigo (C)	44.6	37.2	52.3	8.2	5.4	12.4
Greater Dandenong (C)	34.6	29.6	40.1	23.2	18.8	28.3
Greater Geelong (C)	43.9	36.7	51.5	10.7	7.2	15.6
Greater Shepparton (C)	43.8	36.5	51.3	9.7	6.3	14.7
Hepburn (S)	45.9	37.3	54.7	19.3	12.0	29.5
Hindmarsh (S)	50.6	42.5	58.6	14.6	9.3	22.2
Hobsons Bay (C)	36.3	31.0	42.0	17.0	12.6	22.5
Horsham (RC)	56.1	48.6	63.3	7.0	5.1	9.7
Hume (C)	34.9	29.7	40.3	18.8	14.1	24.5
Indigo (S)	55.5	48.1	62.6	7.3	4.7	11.2
Kingston (C)	41.8	35.6	48.4	13.2	8.7	19.4
Knox (C)	38.7	33.2	44.5	13.4	9.7	18.2
Latrobe (C)	39.8	34.5	45.3	12.2	8.6	17.1
Loddon (S)	41.3	36.1	46.7	20.4	13.9	29.0
Macedon Ranges (S)	48.7	42.0	55.5	9.4	5.8	14.9
Manningham (C)	39.2	32.7	46.1	16.8	12.2	22.8
Mansfield (S)	57.2	49.1	64.9	9.6*	5.5	16.3
Maribyrnong (C)	29.6	25.3	34.2	21.3	16.2	27.4

Table 6.3: Sun-protective behaviours, by LGA, Victoria, 2011–12 (continued)

LGA	Wore both a hat and sunglasses			Wore neither		
	%	95% CI		%	95% CI	
		LL	UL		LL	UL
Maroondah (C)	37.4	32.0	43.1	17.1	12.6	22.9
Melbourne (C)	30.1	25.1	35.6	28.1	23.0	33.9
Melton (S)	36.8	31.7	42.2	18.1	13.9	23.2
Mildura (RC)	46.2	40.4	52.1	11.9	7.5	18.5
Mitchell (S)	51.2	44.3	58.0	10.3	6.7	15.6
Moira (S)	52.7	44.8	60.6	9.5	6.3	14.2
Monash (C)	35.1	29.8	40.7	18.7	13.8	24.7
Moonee Valley (C)	35.0	29.7	40.6	19.6	14.4	26.3
Moorabool (S)	36.6	30.8	42.9	13.7	9.9	18.5
Moreland (C)	36.3	30.9	42.0	15.4	11.6	20.1
Mornington Peninsula (S)	40.4	35.4	45.6	11.9	7.7	18.1
Mount Alexander (S)	48.0	39.8	56.3	7.4	5.0	10.8
Moyne (S)	48.8	41.1	56.6	8.2	5.6	11.8
Murrindindi (S)	52.0	43.3	60.5	9.6*	5.4	16.5
Nillumbik (S)	38.3	31.9	45.0	16.0	11.1	22.5
Northern Grampians (S)	45.8	37.4	54.4	7.3*	4.2	12.4
Port Phillip (C)	31.0	26.0	36.5	15.0	10.3	21.3
Pyrenees (S)	42.9	35.9	50.3	11.2*	6.4	18.7
Queenscliffe (B)	56.5	46.6	65.8	4.7*	2.5	8.7
South Gippsland (S)	38.6	32.5	45.1	13.1*	7.4	22.1
Southern Grampians (S)	45.9	37.7	54.3	9.1	5.5	14.7
Stonnington (C)	33.1	28.0	38.7	17.7	12.9	23.9
Strathbogie (S)	54.5	43.6	65.0	10.5*	5.6	18.9
Surf Coast (S)	49.1	42.0	56.2	15.0	9.0	23.9
Swan Hill (RC)	45.7	38.8	52.8	12.9	8.7	18.6
Towong (S)	51.5	44.5	58.5	11.4*	6.0	20.6
Wangaratta (RC)	43.9	37.7	50.3	9.3	5.8	14.6
Warrnambool (C)	44.3	38.4	50.4	11.6	8.1	16.2
Wellington (S)	43.6	38.1	49.3	13.0	8.6	19.3
West Wimmera (S)	53.4	46.9	59.9	10.0	6.4	15.2
Whitehorse (C)	34.3	29.3	39.7	19.1	13.9	25.7
Whittlesea (C)	38.8	33.3	44.5	19.8	15.5	25.1
Wodonga (RC)	45.3	39.3	51.4	10.5	6.9	15.6
Wyndham (C)	36.4	31.2	41.8	12.0	8.9	16.0
Yarra (C)	33.3	28.4	38.5	18.5	12.8	25.9
Yarra Ranges (S)	42.6	36.9	48.6	15.3	10.6	21.7
Yarriambiack (S)	48.6	41.9	55.5	11.6	7.1	18.6
<b>Victoria</b>	<b>39.0</b>	<b>38.1</b>	<b>39.9</b>	<b>15.8</b>	<b>15.0</b>	<b>16.7</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

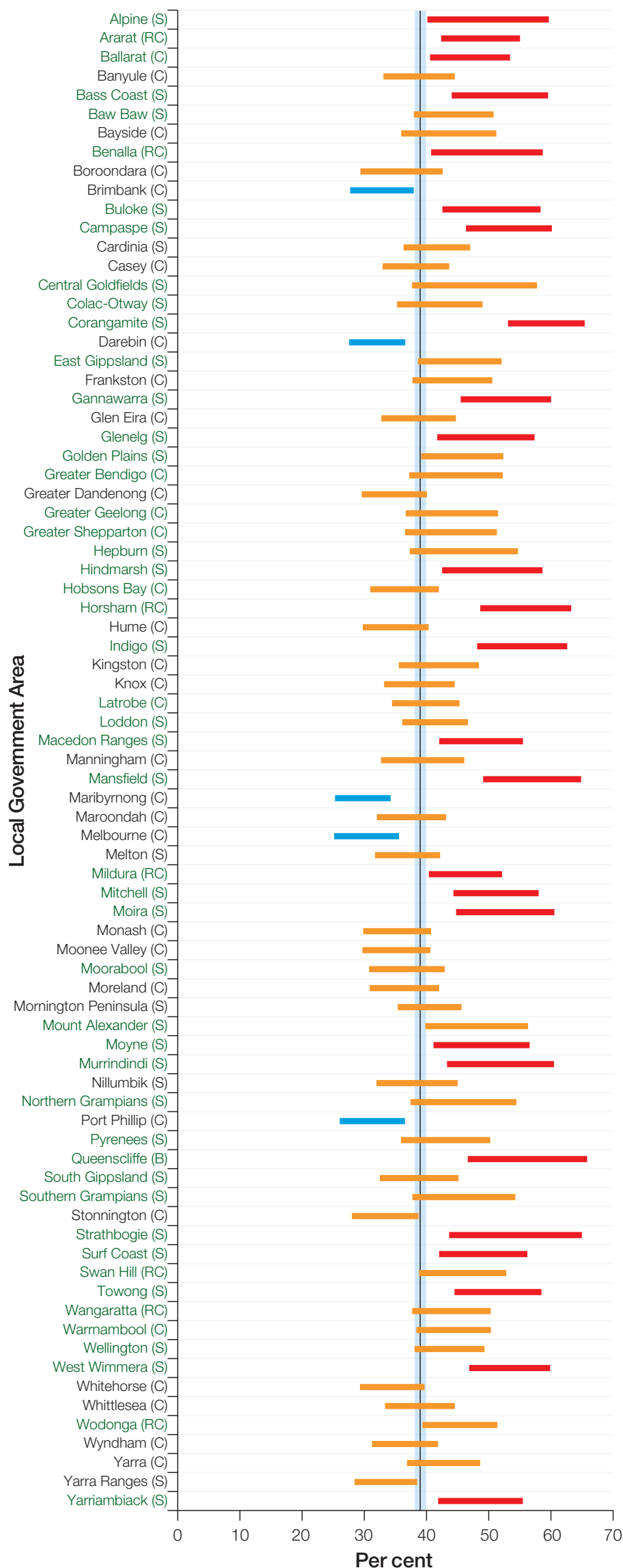
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Figure 6.2: Proportion of persons who wore both a hat and sunglasses, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

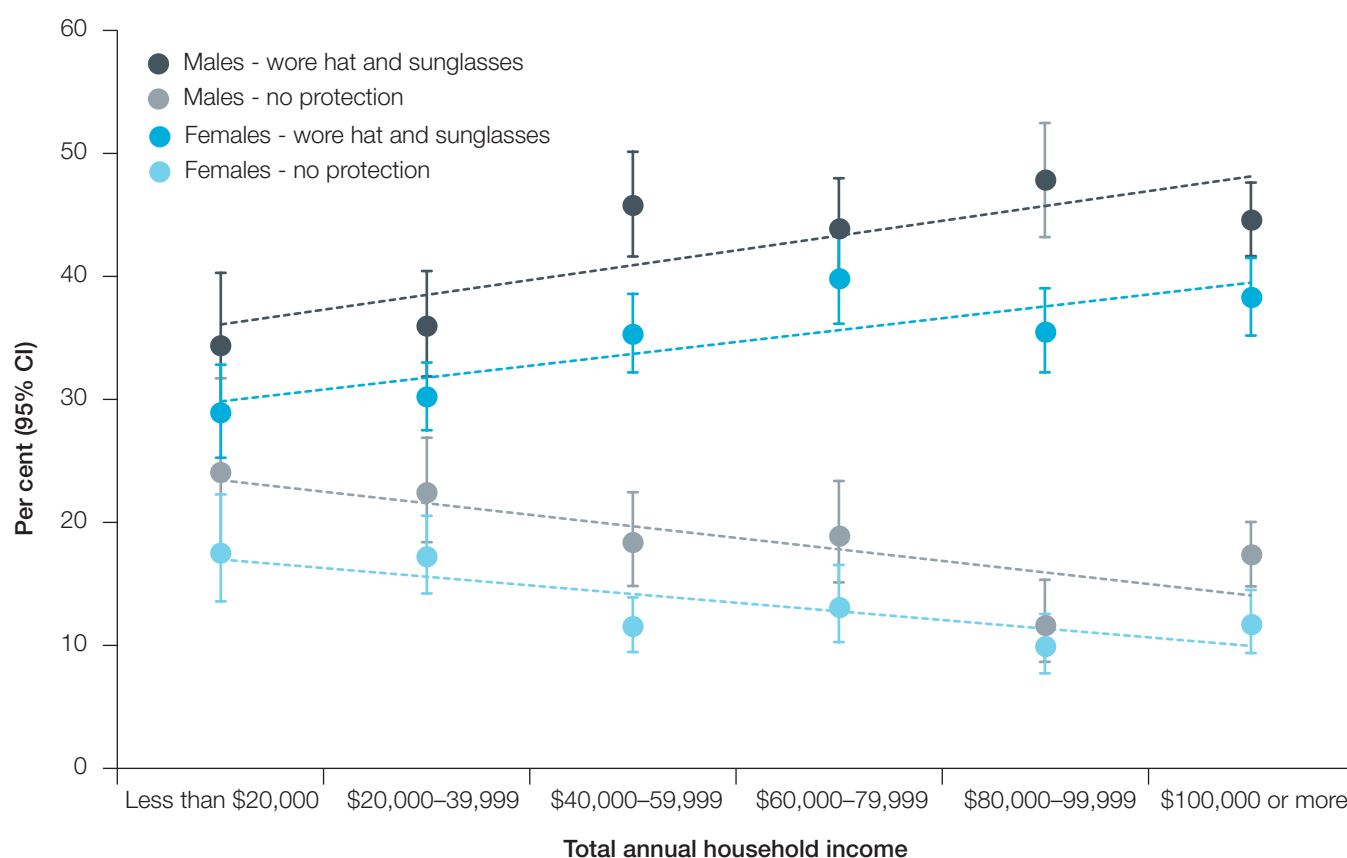
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

The relationship was investigated between SES and the age-adjusted proportion of men and women who did or did not engage in adequate sun protection, using total annual household income as a measure of SES (Figure 6.3). The proportion of both men and women who wore a hat and sunglasses when out in the sun significantly increased with increasing total annual household income. By contrast the proportion of women who did not wear a hat or sunglasses when out in the sun significantly declined with increasing income, while there was no association with SES in men.

**Figure 6.3: Proportion of men and women who did or did not engage in adequate protection from the sun, by total annual household income, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares regression was used to test for statistical significance.

## Change in vision

Survey respondents were asked 'Have you noticed a change in your vision in the last 12 months?'. Table 6.4 shows the proportion of Victorian adults who noticed a change in their vision in the 12 months preceding the survey, by age group and sex.

Overall, 42.1 per cent of people had noticed significant changes in their vision in the previous 12 months, which was significantly higher in women (44.4 per cent) compared with men (39.7 per cent).

There was an age-related pattern, where the prevalence of vision change increased with age. There was a significantly higher proportion of men, women and adults aged 45 years or over who had noticed changes in their vision compared with all Victorian men, women and adults, respectively. By contrast there was a significantly lower proportion of men, women and adults aged 18–44 years who had noticed a change in their vision compared with all Victorian men, women and adults, respectively.

**Table 6.4: Change in vision in the previous 12 months, by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	23.8	18.9	29.6	29.0	24.5	34.0	26.4	22.9	30.1
25–34	21.3	17.3	25.9	24.6	21.5	28.1	22.9	20.3	25.8
35–44	29.9	27.1	32.9	37.5	35.2	39.8	33.8	31.9	35.7
45–54	64.4	61.6	67.0	72.2	70.1	74.1	68.3	66.6	70.0
55–64	50.5	47.9	53.1	53.6	51.5	55.8	52.1	50.4	53.8
65+	47.6	45.5	49.7	50.4	48.6	52.1	49.1	47.8	50.5
<b>Total</b>	<b>39.7</b>	<b>38.3</b>	<b>41.2</b>	<b>44.4</b>	<b>43.3</b>	<b>45.6</b>	<b>42.1</b>	<b>41.2</b>	<b>43.0</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 6.5 shows the proportion of Victorian adults who had noticed a change in their vision in the previous 12 months, by Department of Health region and sex. There were no significant differences in the proportion of men, women and adults who had noticed a change in their vision in the previous 12 months and who lived in rural compared with metropolitan Victoria. There were also no significant differences by Department of Health region.

**Table 6.5: Change in vision in previous 12 months, by Department of Health region and sex, Victoria, 2011–12**

Region	%	Males		%	Females		%	Persons	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Eastern Metropolitan	42.5	39.0	46.0	44.3	41.4	47.2	43.6	41.3	45.9
North & West Metropolitan	39.3	36.9	41.8	44.9	43.0	46.9	42.1	40.6	43.7
Southern Metropolitan	38.0	35.3	40.8	42.5	40.1	45.1	40.2	38.3	42.1
<b>Metropolitan</b>	39.8	38.1	41.5	44.2	42.8	45.5	42.0	40.9	43.1
Barwon-South Western	41.9	33.8	50.4	45.7	41.5	50.0	43.6	38.8	48.5
Gippsland	39.0	35.5	42.5	46.6	42.9	50.3	42.8	40.2	45.5
Grampians	36.6	33.2	40.2	46.5	42.3	50.7	41.5	38.7	44.3
Hume	38.0	34.7	41.4	42.4	39.8	45.1	40.2	38.1	42.4
Loddon Mallee	38.3	35.1	41.6	45.6	42.4	48.8	42.6	40.1	45.2
<b>Rural</b>	39.2	36.3	42.2	45.5	43.5	47.4	42.4	40.6	44.2
<b>Total</b>	<b>39.7</b>	<b>38.3</b>	<b>41.2</b>	<b>44.4</b>	<b>43.3</b>	<b>45.6</b>	<b>42.1</b>	<b>41.2</b>	<b>43.0</b>

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Table 6.6 shows the proportion of Victorian adults who had noticed a change in their vision in the previous 12 months, by LGA. There was a significantly higher proportion of people who had noticed a change in their vision in the previous 12 months in the LGA of Monash (C) compared with all Victorian adults. By contrast there were significantly lower proportions of people who had noticed a change in their vision in the previous 12 months who lived in the LGAs of Banyule (C), Greater Shepparton (C), Macedon Ranges (S), Maribyrnong (C) and Moyne (S) compared with all Victorian adults.

Table 6.6: Change in vision in previous 12 months, by LGA, Victoria, 2011–12

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Alpine (S)	40.6	32.0	49.9	59.3	50.1	67.9
Ararat (RC)	39.1	33.5	44.9	60.2	54.4	65.8
Ballarat (C)	39.2	33.8	44.9	60.8	55.1	66.2
Banyule (C)	35.7	31.2	40.6	64.1	59.3	68.7
Bass Coast (S)	45.4	38.2	52.8	54.3	46.9	61.5
Baw Baw (S)	40.9	35.3	46.7	58.9	53.1	64.5
Bayside (C)	36.5	30.6	42.8	63.5	57.2	69.4
Benalla (RC)	36.3	31.8	41.1	63.2	58.4	67.7
Boroondara (C)	39.7	34.1	45.5	59.9	54.1	65.5
Brimbank (C)	44.0	38.9	49.3	55.6	50.3	60.7
Buloke (S)	50.4	42.3	58.4	49.6	41.6	57.7
Campaspe (S)	44.2	38.1	50.3	55.7	49.5	61.7
Cardinia (S)	39.5	34.8	44.5	60.5	55.5	65.2
Casey (C)	38.3	33.3	43.6	61.7	56.4	66.7
Central Goldfields (S)	44.9	37.0	53.0	54.6	46.4	62.5
Colac-Otway (S)	42.7	36.4	49.3	57.3	50.7	63.6
Corangamite (S)	38.6	32.3	45.4	61.3	54.5	67.6
Darebin (C)	39.7	34.3	45.3	60.2	54.5	65.5
East Gippsland (S)	46.2	40.5	51.9	53.7	48.0	59.4
Frankston (C)	41.9	35.8	48.2	58.1	51.8	64.2
Gannawarra (S)	38.9	32.1	46.2	61.0	53.7	67.8
Glen Eira (C)	38.6	32.7	44.9	61.1	54.8	67.0
Glenelg (S)	37.4	33.4	41.7	62.6	58.3	66.6
Golden Plains (S)	45.6	38.5	52.8	54.2	47.0	61.3
Greater Bendigo (C)	42.7	36.2	49.5	57.3	50.5	63.8
Greater Dandenong (C)	42.8	37.6	48.1	56.3	50.9	61.7
Greater Geelong (C)	44.6	37.2	52.3	55.4	47.7	62.8
Greater Shepparton (C)	34.9	29.8	40.4	65.1	59.6	70.2
Hepburn (S)	47.6	38.3	57.1	52.4	42.9	61.7
Hindmarsh (S)	39.5	34.1	45.3	60.5	54.7	65.9
Hobsons Bay (C)	40.7	35.0	46.7	59.1	53.1	64.9
Horsham (RC)	44.0	35.0	53.4	55.8	46.4	64.8
Hume (C)	39.8	34.5	45.3	59.6	54.1	64.9
Indigo (S)	45.5	39.1	52.2	54.4	47.7	60.8
Kingston (C)	40.0	35.1	45.0	60.0	55.0	64.9
Knox (C)	41.4	36.0	47.1	58.0	52.4	63.5
Latrobe (C)	39.0	34.3	43.9	61.0	56.1	65.7
Loddon (S)	36.8	30.4	43.8	62.9	56.0	69.4
Macedon Ranges (S)	35.3	30.3	40.6	64.7	59.4	69.7
Manningham (C)	44.3	38.0	50.8	55.7	49.2	62.0
Mansfield (S)	47.7	40.2	55.3	52.3	44.7	59.8
Maribyrnong (C)	35.8	31.6	40.2	63.8	59.3	68.0



Table 6.6: Change in vision in previous 12 months, by LGA, Victoria, 2011–12 (continued)

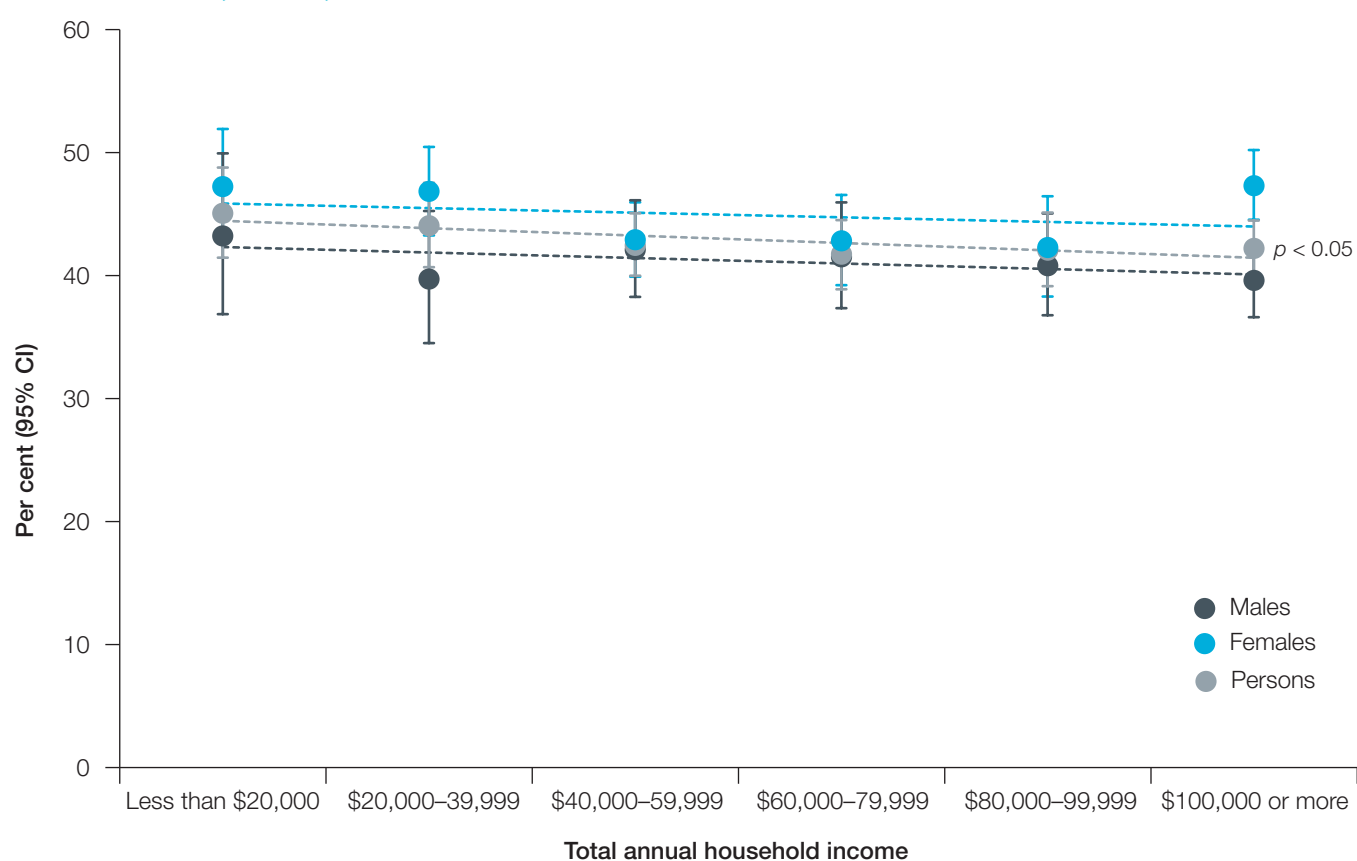
LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Maroondah (C)	41.9	36.1	48.0	58.1	52.0	63.9
Melbourne (C)	39.0	33.5	44.9	61.0	55.1	66.5
Melton (S)	42.9	37.5	48.6	56.6	50.9	62.0
Mildura (RC)	47.1	40.6	53.7	52.9	46.3	59.4
Mitchell (S)	38.4	33.6	43.4	61.3	56.2	66.1
Moira (S)	44.5	37.6	51.7	55.3	48.2	62.3
Monash (C)	49.5	43.3	55.8	50.3	44.1	56.6
Moonee Valley (C)	44.6	38.5	50.9	55.2	48.9	61.3
Moorabool (S)	42.8	37.2	48.5	57.2	51.5	62.8
Moreland (C)	44.5	38.7	50.6	55.3	49.3	61.2
Mornington Peninsula (S)	39.2	32.8	46.0	60.4	53.6	66.8
Mount Alexander (S)	43.3	36.5	50.5	56.4	49.3	63.3
Moyne (S)	35.3	31.4	39.5	64.5	60.3	68.5
Murrindindi (S)	45.9	37.8	54.3	54.0	45.7	62.1
Nillumbik (S)	39.4	34.7	44.4	60.4	55.5	65.2
Northern Grampians (S)	48.3	37.9	58.9	51.5	40.9	61.9
Port Phillip (C)	40.5	35.1	46.0	59.4	53.9	64.7
Pyrenees (S)	37.2	32.1	42.5	62.7	57.4	67.7
Queenscliffe (B)	40.6	33.6	48.1	59.3	51.9	66.4
South Gippsland (S)	40.6	35.1	46.3	59.4	53.7	64.9
Southern Grampians (S)	40.6	34.0	47.6	59.2	52.3	65.8
Stonnington (C)	41.7	35.9	47.8	58.3	52.2	64.1
Strathbogie (S)	39.1	32.7	46.0	60.8	54.0	67.3
Surf Coast (S)	42.8	36.0	49.8	57.1	50.1	63.9
Swan Hill (RC)	47.3	40.8	53.8	52.7	46.2	59.2
Towong (S)	38.6	32.8	44.6	61.4	55.4	67.2
Wangaratta (RC)	38.3	33.5	43.4	61.4	56.4	66.3
Warrnambool (C)	39.4	34.4	44.6	60.2	54.9	65.2
Wellington (S)	49.5	41.7	57.3	50.5	42.7	58.3
West Wimmera (S)	41.5	36.0	47.2	58.5	52.8	64.0
Whitehorse (C)	41.7	35.7	47.9	57.5	51.2	63.5
Whittlesea (C)	44.2	38.6	49.8	55.4	49.7	60.9
Wodonga (RC)	40.7	34.8	46.9	58.4	52.0	64.4
Wyndham (C)	44.6	39.3	50.0	55.4	50.0	60.7
Yarra (C)	40.3	34.2	46.7	59.7	53.3	65.8
Yarra Ranges (S)	49.0	42.1	55.9	50.4	43.5	57.3
Yarriambiack (S)	41.5	34.6	48.7	58.5	51.3	65.4
<b>Victoria</b>	<b>41.9</b>	<b>40.9</b>	<b>42.8</b>	<b>57.9</b>	<b>57.0</b>	<b>58.9</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.  
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.  
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.  
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

The relationship was investigated between SES and the age-adjusted proportion of men and women who noticed a change in their vision in the previous 12 months, using total annual household income as a measure of SES (Figure 6.4). While there appeared to be a trend by which the proportion of men and women who had noticed a change in their vision in the previous 12 months declined with increasing total annual household income, this did not reach statistical significance. However, when the data for men and women were combined there was a statistically significant decline with increasing income. This is consistent with the literature, which predominately finds that poorer health outcomes are associated with declining SES.

**Figure 6.4: Proportion of Victorians who noticed a change in their vision in the previous 12 months, by total annual household income, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares regression was used to test for statistical significance

## Contact with an eye health professional

Survey participants were subsequently asked ‘Have you ever seen someone who specialises in eyes, for example, an optician, optometrist, ophthalmologist (specialist eye doctor) or eye clinic?’. Table 6.7 summarises the findings, by age group and sex.

The majority of Victorians had seen an eye health professional (79.6 per cent) and this was significantly greater for women (83.3 per cent) compared with men (75.9 per cent).

There was an age-related pattern in that there were higher proportions of men and women aged 45 years or over who had ever seen an eye health professional compared with all Victorian men and women, respectively. Conversely, there were significantly lower proportions of men and women aged 18–44 years compared with all Victorian men and women (respectively) who had ever seen someone who specialises in eye health.

**Table 6.7: Ever seen an eye health professional, by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	61.8	56.1	67.3	72.5	67.4	77.1	67.0	63.2	70.7
25–34	60.1	55.1	65.0	70.4	66.7	73.8	65.2	62.1	68.2
35–44	65.5	62.4	68.4	77.5	75.5	79.4	71.6	69.7	73.4
45–54	82.0	79.8	84.0	90.0	88.7	91.3	86.1	84.8	87.3
55–64	92.7	91.2	93.9	95.1	94.1	96.0	93.9	93.1	94.7
65+	94.6	93.5	95.5	96.5	95.8	97.2	95.7	95.0	96.2
<b>Total</b>	<b>75.9</b>	<b>74.5</b>	<b>77.3</b>	<b>83.3</b>	<b>82.2</b>	<b>84.4</b>	<b>79.6</b>	<b>78.7</b>	<b>80.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria..

Table 6.8 shows the proportion of adult Victorians who had ever seen an eye health professional, by Department of Health region and sex.

There were no significant differences in the proportion of men and women who had ever seen an eye health professional and who lived in rural compared with metropolitan Victoria. However,

there were significantly higher proportions of men who lived in Eastern Metropolitan Region and women who lived in Loddon Mallee Region who had ever seen an eye health professional compared with all Victorian men and women, respectively.

**Table 6.8: Ever seen an eye health professional, by Department of Health region and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Eastern Metropolitan	80.8	77.4	83.7	86.0	83.0	88.5	83.3	81.1	85.3
North & West Metropolitan	76.0	73.5	78.3	81.8	80.0	83.5	78.9	77.4	80.4
Southern Metropolitan	74.7	71.6	77.5	82.3	79.8	84.6	78.5	76.6	80.4
<b>Metropolitan</b>	76.9	75.2	78.5	82.9	81.6	84.1	79.9	78.9	80.9
Barwon-South Western	72.7	64.0	80.0	85.9	81.1	89.7	79.4	74.1	83.8
Gippsland	73.9	69.5	77.9	84.6	81.5	87.4	79.1	76.4	81.7
Grampians	74.0	69.1	78.4	81.7	77.7	85.1	78.4	75.2	81.3
Hume	71.7	67.3	75.7	84.3	81.6	86.6	78.0	75.5	80.4
Loddon Mallee	72.3	67.5	76.6	87.9	85.7	89.8	79.7	76.3	82.8
<b>Rural</b>	72.8	69.7	75.7	85.2	83.4	86.7	78.9	77.1	80.7
<b>Total</b>	<b>75.9</b>	<b>74.5</b>	<b>77.3</b>	<b>83.3</b>	<b>82.2</b>	<b>84.4</b>	<b>79.6</b>	<b>78.7</b>	<b>80.5</b>

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 6.9 shows the proportion of adult Victorians who had ever seen an eye health professional, by LGA. There were significantly higher proportions of people who had never seen an eye health professional who lived in the LGAs of Campaspe (S), Mitchell (S) and Queenscliffe (B) compared with all Victorian adults.

Table 6.9: Ever seen an eye health professional, by LGA, Victoria, 2011–12

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Alpine (S)	75.1	64.4	83.4	24.9	16.6	35.6
Ararat (RC)	79.8	71.5	86.1	20.2	13.9	28.5
Ballarat (C)	79.0	72.6	84.3	21.0	15.7	27.4
Banyule (C)	81.4	74.8	86.5	18.6	13.5	25.2
Bass Coast (S)	80.4	72.6	86.4	19.6	13.6	27.4
Baw Baw (S)	77.7	71.4	83.0	22.3	17.0	28.6
Bayside (C)	77.6	70.1	83.7	22.4	16.3	29.9
Benalla (RC)	75.6	64.9	83.8	24.4	16.2	35.1
Boroondara (C)	85.1	78.3	90.0	14.9	10.0	21.7
Brimbank (C)	77.2	71.7	81.8	22.2	17.7	27.6
Buloke (S)	77.0	69.0	83.5	23.0	16.5	31.0
Campaspe (S)	71.7	64.2	78.2	28.3	21.8	35.8
Cardinia (S)	75.4	69.8	80.2	24.5	19.7	30.0
Casey (C)	74.6	69.0	79.5	25.4	20.5	31.0
Central Goldfields (S)	81.6	72.3	88.3	17.2	10.9	25.9
Colac-Otway (S)	84.1	77.8	88.8	15.8	11.1	22.1
Corangamite (S)	80.5	74.7	85.2	19.5	14.8	25.3
Darebin (C)	74.8	68.7	80.1	25.0	19.8	31.2
East Gippsland (S)	78.9	72.1	84.5	21.0	15.4	27.8
Frankston (C)	80.5	73.8	85.8	19.5	14.2	26.2
Gannawarra (S)	76.5	67.8	83.4	23.5	16.6	32.2
Glen Eira (C)	82.2	76.0	87.0	17.8	13.0	24.0
Glenelg (S)	85.4	78.8	90.2	14.6	9.8	21.2
Golden Plains (S)	78.0	71.3	83.5	21.9	16.4	28.6
Greater Bendigo (C)	83.6	74.7	89.7	16.3	10.2	25.2
Greater Dandenong (C)	75.7	70.1	80.5	24.3	19.5	29.9
Greater Geelong (C)	79.0	71.3	85.1	21.0	14.9	28.7
Greater Shepparton (C)	80.9	73.0	86.9	19.1	13.1	27.0
Hepburn (S)	78.0	67.3	85.9	22.0	14.1	32.7
Hindmarsh (S)	78.6	69.4	85.7	21.4	14.3	30.6
Hobsons Bay (C)	76.0	69.5	81.4	24.0	18.6	30.5
Horsham (RC)	78.5	66.7	86.9	21.5	13.1	33.3
Hume (C)	75.5	70.1	80.2	24.2	19.5	29.5
Indigo (S)	77.5	69.9	83.6	22.5	16.4	30.1
Kingston (C)	80.8	74.3	86.0	19.2	14.0	25.7
Knox (C)	82.0	76.6	86.4	17.8	13.4	23.2
Latrobe (C)	81.5	75.5	86.3	17.5	12.8	23.4
Loddon (S)	75.6	64.6	84.1	24.4	15.9	35.4
Macedon Ranges (S)	78.9	72.4	84.3	21.1	15.7	27.6
Manningham (C)	83.2	77.0	87.9	16.8	12.1	23.0
Mansfield (S)	76.7	68.0	83.6	23.3	16.4	32.0
Maribyrnong (C)	76.4	69.7	81.9	23.6	18.1	30.3

Table 6.9: Ever seen an eye health professional, by LGA, Victoria, 2011–12 (continued)

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Maroondah (C)	84.7	79.1	89.0	15.3	11.0	20.9
Melbourne (C)	84.5	79.2	88.6	15.5	11.4	20.8
Melton (S)	77.4	72.1	81.9	22.6	18.1	27.9
Mildura (RC)	80.0	72.7	85.7	20.0	14.3	27.3
Mitchell (S)	71.6	65.1	77.4	28.4	22.6	34.9
Moira (S)	75.2	67.4	81.6	24.8	18.4	32.6
Monash (C)	83.3	77.1	88.1	16.7	11.9	22.9
Moonee Valley (C)	82.0	75.8	86.8	17.9	13.0	24.0
Moorabool (S)	76.7	70.4	82.1	23.3	17.9	29.6
Moreland (C)	79.9	73.7	85.0	20.0	14.9	26.3
Mornington Peninsula (S)	79.4	72.5	84.9	20.6	15.1	27.5
Mount Alexander (S)	80.3	71.4	87.0	19.7	13.0	28.6
Moyne (S)	76.7	68.4	83.4	23.3	16.6	31.6
Murrindindi (S)	77.6	69.8	83.8	22.4	16.2	30.2
Nillumbik (S)	78.6	71.8	84.1	21.4	15.9	28.2
Northern Grampians (S)	78.1	66.9	86.2	21.9	13.8	33.1
Port Phillip (C)	77.8	70.0	84.1	22.2	15.9	30.0
Pyrenees (S)	76.3	63.6	85.6	23.7	14.4	36.4
Queenscliffe (B)	66.8	56.4	75.7	33.2	24.3	43.6
South Gippsland (S)	73.9	64.8	81.3	26.1	18.7	35.2
Southern Grampians (S)	76.0	63.5	85.2	24.0	14.8	36.5
Stonnington (C)	83.3	76.9	88.2	16.7	11.8	23.1
Strathbogie (S)	82.8	76.0	88.0	17.2	12.0	24.0
Surf Coast (S)	79.7	71.2	86.3	20.3	13.7	28.8
Swan Hill (RC)	76.2	69.1	82.1	23.8	17.9	30.9
Towong (S)	80.7	73.4	86.4	19.3	13.6	26.6
Wangaratta (RC)	79.8	72.9	85.2	20.2	14.8	27.1
Warrnambool (C)	82.0	75.7	86.9	18.0	13.1	24.3
Wellington (S)	79.5	72.5	85.0	20.5	15.0	27.5
West Wimmera (S)	80.2	73.7	85.5	19.8	14.5	26.3
Whitehorse (C)	83.9	77.3	88.9	16.1	11.1	22.7
Whittlesea (C)	75.9	70.4	80.8	24.1	19.2	29.6
Wodonga (RC)	83.8	78.5	87.9	16.2	12.1	21.5
Wyndham (C)	79.3	74.4	83.4	20.7	16.6	25.6
Yarra (C)	83.2	76.0	88.5	16.8	11.5	24.0
Yarra Ranges (S)	81.2	75.3	85.9	18.8	14.1	24.7
Yarriambiack (S)	83.1	76.3	88.3	16.9	11.7	23.7
<b>Victoria</b>	<b>79.6</b>	<b>78.7</b>	<b>80.5</b>	<b>20.4</b>	<b>19.5</b>	<b>21.3</b>

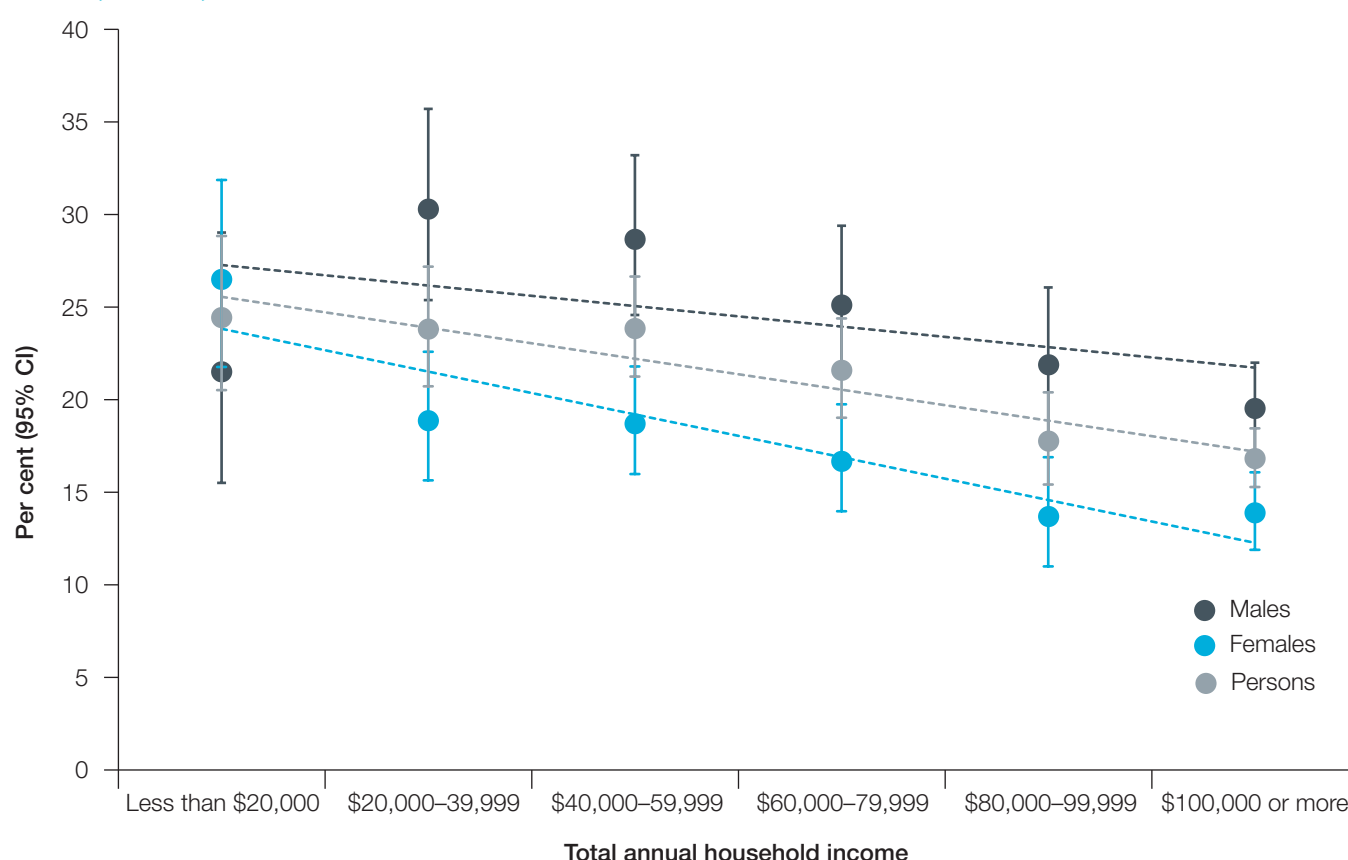
Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria

The relationship was investigated between SES and the age-adjusted proportion of men and women who had never seen an eye health professional, using total annual household income as a measure of SES (Figure 6.5). While there appeared to be a trend by which the proportion of men who had never seen an eye health professional declined with increasing total annual household income, this did not reach statistical significance. However, statistical significance was reached in women and people, where the proportion who had never seen an eye health professional declined with increasing income.

**Figure 6.5: Proportion of adult Victorians who had never seen an eye health professional, by total annual household income and sex, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.  
95% CI = 95 per cent confidence interval.  
Ordinary least squares regression was used to test for statistical significance.

## Most recent visit to an eye health professional

Survey respondents who indicated that they had ever seen an eye health professional were then asked about their most recent visit. The data are summarised in Table 6.10.

Overall, 29.3 per cent of people had visited an eye health professional less than six months prior, 25.0 per cent between six months and one year, 19.7 per cent more than one year but less than two years prior, 15.1 per cent more than two years but less than five years prior and 10.6 per cent five years or more prior to the survey.

There was an age-related pattern in the proportion of men and women who had seen an eye health professional between six and 12 months prior to the survey, where there were significantly higher proportions of those aged 45–65 years or over compared

with all men and women. Similarly there were significantly higher proportions of men and women aged 65 years or over who had visited an eye health professional less than six months prior.

Two notable differences were apparent between the sexes. There was a significantly higher proportion of women who had visited an eye health professional between six months and one year prior to the survey compared with their male counterparts. Conversely, there was a significantly higher proportion of men who had visited an eye health professional five years or more prior compared with their female counterparts.

Table 6.10 Recency of last visit to an eye care professional, by age group and sex, Victoria, 2011–12

Age group (years)	Less than 6 months ago			Between 6 months and 1 year			More than 1 year but less than 2 years			More than 2 years but less than 5 years			5 years or more			
	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL
<b>Males</b>																
18–24	24.9	19.0	31.9	21.4	15.8	28.3	17.8	12.6	24.7	19.5	14.7	25.3	16.1	12.0	21.1	21.1
25–34	23.7	18.5	29.8	14.9	11.0	19.8	21.1	16.2	26.9	14.3	10.3	19.7	24.9	19.7	31.0	31.0
35–44	20.1	17.1	23.5	22.1	18.9	25.6	17.4	14.6	20.7	20.8	17.7	24.3	19.1	16.2	22.3	22.3
45–54	29.1	26.4	32.0	28.3	25.6	31.2	22.3	19.8	25.0	13.5	11.6	15.7	6.5	5.2	8.2	8.2
55–64	29.5	27.0	32.1	28.0	25.6	30.5	22.8	20.5	25.2	14.0	12.2	15.9	5.7	4.6	7.1	7.1
65+	40.4	38.3	42.6	26.8	24.9	28.7	16.2	14.6	17.8	11.7	10.3	13.2	4.6	3.8	5.6	5.6
<b>Total</b>	<b>28.5</b>	<b>26.8</b>	<b>30.3</b>	<b>23.0</b>	<b>21.6</b>	<b>24.5</b>	<b>19.3</b>	<b>17.8</b>	<b>20.9</b>	<b>15.6</b>	<b>14.2</b>	<b>17.1</b>	<b>13.2</b>	<b>11.8</b>	<b>14.7</b>	<b>14.7</b>
<b>Females</b>																
18–24	29.6	24.0	35.9	24.4	19.4	30.2	20.1	15.8	25.2	13.7	10.0	18.5	12.3	8.6	17.2	17.2
25–34	22.2	18.7	26.2	21.5	18.0	25.5	19.3	16.1	23.0	21.0	17.7	24.8	15.2	12.4	18.6	18.6
35–44	25.0	22.7	27.5	23.3	21.0	25.6	20.2	18.1	22.6	18.4	16.4	20.7	12.8	11.2	14.7	14.7
45–54	30.5	28.3	32.7	31.1	28.9	33.3	22.5	20.6	24.5	12.4	10.9	14.1	3.5	2.8	4.4	4.4
55–64	32.8	30.7	34.9	30.4	28.4	32.5	22.6	20.8	24.5	11.7	10.4	13.2	2.4	1.9	3.1	3.1
65+	39.1	37.4	40.9	29.9	28.2	31.5	17.9	16.6	19.3	10.2	9.2	11.4	2.5	2.0	3.1	3.1
<b>Total</b>	<b>30.0</b>	<b>28.6</b>	<b>31.3</b>	<b>26.7</b>	<b>25.5</b>	<b>28.0</b>	<b>20.2</b>	<b>19.1</b>	<b>21.3</b>	<b>14.6</b>	<b>13.6</b>	<b>15.7</b>	<b>8.3</b>	<b>7.4</b>	<b>9.3</b>	<b>9.3</b>
<b>Persons</b>																
18–24	27.4	23.2	32.0	23.0	19.1	27.3	19.0	15.5	23.1	16.4	13.3	20.0	14.0	11.2	17.5	17.5
25–34	22.9	19.7	26.4	18.4	15.7	21.5	20.1	17.2	23.4	17.9	15.2	21.0	19.7	16.8	23.0	23.0
35–44	22.8	20.9	24.8	22.7	20.8	24.8	19.0	17.2	20.9	19.5	17.7	21.5	15.6	14.0	17.4	17.4
45–54	29.8	28.1	31.6	29.8	28.0	31.6	22.4	20.8	24.0	13.0	11.7	14.3	4.9	4.1	5.8	5.8
55–64	31.2	29.6	32.8	29.2	27.7	30.8	22.7	21.2	24.2	12.8	11.7	14.0	4.0	3.4	4.7	4.7
65+	39.7	38.4	41.1	28.5	27.2	29.7	17.1	16.1	18.2	10.9	10.0	11.8	3.5	3.0	4.0	4.0
<b>Total</b>	<b>29.3</b>	<b>28.2</b>	<b>30.4</b>	<b>25.0</b>	<b>24.0</b>	<b>25.9</b>	<b>19.7</b>	<b>18.8</b>	<b>20.7</b>	<b>15.1</b>	<b>14.2</b>	<b>16.0</b>	<b>10.6</b>	<b>9.8</b>	<b>11.5</b>	<b>11.5</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 6.11 shows the recency of the last visit to an eye health professional, by Department of Health region and sex. There were significantly lower proportions of adults living in rural compared with metropolitan Victoria who had last visited an eye health professional in the previous six months. Moreover there were significantly lower proportions of women and people living in Hume Region who had last visited an eye health professional in the previous six months.

By contrast there were significantly higher proportions of men and women living in rural Victoria who had last seen an eye health professional five years or more prior compared with their metropolitan counterparts. Moreover there were significantly higher proportions of women and people living in Hume Region who had last seen an eye health professional five years or more prior to the survey compared with all women and Victorian adults, respectively.



Table 6.11: Recency of last visit to an eye care professional, by Department of Health region and sex, Victoria, 2011–12

Region	Less than 6 months ago			Between 6 months and 1 year			More than 1 year but less than 2 years			More than 2 years but less than 5 years			5 years or more		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>															
Eastern Metropolitan	31.1	27.2	35.3	20.3	17.4	23.6	19.7	16.4	23.5	15.2	12.4	18.5	13.7	10.8	17.3
North & West Metropolitan	28.0	25.2	30.9	23.9	21.4	26.6	18.7	16.2	21.5	16.1	13.8	18.7	12.6	10.5	15.0
Southern Metropolitan	29.6	25.8	33.8	24.5	21.4	27.9	19.2	16.1	22.8	15.8	13.0	19.0	10.0	7.6	13.0
<b>Metropolitan males</b>	29.4	27.4	31.5	23.0	21.3	24.7	19.2	17.4	21.0	15.9	14.3	17.6	12.1	10.6	13.7
Barwon-South Western	24.4	19.2	30.4	26.2	20.6	32.8	18.8	13.8	25.0	11.5	8.0	16.1	19.1	14.1	25.2
Gippsland	26.6	21.9	31.8	21.8	18.1	26.0	15.9	12.5	20.1	17.7	13.7	22.5	17.9	13.5	23.5
Grampians	25.9	21.3	31.2	23.0	18.9	27.6	20.1	15.6	25.5	15.3	11.2	20.4	15.7	11.8	20.5
Hume	26.0	22.3	30.2	21.2	18.1	24.8	16.7	13.4	20.4	18.8	14.1	24.6	17.0	13.2	21.6
Loddon Mallee	26.1	21.4	31.5	18.9	15.8	22.5	<b>26.3</b>	21.2	32.1	11.4	9.0	14.5	17.1	12.5	23.0
<b>Rural males</b>	25.4	22.8	28.3	22.6	20.3	25.2	19.6	17.1	22.3	14.4	12.3	16.7	<b>17.9</b>	14.7	21.5
<b>Total</b>	<b>28.5</b>	<b>26.8</b>	<b>30.3</b>	<b>23.0</b>	<b>21.6</b>	<b>24.5</b>	<b>19.3</b>	<b>17.8</b>	<b>20.9</b>	<b>15.6</b>	<b>14.2</b>	<b>17.1</b>	<b>13.2</b>	<b>11.8</b>	<b>14.7</b>

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 6.11: Recency of last visit to an eye care professional, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Less than 6 months ago			Between 6 months and 1 year			More than 1 year but less than 2 years			More than 2 years but less than 5 years			5 years or more		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Females</b>															
Eastern Metropolitan	30.9	27.8	34.2	27.2	23.5	31.4	20.0	17.0	23.3	14.3	11.7	17.5	7.4	5.6	9.7
North & West Metropolitan	31.8	29.4	34.2	27.3	25.1	29.6	19.1	17.3	21.0	14.3	12.8	16.1	7.4	6.0	9.0
Southern Metropolitan	28.9	26.1	31.9	27.0	24.5	29.7	20.9	18.4	23.7	15.4	13.1	18.0	7.2	5.5	9.2
<b>Metropolitan females</b>	31.0	29.4	32.6	27.0	25.5	28.6	19.8	18.5	21.2	14.6	13.3	15.9	7.4	6.4	8.4
Barwon-South Western	30.2	25.6	35.2	21.4	18.4	24.8	22.0	17.8	26.7	15.7	12.6	19.4	10.7	7.3	15.5
Gippsland	25.5	22.3	29.0	27.2	23.4	31.4	20.3	17.1	23.9	16.0	12.9	19.6	11.0	8.0	14.8
Grampians	25.4	22.0	29.0	27.5	23.5	32.0	18.1	15.8	20.8	16.1	12.2	20.9	12.6	9.2	16.9
Hume	25.6	22.9	28.6	27.0	24.0	30.2	21.7	18.8	24.9	13.4	11.2	16.0	12.1	9.4	15.4
Loddon Mallee	27.2	24.0	30.7	28.5	23.9	33.5	20.1	17.6	22.9	13.7	11.0	16.9	10.4	7.0	15.1
<b>Rural females</b>	27.1	25.2	29.2	26.0	24.0	28.0	20.7	19.0	22.5	14.8	13.3	16.4	11.3	9.6	13.3
<b>Total</b>	<b>30.0</b>	<b>28.6</b>	<b>31.3</b>	<b>26.7</b>	<b>25.5</b>	<b>28.0</b>	<b>20.2</b>	<b>19.1</b>	<b>21.3</b>	<b>14.6</b>	<b>13.6</b>	<b>15.7</b>	<b>8.3</b>	<b>7.4</b>	<b>9.3</b>

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 6.11: Recency of last visit to an eye care professional, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Less than 6 months ago			Between 6 months and 1 year			More than 1 year but less than 2 years			More than 2 years but less than 5 years			5 years or more			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Persons</b>																
Eastern Metropolitan	31.5	28.9	34.3	23.2	20.9	25.7	20.1	17.9	22.6	14.7	12.7	17.0	10.3	8.6	12.4	
North & West Metropolitan	29.9	28.1	31.8	25.6	24.0	27.3	18.9	17.4	20.6	15.3	13.8	16.8	9.9	8.6	11.3	
Southern Metropolitan	29.2	26.9	31.6	25.9	23.9	28.0	20.2	18.1	22.4	15.6	13.8	17.6	8.5	7.0	10.2	
<b>Metropolitan persons</b>	30.2	29.0	31.5	25.1	23.9	26.2	19.5	18.4	20.6	15.2	14.2	16.3	9.6	8.7	10.5	
Barwon-South Western	26.4	21.8	31.5	23.7	20.5	27.3	20.8	17.2	24.9	13.4	10.9	16.4	15.6	10.7	22.1	
Gippsland	26.0	23.1	29.1	24.9	22.1	27.9	18.2	15.8	21.0	16.7	14.1	19.7	14.1	11.4	17.3	
Grampians	26.3	23.1	29.8	24.7	21.8	27.7	19.4	16.3	22.8	15.8	12.7	19.4	13.7	11.1	16.8	
Hume	25.7	23.4	28.1	24.6	22.3	27.1	19.4	17.2	21.9	15.7	13.1	18.8	14.4	12.0	17.1	
Loddon Mallee	26.8	24.0	29.8	25.1	21.5	29.1	22.3	19.4	25.5	12.6	10.6	14.9	13.1	10.0	16.9	
<b>Rural persons</b>	26.3	24.6	28.0	24.6	23.0	26.2	20.0	18.5	21.6	14.6	13.3	15.9	14.4	12.3	16.8	
<b>Total</b>	29.3	28.2	30.4	25.0	24.0	25.9	19.7	18.8	20.7	15.1	14.2	16.0	10.6	9.8	11.5	

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

# Eye health

Table 6.12 shows the recency of the last visit to an eye health professional, by LGA. The proportions of people who had visited an eye health professional less than six months prior to the survey were significantly lower in those who lived in East Gippsland (S), Greater Bendigo (C), Hindmarsh (S), Loddon (S), Mansfield (S), Mount Alexander (S), Pyrenees (S), South Gippsland (S), Surf Coast (S) and Towong (S) compared with all Victorian adults.

By contrast the proportions of people who had visited an eye health professional five years or more prior were significantly higher in those who lived in the LGAs of East Gippsland (S), Hindmarsh (S), Loddon (S), Moira (S), Northern Grampians (S), Pyrenees (S), Strathbogie (S), Surf Coast (S) and Yarra Ranges (S) compared with all Victorian adults. By contrast the proportion was significantly lower for those who lived in the LGA of Stonnington (C) compared with all Victorians.

Table 6.12: Recency of last visit to an eye care professional, by LGA, Victoria, 2011–12

LGA	Less than 6 months ago			Between 6 months and 1 year			More than 1 year but less than 2 years			More than 2 years but less than 5 years			5 years or more		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Alpine (S)	24.7	18.6	32.1	28.7	17.70	42.98	14.5	10.59	19.48	17.2*	10.18	27.59	14.9*	6.37	30.95
Ararat (RC)	28.4	21.7	36.2	24.7	18.4	32.3	19.5	13.5	27.3	10.6	7.5	14.7	16.8	10.2	26.3
Ballarat (C)	26.4	20.3	33.6	24.8	19.5	31.0	19.8	14.1	27.1	17.0	11.5	24.6	11.9	8.1	17.2
Banyule (C)	26.6	20.2	34.1	26.3	20.1	33.7	25.3	18.9	33.0	13.2	9.4	18.2	8.5	5.3	13.4
Bass Coast (S)	33.6	25.3	43.1	21.6	15.5	29.3	15.0	10.6	20.9	15.2*	9.0	24.7	14.5*	7.9	25.1
Baw Baw (S)	22.7	17.4	29.1	24.3	18.9	30.8	20.5	15.2	27.1	18.4	12.8	25.9	14.1	8.7	21.9
Bayside (C)	23.3	17.7	30.1	38.1	30.0	47.0	15.7	11.1	21.8	13.4	9.1	19.3	9.4*	4.9	17.0
Benalla (RC)	29.4	19.9	41.2	22.4	14.0	33.7	18.9	14.3	24.5	14.8*	8.3	25.0	14.2*	8.0	23.9
Boroondara (C)	31.7	25.5	38.7	29.1	21.9	37.4	16.4	12.2	21.6	9.7	6.4	14.5	13.1	8.3	20.1
Brimbank (C)	28.1	22.6	34.3	27.4	21.9	33.7	15.8	11.8	21.0	20.8	15.5	27.2	8.0*	4.8	12.9
Buloke (S)	25.5	18.2	34.6	27.2	19.2	37.1	24.6	17.6	33.2	14.6*	7.3	27.3	8.0	4.9	12.7
Campaspe (S)	31.6	23.9	40.5	22.7	16.3	30.8	22.6	15.0	32.7	13.5*	6.8	24.9	9.6*	4.9	17.9
Cardinia (S)	28.1	22.6	34.4	27.5	21.7	34.3	20.9	16.1	26.7	13.6	9.4	19.4	9.6	6.2	14.5
Casey (C)	32.4	24.9	40.9	23.4	18.6	29.0	19.9	14.3	26.9	16.2	10.6	24.0	7.5*	3.9	14.1
Central Goldfields (S)	20.8	14.1	29.6	20.7	15.3	27.4	20.6	14.0	29.3	25.6	15.3	39.6	12.2	8.2	17.9
Colac-Otway (S)	24.2	19.3	29.9	26.8	20.5	34.2	19.2	14.5	24.9	16.1	10.6	23.6	13.7	8.3	21.7
Corangamite (S)	21.4	15.6	28.7	25.6	20.1	32.1	19.1	13.6	26.1	21.7	14.2	31.7	12.1	7.7	18.6
Darebin (C)	22.4	17.4	28.3	24.9	18.4	32.8	20.4	15.8	26.0	15.0	9.8	22.4	15.5	9.7	23.8
East Gippsland (S)	20.1	16.1	24.7	28.2	22.2	35.0	15.9	11.4	21.7	13.6*	8.0	22.0	22.1	15.4	30.7
Frankston (C)	30.1	24.4	36.5	20.3	15.7	25.7	22.0	16.5	28.8	16.3	11.1	23.4	11.3	7.3	16.9
Gannawarra (S)	24.2	18.1	31.6	26.5	19.5	34.9	23.0	17.0	30.3	12.7	8.4	18.8	13.5*	7.5	23.2
Glen Eira (C)	26.2	20.9	32.4	29.0	22.7	36.2	16.2	11.0	23.2	18.5	13.2	25.2	10.2	6.4	15.8
Glenelg (S)	23.5	18.6	29.2	25.6	19.4	32.9	17.3	12.7	23.0	24.2	16.4	34.2	9.4*	4.6	18.3
Golden Plains (S)	24.4	19.5	30.2	32.9	24.9	41.9	20.6	15.6	26.7	12.0	8.8	16.1	10.1*	5.4	18.1
Greater Bendigo (C)	21.5	17.5	26.1	31.1	22.7	41.0	22.8	17.1	29.8	9.8	6.8	14.1	14.6*	7.9	25.4

Table 6.12: Recency of last visit to an eye care professional, by LGA, Victoria, 2011–12 (continued)

LGA	Less than 6 months ago			Between 6 months and 1 year			More than 1 year but less than 2 years			More than 2 years but less than 5 years			5 years or more		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Greater Dandenong (C)	26.7	21.4	32.6	25.4	20.1	31.5	20.8	15.8	26.9	17.5	12.7	23.6	8.4*	5.0	13.8
Greater Geelong (C)	26.9	20.2	35.0	24.3	18.1	31.8	22.0	16.1	29.3	11.2	7.3	16.8	15.5*	8.7	26.2
Greater Shepparton (C)	24.4	19.2	30.5	29.0	22.3	36.7	17.5	12.1	24.5	16.0	9.6	25.4	12.9*	7.7	20.9
Hepburn (S)	31.4	21.0	44.0	21.3	14.6	30.0	19.6	14.1	26.5	19.6*	10.8	32.9	8.0*	4.8	12.9
Hindmarsh (S)	18.8	15.7	22.4	21.1	15.0	28.6	22.5	15.8	30.8	14.8	9.7	22.1	22.9	14.9	33.5
Hobsons Bay (C)	30.0	23.7	37.1	24.1	18.5	30.7	19.4	13.7	26.9	15.5	10.3	22.6	11.1*	6.4	18.5
Horsham (RC)	27.4	19.1	37.6	21.0	16.5	26.3	26.4	16.5	39.4	13.0	9.7	17.3	12.1*	6.4	21.8
Hume (C)	32.5	25.7	40.2	33.9	28.0	40.2	15.8	11.7	20.9	12.1	8.1	17.9	5.7*	3.2	9.8
Indigo (S)	26.8	20.2	34.5	27.1	19.8	35.8	17.0	12.4	22.8	13.3	8.3	20.7	15.8*	9.3	25.5
Kingston (C)	32.6	25.7	40.3	20.2	15.8	25.5	22.0	16.2	29.2	14.6	10.4	20.1	10.5*	5.7	18.7
Knox (C)	26.4	21.2	32.3	23.4	18.4	29.3	20.8	15.6	27.1	19.2	14.2	25.6	10.2	6.6	15.3
Latrobe (C)	25.5	20.2	31.7	21.6	17.2	26.8	18.9	13.6	25.7	20.1	14.8	26.7	13.7	8.7	20.9
Loddon (S)	14.8	11.8	18.4	22.7	15.9	31.2	22.9	16.5	30.9	17.8	12.6	24.5	21.9	14.5	31.8
Macedon Ranges (S)	31.0	23.3	39.9	20.4	14.5	27.8	19.4	13.5	27.0	16.8	11.1	24.6	12.5*	7.3	20.5
Manningham (C)	32.1	25.8	39.1	18.6	14.6	23.3	28.2	20.9	36.9	12.1	7.9	18.2	9.1*	4.8	16.6
Mansfield (S)	21.6	17.8	26.0	18.0	13.6	23.5	21.9	15.0	30.8	21.1	13.2	31.9	17.4*	9.5	29.8
Maribymong (C)	26.1	20.7	32.2	22.6	14.0	34.4	19.0	14.0	25.3	18.4	13.0	25.5	13.2*	8.0	21.2
Maroondah (C)	27.4	22.0	33.7	21.6	16.4	27.8	18.8	13.5	25.6	18.4	13.3	24.8	13.6	8.7	20.5
Melbourne (C)	33.2	27.2	39.7	23.8	18.7	29.8	17.0	12.2	23.1	16.5	11.9	22.4	9.6	6.2	14.6
Melton (S)	33.1	27.1	39.7	25.8	20.8	31.5	20.3	15.9	25.7	10.8	7.4	15.5	9.5*	5.7	15.3
Mildura (RC)	34.5	27.8	41.9	21.4	16.6	27.2	21.7	16.7	27.7	10.4	7.1	15.0	11.7	7.5	17.9

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 6.12: Recency of last visit to an eye care professional, by LGA, Victoria, 2011–12 (continued)

LGA	Less than 6 months ago			Between 6 months and 1 year			More than 1 year but less than 2 years			More than 2 years but less than 5 years			5 years or more		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Mitchell (S)	22.5	17.7	28.2	24.6	18.8	31.6	24.0	15.9	34.6	12.1*	7.3	19.5	16.3	10.5	24.4
Moira (S)	24.1	19.7	29.3	24.7	18.5	32.2	17.0	11.2	25.1	15.1	9.6	23.1	18.9	11.6	29.3
Monash (C)	35.8	29.1	43.2	19.2	14.7	24.8	22.6	17.4	29.0	15.1	10.1	22.0	7.1	4.3	11.4
Moonee Valley (C)	35.4	28.5	43.0	20.1	15.8	25.2	18.1	13.5	23.9	18.1	13.1	24.6	7.8*	4.3	13.8
Moorabool (S)	25.5	19.8	32.2	29.2	22.5	36.8	14.6	10.7	19.8	16.0	11.1	22.5	13.5	8.8	20.1
Moreland (C)	34.3	27.7	41.5	20.3	15.7	25.9	22.2	16.2	29.6	12.7	8.8	18.1	10.4	6.3	16.6
Mornington Peninsula (S)	32.9	25.1	41.8	26.2	20.7	32.5	17.9	12.6	24.8	11.7	8.1	16.7	9.4*	4.8	17.7
Mount Alexander (S)	18.2	13.1	24.6	21.6	16.0	28.6	28.0	18.6	40.0	14.1	8.8	22.0	17.7*	10.5	28.3
Moyne (S)	21.6	16.3	28.2	22.3	16.8	29.1	24.8	19.2	31.5	21.4	13.6	32.0	9.6*	5.0	17.6
Murrindindi (S)	26.6	18.2	37.0	29.3	20.8	39.5	20.0	13.3	29.0	15.2	9.7	22.9	9.0*	4.8	16.5
Nilumbik (S)	30.6	23.1	39.2	21.0	16.5	26.3	15.7	11.4	21.2	18.1	11.9	26.5	14.6*	8.5	24.0
Northern Grampians (S)	26.7	18.5	36.9	22.5	17.7	28.2	15.2	11.6	19.6	12.1	7.9	18.0	23.0*	13.5	36.5
Port Phillip (C)	28.2	20.6	37.3	20.9	16.6	25.9	21.3	14.9	29.4	19.4	13.3	27.4	8.7*	4.8	15.2
Pyrenees (S)	16.6	13.0	20.8	22.9	16.3	31.2	22.7	14.3	34.0	8.7	5.4	13.8	29.1	18.6	42.5
Queenscliffe (B)	30.5	20.0	43.5	23.7	15.3	34.9	14.5*	8.0	25.0	21.6	13.5	32.7	9.7*	3.8	22.7
South Gippsland (S)	21.1	17.3	25.4	26.6	19.7	34.9	24.6	16.9	34.4	14.6*	8.7	23.5	13.1*	6.6	24.3
Southern Grampians (S)	31.7	24.2	40.3	23.2	16.4	31.7	18.1*	10.8	28.6	14.7*	8.8	23.5	12.1*	5.7	24.0
Stonnington (C)	29.4	23.8	35.7	30.8	24.5	37.9	21.5	15.9	28.4	13.4	9.1	19.4	4.4*	2.4	8.0
Strathbogie (S)	32.7	21.4	46.4	20.2	14.0	28.3	14.5	8.9	22.9	11.4*	6.3	19.5	21.1	13.4	31.7
Surf Coast (S)	20.7	15.5	27.2	24.6	19.4	30.6	23.7	15.6	34.3	11.3*	6.7	18.4	19.1	11.7	29.6
Swan Hill (RC)	28.8	21.3	37.6	17.4	12.9	23.0	27.3	19.9	36.1	14.7	10.0	21.0	11.7*	5.9	21.9
Towong (S)	21.5	17.3	26.4	16.0	12.9	19.8	23.9	16.6	33.1	22.5	14.2	33.9	15.9	10.1	24.1
Wangaratta (RC)	30.7	23.5	38.9	18.7	15.1	23.0	21.7	15.2	30.1	17.2	11.4	25.1	11.5*	6.5	19.6
Warrnambool (C)	25.4	20.5	30.9	24.8	19.0	31.5	18.8	13.6	25.3	16.5	11.6	22.9	14.6	10.1	20.7
Wellington (S)	33.8	25.1	43.8	28.7	20.2	39.2	16.6	11.8	22.7	11.4	7.4	17.1	9.5	6.0	14.8



Table 6.12: Recency of last visit to an eye care professional, by LGA, Victoria, 2011–12 (continued)

LGA	Less than 6 months ago			Between 6 months and 1 year			More than 1 year but less than 2 years			More than 2 years but less than 5 years			5 years or more		
	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL
West Wimmera (S)	27.3	20.8	34.9	17.8	13.1	23.7	21.0	16.0	27.0	17.1	12.5	23.1	16.8	11.2	24.4
Whitehorse (C)	36.3	28.9	44.4	30.2	23.8	37.5	15.9	11.6	21.4	11.8	8.2	16.6	5.7*	2.9	10.9
Whittlesea (C)	30.3	24.4	36.9	28.8	23.0	35.3	18.3	13.9	23.6	11.1	7.8	15.4	10.9	7.2	16.2
Wodonga (RC)	27.3	21.3	34.4	23.8	19.5	28.8	19.8	14.6	26.3	15.1	10.3	21.7	13.8	8.5	21.5
Wyndham (C)	29.2	23.6	35.5	29.2	23.9	35.0	13.9	10.2	18.7	16.9	12.5	22.5	9.1	5.8	14.0
Yarra (C)	24.4	18.5	31.3	24.5	18.6	31.6	24.1	16.7	33.4	16.5*	9.4	27.4	10.6	7.0	15.7
Yarra Ranges (S)	30.0	23.2	38.0	21.9	16.1	29.1	15.2	10.7	21.3	15.6	11.2	21.2	17.3	11.6	24.9
Yarriambiack (S)	25.8	19.1	33.7	23.4	15.6	33.6	16.4	12.5	21.1	20.0	14.0	27.9	13.9*	7.9	23.1
<b>Victoria</b>	<b>29.2</b>	<b>28.1</b>	<b>30.3</b>	<b>25.1</b>	<b>24.1</b>	<b>26.1</b>	<b>19.8</b>	<b>18.8</b>	<b>20.7</b>	<b>15.1</b>	<b>14.3</b>	<b>16.0</b>	<b>10.5</b>	<b>9.7</b>	<b>11.4</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

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LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

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\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

## Selected eye diseases

Uncorrected refractive error is the most common cause of vision impairment in Australia. Refractive errors are optical defects that result in light not being properly focused on the eye's retina. The most common are hypermetropia (long sightedness), myopia (short sightedness), astigmatism (uneven focus) and presbyopia (an age-related problem with near focus). However, the following eye diseases are the major causes of blindness and vision loss in Australia:

- cataract
- glaucoma
- diabetic retinopathy
- macular degeneration.

There are often no symptoms for these eye diseases in the early stages; however, if individuals wait until symptoms start to occur, then loss of vision may be irreversible. Correct early diagnosis and treatment can ensure that eyesight is preserved. The signs of eye disease are hard to detect, so having one's eyes tested is a simple and vital factor in maintaining healthy eyes.

Survey respondents were asked if they had ever had any of the aforementioned eye diseases. Table 6.13 shows the prevalence of cataract, glaucoma, diabetic retinopathy and macular degeneration, by age group and sex.

Overall, 8.9 per cent of people reported a cataract, 2.2 per cent reported glaucoma, 0.5 per cent reported diabetic retinopathy and 1.8 per cent reported macular degeneration.

The prevalence of cataract was significantly higher in women compared with men, but there was no difference between men and women for glaucoma, diabetic retinopathy or macular degeneration.

All the selected eye diseases were age-related, with their prevalence increasing with age. Victorians aged 65 years or over had the highest prevalence of cataract (35.0 per cent), glaucoma (7.8 per cent), diabetic retinopathy (1.4 per cent) and macular degeneration (5.8 per cent).

Table 6.13: Prevalence of selected eye diseases, by age group and sex, Victoria, 2011–12

Age group (years)	Cataract			Glaucoma			Diabetic retinopathy			Macular degeneration			Never seen an eye specialist		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>															
18–24	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
25–34	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
35–44	0.9*	0.5	1.7	**	**	**	**	**	**	0.6*	0.3	1.2	**	**	38.2
45–54	3.0	2.1	4.2	1.4*	0.8	2.4	0.9*	0.5	1.9	1.6	1.1	2.4	**	**	39.9
55–64	6.8	5.6	8.3	2.5	1.7	3.5	1.1	0.6	1.7	2.4	1.8	3.2	**	**	34.5
65+	28.3	26.5	30.2	8.3	7.2	9.6	1.5	1.1	2.1	4.7	3.9	5.7	**	**	18.0
<b>Total</b>	<b>7.5</b>	<b>7.1</b>	<b>8.0</b>	<b>2.3</b>	<b>2.0</b>	<b>2.6</b>	<b>0.6</b>	<b>0.4</b>	<b>0.8</b>	<b>1.7</b>	<b>1.5</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>	<b>24.0</b>
<b>Females</b>															
18–24	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
25–34	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
35–44	0.9*	0.4	1.9	0.5*	0.2	1.2	**	**	**	0.1*	0.1	0.4	**	**	27.3
45–54	2.8	2.1	3.8	1.2	0.9	1.8	**	**	**	1.3	0.9	1.9	**	**	29.6
55–64	9.1	7.9	10.4	2.5	1.9	3.3	0.8	0.5	1.3	1.7	1.3	2.3	**	**	22.4
65+	40.5	38.8	42.2	7.4	6.6	8.4	1.3	0.9	1.8	6.6	5.8	7.5	**	**	9.9
<b>Total</b>	<b>10.0</b>	<b>9.6</b>	<b>10.4</b>	<b>2.1</b>	<b>1.9</b>	<b>2.4</b>	<b>0.5</b>	<b>0.4</b>	<b>0.7</b>	<b>1.9</b>	<b>1.7</b>	<b>2.1</b>	<b>2.1</b>	<b>2.1</b>	<b>16.6</b>
<b>Persons</b>															
18–24	0.9*	0.3	2.2	**	**	**	**	**	**	**	**	**	**	**	**
25–34	0.2*	0.1	0.6	**	**	**	**	**	**	**	**	**	**	**	**
35–44	0.9	0.5	1.4	0.3*	0.1	0.6	**	**	**	0.3*	0.2	0.7	**	**	32.8
45–54	2.9	2.3	3.6	1.3	1.0	1.8	0.6*	0.3	1.1	1.5	1.1	1.9	**	**	34.8
55–64	8.0	7.1	9.0	2.5	2.0	3.1	0.9	0.7	1.3	2.0	1.7	2.5	**	**	28.4
65+	35.0	33.7	36.3	7.8	7.1	8.6	1.4	1.1	1.7	5.8	5.2	6.4	**	**	13.9
<b>Total</b>	<b>8.9</b>	<b>8.6</b>	<b>9.2</b>	<b>2.2</b>	<b>2.0</b>	<b>2.4</b>	<b>0.5</b>	<b>0.4</b>	<b>0.7</b>	<b>1.8</b>	<b>1.7</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>	<b>20.3</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 6.14 shows the prevalence of selected eye diseases, by Department of Health region and sex.

Women and adults who lived in metropolitan Victoria had a significantly higher prevalence of cataract compared with their rural counterparts. However, there were no significant differences between men, women or adults who lived in metropolitan compared with rural Victoria in the prevalence of glaucoma, diabetic retinopathy or macular degeneration.

The prevalence of cataract was significantly lower in men and people who lived in Grampians Region compared with all Victorian men and adults, respectively. There were no other significant regional differences for cataract.

The prevalence of glaucoma was significantly lower in men and people who lived in Hume Region compared with all Victorian men and adults, respectively. There were no other significant regional differences for glaucoma.

There were no significant regional differences in the prevalence of diabetic retinopathy for men, women or all Victorian adults.

The prevalence of macular degeneration was significantly higher in men and adults who lived in Gippsland Region compared with all Victorian men and adults, respectively. There were no other significant regional differences for macular degeneration.

Table 6.14: Prevalence of selected eye diseases, by Department of Health region and sex, Victoria, 2011–12

Region	Cataract			Glaucoma			Diabetic retinopathy			Macular degeneration			Never seen an eye specialist					
	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL		
<b>Males</b>																		
Eastern Metropolitan	8.0	6.7–9.5	6.7	9.5	2.1	1.5–2.9	1.5	2.9	0.5*	0.3–0.9	0.3	0.9	2.3	1.7–3.2	1.7	3.2	19.2	16.3–22.6
North & West Metropolitan	7.3	6.4–8.3	6.4	8.3	2.7	2.0–3.6	2.0	3.6	0.5*	0.3–0.9	0.3	0.9	1.3	0.9–1.8	0.9	1.8	23.9	21.6–26.3
Southern Metropolitan	7.6	6.6–8.8	6.6	8.8	2.4	1.8–3.1	1.8	3.1	0.8*	0.4–1.4	0.4	1.4	1.7	1.2–2.4	1.2	2.4	25.3	22.5–28.4
<b>Metropolitan males</b>	7.6	7.0–8.3	7.0	8.3	2.4	2.0–2.9	2.0	2.9	0.6	0.4–0.8	0.4	0.8	1.7	1.4–2.1	1.4	2.1	23.1	21.5–24.7
Barwon-South Western	7.2	6.0–8.7	6.0	8.7	2.3	1.5–3.5	1.5	3.5	**	**	**	**	1.0	0.6–1.7	0.6	1.7	27.3	20.0–36.0
Gippsland	7.5	6.5–8.7	6.5	8.7	2.4	1.6–3.7	1.6	3.7	1.1*	0.6–2.0	0.6	2.0	2.8	2.0–3.8	2.0	3.8	26.1	22.1–30.5
Grampians	5.7	4.7–6.9	4.7	6.9	1.8	1.3–2.7	1.3	2.7	0.7*	0.4–1.2	0.4	1.2	1.2	0.8–1.7	0.8	1.7	26.0	21.6–30.9
Hume	7.5	6.6–8.6	6.6	8.6	1.3	1.0–1.8	1.0	1.8	0.3*	0.2–0.6	0.2	0.6	1.6	1.1–2.2	1.1	2.2	28.3	24.3–32.7
Loddon Mallee	7.7	6.5–9.0	6.5	9.0	1.5	1.0–2.1	1.0	2.1	0.3*	0.1–0.5	0.1	0.5	1.8	1.2–2.7	1.2	2.7	27.6	23.3–32.4
<b>Rural males</b>	7.3	6.7–7.9	6.7	7.9	2.0	1.6–2.4	1.6	2.4	0.6	0.4–0.8	0.4	0.8	1.6	1.3–1.9	1.3	1.9	27.2	24.3–30.3
<b>Total</b>	<b>7.5</b>	<b>7.1–8.0</b>	<b>7.1</b>	<b>8.0</b>	<b>2.3</b>	<b>2.0–2.6</b>	<b>2.0</b>	<b>2.6</b>	<b>0.6</b>	<b>0.4–0.8</b>	<b>0.4</b>	<b>0.8</b>	<b>1.7</b>	<b>1.5–2.0</b>	<b>1.5</b>	<b>2.0</b>	<b>24.0</b>	<b>22.6–25.5</b>

Data were age-standardised to the 2011 Victorian population.

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Table 6.14: Prevalence of selected eye diseases, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Cataract			Glaucoma			Diabetic retinopathy			Macular degeneration			Never seen an eye specialist		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Females</b>															
Eastern Metropolitan	10.5	9.6	11.5	2.1	1.6	2.8	0.3*	0.1	0.6	1.8	1.3	2.3	13.9	11.4	16.9
North & West Metropolitan	10.7	9.8	11.6	1.9	1.6	2.4	0.8	0.5	1.3	1.9	1.5	2.4	18.1	16.4	19.9
Southern Metropolitan	10.0	9.2	10.9	2.5	2.0	3.2	0.4*	0.2	0.7	1.8	1.4	2.4	17.7	15.4	20.2
<b>Metropolitan females</b>	10.5	9.9	11.0	2.2	1.9	2.6	0.5	0.4	0.8	1.8	1.6	2.2	17.1	15.8	18.4
Barwon-South Western	8.5	7.3	9.9	1.9	1.3	2.7	**	**	**	1.8*	1.0	3.1	14.1	10.3	18.9
Gippsland	9.4	8.2	10.9	2.6	2.0	3.4	0.2*	0.1	0.6	2.4	1.9	3.1	14.6	12.1	17.5
Grampians	8.6	7.5	9.9	1.5	1.0	2.2	0.5*	0.2	1.1	1.5	1.0	2.3	18.3	14.8	22.2
Hume	8.7	7.8	9.7	1.8	1.3	2.5	0.4*	0.2	0.6	1.7	1.3	2.2	15.7	13.4	18.4
Loddon Mallee	9.2	8.3	10.2	2.1	1.5	2.9	**	**	**	2.6	1.9	3.7	12.0	10.1	14.2
<b>Rural females</b>	9.0	8.5	9.6	2.0	1.7	2.3	0.4*	0.2	0.7	2.0	1.7	2.4	14.7	13.1	16.4
<b>Total</b>	10.0	9.6	10.4	2.1	1.9	2.4	0.5	0.4	0.7	1.9	1.7	2.1	16.6	15.6	17.7

Data were age-standardised to the 2011 Victorian population.

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\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 6.14: Prevalence of selected eye diseases, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Cataract			Glaucoma			Diabetic retinopathy			Macular degeneration			Never seen an eye specialist			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Persons</b>																
Eastern Metropolitan	9.4	8.6	10.3	2.1	1.7	2.7	0.4*	0.2	0.6	2.0	1.6	2.5	16.7	14.7	18.9	
North & West Metropolitan	9.1	8.5	9.8	2.3	1.9	2.7	0.7	0.5	0.9	1.6	1.3	1.9	20.9	19.5	22.5	
Southern Metropolitan	9.0	8.3	9.7	2.4	2.0	2.9	0.6	0.4	0.9	1.8	1.4	2.2	21.5	19.6	23.4	
<b>Metropolitan persons</b>	9.2	8.8	9.6	2.3	2.1	2.6	0.6	0.4	0.7	1.8	1.6	2.0	20.0	19.0	21.1	
Barwon-South Western	8.0	7.0	9.0	2.1	1.6	2.8	0.5*	0.2	1.0	1.4	1.0	2.1	20.6	16.2	25.9	
Gippsland	8.5	7.7	9.4	2.6	2.0	3.3	0.7*	0.4	1.1	2.5	2.1	3.1	20.4	18.0	23.2	
Grampians	7.3	6.5	8.1	1.6	1.2	2.2	0.6	0.4	0.9	1.3	1.0	1.8	21.6	18.7	24.8	
Hume	8.1	7.5	8.8	1.6	1.3	2.0	0.3	0.2	0.5	1.6	1.3	2.0	22.0	19.6	24.5	
Loddon Mallee	8.6	7.8	9.5	1.8	1.4	2.3	**	**	**	2.2	1.7	2.9	20.2	17.1	23.7	
<b>Rural persons</b>	8.2	7.8	8.6	2.0	1.7	2.2	0.5	0.4	0.7	1.8	1.6	2.1	21.0	19.2	22.8	
<b>Total</b>	<b>8.9</b>	<b>8.6</b>	<b>9.2</b>	<b>2.2</b>	<b>2.0</b>	<b>2.4</b>	<b>0.5</b>	<b>0.4</b>	<b>0.7</b>	<b>1.8</b>	<b>1.7</b>	<b>2.0</b>	<b>20.3</b>	<b>19.4</b>	<b>21.2</b>	

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

## Reference

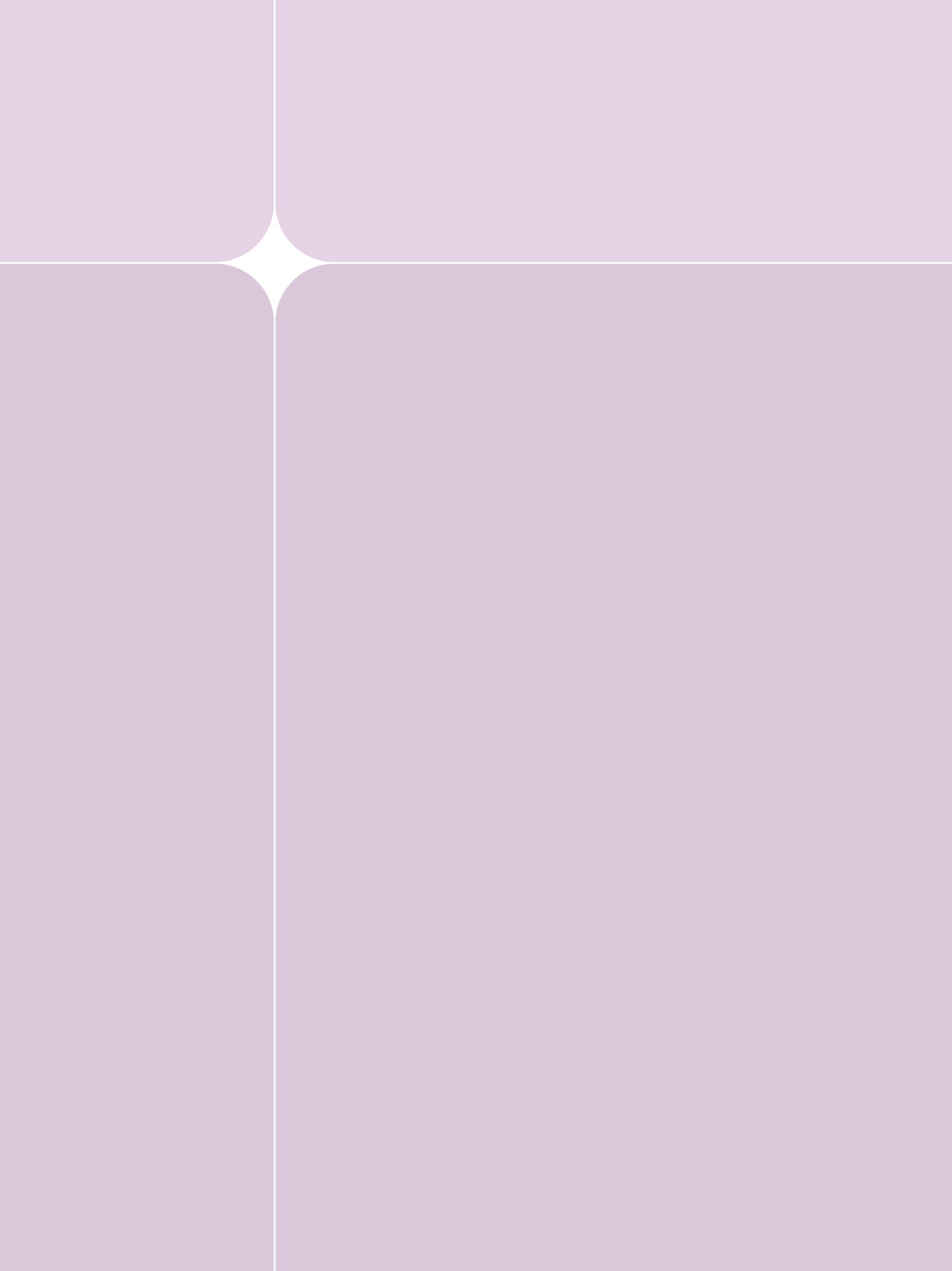
Access Economics 2010, *Clear focus: the economic impact of vision loss in Australia in 2009. An overview of the report prepared for Vision 2020 Australia by Access Economics Pty Limited*, Access Economics, Melbourne.



## 7. Asthma

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIAK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIAK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIAK





# 7. Asthma

## 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. There is evidence that environmental and lifestyle factors (viral infections, exercise, exposure to irritants and air pollutants), as well as genetic factors such as an allergic tendency, increase the risk of developing asthma (Australian Centre for Asthma Monitoring (ACAM) 2011). The disease affects all age groups, but particularly young people, and ranges in severity from intermittent, mild symptoms to a severe, incapacitating and life-threatening disorder.

The Victorian Population Health Survey examined the prevalence of doctor-diagnosed self-reported asthma, both lifetime and current asthma. Respondents were asked whether they had ever been diagnosed with asthma by a doctor and those who responded 'yes' to this question were included in the estimate of the lifetime prevalence of asthma (sometimes referred to as 'asthma ever').

Respondents who indicated that they had been diagnosed with asthma were subsequently asked if they had experienced symptoms of asthma (wheezing, coughing, shortness of breath, chest tightness) in the previous 12 months. Those that indicated that they had were classified as having 'current' asthma. In addition, respondents who indicated that they were taking concurrent medication for the management of asthma but had not experienced symptoms in the previous 12 months were also included in the estimate of the prevalence of 'current' asthma. This aligns with the definitions recommended by ACAM for the purposes of estimating the prevalence of asthma (ACAM 2007).

## Survey results

### Lifetime prevalence of asthma

- Overall, 22.2 per cent of adults reported having ever been diagnosed with asthma by a doctor. The lifetime prevalence of asthma declined with age.
- Although there was no difference overall between the sexes, women aged 45 years or over had a higher lifetime prevalence of asthma compared with their male counterparts. The lifetime prevalence of asthma was similar between adults who lived in rural and metropolitan Victoria.
- The lifetime prevalence of asthma in Victorian adults did not change between 2003 and 2011–12.

### Prevalence of current asthma

- Overall, 10.9 per cent of people had experienced symptoms of asthma or taken treatment for asthma in the 12 months preceding the survey. Overall, the prevalence of current asthma was significantly higher in women compared with men. The prevalence of current asthma in Victorian adults did not change between 2003 and 2011–12.
- There was no difference in the prevalence of current asthma between those who lived in rural compared with metropolitan Victoria. There were two LGAs in which a lower prevalence of current asthma was reported compared with all Victorian adults – Northern Grampians (S) and Whitehorse (C).

## Lifetime prevalence of asthma

Table 7.1 and Figure 7.1 show the lifetime prevalence of asthma in Victoria, by age group and sex. Overall, 21.4 per cent of men, 22.8 per cent of women and 22.2 per cent of adults reported having ever been diagnosed by a doctor with asthma. While overall there was no difference between the sexes, women aged 45 years or over had a significantly higher lifetime prevalence of asthma compared with their male counterparts.

The lifetime prevalence of asthma declined with age. Adults and men aged 45 years or over and women aged 65 years or over had a significantly lower lifetime prevalence of asthma compared with all Victorian adults, men and women, respectively. By contrast men aged 18–34 years and women aged 25–34 years had a significantly higher lifetime prevalence of asthma compared with all men and women, respectively.

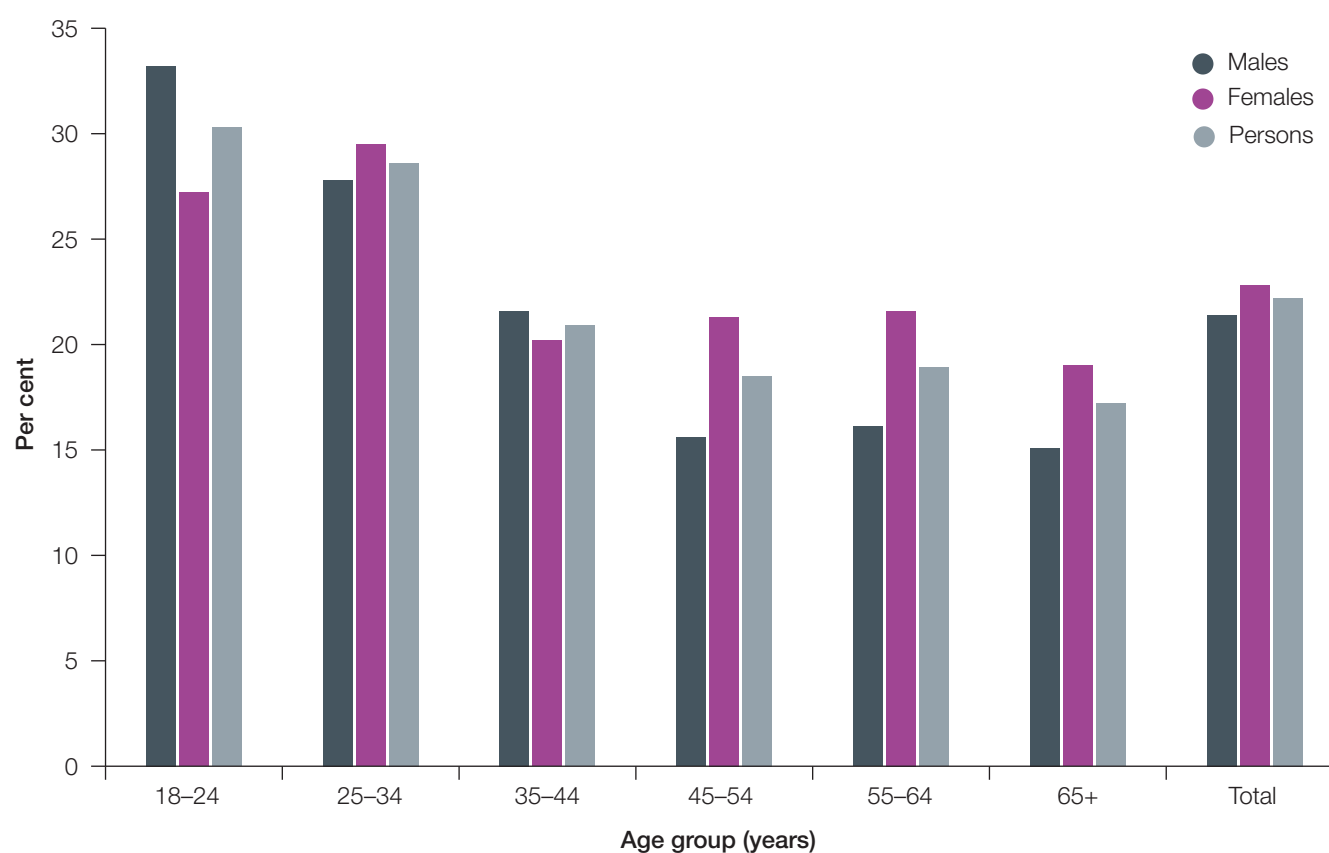
**Table 7.1: Lifetime prevalence of asthma, by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	33.2	28.0	38.9	27.2	22.8	32.1	30.3	26.8	34.1
25–34	27.8	23.5	32.5	29.5	26.2	33.0	28.6	25.9	31.5
35–44	21.6	19.1	24.3	20.2	18.4	22.2	20.9	19.4	22.6
45–54	15.6	13.7	17.7	21.3	19.6	23.2	18.5	17.2	19.9
55–64	16.1	14.2	18.2	21.6	19.9	23.5	18.9	17.7	20.3
65+	15.1	13.6	16.6	19.0	17.7	20.4	17.2	16.3	18.2
<b>Total</b>	<b>21.4</b>	<b>20.0</b>	<b>22.7</b>	<b>22.8</b>	<b>21.8</b>	<b>23.9</b>	<b>22.2</b>	<b>21.3</b>	<b>23.1</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria..

**Figure 7.1: Lifetime prevalence of asthma, by age group and sex, Victoria, 2011–12**



Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

Table 7.2 shows the age-adjusted lifetime prevalence of asthma for the period 2003 to 2011–12. The lifetime prevalence of asthma did not significantly change between 2003 and 2011–12 in men, women or all Victorian adults.

**Table 7.2: Lifetime prevalence of asthma from 2003 to 2011–12, Victoria**

Year	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
2003	18.3	16.5	20.3	22.0	20.5	23.7	20.2	19.0	21.5
2004	18.1	16.4	20.0	21.9	20.3	23.5	20.1	18.9	21.3
2005	19.7	17.8	21.8	22.3	20.7	24.1	21.1	19.8	22.4
2006	19.6	17.6	21.7	22.4	20.8	24.2	21.1	19.8	22.4
2007	18.5	16.5	20.6	22.7	21.0	24.5	20.7	19.4	22.1
2008	19.5	18.4	20.7	22.7	21.8	23.6	21.2	20.5	21.9
2009	19.4	17.6	21.4	21.5	20.0	23.2	20.5	19.3	21.7
2010	18.2	16.2	20.3	23.3	21.5	25.2	20.8	19.4	22.2
<b>2011–12</b>	<b>21.4</b>	<b>20.0</b>	<b>22.7</b>	<b>22.8</b>	<b>21.8</b>	<b>23.9</b>	<b>22.2</b>	<b>21.3</b>	<b>23.1</b>

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95% confidence interval.

Ordinary least squares linear regression was used to test for trends over time.

Table 7.3 shows the lifetime prevalence of asthma by Department of Health region and sex. There were no significant differences in the lifetime prevalence of asthma between those who lived in rural compared with metropolitan Victoria. Moreover, there were no significant regional differences among men, women or adults.

**Table 7.3: Lifetime prevalence of asthma, by Department of Health region and sex, Victoria, 2011–12**

Region	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Eastern Metropolitan	22.5	19.3	25.9	24.0	20.9	27.4	23.1	20.9	25.5
North & West Metropolitan	21.7	19.6	24.1	20.9	19.2	22.7	21.3	19.9	22.8
Southern Metropolitan	19.4	16.8	22.2	22.8	20.5	25.3	21.2	19.4	23.0
<b>Metropolitan</b>	<b>21.2</b>	<b>19.7</b>	<b>22.8</b>	<b>22.0</b>	<b>20.8</b>	<b>23.4</b>	<b>21.7</b>	<b>20.7</b>	<b>22.7</b>
Barwon-South Western	19.4	14.1	26.0	22.1	18.5	26.2	21.7	17.9	26.2
Gippsland	19.9	16.3	24.0	24.7	21.3	28.5	22.4	19.8	25.2
Grampians	21.6	17.8	26.0	27.4	23.8	31.3	24.5	21.7	27.5
Hume	22.3	18.7	26.3	26.5	23.7	29.4	24.7	22.2	27.3
Loddon Mallee	22.6	18.8	26.9	26.9	22.7	31.5	25.3	22.0	29.0
<b>Rural</b>	<b>21.8</b>	<b>19.2</b>	<b>24.7</b>	<b>25.3</b>	<b>23.5</b>	<b>27.2</b>	<b>23.8</b>	<b>22.1</b>	<b>25.6</b>
<b>Total</b>	<b>21.4</b>	<b>20.0</b>	<b>22.7</b>	<b>22.8</b>	<b>21.8</b>	<b>23.9</b>	<b>22.2</b>	<b>21.3</b>	<b>23.1</b>

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95% confidence interval.

## Prevalence of current asthma

Table 7.4 and Figure 7.2 show the prevalence of current asthma, by age group and sex. Overall 10.9 per cent of people had experienced symptoms of asthma or taken treatment for asthma in the preceding 12 months. Overall, the prevalence of current asthma was significantly higher in women (12.3 per cent) compared with men (9.4 per cent). Specifically, the prevalence of current asthma was higher in women aged 25–34 and 45 years or over compared with men of the same age groups. The only age groups where there was no difference between the sexes were those aged 18–24 and 35–44 years.

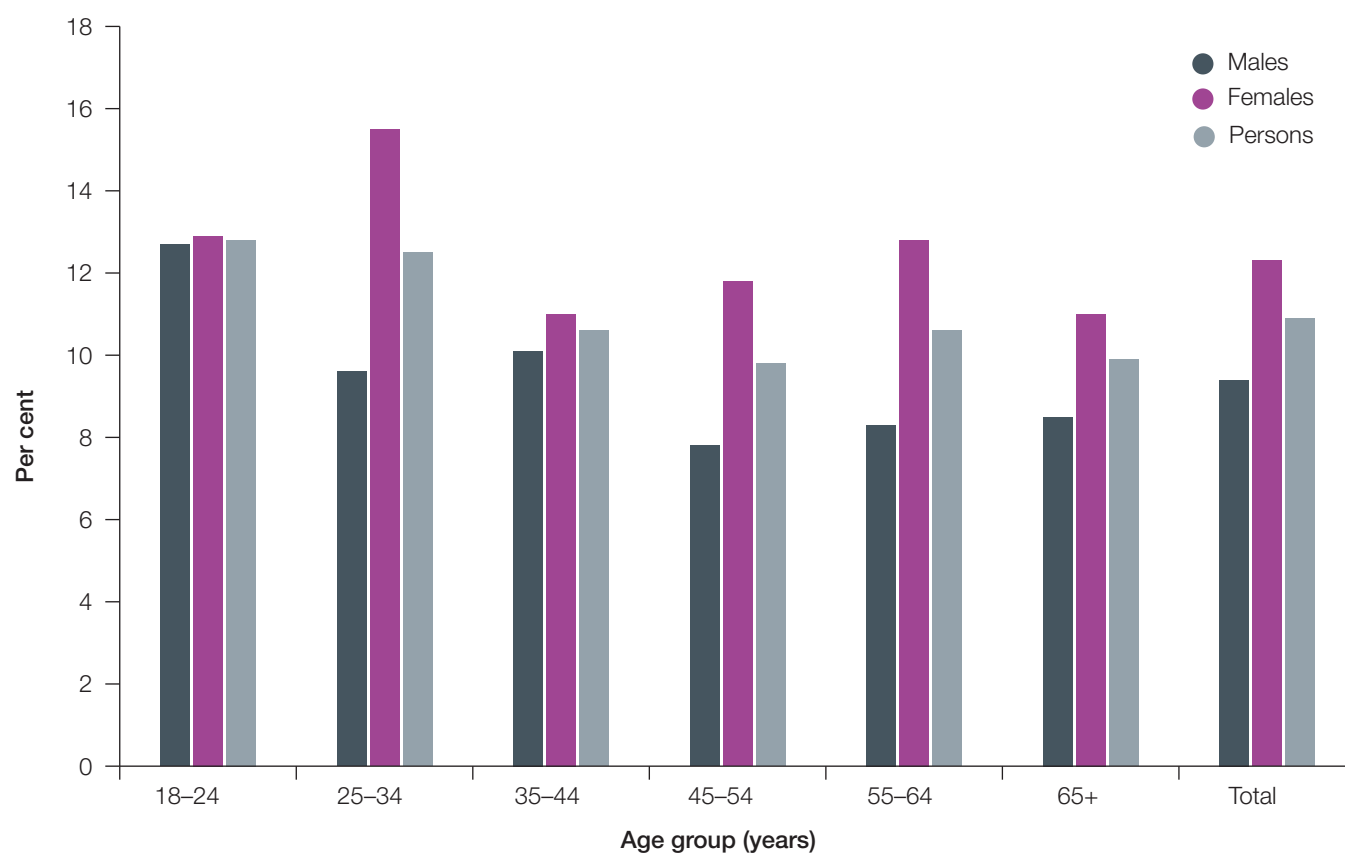
**Table 7.4: Prevalence of current asthma,<sup>a</sup> by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	12.7	9.1	17.5	12.9	9.9	16.6	12.8	10.3	15.8
25–34	9.6	7.3	12.5	15.5	13.0	18.3	12.5	10.7	14.5
35–44	10.1	8.3	12.2	11.0	9.6	12.6	10.6	9.4	11.8
45–54	7.8	6.4	9.4	11.8	10.4	13.3	9.8	8.8	10.9
55–64	8.3	6.9	9.9	12.8	11.5	14.3	10.6	9.6	11.7
65+	8.5	7.4	9.7	11.0	10.0	12.1	9.9	9.1	10.7
<b>Total</b>	<b>9.4</b>	<b>8.5</b>	<b>10.3</b>	<b>12.3</b>	<b>11.5</b>	<b>13.2</b>	<b>10.9</b>	<b>10.3</b>	<b>11.5</b>

a. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the last 12 months.

Data are age-specific estimates, except for 'Totals', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95% confidence interval.

**Figure 7.2: Prevalence of current asthma,<sup>a</sup> by age group and sex, Victoria, 2011–12**



a. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the preceding 12 months.

Data are age-specific estimates, except for 'Totals', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.



Table 7.5 shows the prevalence of current asthma for the period 2003 to 2011–12. The prevalence of current asthma did not significantly change between 2003 and 2011–12 in men, women or all Victorian adults.

**Table 7.5: Prevalence of current asthma,<sup>a</sup> from 2003 to 2011–12, Victoria**

Year	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
2003	9.4	8.2	10.9	13.7	12.4	15.1	11.6	10.7	12.6
2004	8.6	7.4	10.0	12.1	10.9	13.4	10.4	9.5	11.3
2005	9.5	8.1	11.2	13.1	11.8	14.6	11.3	10.3	12.4
2006	9.2	7.7	10.9	11.9	10.6	13.3	10.6	9.6	11.7
2007	8.7	7.3	10.2	12.1	10.8	13.6	10.4	9.4	11.5
2008	8.9	8.1	9.7	12.3	11.6	13.1	10.7	10.1	11.2
2009	8.7	7.4	10.1	10.7	9.6	11.9	9.8	8.9	10.7
2010	7.2	6.0	8.5	11.1	9.8	12.5	9.2	8.3	10.1
<b>2011–12</b>	<b>9.4</b>	<b>8.5</b>	<b>10.3</b>	<b>12.3</b>	<b>11.5</b>	<b>13.2</b>	<b>10.9</b>	<b>10.3</b>	<b>11.5</b>

a. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the last 12 months.

Data were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95% confidence interval. Ordinary least squares linear regression was used to test for trends over time.

Table 7.6 shows the prevalence of current asthma, by Department of Health region and sex. There were no significant differences in the prevalence of current asthma between those who lived in rural compared with metropolitan Victoria. Moreover there were no significant regional differences among men, women or adults.

**Table 7.6: Prevalence of current asthma,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12**

Region	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Eastern Metropolitan	11.1	8.9	13.9	11.9	9.9	14.2	11.5	10.0	13.3
North & West Metropolitan	9.1	7.7	10.8	11.2	9.9	12.6	10.2	9.2	11.2
Southern Metropolitan	8.2	6.6	10.1	12.6	10.9	14.6	10.5	9.3	11.9
<b>Metropolitan</b>	<b>9.3</b>	<b>8.3</b>	<b>10.5</b>	<b>11.8</b>	<b>10.9</b>	<b>12.8</b>	<b>10.6</b>	<b>9.9</b>	<b>11.4</b>
Barwon-South Western	9.5	6.7	13.3	14.4	11.3	18.3	12.4	9.9	15.4
Gippsland	9.4	6.8	12.8	13.0	10.2	16.3	11.3	9.2	13.7
Grampians	8.2	6.4	10.4	14.6	12.2	17.4	11.4	9.8	13.2
Hume	11.0	8.0	15.0	13.3	11.4	15.5	12.2	10.3	14.4
Loddon Mallee	8.7	6.6	11.2	12.8	10.6	15.4	10.6	9.0	12.4
<b>Rural</b>	<b>9.3</b>	<b>7.9</b>	<b>10.9</b>	<b>13.8</b>	<b>12.4</b>	<b>15.2</b>	<b>11.6</b>	<b>10.6</b>	<b>12.7</b>
<b>Total</b>	<b>9.4</b>	<b>8.5</b>	<b>10.3</b>	<b>12.3</b>	<b>11.5</b>	<b>13.2</b>	<b>10.9</b>	<b>10.3</b>	<b>11.5</b>

a. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the last 12 months.

Data were age-standardised to the 2011 Victorian population. Metropolitan and rural regions are identified by colour as follows: metropolitan/rural. LL/UL 95% CI = lower/upper limit of 95% confidence interval.

# Asthma



Table 7.7 and Figure 7.3 show the prevalence of current asthma, by LGA. There was a lower prevalence of current asthma in adults who lived in the LGAs of Northern Grampians (S) and Whitehorse (C) compared with all Victorians.

Table 7.7: Prevalence of current asthma,<sup>a</sup> by LGA and sex, Victoria, 2011–12

LGA	%	Males		%	Females		%	Persons	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	7.1*	3.1	15.4	6.6	4.2	10.3	7.2*	4.3	11.7
Ararat (RC)	19.0*	10.9	30.8	9.2	6.4	13.2	15.3	9.8	22.9
Ballarat (C)	4.4*	2.1	9.2	16.3	11.6	22.6	10.7	7.7	14.5
Banyule (C)	6.6*	3.3	12.5	15.7	10.5	22.8	11.1	7.9	15.4
Bass Coast (S)	13.1*	5.2	29.2	15.8	9.9	24.3	14.3	8.8	22.4
Baw Baw (S)	6.5*	3.4	12.0	8.4*	4.9	14.1	8.0	5.2	12.2
Bayside (C)	8.8*	4.0	18.1	10.6*	5.6	19.3	9.4	5.8	14.8
Benalla (RC)	11.2*	4.8	23.9	9.9	7.1	13.6	11.6	7.0	18.6
Boroondara (C)	12.9*	7.0	22.5	8.5	5.5	12.9	10.8	7.0	16.2
Brimbank (C)	7.3*	4.1	12.8	10.9	7.2	16.2	9.3	6.5	13.0
Buloke (S)	17.8*	9.8	30.0	9.9	6.8	14.2	13.6	8.9	20.0
Campaspe (S)	7.3*	3.2	16.0	15.1*	7.7	27.7	10.4*	6.2	16.8
Cardinia (S)	11.1	6.8	17.8	11.0	6.8	17.3	11.3	8.0	15.7
Casey (C)	8.0	5.1	12.5	14.1	9.7	20.1	10.9	8.1	14.5
Central Goldfields (S)	17.1*	9.4	29.1	8.3*	4.3	15.3	13.0*	7.1	22.8
Colac-Otway (S)	4.1*	1.9	8.9	14.5	9.2	22.3	9.3	6.2	13.7
Corangamite (S)	8.2*	3.9	16.3	11.7	8.3	16.3	10.1	7.0	14.3
Darebin (C)	10.5*	6.2	17.1	11.0	7.3	16.3	10.9	7.9	14.8
East Gippsland (S)	8.7*	3.8	18.9	17.6	10.6	27.7	13.0	8.4	19.7
Frankston (C)	11.9*	6.4	21.2	16.8	11.5	23.9	14.6	10.3	20.4
Gannawarra (S)	7.8*	4.4	13.5	13.9*	8.0	23.1	10.6	6.9	15.9
Glen Eira (C)	7.0*	3.5	13.4	12.9*	7.1	22.2	9.8	6.4	14.9
Glenelg (S)	13.0*	6.3	24.7	10.0	7.0	14.1	12.1	7.7	18.5
Golden Plains (S)	16.5*	8.6	29.3	13.8	9.2	20.4	15.3	10.3	22.1
Greater Bendigo (C)	9.2*	3.9	20.2	10.7	7.6	14.8	9.5	6.8	13.2
Greater Dandenong (C)	10.1*	5.9	16.5	14.0	9.8	19.6	12.1	8.9	16.2
Greater Geelong (C)	11.8*	5.9	21.9	15.2	10.3	21.9	14.1	9.6	20.1
Greater Shepparton (C)	13.0*	5.8	26.7	14.2*	8.4	22.9	13.7*	8.2	22.1
Hepburn (S)	9.0	5.5	14.4	17.1	11.0	25.8	13.1	9.3	18.1
Hindmarsh (S)	12.6*	5.1	27.8	13.4	8.7	20.0	13.2	8.0	21.1
Hobsons Bay (C)	10.4*	4.9	20.9	12.7	7.8	19.9	11.6	7.6	17.3
Horsham (RC)	9.6*	5.2	17.2	15.2	10.1	22.1	12.5	8.9	17.3
Hume (C)	7.4*	4.1	13.1	12.5	8.8	17.5	9.7	7.0	13.2
Indigo (S)	10.4*	4.7	21.4	17.6	11.5	26.0	14.0	9.4	20.2
Kingston (C)	5.9*	2.5	13.2	8.4	5.2	13.4	7.2	4.6	11.0
Knox (C)	10.8*	6.1	18.5	18.8	13.2	26.0	14.5	10.6	19.4
Latrobe (C)	7.5*	4.1	13.5	12.0	7.7	18.1	9.8	6.9	13.9
Loddon (S)	7.6*	4.5	12.7	17.0	10.6	26.1	12.4	7.9	18.8
Macedon Ranges (S)	5.6*	2.4	12.6	18.1	11.3	27.7	11.2	7.2	16.9
Manningham (C)	11.7*	6.8	19.5	15.9*	8.8	27.1	13.2	8.8	19.2
Mansfield (S)	11.8*	6.0	21.9	12.3	8.0	18.4	12.4	8.2	18.2
Maribyrnong (C)	13.6*	6.3	27.0	11.0	6.8	17.3	12.4*	7.3	20.2

Table 7.7: Prevalence of current asthma,<sup>a</sup> by LGA and sex, Victoria, 2011–12 (continued)

LGA	%	Males		%	Females		%	Persons	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Maroondah (C)	15.1	9.3	23.5	12.7	8.1	19.3	13.4	9.6	18.3
Melbourne (C)	8.0*	4.1	14.8	11.9	7.6	18.1	9.6	6.6	13.8
Melton (S)	7.9*	4.8	12.9	8.8	6.0	12.7	8.4	6.1	11.4
Mildura (RC)	7.6*	4.5	12.6	12.6	8.3	18.7	10.1	7.3	14.0
Mitchell (S)	10.1*	5.6	17.4	14.2	10.5	19.0	12.5	9.0	17.0
Moira (S)	8.8*	4.1	18.1	9.2	5.9	13.9	8.9	5.8	13.5
Monash (C)	11.1*	5.9	20.0	7.9	4.9	12.6	9.8	6.3	15.0
Moonee Valley (C)	10.3*	5.0	19.9	8.1	5.2	12.5	9.8	6.2	15.2
Moorabool (S)	5.6*	3.3	9.5	14.9	9.5	22.5	10.1	7.1	14.2
Moreland (C)	9.3*	5.1	16.5	11.9	7.8	17.7	10.5	7.4	14.7
Mornington Peninsula (S)	4.5*	1.8	11.0	14.9*	8.4	25.0	10.0*	5.9	16.4
Mount Alexander (S)	17.2*	8.9	30.7	14.4*	8.6	23.1	16.3	10.3	24.8
Moyne (S)	7.3*	3.6	14.2	12.8*	7.5	20.9	10.1	6.5	15.4
Murrindindi (S)	15.4*	7.0	30.6	18.6	11.3	29.0	16.8	10.6	25.6
Nillumbik (S)	11.9*	6.2	21.4	17.0	10.4	26.6	14.1	9.5	20.6
Northern Grampians (S)	6.0*	3.2	10.8	8.2	5.4	12.3	7.1	5.0	10.0
Port Phillip (C)	9.3*	4.2	19.7	10.9	7.1	16.4	10.3	6.5	15.8
Pyrenees (S)	20.3*	9.7	37.9	12.7*	7.3	21.1	16.1*	8.2	29.3
Queenscliffe (B)	**	**	**	8.6*	5.0	14.4	9.1*	5.0	16.0
South Gippsland (S)	8.2*	4.5	14.6	9.2	6.5	12.9	8.7	6.2	12.0
Southern Grampians (S)	5.2*	2.2	11.8	16.9*	9.3	28.5	10.8*	6.0	18.8
Stonnington (C)	11.0*	6.3	18.3	13.5	8.1	21.5	11.8	8.1	16.9
Strathbogie (S)	5.3*	2.8	9.6	9.4	6.1	14.2	7.4	5.1	10.6
Surf Coast (S)	8.3*	3.3	19.5	16.1	9.7	25.5	12.6	7.7	20.0
Swan Hill (RC)	8.2*	3.9	16.8	12.2	7.3	19.5	10.3	6.7	15.4
Towong (S)	8.5*	3.4	19.7	16.0	10.9	23.0	12.7	8.4	18.9
Wangaratta (RC)	15.8*	9.0	26.1	15.8	10.8	22.6	15.7	11.2	21.6
Warrnambool (C)	12.6	7.8	19.8	15.8	9.6	24.9	14.4	9.9	20.4
Wellington (S)	9.4*	4.5	18.7	15.3*	7.4	29.2	13.0*	7.0	23.0
West Wimmera (S)	6.6*	2.8	14.7	13.1	8.1	20.6	9.8	6.4	14.8
Whitehorse (C)	4.4*	2.5	7.7	6.1	4.1	9.2	5.4	3.9	7.5
Whittlesea (C)	8.8*	5.1	14.9	11.6	7.3	18.0	10.2	7.1	14.4
Wodonga (RC)	5.5*	2.5	11.8	12.8	9.5	16.9	9.2	6.7	12.6
Wyndham (C)	9.7*	5.8	15.8	10.2	6.7	15.3	9.9	7.1	13.6
Yarra (C)	11.7*	4.9	25.4	10.5	6.9	15.6	11.1	6.9	17.4
Yarra Ranges (S)	15.2	9.2	24.0	15.0	10.2	21.5	15.5	11.3	20.8
Yarriambiack (S)	13.9	8.5	21.8	9.5	6.5	13.7	11.9	8.5	16.6
<b>Victoria</b>	<b>9.4</b>	<b>8.5</b>	<b>10.4</b>	<b>12.4</b>	<b>11.6</b>	<b>13.2</b>	<b>10.9</b>	<b>10.3</b>	<b>11.6</b>

a. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the last 12 months.

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

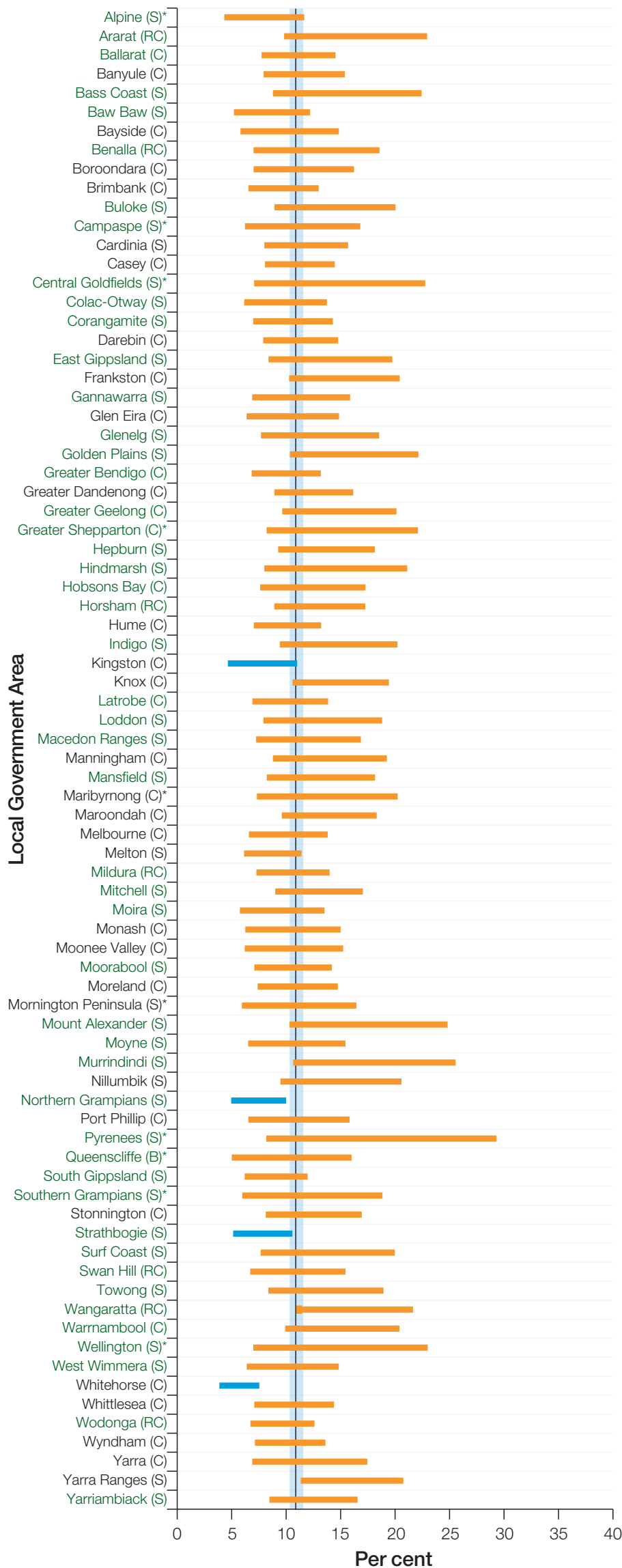
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Figure 7.3: Prevalence of current asthma<sup>a</sup> in adults, by LGA, Victoria, 2011–12



a. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the last 12 months.

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 7.8 shows the prevalence of current asthma, by selected socioeconomic determinants, modifiable risk factors and health status.

When compared with all Victorian men, a significantly higher prevalence of current asthma was reported among men with the following characteristics:

- tertiary educated
- very high level of psychological distress
- fair or poor self-reported health status.

When compared with all Victorian women, a significantly higher prevalence of current asthma was reported among women with the following characteristics:

- moderate, high or very high levels of psychological distress
- fair or poor self-reported health status
- obesity.

When compared with all Victorian men, a significantly lower prevalence of current asthma was reported among men with the following characteristic:

- excellent or very good self-reported health status.

When compared with all Victorian women, a significantly lower prevalence of current asthma was reported among women with the following characteristics:

- low level of psychological distress
- excellent or very good self-reported health status
- normal body weight.

**Table 7.8: Prevalence of current asthma,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12**

	Males			Females		
	%	95% CI		%	95% CI	
		LL	UL		LL	UL
<b>Total</b>	<b>9.4</b>	<b>8.5</b>	<b>10.3</b>	<b>12.3</b>	<b>11.5</b>	<b>13.2</b>
<i>Area of Victoria</i>						
Rural	9.3	7.9	10.9	13.8	12.4	15.2
Metropolitan	9.3	8.3	10.5	11.8	10.9	12.8
<i>Education level</i>						
Primary	10.3	8.6	12.2	14.9	12.8	17.3
Secondary	8.2	6.9	9.7	11.8	10.6	13.2
Tertiary	<b>13.1</b>	11.4	14.9	11.3	10.1	12.7
<i>Total annual household income</i>						
< \$40,000	11.4	9.3	13.8	13.5	11.5	15.9
\$40,000 to < \$100,000	9.4	7.9	11.1	12.0	10.6	13.4
≥ \$100,000	10.6	8.5	13.2	11.9	9.9	14.4
<i>Psychological distress<sup>b</sup></i>						
Low (<16)	7.7	6.7	8.7	<b>9.6</b>	8.7	10.5
Moderate (16–21)	12.4	10.2	15.0	<b>15.8</b>	14.1	17.7
High (22–29)	13.0	10.0	16.8	<b>16.9</b>	14.4	19.7
Very high (≥ 30)	<b>17.0</b>	11.9	23.6	<b>22.3</b>	17.6	27.8
<i>Physical activity<sup>c, h</sup></i>						
Sedentary	8.3	5.8	11.7	13.4	10.2	17.5
Insufficient time and sessions	9.5	7.7	11.6	11.8	10.3	13.4
Sufficient time and sessions	9.4	8.4	10.6	12.5	11.5	13.6
<i>Met fruit / vegetable guidelines<sup>d</sup></i>						
Both guidelines	9.8*	5.3	17.3	13.7	10.4	17.8
Vegetable guidelines <sup>e</sup>	10.4	6.4	16.2	14.1	11.4	17.3
Fruit guidelines <sup>e</sup>	8.8	7.5	10.4	13.1	11.9	14.5
Neither	9.7	8.5	10.9	11.6	10.6	12.8

a. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the last 12 months.

b. Based on the Kessler 10 scale for psychological distress.

c. Based on national guidelines (DoHA 1999).

d. Based on national guidelines (NHMRC 2003).

e. Includes those meeting both guidelines.

f. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

g. Based on body mass index (BMI).

h. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).

Due to small numbers it was not possible to analyse data by employment status.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

**Table 7.8: Prevalence of current asthma,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)**

	%	Males		%	Females	
		95% CI			95% CI	
		LL	UL		LL	UL
<i>Long-term risk of alcohol-related harm<sup>f</sup></i>						
Abstainer	8.1	6.2	10.5	12.7	11.1	14.5
Low risk	9.7	8.7	10.8	12.2	11.3	13.2
Risky or high risk	7.4	4.9	11.0	16.8	11.8	23.4
<i>Smoking status</i>						
Current smoker	7.8	6.2	9.8	11.6	9.6	13.9
Ex-smoker	9.1	6.4	12.8	13.9	10.9	17.6
Non-smoker	9.7	8.6	11.1	12.1	11.2	13.2
<i>Self-reported health</i>						
Excellent / very good	7.1	6.0	8.4	9.3	8.3	10.5
Good	9.4	8.0	11.1	12.6	11.4	14.0
Fair / poor	14.9	12.2	18.1	20.7	18.1	23.6
<i>Diabetes status (excluding gestational)</i>						
No diabetes	9.2	8.3	10.2	12.2	11.4	13.0
Diabetes	13.3	8.3	20.6	16.3	10.9	23.8
<i>Body weight status<sup>g</sup></i>						
Underweight	7.2*	2.8	17.3	8.2	5.7	11.7
Normal	8.8	7.5	10.3	9.9	8.9	11.1
Overweight	9.4	7.7	11.4	13.9	12.1	15.9
Obese	11.7	9.4	14.4	15.7	13.6	18.0

a. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the last 12 months.

b. Based on the Kessler 10 scale for psychological distress.

c. Based on national guidelines (DoHA 1999).

d. Based on national guidelines (NHMRC 2003).

e. Includes those meeting both guidelines.

f. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

g. Based on body mass index (BMI).

h. Data were age-standardised to the 2011 Victorian population using 10-year age groups (other variables were standardised using 5-year age groups).

Due to small numbers it was not possible to analyse data by employment status.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

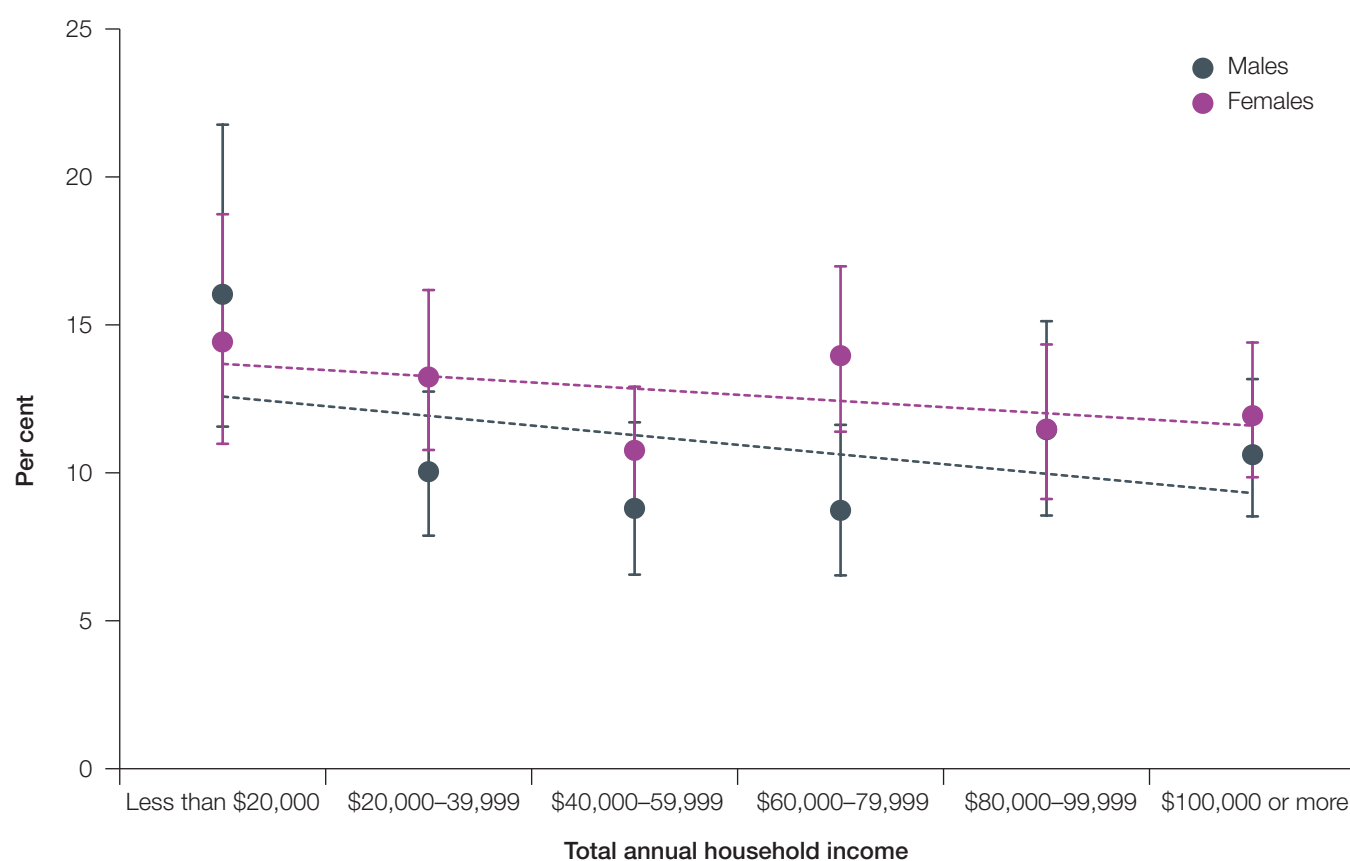
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\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused to say' responses, not reported here.

The relationship, if any, was investigated between SES and the age-adjusted prevalence of current asthma in men and women, using total annual household income as a measure of SES (Figure 7.4). The prevalence of current asthma did not vary by total annual household income in men or women, indicating that there was no association between the prevalence of current asthma and SES.

**Figure 7.4: Prevalence of current asthma, by total annual household income and sex, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.

## Discussion

### Interpretation of the findings

Asthma has been a National Health Priority Area since 1999, acknowledging the significant burden of illness and injury it has in the Australian community.

In 2011–12, 10.9 per cent of Victorians aged 18 years or over had experienced symptoms of asthma or had taken treatment for asthma in the preceding 12 months, with the prevalence of current asthma significantly higher in women (12.3 per cent) compared with men (9.4 per cent). The prevalence of ‘current’ asthma and asthma ‘ever’ are two different measures, with ‘current’ asthma measuring asthma experienced over the 12 months prior to the survey and asthma ‘ever’ measuring the cumulative lifetime experience of asthma. The prevalence of asthma ‘ever’ is always higher than that for current asthma because a substantial proportion of people who develop asthma in their childhood have complete resolution of their symptoms by the time they reach adulthood (Koh & Irving 2007). The Victorian Population Health Survey data found that 22.2 per cent of adults reported having ever been diagnosed with asthma by a doctor.

There were no differences in estimates of lifetime prevalence of asthma (or asthma ever) between men and women, and this may reflect that while childhood asthma is more common among boys (ABS 2012), the prevalence of current asthma is higher in women.

While the association between gender and asthma prevalence has been explored by a number of studies, no single explanation has been able to fully explain the specific mechanisms for the differences that exist (Kynnyk, Mastrorarde & McCallister 2011). Broadly, it is proposed that hormonal changes and genetic susceptibility both contribute to the change in prevalence that occurs about the time of puberty (Postma 2007), with sex hormones considered to have influences on immunity and lung cell function (Melgert et al. 2007).

Analysis of time trends showed no significant changes in the estimates of either lifetime prevalence of asthma or current asthma between 2003 and 2011–12. This is consistent with estimates reported by the ABS National Health Surveys in 2004–05, 2007–08 and 2011–12, which also describe lifetime prevalence of asthma and prevalence of current asthma



remaining constant over this period (ABS 2012; ACAM 2011). The Victorian Population Health Survey finding of a slight, although not significant, increase in the prevalence of current asthma in Victorian adults in 2011–12 may be accounted for by the expansion of the definition of current asthma now used in the Victorian Population Health Survey. In accordance with ACAM indicators (ACAM 2007), estimates now include people who have taken treatment to manage their asthma in the previous 12 months.

Although some studies have suggested that there are regional differences in the prevalence of current asthma throughout Australia (ACAM 2011), no significant differences were observed in the prevalence of asthma between the metropolitan and rural areas of Victoria. Moreover at the LGA level only two LGAs (Northern Grampians (S) and Whitehorse (C)), differed in the prevalence of current asthma from the overall state estimate.

For men and women, a higher prevalence of current asthma was observed in respondents reporting both very high levels of psychological distress and poor/fair self-reported health. In women, a more marked impact of current asthma was observed on levels of psychological distress, with a higher prevalence of current asthma observed in respondents also reporting moderate and high levels of psychological distress.

This may be reflective of the higher prevalence of current asthma among women compared with men. By contrast in both men and women, a lower prevalence of asthma was observed among those reporting excellent/good self-reported health. Consistent with other population health studies (Ampon et al. 2005; Oraka, King & Callahan 2010), these findings highlight the impact that a chronic illness such as asthma may have on mental health and wellbeing and how people assess their health status.

This finding is supported by research from 34 countries (including Australia), which also found that asthma and wheezing are strongly associated with depression and anxiety in adults (Wong et al. 2013). Further investigation of the relationship between asthma and depression (Table 7.9) showed that in 2011–12 the prevalence of current asthma was significantly higher among those who had ever been diagnosed with depression by a doctor compared with those who had not. While it is not possible to determine causality or its direction in a cross-sectional study design, these findings highlight the importance of addressing comorbidities in the management of chronic disease. The prevalence of doctor-diagnosed depression and/or anxiety, along with the use of mental health services, is explored further in chapter 9.

**Table 7.9: Prevalence of current asthma<sup>a</sup> by doctor-diagnosed depression,<sup>b</sup> Victoria, 2011–12**

Doctor diagnosed depression	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
No	8.3	7.3	9.3	10.3	9.5	11.2	9.2	8.6	9.9
Yes	<b>15.5</b>	13.0	18.4	<b>18.4</b>	16.5	20.6	<b>17.4</b>	15.8	19.1
<b>Total</b>	9.4	8.5	10.3	12.3	11.5	13.2	10.9	10.3	11.5

a. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the last 12 months.

b. Respondents were asked whether they had ever been diagnosed with depression and/or anxiety by a doctor.

Data were age-standardised to the 2011 Victorian population

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above** /**below** Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Smoking is known to have a deleterious effect on infant, child and adult asthma, both directly and as environmental tobacco smoke (ACAM 2011). ACAM indicators also include the prevalence of smoking in people with asthma for the purpose of monitoring exposure to and impact of environmental and other risk factors for asthma, and to evaluate population health interventions to prevent the onset and exacerbation of asthma. Smoking cessation initiatives represent one of the key health promotion strategies for reducing the prevalence of asthma. Additional analyses (not shown) found that there were no significant differences in the prevalence of smoking among men or women irrespective of whether they did or did not have current or past asthma. Given that smoking is particularly inadvisable in people who suffer from asthma, this would suggest a subpopulation of focus for public health practitioners involved in smoking cessation policies and interventions.

A higher prevalence of current asthma was observed in Victorian women who were obese. The exact nature of the association between obesity and asthma is not completely understood. Research suggests that common predisposing factors (such as physical activity and diet) exist between asthma and obesity (Ali & Ulrik 2013). Alternatively it has been proposed that obese asthma patients represent a distinct clinical phenotype of asthma, resulting from biological mechanisms whereby obesity could cause or worsen asthma (such as breathing difficulties or gastroesophageal reflux disease) (Ali & Ulrik 2013; Gibeon et al. 2013) or via specific cellular pathways relating to inflammation or hormones associated with obesity (Gibeon et al. 2013; Lugogo, Kraft & Dixon 2010). This serves to further highlight the management issues associated with multiple comorbidities.

## Other sources of data

Table 7.10 compares data from the 2011–12 Victorian Population Health Survey with estimates for the prevalence of asthma reported by the ABS for Australia and Victoria in the 2001, 2004–05 and 2007–08 National Health Survey and the 2011–12 Australian Health Survey. The estimates provided by all surveys are similar, although statistical comparisons cannot be made as the ABS does not publish 95 per cent confidence intervals.

**Table 7.10: Comparison of selected data sources of prevalence estimates of asthma**

Survey	Population (age in years)	Lifetime prevalence of asthma			Current asthma		
		Males	Females	Persons	Males	Females	Persons
VPHS 2011-12 <sup>a</sup>		21.4 (20.0–22.7)	22.8 (21.8–23.9)	22.2 (21.3–23.1)	9.4 (8.5–10.3)	12.3 (11.5–13.2)	10.9 (10.3–11.5)
AHS 2011–12	Australia (18+)	-	-	-	9.5	10.9	10.2
AHS 2011–12	Victoria (18+)	-	-	-	10.7	11.1	10.9
NHS 2007–08	Australia (16+)	-	-	19.2	-	-	9.8
NHS 2004–05	Australia (18+)	-	-	20.3	-	-	9.9 <sup>b</sup>
NHS 2001	Australia (18+)	-	-	20.4	-	-	11.0 <sup>b</sup>

a. VPHS estimates are presented with 95% confidence intervals

b. Determined from response to 'Do you still get asthma?'

AHS = Australian Health Survey; NHS = National Health Survey; - = not available.

## Concluding remarks

The current focus for minimising the burden of asthma is directed at appropriate management of the disease. This includes maintaining regular contact with a doctor, developing a personalised asthma action plan, monitoring symptoms, taking medication appropriately, identifying and avoiding asthma triggers and being physically active. The proportion of people with current asthma who were given an asthma action plan by their doctor, how often the asthma action plan was used, and the usefulness of these plans for both managing an acute attack and in helping with day-to-day management will be included in the upcoming statewide Victorian Population Health Survey 2012 report.

## Further information

The Asthma Foundation Victoria has a number of programs and resources in asthma support, monitoring, management and education. Visit online at <[www.asthma.org.au](http://www.asthma.org.au)>.

A Department of Health fact sheet on asthma is available at <[health.vic.gov.au/edfactsheets/downloads/asthma.pdf](http://health.vic.gov.au/edfactsheets/downloads/asthma.pdf)>.

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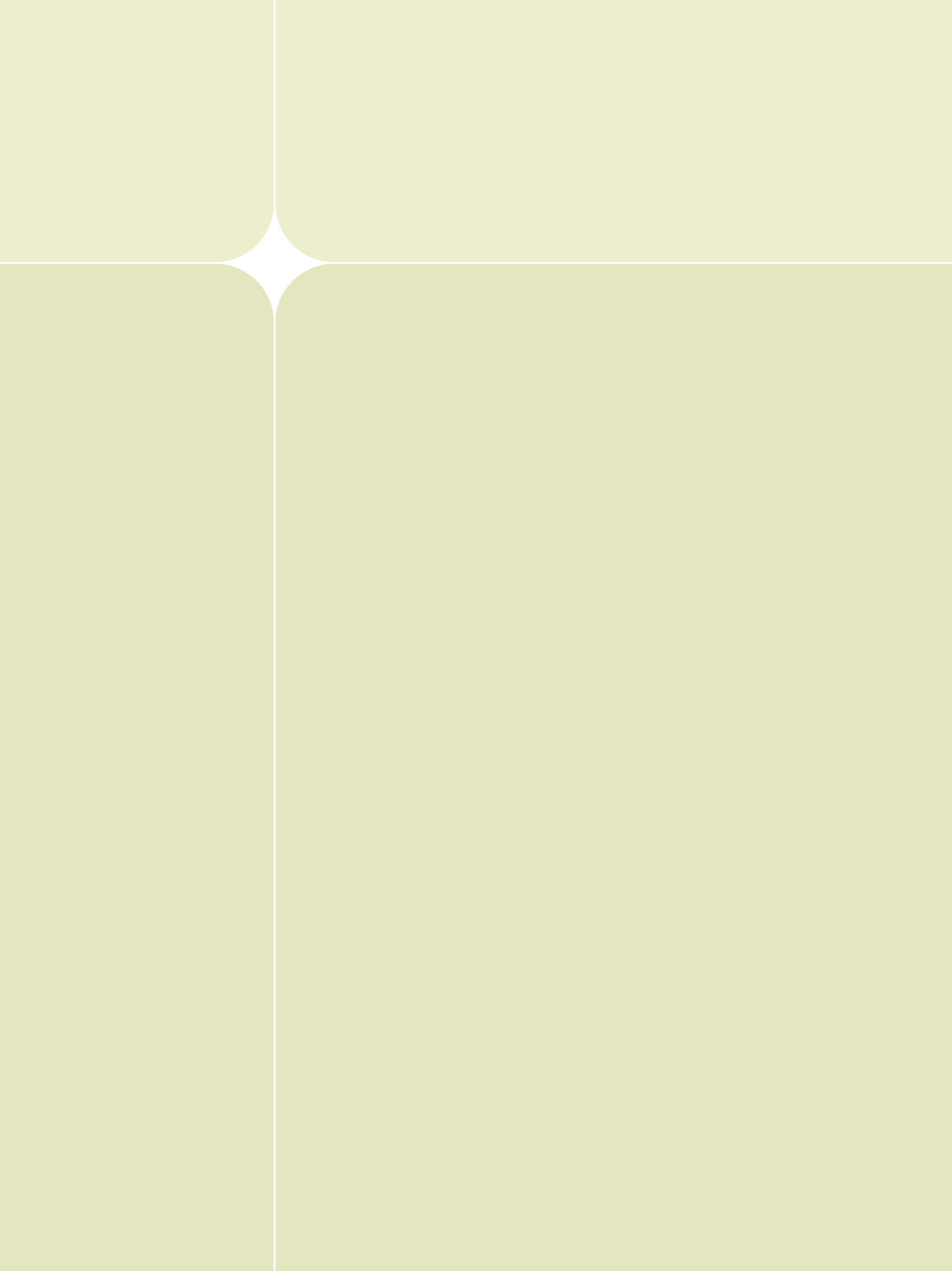
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## 8. Diabetes

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSCLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSCLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSCLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK







# 8. Diabetes

## Introduction

Diabetes mellitus is a common chronic condition characterised by high blood glucose (sugar) levels. The two main types of diabetes mellitus are type 1 (insulin-dependent) diabetes and type 2 diabetes. Gestational diabetes is another form of the condition that affects women during pregnancy, although they have had no prior diagnosis of diabetes. This condition usually abates after birth but is a risk factor for developing type 2 diabetes later in life.

Type 1 diabetes is an autoimmune disease in which the body's immune system destroys the insulin-producing cells of the pancreas, rendering the individual unable to produce enough of the hormone insulin, which is essential for the control of glucose levels in the blood. It most commonly occurs in those under the age of 30 years and may be referred to as juvenile-onset diabetes. People with type 1 diabetes require replacement insulin injections (usually several times a day) for life. Unlike type 2 diabetes, it is not caused by lifestyle factors. Type 1 diabetes accounts for approximately 10–15 per cent of diabetes mellitus and, while a great deal of research is being carried out, at this stage nothing can be done to prevent or cure type 1 diabetes.

Type 2 diabetes is the most common form of diabetes, which occurs mostly in people aged 50 years or over. Risk factors for type 2 diabetes include being overweight or obese and having a family history of the condition. Type 2 diabetes accounts for around 85 per cent of all cases of diabetes mellitus. It is caused by insufficient production of insulin and/or the body becoming resistant to high glucose levels in the blood. In many cases, appropriate diet and exercise can control type 2 diabetes. More severe cases require treatment with oral glucose-lowering drugs, insulin injections, or a combination of these. Left untreated, diabetes mellitus can cause kidney, eye and nerve damage, heart disease, stroke and impotence.

## Survey results

- In 2011–12 type 2 diabetes was the most common reported form of doctor-diagnosed diabetes (5.0 per cent), followed by type 1 diabetes (0.6 per cent). A further 5.3 per cent of Victorian adults reported having been told by a doctor that they had high blood sugar levels.
- There was no difference in the prevalence of type 1 diabetes between males and females. In contrast, the prevalence of doctor-diagnosed type 2 diabetes was significantly higher in men (6.0 per cent) compared with women (4.1 per cent), with the mean age at diagnosis higher among women (55.7 years) compared with men (53.5 years).
- The prevalence of type 2 diabetes increased between 2003 and 2011–12 in both men and women, while the mean age at diagnosis remained unchanged over the same period.
- There was no difference in the prevalence of type 2 diabetes, or doctor-diagnosed high blood sugar levels between adults living in rural and metropolitan Victoria, regardless of gender.
- A higher prevalence of type 2 diabetes was reported among adults who lived in the LGAs of Greater Dandenong (C), Melton (S), Moreland (C) and Whittlesea (C) compared with all Victorian adults.
- In contrast, there were five LGAs that had a significantly lower prevalence of type 2 diabetes compared with all Victorian adults – Bayside (C), Melbourne (C), Nillumbik (S), Port Phillip (C) and Surf Coast (S).

## Prevalence of diabetes

Survey respondents were asked 'Have you ever been told by a doctor that you have diabetes?'. If they responded that they had, they were then asked to indicate the type of diabetes they were diagnosed with.

Table 8.1 shows the prevalence of diabetes, by diabetes type and sex. Overall, 0.6 per cent of Victorian adults reported having been diagnosed with type 1 diabetes and there was no difference between males and females. In contrast, the prevalence of having been diagnosed with type 2 diabetes was significantly higher in men (6.0 per cent) compared with women (4.1 per cent).

**Table 8.1: Prevalence of diabetes,<sup>a</sup> by diabetes type and sex, Victoria, 2011–12**

	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Type 1 diabetes	0.7	0.5	0.9	0.6	0.4	0.8	0.6	0.5	0.8
Type 2 diabetes	6.0	5.5	6.5	4.1	3.8	4.5	5.0	4.7	5.3
Other	0.1*	0.0	0.2	0.05*	0.0	0.1	0.06*	0.0	0.1
Gestational diabetes				2.0	1.7	2.4			

a. Self-reported doctor-diagnosed type 2 diabetes.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 8.2 shows the prevalence of type 2 diabetes, by age group and sex. The prevalence of type 2 diabetes increased with age, being highest in men and women aged 65 years or over. Overall and in those aged 45–54 or 65 years or over, the prevalence of type 2 diabetes was significantly higher among men than women.

**Table 8.2: Prevalence of type 2 diabetes,<sup>a</sup> by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	0.0	-	-	0.0	-	-	0.0	-	-
25–34	**			**			**		
35–44	2.1	1.3	3.4	1.2	0.7	1.9	1.6	1.2	2.3
45–54	6.1	4.8	7.6	3.2	2.5	4.1	4.6	3.9	5.5
55–64	11.1	9.6	12.9	8.4	7.2	9.7	9.7	8.8	10.8
65+	16.2	14.7	17.8	11.8	10.7	13.0	13.8	12.9	14.8
<b>Total</b>	<b>6.0</b>	<b>5.5</b>	<b>6.5</b>	<b>4.1</b>	<b>3.8</b>	<b>4.5</b>	<b>5.0</b>	<b>4.7</b>	<b>5.3</b>

a. Self-reported doctor-diagnosed type 2 diabetes.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\*\* Estimate has a relative standard error (RSE) greater than 50 per cent and is not reported as it is unreliable for general use.

Respondents were asked about their age when diagnosed with type 2 diabetes. The mean age at diagnosis was 53.5 years in men and 55.7 years in women.

Respondents who indicated never having been told by a doctor that they had diabetes, or that they did not know, were asked if they had ever been told by a doctor that they had high blood sugar levels. A further 5.3 per cent of Victorian adults, in addition

to the 5.0 per cent who reported a previous diagnosis of type 2 diabetes, reported having been told by a doctor that they had high blood sugar levels (Table 8.3). The prevalence of ever being diagnosed with high blood sugar levels peaked in men aged 55–64 years and in women aged 45–54 years. The lowest rates were reported by men and women aged 18–24 years.

**Table 8.3: Prevalence of ever being diagnosed with high blood sugar levels,<sup>a</sup> by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	1.5*	0.7	3.1	1.2*	0.6	2.5	1.4*	0.8	2.3
25–34	2.9*	1.7	5.0	3.6	2.5	5.2	3.3	2.4	4.5
35–44	3.6	2.6	5.2	4.6	3.7	5.8	4.1	3.4	5.1
45–54	4.0	3.1	5.3	5.6	4.6	6.7	4.8	4.1	5.6
55–64	8.0	6.6	9.6	4.9	4.1	6.0	6.4	5.6	7.4
65+	6.5	5.5	7.6	4.3	3.7	5.1	5.3	4.7	5.9
<b>Total</b>	<b>4.4</b>	<b>3.9</b>	<b>5.0</b>	<b>4.0</b>	<b>3.6</b>	<b>4.5</b>	<b>4.2</b>	<b>3.9</b>	<b>4.6</b>

a. Self-reported doctor-diagnosed high blood sugar levels. The question was only asked of respondents who did not report a previous diagnosis of diabetes.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.



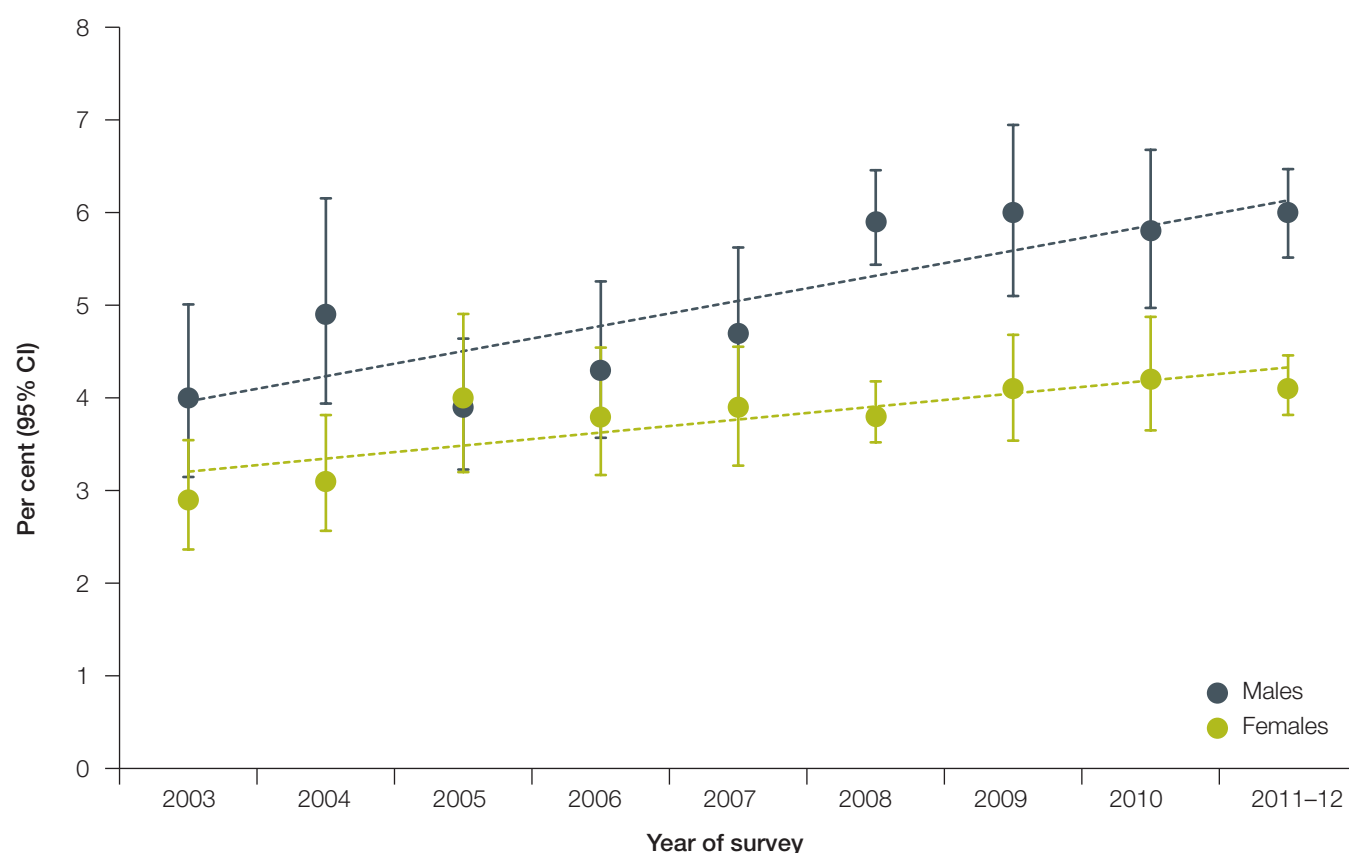
Table 8.4 and Figure 8.1 show the prevalence of type 2 diabetes between 2003 and 2011–12. The prevalence of type 2 diabetes increased significantly between 2003 and 2011–12 in both men and women.

**Table 8.4: Prevalence of type 2 diabetes<sup>a</sup> from 2003 to 2011–12, by sex, Victoria**

Year	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
2003	4.0	3.1	5.0	2.9	2.4	3.5	3.4	2.9	4.0
2004	4.9	3.9	6.2	3.1	2.6	3.8	3.9	3.4	4.6
2005	3.9	3.2	4.6	4.0	3.2	4.9	4.0	3.4	4.6
2006	4.3	3.6	5.3	3.8	3.2	4.5	4.1	3.6	4.7
2007	4.7	3.9	5.6	3.9	3.3	4.6	4.2	3.7	4.8
2008	5.9	5.4	6.5	3.8	3.5	4.2	4.8	4.6	5.2
2009	6.0	5.1	6.9	4.1	3.5	4.7	5.0	4.5	5.5
2010	5.8	5.0	6.7	4.2	3.6	4.9	4.9	4.4	5.5
<b>2011–12</b>	<b>6.0</b>	<b>5.5</b>	<b>6.5</b>	<b>4.1</b>	<b>3.8</b>	<b>4.5</b>	<b>5.0</b>	<b>4.7</b>	<b>5.3</b>

a. Self-reported doctor-diagnosed type 2 diabetes.  
 Data were age-standardised to the 2011 Victorian population.  
 LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.  
 Ordinary least squares regression was used to test for trends over time.

**Figure 8.1: Prevalence of type 2 diabetes<sup>a</sup> from 2003 to 2011–12, by sex, Victoria**



a. Self-reported doctor-diagnosed type 2 diabetes.  
 Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares regression was used to test for trends over time.

Table 8.5 shows the mean age at diagnosis with type 2 diabetes between 2003 and 2011–12. The mean age at diagnosis did not change significantly between 2003 and 2011–12.

**Table 8.5: Mean age at diagnosis with type 2 diabetes<sup>a</sup> from 2003 to 2011–12, by sex, Victoria**

Year	Males			Females			Persons		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
		LL	UL		LL	UL		LL	UL
2003	53.1	49.9	56.3	54.3	51.4	57.2	53.6	51.5	55.8
2004	56.3	53.7	58.9	55.0	52.5	57.5	55.8	53.9	57.6
2005	55.6	53.5	57.7	57.0	53.6	60.4	56.3	54.3	58.4
2006	55.9	53.8	58.1	57.4	54.8	59.9	56.6	54.9	58.3
2007	56.3	54.2	58.5	57.2	55.2	59.1	56.7	55.3	58.2
2008	53.7	52.5	54.8	55.7	54.6	56.9	54.5	53.7	55.4
2009	53.1	50.0	56.1	55.9	54.0	57.8	54.3	52.3	56.2
2010	55.0	52.9	57.0	56.3	54.0	58.7	55.6	54.0	57.1
<b>2011–12</b>	<b>53.5</b>	<b>52.3</b>	<b>54.6</b>	<b>55.7</b>	<b>54.7</b>	<b>56.7</b>	<b>54.4</b>	<b>53.7</b>	<b>55.2</b>

a. Self-reported doctor-diagnosed type 2 diabetes.

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Ordinary least squares regression was used to test for trends over time.

Table 8.6 shows the prevalence of type 2 diabetes and ever being diagnosed with high blood sugar levels, by Department of Health region and sex. There was no difference in the prevalence of type 2 diabetes in men or women whether they lived in rural or metropolitan Victoria. No significant regional differences existed either, with the exception of men from the Grampians Region, who had a significantly lower prevalence of type 2 diabetes compared with all Victorian men.

Similarly, there were no significant differences in the prevalence of ever being diagnosed with high blood sugar levels in men or women, regardless of whether they lived in rural or metropolitan Victoria, nor were there any significant regional differences.

Table 8.6: Prevalence of type 2 diabetes<sup>a</sup> and high blood sugar levels,<sup>b</sup> by Department of Health region and sex, 2011–12

Region	Type 2 diabetes			High blood sugar		
	%	95% CI		%	95% CI	
		LL	UL		LL	UL
<b>Males</b>						
Eastern Metropolitan	5.1	4.0	6.3	4.3	3.2	5.6
North & West Metropolitan	7.1	6.1	8.1	5.4	4.4	6.7
Southern Metropolitan	6.2	5.2	7.4	4.1	3.2	5.3
<b>Metropolitan males</b>	6.2	5.6	6.9	4.7	4.1	5.4
Barwon-South Western	5.0	3.4	7.3	3.1	2.0	5.0
Gippsland	5.9	4.8	7.3	5.3	3.6	7.8
Grampians	4.5	3.7	5.5	3.4	2.3	5.0
Hume	6.5	5.5	7.8	3.5	2.4	4.9
Loddon Mallee	4.9	3.9	6.2	3.7	2.6	5.4
<b>Rural males</b>	5.3	4.7	6.1	3.7	3.1	4.4
<b>Total</b>	<b>6.0</b>	<b>5.5</b>	<b>6.5</b>	<b>4.4</b>	<b>3.9</b>	<b>5.0</b>
<b>Females</b>						
Eastern Metropolitan	3.6	2.9	4.4	4.1	3.1	5.4
North & West Metropolitan	4.7	4.0	5.5	4.1	3.4	4.8
Southern Metropolitan	4.0	3.4	4.8	3.9	3.1	4.9
<b>Metropolitan females</b>	4.1	3.7	4.6	4.0	3.5	4.5
Barwon-South Western	3.6	2.7	4.8	4.8	3.3	7.1
Gippsland	4.9	4.0	5.9	5.6	3.9	8.0
Grampians	4.3	3.5	5.3	4.0	2.7	6.0
Hume	4.3	3.7	5.1	3.5	2.7	4.5
Loddon Mallee	4.0	3.2	5.0	3.9	2.9	5.1
<b>Rural females</b>	4.2	3.8	4.6	4.4	3.7	5.2
<b>Total</b>	<b>4.1</b>	<b>3.8</b>	<b>4.5</b>	<b>4.0</b>	<b>3.6</b>	<b>4.5</b>
<b>Persons</b>						
Eastern Metropolitan	4.2	3.6	4.9	4.2	3.4	5.0
North & West Metropolitan	5.8	5.3	6.5	4.7	4.1	5.4
Southern Metropolitan	5.0	4.4	5.7	4.0	3.3	4.7
<b>Metropolitan persons</b>	5.1	4.8	5.5	4.3	3.9	4.7
Barwon-South Western	4.3	3.3	5.5	4.0	3.0	5.5
Gippsland	5.4	4.6	6.2	5.4	4.2	7.1
Grampians	4.4	3.8	5.1	3.6	2.7	4.8
Hume	5.4	4.8	6.1	3.4	2.8	4.3
Loddon Mallee	4.4	3.8	5.2	3.7	3.0	4.7
<b>Rural persons</b>	4.7	4.4	5.2	4.0	3.6	4.6
<b>Total</b>	<b>5.0</b>	<b>4.7</b>	<b>5.3</b>	<b>4.2</b>	<b>3.9</b>	<b>4.6</b>

a. Self-reported doctor-diagnosed type 2 diabetes.

b. Self-reported doctor-diagnosed high blood sugar levels. The question was only asked of respondents who did not report a previous diagnosis of diabetes. Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

Table 8.7 and Figure 8.2 show the prevalence of type 2 diabetes, by LGA. People who lived in the LGAs of Greater Dandenong (C), Melton (S), Moreland (C) and Whittlesea (C) reported a significantly higher prevalence of type 2 diabetes compared with all Victoria. In contrast, people who lived in the LGAs of Bayside (C), Melbourne (C), Nillumbik (S), Port Phillip (C) and Surf Coast (S) had a significantly lower prevalence of type 2 diabetes compared with all Victorians.

Table 8.7: Prevalence of type 2 diabetes,<sup>a</sup> by LGA, Victoria, 2011–12

LGA	Type 2 diabetes		
	%	95% CI	
		LL	UL
Alpine (S)	5.0	3.6	6.9
Ararat (RC)	3.6	2.4	5.5
Ballarat (C)	3.9	2.8	5.6
Banyule (C)	3.6	2.4	5.5
Bass Coast (S)	5.1	3.7	6.8
Baw Baw (S)	4.1	2.8	6.0
Bayside (C)	2.8*	1.7	4.7
Benalla (RC)	5.1	3.7	7.0
Boroondara (C)	3.2	2.0	5.2
Brimbank (C)	4.0	2.6	6.1
Buloke (S)	5.9	4.0	8.6
Campaspe (S)	4.8	3.4	6.6
Cardinia (S)	4.2	2.8	6.2
Casey (C)	5.8	4.2	8.0
Central Goldfields (S)	6.1	4.5	8.3
Colac-Otway (S)	5.0	3.6	6.8
Corangamite (S)	4.4	2.9	6.6
Darebin (C)	6.2	4.3	8.8
East Gippsland (S)	3.8	2.7	5.3
Frankston (C)	6.3	4.7	8.6
Gannawarra (S)	4.9	3.4	6.9
Glen Eira (C)	3.7	2.5	5.6
Glenelg (S)	6.0	4.4	8.3
Golden Plains (S)	4.1	2.6	6.6
Greater Bendigo (C)	4.7	3.2	6.8
Greater Dandenong (C)	7.6	5.4	10.5
Greater Geelong (C)	4.0	2.5	6.5
Greater Shepparton (C)	4.9	3.3	7.0
Hepburn (S)	5.0	3.5	7.1
Hindmarsh (S)	5.7	4.1	7.8
Hobsons Bay (C)	5.9	4.2	8.3
Horsham (RC)	3.4	2.2	5.2
Hume (C)	6.9	4.9	9.5
Indigo (S)	4.2	2.8	6.4
Kingston (C)	4.1	2.8	6.2
Knox (C)	6.2	4.5	8.5
Latrobe (C)	7.0	5.1	9.4
Loddon (S)	5.0	3.6	7.0
Macedon Ranges (S)	3.0	1.9	4.9
Manningham (C)	3.2	2.0	5.1

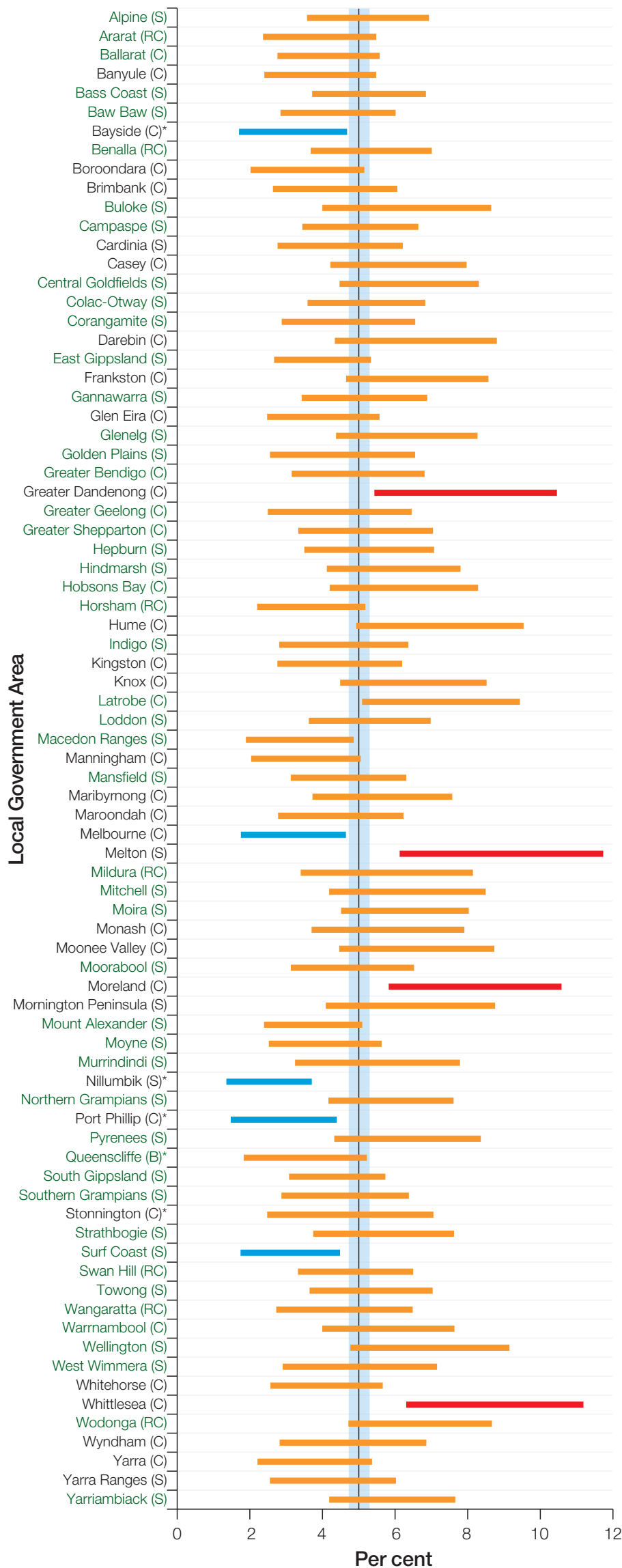
LGA	Type 2 diabetes		
	%	95% CI	
		LL	UL
Mansfield (S)	4.5	3.1	6.3
Maribyrnong (C)	5.3	3.7	7.6
Maroondah (C)	4.2	2.8	6.2
Melbourne (C)	2.9	1.8	4.6
Melton (S)	8.5	6.1	11.7
Mildura (RC)	5.3	3.4	8.1
Mitchell (S)	6.0	4.2	8.5
Moira (S)	6.0	4.5	8.0
Monash (C)	5.4	3.7	7.9
Moonee Valley (C)	6.3	4.5	8.7
Moorabool (S)	4.5	3.1	6.5
Moreland (C)	7.9	5.8	10.6
Mornington Peninsula (S)	6.0	4.1	8.8
Mount Alexander (S)	3.5	2.4	5.1
Moyne (S)	3.8	2.5	5.6
Murrindindi (S)	5.1	3.2	7.8
Nillumbik (S)	2.2*	1.4	3.7
Northern Grampians (S)	5.6	4.2	7.6
Port Phillip (C)	2.6*	1.5	4.4
Pyrenees (S)	6.0	4.3	8.4
Queenscliffe (B)	3.1*	1.8	5.2
South Gippsland (S)	4.2	3.1	5.7
Southern Grampians (S)	4.3	2.9	6.4
Stonnington (C)	4.2*	2.5	7.1
Strathbogie (S)	5.4	3.7	7.6
Surf Coast (S)	2.8	1.7	4.5
Swan Hill (RC)	4.7	3.3	6.5
Towong (S)	5.1	3.6	7.0
Wangaratta (RC)	4.2	2.7	6.5
Warrnambool (C)	5.5	4.0	7.6
Wellington (S)	6.6	4.8	9.1
West Wimmera (S)	4.6	2.9	7.2
Whitehorse (C)	3.8	2.6	5.7
Whittlesea (C)	8.4	6.3	11.2
Wodonga (RC)	6.4	4.7	8.7
Wyndham (C)	4.4	2.8	6.9
Yarra (C)	3.5	2.2	5.4
Yarra Ranges (S)	3.9	2.6	6.0
Yarriambiack (S)	5.7	4.2	7.7
<b>Victoria</b>	<b>5.0</b>	<b>4.7</b>	<b>5.3</b>

a. Self-reported doctor-diagnosed type 2 diabetes.  
Data were age-standardised to the 2011 Victorian population, using 10-year age groups.  
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.  
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.  
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Figure 8.2: Prevalence of type 2 diabetes,<sup>a</sup> by LGA, Victoria, 2011–12



a. Self-reported doctor-diagnosed type 2 diabetes. Data were age-standardised to the 2011 Victorian population, using 10-year age groups. The horizontal bars represent the 95% CI around the estimate for each LGA. The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria. Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural. 95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria. \* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 8.8 shows the prevalence of type 2 diabetes, by selected socioeconomic determinants, modifiable risk factors, health status and sex.

When compared with all Victorian men and women, a significantly higher prevalence of type 2 diabetes was reported among men and women with the following characteristics:

- high or very high levels of psychological distress
- sedentary behaviour
- fair or poor self-reported health status
- obesity.

When compared with all Victorian men, a significantly higher prevalence of type 2 diabetes was reported among men with the following characteristics:

- not in the labour force
- total annual household income of less than \$40,000
- current smoker.

When compared with all Victorian women, a significantly higher prevalence of type 2 diabetes was reported among women with the following characteristic:

- abstinence from alcohol consumption (non-drinker).

When compared with all Victorian men and women, a significantly lower prevalence of type 2 diabetes was reported among men and women with the following characteristics:

- employed
- total annual household income of \$100,000 or more
- at long-term risk of alcohol-related harm
- excellent or very good self-reported health status
- normal body weight.

When compared with all Victorian men, a significantly lower prevalence of type 2 diabetes was reported among men with the following characteristics:

- total annual household income of between \$40,000 and \$100,000
- non-smoker.

When compared with all Victorian women, a significantly lower prevalence of type 2 diabetes was reported among women with the following characteristics:

- tertiary educated
- low risk of long-term alcohol-related harm
- underweight.

**Table 8.8: Prevalence of type 2 diabetes,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors, health status and sex, Victoria, 2011–12**

	%	Males		%	Females	
		95% CI			95% CI	
		LL	UL		LL	UL
<b>Total</b>	<b>6.0</b>	<b>5.5</b>	<b>6.5</b>	<b>4.1</b>	<b>3.8</b>	<b>4.5</b>
<i>Area of Victoria</i>						
Rural	5.3	4.7	6.1	4.2	3.8	4.6
Metropolitan	6.2	5.6	6.9	4.1	3.7	4.6
<i>Education level</i>						
Primary	6.1	5.5	6.9	4.8	4.2	5.5
Secondary	5.8	4.9	6.8	4.1	3.5	4.8
Tertiary	5.9	5.0	6.8	<b>3.0</b>	2.5	3.7
<i>Employment status (age &lt; 65 years)</i>						
Employed	<b>3.0</b>	2.6	3.5	<b>1.9</b>	1.6	2.2
Unemployed	4.1*	2.3	7.4	3.6*	2.1	6.0
Not in labour force	<b>10.7</b>	6.9	16.2	3.7	3.0	4.5
<i>Total annual household income</i>						
< \$40,000	<b>8.6</b>	7.1	10.5	5.1	4.4	5.9
\$40,000 to < \$100,000	<b>4.6</b>	3.9	5.4	3.3	2.7	4.0
≥ \$100,000	<b>4.1</b>	3.2	5.4	<b>1.9*</b>	1.1	3.2
<i>Psychological distress<sup>a</sup></i>						
Low (<16)	5.2	4.7	5.7	3.4	3.1	3.8
Moderate (16–21)	7.1	5.9	8.5	4.9	4.2	5.7
High (22–29)	<b>9.6</b>	7.3	12.6	<b>5.8</b>	4.5	7.3
Very high (≥ 30)	<b>9.9</b>	6.9	14.0	<b>9.2</b>	6.7	12.4
<i>Physical activity<sup>b</sup></i>						
Sedentary	<b>8.2</b>	6.5	10.2	<b>6.3</b>	5.1	7.8
Insufficient time and sessions	6.5	5.6	7.5	4.6	4.0	5.3
Sufficient time and sessions	5.5	4.9	6.1	3.4	3.0	3.9

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003).

d. Includes those meeting both guidelines

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.



**Table 8.8: Prevalence of type 2 diabetes,<sup>a</sup> by selected socioeconomic determinants, modifiable risk factors, health status and sex, Victoria, 2011–12 (continued)**

	%	Males		%	Females	
		95% CI			95% CI	
		LL	UL		LL	UL
<i>Met fruit / vegetable guidelines<sup>c</sup></i>						
Both guidelines	7.7	5.3	11.0	4.4	3.5	5.6
Vegetable guidelines <sup>d</sup>	6.8	4.9	9.4	4.1	3.3	5.1
Fruit guidelines <sup>d</sup>	6.2	5.5	7.0	4.4	3.9	4.8
Neither	5.6	5.0	6.3	3.8	3.3	4.4
<i>Long-term risk of alcohol-related harm<sup>e</sup></i>						
Abstainer	7.7	6.5	9.2	<b>6.6</b>	5.8	7.5
Low risk	5.8	5.3	6.4	<b>3.4</b>	3.0	3.7
Risky or high risk	<b>3.5</b>	2.2	5.4	<b>0.8*</b>	0.4	1.5
<i>Smoking status</i>						
Current smoker	<b>8.3</b>	6.7	10.4	4.0	3.1	5.3
Ex-smoker	6.8	6.0	7.8	4.5	3.8	5.2
Non-smoker	<b>4.7</b>	4.2	5.4	4.0	3.7	4.5
<i>Self-reported health status</i>						
Excellent / very good	<b>3.1</b>	2.6	3.6	<b>1.9</b>	1.6	2.2
Good	6.7	5.9	7.6	4.4	3.9	5.0
Fair / poor	<b>11.3</b>	9.7	13.0	<b>9.2</b>	8.1	10.5
<i>Body weight status<sup>f</sup></i>						
Underweight	6.9*	3.3	13.8	<b>0.5*</b>	0.2	1.3
Normal	<b>3.3</b>	2.8	4.0	<b>1.6</b>	1.3	1.9
Overweight	5.4	4.8	6.1	4.3	3.7	5.0
Obese	<b>11.1</b>	9.7	12.8	<b>8.7</b>	7.7	9.8

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on national guidelines (NHMRC 2003).

d. Includes those meeting both guidelines

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

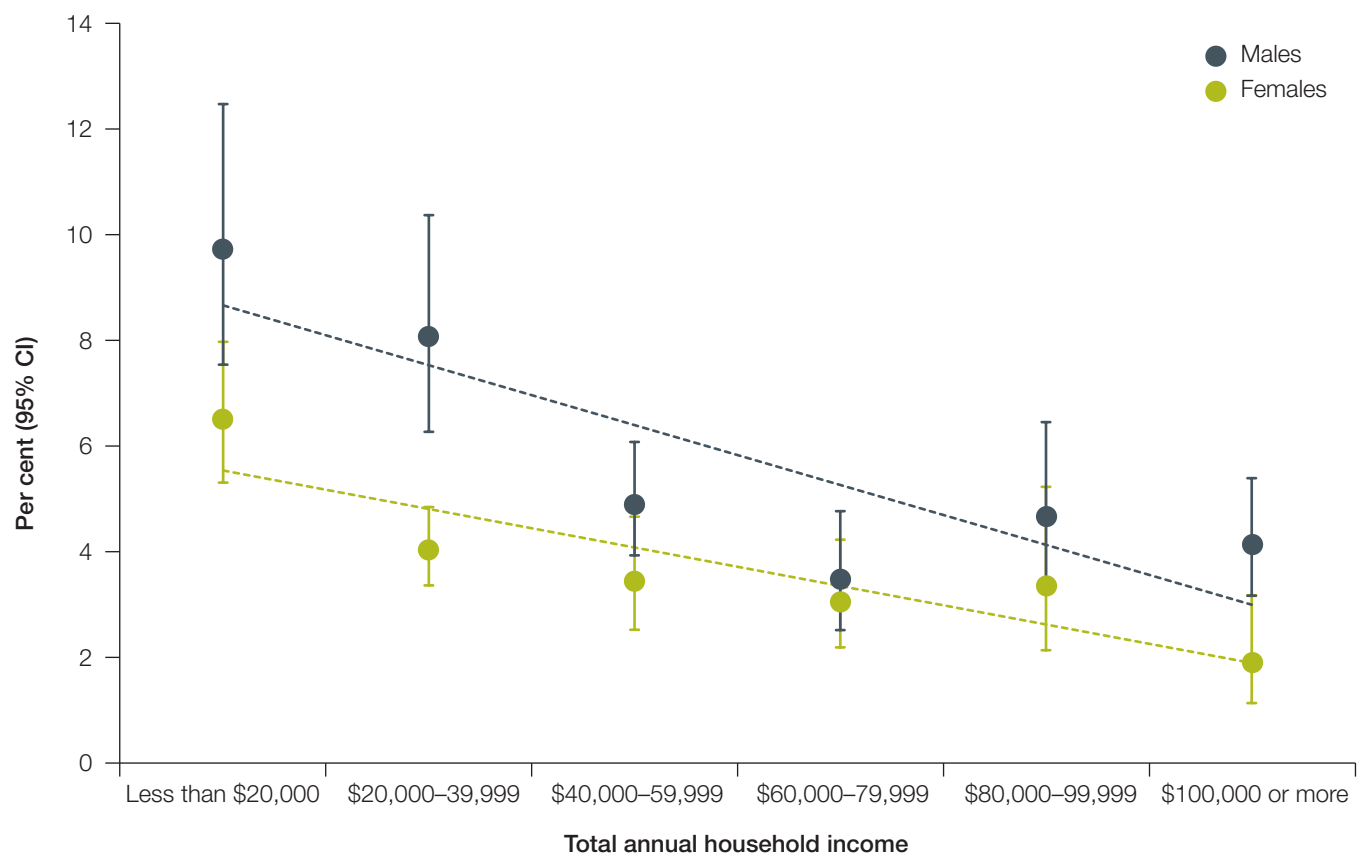
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

The relationship between SES and the prevalence of type 2 diabetes was investigated, using total annual household income as a measure of SES (Figure 8.3). The prevalence of type 2 diabetes in both men and women significantly increased with decreasing total annual household income.

**Figure 8.3: Prevalence of type 2 diabetes,<sup>a</sup> by total annual household income and sex, Victoria, 2011–12**

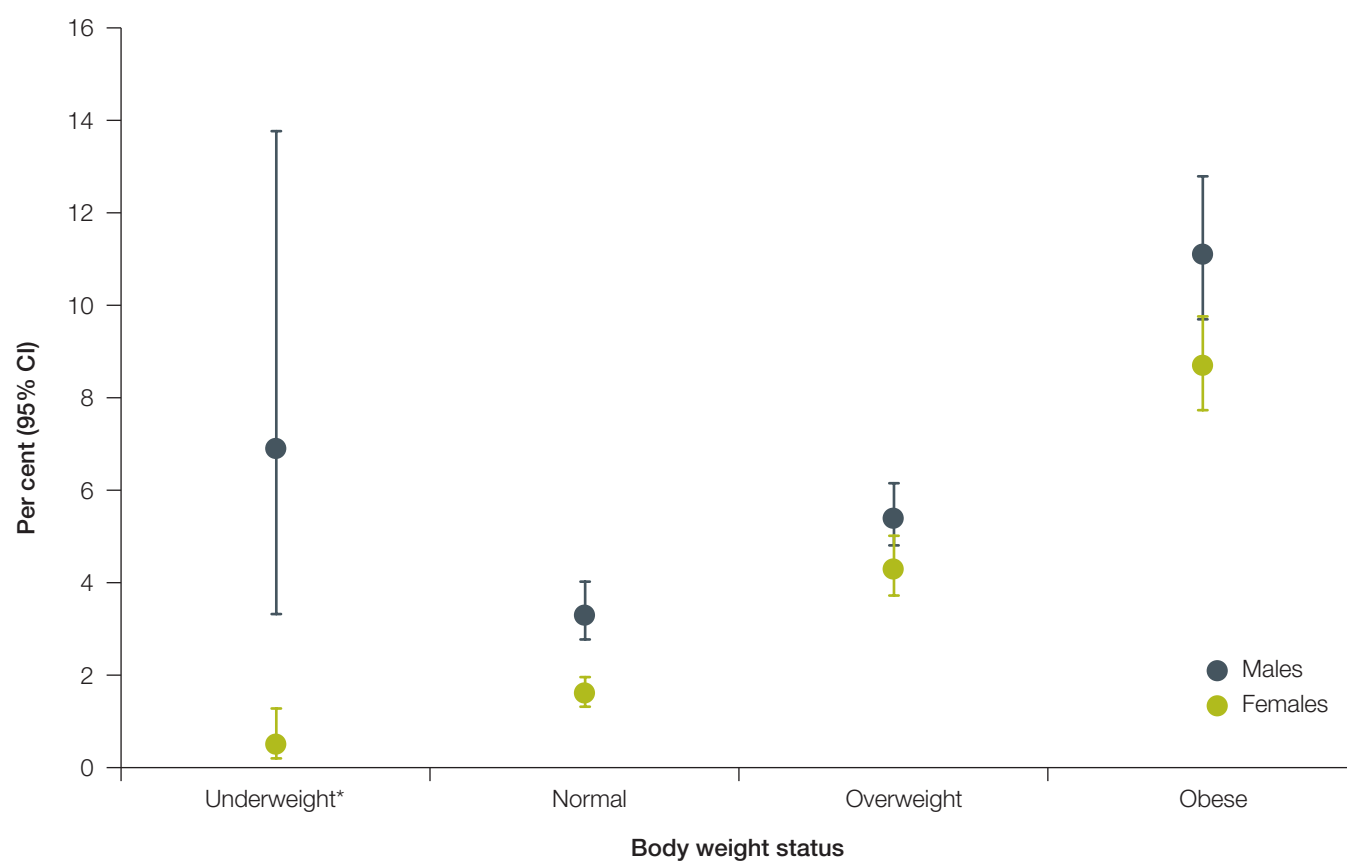


a. Self-reported doctor-diagnosed type 2 diabetes.  
 Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares regression was used to test for trends over time.

Excess body weight is a major risk factor for the development of type 2 diabetes. Respondents reported their height and weight and their body mass index (BMI) was then calculated. Body weight status was categorised using the WHO recommended ranges (WHO 1999; 2013). Respondents were classified as underweight if they had a BMI of less than 18.5 kg/m<sup>2</sup>, normal weight if their BMI was in the range of 18.5–24.9 kg/m<sup>2</sup>, overweight if their BMI was in the range of 25.0–29.9 kg/m<sup>2</sup> and obese if their BMI was 30 kg/m<sup>2</sup> or more.

Figure 8.4 shows the relationship between body weight and the prevalence of type 2 diabetes. In women, the prevalence of type 2 diabetes increased with increasing body weight and was highest in those categorised as obese (8.7 per cent). A similar pattern was observed for men, with the exception of those who were underweight. However, the RSE for the estimates of underweight in both men and women were in the range of 25–50 per cent, which warrants cautious interpretation of results. There were no significant differences in the prevalence of type 2 diabetes between men and women who were classified as overweight or obese.

**Figure 8.4: Prevalence of type 2 diabetes,<sup>a</sup> by body weight status<sup>b</sup> and sex, Victoria, 2011–12**



a. Self-reported doctor-diagnosed type 2 diabetes.

b. Based on self-reported body mass index (BMI) and categorised by WHO recommended ranges (WHO 1999; 2013).

Data were age standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

\* Estimates have relative standard errors (RSE) of between 25 and 50 per cent and should be interpreted with caution.

## Discussion

### Interpretation of the findings

Type 2 diabetes is the most common form of diabetes, and results from the survey show 5.0 per cent of respondents had previously been diagnosed by a doctor with the condition (Table 8.1). This is referred to as a self-reported doctor-diagnosed lifetime prevalence estimate, since survey respondents were asked to recall and then report if they had ever been diagnosed with diabetes by a doctor. As a measure of prevalence, it is important to note that the estimate may be subject to recall bias because of the way the information was collected – by respondent recall. It is also important to note that this type of prevalence estimate excludes undiagnosed cases of disease and likely underestimates actual prevalence as results from other studies suggest there are considerable numbers of people in the population with undiagnosed type 2 diabetes (Dunstan et al. 2001; Department of Health 2012). Nevertheless, self-reported estimates of chronic disease are a reliable indicator for monitoring disease patterns and trends at the population level.

The 2011–12 survey results show that, similar to survey results for the adult Australian population, the prevalence of type 2 diabetes in Victoria was higher in men (6.0 per cent) than women (4.1 per cent), and increased with age (AIHW 2012) (Table 8.2). Excess body weight is an important risk factor for type 2 diabetes, and when body weight is taken into account, the prevalence in Victoria was almost double for obese men (11.1 per cent) and more than double for obese women (8.7 per cent) (Figure 8.4) compared with all men and women.

An analysis of Victorian Population Health Survey results over time show the prevalence of type 2 diabetes in adult Victorians increased significantly from 3.4 per cent in 2003 to 5.0 per cent in 2011–12 (Table 8.4). This is consistent with survey results for Australian adults that indicate prevalence more than doubled between 1989–90 and 2007–08, from 1.5 per cent to 4.1 per cent (AIHW 2012). However, the prevalence rate for type 2 diabetes in Victoria has remained stable over the last five years, with no significant increase between 2007 and 2011–12 (Table 8.4). Survey results for the adult Australian population indicate a similar pattern, with no significant change in the prevalence of type 2 diabetes between 2007–08 (4.0 per cent) and 2011–12 (4.0 per cent) (ABS 2012). The recent levelling of the prevalence rate requires further investigation and longer term monitoring to determine whether it is a temporary flattening in the rate or reflects a longer term trend.

There were very few differences in prevalence observed by geographic zone (Table 8.6, Table 8.7 and Figure 8.2), but a strong social gradient was evident for Victoria, with higher prevalence rates for type 2 diabetes observed in higher income households compared with lower income households (Figure 8.3). The few geographic differences in prevalence that were observed largely reflect differences in SES across the state.

There were only four LGAs (Greater Dandenong (C), Melton (S), Moreland (C) and Whittlesea (C)) where the prevalence of type 2 diabetes was higher than the rate for all of Victoria (Table 8.7 and Figure 8.2). With the exception of Melton, which has

neither a particularly high nor low level of SES, the remaining three LGAs have a relatively low level of SES, based on the Index of Relative Socioeconomic Disadvantage rankings (ABS 2008). In contrast, the five LGAs that had a significantly lower prevalence of type 2 diabetes compared with Victoria, have a relatively high level of SES.

Curiously, although the prevalence of obesity was higher in rural Victoria compared with the metropolitan area (Table 2.67), and given excess body weight is an important risk factor for type 2 diabetes, there was no significant difference in the prevalence of type 2 diabetes between rural and metropolitan Victoria (Table 8.6). Possible explanations for this result that would require further investigation include: (a) an over-representation of another/other risk factor/s for type 2 diabetes in metropolitan Victoria counteracting the higher prevalence of obesity in rural Victoria; (b) an over-representation of risk mitigating behaviours in rural Victoria that counteract the higher prevalence of obesity in rural Victoria (e.g. higher physical activity levels); (c) the lag phase between the development of obesity and type 2 diabetes which may not, as yet, have allowed for a difference in prevalence to become apparent; (d) under-diagnosis of type 2 diabetes in rural Victoria; or (e) differences in the accuracy of self-reported height and weight resulting in under-reporting of obesity in metropolitan Victoria.

The prevalence of type 2 diabetes was investigated by smoking status, level of alcohol consumption, level of fruit and vegetable consumption, physical activity level, body weight status, level of psychological distress, level of self-reported health, education level, employment status, household income and area of residence within Victoria (Table 8.8). The analysis showed that the prevalence of smoking was significantly higher in men, but not women, with type 2 diabetes, consistent with the findings from other studies that show that smoking is associated with an increased risk of type 2 diabetes in men, but not women (Colagiuri et al. 2009). In contrast, the analysis showed a significantly higher prevalence of abstinence from consumption of alcohol in women, but not men, with type 2 diabetes. There is no evidence to suggest that abstinence or being a non-drinker is associated with type 2 diabetes. It is possible this finding reflects appropriate self-management of the condition by respondents.

A significantly higher proportion of both men and women with type 2 diabetes did so little physical activity as to be categorised as 'sedentary' (Table 8.8). Physical inactivity has been shown to be a significant risk factor for type 2 diabetes, while moderate intensity exercise has been shown to be protective (Colagiuri et al. 2009). The findings suggest that higher prevalence of moderate-intensity physical activity in the population could reduce type 2 diabetes incidence.

The analysis also showed high prevalence of type 2 diabetes in men and women who have high or very high levels of psychological distress (Table 8.8). To date, high levels of psychological distress have not been implicated as a possible risk factor for type 2 diabetes. High levels of psychological distress may be a consequence of type 2 diabetes. Men and

women who reported being in fair or poor health also had high prevalence of type 2 diabetes, which may also be a consequence of having type 2 diabetes.

Finally, the survey results show 4.2 per cent of respondents reported having ever been told by a doctor that they had high blood sugar levels (Table 8.3). Although respondents may not have had high blood sugar levels at the time of the survey, high blood sugar levels are of concern, as 10–20 per cent of those affected go on to develop type 2 diabetes (Diabetes Australia 2011). The risk factors for high blood sugar levels include physical inactivity and excess body weight, which are both modifiable and present an opportunity to prevent type 2 diabetes. The finding that an additional 4.2 per cent of adult Victorians may be at risk of type 2 diabetes highlights the importance of screening for type 2 diabetes in people with risk factors and the importance of appropriate follow-up testing and management when high blood sugar levels are detected.

### Other sources of data

The 1999–2000 AusDiab study was the first national physical and biomedical measurement study of diabetes prevalence in Australia. The prevalence of diabetes for Australian adults aged 25 years or over was 7.5 per cent (Dunstan et al. 2001). This was based on oral glucose tolerance testing of survey respondents, self-report of a previous diagnosis and use of medication for their condition. The study also found that for every known case of diabetes, there was an undiagnosed case of diabetes in the population. The results of this landmark survey have had a significant impact on diabetes in Australia.

In 2009–10, the Victorian Government Department of Health conducted the Victorian Health Monitor (VHM), a statewide representative cross-sectional health measurement survey (Department of Health 2012). The VHM collected nutrition information and a range of physical and biomedical measurement data, including information on diabetes, cardiovascular disease, obesity, dyslipidaemia and hypertension, from a representative sample of adults aged 18–75 years in Victoria. The VHM identified through fasting plasma glucose testing, self-report of a previous diagnosis and use of medication that the prevalence of diabetes was 4.6 per cent for Victorians aged 18–75 years. This included 3.4 per cent with a previous diagnosis of diabetes who were on medication for their condition and a further 1.2 per cent who were previously undiagnosed with diabetes, suggesting that for every three diagnosed cases there is one undiagnosed case of diabetes in Victoria.

The 2011–12 Australian Health Survey reported a prevalence of 4.4 per cent for diabetes in Victorians aged 18 years or over, based on fasting plasma glucose test results, self-report of a previous diagnosis and use of medication for the condition (ABS 2013). Further results from this survey are pending.

Diabetes Australia Victoria reported in November 2011 that about 250,000 Victorians (all ages) had diabetes, according to data derived from the National Diabetes Services Scheme (NDSS) (Diabetes Australia Victoria 2011). This was equivalent to about 4.5 per cent of the Victorian population in 2011.

### Concluding remarks

The most recent information on the prevalence of diabetes in Victoria is reasonably consistent, regardless of the information source. Measured blood glucose levels from recent population health surveys indicate the prevalence of diabetes in Victorian adults to be between 4.4 and 4.6 per cent (ABS 2013; Department of Health 2012). Type 1 diabetes is prevalent in about 0.6 per cent, and type 2 diabetes is prevalent in about 4.0 per cent of adult Victorians aged 18–75 years (Department of Health 2012). The 2011–12 Victorian Population Health Survey provides estimates for the prevalence of diabetes in Victorian adults based on self-report of a previous diagnosis, and results suggest that type 1 diabetes is prevalent in about 0.6 per cent, and type 2 diabetes is prevalent in about 5.0 per cent of Victorians aged 18 years or over.

Trend analyses of results from survey data is also consistent, with indications that the prevalence of type 2 diabetes has increased over the past 10 years but that the rate has been stable over the past five years. This pattern has emerged despite increasing levels of obesity in the population (Table 2.66). Because obesity is a significant risk factor for type 2 diabetes, it would be reasonable to assume that the prevalence of both type 2 diabetes and obesity would increase in tandem. A possible explanation for the recent levelling in prevalence of type 2 diabetes is improved detection (screening) and management of at-risk individuals (the obese, those with impaired fasting glucose, family history of the disease, etc.) with changes to diet, levels of physical activity and drug therapy. It is important to understand, however, that although the prevalence rate appears to have levelled off in recent years, the actual number of people with type 2 diabetes in Victoria is likely to continue to increase due to demographic shifts in the population (population growth and population ageing).

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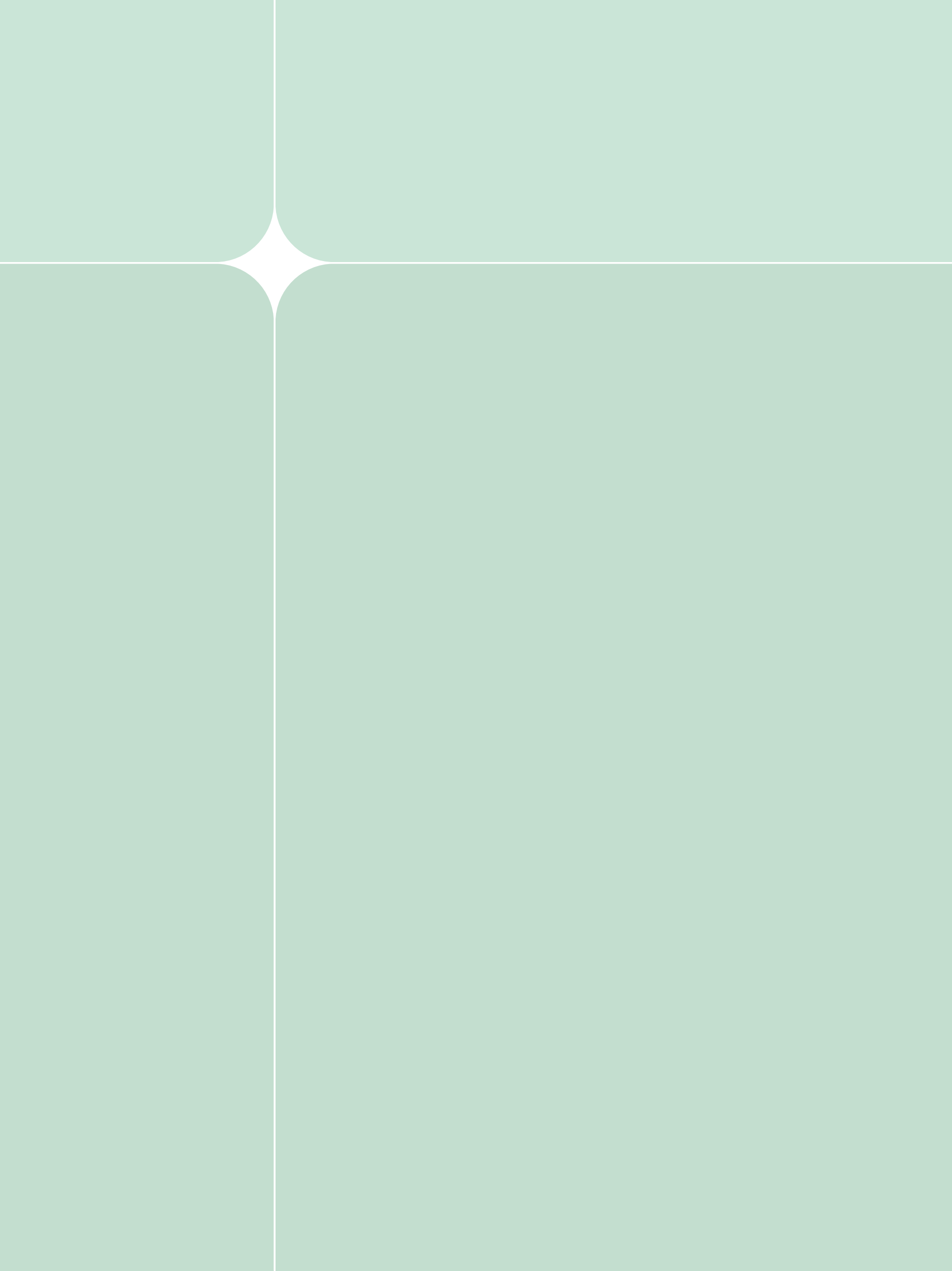
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## 9. Mental health

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK







# 9. Mental health

## Introduction

WHO defines health as ‘a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity’ (WHO 2013). It reports that more than 450 million people across the world suffer from mental disorders and many more suffer from mental health problems. Mental health includes emotional, psychological and social wellbeing and it affects how we think, feel and act as we cope with life. It also helps determine how we handle stress, relate to others and make choices. Wellbeing, or positive mental health, improves the quality of lives in many ways including: better physical health; faster recovery from illness; fewer limitations in daily life; higher educational attainment; greater likelihood of employment and earnings; and better relationships.

Poor mental health can have a significant negative impact on physical health. There is a significant gap in life expectancy between people with mental illness and those who do not have mental illness (Lawrence, Hancock & Kisely 2013). Researchers have observed that this gap in life expectancy increased in psychiatric patients in Western Australia from 13.5 and 10.4 years in 1985 to 15.9 and 12.0 years in 2005 for males and females, respectively (Lawrence, Hancock & Kisely 2013). Physical disease accounted for 77.7 per cent of excess deaths, including cardiovascular disease (29.9 per cent) and cancer (13.5 per cent), while 13.9 per cent of excess deaths were due to suicide.

The Victorian Population Health Survey collects selected data on mental health disorders and primarily focuses on the affective disorders of depression and anxiety. These disorders were selected as they are the most common mental disorders, with depression being the leading cause of disability in both males and females and, at its worst, leading to suicide (DHS 2005). In Victoria in 2001, suicide was the third highest cause of death in men and 10th highest cause of death in women (DHS 2005). Moreover there is strong and consistent evidence of an association between depression and anxiety and the National Health Priority Area conditions of heart disease, stroke, diabetes, asthma, cancer, arthritis and osteoporosis (Clarke 2009; Clarke & Currie 2009). Depression is also associated with poorer health outcomes in those with physical disease. While depression and anxiety are, for the most part, highly treatable disorders, continuing social stigma about mental illness often prevents people from seeking the help that they need.

The Victorian Population Health Survey also collects data on levels of psychological distress using the Kessler 10 Psychological Distress Scale (K10). Psychological distress is an important risk factor, particularly for affective disorders such as depression and anxiety. The K10 measures the level of psychological distress that an individual has been experiencing in the four weeks prior to completing the K10 scale. Psychological distress can be ameliorated through psychological and/or pharmaceutical intervention and is therefore considered to be potentially modifiable. The data for the measurement of psychological distress are presented in chapter 1.

## Survey results

### Lifetime prevalence of depression and anxiety

- In 2011–12, 14.7 per cent of men and 25.1 per cent of women reported having ever been diagnosed with depression or anxiety by a doctor.
- The lifetime prevalence of depression and anxiety was higher in men aged 55–64 years and women aged 45–54 years compared with all Victorian men and women. The lifetime prevalence of depression and anxiety increased in women, but not in men, from 2003 to 2011–12.
- There were no differences in the lifetime prevalence of depression and anxiety in men from metropolitan or rural areas of Victoria. By contrast women living in rural Victoria had a higher lifetime prevalence of depression and anxiety compared with their metropolitan counterparts.
- When analysed by gender, there were five LGAs where a higher lifetime prevalence of depression and anxiety was reported among men compared with all Victorian men – Banyule (C), Central Goldfields (S), Mount Alexander (S), Pyrenees (S) and Yarriambiack (S). By contrast a lower lifetime prevalence of depression and anxiety was reported among men in the LGAs of Casey (C) and Horsham (S) compared with all Victorian men.
- Women who lived in the LGAs of Greater Bendigo (C) and Latrobe (S) had a higher lifetime prevalence of depression and anxiety compared with all Victorian women. By contrast there were six LGAs where a lower lifetime prevalence of depression and anxiety was reported in women compared with all Victorian women – Cardinia (S), Corangamite (S), Manningham (C), Monash (C), Moyne (S) and Surf Coast (S).

### Sought professional help for a mental health related problem

- Overall, 12.4 per cent of adults had sought professional help for a mental health related problem in the year preceding the survey. This was higher among women compared with men.
- A higher proportion of men aged 35–44 years and women aged 25–44 years sought professional help for a mental health related problem compared with all Victorian men and women, respectively. By contrast the proportion of men aged 65 years or over and women aged 55 years or over who sought professional help for a mental health related problem was lower compared with all Victorian men and women, respectively.
- There was no difference in the proportion of adults who had sought professional help for a mental health related problem between the rural or metropolitan areas of Victoria, or by Department of Health region.
- A higher proportion of adults who had sought professional help for a mental health related problem in the 12 months prior to the survey lived in the LGAs of Mount Alexander (S) and Wellington (S) compared with all Victorian adults. By contrast there was a lower proportion of adults who had sought professional help for a mental health related problem in the LGA of Greater Shepparton (C).

- Overall, 62.2 per cent of people who had sought help, had sought help from their GP, 42.6 per cent had sought help from a 'private counselling service or psychologist', 18.7 per cent had sought help from a private psychiatrist, 3.8 per cent had sought help from a 'community health service', 3.3 per cent had sought help from a 'public mental health community service', 0.6 per cent had sought help from a 'public hospital inpatient service', while 5.9 per cent had sought help from other sources.
- The proportion of men and women who had sought help from a GP or psychologist / counselling service increased between 2005 and 2011–12. By contrast the proportion of men and women who had sought help from a psychiatrist remained unchanged from 2005 to 2011–12.

## Lifetime prevalence of depression and anxiety

Respondents were asked if they had ever been diagnosed with depression or anxiety by a doctor. This is a measure of the lifetime prevalence of these two disorders and does not necessarily mean that the respondent was experiencing symptoms at the time of interview. It should be noted that depression and anxiety are two separate conditions; however, the results that are presented in this chapter are a combination of both disorders. Table 9.1 shows the lifetime prevalence of depression and anxiety, by age group and sex. Overall, 14.7 per cent of men and a significantly higher proportion of women (25.1 per cent) had ever been diagnosed with depression or anxiety by a doctor. The lifetime prevalence of depression and anxiety was significantly higher in men aged 55–64 years and women aged 45–54 years compared with all Victorian men and women.

**Table 9.1: Lifetime prevalence of depression and anxiety,<sup>a</sup> by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	12.5	9.3	16.5	19.8	15.8	24.6	16.1	13.4	19.1
25–34	12.7	9.9	16.0	28.7	25.5	32.2	20.7	18.4	23.1
35–44	16.4	14.2	18.9	27.0	24.9	29.1	21.8	20.2	23.4
45–54	16.0	14.2	18.1	28.3	26.3	30.3	22.3	20.9	23.7
55–64	18.1	16.3	20.2	26.4	24.5	28.3	22.3	21.0	23.7
65+	12.8	11.4	14.2	20.2	18.8	21.6	16.8	15.8	17.8
<b>Total</b>	<b>14.7</b>	<b>13.7</b>	<b>15.7</b>	<b>25.1</b>	<b>24.0</b>	<b>26.1</b>	<b>20.0</b>	<b>19.2</b>	<b>20.7</b>

a. Self-reported doctor-diagnosed depression or anxiety.

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

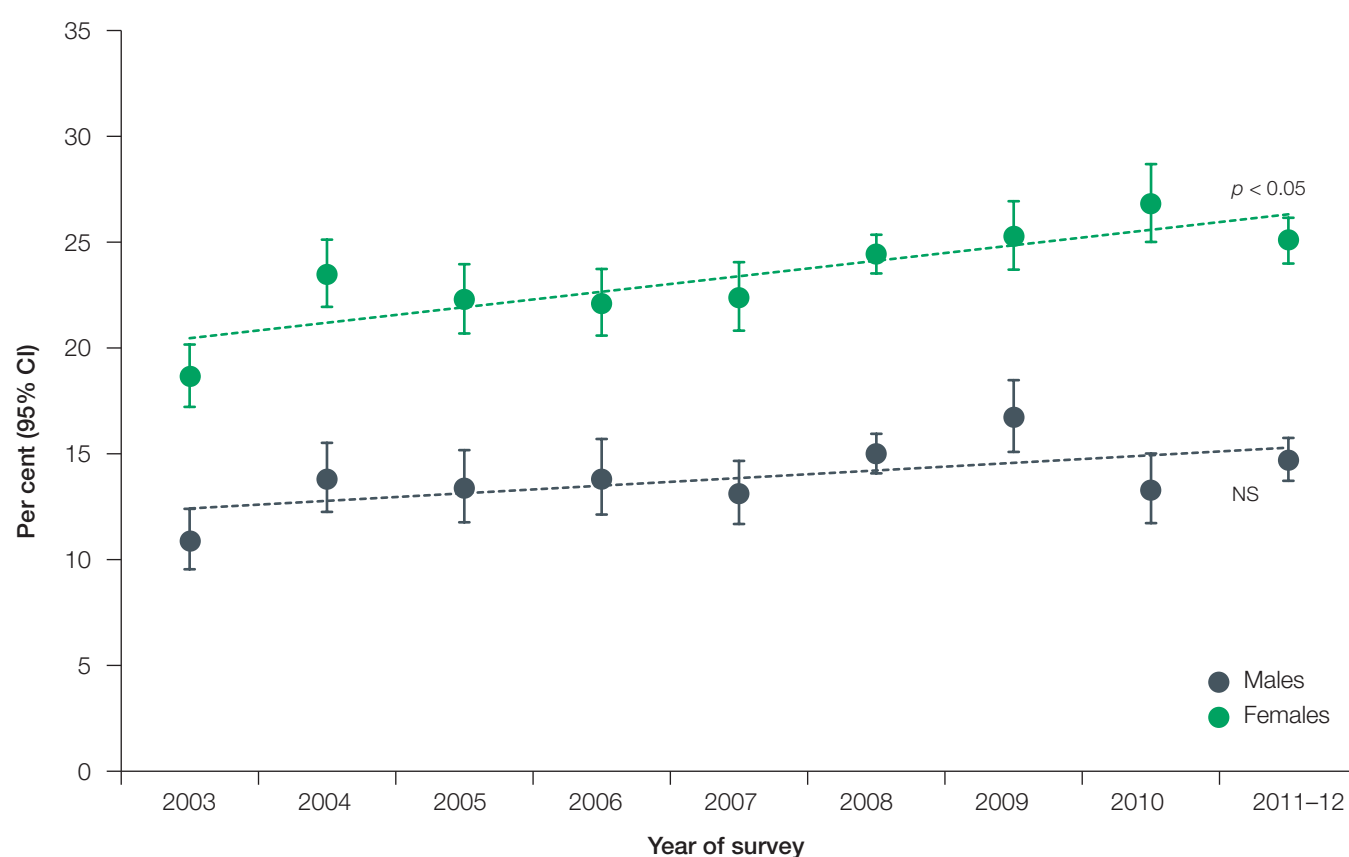
Table 9.2 and Figure 9.1 present the trends over time by sex of the age-adjusted lifetime prevalence of depression and anxiety from 2003 to 2011–12. The lifetime prevalence of depression and anxiety significantly increased in women, but not in men, from 2003 to 2011–12.

**Table 9.2: Lifetime prevalence of depression and anxiety<sup>a</sup> from 2003 to 2011–12, Victoria**

Year	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
2003	10.9	9.5	12.4	18.6	17.2	20.2	14.8	13.8	15.9
2004	13.8	12.2	15.5	23.5	21.9	25.1	18.7	17.6	19.9
2005	13.4	11.8	15.2	22.3	20.7	24.0	17.9	16.7	19.1
2006	13.8	12.1	15.7	22.1	20.6	23.7	18.0	16.8	19.2
2007	13.1	11.7	14.7	22.4	20.8	24.1	17.8	16.7	19.0
2008	15.0	14.1	15.9	24.4	23.5	25.3	19.8	19.1	20.5
2009	16.7	15.1	18.5	25.3	23.7	26.9	21.1	19.9	22.3
2010	13.3	11.7	15.0	26.8	25.0	28.7	20.1	18.9	21.4
<b>2011–12</b>	<b>14.7</b>	<b>13.7</b>	<b>15.7</b>	<b>25.1</b>	<b>24.0</b>	<b>26.1</b>	<b>20.0</b>	<b>19.2</b>	<b>20.7</b>

a. Self-reported doctor-diagnosed depression or anxiety.  
 Data were age-standardised to the 2011 Victorian population.  
 LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.  
 Ordinary least squares regression was used to test for trends over time.

**Figure 9.1: Lifetime prevalence of depression or anxiety<sup>a</sup> from 2003 to 2011–12, Victoria**



a. Self-reported doctor-diagnosed depression or anxiety.  
 Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval; NS = not statistically significant.  
 Ordinary least squares regression was used to test for trends over time.

Table 9.3 shows the lifetime prevalence of depression and anxiety, by Department of Health region and sex. There were no significant regional differences in men. By contrast women who lived in rural Victoria had a significantly higher lifetime prevalence of depression and anxiety compared with their metropolitan counterparts. Moreover, Gippsland Region had a significantly higher lifetime prevalence of depression and anxiety among women compared with all Victorian women.

**Table 9.3: Lifetime prevalence of depression and anxiety,<sup>a</sup> by Department of Health region and sex, Victoria, 2011–12**

Region	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Eastern Metropolitan	14.6	12.1	17.5	22.1	19.5	25.0	18.7	16.8	20.7
North & West Metropolitan	14.8	13.1	16.6	24.1	22.4	25.9	19.5	18.3	20.8
Southern Metropolitan	12.8	10.9	14.9	25.9	23.6	28.3	19.5	18.0	21.1
<b>Metropolitan</b>	14.1	13.0	15.4	24.2	22.9	25.4	19.2	18.4	20.1
Barwon-South Western	18.5	13.5	24.7	27.9	23.2	33.2	23.0	19.5	27.0
Gippsland	18.0	14.7	21.7	<b>29.9</b>	26.3	33.7	<b>24.1</b>	21.5	27.0
Grampians	13.2	10.9	16.0	23.7	20.9	26.8	18.6	16.6	20.7
Hume	14.5	11.9	17.6	28.2	25.4	31.2	21.4	19.4	23.6
Loddon Mallee	17.4	13.9	21.6	30.1	25.8	34.8	<b>24.0</b>	20.8	27.7
<b>Rural</b>	16.4	14.6	18.4	<b>28.3</b>	26.3	30.4	<b>22.4</b>	20.9	23.9
<b>Total</b>	<b>14.7</b>	<b>13.7</b>	<b>15.7</b>	<b>25.1</b>	<b>24.0</b>	<b>26.1</b>	<b>20.0</b>	<b>19.2</b>	<b>20.7</b>

a. Self-reported doctor-diagnosed depression or anxiety.

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 9.4 and Figure 9.2 show the lifetime prevalence of depression and anxiety, by LGA and sex. There were no significant differences in the lifetime prevalence of depression and anxiety in people across the LGAs compared with all Victorian adults. However, when analysed by sex there was a significantly higher lifetime prevalence of depression and anxiety in men who lived in the LGAs of Banyule (C), Central Goldfields (S), Mount Alexander (S), Pyrenees (S) and Yarriambiack (S) compared with all Victorian men. By contrast there was a lower lifetime prevalence of depression and anxiety in men who lived in the LGAs of Casey (C) and Horsham (S).

Women who lived in the LGAs of Greater Bendigo (C) and Latrobe (C) had a significantly higher lifetime prevalence of depression and anxiety compared with all Victorian women. By contrast there was a lower lifetime prevalence of depression and anxiety in women who lived in the LGAs of Cardinia (S), Corangamite (S), Manningham (C), Monash (C), Moyne (S) and Surf Coast (S) compared with all Victorian women.

Table 9.4: Lifetime prevalence of depression and anxiety,<sup>a</sup> by LGA and sex, Victoria, 2011–12

LGA	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Alpine (S)	14.9	10.0	21.8	21.7	14.3	31.5	18.2	14.1	23.0
Ararat (RC)	23.5	14.6	35.4	20.2	15.2	26.2	22.8	16.5	30.5
Ballarat (C)	9.3	5.7	14.8	22.0	16.9	28.1	15.6	12.2	19.6
Banyule (C)	26.1	18.1	36.0	21.6	16.1	28.4	23.5	18.4	29.6
Bass Coast (S)	17.7*	8.9	32.2	26.9	19.7	35.5	22.4	16.1	30.1
Baw Baw (S)	14.9	9.6	22.3	26.2	19.9	33.6	20.7	16.3	26.0
Bayside (C)	11.9*	5.5	23.7	25.5	19.0	33.3	19.6	14.2	26.4
Benalla (RC)	15.2*	8.3	26.4	20.8	15.9	26.7	18.6	13.6	24.8
Boroondara (C)	12.0*	6.7	20.4	22.4	16.1	30.3	17.4	12.7	23.3
Brimbank (C)	11.5	7.2	17.8	22.8	17.3	29.5	17.4	13.6	21.9
Buloke (S)	19.8*	10.5	34.3	22.1	15.4	30.7	21.3	14.9	29.6
Campaspe (S)	18.5	12.5	26.4	21.6	15.4	29.4	19.9	15.5	25.3
Cardinia (S)	14.0	9.2	20.8	17.4	12.9	23.0	15.6	12.2	19.7
Casey (C)	5.5*	3.0	9.6	26.5	20.6	33.3	16.2	12.8	20.3
Central Goldfields (S)	23.2	16.2	32.2	22.4	15.1	31.9	22.2	17.1	28.2
Colac-Otway (S)	20.7	12.7	31.8	30.1	22.5	39.0	25.4	19.5	32.4
Corangamite (S)	17.5*	9.2	30.7	18.3	13.8	23.7	18.7	12.7	26.7
Darebin (C)	16.8	11.3	24.1	24.4	19.3	30.4	20.5	16.7	25.0
East Gippsland (S)	21.8	13.9	32.4	24.6	18.0	32.7	24.0	18.2	31.0
Frankston (C)	15.5	9.9	23.5	27.1	20.6	34.7	21.4	16.9	26.7
Gannawarra (S)	17.6	11.0	26.9	24.7	17.6	33.4	21.5	16.1	28.0
Glen Eira (C)	14.8	9.9	21.5	24.9	16.9	35.0	19.4	14.7	25.2
Glenelg (S)	17.3	12.0	24.3	26.0	16.9	37.9	20.9	15.6	27.2
Golden Plains (S)	19.6*	11.0	32.3	22.9	17.3	29.7	21.0	15.4	27.9
Greater Bendigo (C)	16.1	9.7	25.3	38.9	29.4	49.4	27.7	20.6	36.2
Greater Dandenong (C)	15.2	10.0	22.6	23.3	17.6	30.1	19.2	15.2	24.1
Greater Geelong (C)	17.7	11.5	26.3	30.8	23.3	39.3	24.7	19.3	31.1
Greater Shepparton (C)	12.8	8.0	20.1	26.0	18.7	35.1	19.5	14.7	25.5
Hepburn (S)	19.0*	9.4	34.7	28.7	23.0	35.1	24.7	17.7	33.4
Hindmarsh (S)	13.8	9.0	20.7	25.2	18.9	32.7	19.5	15.2	24.6
Hobsons Bay (C)	12.4	7.9	19.0	24.2	18.0	31.8	18.6	14.4	23.8
Horsham (RC)	7.2	4.5	11.3	33.4	23.2	45.4	19.8	12.5	30.0
Hume (C)	14.4	9.3	21.6	24.1	18.9	30.3	18.9	15.1	23.5
Indigo (S)	9.4	5.8	14.7	29.1	21.4	38.3	19.3	14.7	25.0
Kingston (C)	13.8*	7.9	23.0	27.6	21.0	35.4	20.4	15.6	26.2
Knox (C)	19.2	12.9	27.5	27.8	21.7	34.9	23.6	19.0	28.9
Latrobe (C)	12.8	8.6	18.6	35.7	28.2	43.9	24.1	19.2	29.8
Loddon (S)	18.3	12.4	26.2	25.8	18.6	34.7	22.6	16.8	29.7
Macedon Ranges (S)	13.9*	8.2	22.6	26.0	19.2	34.2	20.3	15.5	26.0
Manningham (C)	11.5*	6.3	20.1	17.3	12.2	23.9	14.7	10.8	19.7
Mansfield (S)	18.3	11.4	28.1	25.3	18.8	33.2	22.1	16.9	28.4
Maribyrnong (C)	18.2	11.4	27.6	23.3	17.6	30.2	20.7	16.0	26.4
Maroondah (C)	13.2	8.1	20.6	26.9	20.4	34.6	20.5	15.9	26.1

Table 9.4: Lifetime prevalence of depression and anxiety,<sup>a</sup> by LGA and sex, Victoria, 2011–12 (continued)

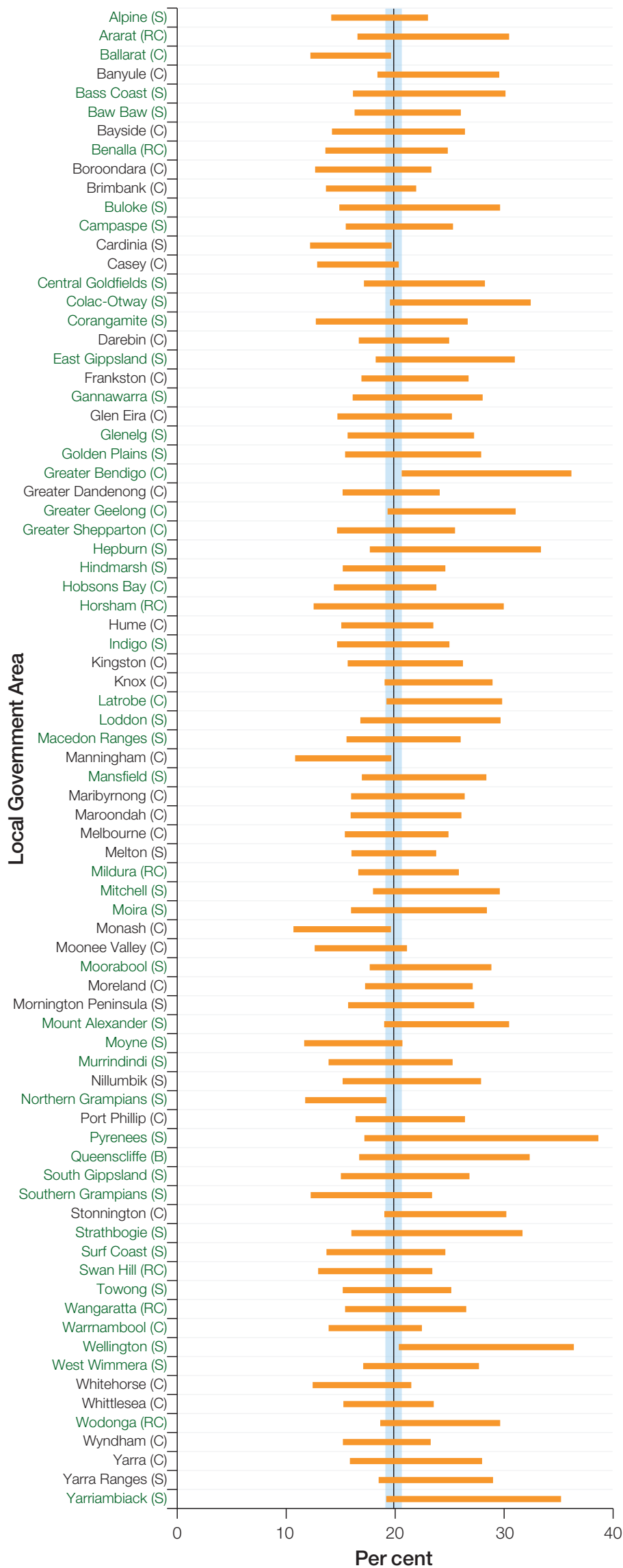
LGA	%	Males		%	Females		%	Persons	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Melbourne (C)	15.0	9.7	22.3	25.1	18.7	32.8	19.7	15.4	24.9
Melton (S)	11.4	7.5	17.1	28.0	22.6	34.2	19.6	16.0	23.8
Mildura (RC)	12.8*	7.7	20.5	28.2	22.5	34.7	20.9	16.6	25.8
Mitchell (S)	15.5*	9.0	25.4	31.1	23.9	39.3	23.3	18.0	29.6
Moira (S)	10.7*	5.7	19.2	32.1	23.3	42.5	21.5	16.0	28.4
Monash (C)	13.8*	8.3	22.1	15.4	10.6	21.7	14.6	10.7	19.6
Moonee Valley (C)	12.1	7.8	18.2	20.5	14.8	27.7	16.4	12.6	21.1
Moorabool (S)	16.9	11.1	24.9	28.9	21.2	38.1	22.8	17.7	28.8
Moreland (C)	14.7	9.8	21.3	29.4	22.5	37.2	21.8	17.2	27.1
Mornington Peninsula (S)	16.0*	9.4	26.0	25.4	18.2	34.3	20.9	15.7	27.3
Mount Alexander (S)	24.3	16.8	33.8	23.7	17.9	30.7	24.3	19.0	30.5
Moyne (S)	14.2*	8.2	23.5	17.7	13.1	23.4	15.6	11.7	20.7
Murrindindi (S)	17.7	10.6	27.9	20.3	13.9	28.7	18.9	13.9	25.3
Nillumbik (S)	19.4	11.6	30.6	21.4	15.1	29.3	20.8	15.2	27.9
Northern Grampians (S)	9.9	6.4	15.1	20.4	14.7	27.6	15.1	11.7	19.2
Port Phillip (C)	14.3	9.3	21.2	27.5	20.7	35.4	20.9	16.4	26.4
Pyrenees (S)	32.2	19.3	48.5	23.0	16.9	30.4	26.6	17.2	38.7
Queenscliff (B)	11.5	7.3	17.7	34.2	24.1	46.1	23.6	16.7	32.4
South Gippsland (S)	20.0	12.6	30.3	20.8	14.0	29.7	20.3	15.0	26.8
Southern Grampians (S)	9.1*	5.5	14.7	25.3	17.3	35.4	17.1	12.2	23.4
Stonnington (C)	15.3	9.8	23.0	33.5	25.6	42.4	24.2	19.0	30.2
Strathbogie (S)	17.9*	10.3	29.2	27.8	18.1	40.2	22.9	16.0	31.7
Surf Coast (S)	19.1*	11.0	31.2	18.1	13.7	23.5	18.5	13.7	24.6
Swan Hill (RC)	11.7*	6.1	21.1	23.7	17.2	31.8	17.6	12.9	23.4
Towong (S)	15.8	10.3	23.5	24.5	17.5	33.2	19.7	15.2	25.2
Wangaratta (RC)	13.3*	7.9	21.6	27.0	19.6	35.8	20.4	15.4	26.5
Warrnambool (C)	15.5	10.5	22.3	19.7	14.3	26.6	17.8	13.9	22.5
Wellington (S)	22.8	15.4	32.4	29.5	20.3	40.7	27.7	20.3	36.4
West Wimmera (S)	13.6	8.3	21.5	30.4	23.3	38.7	21.9	17.1	27.7
Whitehorse (C)	10.9	6.7	17.4	20.9	14.5	29.2	16.5	12.4	21.5
Whittlesea (C)	10.8	6.7	17.1	26.9	21.1	33.5	19.1	15.2	23.5
Wodonga (RC)	17.1	10.4	26.8	30.3	23.7	37.9	23.7	18.6	29.6
Wyndham (C)	17.3	12.1	24.2	20.4	15.7	26.2	18.9	15.2	23.3
Yarra (C)	24.1	14.6	37.2	19.0	14.2	24.9	21.3	15.8	28.0
Yarra Ranges (S)	19.9	13.4	28.6	26.1	19.6	33.8	23.3	18.5	29.0
Yarriambiack (S)	25.2	16.6	36.3	29.1	17.1	44.8	26.4	19.2	35.2
<b>Victoria</b>	<b>14.6</b>	<b>13.6</b>	<b>15.6</b>	<b>25.0</b>	<b>23.9</b>	<b>26.1</b>	<b>19.9</b>	<b>19.1</b>	<b>20.6</b>

a. Self-reported doctor-diagnosed depression or anxiety.  
Data were age-standardised to the 2011 Victorian population, using 10-year age groups.  
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.  
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.  
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.  
\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.



Figure 9.2: Lifetime prevalence of depression and anxiety<sup>a</sup> in Victorian adults, by LGA, Victoria, 2011–12



Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

The horizontal bars represent the 95% CI around the estimate for each LGA.

The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.



Table 9.5 shows the prevalence of depression and anxiety, by selected socioeconomic determinants, modifiable risk factors and health status.

When compared with all Victorian men and women, a significantly *higher* lifetime prevalence of depression and anxiety was reported among men and women with the following characteristics:

- completed primary education
- unemployed or not in the labour force
- total annual household income less than \$40,000
- moderate, high or very high levels of psychological distress
- current smoker
- fair or poor self-reported health status
- diabetes.

When compared with all Victorian men and women, a significantly *lower* lifetime prevalence of depression and anxiety was reported among men and women with the following characteristics:

- low level of psychological distress
- non-smoker
- excellent or very good self-reported health status.

When compared with all Victorian men, a significantly *higher* lifetime prevalence of depression and anxiety was reported among men with the following characteristic:

- at long-term risk of alcohol-related harm.

When compared with all Victorian men, a significantly *lower* lifetime prevalence of depression and anxiety was reported among men with the following characteristic:

- employed.

When compared with all Victorian women, a significantly *higher* lifetime prevalence of depression and anxiety was reported among women with the following characteristics:

- lived in rural Victoria
- ex-smoker
- obese

When compared with all Victorian women, a significantly *lower* lifetime prevalence of depression and anxiety was reported among women with the following characteristics:

- tertiary educated
- normal weight.

**Table 9.5: Lifetime prevalence of depression and anxiety, by selected socioeconomic determinants, modifiable risk factors and health status, and sex, Victoria, 2011–12**

	%	Males		%	Females	
		95% CI			95% CI	
		LL	UL		LL	UL
<b>Total</b>	<b>14.7</b>	<b>13.7</b>	<b>15.7</b>	<b>25.1</b>	<b>24.0</b>	<b>26.1</b>
<i>Area of Victoria</i>						
Rural	16.4	14.6	18.4	<b>28.3</b>	26.3	30.4
Metropolitan	14.1	13.0	15.4	24.2	22.9	25.4
<i>Education level</i>						
Primary	<b>18.9</b>	16.6	21.5	<b>33.7</b>	30.8	36.8
Secondary	14.8	13.1	16.6	25.1	23.4	26.9
Tertiary	12.5	11.0	14.1	<b>21.3</b>	19.7	22.9
<i>Employment status (age &lt; 65 years)</i>						
Employed	<b>12.3</b>	11.2	13.6	23.5	22.0	25.0
Unemployed	<b>28.7</b>	22.4	36.0	<b>33.2</b>	27.1	40.0
Not in labour force	<b>39.4</b>	33.7	45.5	<b>31.8</b>	29.3	34.5
<i>Total annual household income</i>						
< \$40,000	<b>25.2</b>	21.8	29.1	<b>32.9</b>	30.1	35.8
\$40,000 to < \$100,000	13.7	12.1	15.4	24.6	22.8	26.6
≥ \$100,000	12.8	11.0	15.0	21.9	19.6	24.4
<i>Psychological distress<sup>a</sup></i>						
Low (<16)	<b>8.0</b>	7.1	9.0	<b>14.2</b>	13.1	15.3
Moderate (16–21)	<b>22.2</b>	19.8	24.8	<b>34.1</b>	31.9	36.4
High (22–29)	<b>45.5</b>	40.3	50.7	<b>55.6</b>	51.8	59.3
Very high (≥ 30)	<b>64.8</b>	56.5	72.3	<b>76.1</b>	70.1	81.2
<i>Physical activity<sup>b</sup></i>						
Sedentary	14.4	10.7	19.1	28.9	23.8	34.7
Insufficient time and sessions	18.0	15.5	20.7	23.1	21.2	25.1
Sufficient time and sessions	13.4	12.3	14.5	25.3	24.0	26.7

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on National guidelines (NHMRC 2003).

d. Includes those meeting both guidelines

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

**Table 9.5: Lifetime prevalence of depression and anxiety, by selected socioeconomic determinants, modifiable risk factors and health status, and sex, Victoria, 2011–12 (continued)**

	%	Males		%	Females	
		95% CI			95% CI	
		LL	UL		LL	UL
<i>Met fruit / vegetable guidelines <sup>c</sup></i>						
Both guidelines	12.4	8.5	17.8	26.2	21.8	31.2
Vegetable guidelines <sup>d</sup>	13.9	10.3	18.4	27.3	23.6	31.5
Fruit guidelines <sup>d</sup>	12.4	11.1	13.9	24.3	22.7	25.9
Neither	12.4	8.5	17.8	25.8	24.3	27.3
<i>Long-term risk of alcohol-related harm <sup>e</sup></i>						
Abstainer	15.2	12.5	18.2	23.6	21.4	25.9
Low risk	14.0	12.9	15.1	25.3	24.1	26.6
Risky or high risk	<b>26.8</b>	21.2	33.3	31.4	25.5	37.9
<i>Smoking status</i>						
Current smoker	<b>22.7</b>	20.2	25.5	<b>35.3</b>	32.3	38.3
Ex-smoker	15.5	12.9	18.6	33.1	29.3	37.1
Non-smoker	<b>11.2</b>	10.0	12.5	<b>21.0</b>	19.7	22.3
<i>Self-reported health status</i>						
Excellent / very good	<b>10.3</b>	9.1	11.7	<b>18.9</b>	17.6	20.4
Good	14.8	13.3	16.4	26.7	25.0	28.5
Fair / poor	<b>26.9</b>	23.6	30.5	<b>41.2</b>	37.7	44.8
<i>Diabetes status (excluding gestational)</i>						
No diabetes	14.5	13.5	15.5	24.7	23.6	25.8
Diabetes	<b>25.7</b>	20.4	31.7	<b>41.2</b>	33.7	49.2
<i>Body weight status <sup>f</sup></i>						
Underweight	24.5	15.0	37.4	24.6	19.5	30.5
Normal	12.9	11.5	14.6	<b>20.3</b>	18.9	21.7
Overweight	14.3	12.7	16.1	28.5	26.0	31.1
Obese	16.9	14.5	19.6	<b>35.3</b>	31.8	39.0

a. Based on the Kessler 10 scale for psychological distress.

b. Based on national guidelines (DoHA 1999).

c. Based on National guidelines (NHMRC 2003).

d. Includes those meeting both guidelines

e. Long-term risk of alcohol-related harm refers to the increased risk of developing various cancers, cirrhosis of the liver, cognitive problems and dementia, and alcohol dependence.

f. Based on body mass index (BMI).

Data were age-standardised to the 2011 Victorian population.

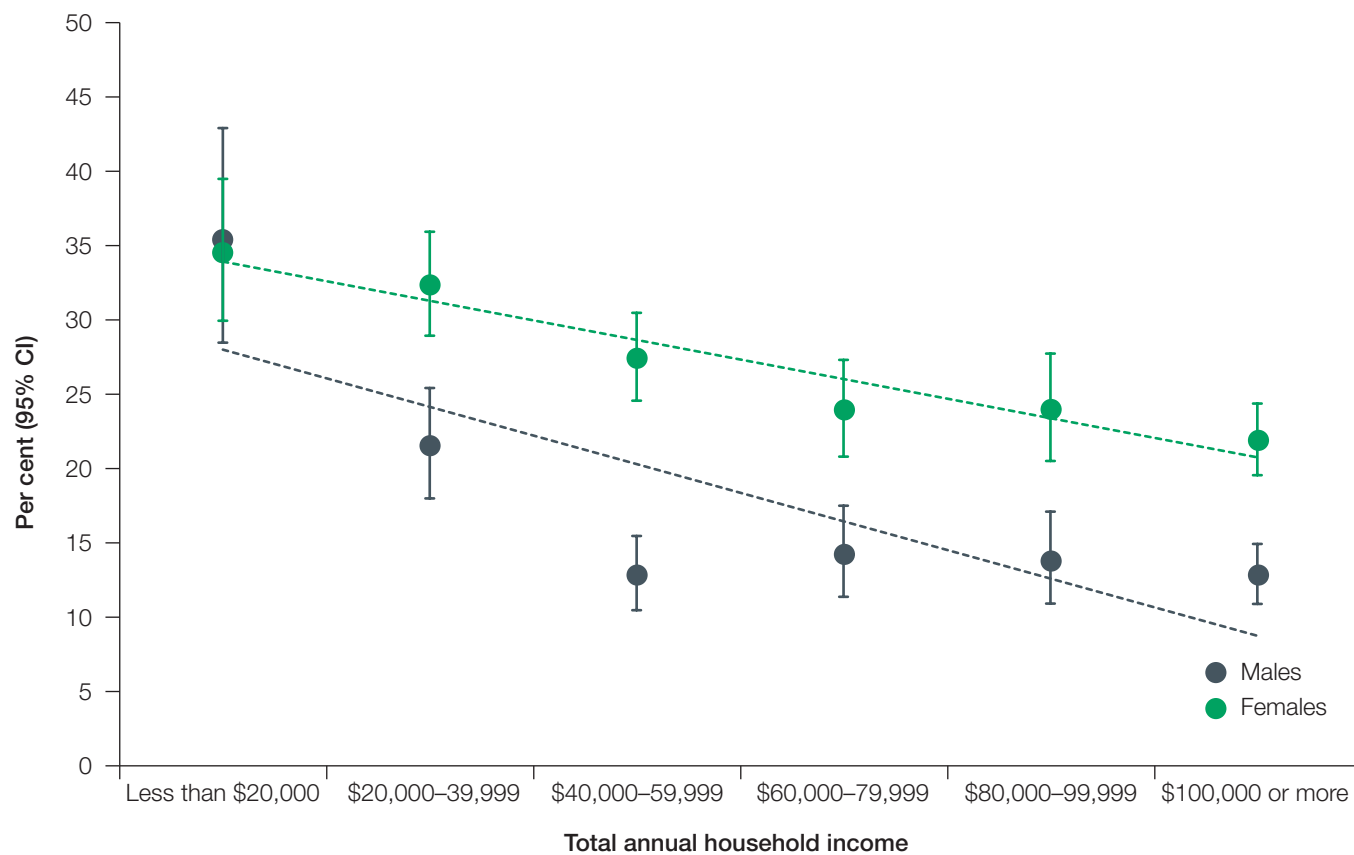
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

The relationship, if any, was investigated between SES and the age-adjusted lifetime prevalence of depression and anxiety in men and women, using total annual household income as a measure of SES (Figure 9.3). The prevalence of depression and anxiety in both men and women significantly decreased with increasing total annual household income.

**Figure 9.3: Prevalence of depression or anxiety,<sup>a</sup> by total annual household income, Victoria, 2011–12**



a. Self-reported doctor-diagnosed depression or anxiety.  
 Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.

## Sought professional help for a mental health related problem

Survey respondents were asked 'In the last year, have you sought professional help for a mental health related problem?'. Table 9.6 shows the proportion of men and women who had sought professional help for a mental health related problem in the year prior to the survey, by age group and sex.

Overall, 12.4 per cent of adults had sought professional help for a mental health related problem in the year prior to the survey. This was significantly higher among women (14.9 per cent) compared with men (9.9 per cent).

Significantly higher proportions of younger people sought professional help with men aged 35–44 years and women aged 25–44 years seeking professional help compared with all Victorian men and women, respectively. By contrast the proportion of adults seeking professional help was significantly lower in men aged 65 years or over and women aged 55 years or over compared with all Victorian men and women, respectively.

**Table 9.6: Sought professional help for a mental health related problem in previous year, by age group and sex, Victoria, 2011–12**

Age group (years)	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
18–24	12.1	9.0	16.2	17.7	13.7	22.4	14.8	12.2	17.9
25–34	11.1	8.5	14.4	20.5	17.6	23.7	15.8	13.8	18.1
35–44	13.2	11.1	15.5	18.1	16.3	20.0	15.7	14.3	17.1
45–54	9.7	8.1	11.4	15.6	14.0	17.3	12.7	11.6	13.9
55–64	8.8	7.5	10.3	11.7	10.5	13.1	10.3	9.4	11.3
65+	4.3	3.4	5.2	5.9	5.1	6.8	5.2	4.6	5.8
<b>Total</b>	<b>9.9</b>	<b>9.0</b>	<b>10.9</b>	<b>14.9</b>	<b>13.9</b>	<b>15.9</b>	<b>12.4</b>	<b>11.7</b>	<b>13.1</b>

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 9.7 shows the proportions of men and women who had sought professional help for a mental health related problem in the 12 months prior to the survey, by Department of Health region. Although higher proportions of women had sought professional help compared with their male counterparts, there were no significant differences between rural or metropolitan Victoria, or by Department of Health region.

**Table 9.7: Sought professional help for a mental health related problem in 12 months prior to the survey, by Department of Health region and sex, Victoria, 2011–12**

Region	%	Males		%	Females		%	Persons	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Eastern Metropolitan	11.0	8.6	14.0	14.8	12.4	17.4	13.2	11.4	15.2
North & West Metropolitan	8.8	7.4	10.3	14.6	13.2	16.3	11.7	10.7	12.8
Southern Metropolitan	10.0	8.1	12.4	14.4	12.6	16.5	12.3	10.9	13.8
<b>Metropolitan</b>	<b>9.6</b>	<b>8.6</b>	<b>10.8</b>	<b>14.7</b>	<b>13.6</b>	<b>15.8</b>	<b>12.2</b>	<b>11.4</b>	<b>13.0</b>
Barwon-South Western	14.0	9.4	20.3	16.6	12.5	21.9	15.0	11.8	19.0
Gippsland	11.2	8.3	14.9	16.3	13.2	20.0	13.9	11.6	16.5
Grampians	7.9	5.7	10.8	13.2	10.8	16.0	10.7	8.9	12.8
Hume	9.0	6.7	11.9	14.7	12.7	16.9	11.8	10.3	13.6
Loddon Mallee	10.0	7.2	13.7	16.3	12.6	20.8	13.5	10.8	16.9
<b>Rural</b>	<b>10.6</b>	<b>8.9</b>	<b>12.6</b>	<b>15.8</b>	<b>14.1</b>	<b>17.8</b>	<b>13.2</b>	<b>11.9</b>	<b>14.6</b>
<b>Total</b>	<b>9.9</b>	<b>9.0</b>	<b>10.9</b>	<b>14.9</b>	<b>13.9</b>	<b>15.9</b>	<b>12.4</b>	<b>11.7</b>	<b>13.1</b>

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Note that estimates may not add to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.

Table 9.8 shows the proportion of people who had sought professional help for a mental health related problem in the 12 months prior to the survey, by LGA. There were significantly higher proportions of people who had sought professional help for a mental health related problem in the 12 months prior to the survey who lived in the LGAs of Mount Alexander (S) and Wellington (S) compared with all Victorian adults. By contrast there were significantly lower proportions who lived in Greater Shepparton (C).

**Table 9.8: Sought professional help for a mental health related problem in 12 months prior to the survey, by LGA, Victoria, 2011–12**

LGA	%	Yes 95% CI	
		LL	UL
Alpine (S)	13.4*	7.0	24.2
Ararat (RC)	13.1	7.9	20.8
Ballarat (C)	10.5	7.4	14.6
Banyule (C)	14.5	10.2	20.2
Bass Coast (S)	18.8	12.5	27.4
Baw Baw (S)	10.7	7.5	15.0
Bayside (C)	13.4	8.5	20.5
Benalla (RC)	12.5*	5.9	24.3
Boroondara (C)	16.0	11.1	22.6
Brimbank (C)	9.7	6.9	13.5
Buloke (S)	12.2*	6.8	21.1
Campaspe (S)	11.0	7.3	16.4
Cardinia (S)	10.5	7.5	14.5
Casey (C)	10.6	7.4	14.9
Central Goldfields (S)	8.6	5.3	13.6
Colac-Otway (S)	13.3	8.6	19.9
Corangamite (S)	7.9	5.1	12.0
Darebin (C)	13.7	10.4	17.8
East Gippsland (S)	12.8	8.0	19.8
Frankston (C)	11.0	7.7	15.5
Gannawarra (S)	7.8	5.1	11.9
Glen Eira (C)	13.2	8.9	19.0
Glenelg (S)	10.4*	6.2	16.9
Golden Plains (S)	11.5	7.4	17.4
Greater Bendigo (C)	14.9	9.4	22.9
Greater Dandenong (C)	9.9	6.9	14.1
Greater Geelong (C)	17.0	12.2	23.2
Greater Shepparton (C)	6.4	4.5	9.1
Hepburn (S)	13.6	10.3	17.7
Hindmarsh (S)	8.5	5.6	12.5
Hobsons Bay (C)	13.3	9.4	18.6
Horsham (RC)	13.4*	6.9	24.4
Hume (C)	11.2	8.3	15.1
Indigo (S)	12.4	8.3	18.0
Kingston (C)	10.7	7.4	15.1
Knox (C)	13.5	9.8	18.2
Latrobe (C)	12.1	8.5	17.1
Loddon (S)	13.6	9.4	19.4
Macedon Ranges (S)	11.6	8.0	16.5
Manningham (C)	11.1	7.8	15.6

LGA	%	Yes 95% CI	
		LL	UL
Mansfield (S)	14.4	8.7	23.0
Maribyrnong (C)	11.2	7.5	16.5
Maroondah (C)	12.3	8.4	17.8
Melbourne (C)	13.7	10.0	18.6
Melton (S)	10.2	7.4	13.9
Mildura (RC)	12.0	8.5	16.8
Mitchell (S)	14.5	10.0	20.6
Moira (S)	8.4	5.5	12.6
Monash (C)	10.5	6.7	16.2
Moonee Valley (C)	10.4	7.0	15.2
Moorabool (S)	9.2	5.9	13.9
Moreland (C)	10.9	7.6	15.4
Mornington Peninsula (S)	14.1	9.7	20.0
Mount Alexander (S)	19.2	14.0	25.7
Moyne (S)	9.4	6.0	14.4
Murrindindi (S)	16.2	10.8	23.6
Nilumbik (S)	11.7	7.4	17.9
Northern Grampians (S)	10.2*	6.0	16.8
Port Phillip (C)	14.8	11.0	19.5
Pyrenees (S)	10.8	7.3	15.8
Queenscliffe (B)	10.6*	6.0	18.1
South Gippsland (S)	9.1	5.8	14.1
Southern Grampians (S)	10.1	6.9	14.5
Stonnington (C)	17.6	12.9	23.5
Strathbogie (S)	14.7*	8.5	24.2
Surf Coast (S)	12.7	8.0	19.6
Swan Hill (RC)	9.3	5.7	14.7
Towong (S)	9.0	6.2	12.9
Wangaratta (RC)	12.4	8.3	18.0
Warrnambool (C)	10.5	7.5	14.5
Wellington (S)	20.5	13.8	29.3
West Wimmera (S)	11.3	7.7	16.2
Whitehorse (C)	11.4	7.3	17.4
Whittlesea (C)	10.1	7.1	14.2
Wodonga (RC)	15.2	11.0	20.8
Wyndham (C)	12.0	8.9	16.1
Yarra (C)	16.4	11.2	23.3
Yarra Ranges (S)	16.5	12.8	21.2
Yarriambiack (S)	8.3	5.8	11.8
<b>Victoria</b>	<b>12.4</b>	<b>11.7</b>	<b>13.1</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

# Mental health



### **Sought professional help for a mental health related problem, by type of professional help**

Survey respondents who had sought professional help for a mental health related problem were asked from whom they had sought help. Table 9.9 shows their responses, by age group, sex and rurality. The numbers were too small to allow for analysis by Department of Health region or by LGA. Overall, 42.6 per cent of respondents who had sought professional help for a mental health related problem had sought help from a 'private counselling service or psychologist', 18.7 per cent had sought help from a private psychiatrist, 3.8 per cent had sought help from a 'community health service', another 3.3 per cent had sought help from a 'public mental health community service', 0.6 per cent had sought help from a 'public hospital inpatient service', while 5.9 per cent had sought help from other sources.

A significantly higher proportion of women aged 18–24 years had sought help from a private counselling service or psychologist compared with all Victorian women. By contrast a significantly lower proportion of men and women aged 65 years or over had sought help compared with all Victorian men and women, respectively.

A significantly higher proportion of women who lived in rural Victoria had sought help from a GP compared with their metropolitan counterparts. By contrast a significantly lower proportion of people aged 18–24 years had sought help from a GP compared with all Victorian adults.

A significantly higher proportion of people aged 18–24 years had sought help from a community health service compared with all Victorian adults. By contrast a significantly lower proportion of men aged 55–64 years had sought help compared with all Victorian men.

Table 9.9: Type of professional help sought for a mental health related problem in 12 months prior to the survey, by age group, sex and area of state, Victoria, 2011–12

Age group (years) and Area of State	Private counselling service / psychologists			General practitioner consultation			Private psychiatrist consultation			Community health service			Public hospital inpatient service			Public mental health community service			Other <sup>a</sup>		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
<b>Males</b>																					
18–24	60.2	44.6	74.0	39.5	25.8	55.1	15.5*	7.6	29.3	**	**	0.0	-	-	**	**	**	**	8.8*	3.8	18.8
25–34	44.3	31.6	57.9	56.3	42.3	69.3	24.1*	13.9	38.5	**	**	**	**	**	**	**	**	**	10.5*	4.5	22.5
35–44	42.8	34.3	51.8	58.2	49.0	66.9	20.9	14.5	29.2	4.5*	2.1	9.4	**	**	5.7*	2.3	13.3	4.6*	2.2	9.4	
45–54	46.1	37.4	55.2	57.9	48.6	66.7	24.3	17.2	33.2	**	**	**	**	**	**	**	**	**	**	**	
55–64	33.5	26.2	41.6	62.7	54.2	70.4	26.9	20.0	35.1	0.5*	0.2	1.4	**	**	2.2*	0.9	5.5	2.3*	1.2	4.4	
65+	20.1	13.0	29.8	57.7	47.0	67.7	23.4	15.8	33.3	1.1*	0.4	2.7	**	**	**	**	**	7.0*	3.2	14.6	
<b>Metropolitan areas</b>	41.5	36.1	47.1	55.3	49.8	60.6	23.5	19.2	28.3	2.0*	0.8	5.0	**	**	2.7*	1.4	5.1	6.2	4.1	9.1	
<b>Rural areas</b>	40.7	34.3	47.5	57.5	51.0	63.7	19.6	15.1	25.1	6.4*	3.5	11.4	1.0*	0.5	7.2*	3.5	14.3	6.6*	3.2	13.1	
<b>Total</b>	40.5	36.1	45.0	56.2	51.7	60.6	22.4	18.8	26.5	2.7*	1.5	4.8	0.8*	0.4	3.8*	2.3	6.2	6.2	4.3	8.9	
<b>Females</b>																					
18–24	62.2	49.1	73.7	54.7	40.9	67.9	16.1*	7.8	30.5	13.4*	6.0	27.1	0.0	-	**	**	**	**	11.1*	5.3	21.9
25–34	48.6	40.4	56.9	72.5	64.6	79.2	20.8	14.5	29.0	2.5*	1.1	5.6	**	**	2.5*	0.9	6.3	6.0*	3.2	11.0	
35–44	42.4	37.0	47.9	71.0	66.0	75.5	15.1	11.3	20.0	4.1	2.6	6.4	**	**	2.4*	1.1	5.0	6.2	4.1	9.3	
45–54	46.5	41.0	52.1	68.5	62.9	73.5	15.4	11.8	19.8	3.7*	2.2	6.2	**	**	3.3*	2.0	5.5	2.7*	1.5	5.0	
55–64	42.2	36.5	48.1	60.9	55.0	66.6	16.5	12.6	21.4	2.5*	1.3	4.7	**	**	4.4*	2.6	7.2	5.8	3.6	9.3	
65+	29.0	23.0	35.7	63.2	56.1	69.8	15.5	11.2	21.2	2.3*	1.1	4.7	**	**	5.3*	2.7	10.4	4.1*	2.3	7.3	
<b>Metropolitan areas</b>	44.1	40.5	47.8	62.7	58.9	66.3	17.3	14.5	20.5	3.8	2.5	5.9	0.5*	0.2	1.1	2.8	4.1	6.5	4.8	8.8	
<b>Rural areas</b>	43.1	39.0	47.4	76.3	72.7	79.5	12.9	9.4	17.4	6.4*	3.8	10.7	0.6*	0.3	1.0	3.4	5.0	3.6	2.3	5.6	
<b>Total</b>	43.8	40.9	46.8	66.3	63.2	69.3	16.1	13.8	18.7	4.5	3.2	6.3	0.5*	0.3	0.9	3.0	4.0	5.9	4.5	7.6	

a. Categories are not mutually exclusive. Estimates of those who sought help at public mental health crisis centres, public or private hospital emergency departments or inpatient services were too unreliable to report and not included in this category. Data are age-specific estimates, except for metropolitan and rural areas and 'Total', which have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 9.9: Type of professional help sought for a mental health related problem in 12 months prior to the survey, by age group, sex and area of state, Victoria, 2011–12 (continued)

Age group (years) and Area of State	Private counselling service / psychologists			General practitioner consultation			Private psychiatrist consultation			Community health service			Public hospital inpatient service			Public mental health community service			Other <sup>a</sup>			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Persons</b>																						
18–24	61.4	51.3	70.5	48.4	38.3	58.6	15.9*	9.5	25.4	10.9*	5.5	20.6	0.0	-	-	**	**	**	10.1*	5.8	17.1	
25–34	47.1	40.1	54.3	66.8	59.4	73.4	22.0	16.2	29.1	2.5*	1.3	4.9	**	**	**	3.1*	1.4	6.9	7.6*	4.5	12.5	
35–44	42.6	37.8	47.5	65.7	60.8	70.3	17.5	13.9	21.8	4.2	2.8	6.4	0.6*	0.2	1.5	3.8*	2.0	6.9	5.6	3.8	8.0	
45–54	46.4	41.5	51.2	64.5	59.5	69.2	18.7	15.1	23.0	2.5*	1.5	4.1	0.5*	0.2	1.0	3.1	1.9	4.9	3.1*	1.8	5.4	
55–64	38.5	33.9	43.4	61.7	56.8	66.3	20.9	17.1	25.3	1.7*	0.9	3.0	0.8*	0.4	1.8	3.5	2.2	5.4	4.3	2.9	6.5	
65+	25.7	20.9	31.1	61.1	55.2	66.8	18.5	14.4	23.5	1.8*	1.0	3.3	1.2*	0.5	2.7	4.6*	2.5	8.3	5.2	3.2	8.4	
<b>Metropolitan areas</b>	43.1	40.0	46.2	59.8	56.6	62.9	19.7	17.2	22.3	3.1	2.1	4.6	0.6*	0.3	1.1	2.8	2.0	4.0	6.3	4.9	8.0	
<b>Rural areas</b>	41.9	38.2	45.7	68.8	64.4	73.0	16.1	12.8	20.0	6.1	4.0	9.1	0.8	0.5	1.2	4.6*	2.8	7.5	4.6*	2.8	7.6	
<b>Total</b>	42.6	40.1	45.1	62.2	59.5	64.8	18.7	16.5	21.0	3.8	2.8	5.0	0.6*	0.4	1.1	3.3	2.5	4.4	5.9	4.7	7.4	

a. Categories are not mutually exclusive. Estimates of those who sought help at public mental health crisis centres, public or private hospital emergency departments or inpatient services were too unreliable to report and not included in this category. Data are age-specific estimates, except for metropolitan and rural areas and 'Total', which have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

The trends over time were investigated from 2005 to 2011–12 of people who had sought professional help for a mental health related problem from GPs, psychologists / counselling service and psychiatrists in the 12 months prior to the survey.

The trends over time are presented in Table 9.10 and Figure 9.4. The proportion of men and women who had sought help from a GP or psychologist / counselling service significantly increased between 2005 and 2011–12. By contrast the proportion of men and women who had sought help from a psychiatrist remained unchanged from 2005 to 2011–12.

**Table 9.10: Population prevalence of type of health professional sought for a mental health related problem in the 12 months prior to the survey from 2005 to 2011–12, Victoria**

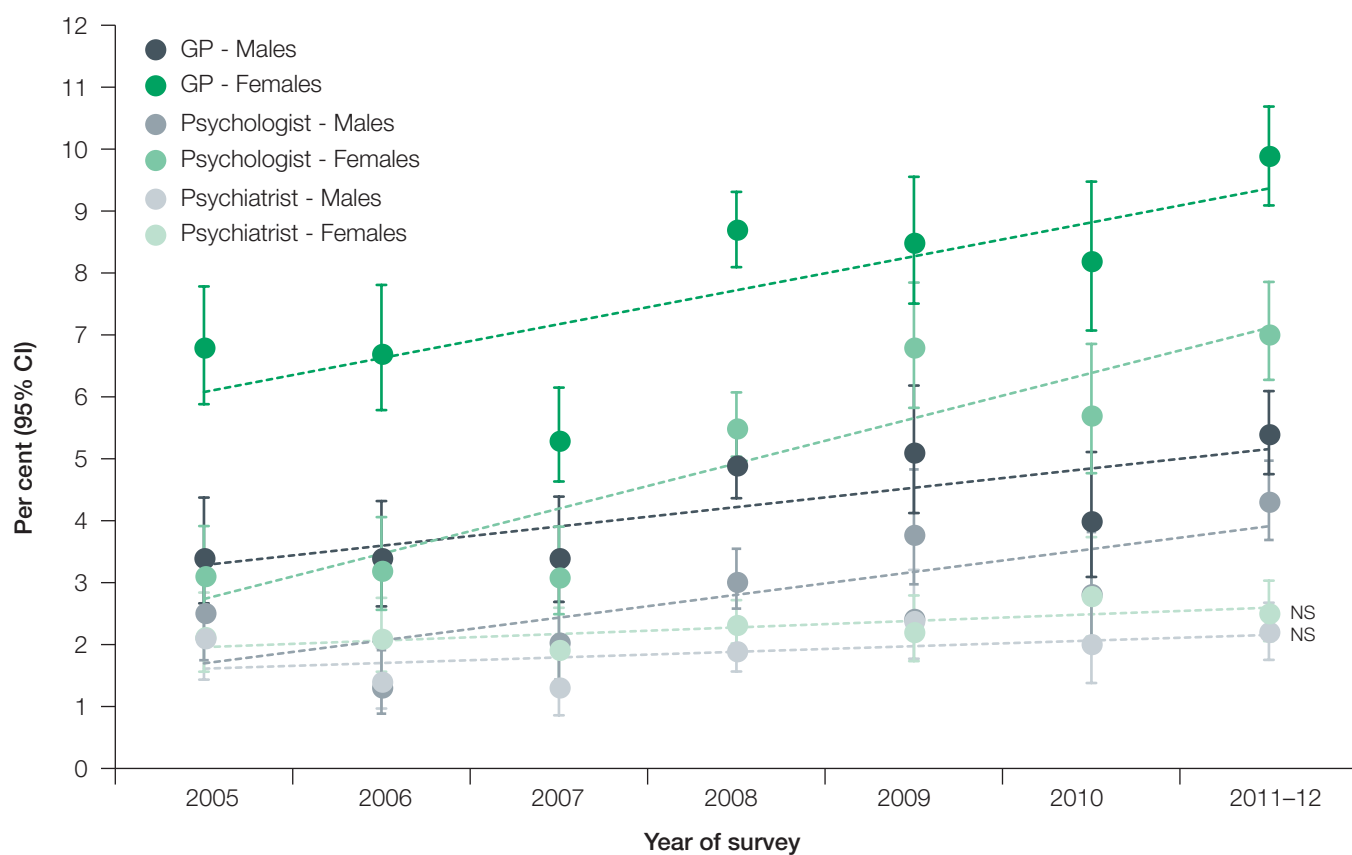
Year	General Practitioner (GP)			Private counselling / Psychologist			Private Psychiatrist		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
<b>Males</b>									
2005	3.4	2.7	4.4	2.5	1.8	3.4	2.1	1.4	3.1
2006	3.4	2.6	4.3	1.3	0.9	1.9	1.4	1.0	2.0
2007	3.4	2.7	4.4	2.0	1.4	2.7	1.3	0.9	1.8
2008	4.9	4.4	5.5	3.0	2.6	3.6	1.9	1.6	2.3
2009	5.1	4.1	6.2	3.8	3.0	4.8	2.4	1.8	3.2
2010	4.0	3.1	5.1	2.8	2.1	3.8	2.0	1.4	2.9
<b>2011–12</b>	<b>5.4</b>	<b>4.8</b>	<b>6.1</b>	<b>4.3</b>	<b>3.7</b>	<b>5.0</b>	<b>2.2</b>	<b>1.8</b>	<b>2.7</b>
<b>Females</b>									
2005	6.8	5.9	7.8	3.1	2.4	3.9	2.1	1.6	2.8
2006	6.7	5.8	7.8	3.2	2.6	4.1	2.1	1.6	2.8
2007	5.3	4.6	6.2	3.1	2.5	3.9	1.9	1.4	2.6
2008	8.7	8.1	9.3	5.5	5.0	6.1	2.3	2.0	2.7
2009	8.5	7.5	9.6	6.8	5.8	7.8	2.2	1.7	2.8
2010	8.2	7.1	9.5	5.7	4.8	6.9	2.8	2.1	3.7
<b>2011–12</b>	<b>9.9</b>	<b>9.1</b>	<b>10.7</b>	<b>7.0</b>	<b>6.3</b>	<b>7.9</b>	<b>2.5</b>	<b>2.1</b>	<b>3.0</b>
<b>Persons</b>									
2005	5.1	4.5	5.8	2.8	2.3	3.4	2.1	1.7	2.7
2006	5.0	4.4	5.7	2.3	1.9	2.8	1.7	1.4	2.2
2007	4.4	3.9	5.0	2.6	2.1	3.1	1.6	1.2	2.0
2008	6.8	6.4	7.2	4.3	4.0	4.7	2.1	1.9	2.4
2009	6.8	6.1	7.5	5.3	4.7	6.0	2.3	1.9	2.8
2010	6.1	5.4	6.9	4.3	3.6	5.0	2.4	1.9	3.0
<b>2011–12</b>	<b>7.6</b>	<b>7.1</b>	<b>8.2</b>	<b>5.7</b>	<b>5.2</b>	<b>6.2</b>	<b>2.3</b>	<b>2.0</b>	<b>2.7</b>

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Ordinary least squares regression was used to test for trends over time.

Figure 9.4: Population prevalence of type of health professional sought for a mental health related problem in the 12 months prior to the survey from 2005 to 2011–12, Victoria



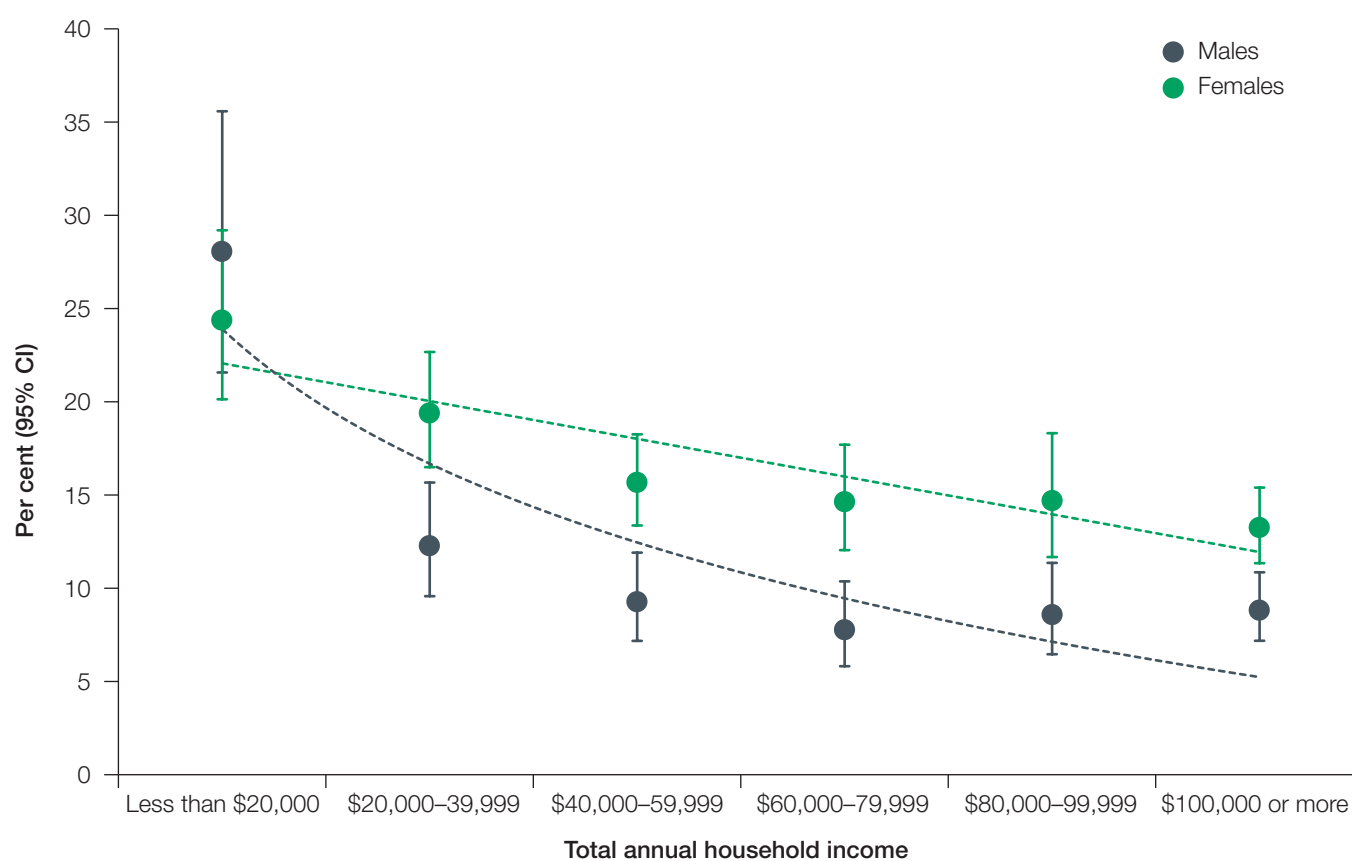
Data were age-standardised to the 2011 Victorian population.

95% CI = 95 per cent confidence interval.

Ordinary least squares regression was used to test for trends over time.

The relationship was investigated between SES and the age-adjusted proportion of men and women who had sought professional help for a mental health related problem, using total annual household income as a measure of SES (Figure 9.5). The proportion of women, but not men, who had sought professional help for a mental health related problem significantly decreased with increasing total annual household income. It appears that there may have been a non-linear decrease in the proportion of men who had sought professional help for a mental health related problem, by total annual household income. This was confirmed by log transformation of total annual household income, shown in Figure 9.5 (blue trend line). Therefore there is an SES gradient in both men and women whereby the proportion who sought professional help declined with increasing household income.

**Figure 9.5: Proportion of men and women who had sought professional help for a mental health problem in the 12 months prior to the survey, by total annual household income, Victoria, 2011–12**



Data were age-standardised to the 2011 Victorian population.  
 95% CI = 95 per cent confidence interval.  
 Ordinary least squares linear regression was used to test for statistical significance.  
 Note: The trendline for men is a log-transformed line as the decline was non-linear.

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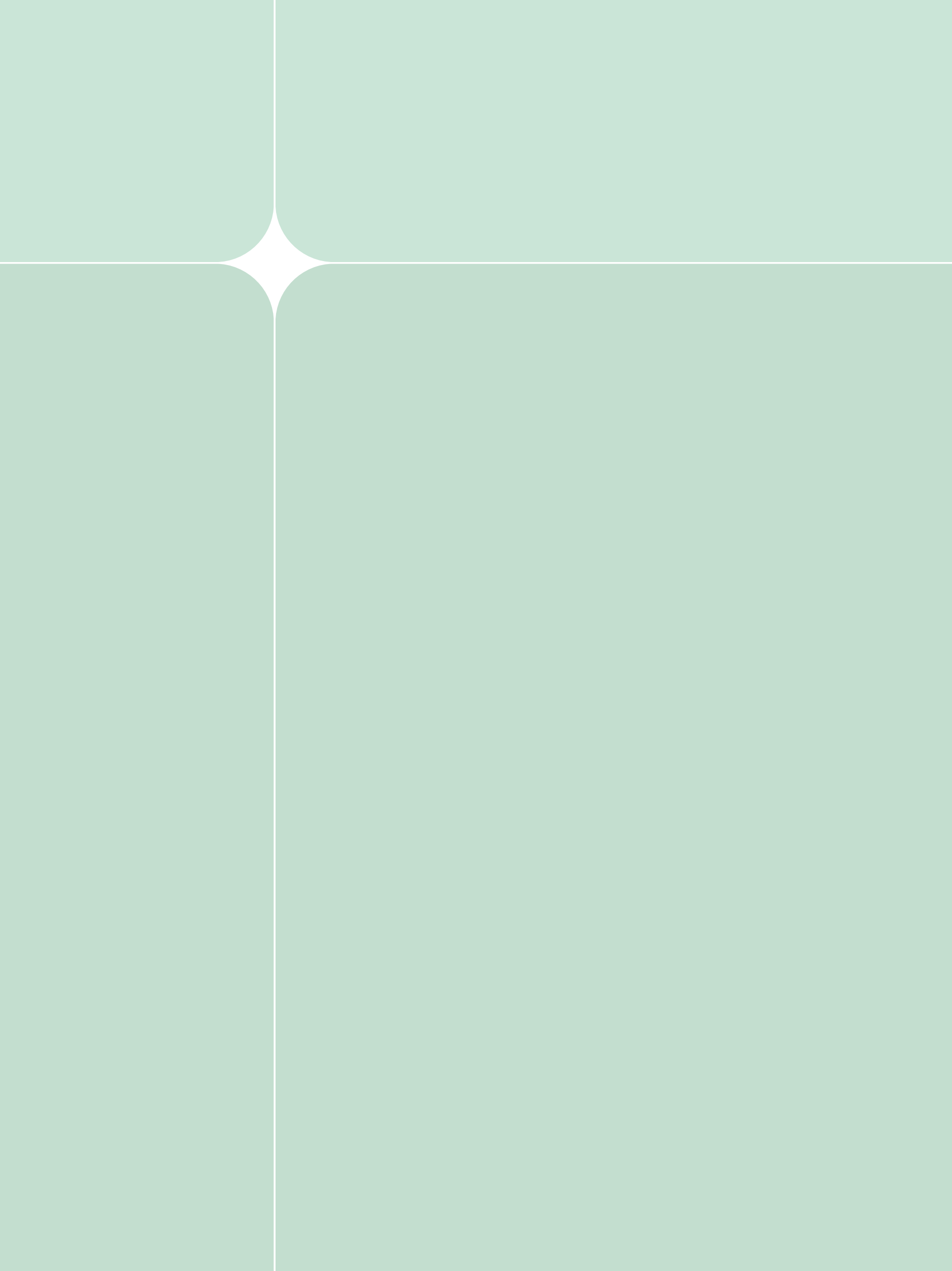
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## 10. Social inequalities in health

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIAK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIAK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIAK





# 10. Social inequalities in health

## Introduction

Governments have long recognised the importance of ensuring access to clean water, good housing and sanitation as prerequisites for good health. Advances in clinical practice, medical technology and epidemiology have also enabled health practitioners to better diagnose and treat many diseases and conditions, and their risk factors. Such advances have significantly increased life expectancy and improved population health over the past few decades. However, these health gains have not been shared equally across the entire population; certain groups in our society have poorer health status than others.

Some of these differences in health status are due to genetic or biological variations and/or result from lifestyle choices. Other disparities in people's health are not so easily explained. Despite significant achievements in public health in Victoria over the past century, the evidence on SES and health in Australia is unequivocal; people lower in the socioeconomic hierarchy fare significantly worse in terms of their health. Specifically, those classified as having low SES have higher mortality rates for most major causes of death. Their morbidity profile indicates they experience more ill health (both physiological and psychosocial), and their use of healthcare services suggests they are less likely, or may have less opportunity, to act to prevent disease or detect it at an early stage. Moreover, socioeconomic differences in health are evident for both males and females at every stage of the life course (birth, infancy, childhood, adolescence and adulthood) and the relationship exists irrespective of how SES and health are measured (Kawachi, Subramanian & Almeida-Filho 2002; Whitehead 1991).

Health inequality is a generic term used to describe the differences in health between subpopulations, while health inequity refers to those inequalities in health that are deemed to be unfair and avoidable stemming from some form of injustice (Kawachi, Subramanian & Almeida-Filho 2002).

SES can be measured in many ways. Univariate or proxy measures include income (individual or household), educational attainment and occupation. Income provides individuals and families with necessary material resources and determines their purchasing power for accessing goods and services needed to maintain good health. Greater levels of educational attainment are associated with higher levels of knowledge and other non-material resources likely to promote a healthy lifestyle. Education also provides formal qualifications that affect occupational status and associated income level. Occupational status reflects social status and power and material conditions related to paid work (Lahelma et al. 2004).

There are also composite measures of SES such as the Cambridge Social Interaction and Stratification Scale (CAMSIS), which relies on patterns of social interaction to determine the social structure and an individual's position in it (Bottero & Prandy 2003). There are also area-based composite measures

such as the Index of Relative Socio-Economic Disadvantage (IRSED), which was developed by the Australian Bureau of Statistics (ABS) as one of its Socio-Economic Indexes for Areas (SEIFA). SEIFA ranks areas in Australia according to relative socioeconomic advantage and disadvantage (ABS 2013). In the absence of individual-level data, SEIFA is a reasonable alternative, although it assumes that it represents every individual in the specified area and is therefore less sensitive than the individual-level measures. In short, there is no consensus definition of SES.

To tackle health inequalities, it must be accepted that they exist, that they have significant social and economic consequences, and that they can be prevented. Throughout the preceding chapters of this report, total annual household income, from all sources before tax is taken out, has been used as a proxy measure of SES and each indicator has been analysed by SES. These findings are summarised in this chapter along with additional indicators of inequality including food insecurity.

## Survey results

### Risk factors and health outcomes

- Typical SES gradients (where the prevalent negative risk factors and outcomes decrease with increasing SES) were observed for the majority of risk factors discussed in the national and international literature. Reverse SES gradients were observed for the risk factors of alcohol consumption and overweight. All health outcomes showed typical SES gradients, with two notable exceptions.
- The proportion of men and women who abstained from consuming alcohol increased with decreasing SES in both men and women. By contrast men and women who consumed alcohol at least monthly at levels that put them at short-term risk of alcohol-related harm were significantly more likely to be of higher SES.
- Although obesity was clearly associated with disadvantage and hence showed a typical SES gradient, when the categories of obesity and overweight were combined, the residual SES gradient was a reverse gradient.
- No SES gradients were observed for men or women in the prevalence of asthma. By contrast while no SES gradient was observed for women in the prevalence of cancer, a reverse SES gradient was observed in men.

### Food insecurity

- Overall, 4.6 per cent of Victorian adults reported that they had run out of food at some time in the 12 months preceding the survey and had been unable to afford to buy more.
- A higher proportion of women in rural Victoria reported that they had run out of food and could not afford to buy more compared with their metropolitan counterparts. No such difference was found in men who lived in rural Victoria.

- Of the possible reasons why people may not always have the quality or variety of food that they want, 21.3 per cent of people agreed that 'some foods are too expensive, in particular, fresh fruit and vegetables'; 19.8 per cent agreed with the statement 'I can't get food of the right quality'; 9.3 per cent agreed with the statement 'I can't get a variety of food, for example, a mixture of meat, vegetables, fruit, dairy, bread and pasta'; 4.2 per cent agreed that 'culturally appropriate foods aren't available such as kosher or "halal"' and 5.8 per cent agreed that inadequate and unreliable public transport makes it difficult to get to the shops.

## Risk factors and health outcomes

Table 10.1 summarises the results of the analyses performed for each modifiable risk factor, by SES (total annual household income). Most negative risk factors and outcomes often show a gradient whereby their prevalence *decreases* with *increasing* SES (or conversely *increases* with *decreasing* SES); this is referred to as a *typical* SES gradient. By contrast occasionally the opposite is observed where the prevalence of a negative outcome or risk factor *increases* with *increasing* SES (or conversely *decreases* with *decreasing* SES); this is referred to as a *reverse* gradient. These definitions are used to describe the findings in this chapter.

*Typical* SES gradients were observed for the majority of risk factors; this is consistent with the national and international literature. However, *reverse* SES gradients were also observed for the risk factors of alcohol consumption and overweight.

The proportions of men and women who abstained from consuming alcohol increased with decreasing SES in both men and women. By contrast men and women who consumed alcohol at least monthly at levels that put them at short-term risk of alcohol-related harm were significantly more likely to be of higher SES. Moreover this reverse SES gradient was also observed in women, but not men, who engaged in risky drinking at least weekly.

The finding of a *reverse* SES gradient for risky drinking in the short term is consistent with the international literature (Bloomfield et al. 2006; Paljarvi et al. 2013). Higher SES groups were not only more likely to drink alcohol than their lower SES counterparts but also at levels that put them at risk of harm. However, the literature shows that while people of lower SES are less likely to drink than their higher SES counterparts, when they do they are more likely to drink at levels associated with adverse outcomes such as hospitalisation for alcohol-related injuries (Eldridge 2008). The data are consistent with the literature in that the *reverse* SES gradient in men (but not women) disappeared when excess consumption occurred on a weekly rather than monthly or yearly basis. Moreover no relationship with SES was observed for those who consumed alcohol at levels that put them at long-term risk of alcohol-related harm; this indicator of alcohol consumption relates to consumption of very large quantities of alcohol.

A reverse SES gradient for overweight was observed in the Victorian Population Health Survey 2008 (Markwick, Vaughan & Ansari 2013) and this finding was confirmed in the Victorian Population Health Survey 2011–12. Although obesity was clearly associated with disadvantage and hence showed a *typical* SES gradient, when the categories of obesity and overweight were combined, the residual SES gradient was a *reverse* gradient. This would be expected given that the prevalence of overweight was significantly greater than the prevalence of obesity and therefore had a greater impact. Similar findings have been reported in the United States (Kawachi I, personal communication, May 2013; Zhang & Wang 2004). Those who are overweight are different from those who are obese, the former being affluent while the latter are disadvantaged. This has important implications in that it suggests that combining the two populations into a single indicator of overweight and obesity masks important information that could potentially increase inequalities in health if the indicator were to be used to select communities for intervention.

**Table 10.1: Prevalence of modifiable risk factors, by SES, Victoria, 2011–12**

Indicator	Response option	Males	Females	Persons
Current smoker (daily and occasional)		↓	↓	↓
Short-term risk of alcohol-related harm <sup>a</sup>	Abstainer	↓	↓	↓
	Weekly	↔	↑	↔
	Monthly	↑	↑	↑
Long-term risk of alcohol-related harm <sup>a</sup>	Yes	↔	↔	↔
Fruit consumption <sup>b</sup>	Did not meet guideline	↓	↓	↓
Vegetable consumption <sup>b</sup>	Did not meet guideline	↔	↓	↓
Physical activity <sup>c</sup>	Sedentary	↓	↓	↓
	Insufficient	↓	↔	↓
Psychological distress <sup>d</sup>	High or very high	↓	↓	↓
Unhealthy body weight <sup>e</sup>	Underweight (BMI <18.5 kg/m <sup>2</sup> )	↓	↔	↔
	Overweight (BMI 25.0-29.9 kg/m <sup>2</sup> )	↔	↔	↑
	Obese (BMI ≥ 30 kg/m <sup>2</sup> )	↓	↓	↓
	Overweight and obese (BMI ≥ 25 kg/m <sup>2</sup> )	↔	↔	↑
Daily consumption of sugar-sweetened soft drinks		↔	↓	↓
Hypertensive <sup>f</sup>		↓	↓	↓
Did not wear a hat or sunglasses when out in the sun		↓	↓	↓

↑ Increases, ↓ decreases or ↔ does not change; with increasing total annual household income.

a. Based on national guidelines (NHMRC 2001).

b. Based on national guidelines (NHMRC 2003).

c. Based on national guidelines (DoHA 1999).

d. Based on the Kessler 10 scale for psychological distress.

e. Based on body mass index (BMI).

f. Classified as systolic blood pressure of 140 mmHg or more or diastolic blood pressure of 90 mmHg or more (Sutters 2007).

Data were age-standardised to the 2011 Victorian population.



Table 10.2 summarises the results of the analyses performed for each health outcome, by SES (total annual household income). With two notable exceptions, all health outcomes showed typical SES gradients. No SES gradients were observed for men or women in the prevalence of asthma. By contrast while no SES gradient was observed for women in the prevalence of cancer, a reverse SES gradient was observed in men.

**Table 10.2: Prevalence of health outcomes, by SES, Victoria, 2011–12**

Indicator	Response option	Males	Females	Persons
Self-reported health status	Excellent / very good	↑	↑	↑
	Fair / poor	↓	↓	↓
Self-rated dental health	Excellent / very good	↑	↑	↑
	Fair / poor	↓	↓	↓
	No natural teeth	↓	↓	↓
Depression or anxiety <sup>a</sup>		↓	↓	↓
Heart disease <sup>a</sup>		↓	↔	↓
Stroke <sup>a</sup>		↓	↓	↓
Cancer <sup>a</sup>		↑	↔	↑
Osteoporosis <sup>a</sup>		↓	↓	↓
Arthritis <sup>a</sup>		↓	↓	↓
Asthma <sup>b</sup>		↔	↔	↔
Type 2 diabetes <sup>a</sup>		↓	↓	↓

a. Reported ever being diagnosed with condition by a doctor.

b. Reported ever having been diagnosed with asthma by a doctor and have experienced symptoms (wheeze, coughing, shortness of breath or chest tightness) of asthma or taken treatment for asthma in the last 12 months.

Data were age-standardised to the 2011 Victorian population.

↑ Increases, ↓ decreases or ↔ does not change; with increasing total annual household income.

## Food insecurity

Food insecurity is most commonly defined as the 'limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways' (Kendall & Kennedy 1998). To assess levels of food insecurity in Victoria, respondents were asked: 'In the last 12 months, were there any times that you ran out of food and couldn't afford to buy more?'

Table 10.3 shows the proportion of Victorian adults who ran out of food and could not afford to buy more, by age group and sex. Overall, 4.6 per cent of Victorian adults reported that they had run out of food in the previous 12 months and had been unable to afford to buy more. This finding was similar in men (4.2 per cent) and women (5.0 per cent), with the proportions decreasing with age.

**Table 10.3: Ran out of food in the previous 12 months, by age group and sex, Victoria, 2011–12**

Age group (years)	%	Yes 95% CI		%	No 95% CI		
		LL	UL		LL	UL	
<b>Males</b>							
18–24	8.4	5.3	13.0	91.5	86.9	94.6	
25–34	5.6	3.7	8.4	94.4	91.6	96.3	
35–44	4.4	3.3	5.8	95.6	94.1	96.7	
45–54	4.0	3.0	5.3	96.0	94.6	97.0	
55–64	2.0	1.5	2.7	97.8	97.0	98.4	
65+	1.3	0.9	1.9	98.5	97.9	98.9	
<b>Total</b>	<b>4.2</b>	<b>3.5</b>	<b>5.1</b>	<b>95.7</b>	<b>94.8</b>	<b>96.4</b>	
<b>Females</b>							
18–24	7.1	4.8	10.5	92.8	89.5	95.2	
25–34	6.7	5.1	8.7	93.3	91.2	94.9	
35–44	6.5	5.4	7.7	93.4	92.1	94.5	
45–54	4.9	4.1	5.8	94.9	94.0	95.7	
55–64	3.3	2.7	4.2	96.5	95.6	97.2	
65+	1.4	1.0	1.9	98.4	97.9	98.8	
<b>Total</b>	<b>5.0</b>	<b>4.4</b>	<b>5.6</b>	<b>94.9</b>	<b>94.3</b>	<b>95.5</b>	
<b>Persons</b>							
18–24	7.8	5.7	10.5	92.2	89.4	94.2	
25–34	6.1	4.8	7.8	93.8	92.2	95.2	
35–44	5.4	4.6	6.4	94.5	93.6	95.3	
45–54	4.4	3.8	5.2	95.4	94.7	96.1	
55–64	2.7	2.2	3.2	97.1	96.6	97.6	
65+	1.4	1.1	1.7	98.4	98.1	98.7	
<b>Total</b>	<b>4.6</b>	<b>4.2</b>	<b>5.2</b>	<b>95.3</b>	<b>94.7</b>	<b>95.7</b>	

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and have been age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

Table 10.4 shows the proportion of Victorian adults who ran out of food and could not afford to buy more, by Department of Health region and sex. A significantly higher proportion of women in rural Victoria had run out of food and could not afford to buy more compared with their metropolitan counterparts.

No such difference was found in men who lived in rural Victoria. A significantly higher proportion of men who lived in Gippsland Region and women who lived in Loddon Mallee Region had run out of food and could not afford to buy more compared with all Victorian men and women.

Table 10.4: Ran out of food in the previous 12 months, by Department of Health region and sex, Victoria, 2011–12

Region	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
<b>Males</b>						
Eastern Metropolitan	5.2	3.5	7.5	94.8	92.4	96.4
North & West Metropolitan	3.8	2.8	5.2	96.2	94.8	97.2
Southern Metropolitan	2.9	1.8	4.5	97.0	95.4	98.0
<b>Metropolitan males</b>	3.9	3.1	4.8	96.1	95.1	96.8
Barwon-South Western	7.1*	3.3	14.7	92.9	85.3	96.7
Gippsland	7.8	5.3	11.3	92.2	88.7	94.7
Grampians	3.8	2.3	6.0	96.2	94.0	97.6
Hume	4.1	2.9	5.8	95.6	93.8	96.9
Loddon Mallee	5.5*	3.1	9.5	94.2	90.2	96.6
<b>Rural males</b>	5.8	4.1	8.1	94.1	91.8	95.8
<b>Total</b>	<b>4.2</b>	<b>3.5</b>	<b>5.1</b>	<b>95.7</b>	<b>94.8</b>	<b>96.4</b>
<b>Females</b>						
Eastern Metropolitan	3.6	2.4	5.2	96.4	94.8	97.5
North & West Metropolitan	4.6	3.8	5.6	95.2	94.2	96.0
Southern Metropolitan	5.4	4.1	7.0	94.4	92.8	95.7
<b>Metropolitan females</b>	4.6	3.9	5.3	95.3	94.6	95.9
Barwon-South Western	5.6	3.6	8.5	94.4	91.5	96.4
Gippsland	6.1	4.3	8.5	93.8	91.4	95.6
Grampians	4.4	3.4	5.8	95.5	94.1	96.5
Hume	6.9	5.2	9.0	93.0	90.9	94.7
Loddon Mallee	9.6	6.2	14.7	90.3	85.3	93.8
<b>Rural females</b>	6.6	5.3	8.0	93.4	91.9	94.6
<b>Total</b>	<b>5.0</b>	<b>4.4</b>	<b>5.6</b>	<b>94.9</b>	<b>94.3</b>	<b>95.5</b>
<b>Persons</b>						
Eastern Metropolitan	4.5	3.4	6.0	95.4	93.9	96.5
North & West Metropolitan	4.2	3.5	5.1	95.6	94.8	96.3
Southern Metropolitan	4.2	3.3	5.2	95.7	94.6	96.5
<b>Metropolitan persons</b>	4.2	3.7	4.8	95.7	95.1	96.2
Barwon-South Western	6.0*	3.5	10.1	94.0	89.9	96.5
Gippsland	6.9	5.3	8.9	93.1	91.0	94.7
Grampians	4.1	3.1	5.3	95.8	94.6	96.8
Hume	5.6	4.4	7.0	94.2	92.8	95.3
Loddon Mallee	7.7	5.2	11.3	92.1	88.6	94.7
<b>Rural persons</b>	6.1	5.1	7.5	93.7	92.4	94.8
<b>Total</b>	<b>4.6</b>	<b>4.2</b>	<b>5.2</b>	<b>95.3</b>	<b>94.7</b>	<b>95.7</b>

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Note that estimates may not add up to 100 per cent due to a proportion of 'don't know' or 'refused' responses, not reported here.



Table 10.5 shows the proportion of Victorian adults who ran out of food and could not afford to buy more, by LGA. Due to small numbers, only seven of the 79 LGAs had estimates of the proportion of people who ran out of food and could not afford to buy where the RSEs were less than 25 per cent, indicating reliability of the estimates. The estimates for three LGAs could not be reported because the RSEs were in excess of 50 per cent, indicating that the estimates are unreliable. The estimates for the remaining 69 LGAs had RSEs between 25 and 50 per cent, indicating that caution must be exercised in their interpretation. A significantly higher proportion of adults who lived in Bass Coast (S), Greater Bendigo (C) and Murrindindi (S) had run out of food in the 12 months prior to the survey and could not afford to buy more compared with all Victoria.

Table 10.5: Ran out of food in the previous 12 months, by LGA, Victoria, 2011–12

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Alpine (S)	5.1*	3.0	8.5	94.9	91.5	97.0
Ararat (RC)	5.9*	3.4	10.2	94.0	89.7	96.5
Ballarat (C)	3.1*	1.7	5.6	96.9	94.4	98.3
Banyule (C)	2.4*	1.2	5.1	97.4	94.8	98.7
Bass Coast (S)	9.8*	5.5	16.9	90.2	83.1	94.5
Baw Baw (S)	5.5*	3.1	9.9	94.5	90.1	96.9
Bayside (C)	3.7*	1.8	7.2	96.1	92.5	98.0
Benalla (RC)	**	**	**	93.9	83.4	98.0
Boroondara (C)	**	**	**	98.3	92.6	99.6
Brimbank (C)	5.4	3.4	8.4	94.6	91.6	96.6
Buloke (S)	4.7*	2.2	9.6	91.5	81.7	96.3
Campaspe (S)	5.1*	3.0	8.5	94.9	91.5	97.0
Cardinia (S)	3.8*	2.2	6.6	96.0	93.2	97.7
Casey (C)	4.9*	2.6	8.9	95.1	91.1	97.4
Central Goldfields (S)	7.2*	4.1	12.3	92.8	87.7	95.8
Colac-Otway (S)	4.6*	2.2	9.0	95.4	91.0	97.8
Corangamite (S)	3.8*	1.8	7.6	96.2	92.4	98.2
Darebin (C)	3.6*	2.1	6.2	96.0	93.4	97.6
East Gippsland (S)	7.4*	4.1	13.0	92.5	86.9	95.8
Frankston (C)	3.9	2.5	6.2	96.1	93.8	97.5
Gannawarra (S)	3.7*	2.0	6.9	96.3	93.1	98.0
Glen Eira (C)	3.7*	1.8	7.7	96.3	92.3	98.2
Glenelg (S)	2.6*	1.5	4.7	97.4	95.3	98.5
Golden Plains (S)	4.4*	2.4	8.0	94.9	91.2	97.1
Greater Bendigo (C)	10.6*	5.6	19.2	89.4	80.8	94.4
Greater Dandenong (C)	5.5*	3.3	9.0	93.5	89.8	95.8
Greater Geelong (C)	6.8*	3.3	13.7	93.2	86.3	96.7
Greater Shepparton (C)	5.4*	2.6	11.0	94.1	88.6	97.0
Hepburn (S)	8.7*	3.5	20.0	91.2	79.9	96.4
Hindmarsh (S)	5.4*	3.2	9.1	94.1	90.3	96.4
Hobsons Bay (C)	3.2*	1.4	7.0	96.6	92.9	98.4
Horsham (RC)	3.1*	1.6	6.1	96.9	93.9	98.4
Hume (C)	7.6*	4.2	13.2	92.0	86.4	95.4
Indigo (S)	6.0*	3.1	11.3	94.0	88.7	96.9
Kingston (C)	2.0*	0.8	5.1	97.8	94.8	99.1
Knox (C)	6.3	3.8	10.2	93.5	89.6	96.0
Latrobe (C)	7.2*	4.3	11.9	92.8	88.1	95.7
Loddon (S)	7.2	4.6	11.1	92.4	88.4	95.1
Macedon Ranges (S)	4.0*	1.8	8.4	96.0	91.6	98.2
Manningham (C)	2.9*	1.4	5.9	97.1	94.1	98.6
Mansfield (S)	7.6*	3.5	15.7	92.3	84.2	96.4
Maribyrnong (C)	2.8*	1.4	5.5	97.2	94.5	98.6

Table 10.5: Ran out of food in the previous 12 months, by LGA, Victoria, 2011–12 (continued)

LGA	%	Yes 95% CI		%	No 95% CI	
		LL	UL		LL	UL
Maroondah (C)	6.5*	3.7	11.2	93.5	88.8	96.3
Melbourne (C)	2.8*	1.4	5.7	97.0	94.1	98.5
Melton (S)	3.1*	1.7	5.4	96.9	94.6	98.3
Mildura (RC)	5.1*	2.8	9.0	94.3	90.3	96.7
Mitchell (S)	5.0	3.1	7.9	94.6	91.6	96.6
Moira (S)	3.8*	2.1	6.8	96.2	93.2	97.9
Monash (C)	2.7*	1.1	6.4	97.2	93.5	98.8
Moonee Valley (C)	2.5*	1.2	5.2	97.5	94.8	98.8
Moorabool (S)	4.6*	2.7	7.8	95.4	92.2	97.3
Moreland (C)	2.4*	1.4	4.1	97.5	95.8	98.5
Mornington Peninsula (S)	7.3*	3.6	14.2	92.7	85.8	96.4
Mount Alexander (S)	3.5*	2.1	5.8	96.5	94.2	97.9
Moyne (S)	2.0*	0.8	5.0	98.0	95.0	99.2
Murrindindi (S)	14.7*	8.6	23.8	85.1	76.0	91.2
Nillumbik (S)	2.1*	1.1	4.1	97.9	95.9	98.9
Northern Grampians (S)	2.7*	1.5	4.9	97.2	95.1	98.4
Port Phillip (C)	3.0*	1.7	5.3	96.9	94.6	98.3
Pyrenees (S)	7.0*	4.1	11.8	93.0	88.2	95.9
Queenscliffe (B)	**	**	**	98.9	94.6	99.8
South Gippsland (S)	6.1*	2.9	12.5	93.9	87.5	97.1
Southern Grampians (S)	2.8*	1.3	6.2	97.2	93.8	98.7
Stonnington (C)	2.4*	1.0	5.3	97.6	94.7	99.0
Strathbogie (S)	2.2*	1.0	4.7	97.8	95.3	99.0
Surf Coast (S)	5.4*	2.6	11.0	94.5	89.0	97.4
Swan Hill (RC)	3.9*	2.1	7.1	96.0	92.8	97.8
Towong (S)	5.0*	2.9	8.3	94.9	91.6	97.0
Wangaratta (RC)	3.8*	1.8	7.9	96.0	91.9	98.1
Warrnambool (C)	5.0*	2.6	9.5	95.0	90.5	97.4
Wellington (S)	6.1*	2.9	12.6	93.7	87.3	97.0
West Wimmera (S)	3.5*	1.8	6.6	96.5	93.4	98.2
Whitehorse (C)	3.4*	1.5	7.7	96.6	92.3	98.5
Whittlesea (C)	6.3	3.9	10.0	93.7	90.0	96.1
Wodonga (RC)	6.7*	4.0	11.1	93.3	88.9	96.0
Wyndham (C)	6.4	4.3	9.5	93.6	90.5	95.7
Yarra (C)	2.7*	1.2	6.2	97.3	93.8	98.8
Yarra Ranges (S)	8.7*	4.5	16.1	91.3	83.9	95.5
Yarriambiack (S)	4.6*	2.0	9.9	95.4	90.1	98.0
<b>Victoria</b>	<b>4.6</b>	<b>4.1</b>	<b>5.1</b>	<b>95.3</b>	<b>94.8</b>	<b>95.8</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

There are many reasons why people may not always have the quality or variety of food they want. Survey respondents were asked if any of the following statements applied to them:

- a) Some foods are too expensive, in particular, fresh fruit and vegetables.
- b) I can't get food of the right quality.
- c) I can't get a variety of food, for example, a mixture of meat, vegetables, fruit, dairy, bread and pasta.
- d) Culturally appropriate foods aren't available such as kosher or 'halal'.
- e) Inadequate and unreliable public transport makes it difficult for me to get to the shops.

The proportion of respondents agreeing with each of these statements is presented, by age group and sex, in Table 10.6.

Overall, 21.3 per cent of people agreed with the statement about some foods being too expensive; 19.8 per cent agreed with the statement 'I can't get food of the right quality'; 9.3 per cent agreed with the statement 'I can't get a variety of food, for example, a mixture of meat, vegetables, fruit, dairy, bread and pasta'; 4.2 per cent agreed that culturally appropriate foods aren't available; and 5.8 per cent agreed with the statement that 'Inadequate and unreliable public transport makes it difficult for me to get to the shops'.

The proportion of women who agreed with statements a and e (23.0 and 6.6 per cent, respectively) was significantly higher than the proportion of men (19.6 and 4.9 per cent, respectively). However, there was no significant difference between the sexes in the proportion who agreed with statements b, c and d.

A significantly higher proportion of women aged 18–24 years and people aged 25–34 years agreed with the statement about some foods being too expensive compared with all Victorian women and people, respectively. By contrast the proportion was significantly lower in men and people aged 55–64 years and women aged 55 years or over compared with all Victorian men people and women, respectively.

A significantly higher proportion of men and women aged 35–44 years and people aged 25–44 years agreed with the statement 'I can't get food of the right quality' compared with all Victorian men, women and people, respectively. In contrast, the proportion was significantly lower in men and people aged 55 years or over and women aged 65 years or over compared with all Victorian men, people and women, respectively.

A significantly higher proportion of adults aged 25–34 years agreed with the statement 'I can't get a variety of food, for example, a mixture of meat, vegetables, fruit, dairy, bread and pasta' compared with all Victorian adults.

A significantly higher proportion of women and people aged 25–34 years agreed that culturally appropriate foods aren't available compared with all Victorian women and people, respectively. By contrast the proportion was significantly lower in women and people aged 55 years or over compared with all Victorian women and people, respectively.

A significantly higher proportion of women and people aged 18–24 years agreed with the statement 'Inadequate and unreliable public transport makes it difficult for me to get to the shops' compared with all Victorian women and people, respectively. By contrast the proportion was significantly lower in women and people aged 45–54 years compared with all Victorian women and people, respectively.

Table 10.6: Reason for not having food they wanted, by age group and sex, Victoria, 2011–12

Age group (years)	Don't have type of food wanted because:															
	Some foods are too expensive			Can't get food of the right quality			Can't get a variety of food			Culturally appropriate foods aren't available			Inadequate and unreliable public transport			
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	
<b>Males</b>																
18–24	16.3	12.7	20.7	13.4	9.7	18.4	7.7	5.1	11.2	4.4*	2.6	7.6	6.3	4.3	9.1	
25–34	24.4	20.3	28.9	22.9	18.7	27.6	13.8	10.7	17.7	6.0	4.1	8.9	5.4	3.6	7.9	
35–44	20.6	18.0	23.4	<b>22.9</b>	20.2	25.7	10.7	8.9	12.8	5.4	4.0	7.3	4.8	3.6	6.5	
45–54	19.0	16.9	21.3	20.4	18.2	22.8	8.8	7.3	10.5	4.0	2.9	5.5	4.3	3.2	5.7	
55–64	<b>14.7</b>	12.9	16.7	<b>15.3</b>	13.5	17.3	8.6	7.2	10.2	3.9	3.0	5.2	4.5	3.5	5.7	
65+	19.3	17.7	21.1	<b>15.8</b>	14.3	17.5	8.8	7.6	10.1	4.0	3.2	5.0	4.7	4.0	5.6	
<b>Total</b>	<b>19.6</b>	<b>18.3</b>	<b>20.9</b>	<b>18.7</b>	<b>17.5</b>	<b>20.1</b>	<b>10.0</b>	<b>9.1</b>	<b>11.0</b>	<b>4.7</b>	<b>4.1</b>	<b>5.5</b>	<b>4.9</b>	<b>4.3</b>	<b>5.6</b>	
<b>Females</b>																
18–24	<b>28.8</b>	24.2	33.9	16.5	13.0	20.7	10.1	7.4	13.7	4.6*	2.5	8.3	10.3	7.3	14.3	
25–34	25.9	22.8	29.3	24.5	21.5	27.7	10.4	8.4	12.9	<b>7.4</b>	5.6	9.8	7.1	5.4	9.2	
35–44	24.8	22.7	26.9	<b>24.4</b>	22.5	26.5	8.1	6.9	9.5	3.6	2.7	4.6	5.0	4.1	6.2	
45–54	21.2	19.5	23.1	22.1	20.3	23.9	8.3	7.2	9.6	2.8	2.2	3.7	<b>3.9</b>	3.2	4.8	
55–64	<b>18.5</b>	16.9	20.3	19.2	17.6	20.9	7.2	6.2	8.4	<b>1.6</b>	1.3	2.1	5.0	4.2	6.0	
65+	<b>19.4</b>	18.1	20.9	<b>15.9</b>	14.7	17.3	7.3	6.4	8.3	<b>2.5</b>	1.9	3.2	7.5	6.6	8.5	
<b>Total</b>	<b>23.0</b>	<b>21.9</b>	<b>24.1</b>	<b>20.8</b>	<b>19.8</b>	<b>21.8</b>	<b>8.6</b>	<b>7.9</b>	<b>9.4</b>	<b>3.8</b>	<b>3.3</b>	<b>4.4</b>	<b>6.6</b>	<b>6.0</b>	<b>7.3</b>	
<b>Persons</b>																
18–24	22.4	19.4	25.8	<b>14.9</b>	12.2	18.1	8.8	6.9	11.3	4.5	3.0	6.7	<b>8.2</b>	6.4	10.6	
25–34	<b>25.1</b>	22.5	27.9	<b>23.7</b>	21.1	26.5	<b>12.1</b>	10.2	14.4	<b>6.7</b>	5.3	8.5	6.2	4.9	7.8	
35–44	22.7	21.1	24.4	<b>23.7</b>	22.0	25.4	9.4	8.3	10.6	4.5	3.6	5.5	4.9	4.1	5.9	
45–54	20.1	18.7	21.6	21.2	19.8	22.7	8.6	7.6	9.6	3.4	2.8	4.2	<b>4.1</b>	3.4	4.9	
55–64	<b>16.7</b>	15.5	18.0	<b>17.3</b>	16.1	18.6	7.9	7.0	8.9	<b>2.8</b>	2.2	3.4	4.7	4.1	5.5	
65+	19.4	18.3	20.5	<b>15.9</b>	14.9	16.9	8.0	7.2	8.8	<b>3.2</b>	2.7	3.8	6.2	5.6	6.9	
<b>Total</b>	<b>21.3</b>	<b>20.5</b>	<b>22.2</b>	<b>19.8</b>	<b>19.0</b>	<b>20.6</b>	<b>9.3</b>	<b>8.7</b>	<b>10.0</b>	<b>4.2</b>	<b>3.8</b>	<b>4.7</b>	<b>5.8</b>	<b>5.3</b>	<b>6.3</b>	

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 10.7 shows the proportions of respondents who could not get the food they wanted, by reason, Department of Health region and sex.

A significantly higher proportion of men living in Barwon-South Western Region, women and people living in Gippsland Region, Loddon Mallee Region and the rural regions as a whole agreed with the statement 'I can't get food of the right quality' compared with all Victorian men, women and people, respectively. In contrast, the proportion was significantly lower in women living in Eastern Metropolitan Region compared with all Victorian women.

A significantly lower proportion of men and people living in Barwon-South Western Region agreed with the statement 'I can't get a variety of foods' compared with all Victorian men and people, respectively.

A significantly lower proportion of women living in Barwon-South Western Region and people living in Eastern Metropolitan Region, agreed that culturally appropriate foods aren't available compared with all Victorian women and people, respectively.

Table 10.7: Reason for not having the food they wanted, by Department of Health region and sex, Victoria, 2011–12

Region	Don't have type of food wanted because:																				
	Some foods are too expensive				Can't get food of the right quality				Can't get a variety of food				Culturally appropriate foods aren't available				Inadequate and unreliable public transport				
	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	
<b>Males</b>																					
Eastern Metropolitan	17.5	14.7	20.7	17.5	14.7	20.6	10.4	8.1	13.2	3.1	2.1	4.4	3.6	2.4	5.4						
North & West Metropolitan	20.6	18.6	22.7	17.7	15.9	19.7	11.4	9.8	13.3	5.0	3.9	6.4	4.9	4.0	6.1						
Southern Metropolitan	20.2	17.6	23.1	18.6	16.1	21.3	9.6	7.8	11.9	5.7	4.3	7.7	5.2	3.8	7.0						
<b>Metropolitan males</b>	19.4	18.0	20.9	17.8	16.5	19.3	10.5	9.4	11.7	4.8	4.0	5.7	4.6	3.9	5.5						
Barwon-South Western	20.8	14.2	29.4	29.2	21.4	38.5	5.6	3.9	8.1	6.3*	2.9	13.2	5.8	3.8	8.8						
Gippsland	20.0	16.5	24.1	19.5	15.9	23.8	10.6	7.8	14.3	5.0	3.2	7.9	5.6	3.9	8.0						
Grampians	19.8	16.5	23.6	18.4	15.4	21.9	9.7	7.5	12.4	3.3	2.2	4.8	5.8	4.3	7.8						
Hume	20.1	16.5	24.4	18.0	15.1	21.4	8.2	6.4	10.4	4.3	3.0	6.0	5.7	4.4	7.6						
Loddon Mallee	21.6	16.9	27.1	20.8	16.4	26.1	10.2	7.9	13.2	3.6	2.3	5.7	6.7	4.4	10.2						
<b>Rural males</b>	20.6	17.9	23.4	22.0	19.0	25.3	8.6	7.5	9.9	4.6	3.3	6.2	5.8	4.8	6.9						
<b>Total</b>	<b>19.6</b>	<b>18.3</b>	<b>20.9</b>	<b>18.7</b>	<b>17.5</b>	<b>20.1</b>	<b>10.0</b>	<b>9.1</b>	<b>11.0</b>	<b>4.7</b>	<b>4.1</b>	<b>5.5</b>	<b>4.9</b>	<b>4.3</b>	<b>5.6</b>						

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 10.7: Reason for not having the food they wanted, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Don't have type of food wanted because:																			
	Some foods are too expensive				Can't get food of the right quality				Can't get a variety of food				Culturally appropriate foods aren't available				Inadequate and unreliable public transport			
	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL		
<b>Females</b>																				
Eastern Metropolitan	19.9	17.2	22.9	16.5	14.2	19.0	6.5	5.0	8.5	2.1	1.4	3.3	5.0	3.6	6.9					
North & West Metropolitan	25.3	23.5	27.2	21.7	20.0	23.4	9.8	8.6	11.1	4.9	4.0	6.1	7.5	6.5	8.8					
Southern Metropolitan	22.2	19.8	24.7	19.7	17.7	22.0	8.4	7.0	10.2	4.2	2.9	6.1	6.0	4.6	7.7					
<b>Metropolitan females</b>	22.6	21.3	23.9	19.8	18.6	21.0	8.5	7.7	9.4	4.0	3.4	4.8	6.4	5.6	7.2					
Barwon-South Western	20.4	16.2	25.3	20.1	16.3	24.4	6.5	4.4	9.5	1.7*	1.0	3.0	6.5	4.1	10.1					
Gippsland	27.0	23.6	30.6	28.3	24.8	32.0	8.0	6.2	10.1	3.4	2.2	5.2	7.7	6.0	9.8					
Grampians	25.7	22.1	29.6	23.4	20.2	26.9	10.1	7.5	13.5	3.5	2.3	5.2	6.4	5.0	8.3					
Hume	26.1	23.4	29.0	23.5	20.8	26.4	9.9	8.2	11.8	3.6	2.5	5.3	6.8	5.3	8.7					
Loddon Mallee	26.6	22.3	31.3	27.9	23.8	32.3	11.9	8.6	16.2	2.7	2.0	3.6	8.1	5.2	12.4					
Rural females	24.8	23.0	26.8	24.5	22.6	26.4	9.0	7.7	10.4	2.9	2.4	3.5	7.2	6.0	8.7					
<b>Total</b>	<b>23.0</b>	<b>21.9</b>	<b>24.1</b>	<b>20.8</b>	<b>19.8</b>	<b>21.8</b>	<b>8.6</b>	<b>7.9</b>	<b>9.4</b>	<b>3.8</b>	<b>3.3</b>	<b>4.4</b>	<b>6.6</b>	<b>6.0</b>	<b>7.3</b>					

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.



Table 10.7: Reason for not having the food they wanted, by Department of Health region and sex, Victoria, 2011–12 (continued)

Region	Don't have type of food wanted because:																			
	Some foods are too expensive				Can't get food of the right quality				Can't get a variety of food				Culturally appropriate foods aren't available				Inadequate and unreliable public transport			
	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL	%	95% CI LL	95% CI UL		
<b>Persons</b>																				
Eastern Metropolitan	18.7	16.7	20.8	17.1	15.2	19.1	8.6	7.1	10.4	2.7	2.0	3.6	4.5	3.5	5.8					
North & West Metropolitan	22.9	21.5	24.3	19.7	18.5	21.0	10.6	9.5	11.7	5.0	4.2	5.8	6.3	5.5	7.1					
Southern Metropolitan	21.3	19.5	23.2	19.2	17.6	21.0	9.1	7.8	10.5	4.9	3.9	6.2	5.6	4.6	6.9					
<b>Metropolitan persons</b>	21.0	20.1	22.0	18.8	17.9	19.7	9.5	8.8	10.2	4.4	3.9	5.0	5.5	5.0	6.1					
Barwon-South Western	20.7	16.4	25.6	24.5	19.7	30.0	6.0	4.6	7.7	3.8*	2.1	6.7	6.2	4.4	8.6					
Gippsland	23.7	21.2	26.5	24.2	21.5	27.0	9.3	7.6	11.4	4.2	3.0	5.8	6.7	5.4	8.2					
Grampians	22.1	19.5	25.0	20.8	18.5	23.2	9.6	7.8	11.6	3.3	2.5	4.5	6.1	5.0	7.4					
Hume	23.1	20.8	25.6	20.7	18.7	22.9	9.0	7.7	10.4	3.9	3.0	5.0	6.2	5.2	7.5					
Loddon Mallee	24.5	20.8	28.7	25.1	21.4	29.3	11.1	8.7	14.1	3.2	2.4	4.4	7.5	5.3	10.4					
<b>Rural persons</b>	22.8	21.1	24.6	23.4	21.6	25.3	8.8	7.9	9.8	3.7	3.0	4.5	6.5	5.7	7.4					
<b>Total</b>	<b>21.3</b>	<b>20.5</b>	<b>22.2</b>	<b>19.8</b>	<b>19.0</b>	<b>20.6</b>	<b>9.3</b>	<b>8.7</b>	<b>10.0</b>	<b>4.2</b>	<b>3.8</b>	<b>4.7</b>	<b>5.8</b>	<b>5.3</b>	<b>6.3</b>					

Data were age-standardised to the 2011 Victorian population.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

# Social inequalities in health

Table 10.8 shows the proportions of respondents who could not get the food that they wanted, by reason and LGA.

The proportion of people who agreed that some foods are too expensive was significantly higher in those who lived in the LGAs of Bass Coast (S), Brimbank (C), Buloke (S), Greater Bendigo (C), Greater Dandenong (C), Hume (C), Melton (S), South Gippsland (S) and Whittlesea (C) compared with all Victorian people. In contrast, the proportion was significantly lower in those residing in Banyule (C), Boroondara (C), Macedon Ranges (S), Melbourne (C), Queenscliffe (B) and Southern Grampians (S) compared with all Victorian people.

The proportion of people who agreed with the statement 'I can't get food of the right quality' was significantly higher in those who lived in the LGAs of Bass Coast (S), Brimbank (C), Buloke (S), Greater Bendigo (C), Greater Dandenong (C), Hindmarsh (S), Loddon (S), Melton (S), Mitchell (S), Northern Grampians (S), Towong (S), West Wimmera (S), Whittlesea (C) and Yarriambiack (S) compared with all Victorian people. In contrast, the proportion was significantly lower in those who lived in Melbourne (C), Nillumbik (S), Port Phillip (C) and Yarra (C) compared with all Victorian people.

The proportion of people who agreed with the statement 'I can't get a variety of foods' was significantly higher in those who lived in the LGAs of Ararat (RC), Brimbank (C), Buloke (S), Greater Dandenong (C), Hindmarsh (S), Hume (C), Loddon (S), Melton (S), Murrindindi (S), Northern Grampians (S), West Wimmera (S), Whittlesea (C) and Yarriambiack (S) compared with all Victorian people. In contrast, the proportion was significantly lower in those who lived in Banyule (C), Greater Geelong (C), Moyne (S), Nillumbik (S) and Surf Coast (S) compared with all Victorian people.

The proportion of people who agreed that culturally appropriate foods aren't available was significantly higher in those who lived in the LGAs of Buloke (S), Casey (C), Greater Dandenong (C), Hume (C) and Moreland (C) compared with all Victorian people. In contrast, the proportion was significantly lower in those who lived in Boroondara (C), Central Goldfields (S), Macedon Ranges (S), Moonee Valley (C), Mornington Peninsula (S), Nillumbik (S), Port Phillip (C), Wangaratta (RC) and Yarra (C) compared with all Victorian people.

The proportion of people who agreed with the statement about inadequate and unreliable public transport was significantly higher in those who lived in the LGAs of Buloke (S), Golden Plains (S), Hepburn (S), Hindmarsh (S), Loddon (S), Southern Grampians (S), Towong (S), West Wimmera (S), Wyndham (C) and Yarriambiack (S) compared with all Victorian people. In contrast, the proportion was significantly lower in those who lived in Ballarat (C), Port Phillip (C) and Wangaratta (RC) compared with all Victorian people.

Table 10.8: Reason for not having the food they wanted, by LGA, Victoria, 2011–12

LGA	Don't have type of food wanted because:																			
	Some foods are too expensive				Can't get food of the right quality				Can't get a variety of food				Culturally appropriate foods aren't available				Inadequate and unreliable public transport			
	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL
Alpine (S)	19.7	13.0	28.8	18.8	12.3	27.5	27.5	27.5	10.8*	4.8	22.6	22.6	22.6	**	**	**	8.9*	4.3	17.5	17.5
Ararat (RC)	22.6	16.6	29.9	23.3	18.1	29.3	29.3	29.3	16.7	11.9	22.9	22.9	22.9	4.6*	2.6	8.1	3.6	2.4	5.6	5.6
Bairatarat (C)	21.3	16.6	26.9	15.3	11.6	19.8	19.8	19.8	6.3*	3.7	10.5	10.5	10.5	2.9*	1.6	5.2	1.8*	0.9	3.6	3.6
Banyule (C)	15.1	11.7	19.3	15.7	11.4	21.3	21.3	21.3	4.7	2.9	7.4	7.4	7.4	1.9*	0.9	3.9	3.9*	2.1	7.2	7.2
Bass Coast (S)	30.9	24.2	38.6	31.7	24.7	39.7	39.7	39.7	15.2	9.3	23.9	23.9	23.9	1.9*	0.8	4.0	10.5*	6.2	17.1	17.1
Baw Baw (S)	17.7	13.4	22.9	18.3	13.9	23.6	23.6	23.6	6.3*	3.6	10.7	10.7	10.7	2.4*	1.1	5.1	5.4*	3.1	9.2	9.2
Bayside (C)	16.1	10.9	23.3	17.4	11.4	25.5	25.5	25.5	5.5*	2.6	11.1	11.1	11.1	2.0*	0.8	5.2	6.9*	2.8	15.9	15.9
Benalla (RC)	16.1	12.1	21.0	13.4	9.9	18.0	18.0	18.0	11.4*	5.5	22.1	22.1	22.1	3.0*	1.2	7.0	5.0*	2.9	8.5	8.5
Boroondara (C)	11.3	7.5	16.6	10.1	6.8	14.8	14.8	14.8	5.3*	2.8	9.9	9.9	9.9	1.3*	0.6	2.7	3.0*	1.3	6.7	6.7
Brimbank (C)	29.2	24.2	34.7	25.4	20.9	30.5	30.5	30.5	14.2	10.8	18.4	18.4	18.4	7.6*	4.6	12.4	8.0	5.5	11.4	11.4
Buloke (S)	29.0	23.6	35.0	44.7	36.8	52.8	52.8	52.8	29.9	23.5	37.1	37.1	37.1	8.1	5.4	12.0	14.6	10.3	20.3	20.3
Campaspe (S)	20.7	16.0	26.3	24.8	19.0	31.7	31.7	31.7	9.8	6.7	14.2	14.2	14.2	3.2*	1.7	6.2	7.9*	4.5	13.6	13.6
Cardinia (S)	19.7	15.4	24.8	16.8	13.2	21.3	21.3	21.3	7.4	4.9	11.0	11.0	11.0	2.8*	1.4	5.6	6.2*	3.6	10.4	10.4
Casey (C)	23.8	18.9	29.5	24.1	19.5	29.5	29.5	29.5	12.7	9.2	17.3	17.3	17.3	9.3	5.8	14.4	9.7	6.3	14.6	14.6
Central Goldfields (S)	25.5	18.7	33.6	20.8	16.6	25.8	25.8	25.8	7.9	5.3	11.8	11.8	11.8	1.8*	0.9	3.3	7.1	4.6	10.8	10.8
Colac-Otway (S)	19.5	14.8	25.1	14.4	10.4	19.7	19.7	19.7	10.8	6.7	16.8	16.8	16.8	3.0*	1.5	5.8	6.8*	3.3	13.3	13.3
Corangamite (S)	19.1	13.5	26.3	23.5	17.8	30.4	30.4	30.4	10.6	6.8	16.0	16.0	16.0	4.5*	2.5	7.9	6.8	4.5	10.2	10.2
Darebin (C)	23.9	19.2	29.4	17.5	13.5	22.4	22.4	22.4	8.6	6.1	12.0	12.0	12.0	2.5*	1.1	5.6	4.0*	2.4	6.5	6.5
East Gippsland (S)	24.0	18.3	30.8	25.2	19.4	32.2	32.2	32.2	11.4	7.3	17.4	17.4	17.4	6.4*	3.5	11.2	8.8	5.6	13.6	13.6
Frankston (C)	23.3	18.5	28.9	21.5	17.0	26.9	26.9	26.9	8.2	5.1	12.8	12.8	12.8	2.6*	1.2	5.7	3.6*	2.1	6.1	6.1
Gannawarra (S)	17.8	13.8	22.7	24.4	17.6	32.7	32.7	32.7	13.3*	7.8	21.8	21.8	21.8	3.3*	1.9	5.7	4.1*	2.4	6.9	6.9
Glen Eira (C)	14.7	10.3	20.6	16.2	12.1	21.4	21.4	21.4	8.5	5.6	12.6	12.6	12.6	4.9*	2.6	9.0	4.8*	2.7	8.7	8.7
Glenelg (S)	20.1	15.8	25.4	25.1	18.7	32.9	32.9	32.9	8.2	6.0	11.3	11.3	11.3	2.1*	1.1	4.1	5.7	4.0	8.2	8.2

Table 10.8: Reason for not having the food they wanted, by LGA, Victoria, 2011–12 (continued)

LGA	Don't have type of food wanted because:														
	Some foods are too expensive			Can't get food of the right quality			Can't get a variety of food			Culturally appropriate foods aren't available			Inadequate and unreliable public transport		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Golden Plains (S)	23.8	17.5	31.5	21.4	16.5	27.2	7.7*	4.3	13.3	3.2*	1.5	6.7	10.5	7.1	15.3
Greater Bendigo (C)	29.5	22.5	37.7	28.7	21.4	37.3	14.3*	8.6	22.8	2.7*	1.2	6.2	8.6*	4.2	16.7
Greater Dandenong (C)	32.8	27.7	38.3	26.3	21.6	31.7	14.9	11.1	19.5	9.5	6.5	13.6	8.0	5.3	11.9
Greater Geelong (C)	20.8	14.9	28.3	27.1	20.2	35.4	4.5	2.8	7.1	3.9*	1.7	8.9	5.6*	3.3	9.5
Greater Shepparton (C)	23.6	17.5	31.0	17.9	13.2	23.8	7.5	4.8	11.4	4.4*	2.4	8.0	4.5*	2.7	7.3
Hepburn (S)	21.4	15.2	29.3	25.2	17.7	34.6	10.0*	5.8	16.7	4.2*	2.4	7.2	15.3*	8.7	25.4
Hindmarsh (S)	26.7	19.9	34.8	34.4	27.7	41.8	17.9	12.2	25.4	4.2*	2.4	7.4	13.0	7.9	20.6
Hobsons Bay (C)	21.3	16.5	27.0	17.0	12.9	22.0	8.8	5.9	13.0	5.1*	2.8	9.2	4.9*	2.9	8.2
Horsham (RC)	23.4	15.2	34.2	18.6	11.3	29.2	6.0	3.9	9.1	3.5*	1.9	6.6	**	**	**
Hume (C)	29.1	23.9	35.0	22.8	18.3	28.2	18.4	13.3	24.9	9.1	5.9	13.7	9.3	6.2	13.7
Indigo (S)	17.7	12.7	24.0	15.7	11.5	21.2	8.9	5.4	14.2	5.7*	2.8	11.5	7.8*	4.7	12.9
Kingston (C)	16.9	12.5	22.4	16.2	11.8	21.8	7.2	4.8	10.6	3.2*	1.6	6.5	2.9*	1.5	5.8
Knox (C)	23.5	18.7	29.2	19.7	15.2	25.0	10.7	7.2	15.5	3.5*	1.7	6.9	5.3*	2.8	9.9
Latrobe (C)	23.9	19.0	29.6	20.6	16.1	26.0	7.6	4.9	11.6	4.2*	2.3	7.8	3.8*	2.0	7.2
Loddon (S)	29.0	21.4	38.0	35.9	27.8	44.9	24.5	17.2	33.7	4.2	2.8	6.4	14.9	9.5	22.6
Macedon Ranges (S)	14.7	11.0	19.3	19.3	14.7	24.9	7.8	4.8	12.6	1.7*	0.9	3.3	5.8	3.6	9.2
Manningham (C)	19.6	14.4	26.2	18.9	13.7	25.6	9.1	5.6	14.4	3.3*	1.4	7.6	5.1*	2.5	10.1
Mansfield (S)	24.7	17.8	33.1	24.1	17.5	32.2	7.7	4.9	11.7	3.3*	1.8	6.1	8.4	5.5	12.5
Maribyrnong (C)	23.5	18.4	29.5	18.7	14.8	23.3	13.4	9.5	18.6	5.3*	2.8	9.6	6.5*	3.8	11.0

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Table 10.8: Reason for not having the food they wanted, by LGA, Victoria, 2011–12 (continued)

LGA	Don't have type of food wanted because:																				
	Some foods are too expensive				Can't get food of the right quality				Can't get a variety of food				Culturally appropriate foods aren't available				Inadequate and unreliable public transport				
	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	%	95% CI	LL	UL	
Maroondah (C)	23.2	18.2	29.2	18.3	13.5	24.4	11.5	7.1	18.0	4.7*	2.1	10.1	6.5*	3.3	12.6						
Melbourne (C)	12.8	9.4	17.2	13.4	9.8	18.0	8.2	5.4	12.4	3.5*	1.9	6.3	3.6*	2.1	6.0						
Melton (S)	27.5	22.9	32.7	28.0	23.2	33.3	13.6	10.0	18.3	5.6	3.7	8.6	8.5	5.8	12.1						
Mildura (RC)	21.8	17.3	27.0	22.3	18.0	27.4	8.9	6.2	12.7	4.6*	2.6	7.9	3.7*	1.8	7.8						
Mitchell (S)	26.9	21.5	33.2	29.6	23.8	36.1	8.8	6.3	12.3	3.1*	1.7	5.5	6.5	4.2	9.9						
Moira (S)	21.6	15.8	28.9	26.1	19.6	33.9	8.6*	5.0	14.4	3.1*	1.4	6.9	5.3	3.3	8.4						
Monash (C)	20.9	16.0	26.9	18.5	14.7	23.1	7.6	5.4	10.8	3.9*	2.0	7.5	3.8*	2.3	6.3						
Moonee Valley (C)	17.3	13.1	22.5	17.4	13.3	22.4	8.9*	5.2	14.9	1.3*	0.6	2.6	5.2	3.2	8.3						
Moorabool (S)	20.3	15.7	25.8	21.5	16.4	27.7	9.2*	5.5	14.8	1.8*	0.8	4.1	8.7	5.4	13.8						
Moreland (C)	20.8	16.6	25.7	17.3	13.2	22.4	7.0	4.7	10.2	7.6	4.8	12.0	7.7	5.1	11.5						
Mornington Peninsula (S)	24.8	18.8	31.8	19.5	14.5	25.8	6.3*	3.6	10.9	1.1*	0.5	2.6	6.2*	3.2	11.8						
Mount Alexander (S)	22.6	16.8	29.7	17.6	12.4	24.4	6.3*	3.2	12.1	3.0*	1.4	6.2	4.9*	2.8	8.6						
Moyne (S)	16.9	12.3	22.9	17.3	12.5	23.4	5.7	3.7	8.6	**	**	**	6.6*	2.8	14.6						
Murrindindi (S)	22.7	15.9	31.2	25.6	19.0	33.6	17.2	11.1	25.6	6.3*	2.6	14.6	9.8	6.1	15.5						
Nillumbik (S)	17.8	12.5	24.8	11.1	8.0	15.2	2.6*	1.3	5.2	0.9*	0.4	2.2	3.4*	1.6	7.2						
Northern Grampians (S)	19.2	14.5	25.0	26.9	20.6	34.3	21.5*	12.7	34.2	3.2*	2.0	5.3	7.6*	4.5	12.7						
Port Phillip (C)	19.2	13.6	26.5	12.2	7.8	18.6	7.8*	4.1	14.2	1.5*	0.7	3.2	1.6*	0.9	2.8						
Pyrenees (S)	20.3	15.0	26.9	23.3	18.1	29.5	10.9	7.3	16.1	5.4*	2.8	10.1	9.0	5.9	13.5						
Queenscliffe (B)	8.4*	4.6	14.6	14.2	8.6	22.5	3.8*	1.6	9.1	**	**	**	7.2*	3.1	15.8						
South Gippsland (S)	32.9	26.0	40.6	32.2	25.5	39.8	12.2*	6.5	21.7	7.7*	3.0	18.4	8.5*	4.8	14.7						
Southern Grampians (S)	13.3	9.6	18.1	17.5	13.3	22.7	6.4	4.2	9.5	5.1*	1.9	13.0	15.1*	7.3	28.8						
Stonnington (C)	14.6	10.2	20.5	15.9	11.4	21.8	5.6*	2.9	10.4	4.6*	2.0	10.2	4.4*	2.3	8.4						
Strathbogie (S)	20.6	15.4	27.0	20.8	15.4	27.4	12.1	7.9	18.0	**	**	**	7.4	4.7	11.5						
Surf Coast (S)	22.8	16.2	31.2	19.8	13.7	27.8	4.3*	2.5	7.4	3.5*	1.3	8.8	9.3*	4.9	16.9						

Table 10.8: Reason for not having the food they wanted, by LGA, Victoria, 2011–12 (continued)

LGA	Don't have type of food wanted because:														
	Some foods are too expensive			Can't get food of the right quality			Can't get a variety of food			Culturally appropriate foods aren't available			Inadequate and unreliable public transport		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Swan Hill (RC)	22.6	17.3	28.8	18.6	14.2	24.0	9.4	6.5	13.5	4.4*	2.1	9.2	6.2	3.8	10.0
Towong (S)	27.3	20.9	34.8	30.0	23.7	37.2	12.3	9.1	16.6	4.2*	2.5	7.0	16.8	11.2	24.6
Wangaratta (RC)	25.7	19.8	32.7	17.6	12.6	24.0	6.1	4.1	9.2	2.1*	1.1	3.7	2.8*	1.7	4.6
Warrnambool (C)	20.8	15.6	27.3	18.3	13.8	23.9	9.0	5.5	14.3	**	**	**	3.9*	2.1	7.4
Wellington (S)	19.5	14.6	25.6	24.3	17.2	33.1	8.1*	4.8	13.3	3.2*	1.4	7.2	8.6*	5.2	14.0
West Wimmera (S)	24.2	18.9	30.4	37.4	31.3	44.0	19.9	15.2	25.6	6.9*	4.0	11.5	10.5	6.9	15.6
Whitehorse (C)	15.4	11.2	20.8	16.5	12.5	21.6	8.8	5.7	13.5	2.1*	0.8	5.0	3.1*	1.4	6.6
Whittlesea (C)	27.5	22.8	32.9	25.5	20.9	30.8	14.6	10.9	19.3	6.8	4.3	10.8	6.9	4.5	10.4
Wodonga (RC)	22.7	17.5	28.8	14.0	10.2	19.0	7.7	4.8	12.0	4.8*	2.2	10.2	5.5*	2.5	11.5
Wyndham (C)	26.5	22.0	31.6	21.8	17.8	26.5	10.0	7.2	13.6	6.8*	4.1	11.1	9.4	6.4	13.5
Yarra (C)	16.5	12.1	22.1	11.8	8.5	16.3	7.0*	3.5	13.4	1.3*	0.6	2.9	3.6	2.2	5.7
Yarra Ranges (S)	17.1	13.0	22.1	18.1	12.8	25.0	8.2*	4.3	15.0	1.8*	0.8	4.2	5.8*	3.4	9.6
Yarriambiack (S)	29.7	22.0	38.8	42.1	34.9	49.7	26.9	19.5	35.8	4.8	3.2	7.2	13.4	8.3	21.1
<b>Victoria</b>	<b>21.3</b>	<b>20.5</b>	<b>22.2</b>	<b>19.7</b>	<b>18.9</b>	<b>20.5</b>	<b>9.3</b>	<b>8.7</b>	<b>9.9</b>	<b>4.3</b>	<b>3.8</b>	<b>4.8</b>	<b>5.8</b>	<b>5.4</b>	<b>6.3</b>

Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

Respondents who agreed with the statement 'Inadequate and unreliable public transport makes it difficult for me to get to the shops' were subsequently asked: 'Do you find it easy or difficult to get to and from shops to buy food using your normal mode of transport?'. The findings by age group and sex are presented in Table 10.9.

Overall, 2.1 per cent of people reported that it was difficult to access shops to buy food by their normal mode of transport; this was similar in men (1.9 per cent) and women (2.3 per cent). There was a significantly higher proportion of women aged 65 years or over who reported that it was difficult to access shops to buy food by their normal mode of transport compared with all Victorian women.

**Table 10.9: Access to shops, by age group and sex, Victoria, 2011–12**

Age group (years)	%	Easy 95% CI		%	Difficult 95% CI		
		LL	UL		LL	UL	
<b>Males</b>							
18–24	98.0	95.3	99.2	1.8*	0.7	4.6	
25–34	97.3	95.3	98.4	1.9*	1.0	3.6	
35–44	98.1	97.1	98.8	1.7	1.1	2.7	
45–54	97.9	96.9	98.5	1.8	1.2	2.7	
55–64	97.7	96.8	98.4	1.6	1.1	2.3	
65+	97.3	96.5	97.9	2.1	1.6	2.7	
<b>Total</b>	<b>97.6</b>	<b>97.1</b>	<b>98.0</b>	<b>1.9</b>	<b>1.5</b>	<b>2.3</b>	
<b>Females</b>							
18–24	97.3	95.2	98.5	2.2*	1.1	4.2	
25–34	98.8	97.9	99.3	1.2*	0.7	2.1	
35–44	98.1	97.4	98.6	1.7	1.2	2.3	
45–54	97.9	97.1	98.4	2.0	1.5	2.7	
55–64	97.2	96.4	97.8	2.5	2.0	3.2	
65+	95.6	94.9	96.2	3.7	3.1	4.4	
<b>Total</b>	<b>97.3</b>	<b>96.9</b>	<b>97.6</b>	<b>2.3</b>	<b>2.0</b>	<b>2.7</b>	
<b>Persons</b>							
18–24	97.7	96.2	98.6	2.0*	1.1	3.5	
25–34	98.0	97.0	98.7	1.6	1.0	2.4	
35–44	98.1	97.5	98.5	1.7	1.3	2.3	
45–54	97.9	97.3	98.3	1.9	1.5	2.5	
55–64	97.5	96.9	97.9	2.1	1.7	2.5	
65+	96.4	95.9	96.8	3.0	2.5	3.4	
<b>Total</b>	<b>97.4</b>	<b>97.1</b>	<b>97.7</b>	<b>2.1</b>	<b>1.9</b>	<b>2.4</b>	

Data are age-specific estimates, except for 'Total', which represent the estimates for Victoria and were age-standardised to the 2011 Victorian population. LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

Table 10.10 shows ease of access to shops using a normal mode of transport, by Department of Health region and sex.

A significantly higher proportion of women who lived in Grampians Region reported that they found it difficult to get to and from the shops to buy food compared with all Victorian women.



Table 10.10: Access to shops, by Department of Health region and sex, Victoria, 2011–12

Region	%	Easy 95% CI		%	Difficult 95% CI		
		LL	UL		LL	UL	
<b>Males</b>							
Eastern Metropolitan	97.9	96.6	98.7	1.8*	1.1	3.0	
North & West Metropolitan	97.9	97.2	98.5	1.8	1.2	2.5	
Southern Metropolitan	97.3	95.9	98.3	1.8*	1.1	3.1	
<b>Metropolitan males</b>	97.8	97.2	98.2	1.7	1.4	2.3	
Barwon-South Western	95.4	88.2	98.3	**	**	**	
Gippsland	97.2	95.3	98.3	2.3*	1.3	4.2	
Grampians	97.5	96.3	98.3	1.8	1.2	2.9	
Hume	97.4	96.0	98.3	2.0*	1.2	3.4	
Loddon Mallee	97.7	96.4	98.6	1.8*	1.1	3.0	
<b>Rural males</b>	97.1	95.5	98.1	2.4*	1.4	4.0	
<b>Total</b>	<b>97.6</b>	<b>97.1</b>	<b>98.0</b>	<b>1.9</b>	<b>1.5</b>	<b>2.3</b>	
<b>Females</b>							
Eastern Metropolitan	97.5	96.3	98.3	2.2	1.4	3.3	
North & West Metropolitan	97.3	96.6	97.9	2.3	1.8	2.9	
Southern Metropolitan	97.3	96.5	97.9	2.3	1.7	3.0	
<b>Metropolitan females</b>	97.4	96.9	97.8	2.2	1.9	2.7	
Barwon-South Western	98.4	97.5	99.0	1.5	0.9	2.4	
Gippsland	96.9	95.3	98.0	2.8	1.7	4.4	
Grampians	94.8	91.2	97.0	4.9*	2.7	8.6	
Hume	96.6	95.4	97.4	3.0	2.2	4.1	
Loddon Mallee	97.3	96.3	98.0	2.6	1.9	3.5	
<b>Rural females</b>	97.0	96.3	97.6	2.8	2.2	3.5	
<b>Total</b>	<b>97.3</b>	<b>96.9</b>	<b>97.6</b>	<b>2.3</b>	<b>2.0</b>	<b>2.7</b>	
<b>Persons</b>							
Eastern Metropolitan	97.8	97.1	98.3	1.9	1.4	2.6	
North & West Metropolitan	97.6	97.1	98.0	2.0	1.7	2.5	
Southern Metropolitan	97.3	96.5	97.9	2.1	1.6	2.8	
<b>Metropolitan persons</b>	97.6	97.2	97.9	2.0	1.7	2.3	
Barwon-South Western	97.1	94.0	98.6	2.7*	1.2	5.9	
Gippsland	97.0	95.9	97.9	2.6	1.8	3.7	
Grampians	96.3	94.7	97.5	3.2	2.1	4.8	
Hume	96.9	96.1	97.6	2.6	1.9	3.4	
Loddon Mallee	97.5	96.7	98.1	2.2	1.7	2.8	
<b>Rural persons</b>	97.1	96.3	97.7	2.6	2.0	3.3	
<b>Total</b>	<b>97.4</b>	<b>97.1</b>	<b>97.7</b>	<b>2.1</b>	<b>1.9</b>	<b>2.4</b>	

Data were age-standardised to the 2011 Victorian population.

LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

\* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

\*\* Estimate has a RSE greater than 50 per cent and is not reported as it is unreliable for general use.

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# Appendices

ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSCLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSCLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK ALPINE ARARAT BALLARAT BANYULE BASS COAST BAW BAW BAYSIDE BENALLA BOROONDARA BRIMBANK BULOKE CAMPASPE CARDINIA CASEY CENTRAL GOLDFIELDS COLAC-OTWAY CORANGAMITE DAREBIN EAST GIPPSLAND FRANKSTON GANNAWARRA GLEN EIRA GLENELG GOLDEN PLAINS GREATER BENDIGO GREATER DANDENONG GREATER GEELONG GREATER SHEPPARTON HEPBURN HINDMARSH HOBSONS BAY HORSHAM HUME INDIGO KINGSTON KNOX LATROBE LODDON MACEDON RANGES MANNINGHAM MANSFIELD MARIBYRNONG MAROONDAH MELBOURNE MELTON MILDURA MITCHELL MOIRA MONASH MOONEE VALLEY MOORABOOL MORELAND MORNINGTON PENINSULA MOUNT ALEXANDER MOYNE MURRINDINDI NILLUMBIK NORTHERN GRAMPIANS PORT PHILLIP PYRENEES QUEENSCLIFFE SOUTHERN GRAMPIANS SOUTH GIPPSLAND STONNINGTON STRATHBOGIE SURF COAST SWAN HILL TOWONG WANGARATTA WARRNAMBOOL WELLINGTON WEST WIMMERA WHITEHORSE WHITTLESEA WODONGA WYNDHAM YARRA YARRA RANGES YARRIAMBIACK





# Appendix 1: The Victorian Health Monitor

In 2009–10, the Department of Health conducted the Victorian Health Monitor (VHM), a statewide representative cross-sectional health measurement survey. The VHM collected physical and biomedical measurement data on diabetes, cardiovascular disease and related risk factors, such as obesity, dyslipidaemia and hypertension, from a sample of adults aged 18–75 years in Victoria. The VHM also collected food and nutrition information.

The specific objectives of the study were to:

- estimate the prevalence of the following conditions in the Victorian metropolitan and rural population
  - diabetes and other forms of abnormal glucose tolerance
  - cardiovascular disease
  - indicators for chronic kidney disease
  - cardiovascular disease risk factors, including obesity, hypertension and lipid profile abnormalities
- assess the distribution and relationships of cardiovascular disease risk factors
- explore relationships between the social determinants of health and chronic disease risk factors measured in the survey
- inform policy development and contribute to overall program planning for chronic disease prevention activities in Victoria
- inform state nutrition policy and contribute to the evidence base on healthy eating.

The study design involved an initial household visit to participants to collect demographic information, followed by a visit to a local test site to collect risk factor information and biomedical and physical measures. Participants were then asked to complete three 24-hour dietary recall interviews in their homes, which were conducted over a six-week period.

A stratified cluster sample was taken based on Census collection districts (CDs) within the eight Victorian Government Department of Health regions ([www.health.vic.gov.au/regions](http://www.health.vic.gov.au/regions)). Fifty randomly selected CDs were included in the sample – 25 from metropolitan and 25 from rural Victoria. One eligible person (aged 18–75 years) from each household in each CD was randomly selected to participate. A final sample of 3,653 participants was achieved.

For further information see [www.health.vic.gov.au/healthstatus/survey/vhm.htm](http://www.health.vic.gov.au/healthstatus/survey/vhm.htm).

# Appendix 2: Questionnaire items for the Victorian Population Health Survey 2011–12

## 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

## Asthma

Asthma status (current and past)

## Blood pressure

High blood pressure status  
Management of high blood pressure

## Body weight status

Self-reported height and weight

## Chronic diseases

Osteoarthritis  
Rheumatoid arthritis  
Heart disease  
Stroke  
Cancer  
Osteoporosis  
Systemic lupus erythematosus (SLE)

## Demographics

Age  
Sex  
Marital status  
Household composition  
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 Health region)

## Diabetes

Diabetes status  
Type of diabetes  
Age first diagnosed with diabetes  
Type of healthcare received in past year

## Eye care

Change in vision in previous 12 months  
Visits to eye healthcare professional  
Selected eye diseases and conditions  
Sun protection for eyes

## Health checks

Whether had a blood pressure check in previous two years  
Whether had a cholesterol check in previous two years  
Whether had a test for diabetes or elevated blood glucose levels in previous two years  
Examination for bowel cancer in previous two years  
Participated in the National Bowel Cancer Screening program  
Last time consulted a doctor about own health  
Had a mammogram  
Had a Pap test

## Mental health

Psychological distress (Kessler 10 Psychological Distress Scale)  
Whether sought help for mental health related problem  
Type of mental health professional sought help from  
Depression and/or anxiety

## Nutrition

Daily vegetable consumption  
Daily fruit consumption  
Milk consumption  
Water consumption  
Food security  
Consumption of sugar-sweetened soft drinks

## Oral care

Self-rated dental health  
Last visit to a dental health professional

## Physical activity

Frequency and amount of vigorous physical activity in past week  
Physical activity at work

## Self-reported health status

## Smoking

Smoking status  
Frequency of smoking  
Smoking in home





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