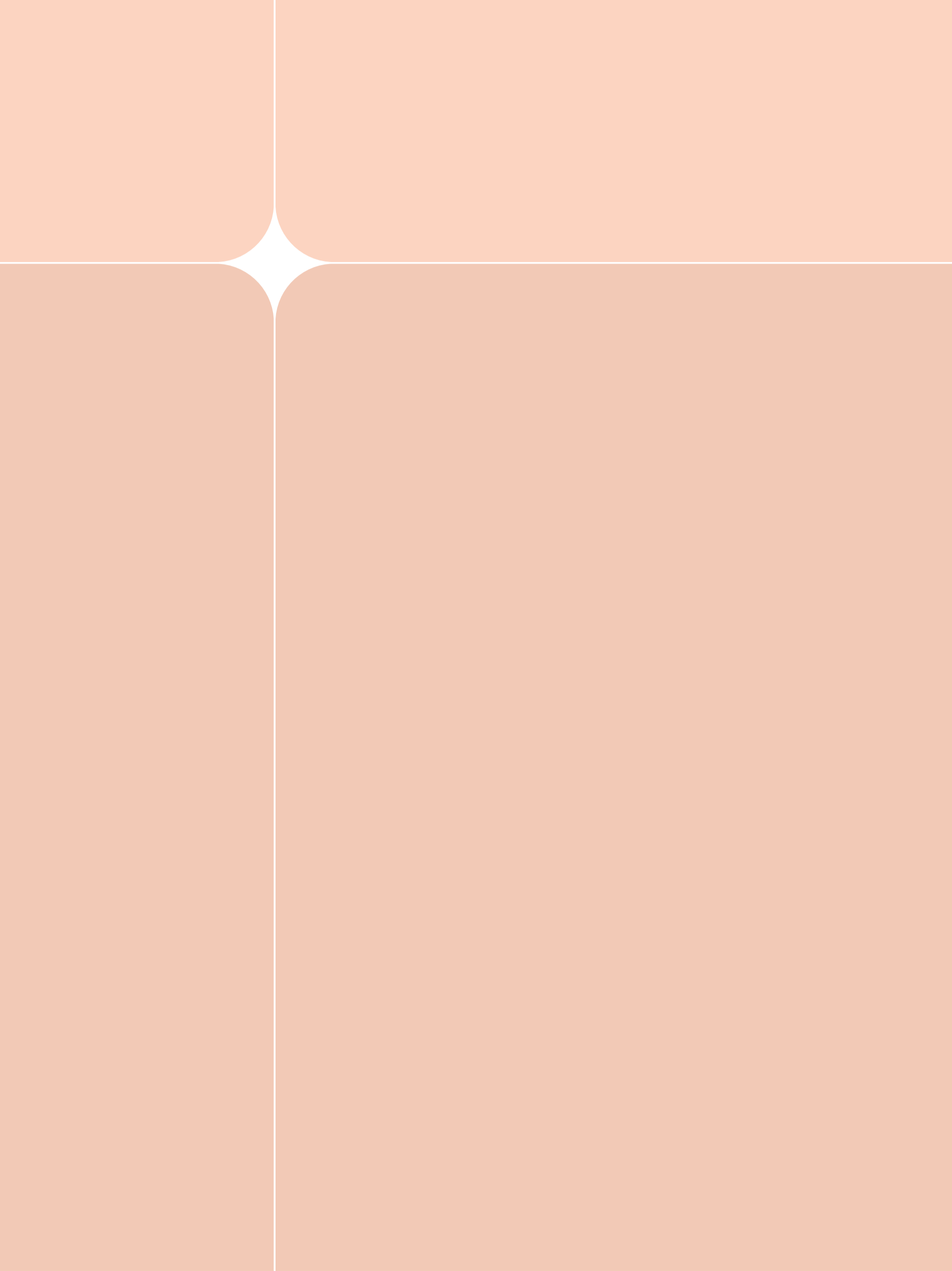


2. Modifiable health risk factors

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
Total attributable health loss	32.2

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
Males									
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
Total	18.6	17.3	20.0	29.0	27.8	30.2	51.9	50.4	53.5
Females									
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
Total	12.9	12.1	13.8	22.2	21.3	23.1	64.4	63.2	65.5
Persons									
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
Total	15.8	15.0	16.7	25.4	24.6	26.1	58.3	57.3	59.3

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
Males						
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
Total	14.3	13.2	15.6	4.3	3.6	5.1
Females						
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
Total	9.6	8.9	10.3	3.3	2.8	3.9
Persons						
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
Total	12.0	11.3	12.7	3.8	3.4	4.3

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

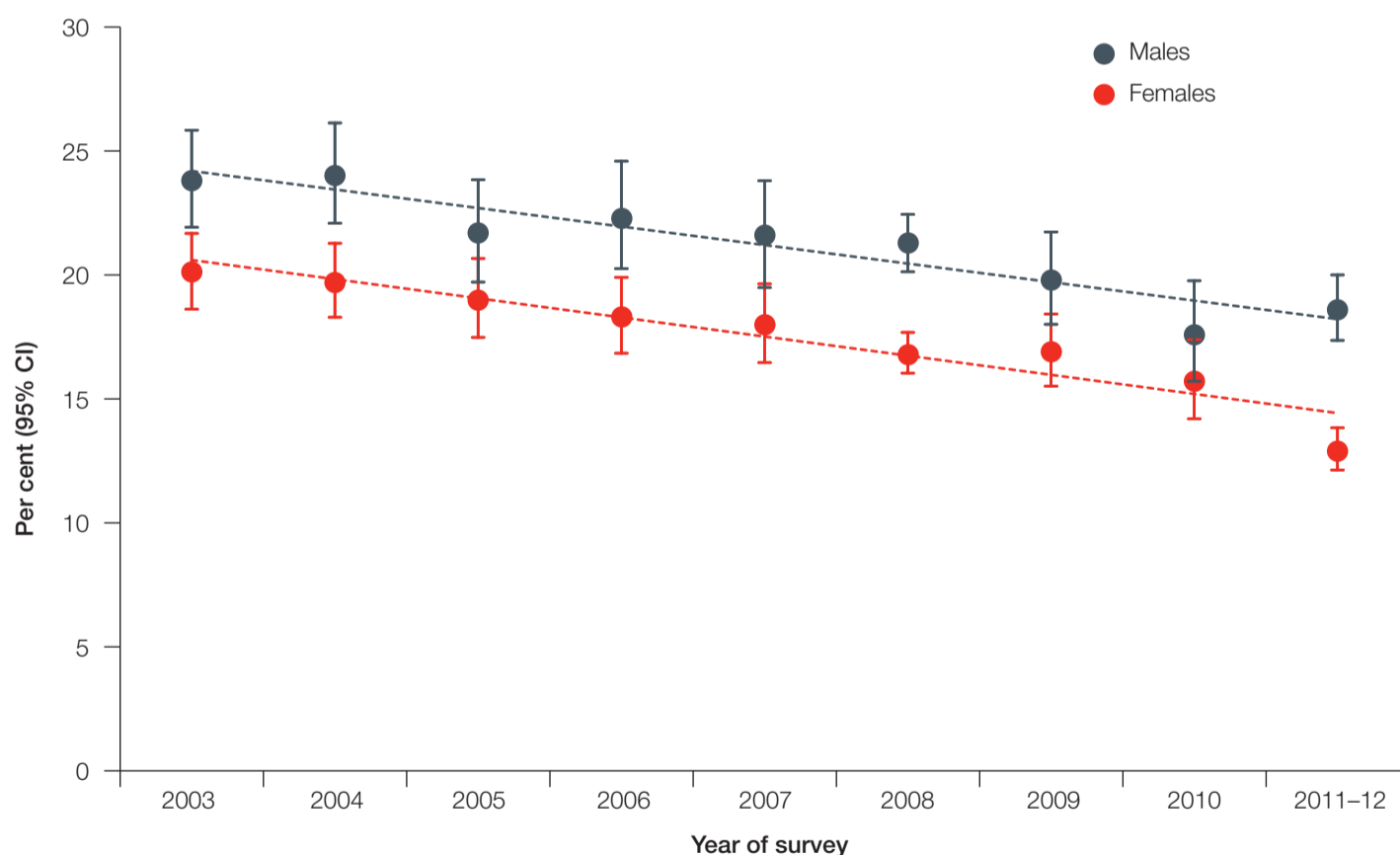
Year	Males			Females			Persons		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
2003	23.8	21.9	25.8	20.1	18.6	21.7	21.9	20.7	23.2
2004	24.0	22.1	26.1	19.7	18.3	21.3	21.9	20.7	23.2
2005	21.7	19.7	23.8	19.0	17.5	20.7	20.4	19.1	21.7
2006	22.3	20.2	24.6	18.3	16.8	19.9	20.4	19.0	21.7
2007	21.6	19.5	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
2011–12	18.6	17.3	20.0	12.9	12.1	13.8	15.8	15.0	16.7

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 2.1: 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
Males									
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
Metropolitan males	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
Rural males	20.8	17.9	24.0	28.2	26.6	29.9	50.7	47.6	53.9
Total	18.6	17.3	20.0	29.0	27.8	30.2	51.9	50.4	53.5
Females									
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
Metropolitan females	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
Rural females	14.7	13.3	16.2	23.2	21.7	24.9	61.5	59.6	63.4
Total	12.9	12.1	13.8	22.2	21.3	23.1	64.4	63.2	65.5
Persons									
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
Metropolitan persons	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
Rural persons	17.8	16.0	19.7	25.6	24.5	26.8	56.2	54.3	58.2
Total	15.8	15.0	16.7	25.4	24.6	26.1	58.3	57.3	59.3

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	
Males							
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	
Metropolitan males	13.3	12.1	14.7	4.7	3.9	5.6	
Barwon-South Western	22.6	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	2.2	1.5	3.1	
Loddon Mallee	18.4	14.5	23.0	2.6*	1.5	4.4	
Rural males	18.0	15.1	21.2	2.8	2.2	3.6	
Total	14.3	13.2	15.6	4.3	3.6	5.1	
Females							
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	
Metropolitan females	8.7	8.0	9.6	3.7	3.0	4.4	
Barwon-South Western	12.0	9.0	15.9	2.6*	1.3	5.0	
Gippsland	14.3	11.8	17.2	1.6*	0.9	2.5	
Grampians	9.8	8.1	11.9	2.0*	1.0	3.9	
Hume	14.1	11.9	16.6	2.1	1.5	3.1	
Loddon Mallee	12.8	10.3	15.8	2.6	1.7	4.0	
Rural females	12.5	11.2	13.9	2.2	1.7	2.9	
Total	9.6	8.9	10.3	3.3	2.8	3.9	
Persons							
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	
Metropolitan persons	11.1	10.3	11.8	4.2	3.7	4.8	
Barwon-South Western	16.8	12.5	22.3	2.4*	1.4	3.9	
Gippsland	15.6	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	2.2	1.7	2.8	
Loddon Mallee	15.9	13.2	19.1	2.6	1.8	3.6	
Rural persons	15.3	13.5	17.2	2.5	2.1	3.0	
Total	12.0	11.3	12.7	3.8	3.4	4.3	

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	33.9	27.4	41.0	45.1	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	69.1	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	31.8	27.1	36.9	51.9	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)	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
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	20.0	16.3	24.3	59.1	51.4	66.4
Greater Shepparton (C)	14.0	10.0	19.1	20.2	16.6	24.4	65.5	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	50.6	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)	21.3	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	66.5	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
Victoria	15.7	14.9	16.5	25.2	24.4	25.9	58.6	57.7	59.6

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.

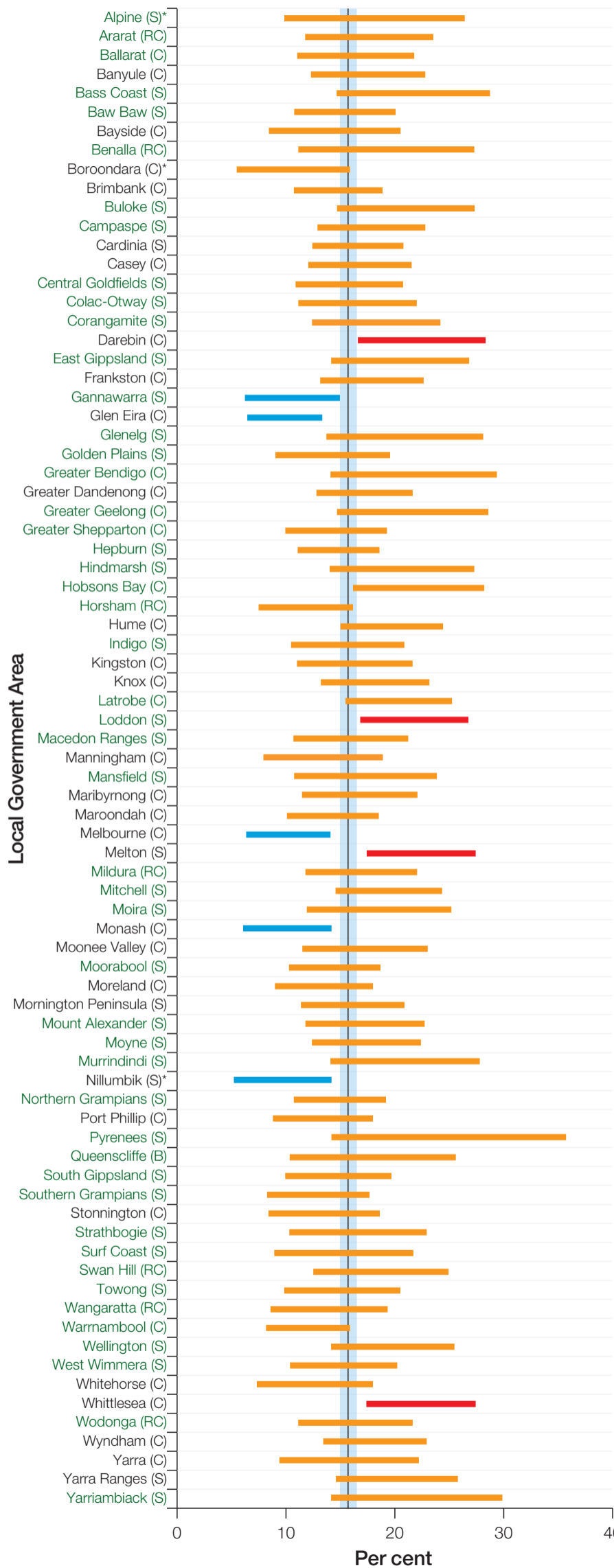
LGA= Local government area; B = Borough; C = City; S = Shire; RC = Rural City. Metropolitan and rural LGAs are identified by colour as follows: metropolitan/ rural.

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.

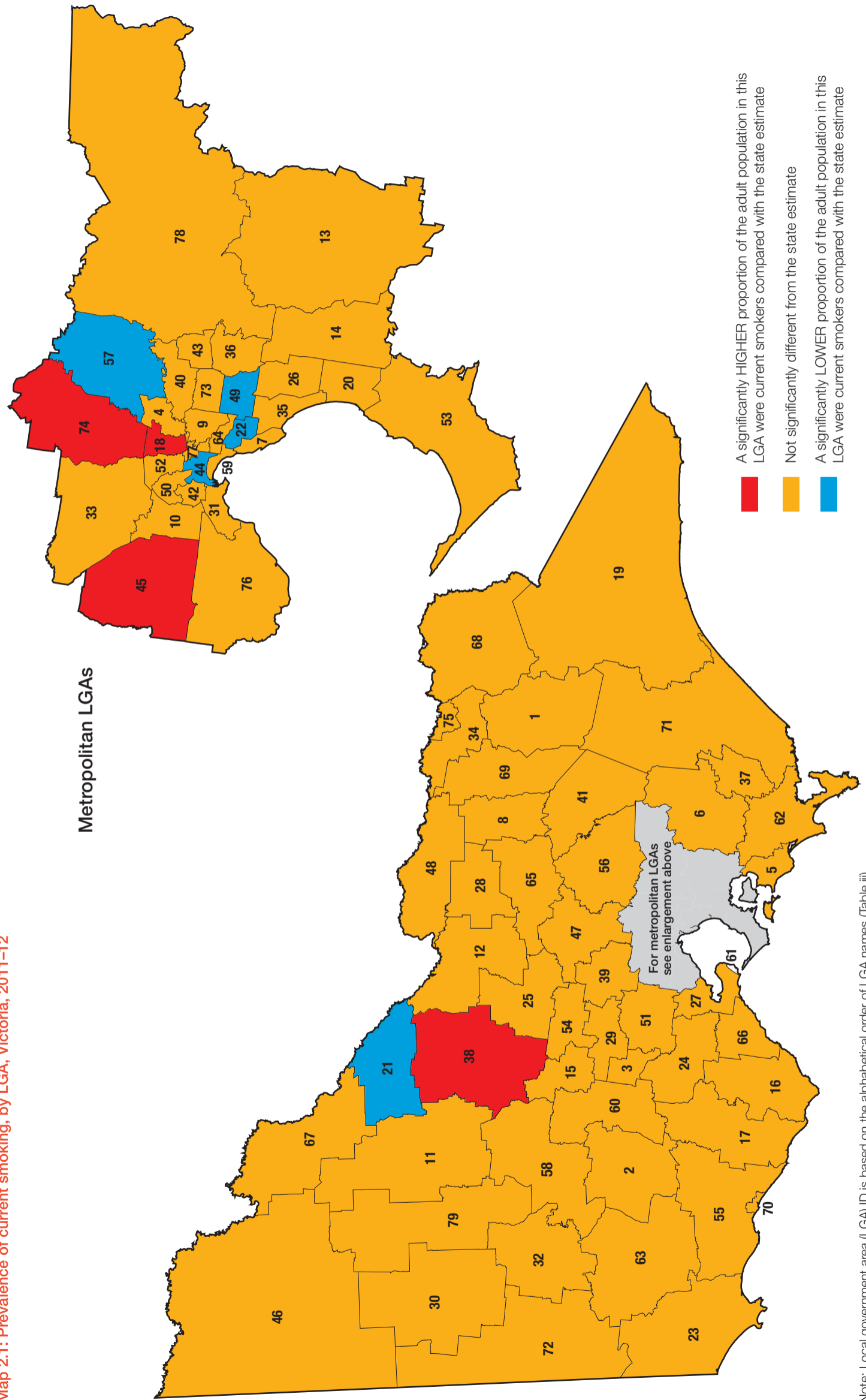
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

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	Current smoker			Ex-smoker		
	%	95% CI		%	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	%	Current smoker		%	Ex-smoker	
		95% CI			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
Victoria	11.9	11.2	12.6	3.8	3.4	4.3

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.

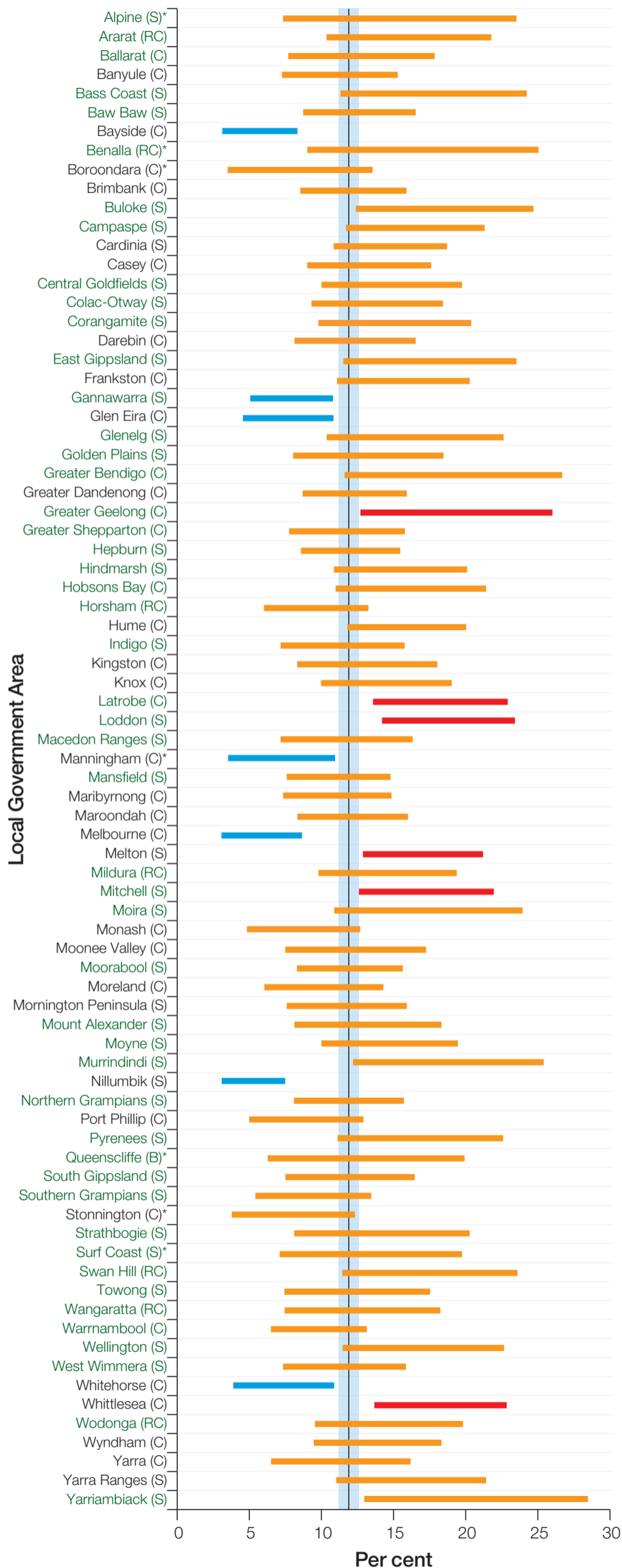
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

* 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
Males	18.6	17.3	20.0	29.0	27.8	30.2	51.9	50.4	53.5
<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	29.1	26.0	32.4	32.6	30.0	35.4	37.6	34.8	40.5
Secondary	19.8	17.7	22.1	29.5	27.5	31.6	50.4	47.7	53.0
Tertiary	10.2	8.7	11.8	25.9	23.9	28.0	63.7	61.3	66.0
<i>Employment status (age < 65 years)</i>									
Employed	19.6	17.8	21.5	25.3	23.7	26.9	55.0	52.8	57.1
Unemployed	38.4	31.5	45.8	17.4	12.8	23.2	43.2	36.2	50.5
Not in labour force	38.2	32.6	44.1	21.0	17.0	25.5	40.5	35.2	46.1
<i>Total annual household income</i>									
< \$40,000	32.1	27.9	36.7	25.3	22.6	28.2	42.0	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^a</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)	29.4	24.8	34.4	27.1	23.2	31.5	43.3	38.1	48.6
Very high (≥ 30)	44.1	35.7	52.8	24.3	18.5	31.2	27.5	20.5	35.7
<i>Physical activity^b</i>									
Sedentary	26.6	19.4	35.4	30.6	25.3	36.6	41.1	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^c</i>									
Both guidelines	10.8	7.2	15.9	26.3	21.3	32.1	62.7	56.3	68.7
Vegetable guidelines ^d	12.6	9.3	17.0	28.7	24.0	33.9	58.5	52.7	64.0
Fruit guidelines ^d	14.0	12.1	16.0	28.1	26.2	30.2	57.5	55.0	60.0
Neither	22.1	20.3	24.0	29.3	27.8	30.9	48.3	46.2	50.3
<i>Long-term risk of alcohol-related harm^e</i>									
Abstainer	14.8	11.9	18.4	19.4	16.7	22.5	65.1	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	40.2	33.6	47.2	38.1	31.9	44.8	21.5	16.2	28.0
<i>Self-reported health</i>									
Excellent / very good	12.4	10.9	13.9	29.1	27.2	31.1	58.1	55.9	60.2
Good	22.5	20.2	24.9	28.1	26.4	29.8	49.0	46.5	51.6
Fair / poor	28.3	24.6	32.4	29.6	27.0	32.3	41.7	37.7	45.7
<i>Body weight status^f</i>									
Underweight	27.0	17.2	39.8	17.4	12.1	24.5	55.6	43.6	67.0
Normal	18.0	16.2	20.0	24.3	22.4	26.3	57.4	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	45.3	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
Females	12.9	12.1	13.8	22.2	21.3	23.1	64.4	63.2	65.5
<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	23.0	20.3	26.0	25.6	22.9	28.4	51.0	47.9	54.1
Secondary	14.1	12.7	15.6	23.3	21.8	24.9	62.0	60.0	63.9
Tertiary	7.0	6.1	8.1	21.2	19.8	22.7	71.4	69.6	73.0
<i>Employment status (age < 65 years)</i>									
Employed	14.2	12.9	15.7	22.4	21.2	23.7	63.0	61.3	64.8
Unemployed	20.9	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	20.6	18.0	23.5	19.4	17.5	21.6	59.3	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	9.3	7.7	11.2	26.0	23.4	28.8	64.6	61.5	67.6
<i>Psychological distress^a</i>									
Low (< 16)	9.6	8.7	10.6	22.1	21.1	23.2	67.9	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)	21.5	18.5	25.0	23.0	20.1	26.3	55.1	51.3	58.9
Very high (≥ 30)	28.6	23.5	34.4	22.0	17.2	27.7	47.3	41.1	53.6
<i>Physical activity^b</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^c</i>									
Both guidelines	8.3	5.7	11.9	23.8	20.6	27.3	67.9	63.5	72.0
Vegetable guidelines ^d	9.5	7.2	12.5	25.0	22.3	27.9	65.4	61.8	68.8
Fruit guidelines ^d	9.3	8.2	10.5	22.9	21.6	24.2	67.3	65.7	69.0
Neither	17.1	15.8	18.4	21.2	20.0	22.5	61.1	59.5	62.8
<i>Long-term risk of alcohol-related harm^e</i>									
Abstainer	9.9	8.4	11.7	13.4	11.9	14.9	76.4	74.2	78.5
Low risk	13.1	12.1	14.1	24.4	23.4	25.5	61.9	60.6	63.2
Risky or high risk	31.5	25.2	38.5	36.9	30.7	43.6	30.3	24.8	36.5
<i>Self-reported health</i>									
Excellent / very good	8.8	7.8	9.9	22.9	21.7	24.2	67.9	66.3	69.4
Good	15.7	14.3	17.2	22.2	20.8	23.7	61.5	59.6	63.3
Fair / poor	19.7	17.0	22.6	20.4	18.1	23.0	59.6	56.2	62.9
<i>Body weight status^f</i>									
Underweight	21.5	16.8	27.1	14.8	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	26.7	23.5	30.1	58.6	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

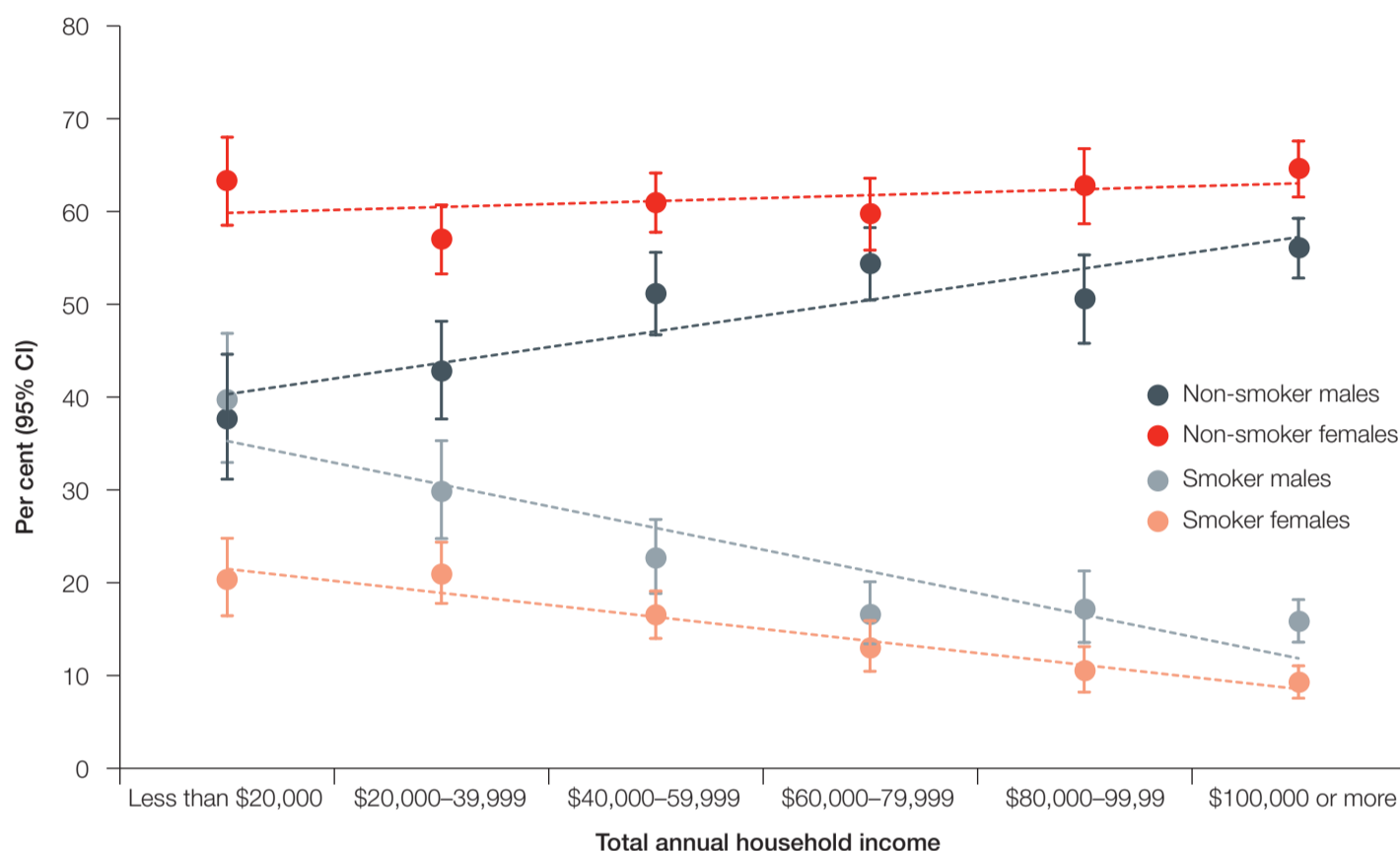
f. Based on body mass index (BMI).
Data were age-standardised to the 2011 Victorian population.
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

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)¹. 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.

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

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 (≥ 60 kg for males and ≥ 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^a

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

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^a

		Low risk	Risky	High risk
Males	On an average day	Up to four per day	Five to six per day	Seven or more per day
	Overall weekly level	Up to 28 per week	29–42 per week	43 or more per week
Females	On an average day	Up to two per day	Three to four per day	Five or more per day
	Overall weekly level	Up to 14 per week	15–28 per week	29 or more per week

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

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^a from 2003 to 2011–12, by sex, Victoria

Year	Abstainer			Low risk			At least yearly			Risky or high risk					
	95% CI			95% CI			95% CI			95% CI					
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL			
Males															
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
2011–12	14.0	12.9	15.1	33.4	32.0	34.7	24.0	22.6	25.4	15.8	14.7	17.1	12.7	11.6	13.8
Females															
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
2011–12	23.0	22.0	24.1	38.5	37.3	39.7	20.3	19.3	21.4	12.1	11.2	13.1	5.6	5.0	6.2
Persons															
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
2011–12	18.6	17.9	19.4	35.9	35.0	36.7	22.1	21.3	23.0	13.9	13.2	14.7	9.1	8.5	9.8

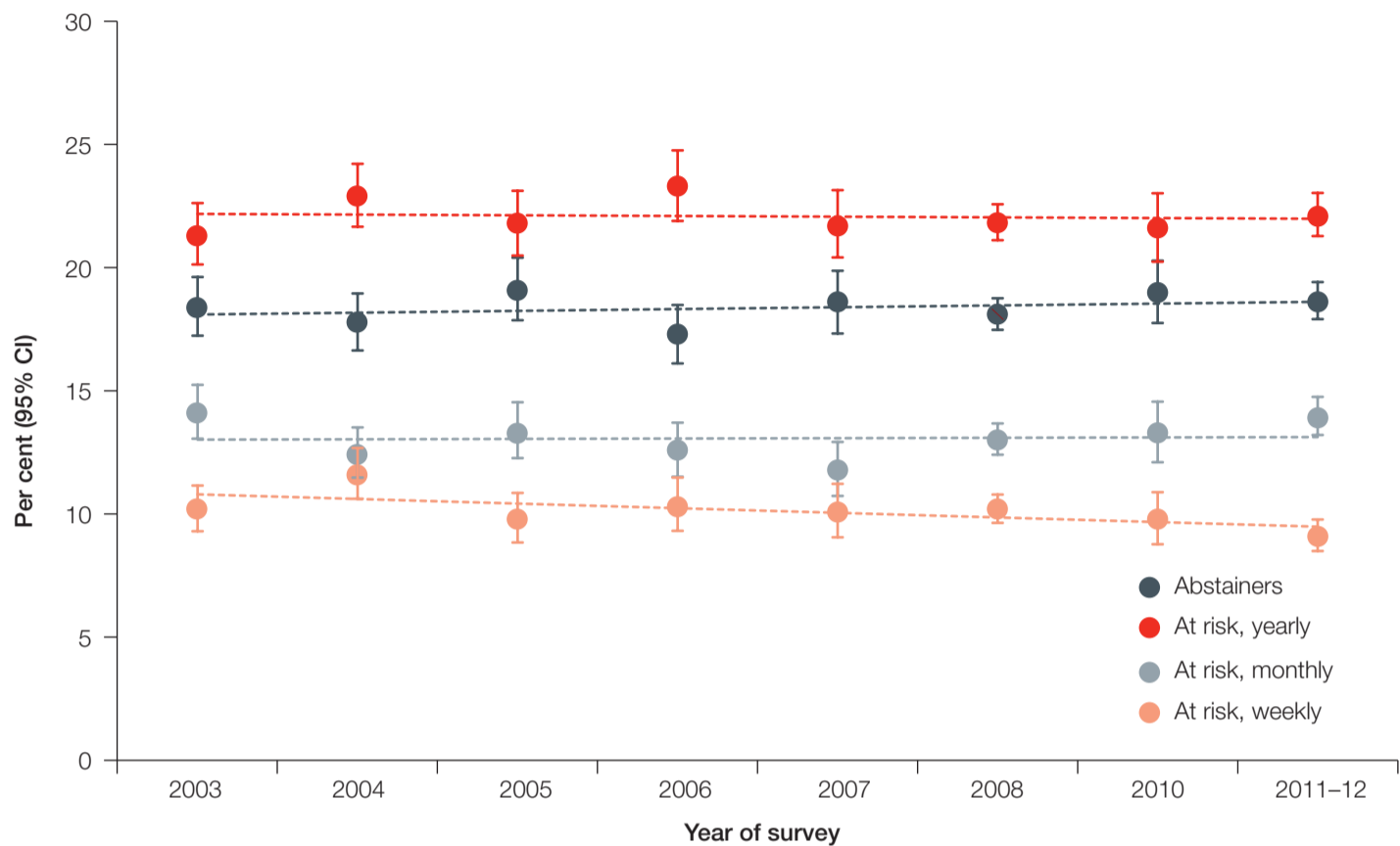
a. Based on national guidelines (NHMRC 2001).

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^a 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,^a by Department of Health region and sex, Victoria, 2011–12

Region	Abstainer			Low risk ^a			Risk or high risk ^a		
	%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL
Males									
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
Metropolitan males	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
Rural males	13.6	11.9	15.4	27.0	25.2	28.9	59.3	56.9	61.6
Total	14.0	12.9	15.1	33.4	32.0	34.7	52.5	51.0	54.0
Females									
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
Metropolitan females	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
Rural females	20.6	19.1	22.1	36.4	34.8	38.1	42.6	40.7	44.5
Total	23.0	22.0	24.1	38.5	37.3	39.7	38.1	36.9	39.3
Persons									
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
Metropolitan persons	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
Rural persons	17.1	16.0	18.3	31.7	30.5	33.0	50.8	49.3	52.4
Total	18.6	17.9	19.4	35.9	35.0	36.7	45.2	44.2	46.2

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^a in males, by LGA, Victoria, 2011–12

LGA	Abstainer			Low risk ^b			Risky or high risk ^c		
	%	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^a in males, by LGA, Victoria, 2011–12 (continued)

LGA	Abstainer			Low risk ^b			Risky or high risk ^c		
	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
Victoria	14.0	12.9	15.1	33.2	31.9	34.5	52.6	51.1	54.1

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^a in females, by LGA, Victoria, 2011–12

LGA Females	Abstainer			Low risk ^b			Risky or high risk ^c		
	%	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^a in females, by LGA, Victoria, 2011–12 (continued)

LGA	Abstainer			Low risk ^b			Risky or high risk ^c		
	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
Victoria	22.9	21.9	23.9	38.4	37.2	39.6	38.3	37.1	39.6

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^a in persons, by LGA, Victoria, 2011–12

LGA Persons	%	Abstainer		%	Low risk ^b		%	Risky or high risk ^c	
		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^a in persons, by LGA, Victoria, 2011–12 (continued)

LGA Persons	%	Abstainer 95% CI		%	Low risk ^b 95% CI		%	Risky or high risk ^c 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
Victoria	18.6	17.9	19.4	35.8	34.9	36.7	45.3	44.3	46.3

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.

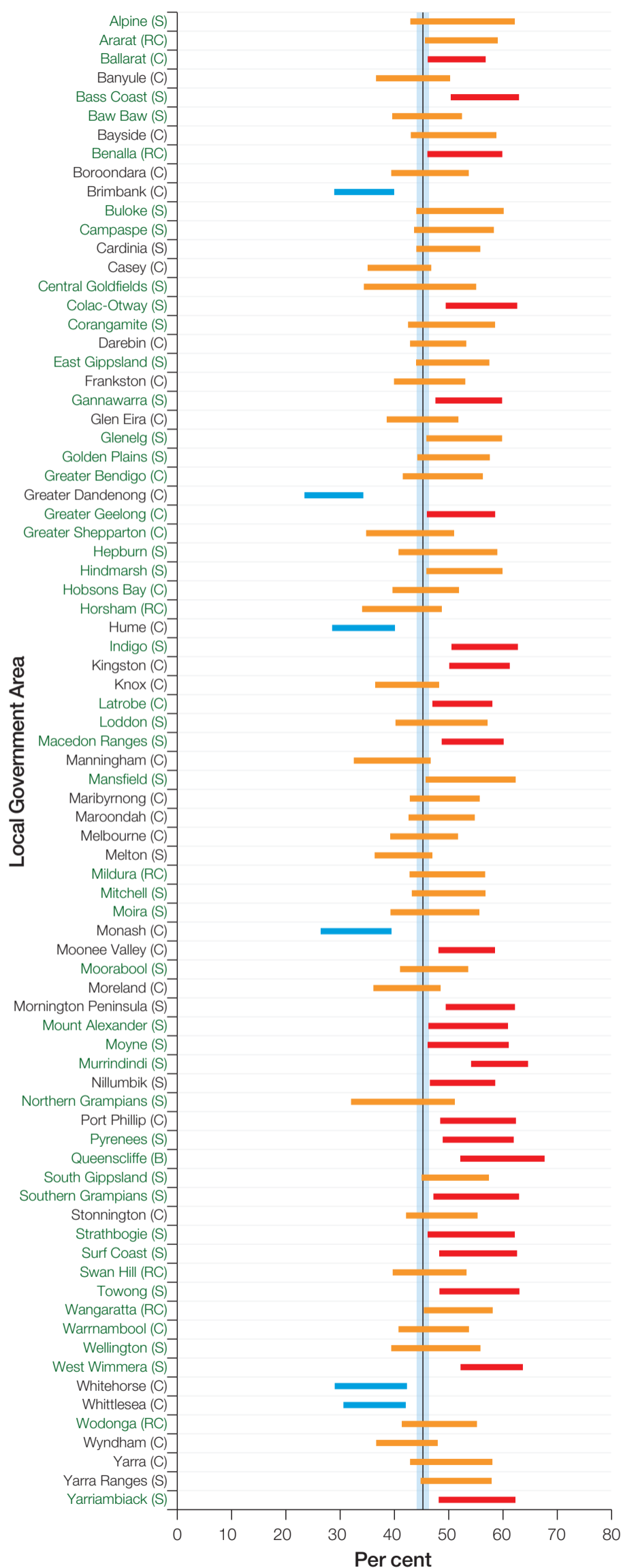
Data were age-standardised to the 2011 Victorian population, using 10-year age groups.

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^a 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.

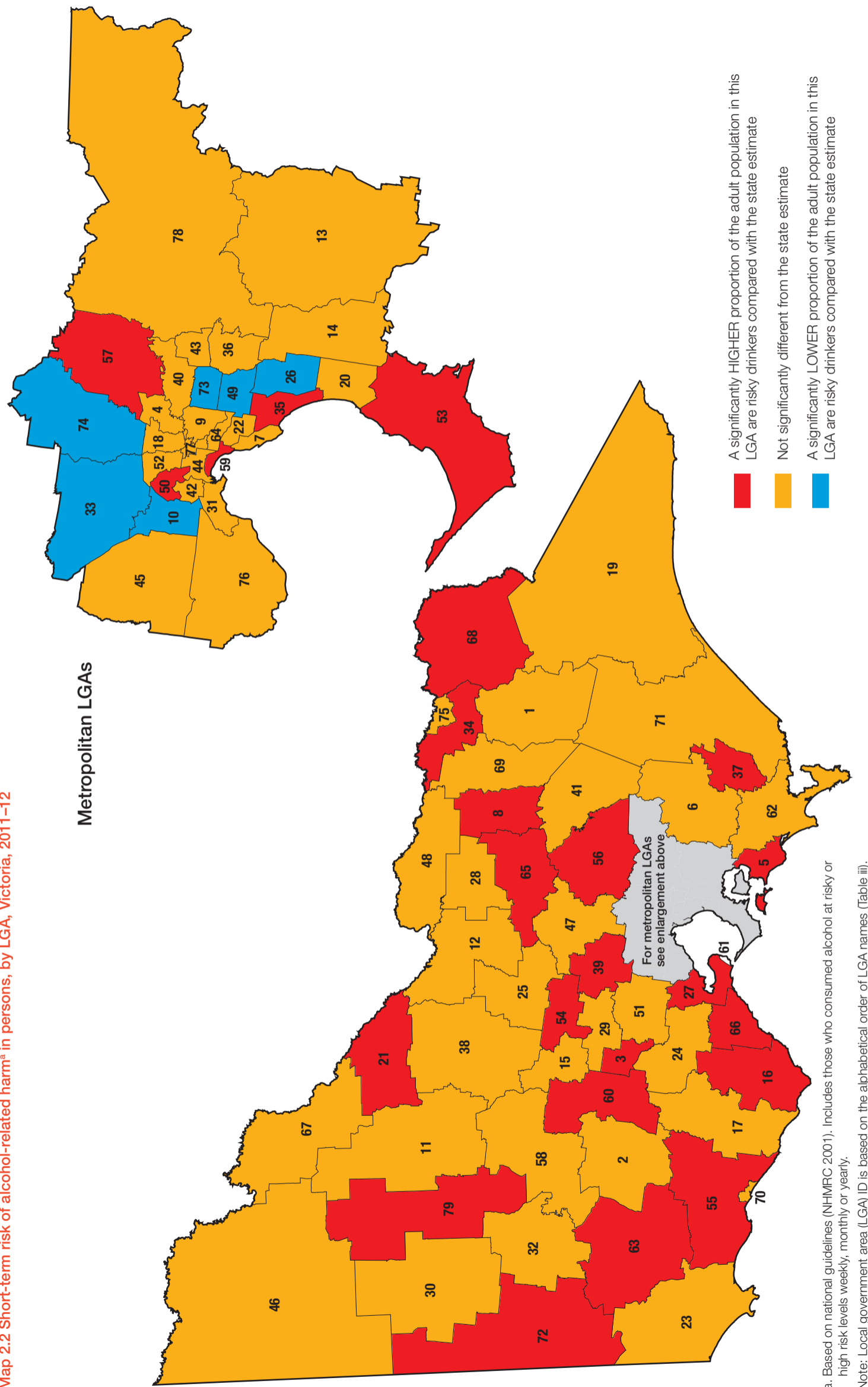
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

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^a 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,^a by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12

	%	Abstainer		%	Low risk ^a		%	Risky or high risk ^a		
		95% CI			95% CI			95% CI		
		LL	UL		LL	UL		LL	UL	
Males	14.0	12.9	15.1	33.4	32.0	34.7	52.5	51.0	54.0	
<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 < 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^b</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^c</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^d</i>										
Both guidelines	10.3	7.1	14.7	32.5	27.4	38.2	56.6	50.5	62.5	
Vegetable guidelines ^e	10.2	7.4	13.9	33.7	28.5	39.5	55.6	49.9	61.2	
Fruit guidelines ^e	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^f</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^g</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,^a by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)

	%	Abstainer		%	Low risk ^a		%	Risky or high risk ^a	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Females	23.0	22.0	24.1	38.5	37.3	39.7	38.1	36.9	39.3
<i>Area of Victoria</i>									
Rural	20.6	19.1	22.1	36.4	34.8	38.1	42.6	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	27.9	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	17.2	15.7	18.8	44.9	43.0	46.9	37.4	35.6	39.3
<i>Employment status (age < 65 years)</i>									
Employed	15.9	14.6	17.3	35.8	34.1	37.6	47.8	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	29.0	26.6	31.6	35.5	33.0	38.2	35.2	32.7	37.9
<i>Total annual household income</i>									
< \$40,000	32.9	30.1	35.9	36.7	33.9	39.7	29.9	27.1	33.0
\$40,000 to < \$100,000	19.1	17.3	21.0	41.7	39.7	43.8	38.9	36.8	41.0
≥ \$100,000	9.9	8.4	11.6	40.1	37.1	43.3	49.6	46.5	52.7
<i>Psychological distress^b</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)	33.7	28.2	39.7	26.7	22.3	31.7	39.2	33.7	45.1
<i>Physical activity^{c,g}</i>									
Sedentary	44.8	38.1	51.8	32.2	26.6	38.5	22.7	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	19.1	18.0	20.3	39.2	37.7	40.7	41.5	39.9	43.0
<i>Met fruit / vegetable guidelines^d</i>									
Both guidelines	21.6	18.0	25.6	40.2	35.8	44.8	37.3	32.6	42.1
Vegetable guidelines ^e	20.9	17.9	24.2	40.2	36.3	44.2	38.2	34.2	42.4
Fruit guidelines ^e	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	18.2	16.9	19.6	40.3	38.7	42.0	41.2	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	34.3	31.1	37.7	34.8	31.7	38.0	30.7	27.7	33.9
<i>Body weight status^f</i>									
Underweight	26.7	21.5	32.8	42.9	36.5	49.6	29.9	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	42.1	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	19.2	16.8	21.8	28.5	25.7	31.6	51.8	48.7	54.8
Ex-smoker	14.2	12.5	16.0	33.8	31.6	36.1	51.8	49.3	54.3
Non-smoker	27.2	25.9	28.6	42.1	40.6	43.6	30.3	28.9	31.8
<i>Diabetes status^g</i>									
No diabetes	22.1	21.1	23.1	38.9	37.7	40.1	38.6	37.4	39.9
Diabetes	50.8	45.2	56.3	33.8	28.8	39.1	15.3	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).

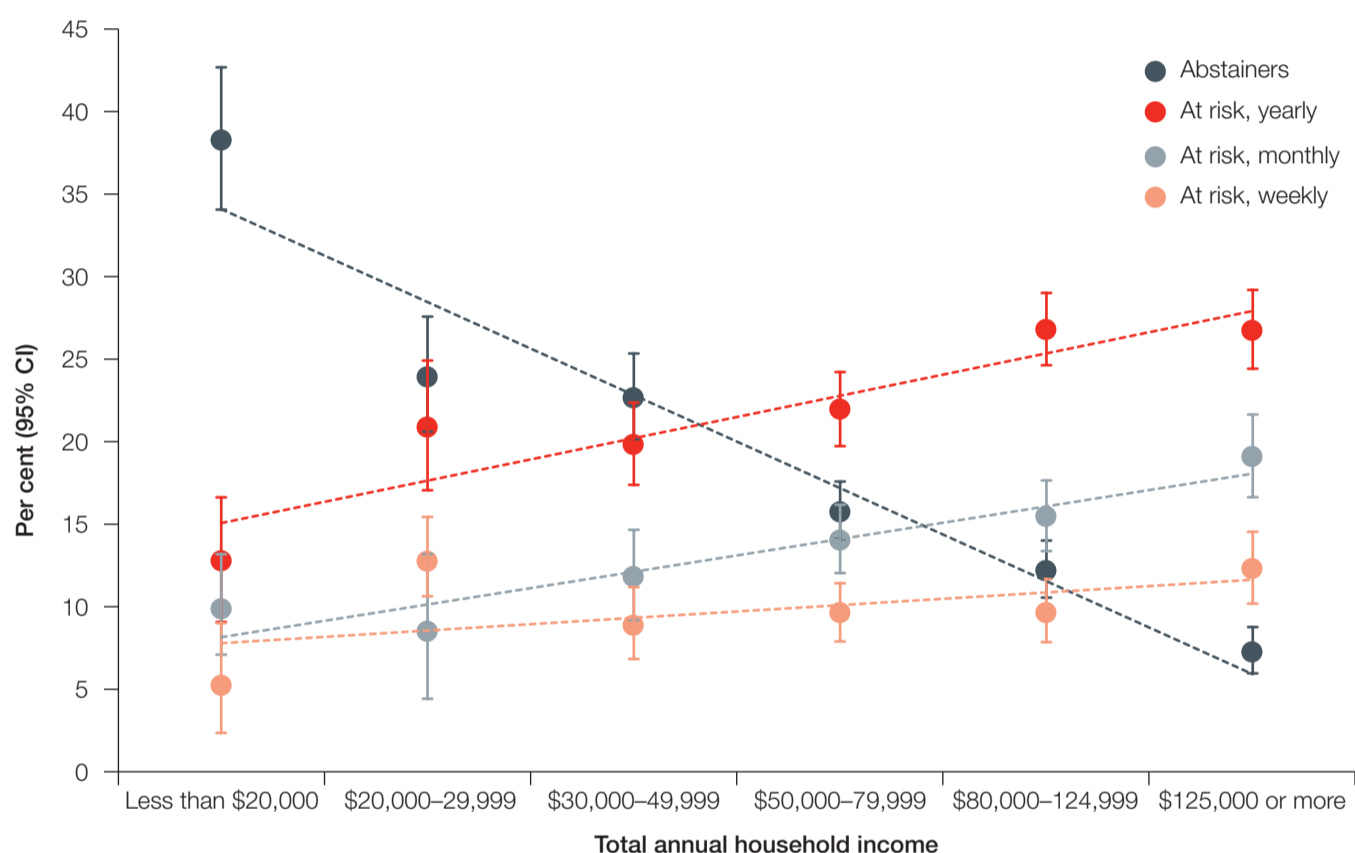
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

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,^a 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,^{a,b} 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
Males									
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
Total	13.9	12.8	15.0	81.0	79.7	82.2	4.2	3.6	4.9
Females									
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
Total	22.9	21.9	24.0	73.8	72.7	74.8	2.5	2.3	2.9
Persons									
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
Total	18.6	17.8	19.3	77.2	76.4	78.0	3.4	3.0	3.7

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^{a,b} 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
Males									
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
2011–12	13.9	12.8	15.0	81.0	79.7	82.2	4.2	3.6	4.9
Females									
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
2011–12	22.9	21.9	24.0	73.8	72.7	74.8	2.5	2.3	2.9
Persons									
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
2011–12	18.6	17.8	19.3	77.2	76.4	78.0	3.4	3.0	3.7

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).

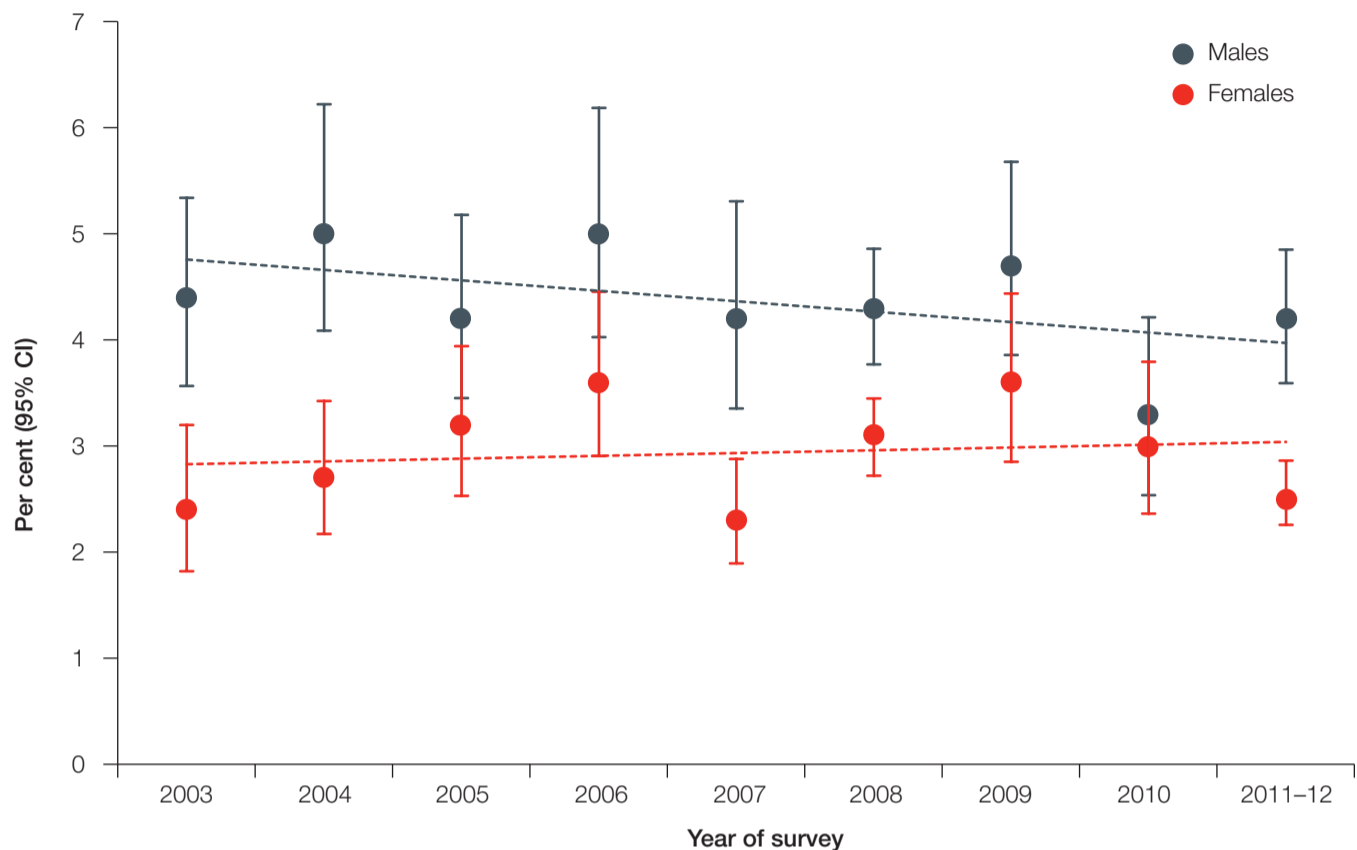
Data were age-standardised to the 2011 Victorian population.

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^a 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,^{a,b} 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
Males									
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
Metropolitan males	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
Rural males	13.5	11.9	15.4	80.5	78.4	82.5	4.8	3.9	5.9
Total	13.9	12.8	15.0	81.0	79.7	82.2	4.2	3.6	4.9
Females									
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
Metropolitan females	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
Rural females	20.5	19.1	22.1	76.1	74.4	77.6	3.0	2.5	3.6
Total	22.9	21.9	24.0	73.8	72.7	74.8	2.5	2.3	2.9
Persons									
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
Metropolitan persons	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
Rural persons	17.1	16.0	18.3	78.2	76.9	79.5	3.9	3.4	4.5
Total	18.6	17.8	19.3	77.2	76.4	78.0	3.4	3.0	3.7

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^a in persons, by LGA, Victoria, 2011–12

LGA	%	Abstainer		%	Low risk ^b		%	Risky or high risk ^c	
		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^a in persons, by LGA, Victoria, 2011–12 (continued)

LGA	%	Abstainer		%	Low risk ^b		%	Risky or high risk ^c	
		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
Victoria	18.5	17.8	19.3	77.3	76.5	78.1	3.3	3.0	3.7

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.

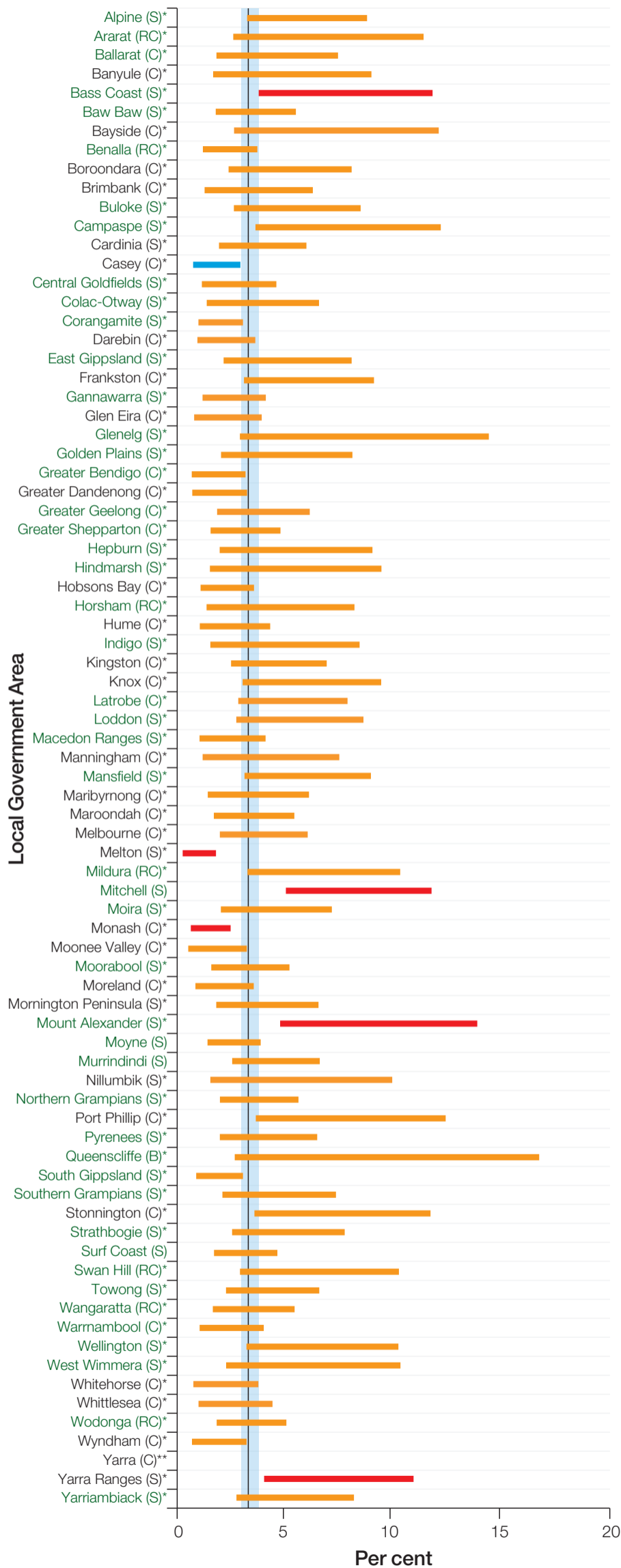
Data were age standardised to the 2011 Victorian population, using 10-year age groups.

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,^a 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,^a by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12

	%	Abstainer		%	Low risk ^a		%	Risky or high risk ^a	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Males	13.9	12.8	15.0	81.0	79.7	82.2	4.2	3.6	4.9
<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	6.2	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	85.2	83.3	86.8	2.2	1.6	3.2
<i>Employment status (age < 65 years)</i>									
Employed	10.4	9.2	11.7	84.2	82.6	85.6	4.4	3.6	5.4
Unemployed	20.9	15.5	27.5	72.4	65.1	78.6	5.2*	2.6	10.2
Not in labour force	22.0	17.3	27.5	70.7	64.8	76.0	6.1*	3.7	10.0
<i>Total annual household income</i>									
< \$40,000	25.8	22.0	30.1	68.2	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	7.6	5.9	9.6	87.2	84.8	89.4	4.9	3.6	6.6
<i>Psychological distress^b</i>									
Low (< 16)	11.9	10.8	13.2	83.8	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)	22.5	18.3	27.3	66.3	60.9	71.4	9.3	6.3	13.5
Very high (≥ 30)	21.7	15.2	30.1	65.1	56.3	73.1	11.2*	6.2	19.5
<i>Physical activity^c</i>									
Sedentary	22.4	17.3	28.4	70.9	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^d</i>									
Both guidelines	10.3	7.1	14.7	87.2	82.6	90.8	1.7*	0.7	3.9
Vegetable guidelines ^e	10.1	7.4	13.8	85.1	80.8	88.6	3.4*	1.8	6.2
Fruit guidelines ^e	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	8.8	7.1	10.8
Ex-smoker	8.5	6.9	10.4	85.4	82.4	88.0	5.6	3.7	8.3
Non-smoker	17.4	15.9	19.1	80.1	78.3	81.7	1.7	1.3	2.4
<i>Self-reported health</i>									
Excellent / very good	11.8	10.4	13.2	84.5	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	72.7	68.5	76.6	7.7	5.9	10.1
<i>Body weight status^f</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)^g</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	72.3	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,^a by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)

	%	Abstainer		%	Low risk ^a		%	Risky or high risk ^a	
		95% CI			95% CI			95% CI	
		LL	UL		LL	UL		LL	UL
Females	22.9	21.9	24.0	73.8	72.7	74.8	2.5	2.3	2.9
<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	27.8	25.4	30.4	68.7	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	17.1	15.7	18.7	79.6	77.9	81.2	2.4	1.9	2.9
<i>Employment status (age < 65 years)</i>									
Employed	15.9	14.5	17.3	80.7	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	28.8	26.4	31.4	68.1	65.5	70.6	2.2	1.7	3.0
<i>Total annual household income</i>									
< \$40,000	32.9	30.0	35.9	64.1	61.1	66.9	2.8	2.1	3.6
\$40,000 to < \$100,000	19.0	17.3	20.9	77.9	75.9	79.7	2.6	2.1	3.1
≥ \$100,000	9.9	8.4	11.6	85.1	82.9	87.1	4.0	3.1	5.2
<i>Psychological distress^b</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)	33.6	28.1	39.6	63.7	57.8	69.3	2.4*	1.3	4.4
<i>Physical activity^c</i>									
Sedentary	44.2	37.5	51.1	51.2	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	77.7	76.4	78.8	2.7	2.4	3.2
<i>Met fruit / vegetable guidelines^d</i>									
Both guidelines	21.5	18.0	25.5	75.8	71.8	79.4	2.2	1.5	3.2
Vegetable guidelines ^e	20.8	17.8	24.2	75.6	72.2	78.7	3.1	2.3	4.2
Fruit guidelines ^e	24.0	22.4	25.6	73.8	72.1	75.4	1.7	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	19.1	16.7	21.8	74.2	71.4	76.8	5.7	4.6	6.9
Ex-smoker	14.1	12.4	16.0	80.9	78.5	83.1	4.3	3.1	6.0
Non-smoker	27.1	25.8	28.5	71.0	69.5	72.3	1.2	0.9	1.5
<i>Self-reported health</i>									
Excellent / very good	18.1	16.8	19.5	78.8	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	33.9	30.7	37.3	62.2	58.8	65.5	2.5	1.8	3.4
<i>Body weight status^f</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)^g</i>									
No diabetes	22.0	21.0	23.0	74.6	73.5	75.6	2.6	2.3	3.0
Diabetes	50.7	45.1	56.3	48.0	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.

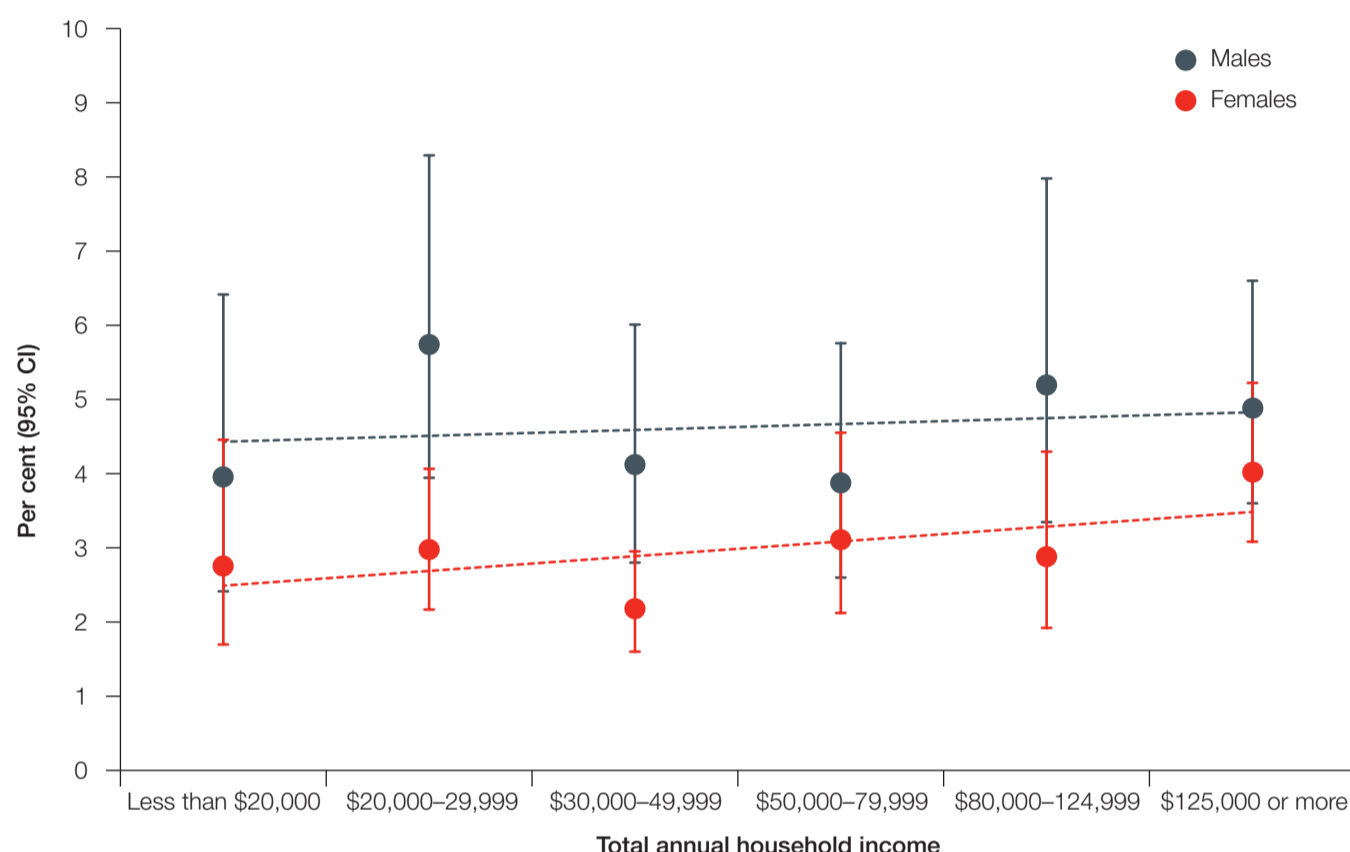
* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

** 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,^a 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) ^a		Prevalence (%) of single occasion risk ^b		Prevalence (%) of long-term risk ^c		Prevalence (%) of lifetime risk ^d	
		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^a and 2013^b

	2013			2003		
	Age group (years)	Serves/day		Age group (years)	Serves/day	
		Vegetables and legumes/beans (75g/serve)	Fruit (150g/serve)		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
Males												
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
Total	9.3	8.4	10.4	76.6	75.2	77.9	8.1	7.3	9.0	4.3	3.8	4.9
Females												
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
Total	6.3	5.7	7.0	70.1	69.0	71.2	12.6	11.8	13.4	9.6	9.0	10.2
Persons												
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
Total	7.8	7.2	8.4	73.2	72.4	74.1	10.4	9.9	11.0	7.1	6.7	7.5

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
Males												
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
Metropolitan males	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
Rural males	9.8	7.2	13.4	75.5	72.2	78.5	9.2	7.4	11.5	4.6	3.9	5.4
Total	9.3	8.4	10.4	76.6	75.2	77.9	8.1	7.3	9.0	4.3	3.8	4.9
Females												
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
Metropolitan females	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
Rural females	5.0	4.3	5.8	68.1	66.4	69.8	15.0	13.7	16.5	11.1	10.2	12.1
Total	6.3	5.7	7.0	70.1	69.0	71.2	12.6	11.8	13.4	9.6	9.0	10.2
Persons												
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
Metropolitan persons	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
Rural persons	7.4	5.8	9.3	71.6	69.6	73.5	12.3	11.0	13.7	7.9	7.3	8.5
Total	7.8	7.2	8.4	73.2	72.4	74.1	10.4	9.9	11.0	7.1	6.7	7.5

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
Victoria	7.8	7.2	8.5	73.2	72.3	74.0	10.4	9.9	11.0	7.1	6.7	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.

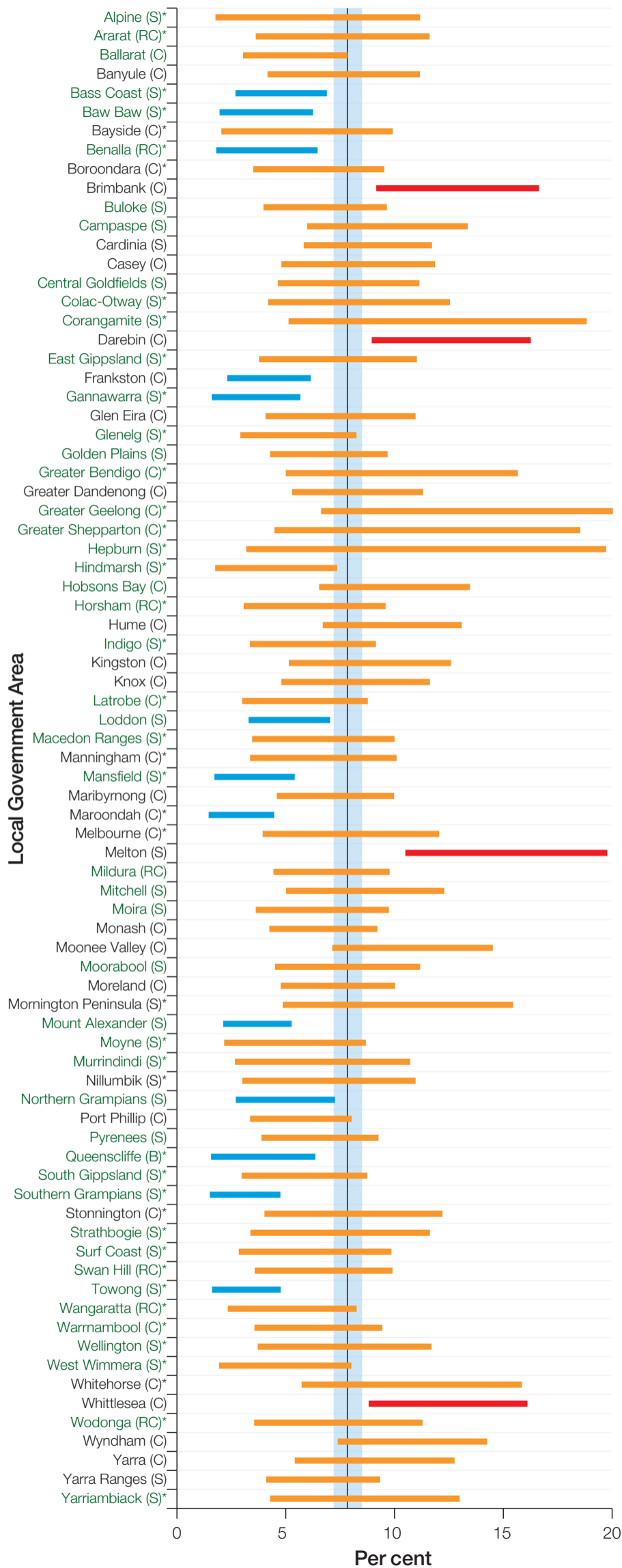
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

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
Males												
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
Total	19.6	18.4	20.9	38.8	37.2	40.3	24.6	23.3	26.0	16.0	14.9	17.1
Females												
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
Total	13.3	12.5	14.2	34.7	33.5	35.9	31.5	30.3	32.7	19.6	18.6	20.6
Persons												
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
Total	16.4	15.7	17.2	36.6	35.7	37.6	28.1	27.3	29.0	17.8	17.1	18.5

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
Males												
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
Metropolitan males	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
Rural males	22.7	20.1	25.6	38.8	36.0	41.8	23.3	20.9	26.0	14.4	12.7	16.2
Total	19.6	18.4	20.9	38.8	37.2	40.3	24.6	23.3	26.0	16.0	14.9	17.1
Females												
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
Metropolitan females	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
Rural females	13.9	12.7	15.2	35.6	33.6	37.7	32.4	30.3	34.5	17.4	15.9	18.9
Total	13.3	12.5	14.2	34.7	33.5	35.9	31.5	30.3	32.7	19.6	18.6	20.6
Persons												
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
Metropolitan persons	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
Rural persons	18.4	16.8	20.1	37.1	35.3	38.9	27.9	26.2	29.6	15.9	14.8	17.1
Total	16.4	15.7	17.2	36.6	35.7	37.6	28.1	27.3	29.0	17.8	17.1	18.5

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), Borondara (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 Borondara (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
Nillumbik (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
Victoria	16.3	15.5	17.1	36.6	35.6	37.6	28.1	27.3	29.0	18.0	17.2	18.8

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.

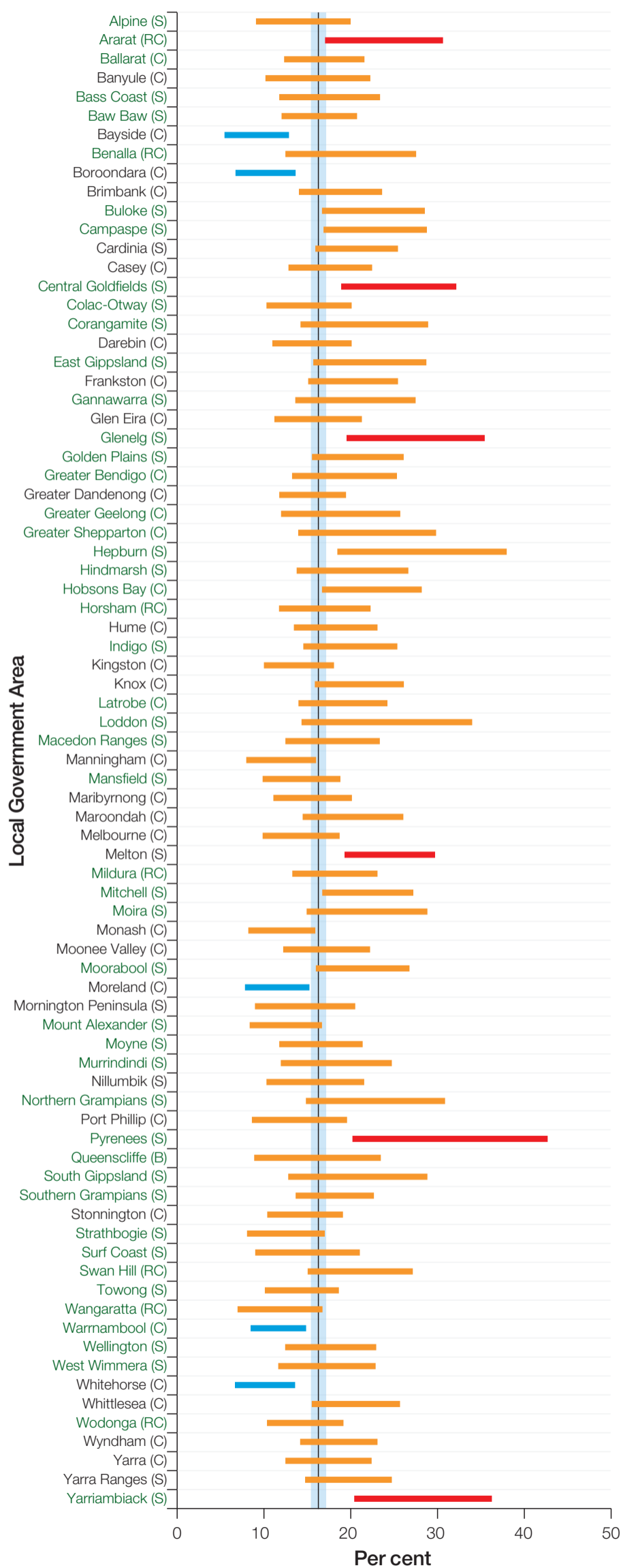
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City. Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

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^a for fruit and vegetable consumption, by age group and sex, Victoria, 2011–12

Age group (years)	Both guidelines			Vegetable guidelines ^b			Fruit guidelines ^b			Neither		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Males												
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
Total	3.2	2.7	3.7	4.5	3.9	5.1	40.0	38.5	41.6	56.9	55.3	58.4
Females												
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
Total	7.0	6.5	7.5	9.7	9.1	10.3	50.5	49.2	51.8	45.5	44.2	46.8
Persons												
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
Total	5.1	4.8	5.5	7.2	6.8	7.6	45.4	44.4	46.4	51.0	50.0	52.0

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^a from 2003 to 2011–12, by sex, Victoria

Year	Both guidelines			Vegetable guidelines ^b			Fruit guidelines ^b			Neither		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Males												
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
2011–12	3.2	2.7	3.7	4.5	3.9	5.1	40.0	38.5	41.6	56.9	55.3	58.4
Females												
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
2011–12	7.0	6.5	7.5	9.7	9.1	10.3	50.5	49.2	51.8	45.5	44.2	46.8
Persons												
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
2011–12	5.1	4.8	5.5	7.2	6.8	7.6	45.4	44.4	46.4	51.0	50.0	52.0

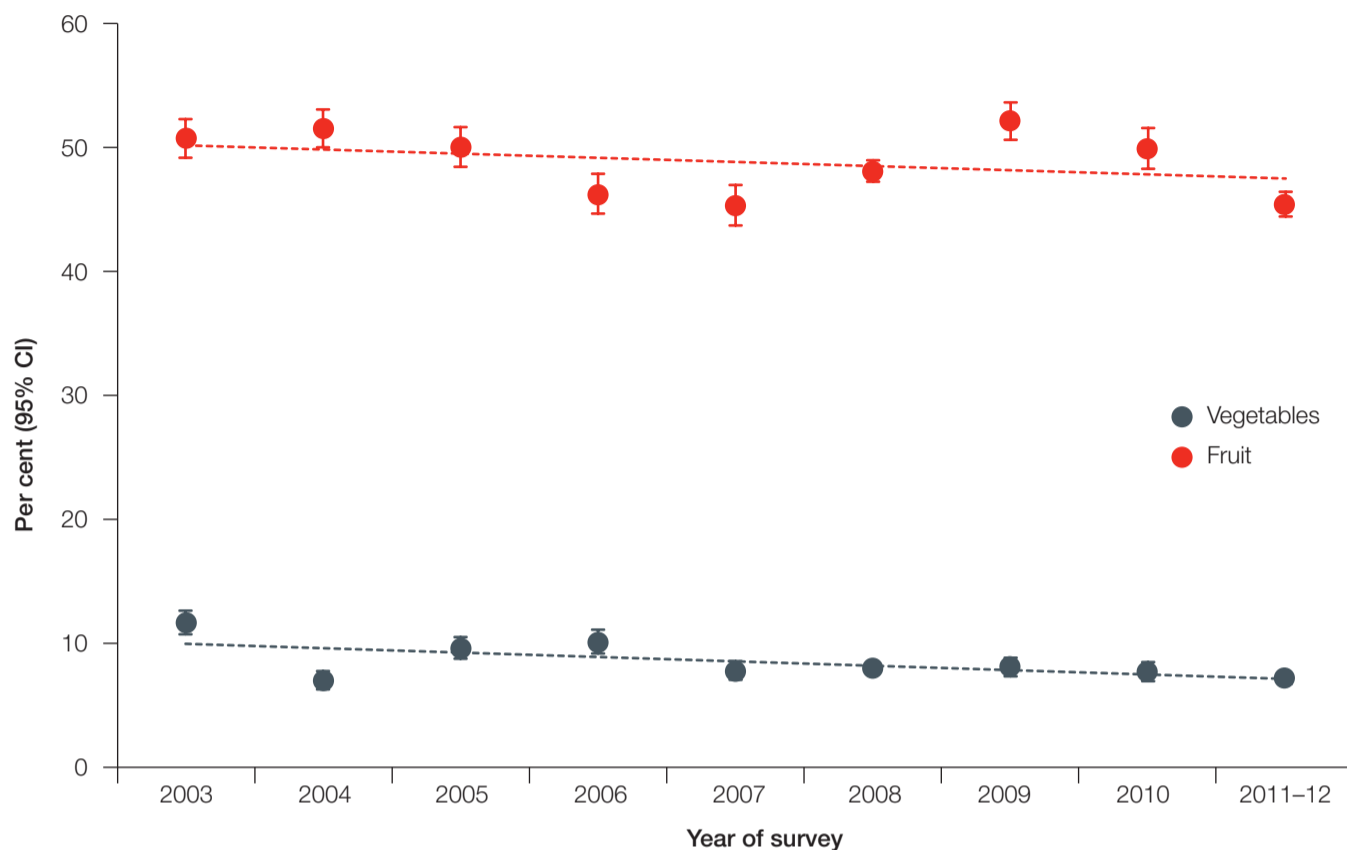
a. Based on national guidelines (NHMRC 2003a).

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,^{a,b} 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,^a by Department of Health region and sex, Victoria, 2011–12

Region	Both guidelines			Vegetable guidelines ^b			Fruit guidelines ^b			Neither		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Males												
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
Metropolitan males	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
Rural males	2.8	2.3	3.5	4.7	3.9	5.5	37.3	34.6	40.2	59.7	56.8	62.5
Total	3.2	2.7	3.7	4.5	3.9	5.1	40.0	38.5	41.6	56.9	55.3	58.4
Females												
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
Metropolitan females	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
Rural females	7.6	6.9	8.5	11.2	10.3	12.2	48.9	46.8	51.1	46.5	44.4	48.6
Total	7.0	6.5	7.5	9.7	9.1	10.3	50.5	49.2	51.8	45.5	44.2	46.8
Persons												
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
Metropolitan persons	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
Rural persons	5.3	4.8	5.8	8.0	7.4	8.6	43.2	41.4	45.1	53.0	51.1	54.9
Total	5.1	4.8	5.5	7.2	6.8	7.6	45.4	44.4	46.4	51.0	50.0	52.0

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,^a by LGA, Victoria, 2011–12

LGA	Both guidelines			Vegetable guidelines ^b			Fruit guidelines ^b			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,^a by LGA, Victoria, 2011–12 (continued)

LGA	Both guidelines			Vegetable guidelines ^b			Fruit guidelines ^b			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
Victoria	5.2	4.8	5.6	7.2	6.8	7.7	45.3	44.4	46.3	51.1	50.1	52.1

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.

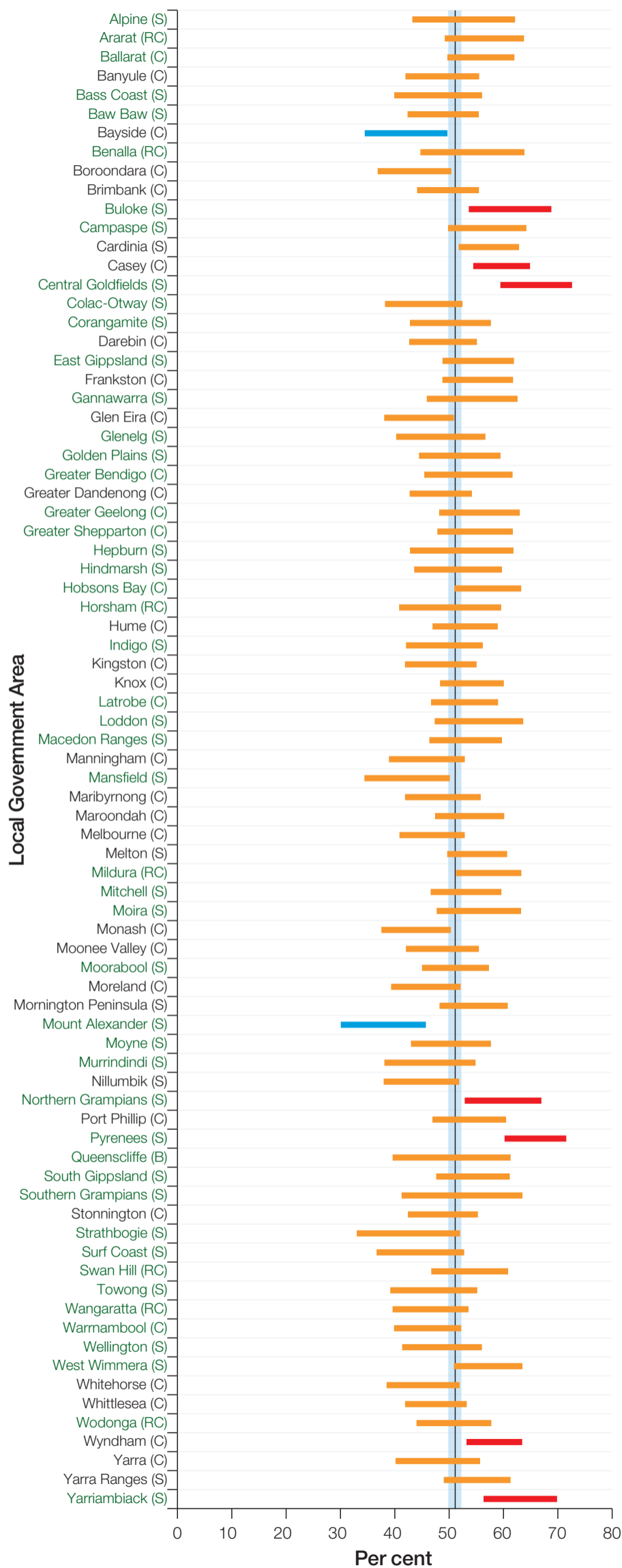
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

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,^{a,b} 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.

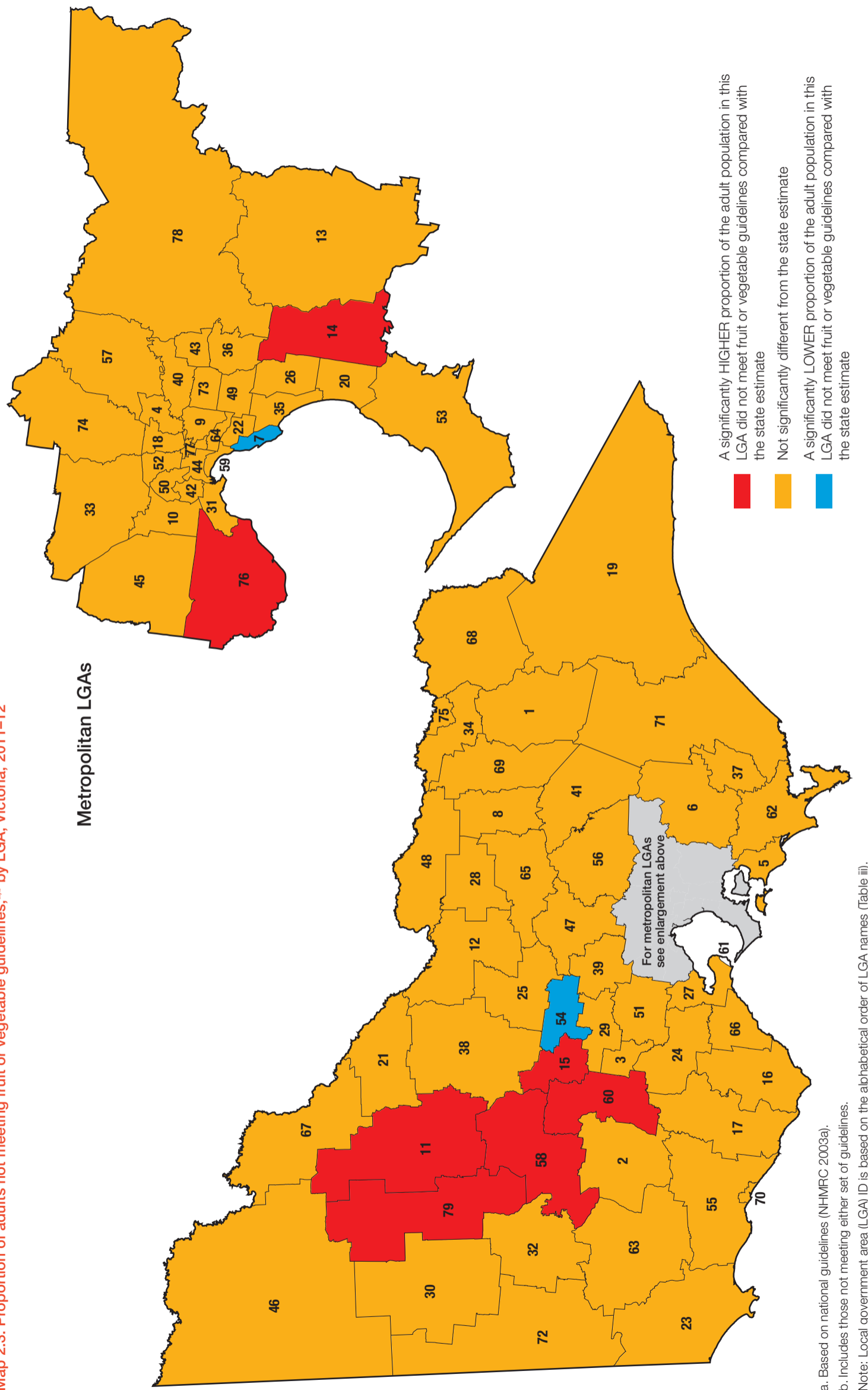
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

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,^{a,b} 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,^a by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12

	Both guidelines			Vegetable guidelines ^b			Fruit guidelines ^b			Neither guideline		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Males	3.2	2.7	3.7	4.5	3.9	5.1	40.0	38.5	41.6	56.9	55.3	58.4
<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 < 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^c</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^d</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^e</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^f</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,^a by selected socioeconomic determinants, modifiable risk factors and health status, Victoria, 2011–12 (continued)

	Both guidelines			Vegetable guidelines ^b			Fruit guidelines ^b			Neither guideline		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Females	7.0	6.5	7.5	9.7	9.1	10.3	50.5	49.2	51.8	45.5	44.2	46.8
<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	5.3	4.3	6.4	8.6	7.4	9.9	40.9	38.4	43.6	54.3	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	9.0	8.0	10.0	11.8	10.8	13.0	55.5	53.5	57.6	40.6	38.6	42.6
<i>Employment status (age < 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	42.2	35.9	48.8	54.4	47.9	60.8
Not in labour force	5.7	4.7	6.9	8.0	6.8	9.4	46.0	43.2	48.7	49.7	47.0	52.5
<i>Total annual household income</i>												
< \$40,000	5.0	3.9	6.3	7.2	6.0	8.6	45.4	42.3	48.6	51.3	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	11.0	8.9	13.5	14.2	11.9	16.9	58.4	55.2	61.5	38.2	35.2	41.2
<i>Psychological distress^c</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)	4.4	3.1	6.3	7.0	5.4	9.0	44.3	40.4	48.2	51.3	47.4	55.2
Very high (≥ 30)	5.4*	3.1	9.1	8.5	5.7	12.6	41.8	35.6	48.3	54.4	47.9	60.8
<i>Physical activity^d</i>												
Sedentary	2.1	1.4	3.0	3.6	2.6	5.0	38.4	33.1	44.0	53.8	48.3	59.2
Insufficient time and sessions	3.9	3.2	4.6	6.5	5.7	7.5	43.9	41.5	46.3	52.4	50.0	54.9
Sufficient time and sessions	8.9	8.2	9.7	11.7	10.9	12.6	55.0	53.4	56.5	41.5	40.0	43.1
<i>Long-term risk of alcohol-related harm^e</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	32.0	26.9	37.5	60.4	54.9	65.7
<i>Smoking status</i>												
Current smoker	3.5	2.6	4.7	6.3	5.1	7.7	35.2	32.0	38.6	60.7	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	8.9	8.1	9.8	11.9	11.0	12.9	56.4	54.5	58.2	39.9	38.1	41.7
Good	5.8	5.0	6.7	8.4	7.6	9.4	46.9	44.9	48.9	49.1	47.1	51.2
Fair / poor	3.8	2.9	5.0	6.3	5.0	7.9	40.1	36.7	43.7	54.9	51.3	58.5
<i>Body weight status^f</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.

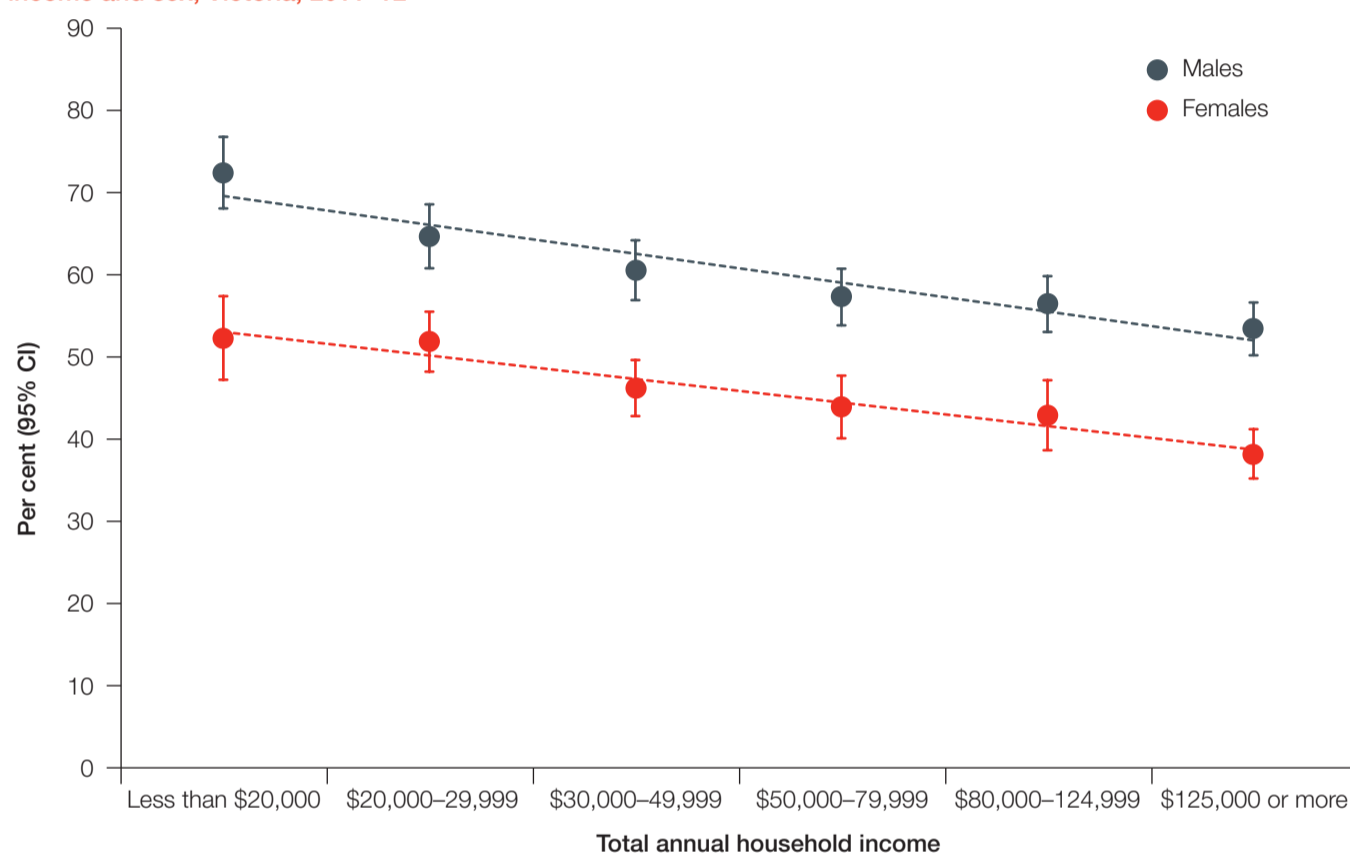
* Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

** 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,^{a,b} 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,^a by survey

Age (years)	Met fruit guideline (%)				Met vegetable guideline (%)			
	Males		Females		Males		Females	
	NHS ^b	VPHS ^c	NHS ^b	VPHS ^c	NHS ^b	VPHS ^c	NHS ^b	VPHS ^c
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
Total	42.4	40.0	49.7	50.5	7.4	4.5	9.3	9.7

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	
Males																					
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
Total	28.6	27.1	30.1	18.3	17.1	19.6	16.5	15.3	17.7	5.7	5.0	6.5	6.1	5.5	6.8	5.8	5.2	6.5	18.8	17.8	19.8
Females																					
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
Total	16.7	15.8	17.7	13.5	12.6	14.5	14.6	13.7	15.6	5.7	5.1	6.3	9.6	8.8	10.4	9.4	8.7	10.1	30.3	29.3	31.3
Persons																					
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
Total	22.6	21.7	23.5	15.8	15.1	16.7	15.5	14.8	16.3	5.7	5.2	6.2	7.8	7.4	8.4	7.6	7.2	8.1	24.7	24.0	25.4

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
Males												
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
Total	20.9	19.5	22.4	14.8	13.6	16.1	13.1	12.0	14.3	4.9	4.2	5.8
Females												
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
Total	10.2	9.3	11.2	9.1	8.2	10.1	10.8	9.9	11.8	4.4	3.8	5.0
Persons												
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
Total	15.8	14.9	16.7	12.0	11.2	12.8	12.0	11.2	12.7	4.6	4.2	5.2

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
Males												
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
Metropolitan males	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
Rural males	25.2	22.3	28.3	15.4	13.5	17.5	11.8	10.2	13.6	3.6	3.0	4.5
Total	20.9	19.5	22.4	14.8	13.6	16.1	13.1	12.0	14.3	4.9	4.2	5.8
Females												
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
Metropolitan females	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
Rural females	11.6	10.3	13.2	9.9	8.3	11.9	10.7	9.4	12.2	4.4	3.7	5.3
Total	10.2	9.3	11.2	9.1	8.2	10.1	10.8	9.9	11.8	4.4	3.8	5.0
Persons												
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
Metropolitan persons	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
Rural persons	18.8	17.0	20.8	12.7	11.4	14.1	11.2	10.1	12.4	4.0	3.5	4.6
Total	15.8	14.9	16.7	12.0	11.2	12.8	12.0	11.2	12.7	4.6	4.2	5.2

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

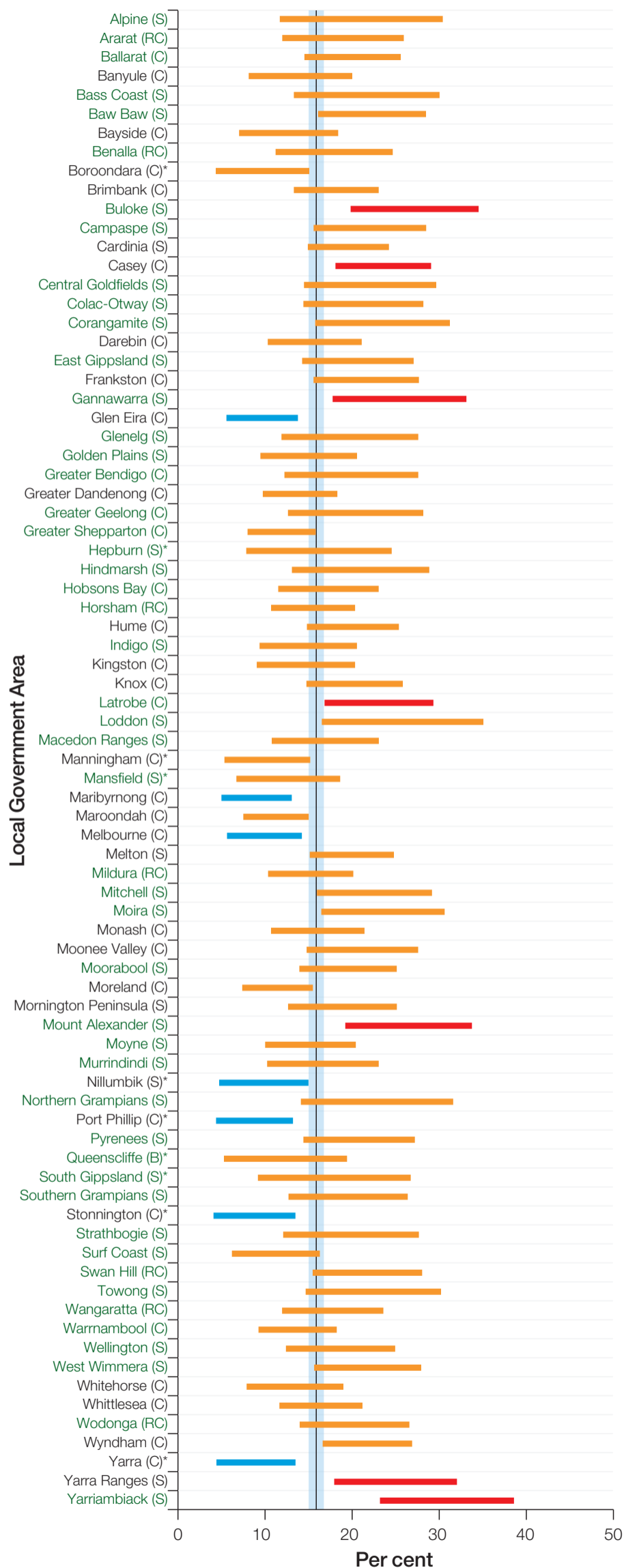
LGA	%	Daily 95% CI		LGA	%	Daily 95% CI	
		LL	UL			LL	UL
Alpine (S)	19.4	11.7	30.4	Mansfield (S)	11.4*	6.7	18.6
Ararat (RC)	17.9	12.0	25.9	Maribyrnong (C)	8.2	5.0	13.1
Ballarat (C)	19.5	14.5	25.6	Maroondah (C)	10.7	7.5	15.0
Banyule (C)	12.9	8.1	20.0	Melbourne (C)	9.1	5.6	14.2
Bass Coast (S)	20.4	13.3	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	Victoria	15.9	15.0	16.8

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.

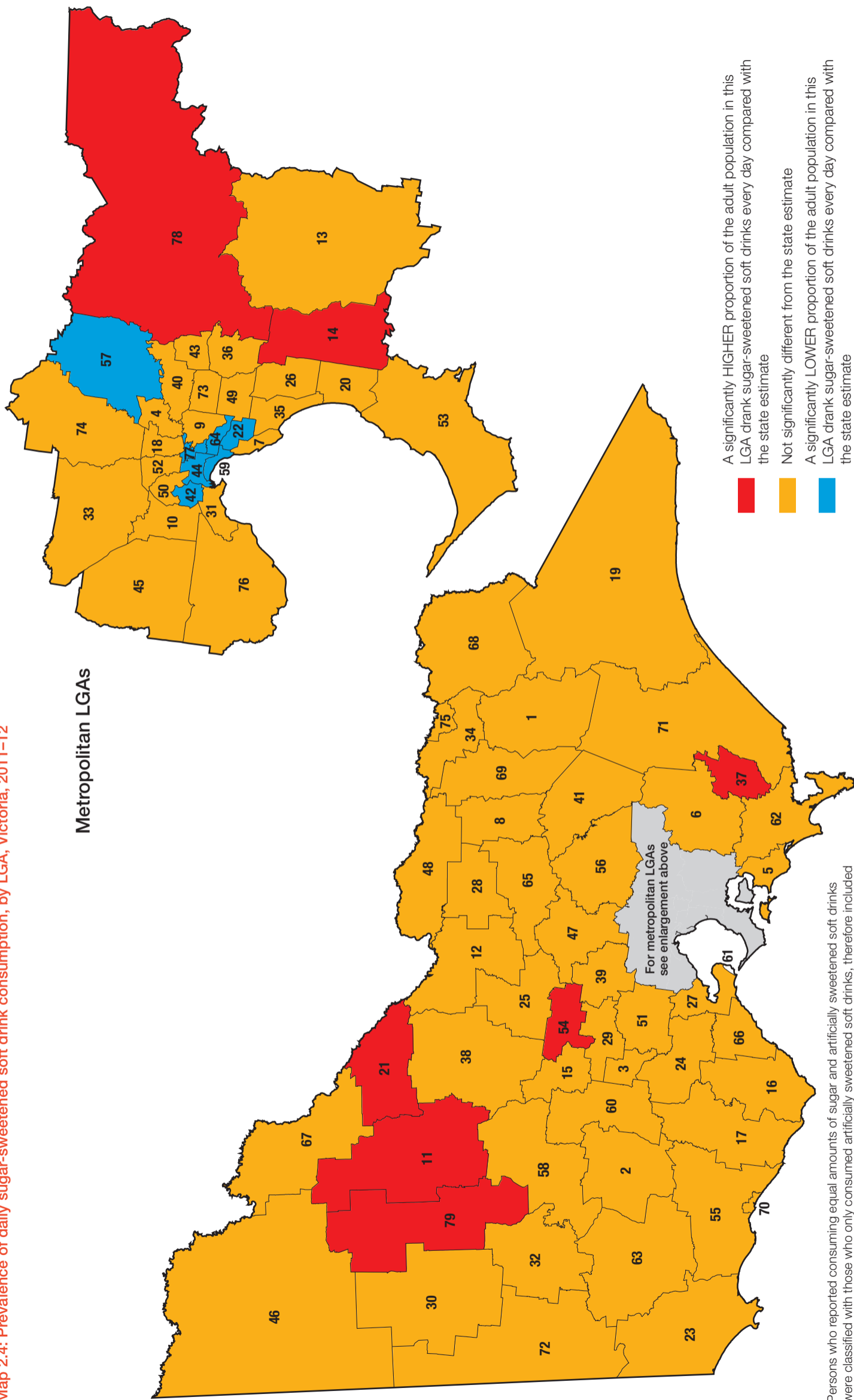
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

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
Total	20.9	19.6	22.4	10.4	9.5	11.5
<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	29.8	26.8	33.1	15.2	12.6	18.2
Secondary	22.5	20.3	25.0	10.9	9.5	12.6
Tertiary	13.5	11.5	15.7	6.8	5.6	8.2
<i>Employment status (age < 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	14.1	11.5	17.3
\$40,000 to < \$100,000	24.2	21.8	26.9	11.3	9.6	13.2
≥ \$100,000	15.7	13.4	18.3	7.3	5.5	9.6
<i>Psychological distress ^c</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)	40.9	32.4	49.9	21.8	16.1	28.7
<i>Physical activity ^d</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 ^d</i>							
Both guidelines	16.0	10.5	23.5	3.5	2.3	5.3	
Vegetable guidelines ^e	18.1	13.2	24.3	5.5	3.7	8.0	
Fruit guidelines ^e	15.5	13.5	17.7	7.0	5.8	8.3	
Neither	24.5	22.7	26.5	13.5	12.1	15.0	
<i>Long-term risk of alcohol-related harm ^e</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	31.2	27.9	34.7	18.7	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	7.9	6.8	9.2	
Good	21.8	19.6	24.2	11.3	9.8	13.0	
Fair / poor	26.8	22.9	31.2	17.1	13.9	20.9	
<i>Body weight status ^f</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	14.6	11.6	18.1	
<i>Diabetes (excluding GDM)</i>							
No diabetes	21.7	20.3	23.1	10.7	9.7	11.7	
Diabetes	4.1	2.6	6.4	2.7*	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.

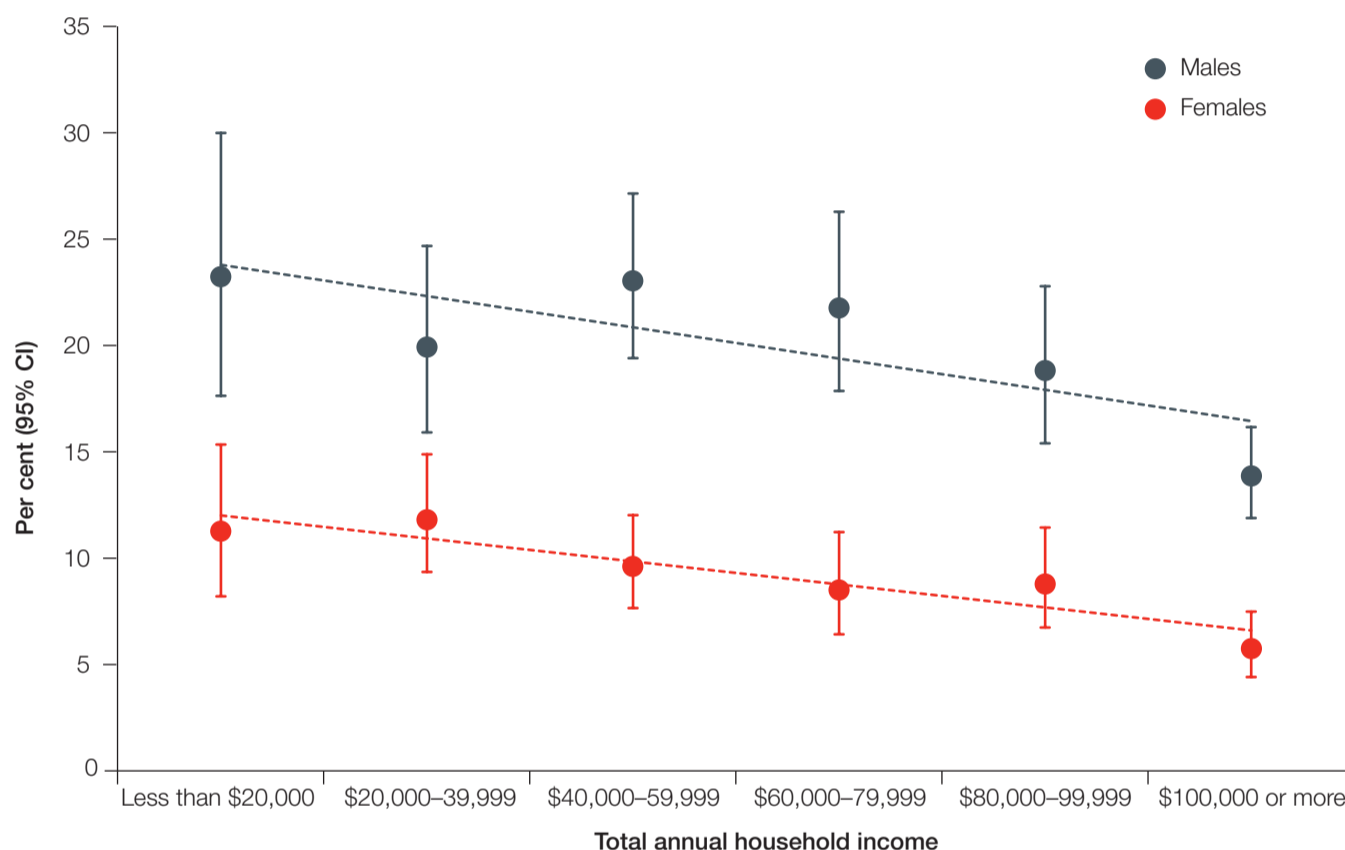
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

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
Total	642	604	680	492	460	524	596	568	624

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
Metropolitan	622	578	666	464	426	503	573	541	606
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
Rural	706	626	787	564	515	614	649	595	704
Total	642	604	680	492	460	524	596	568	624

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
Victoria	595	567	624

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
Total	1.32	1.28	1.35	1.18	1.16	1.20	1.25	1.23	1.27

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	Males 95% CI		Mean	Females 95% CI		Mean	Persons 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
Metropolitan	622	578	666	464	426	503	573	541	606
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
Rural	706	626	787	564	515	614	649	595	704
Total	642	604	680	492	460	524	596	568	624

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	Victoria	1.25	1.23	1.27

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

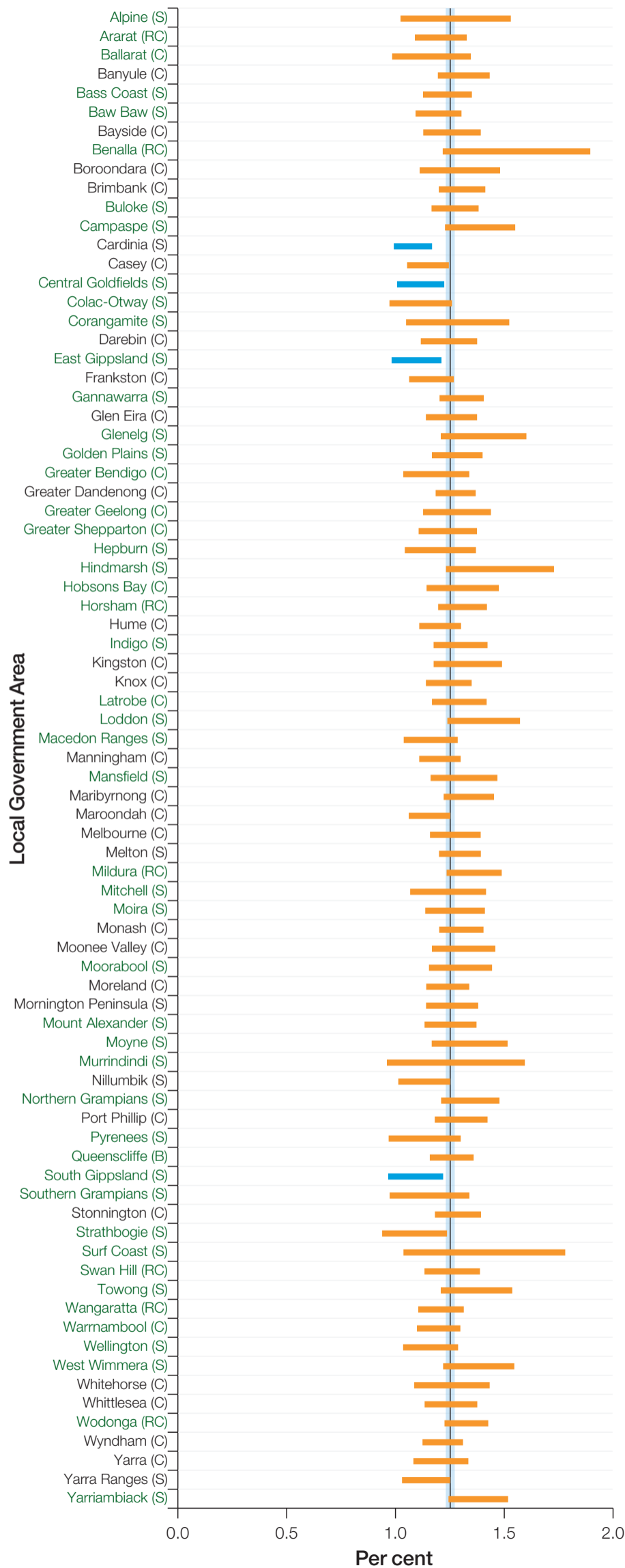
Metropolitan and rural regions are identified by colour as follows: metropolitan/rural.

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 & Ritchis 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
Males												
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
Total	5.4	4.8	6.2	26.1	24.8	27.4	5.3	4.7	6.0	59.5	58.0	61.0
Females												
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
Total	5.6	5.1	6.2	24.2	23.2	25.3	4.8	4.3	5.3	61.6	60.4	62.7
Persons												
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
Total	5.5	5.1	6.0	25.1	24.3	26.0	5.1	4.7	5.5	60.5	59.5	61.5

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
Males												
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
Metropolitan males	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
Rural males	5.1	3.8	6.8	23.2	20.5	26.2	6.1	5.1	7.2	61.4	58.3	64.3
Total	5.4	4.8	6.2	26.1	24.8	27.4	5.3	4.7	6.0	59.5	58.0	61.0
Females												
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
Metropolitan females	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
Rural females	4.8	4.3	5.5	21.4	19.9	23.0	4.7	4.1	5.4	65.1	63.3	66.9
Total	5.6	5.1	6.2	24.2	23.2	25.3	4.8	4.3	5.3	61.6	60.4	62.7
Persons												
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
Metropolitan persons	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
Rural persons	5.0	4.2	5.9	22.4	20.8	24.1	5.3	4.8	6.0	63.2	61.3	65.1
Total	5.5	5.1	6.0	25.1	24.3	26.0	5.1	4.7	5.5	60.5	59.5	61.5

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
Victoria	5.5	5.1	5.9	25.0	24.1	25.8	5.0	4.6	5.4	60.8	59.8	61.7

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.

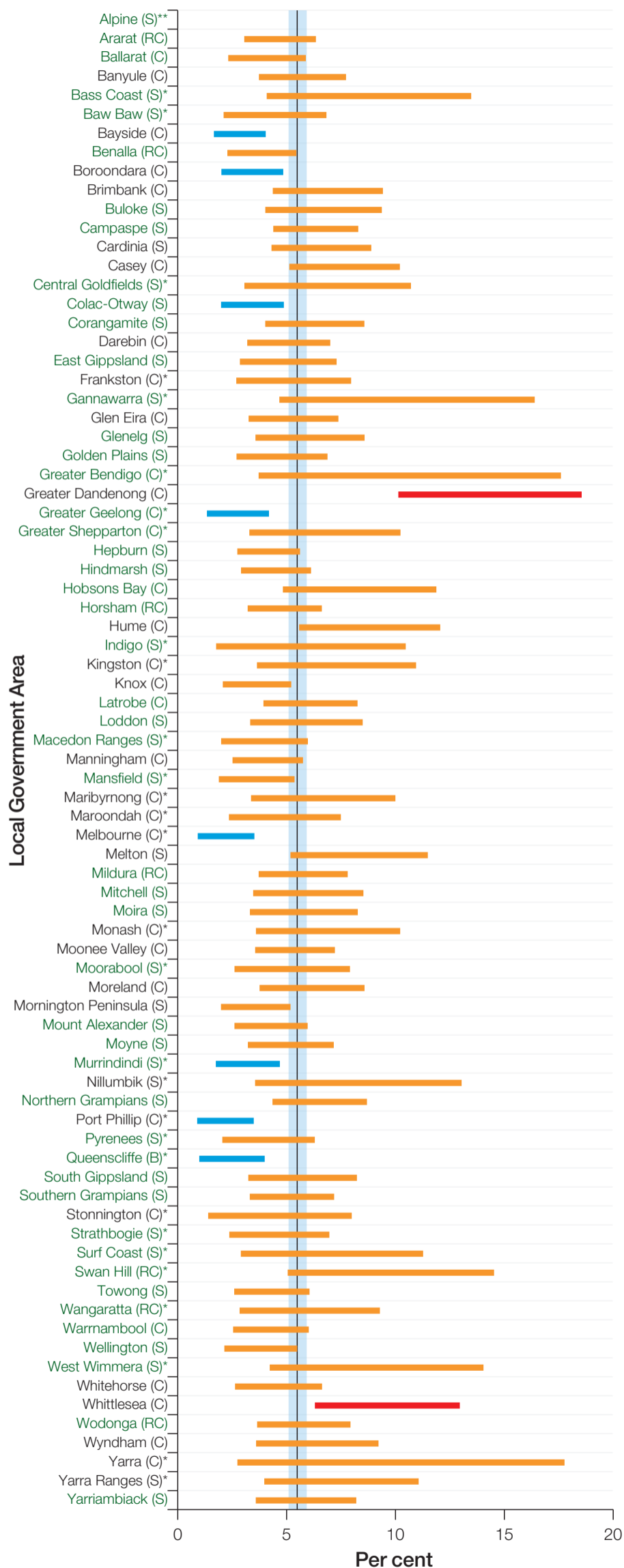
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City. Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

* 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.

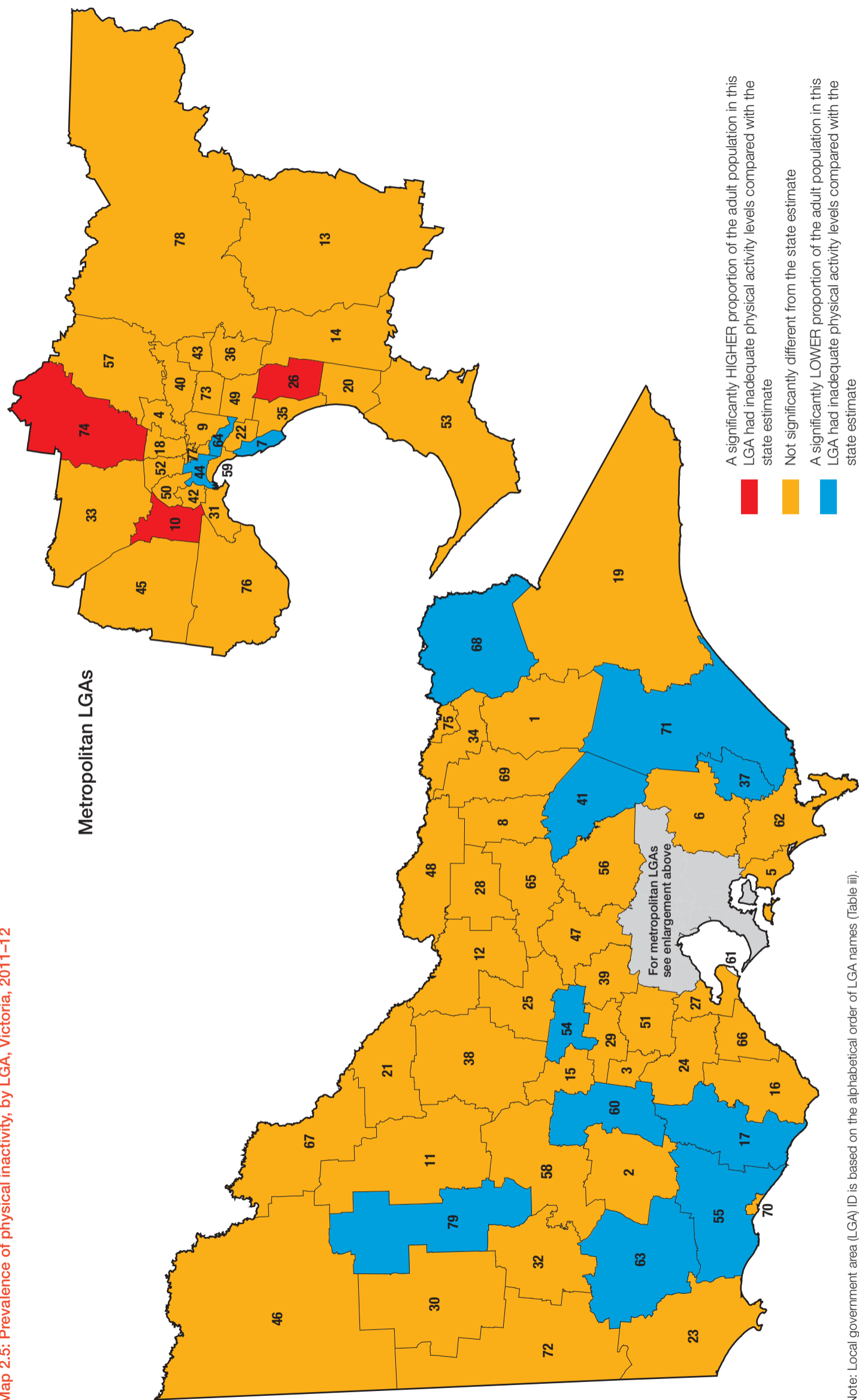
95% CI = 95 per cent confidence interval; LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

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
Males									
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
Total	5.4	4.8	6.2	25.2	23.9	26.6	65.9	64.4	67.3
Females									
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
Total	5.6	5.1	6.2	28.2	27.1	29.4	61.7	60.5	62.9
Persons									
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
Total	5.5	5.1	6.0	26.7	25.9	27.6	63.7	62.8	64.7

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

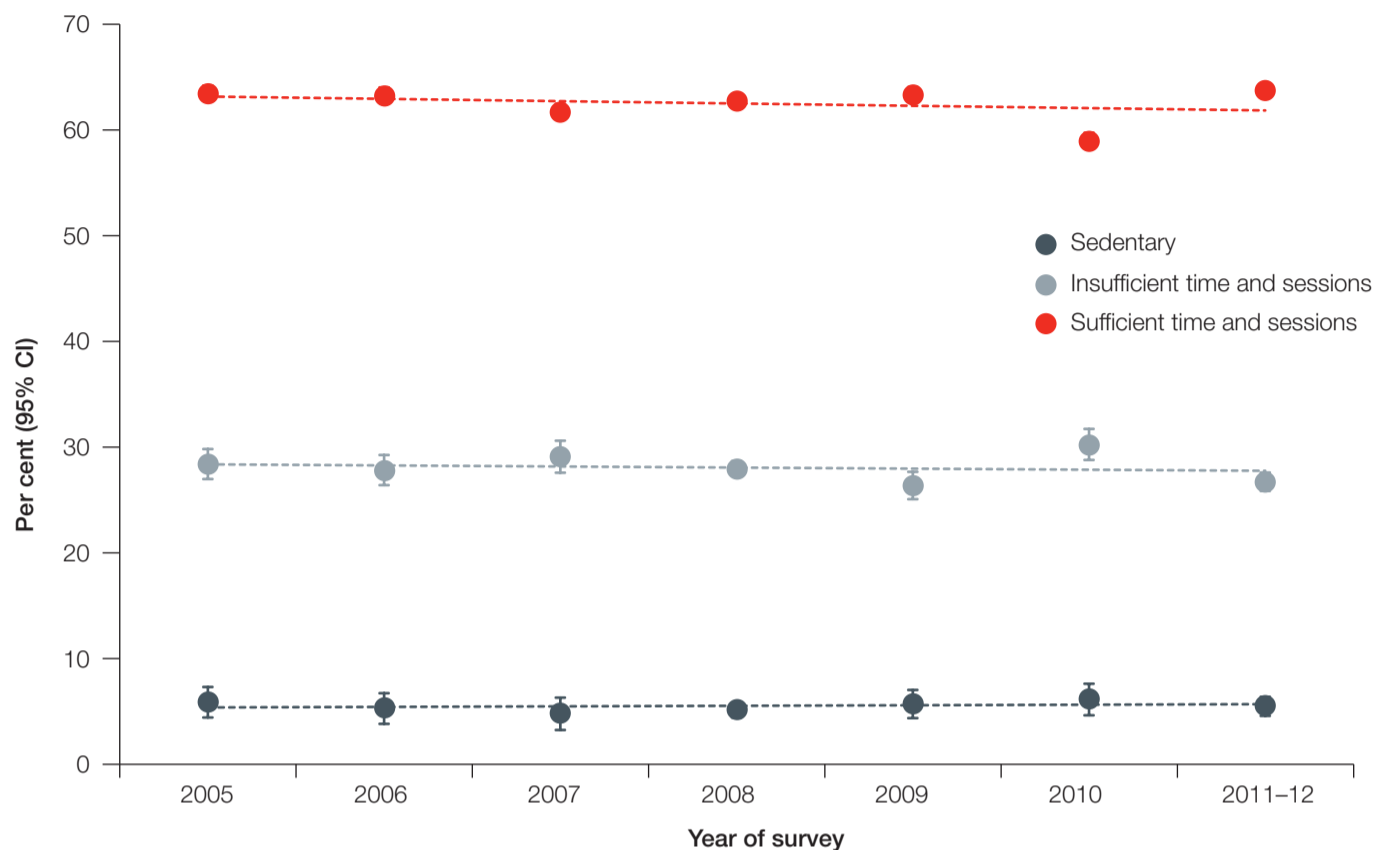
	2005			2006			2007			2008			2009			2010			2011–12		
	95% CI			95% CI			95% CI			95% CI			95% CI			95% CI			95% CI		
	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL	%	LL	UL
Males																					
Sedentary	6.6	5.6	7.9	4.9	4.0	6.1	4.8	3.9	5.8	5.1	4.6	5.6	5.9	4.9	7.0	6.2	5.2	7.3	5.4	4.8	6.2
Insufficient 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
Females																					
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
Persons																					
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
Males									
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
Metropolitan males	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
Rural males	5.1	3.8	6.8	24.3	21.6	27.3	66.8	63.8	69.7
Total	5.4	4.8	6.2	25.2	23.9	26.6	65.9	64.4	67.3
Females									
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
Metropolitan females	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
Rural females	4.8	4.3	5.5	25.7	24.1	27.5	64.7	62.8	66.5
Total	5.6	5.1	6.2	28.2	27.1	29.4	61.7	60.5	62.9
Persons									
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
Metropolitan persons	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
Rural persons	5.0	4.2	5.9	25.2	23.5	27.0	65.6	63.7	67.4
Total	5.5	5.1	6.0	26.7	25.9	27.6	63.7	62.8	64.7

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
Victoria	5.5	5.1	5.9	26.6	25.7	27.5	63.9	63.0	64.9

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.

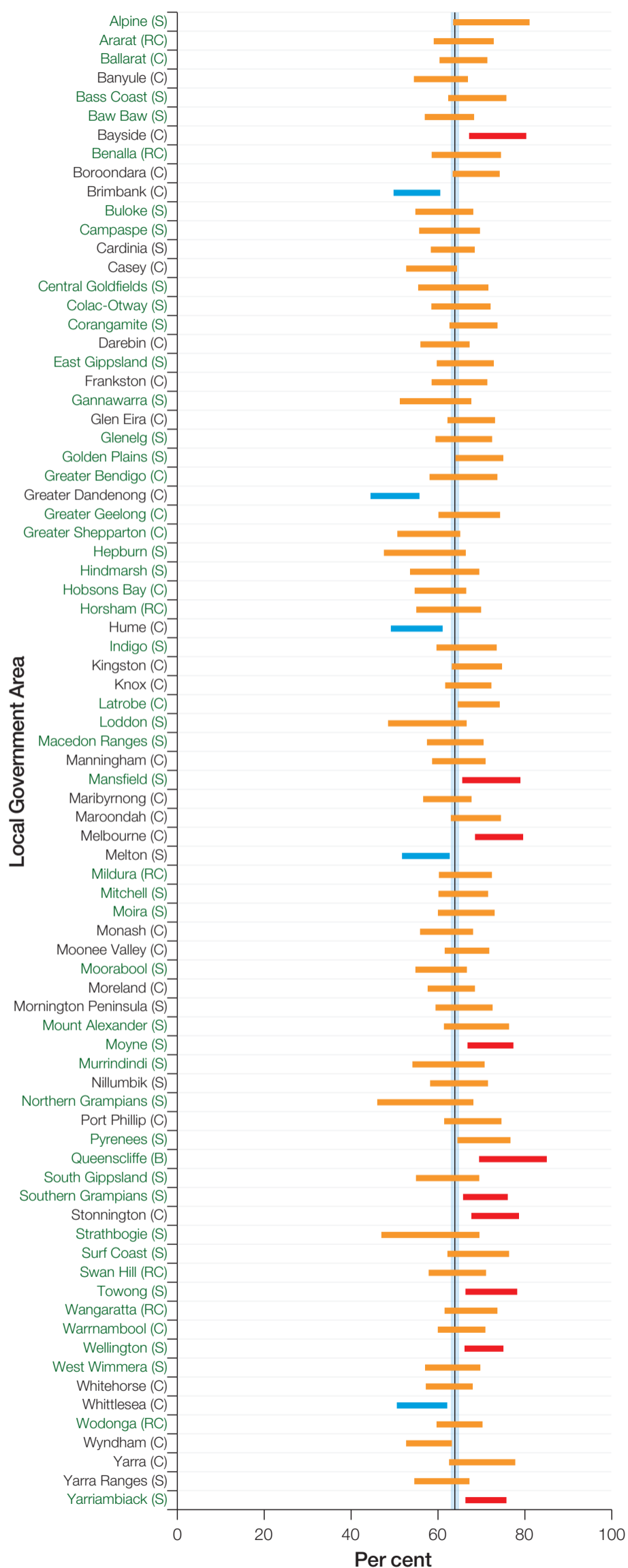
LGA= local government area; B = Borough; C = City; S = Shire; RC = Rural City.

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 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 ^a, 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
Males	5.4	4.8	6.2	25.2	23.9	26.6	65.9	64.4	67.3
<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 < 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 ^b</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 ^c</i>									
Both guidelines	2.5*	1.4	4.6	12.1	8.2	17.5	83.7	78.2	88.0
Vegetable guidelines ^d	3.3	2.1	5.3	12.9	9.5	17.4	81.9	77.2	85.8
Fruit guidelines ^d	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 ^e</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 ^f</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 ^a, 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
Females	5.6	5.1	6.2	28.2	27.1	29.4	61.7	60.5	62.9
<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	8.3	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	3.8	3.1	4.7	26.0	24.2	27.8	67.2	65.3	69.0
<i>Employment status (age < 65 years)</i>									
Employed	3.4	2.8	4.1	25.8	24.3	27.5	67.7	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	56.8	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	2.3	1.5	3.5	22.1	19.7	24.6	74.0	71.1	76.6
<i>Psychological distress ^b</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)	7.7	6.2	9.6	31.6	28.2	35.2	56.0	52.3	59.7
Very high (≥ 30)	10.8	7.8	14.9	31.0	25.6	37.0	51.6	45.5	57.6
<i>Met fruit / vegetable guidelines ^c</i>									
Both guidelines	2.4	1.7	3.3	15.6	12.8	18.8	78.6	75.1	81.7
Vegetable guidelines ^d	2.8	2.1	3.6	19.0	16.3	22.1	74.7	71.5	77.7
Fruit guidelines ^d	4.5	4.0	5.2	24.6	23.1	26.1	67.1	65.4	68.8
Neither	6.8	6.0	7.7	32.2	30.5	33.9	56.4	54.7	58.1
<i>Long-term risk of alcohol-related harm ^e</i>									
Abstainer	10.0	8.5	11.9	30.9	28.3	33.7	51.1	48.2	54.0
Low risk	4.1	3.6	4.6	27.9	26.7	29.1	64.8	63.4	66.1
Risky or high risk	9.5*	5.6	15.9	19.2	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	66.6	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	3.3	2.7	3.9	23.2	21.7	24.6	70.0	68.4	71.6
Good	5.5	4.8	6.4	31.8	30.0	33.7	57.7	55.8	59.7
Fair / poor	12.6	10.6	14.9	36.7	33.2	40.2	44.8	41.2	48.4
<i>Body weight status ^f</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	65.2	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	32.8	29.4	36.3	56.3	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

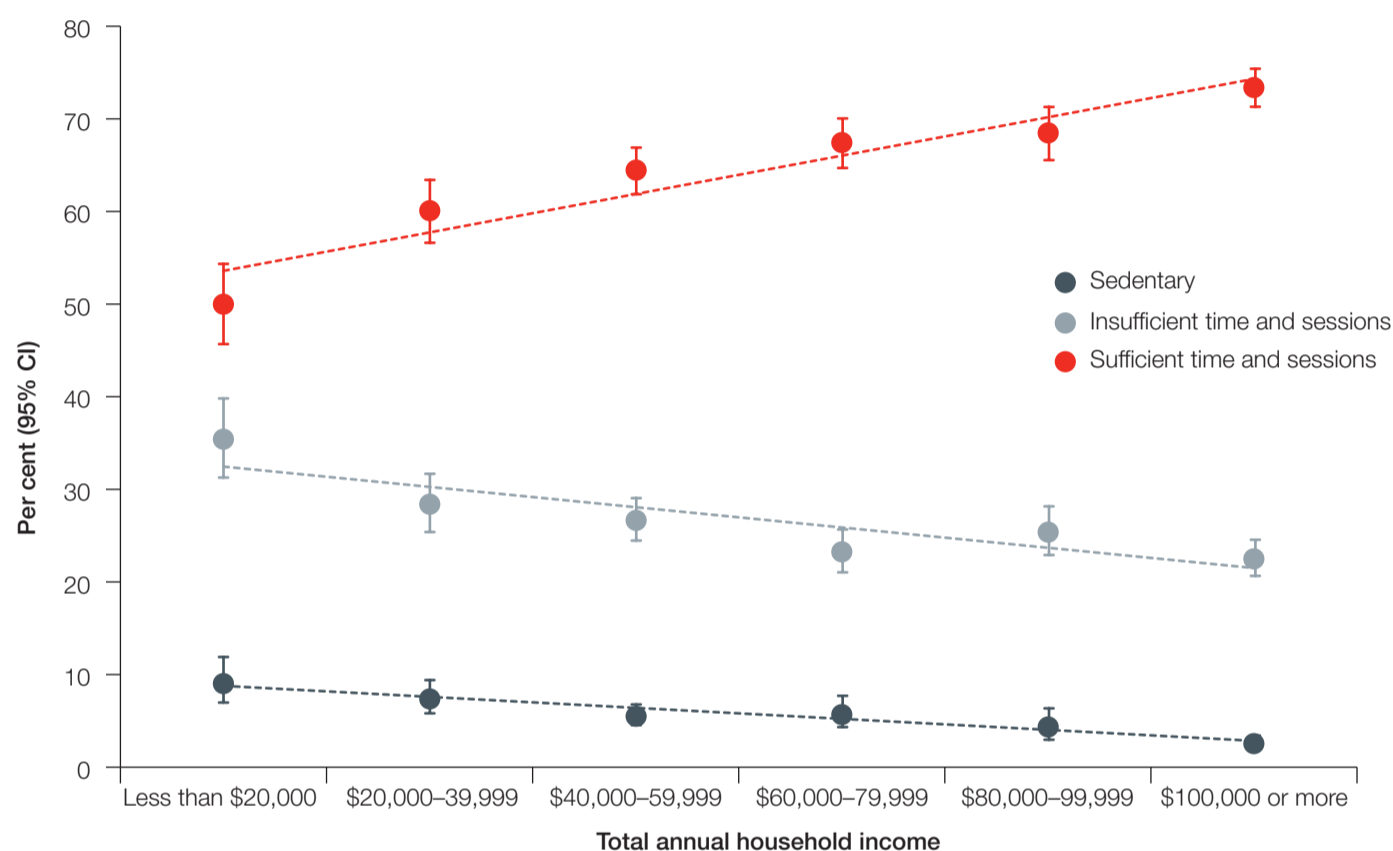
are identified by colour as follows: **above/below** Victoria.

*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,^a 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
Males												
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
Total	47.8	45.7	50.0	16.1	14.5	17.9	16.8	15.3	18.3	17.7	16.2	19.3
Females												
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
Total	47.7	45.8	49.7	21.6	20.1	23.1	23.5	21.8	25.3	5.7	4.9	6.6
Persons												
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
Total	48.1	46.5	49.8	18.9	17.6	20.3	19.0	17.8	20.2	12.5	11.5	13.5

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
Males												
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
Metropolitan males	53.5	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
Rural males	34.7	31.7	37.9	16.2	13.3	19.7	19.7	17.0	22.7	27.1	24.0	30.4
Total	47.8	45.7	50.0	16.1	14.5	17.9	16.8	15.3	18.3	17.7	16.2	19.3
Females												
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
Metropolitan females	53.3	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
Rural females	37.2	34.5	39.9	23.2	20.9	25.7	29.5	26.6	32.5	8.5	7.1	10.1
Total	47.7	45.8	49.7	21.6	20.1	23.1	23.5	21.8	25.3	5.7	4.9	6.6
Persons												
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
Metropolitan persons	53.5	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
Rural persons	36.0	33.6	38.3	19.7	17.5	22.1	23.4	21.2	25.7	19.0	17.0	21.3
Total	48.1	46.5	49.8	18.9	17.6	20.3	19.0	17.8	20.2	12.5	11.5	13.5

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
Victoria	48.1	46.5	49.7	18.5	17.3	19.7	19.3	18.1	20.7	12.5	11.5	13.7

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.

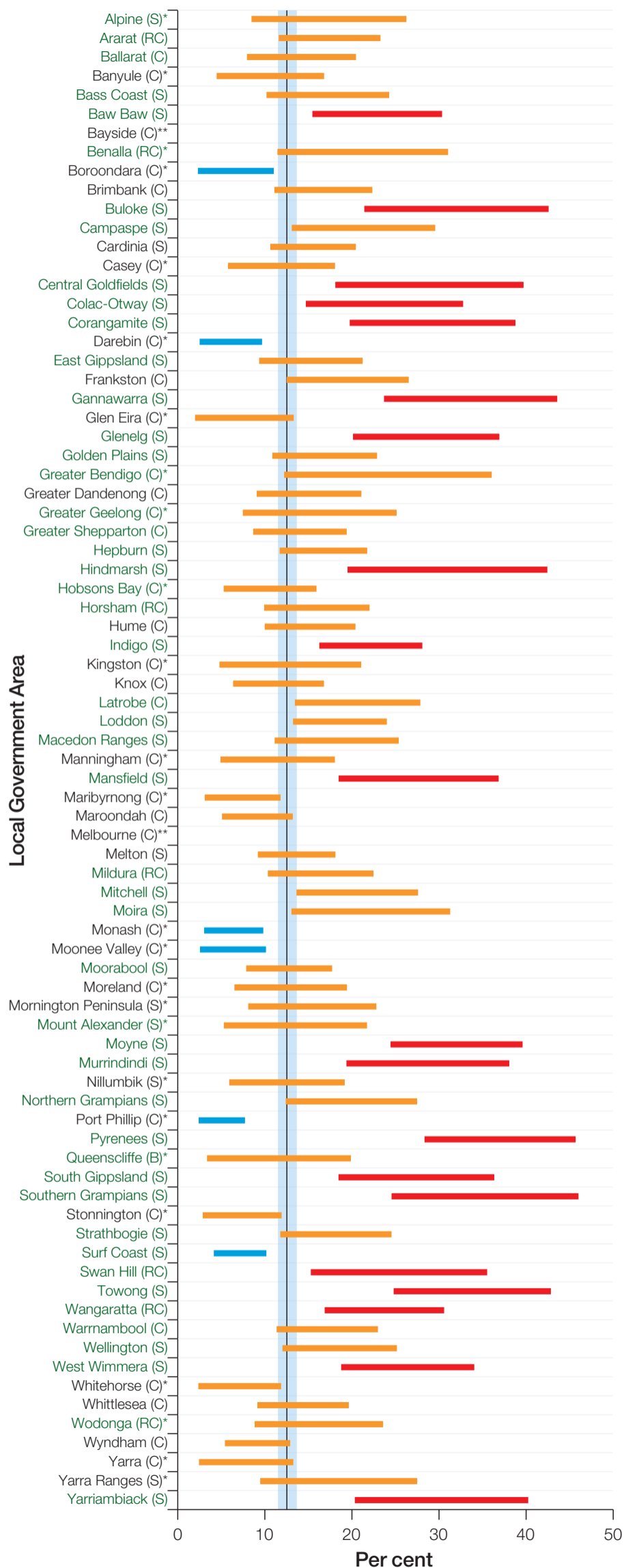
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

* 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.

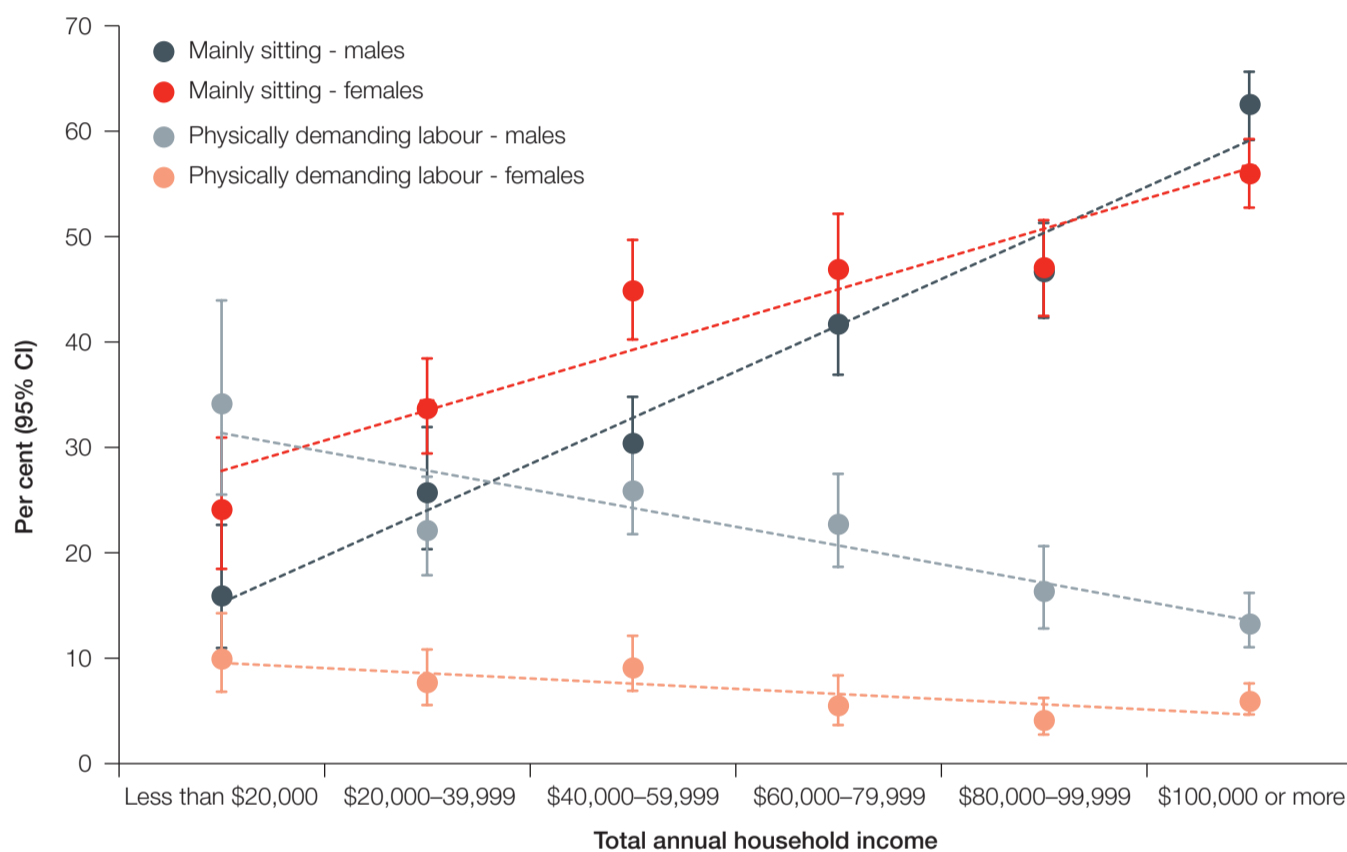
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: above/below Victoria.

* 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)

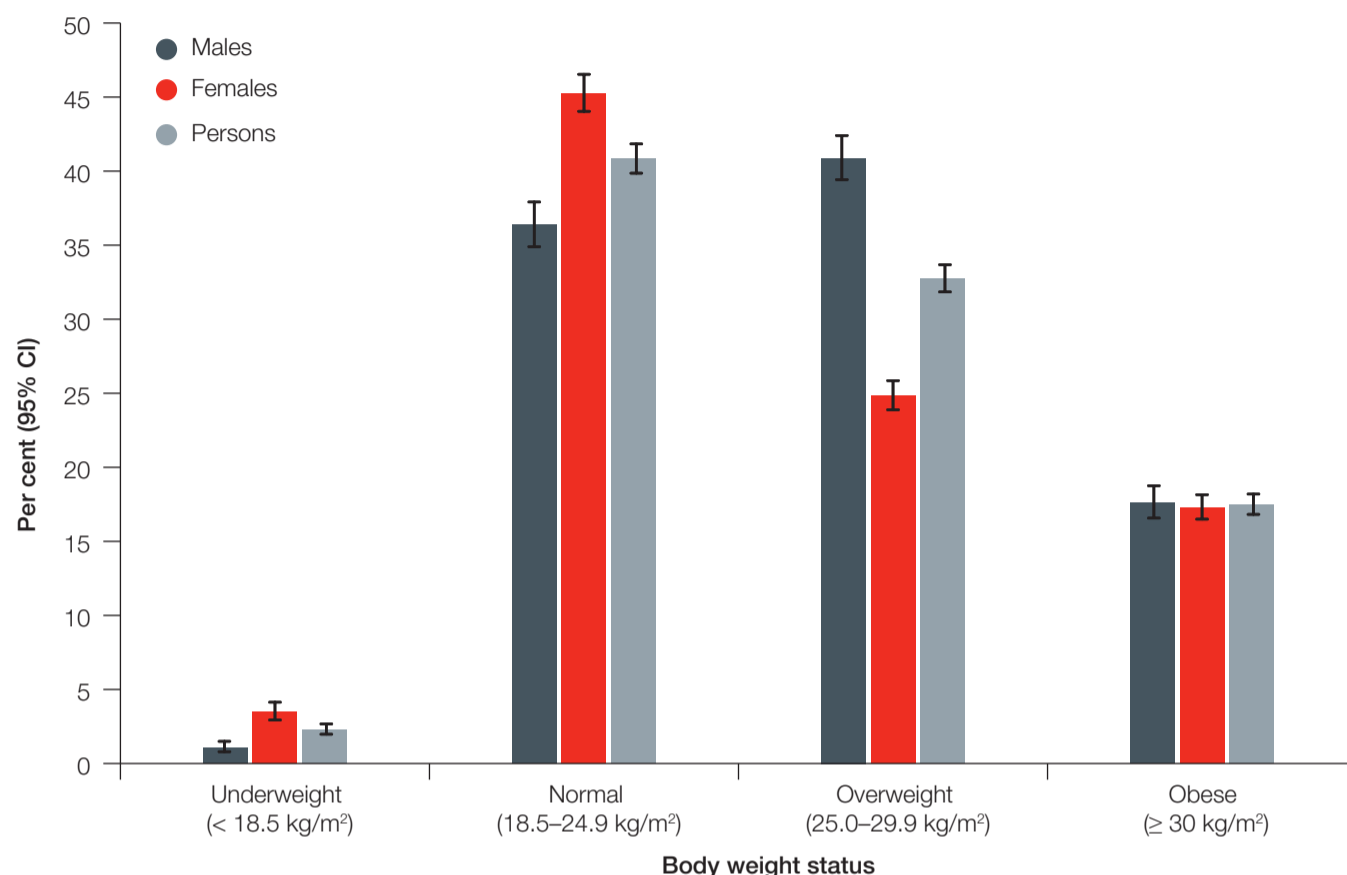
Survey respondents reported their height and weight and the formula described above was used to calculate their BMI. A respondent's weight status was categorized according to the WHO criteria.

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^a, by sex, 2011–12



a. Determined by calculation of body mass index (BMI) from self-reported height and weight.

BMI = weight (kg)/height squared (m²); 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^a, by age group and sex, Victoria, 2011–12

Age group (years)	Underweight (< 18.5 kg/m ²)			Normal (18.5–24.9 kg/m ²)			Overweight (25.0–29.9 kg/m ²)			Obese (≥ 30.0 kg/m ²)		
	%	95% CI		%	95% CI		%	95% CI		%	95% CI	
		LL	UL		LL	UL		LL	UL		LL	UL
Males												
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
Total	1.1	0.8	1.5	36.4	34.9	37.9	40.9	39.4	42.4	17.6	16.5	18.7
Females												
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
Total	3.5	2.9	4.1	45.2	44.0	46.5	24.8	23.9	25.8	17.3	16.5	18.1
Persons												
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
Total	2.3	2.0	2.7	40.8	39.8	41.8	32.7	31.8	33.6	17.5	16.8	18.2

a. Determined by calculation of body mass index (BMI) from self-reported height and weight.

BMI = weight (kg)/height squared (m²); 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^a 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
Males												
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
2011–12	1.1	0.8	1.5	36.4	34.9	37.9	40.9	39.4	42.4	17.6	16.5	18.7
Females												
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
2011–12	3.5	2.9	4.1	45.2	44.0	46.5	24.8	23.9	25.8	17.3	16.5	18.1
Persons												
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
2011–12	2.3	2.0	2.7	40.8	39.8	41.8	32.7	31.8	33.6	17.5	16.8	18.2

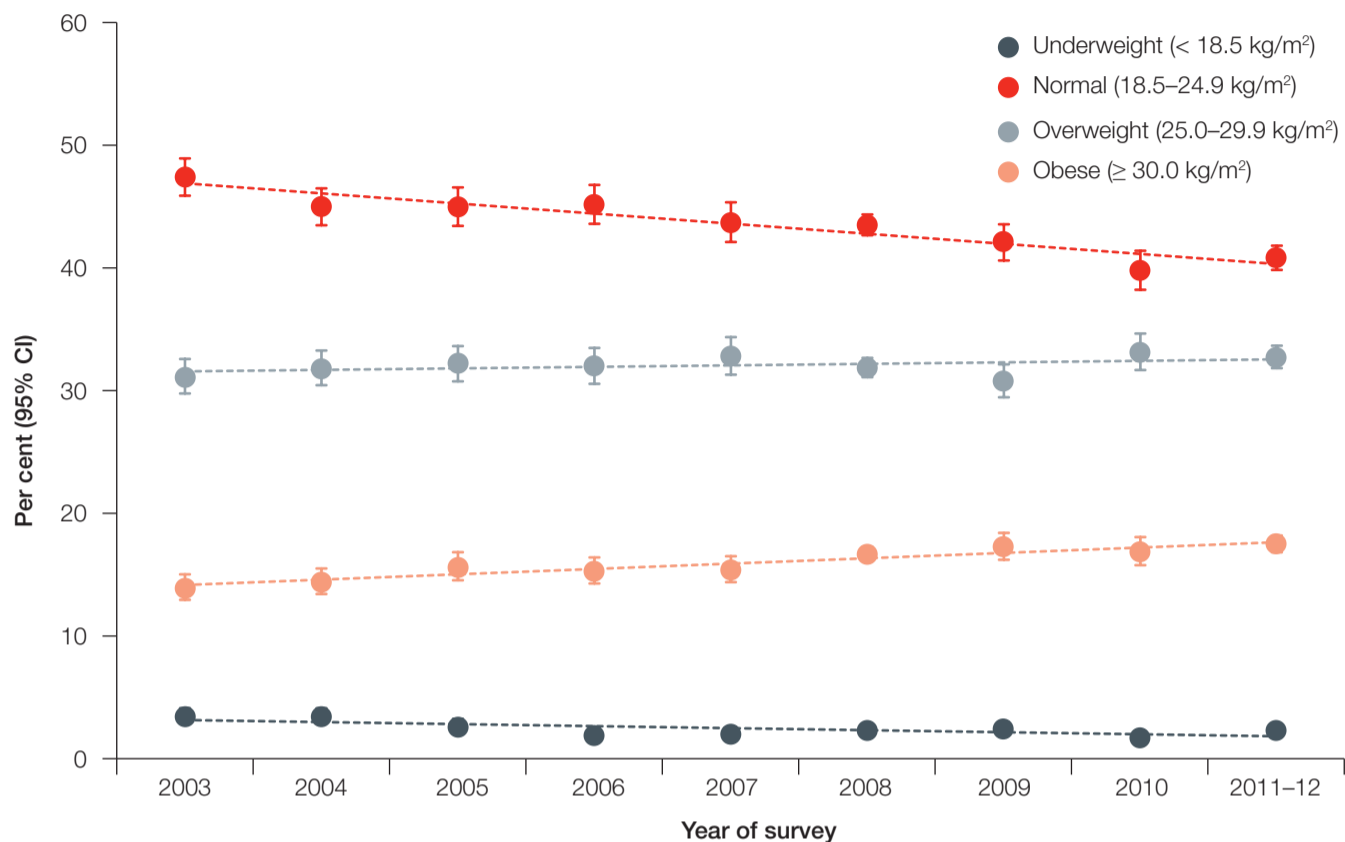
a. Determined by calculation of body mass index (BMI) from self-reported height and weight, BMI = weight (kg)/height squared (m²); LL/UL 95% CI = lower/upper limit of 95% confidence interval.

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^a 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,^a 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
Males												
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
Metropolitan males	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
Rural males	1.1*	0.5	2.2	31.8	29.1	34.7	41.6	38.7	44.5	20.6	18.4	23.0
Total	1.1	0.8	1.5	36.4	34.9	37.9	40.9	39.4	42.4	17.6	16.5	18.7
Females												
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
Metropolitan females	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
Rural females	3.0	2.1	4.2	38.1	36.0	40.2	27.3	25.7	28.9	20.7	19.1	22.5
Total	3.5	2.9	4.1	45.2	44.0	46.5	24.8	23.9	25.8	17.3	16.5	18.1
Persons												
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
Metropolitan persons	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
Rural persons	2.1	1.5	2.9	35.0	33.2	36.8	34.3	32.5	36.0	20.7	19.3	22.2
Total	2.3	2.0	2.7	40.8	39.8	41.8	32.7	31.8	33.6	17.5	16.8	18.2

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 (m²); 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^a, by LGA and sex, Victoria, 2011–12

LGA	Males					
	Overweight (25.0-29.9 kg/m ²)			Obese (≥ 30 kg/m ²)		
	%	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^a, by LGA and sex, Victoria, 2011–12 (continued)

LGA	Males					
	Overweight (25.0-29.9 kg/m ²)			Obese (≥ 30 kg/m ²)		
	%	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
Victoria	40.6	39.1	42.2	17.4	16.4	18.5

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 (m²); 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^a, by LGA and sex, Victoria, 2011–12

LGA	Females						
	Overweight (25.0-29.9 kg/m ²)			Obese (≥ 30 kg/m ²)			
	%	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^a, by LGA and sex, Victoria, 2011–12 (continued)

LGA	Females					
	Overweight (25.0-29.9 kg/m ²)			Obese (≥ 30 kg/m ²)		
	%	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
Victoria	24.6	23.7	25.6	17.2	16.4	18.0

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 (m²); 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^a, by LGA and sex, Victoria, 2011–12

LGA	Persons					
	Overweight (25.0-29.9 kg/m ²)			Obese (≥ 30 kg/m ²)		
	%	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^a, by LGA and sex, Victoria, 2011–12 (continued)

LGA	Persons						
	Overweight (25.0-29.9 kg/m ²)			Obese (≥ 30 kg/m ²)			
	%	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	
Nillumbik (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	
Strathbogie (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	
Victoria	32.5	31.6	33.4	17.3	16.7	18.0	

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 (m²); LL/UL 95% CI = lower/upper limit of 95% confidence interval.

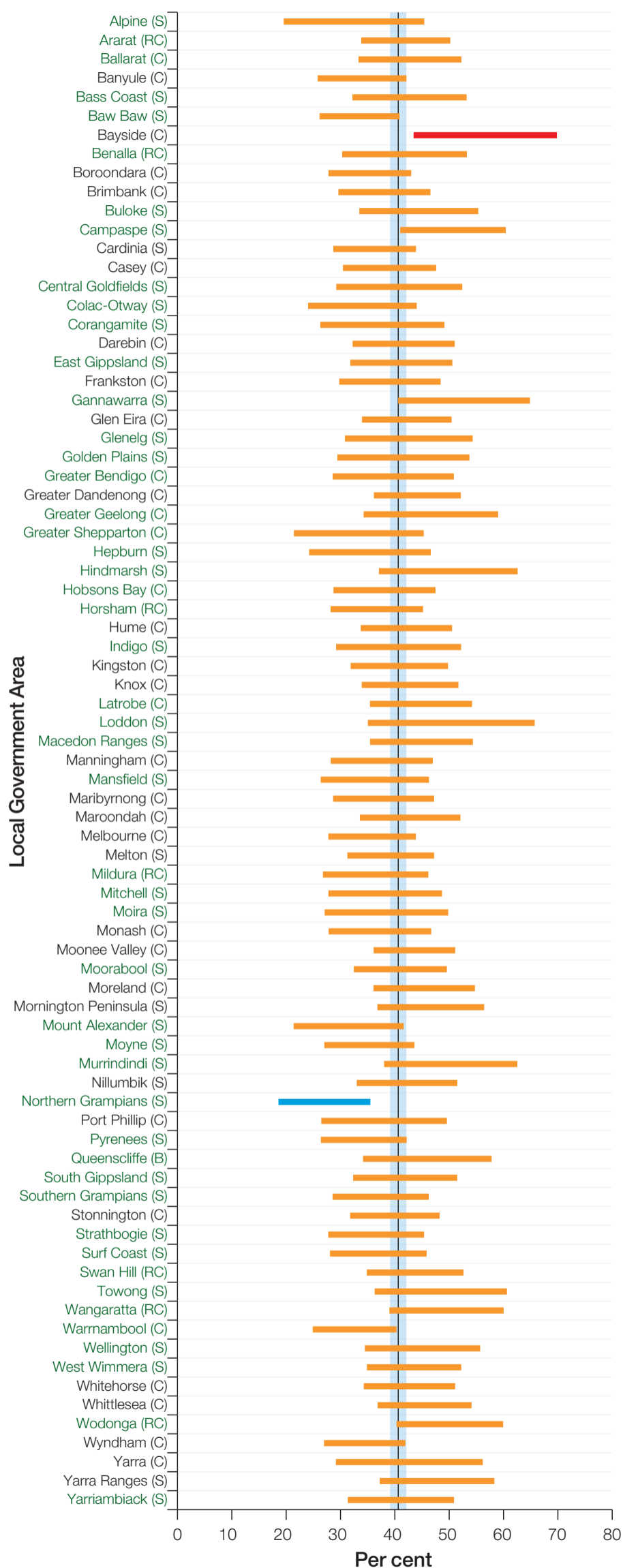
LGA = local government area; B = Borough; C = City; RC = Rural City; S = Shire.

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.

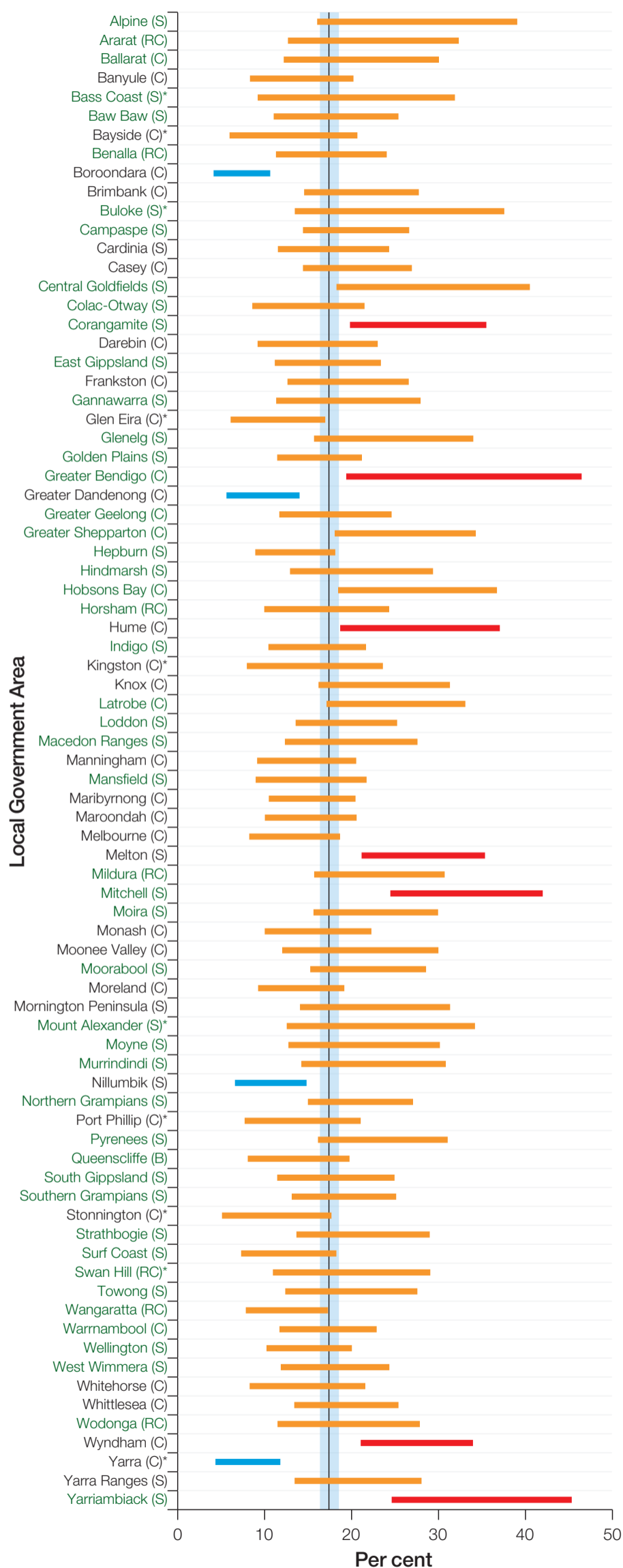
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

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.

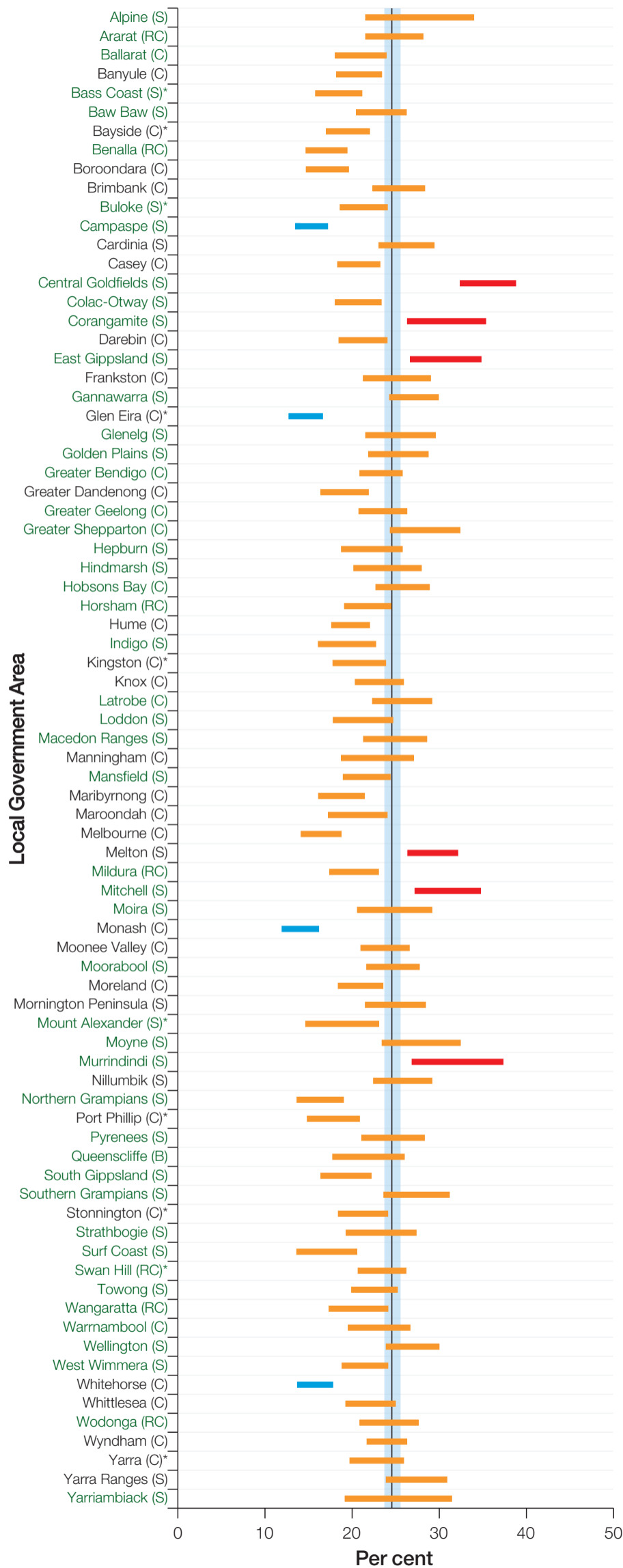
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

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.

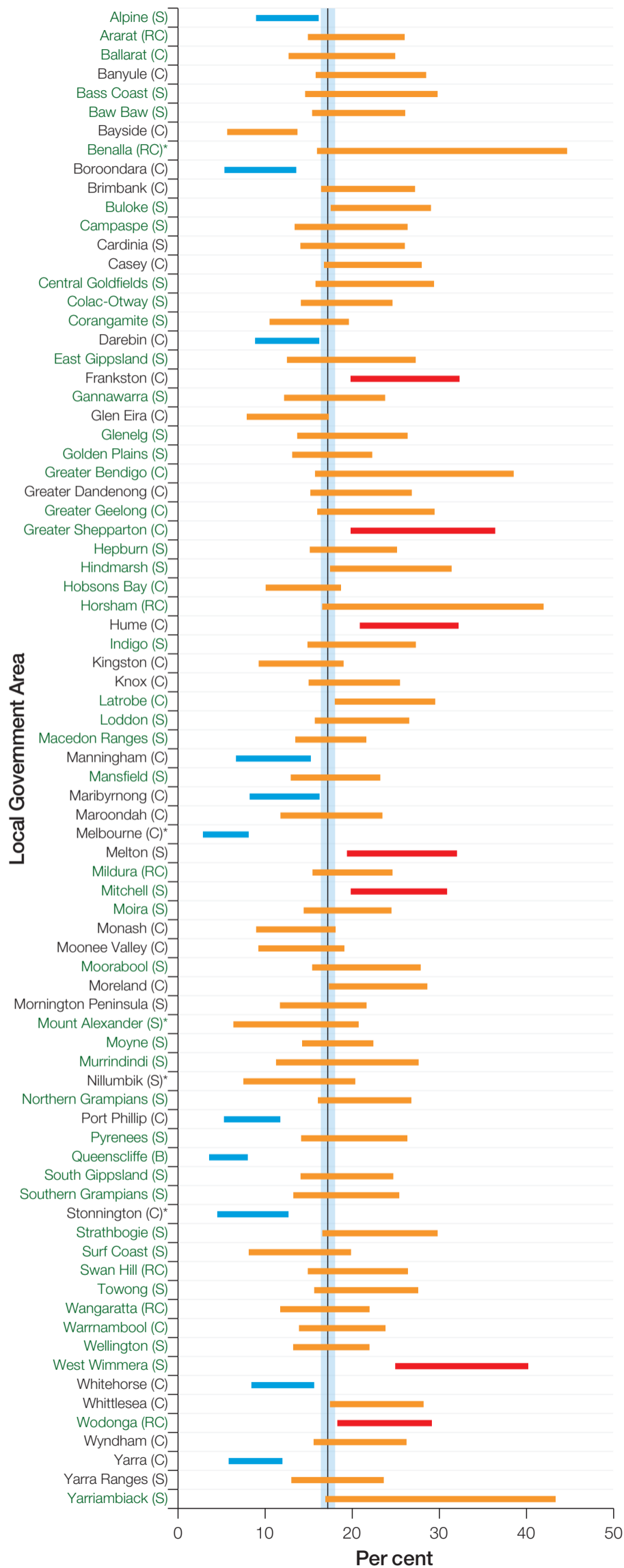
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

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.

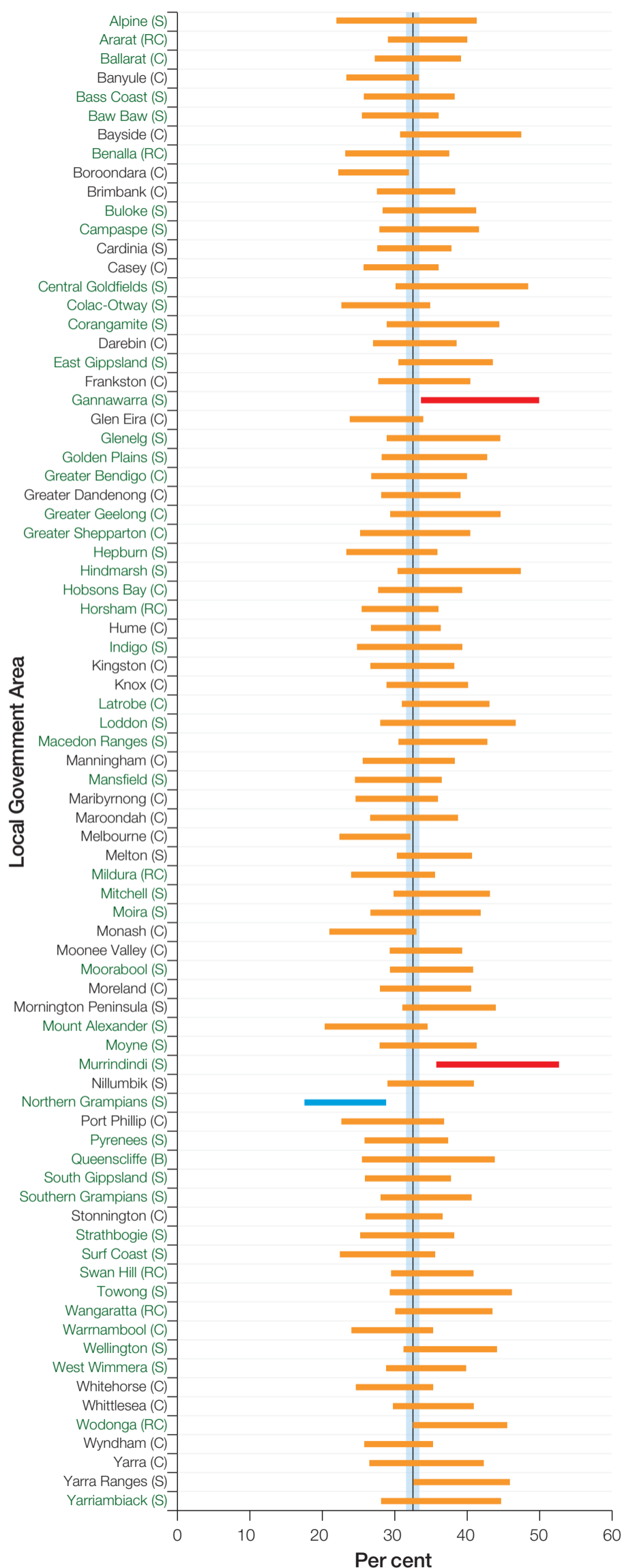
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

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.

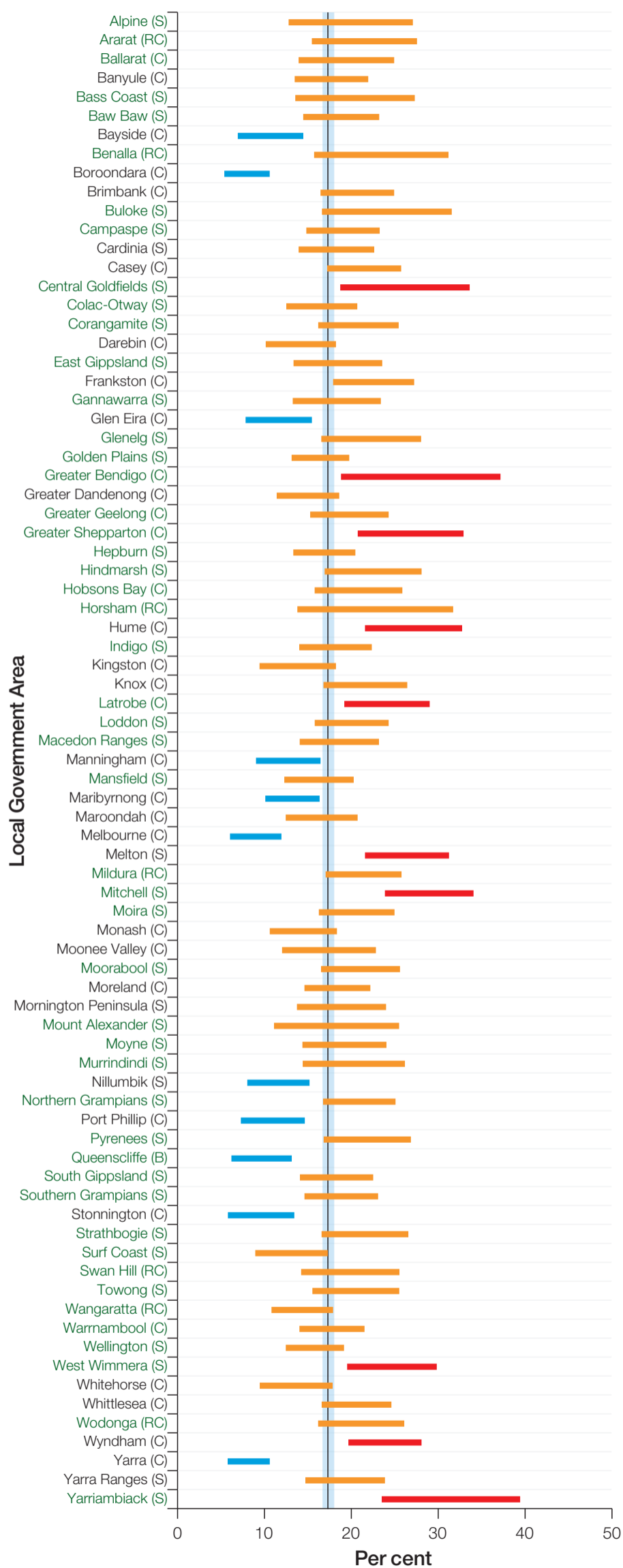
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

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.

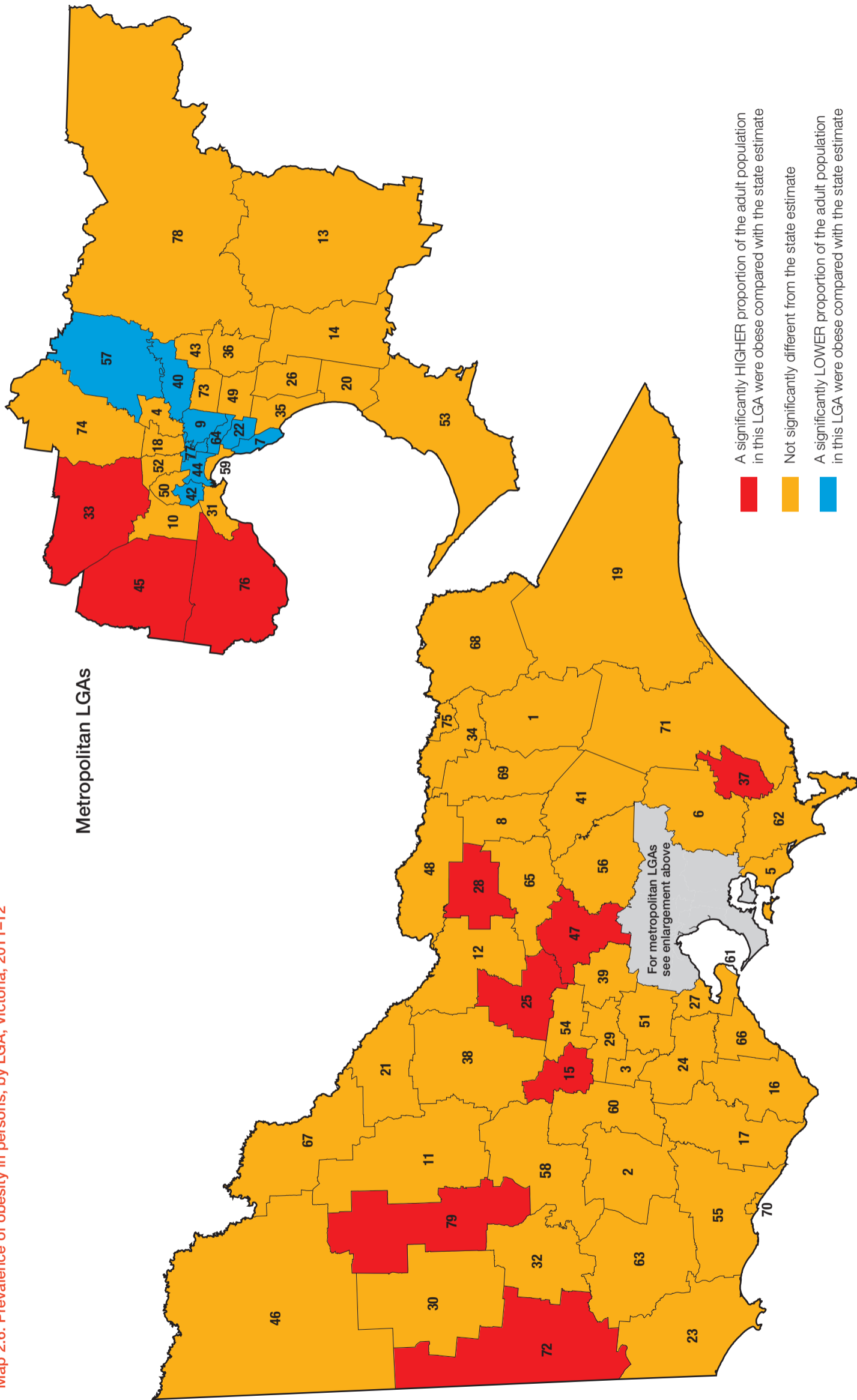
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

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^a, 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
Males	1.1	0.8	1.5	36.4	34.9	37.9	40.9	39.4	42.4	17.6	16.5	18.7
<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^b</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^{c,g}</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^d</i>												
Both guidelines	**	**	**	44.2	36.2	52.5	35.0	28.0	42.7	16.7	11.2	24.1
Vegetable guidelines ^e	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 ^e	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^e</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)^g</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 (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^a, 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
Females	3.5	2.9	4.1	45.2	44.0	46.5	24.8	23.9	25.8	17.3	16.5	18.1
<i>Area of Victoria</i>												
Rural	3.0	2.1	4.2	38.1	36.0	40.2	27.3	25.7	28.9	20.7	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	37.0	34.0	40.0	26.9	24.4	29.6	22.0	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	50.0	48.0	51.9	24.1	22.5	25.7	13.3	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	21.7	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	52.4	49.1	55.6	25.6	23.3	28.1	13.7	11.6	16.0
<i>Psychological distress^b</i>												
Low (< 16)	3.2	2.5	4.1	47.8	46.2	49.5	24.6	23.4	25.9	15.1	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	37.2	33.6	40.9	24.7	21.8	27.8	25.5	22.4	28.9
Very high (\geq 30)	2.6*	1.3	5.1	36.3	30.3	42.7	25.5	20.4	31.4	27.7	22.7	33.5
<i>Physical activity^{c,g}</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^d</i>												
Both guidelines	4.4*	2.4	8.0	50.7	46.1	55.4	25.0	21.8	28.5	13.8	11.7	16.1
Vegetable guidelines ^e	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 ^e	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^e</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	37.4	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	1.5	1.0	2.1	43.7	39.9	47.5	25.4	23.4	27.4	21.8	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	55.1	53.3	56.8	24.5	23.1	25.9	10.2	9.4	11.2
Good	3.5	2.7	4.7	38.4	36.4	40.4	25.9	24.3	27.5	20.8	19.4	22.3
Fair / poor	2.4	1.6	3.4	30.3	27.0	33.8	23.5	20.8	26.4	32.0	28.9	35.3
<i>Diabetes (excluding gestational)^g</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	0.1*	0.0	0.2	27.6	18.3	39.3	25.3	20.0	31.4	34.3	29.0	40.1

a. Determined by calculation of body mass index (BMI) from self-reported height and weight, $\text{BMI} = \text{weight (kg)/height squared (m}^2\text{)}$.

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.

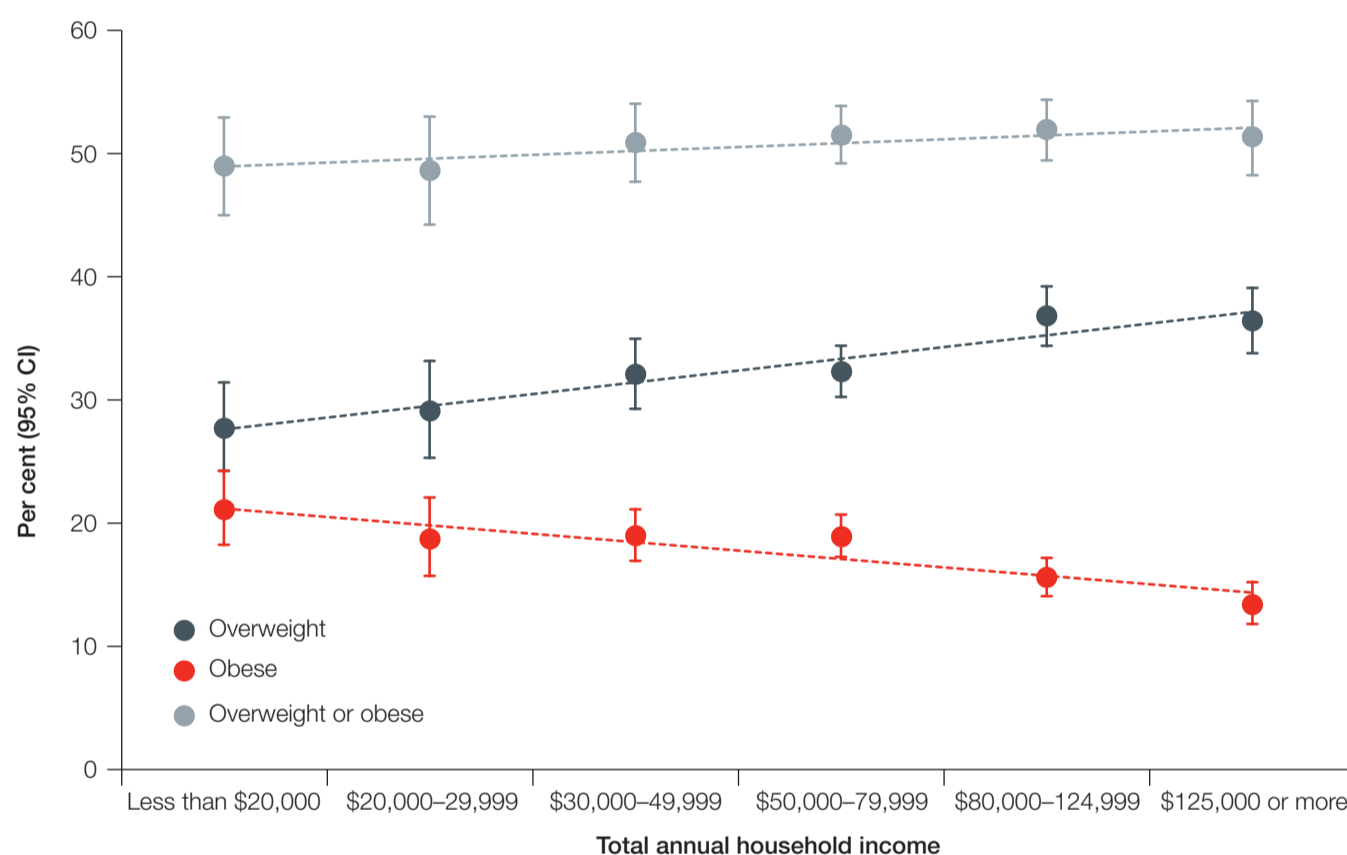
*Estimate has a relative standard error (RSE) of between 25 and 50 per cent and should be interpreted with caution.

**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/m²) 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/m²) 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 ²) %			Obese (≥ 30 kg/m ²) %		
		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,^a 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
Males												
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
Total	68.6	67.1	70.0	19.7	18.5	21.0	7.3	6.4	8.2	1.7	1.4	2.1
Females												
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
Total	60.7	59.5	62.0	23.2	22.2	24.4	9.5	8.7	10.3	3.5	3.0	4.1
Persons												
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
Total	64.6	63.6	65.6	21.5	20.7	22.3	8.4	7.8	9.0	2.6	2.3	3.0

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^a 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
Males									
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
2011–12	68.6	67.1	70.0	19.7	18.5	21.0	9.0	8.1	10.0
Females									
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
2011–12	60.7	59.5	62.0	23.2	22.2	24.4	13.0	12.1	13.9
Persons									
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
2011–12	64.6	63.6	65.6	21.5	20.7	22.3	11.0	10.4	11.7

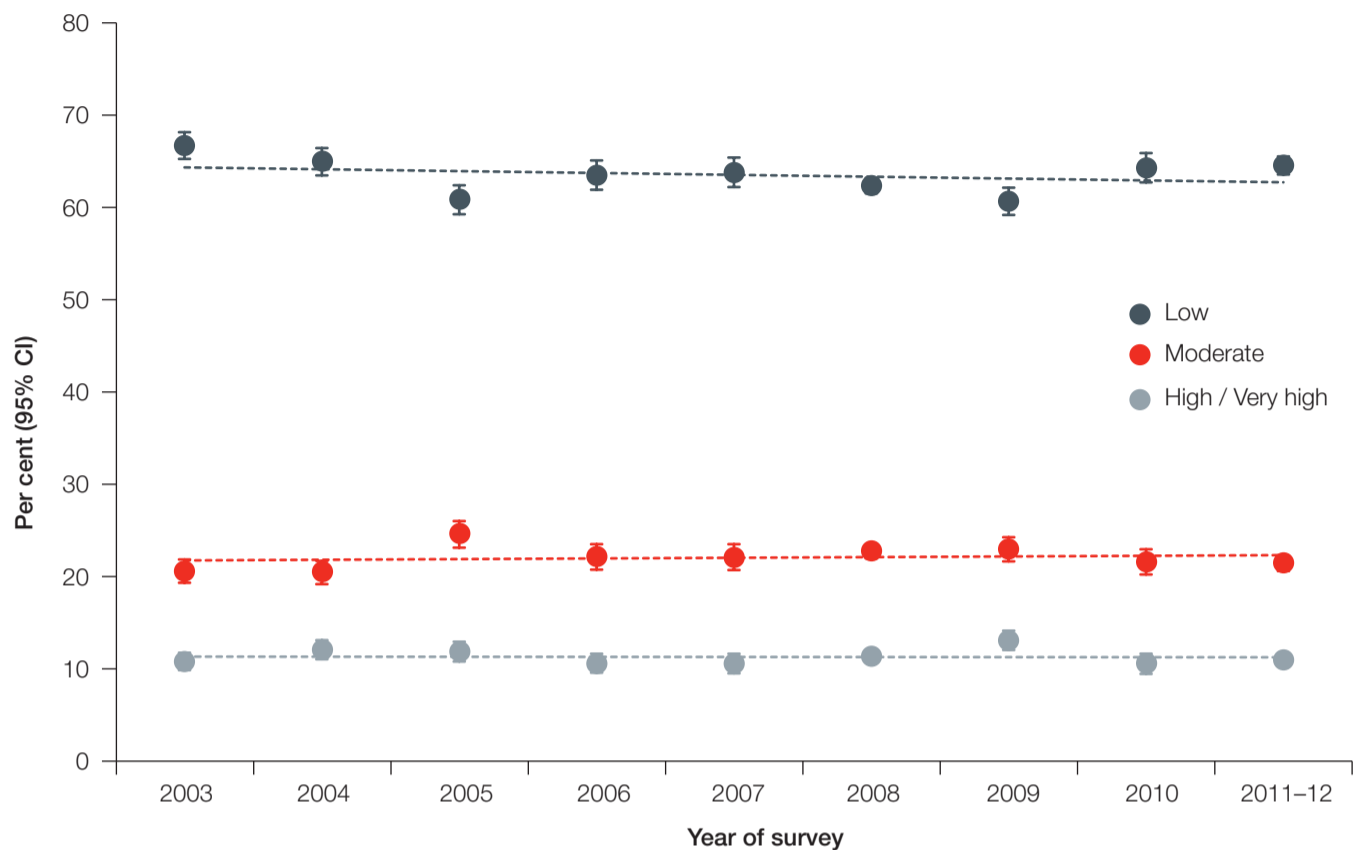
a. Based on the Kessler 10 psychological distress scale.

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^a 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,^a 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
Males												
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
Metropolitan males	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
Rural males	71.3	68.9	73.7	18.7	16.9	20.8	6.5	5.2	8.2	1.6	1.3	2.1
Total	68.6	67.1	70.0	19.7	18.5	21.0	7.3	6.4	8.2	1.7	1.4	2.1
Females												
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
Metropolitan females	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
Rural females	62.2	60.1	64.3	22.5	20.7	24.4	9.1	7.7	10.6	4.3	3.2	5.6
Total	60.7	59.5	62.0	23.2	22.2	24.4	9.5	8.7	10.3	3.5	3.0	4.1
Persons												
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
Metropolitan persons	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
Rural persons	66.9	65.1	68.6	20.5	19.1	21.9	7.8	6.8	8.9	3.0	2.4	3.7
Total	64.6	63.6	65.6	21.5	20.7	22.3	8.4	7.8	9.0	2.6	2.3	3.0

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,^a 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

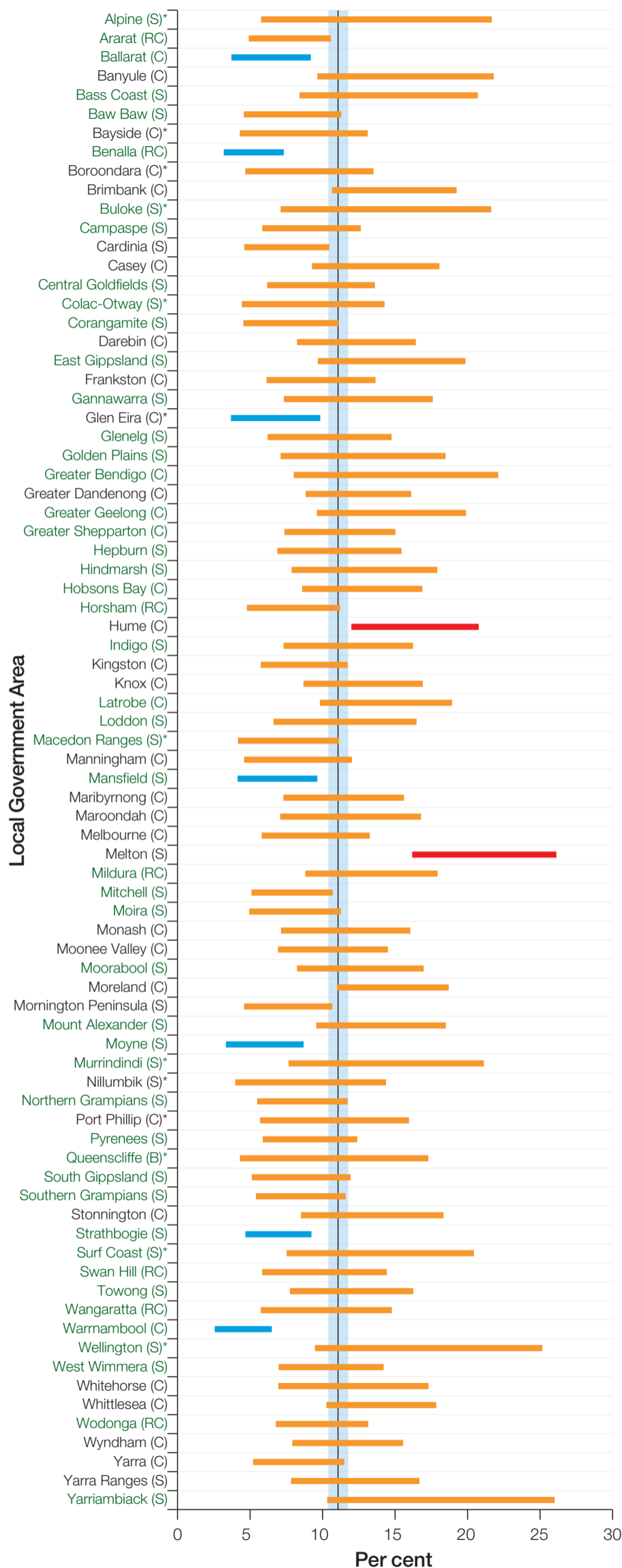
Table 2.71: Psychological distress,^a by LGA, Victoria, 2011–12 (continued)

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
Victoria	64.6	63.6	65.6	21.5	20.7	22.4	11.1	10.4	11.8

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,^a 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.

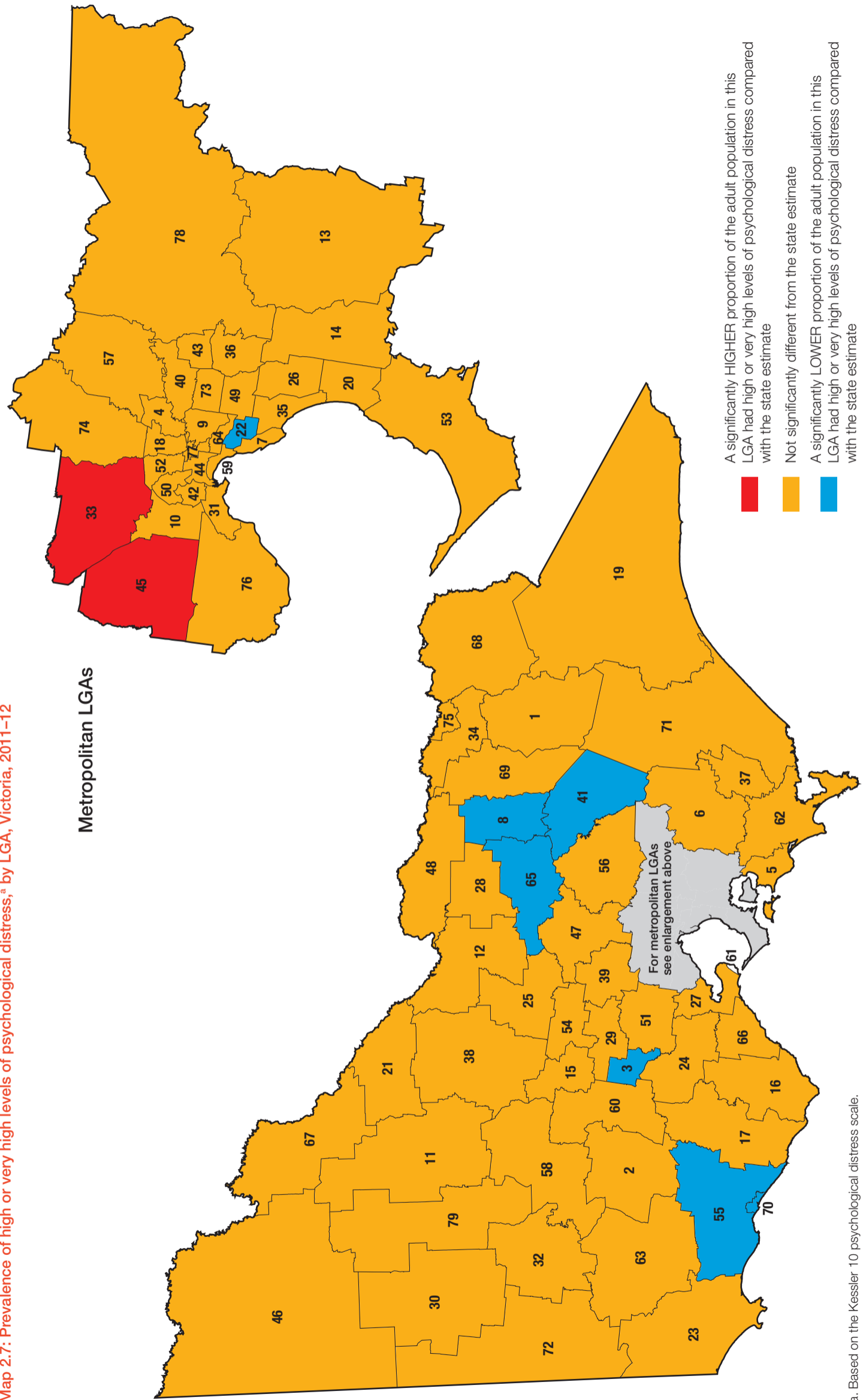
Metropolitan and rural LGAs are identified by colour as follows: metropolitan/rural.

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,^a 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^a, 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
Males	68.6	67.1	70.0	19.7	18.5	21.0	9.0	8.1	10.0
<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	63.7	60.2	66.9	19.8	17.4	22.5	13.7	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	5.1	4.1	6.3
<i>Employment status (age < 65 years)</i>									
Employed	70.6	68.6	72.6	19.3	17.7	21.0	7.9	6.7	9.3
Unemployed	46.1	39.0	53.3	28.6	22.2	36.1	20.3	14.9	27.1
Not in labour force	44.8	39.4	50.3	24.4	19.3	30.3	27.5	22.3	33.4
<i>Total annual household income</i>									
< \$40,000	57.4	53.0	61.6	22.0	18.6	25.8	17.4	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	74.2	71.2	77.0	18.2	15.9	20.8	6.3	4.7	8.5
<i>Physical activity^b</i>									
Sedentary	68.6	61.8	74.7	11.1	8.2	15.0	15.8	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^c</i>									
Both guidelines	77.7	70.9	83.2	15.4	10.7	21.7	6.0*	3.1	11.2
Vegetable guidelines ^d	75.4	69.3	80.5	16.8	12.3	22.5	6.7	4.1	10.8
Fruit guidelines ^d	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	59.2	55.8	62.6	22.2	19.4	25.1	15.1	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	72.1	70.2	74.0	18.4	16.8	20.2	7.2	6.1	8.4
<i>Long-term risk of alcohol-related harm^e</i>									
Abstainer	58.8	54.4	63.0	23.2	19.4	27.5	15.2	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	57.5	50.5	64.2	20.8	15.8	26.8	19.8	14.2	27.0
<i>Self-reported health</i>									
Excellent / very good	78.2	76.1	80.1	15.5	13.9	17.2	4.1	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	46.2	42.2	50.2	26.1	22.4	30.2	24.3	20.8	28.3
<i>Body weight status^f</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	51.7	45.1	58.2	15.1	11.1	20.3	20.4	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^a, 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	
Females	60.7	59.5	62.0	23.2	22.2	24.4	13.0	12.1	13.9	
<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	51.1	48.5	53.7	24.3	21.7	27.1	20.9	18.1	23.9	
Secondary	60.6	58.6	62.6	23.5	21.8	25.3	12.8	11.4	14.3	
Tertiary	67.3	65.3	69.3	21.2	19.5	22.9	9.0	7.8	10.4	
<i>Employment status (age < 65 years)</i>										
Employed	62.1	60.2	63.9	24.5	22.9	26.2	11.6	10.3	13.0	
Unemployed	46.5	39.7	53.4	31.2	25.1	38.0	19.5	15.0	24.9	
Not in labour force	54.2	51.4	57.0	22.5	20.3	25.0	19.7	17.4	22.1	
<i>Total annual household income</i>										
< \$40,000	49.1	46.0	52.3	24.6	21.9	27.6	22.0	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	67.6	64.8	70.2	22.8	20.4	25.3	8.4	6.9	10.3	
<i>Physical activity^b</i>										
Sedentary	49.2	43.2	55.2	21.4	16.6	27.2	20.3	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^c</i>										
Both guidelines	64.2	59.1	68.9	25.2	21.0	29.8	8.9	6.3	12.3	
Vegetable guidelines ^d	64.2	60.0	68.2	24.2	20.7	28.0	9.7	7.4	12.6	
Fruit guidelines ^d	64.0	62.1	65.9	22.2	20.6	23.9	11.2	10.0	12.6	
Neither	57.3	55.5	59.0	24.5	23.0	26.1	14.9	13.6	16.3	
<i>Smoking status</i>										
Current smoker	44.7	41.6	47.8	27.9	24.8	31.2	24.2	21.2	27.5	
Ex-smoker	57.6	54.3	60.8	21.7	19.1	24.4	18.8	15.5	22.6	
Non-smoker	63.8	62.2	65.3	22.4	21.1	23.8	10.5	9.5	11.6	
<i>Long-term risk of alcohol-related harm^e</i>										
Abstainer	56.4	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	72.6	70.8	74.3	19.2	17.7	20.7	6.4	5.4	7.6	
Good	55.8	53.7	57.8	26.1	24.3	27.9	14.4	12.9	16.0	
Fair / poor	36.1	32.8	39.6	28.4	25.3	31.7	30.6	27.2	34.1	
<i>Body weight status^f</i>										
Underweight	56.6	50.5	62.5	26.2	20.8	32.5	14.9	10.9	20.2	
Normal	64.3	62.5	66.0	22.6	21.1	24.2	10.6	9.5	11.9	
Overweight	60.1	57.4	62.7	24.0	21.7	26.5	12.8	11.0	14.8	
Obese	53.5	49.8	57.0	23.2	20.6	26.1	20.2	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	45.8	40.6	51.0	24.2	17.6	32.5	27.6	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.

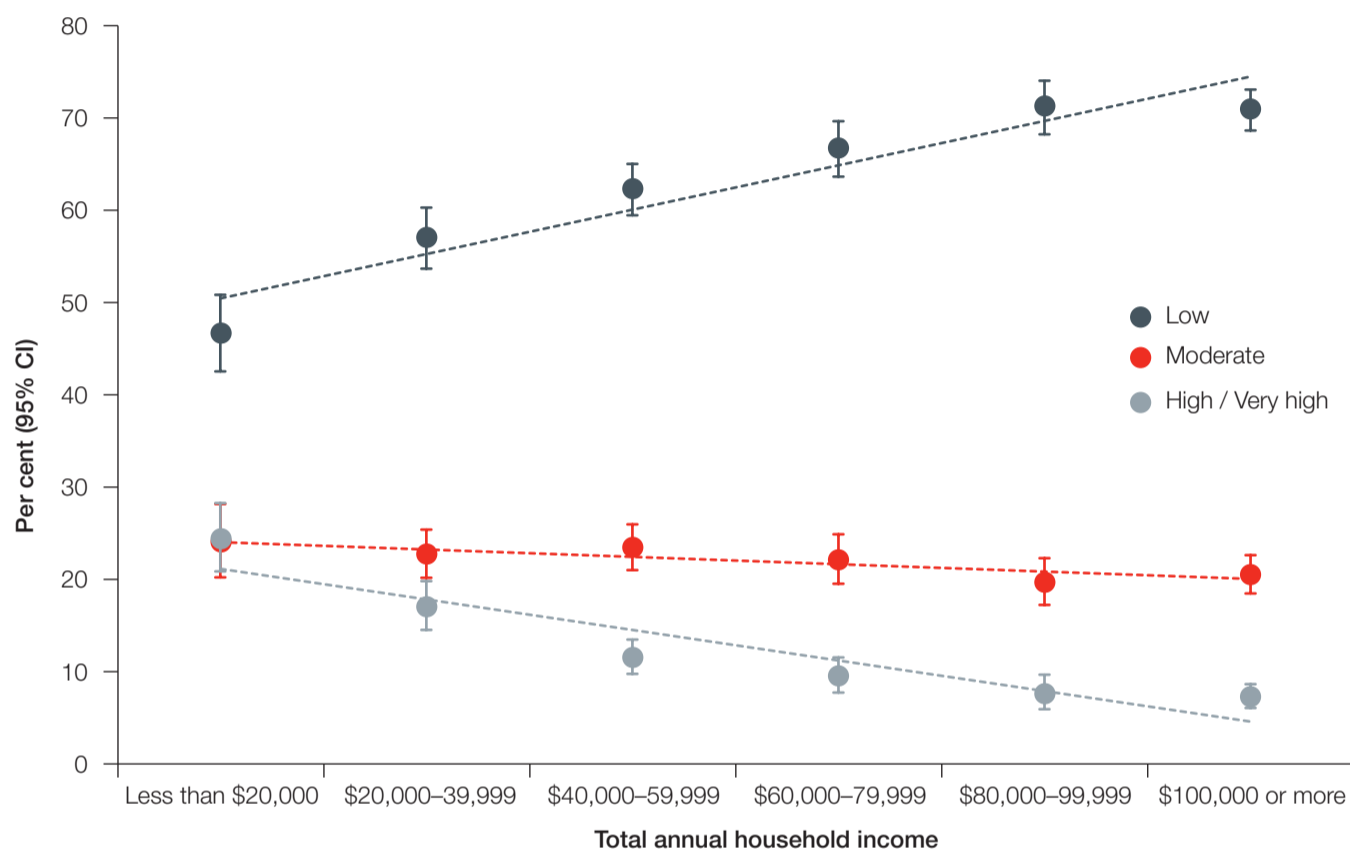
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

*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,^a 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,^a 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
Males												
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
Total	88.9	87.6	90.0	7.8	6.8	9.0	0.8	0.6	1.1	1.5	1.2	1.8
Females												
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
Total	85.6	84.5	86.6	10.1	9.2	11.0	1.4	1.1	1.9	1.4	1.2	1.7
Persons												
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
Total	87.2	86.4	87.9	9.0	8.3	9.7	1.1	0.9	1.4	1.4	1.2	1.7

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,^a 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
Males												
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
Metropolitan males	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
Rural males	90.8	88.9	92.4	5.9	4.5	7.8	0.6	0.4	0.8	1.9	1.4	2.7
Total	88.9	87.6	90.0	7.8	6.8	9.0	0.8	0.6	1.1	1.5	1.2	1.8
Females												
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
Metropolitan females	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
Rural females	86.5	84.6	88.2	9.0	7.5	10.7	1.9	1.2	3.1	1.6	1.1	2.3
Total	85.6	84.5	86.6	10.1	9.2	11.0	1.4	1.1	1.9	1.4	1.2	1.7
Persons												
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
Metropolitan persons	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
Rural persons	88.6	87.2	89.8	7.5	6.4	8.7	1.3	0.8	1.9	1.8	1.4	2.3
Total	87.2	86.4	87.9	9.0	8.3	9.7	1.1	0.9	1.4	1.4	1.2	1.7

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,^a 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,^a 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
Victoria	87.2	86.4	87.9	9.0	8.3	9.7	1.1	0.9	1.4	1.4	1.2	1.6

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,^a by psychological distress level and sex, Victoria, 2011–12

Psychological distress level ^a	%	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	
Males																
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	
Total	88.9	87.6	90.0	7.8	6.8	9.0	0.8	0.6	1.1	1.5	1.2	1.8	1.0	0.8	1.4	
Females																
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	
Total	85.6	84.5	86.6	10.1	9.2	11.0	1.4	1.1	1.9	1.4	1.2	1.7	1.5	1.2	1.8	
Persons																
Low (<16)	96.7	96.1	97.2	2.7	2.2	3.2	0.1*	0.1	0.3	0.14*	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	
Total	87.2	86.4	87.9	9.0	8.3	9.7	1.1	0.9	1.4	1.4	1.2	1.7	1.3	1.1	1.5	

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,^a 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
Males												
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
Total	82.3	80.9	83.6	13.3	12.1	14.6	1.3	1.0	1.7	1.9	1.5	2.3
Females												
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
Total	76.2	75.0	77.4	17.0	15.9	18.0	2.7	2.3	3.3	2.6	2.2	3.1
Persons												
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
Total	79.2	78.3	80.1	15.2	14.4	16.0	2.0	1.8	2.4	2.3	2.0	2.6

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,^a 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
Males												
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
Metropolitan males	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
Rural males	85.6	83.4	87.5	10.2	8.4	12.3	1.6	1.1	2.2	2.0	1.5	2.7
Total	82.3	80.9	83.6	13.3	12.1	14.6	1.3	1.0	1.7	1.9	1.5	2.3
Females												
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
Metropolitan females	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
Rural females	78.1	76.2	80.0	15.2	13.7	16.8	3.1	2.2	4.5	2.5	1.8	3.4
Total	76.2	75.0	77.4	17.0	15.9	18.0	2.7	2.3	3.3	2.6	2.2	3.1
Persons												
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
Metropolitan persons	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
Rural persons	81.9	80.4	83.3	12.7	11.5	13.9	2.4	1.8	3.1	2.2	1.8	2.7
Total	79.2	78.3	80.1	15.2	14.4	16.0	2.0	1.8	2.4	2.3	2.0	2.6

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,^a 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,^a 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
Victoria	79.0	78.1	79.9	15.3	14.5	16.2	2.0	1.8	2.4	2.3	2.0	2.6

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 ^a	%	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
Males															
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
Total	82.3	80.9	83.6	13.3	12.1	14.6	1.3	1.0	1.7	1.9	1.5	2.3	1.2	0.9	1.7
Females															
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
Total	76.2	75.0	77.4	17.0	15.9	18.0	2.7	2.3	3.3	2.6	2.2	3.1	1.5	1.2	1.8
Persons															
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
Total	79.2	78.3	80.1	15.2	14.4	16.0	2.0	1.8	2.4	2.3	2.0	2.6	1.3	1.1	1.6

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,^a 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
Males												
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
Total	90.2	89.2	91.2	5.3	4.6	6.1	2.0	1.6	2.4	1.8	1.4	2.2
Females												
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
Total	86.0	85.0	86.9	7.2	6.6	7.9	3.3	2.8	3.9	2.8	2.4	3.3
Persons												
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
Total	88.0	87.3	88.6	6.3	5.8	6.8	2.6	2.3	3.0	2.3	2.0	2.6

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,^a 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
Males												
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
Metropolitan males	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
Rural males	90.9	89.6	92.1	5.3	4.4	6.4	2.1	1.5	2.8	1.4	1.0	1.8
Total	90.2	89.2	91.2	5.3	4.6	6.1	2.0	1.6	2.4	1.8	1.4	2.2
Females												
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
Metropolitan females	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
Rural females	85.8	84.0	87.5	7.2	6.2	8.4	3.3	2.4	4.6	3.2	2.3	4.6
Total	86.0	85.0	86.9	7.2	6.6	7.9	3.3	2.8	3.9	2.8	2.4	3.3
Persons												
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
Metropolitan persons	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
Rural persons	88.2	86.9	89.4	6.3	5.6	7.1	2.7	2.1	3.5	2.4	1.8	3.2
Total	88.0	87.3	88.6	6.3	5.8	6.8	2.6	2.3	3.0	2.3	2.0	2.6

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,^a 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,^a 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	**	**	**
Victoria	88.1	87.5	88.8	6.2	5.7	6.7	2.6	2.3	3.0	2.3	2.0	2.6

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,^a by level of psychological distress and sex, Victoria, 2011–12

Psychological distress level ^a	%	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
Males															
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
Total	90.2	89.2	91.2	5.3	4.6	6.1	2.0	1.6	2.4	1.8	1.4	2.2	0.8	0.6	1.1
Females															
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
Total	86.0	85.0	86.9	7.2	6.6	7.9	3.3	2.8	3.9	2.8	2.4	3.3	0.8	0.6	1.0
Persons															
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
Total	88.0	87.3	88.6	6.3	5.8	6.8	2.6	2.3	3.0	2.3	2.0	2.6	0.8	0.6	1.0

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,^a 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
Males												
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
Total	76.4	75.0	77.8	7.2	6.6	8.0	6.0	5.2	7.0	9.2	8.3	10.1
Females												
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
Total	68.6	67.4	69.8	10.8	10.0	11.6	7.5	6.8	8.3	12.1	11.3	13.0
Persons												
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
Total	72.3	71.4	73.2	9.1	8.6	9.6	6.8	6.3	7.4	10.7	10.1	11.3

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,^a 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
Males												
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
Metropolitan males	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
Rural males	76.6	74.2	78.8	7.3	6.3	8.5	6.2	5.1	7.5	8.7	7.1	10.5
Total	76.4	75.0	77.8	7.2	6.6	8.0	6.0	5.2	7.0	9.2	8.3	10.1
Females												
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
Metropolitan females	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
Rural females	68.2	66.1	70.2	11.6	10.2	13.2	7.2	6.2	8.4	12.2	10.7	13.7
Total	68.6	67.4	69.8	10.8	10.0	11.6	7.5	6.8	8.3	12.1	11.3	13.0
Persons												
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
Metropolitan persons	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
Rural persons	72.3	70.6	73.8	9.6	8.7	10.6	6.7	5.9	7.6	10.4	9.4	11.6
Total	72.3	71.4	73.2	9.1	8.6	9.6	6.8	6.3	7.4	10.7	10.1	11.3

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,^a 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,^a 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
Victoria	72.4	71.5	73.3	9.0	8.5	9.6	6.8	6.2	7.4	10.8	10.2	11.4

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,^a by level of psychological distress and sex, Victoria, 2011–12

Psychological distress level ^a	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
Males															
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
Total	76.4	75.0	77.8	7.2	6.6	8.0	6.0	5.2	7.0	9.2	8.3	10.1	1.1	0.8	1.4
Females															
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
Total	68.6	67.4	69.8	10.8	10.0	11.6	7.5	6.8	8.3	12.1	11.3	13.0	1.0	0.8	1.3
Persons															
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
Total	72.3	71.4	73.2	9.1	8.6	9.6	6.8	6.3	7.4	10.7	10.1	11.3	1.1	0.9	1.3

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^a 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 ^b	VPHS ^c	AHS ^b	VPHS ^c	AHS ^b	VPHS ^c	AHS ^b	VPHS ^c	AHS ^b	VPHS ^c	AHS ^b	VPHS ^c	AHS ^b	VPHS ^c
Psychological distress level ^a	%	%	%	%	%	%	%	%	%	%	%	%	%	%
Males														
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
Females														
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
Persons														
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
Males									
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
Total	25.5	24.5	26.6				74.3	73.2	75.3
Females									
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
Total	23.7	23.0	24.4	5.8	5.2	6.4	70.4	69.5	71.3
Persons									
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
Total	24.7	24.0	25.3				72.3	71.6	72.9

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.

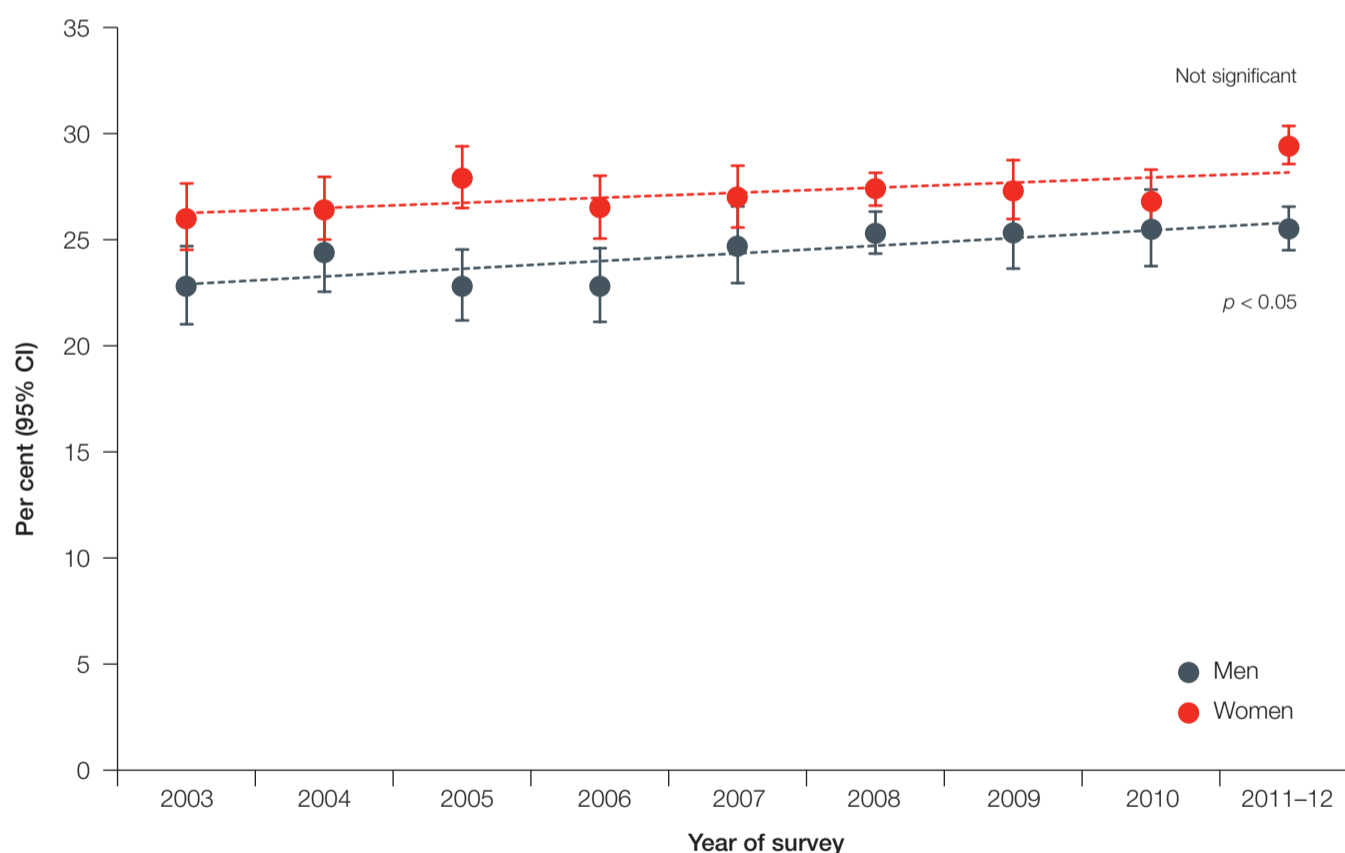
Table 2.91 and Figure 2.37 show the prevalence of hypertension from 2003 to 2011–12, by sex. The prevalence of hypertension significantly increased in men and all persons from 2003 to 2011–12. However, in women it remained unchanged.

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
2011–12	25.5	24.5	26.6	29.4	28.6	30.4	27.6	26.9	28.3

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
Males									
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
Metropolitan males	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
Rural males	27.7	25.8	29.8				72.1	70.1	74.0
Total	25.5	24.5	26.6				74.3	73.2	75.3
Females									
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
Metropolitan females	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
Rural females	24.7	23.6	25.8	6.9	6.1	7.9	68.2	66.8	69.6
Total	23.7	23.0	24.4	5.8	5.2	6.4	70.4	69.5	71.3
Persons									
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
Metropolitan persons	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
Rural persons	26.3	25.1	27.5				70.0	68.7	71.3
Total	24.7	24.0	25.3				72.3	71.6	72.9

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	Victoria	24.5	23.9	25.1

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

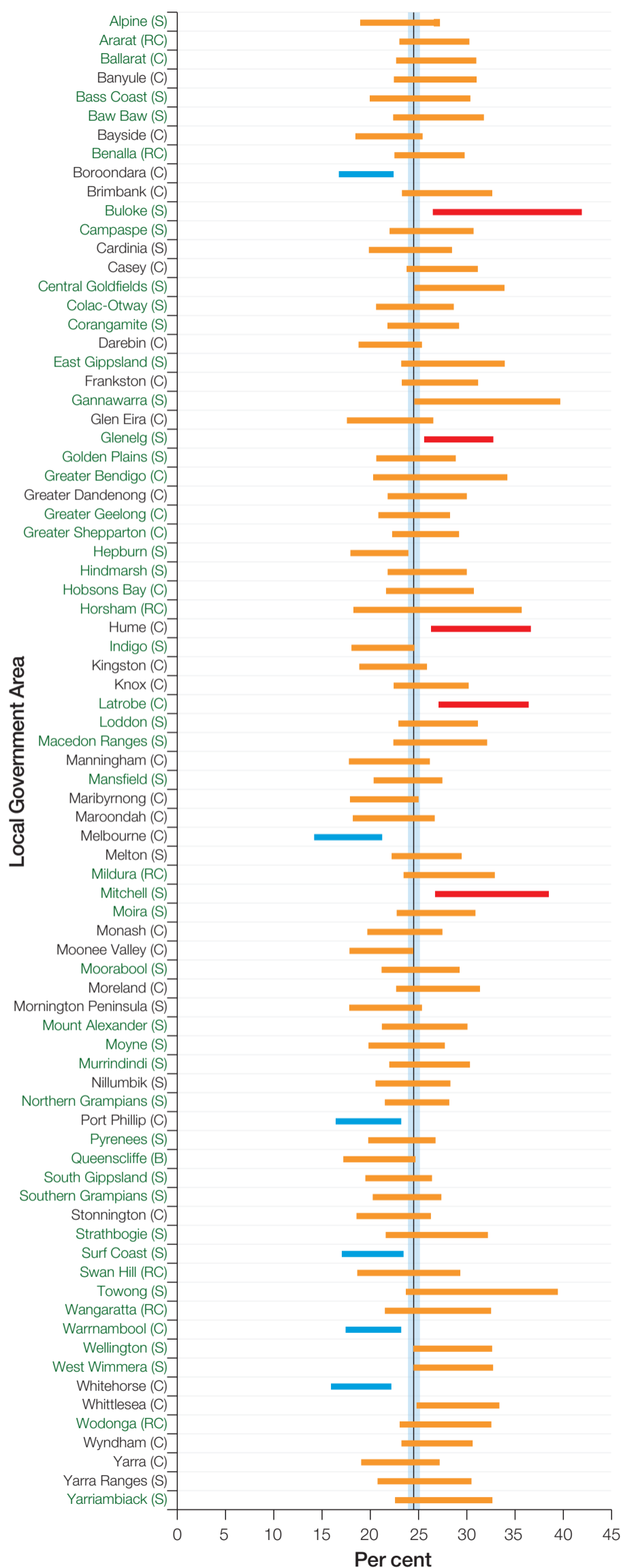
LL/UL 95% CI = lower/upper limit of 95 per cent confidence interval.

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.

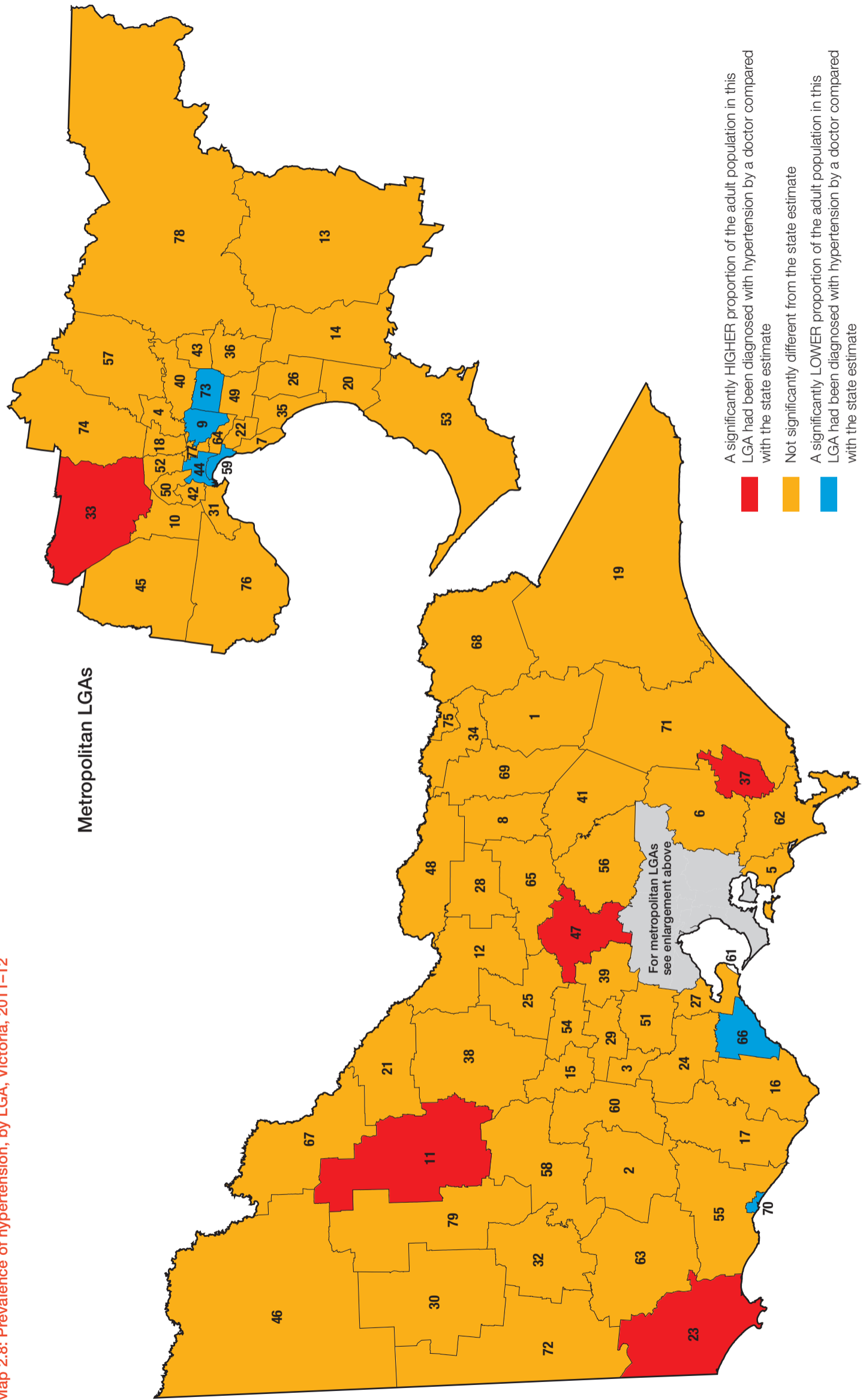
The vertical line on the graph is the Victorian estimate and the vertical column is the 95% CI around the estimate for Victoria.

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
Males	25.5	24.5	26.6
<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 < 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^a</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^b</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^c</i>			
Both guidelines	23.7	18.3	30.0
Vegetable guidelines ^d	23.5	19.0	28.7
Fruit guidelines ^d	24.2	22.6	25.8
Neither	26.4	25.0	27.8
<i>Diabetes status^e</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^e</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^f</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
Females	23.7	23.0	24.4	5.8	5.2	6.4
<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	26.1	24.6	27.6	6.1	4.9	7.6
Secondary	24.1	22.8	25.5	6.2	5.3	7.3
Tertiary	20.9	19.6	22.2	5.1	4.4	6.0
<i>Employment status (age < 65 years)</i>						
Employed	14.7	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	17.5	16.0	19.2	8.0	6.7	9.6
<i>Total annual household income</i>						
< \$40,000	27.0	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	18.0	15.2	21.3	5.7	4.4	7.3
<i>Psychological distress^a</i>						
Low (<16)	21.7	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)	30.1	27.4	33.0	6.0	4.3	8.3
Very high (≥ 30)	29.4	25.4	33.9	3.7*	1.9	6.7
<i>Physical activity^b</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^c</i>						
Both guidelines	25.1	22.3	28.0	8.7	5.7	13.0
Vegetable guidelines ^d	24.9	22.5	27.3	7.5	5.1	11.0
Fruit guidelines ^d	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^g</i>						
No diabetes	22.5	21.7	23.2	5.8	5.3	6.5
Diabetes	47.6	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^e</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	17.4	16.5	18.4	6.0	5.2	7.0
Good	27.3	26.1	28.6	5.0	4.2	5.9
Fair / poor	33.2	31.1	35.3	6.9	5.2	9.1
<i>Body weight status^f</i>						
Underweight	13.2	10.0	17.2	3.4*	1.8	6.1
Normal	17.2	16.2	18.2	5.4	4.7	6.3
Overweight	25.0	23.6	26.6	5.7	4.6	6.9
Obese	34.4	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.

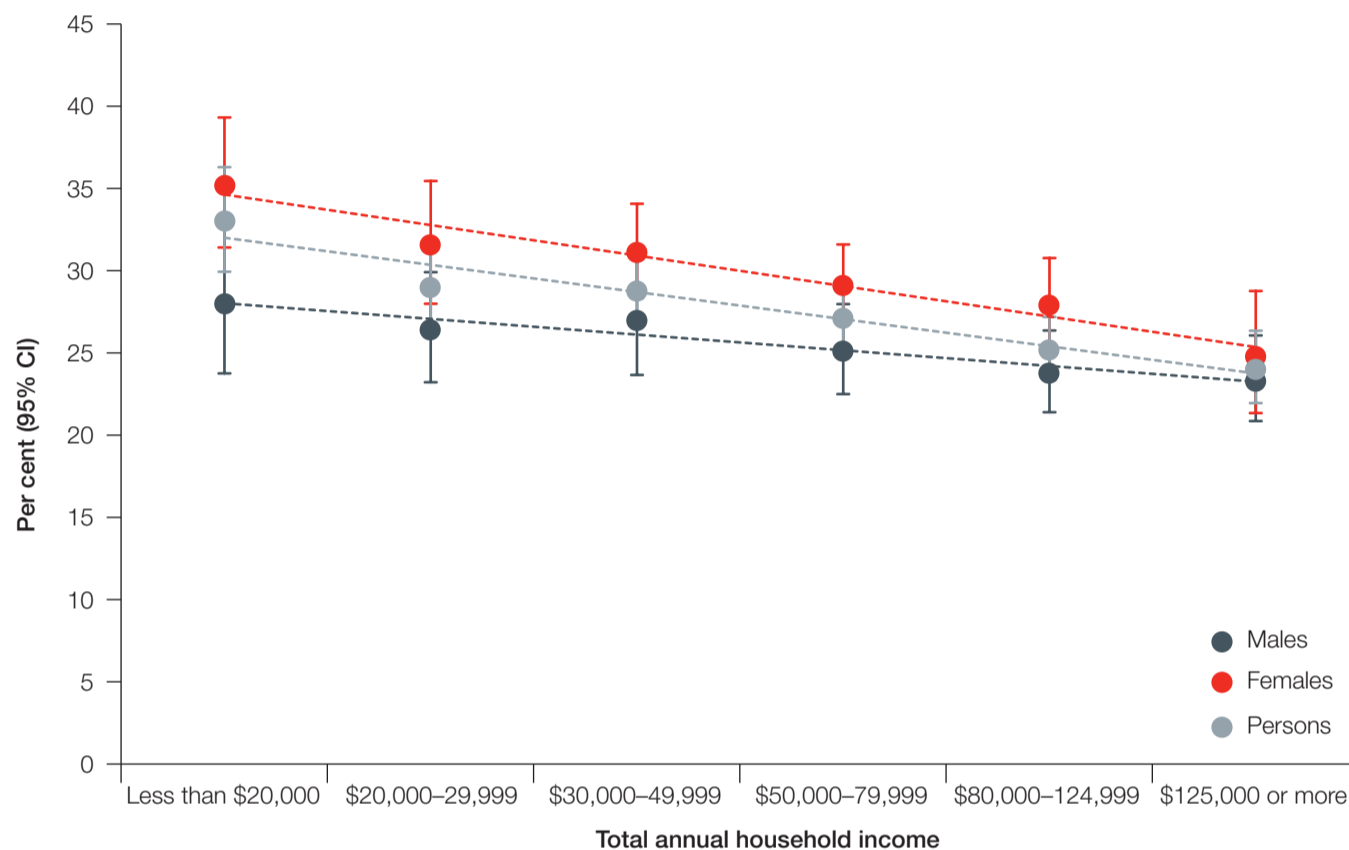
Estimates that are (statistically) significantly different to the corresponding estimate for Victoria are identified by colour as follows: **above/below** Victoria.

* 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^a 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	
Males																						
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	
Total	40.7	36.6	45.0	37.8	34.0	41.8	50.8	46.4	55.2	50.8	46.5	55.1	35.7	31.7	39.9	1.0*	0.6	1.7	7.4	5.0	10.8	
Females																						
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	
Total	47.6	43.1	52.1	44.1	39.9	48.4	49.4	44.7	54.1	58.5	53.8	63.1	46.6	42.1	51.2	1.2	0.8	1.9	8.7	5.9	12.5	
Persons																						
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	
Total	42.2	38.8	45.6	39.5	36.6	42.5	49.1	45.8	52.5	52.9	49.3	56.4	38.9	35.7	42.2	1.1	0.8	1.6	8.7	6.3	11.9	

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.

References

- ABS (Australian Bureau of Statistics) 2012, *Australian health survey: first results, 2011–12*, cat. no. 4364.0.55.001, Canberra.
- ABS (Australian Bureau of Statistics) 2013a, Australian Health Survey: First Results, 2011–12 - Victoria. Online. Viewed 20 June 2014 <<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4364.0.55.0012011-12?OpenDocument>>
- ABS (Australian Bureau of Statistics) 2013b, *Socio-Economic Indexes for Areas (SEIFA)*, ABS, Canberra, viewed 20 June 2014 <http://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa>
- AIHW (Australian Institute of Health and Welfare) 2013a, *AIHW analysis of the 1980, 1983 and 1989 Risk Factor Prevalence Surveys, 1995 National Nutrition Survey and 1999-2000 Australian Diabetes, Obesity and Lifestyle (AusDiab) Study*, viewed 20 June 2014 <<http://www.aihw.gov.au/search/?q=prevalence+of+overweight>>
- AIHW (Australian Institute of Health and Welfare) 2013b, *National Drugs Strategy Surveys (NDSHS)*, viewed 20 June 2014 <<http://www.aihw.gov.au/national-drugs-strategy-household-surveys/>>
- Andrews G, Slade T, 2001, 'Interpreting scores on the Kessler Psychological Distress Scale (K10)', *Australian and New Zealand Journal of Public Health*, 25, 494-7.
- Ansari Z, Barbetti T, Carson NJ, Auckland MJ, Cicuttini F, 2003, 'The Victorian ambulatory care sensitive conditions study: rural and urban perspectives', *Soz Praventivmed*, 48, 33-43.
- Begg SJ, Vos T, Barker B, Stanley L, Lopez AD, 2008, 'Burden of disease and injury in Australia in the new millennium: measuring health loss from diseases, injuries and risk factors', *Medical Journal of Australia*, 188, 36-40.
- Cancer Council Victoria 2013. Online. Viewed 22 Jan 2013, <<http://www.cancervic.org.au/about-our-research/behavioural/cbrc-tobacco>>
- Chen L, Appel LJ, Loria C, Lin PH, Champagne CM, Elmer PJ, Ard JD, Mitchell D, Batch BC, Svetkey LP, Caballero B, 2009, 'Reduction in consumption of sugar-sweetened beverages is associated with weight loss: the PREMIER trial', *American Journal of Clinical Nutrition*, 89, 1299-306.
- Department of Health 2012, *Victorian Population Health Survey 2010*, State Government of Victoria, Melbourne.
- DoHA (Department of Health and Ageing) 1999, *National physical activity guidelines for adults*, DoHA, Canberra.
- DoHA (Department of Health and Ageing) 2004, *Get out and get active. Australia's physical activity recommendations for 12–18 year olds*, DoHA, Canberra.
- DoHA (Department of Health and Ageing) 2006, *Recommendations on physical activity for health for older Australians*, DoHA, Canberra.
- Dorfman L, Cheyne A, Friedman LC, Wadud A, Gottlieb M, 2012, 'Soda and tobacco industry corporate social responsibility campaigns: how do they compare?', *PLoS Medicine*, 9, 1-7.
- Ebbeling CB, Feldman HA, Osganian SK, Chomitz VR, Ellenbogen SJ, Ludwig DS, 2006, 'Effects of decreasing sugar-sweetened beverage consumption on body weight in adolescents: a randomized, controlled pilot study', *Pediatrics*, 117, 673-80.
- Egger GJ, Vogels N, Westerterp KR, 2001, 'Estimating historical changes in physical activity levels', *Medical Journal of Australia*, 175, 635-6.
- Elgar FJ, Stewart JM, 2008, 'Validity of self-report screening for overweight and obesity. Evidence from the Canadian Community Health Survey', *Canadian Journal of Public Health*, 99, 423-7.
- Fowler SP, Williams K, Resendez RG, Hunt KJ, Hazuda HP, Stern MP, 2008, 'Fueling the obesity epidemic? Artificially sweetened beverage use and long-term weight gain'. *Obesity (Silver Spring)*, 16, 1894-900.
- Furukawa TA, Kessler RC, Slade T, Andrews G, 2003, 'The performance of the K6 and K10 screening scales for psychological distress in the Australian National Survey of Mental Health and Well-Being', *Psychological Medicine*, 33, 357-62.
- Gearhardt AN, Corbin WR, Brownell KD, 2009, 'Food addiction; an examination of the diagnostic criteria for dependence', *Journal of Addictive Medicine*, 3, 107.
- Glover JD, Hetzel DM, Tennant SK, 2004, 'The socioeconomic gradient and chronic illness and associated risk factors in Australia', *Australia and New Zealand Health Policy*, 1, 8.
- Hamer M, Kivimaki M, Stamatakis E, Batty GD, 2012, 'Psychological distress as a risk factor for death from cerebrovascular disease', *Canadian Medical Association Journal*, 184, 1461-6.
- Hector D, Rangan A, Louie J, Flood V, Gill T, 2009, 'Soft drinks, weight status and health; a review'. Sydney: A NSW Centre for Public Health Nutrition (now known as Cluster of Public Health Nutrition, Prevention Research Collaboration, University of Sydney) project for NSW Health, viewed 20 June 2014, <http://www0.health.nsw.gov.au/pubs/2009/pdf/soft_drinks_report.pdf>.
- Holden L, Scuffham P, Hilton M, Vecchio N, Whiteford H, 2010, 'Psychological distress is associated with a range of high-priority health conditions affecting working Australians', *Australian and New Zealand Journal of Public Health*, 34, 304–10.
- Kessler RC, Barker PR, Colpe LJ, Epstein JF, Gfroerer JC, Hiripi E, Howes MJ, Normand SL, Manderscheid RW, Walters EE, Zaslavsky AM, 2003, 'Screening for serious mental illness in the general population', *Archives of General Psychiatry*, 60, 184-9.

- Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al, 2012, 'A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010', *Lancet* 380, 2224-60.
- Malik VS, Schulze MB, Hu FB, 2006, 'Intake of sugar-sweetened beverages and weight gain: a systematic review', *American Journal of Clinical Nutrition*, 84, 274-88.
- Markwick A, Vaughan L, Ansari Z, 2013, 'Opposing socioeconomic gradients in overweight and obese adults', *Australian and New Zealand Journal of Public Health*. 37, 32-8.
- NHMRC (National Health and Medical Research Council) 2001, *Australian alcohol guidelines: health risks and benefits*, NHMRC, Canberra.
- NHMRC (National Health and Medical Research Council) 2003a, *Dietary guidelines for Australian adults*, NHMRC, Canberra.
- NHMRC (National Health and Medical Research Council) 2003b, *Dietary guidelines for children and adolescents in Australia*, NHMRC, Canberra.
- NHMRC (National Health and Medical Research Council) 2013, *Dietary guidelines for Australian adults*, NHMRC, Canberra.
- Popkin BM, D'Anci KE, Rosenberg IH, 2010, 'Water, hydration, and health', *Nutrition Reviews*, 68, 439-58.
- Scollo MM, Winstanley MH, 2012, *Tobacco in Australia: Facts and issues*, 4th edn. Cancer Council Victoria, Melbourne.
- Slade T, Johnston A, Teesson M, Whiteford H, Burgess P, Pirkis J, Saw S, 2009, *The mental health of Australians 2. Report on the 2007 National Survey of Mental Health and Wellbeing*. Department of Health and Ageing, Canberra.
- Smith KB, Humphreys JS, Wilson MG, 2008, 'Addressing the health disadvantage of rural populations: how does epidemiological evidence inform rural health policies and research?', *Australian Journal of Rural Health*, 16, 56-66.
- Stansfeld SA, Fuhrer R, Shipley MJ, Marmot MG, 2002, 'Psychological distress as a risk factor for coronary heart disease in the Whitehall II Study', *International Journal of Epidemiology*, 31, 248-55.
- Sutters M, 2007, Systemic hypertension - high blood pressure, Online, viewed 22 Jan 2013 <<http://www.health.am/hypertension/high-blood-pressure/>>
- Vartanian LR, Schwartz MB, Brownell KD, 2007, 'Effects of soft drink consumption on nutrition and health: a systematic review and meta-analysis', *American Journal of Public Health*, 97, 667-75.
- WHO 2000, Obesity: preventing and managing the global epidemic: report of a WHO consultation (WHO technical report series 894), World Health Organization, Geneva, Switzerland.
- WHO 2011, Information sheet: *Promoting fruit and vegetable consumption around the world*. Online, viewed 22 Jan 2013. <<http://www.who.int/dietphysicalactivity/fruit/en/index2.html>>
- WHO 2013, World Health Organization, *Overweight and obesity, fact sheet no. 311*, Online viewed 9 May 2013 <<http://www.who.int/mediacentre/factsheets/fs311/en/index.html>>
- Woodward-Lopez G, Kao J, Ritchie L, 2011, 'To what extent have sweetened beverages contributed to the obesity epidemic?', *Public Health Nutrition*, 14, 499-509.

