Overweight and obesity

Web report

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Living with overweight or obesity can have major impacts on a person's physical and mental health and wellbeing. It is the second leading risk factor for ill-health and premature mortality in Australia. It increases the risk of many preventable chronic conditions such as heart disease, type 2 diabetes and many types of cancer. This web report provides an overview of the prevalence of Australians living with overweight and obesity.

Key findings

1. One in four (25%) children and adolescents aged 2–17 were living with overweight or obesity in 2017–18
2. 2 in 3 (67%) adults were living with overweight or obesity in 2017–18 – 36% were living with overweight but not obesity and 31% were living with obesity
3. Australia had the 9th highest proportion of people aged 15+ living with overweight or obesity among 21 OECD member countries in 2021
4. 60% of men and 66% of women in 2017–18 had a waist circumference that indicated a high risk of metabolic complications

Overweight and obesity

On this page

How common is overweight and obesity?

Overweight and obesity refers to excess body weight. It is a risk factor for many chronic conditions and is associated with higher rates of death (AIHW 2019).

The interactive graphs in the following sections allow you to explore the prevalence of overweight and obesity in Australian children and adults, and the variations by population groups, and across remoteness and socioeconomic areas.

For more information on how to measure overweight and obesity, please see Measuring overweight and obesity and Causes of overweight and obesity.

Why is the most recent data from 2017–18?

Estimates of Body Mass Index (BMI) are based on nationally representative measured height and weight data from the Australian Bureau of Statistics (ABS) 2017–18 National Health Survey (NHS).

Due to the COVID-19 pandemic, physical measurements (including height, weight and waist circumference) were not taken at the time of the most recent NHS 2020–21. While self-reported height and weight were collected as part of the survey, self-reported data underestimates actual levels of overweight or obesity based on objective measurements (ABS 2018f).

As self-reported and measured rates of overweight and obesity should not be directly compared, the figures presented on this page reflect the latest nationally representative data based on measured height, weight and waist circumference.

For more information, please see Technical notes.

Children and adolescents

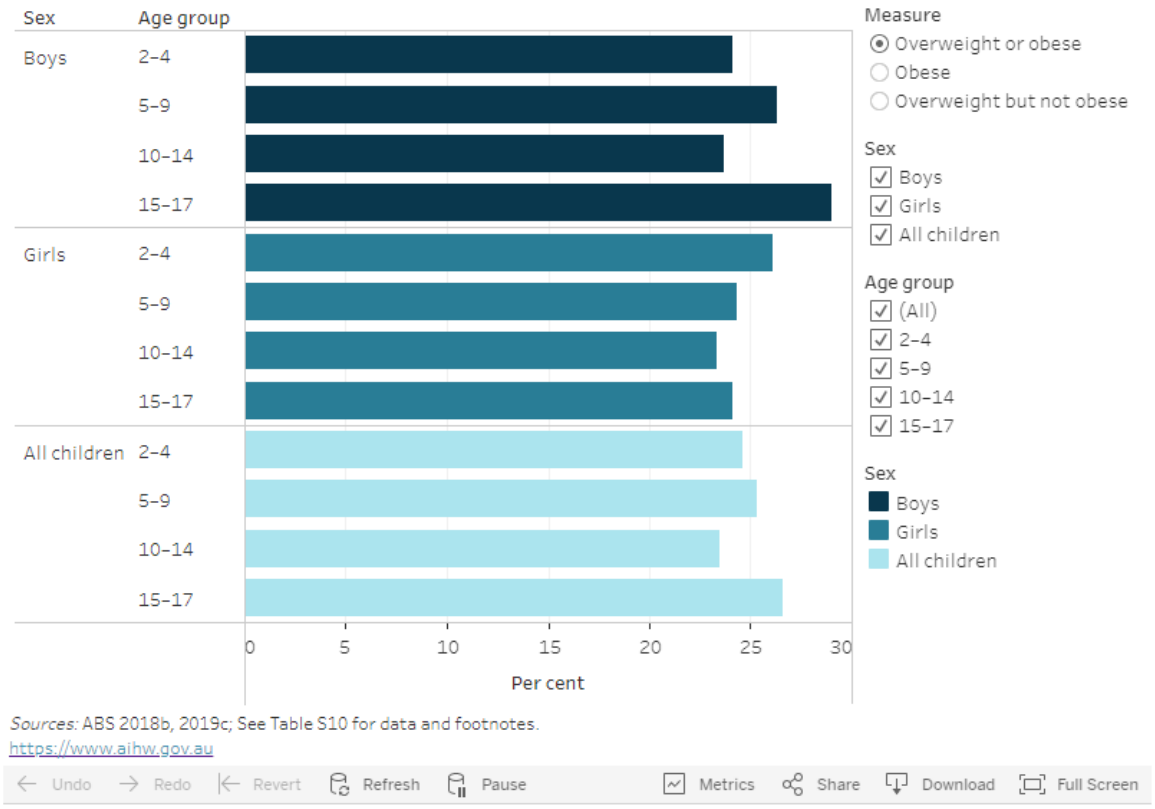
Based on the latest available data, of children and adolescents aged 2–17 (ABS 2018c):

- One in 4 (25%) are living with overweight or obesity. This is approximately 1.2 million children and adolescents.
- 17% are living with overweight but not obesity.
- 8.2% are living with obesity.

The rates of overweight and obesity are similar for boys and girls across age groups (Figure 1).

See Overweight and obesity among Australian children and adolescents for more information on this age group.

Figure 1: Proportion of children and adolescents aged 2–17 living with overweight and obesity, by age group and sex, 2017–18



Sources: ABS 2018b, 2019c; See Table S10 for data and footnotes.
https://www.aihw.gov.au

Adults

Based on the latest available data, of adults aged 18 and over (ABS 2018e):

- Two in 3 (67%) are living with overweight or obesity. This is approximately 12.5 million adults.
- 36% are living with overweight but not obesity.
- 31% are living with obesity.

- 12% are living with severe obesity, which is defined in this report as having a BMI of 35 or more.

For all measures of overweight and obesity, men had higher rates than women did:

- 75% of men and 60% of women are living with overweight or obesity.
- 42% of men and 30% of women are living with overweight but not obesity.
- 33% of men and 30% of women are living with obesity.

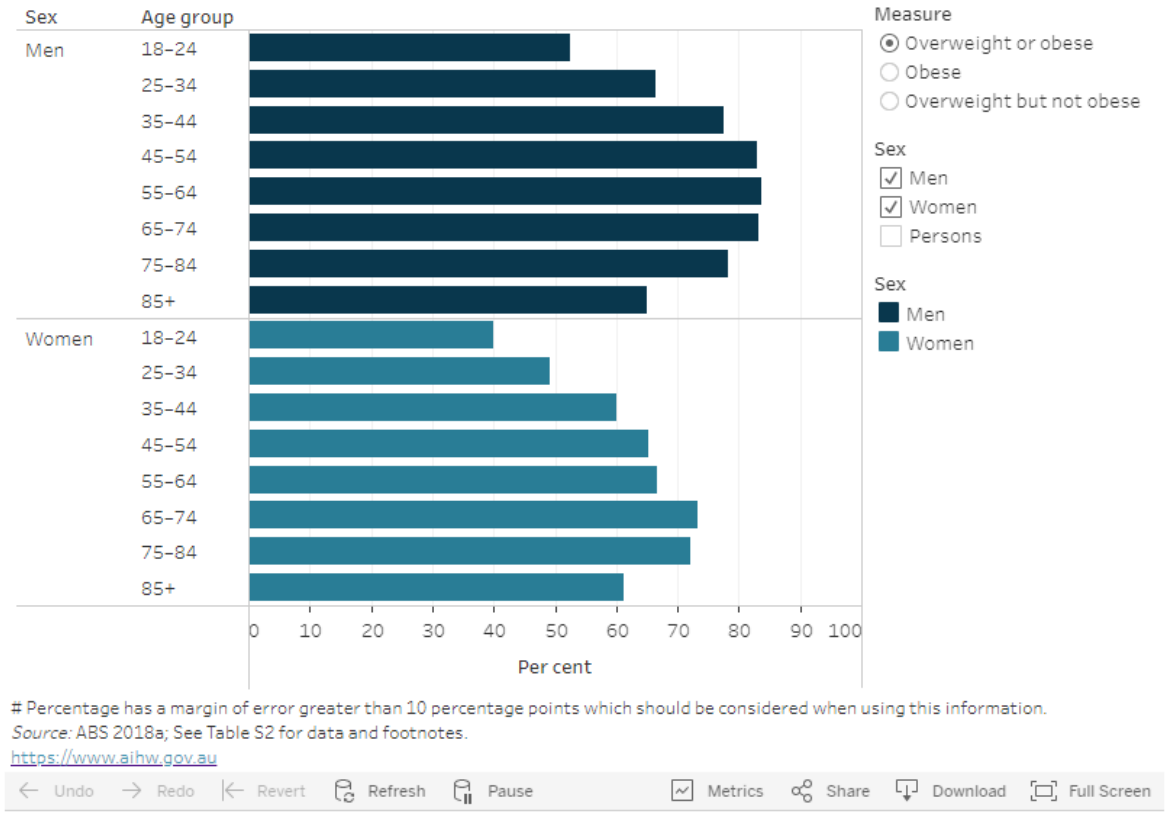
Overweight and obesity is distributed differently among men and women, as shown in the BMI calculator.

The proportion of adults living with overweight or obesity generally increases with age. This is seen in both men and women (Figure 2):

- For men, the proportion increases from 52% at 18–24 to 83% at 45–54. It then plateaus until 65–74, and then decreases to 65% at age 85 years and over.
- For women, the proportion increases from 40% at 18–24 to 73% at 65–74. It then decreases to 61% at age 85 years and over.

Obesity is also more common in older age groups – 18% of men and 14% of women aged 18–24 year are living with obesity, compared with 42% of men and 39% of women aged 65–74 (Figure 2).

Figure 2: Proportion of adults living with overweight and obesity, by age group and sex, 2017–18

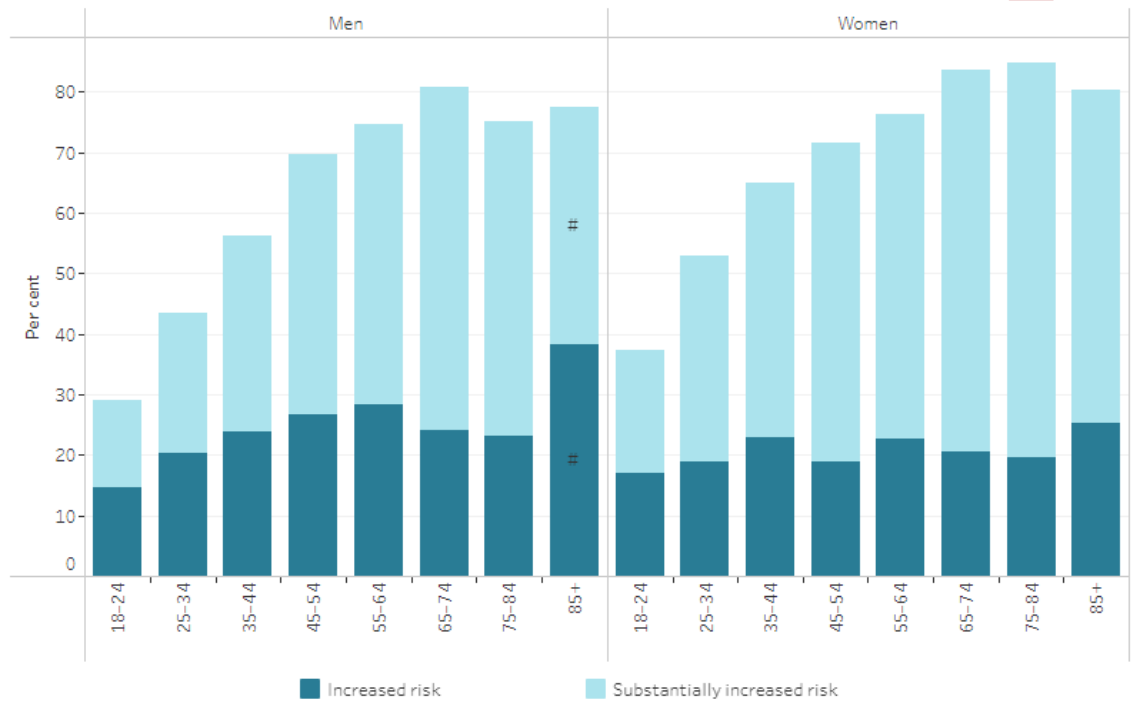


Percentage has a margin of error greater than 10 percentage points which should be considered when using this information.
Source: ABS 2018a; See Table S2 for data and footnotes.
https://www.aihw.gov.au

Waist circumference

Based on the latest available data, 60% of men and 66% of women aged 18 and over have a waist circumference that indicated an increased or substantially increased risk of metabolic complications. The proportion of adults with a waist circumference that indicate a substantially increased risk of metabolic complications tends to increase with age, up until about age 65–74 for men and 75–84 for women (Figure 3).

Figure 3: Proportion of adults with a waist circumference indicating increased risk of metabolic complications, by age group and sex, 2017–18



Proportion has a margin of error greater than 10 percentage points which should be considered when using this information.

Notes:

1. Classification is based on measured waist circumference.
2. For men, increased risk refers to a waist circumference of 94 cm or more, and substantially increased risk refers to a waist circumference of 102 cm or more. For women, increased risk refers to a waist circumference of 80 cm or more, and substantially increased risk refers to a waist circumference of 88 cm or more.

Source: ABS 2018a; See Table S3 for data and footnotes.

https://www.aihw.gov.au

Aboriginal and Torres Strait Islander Australians

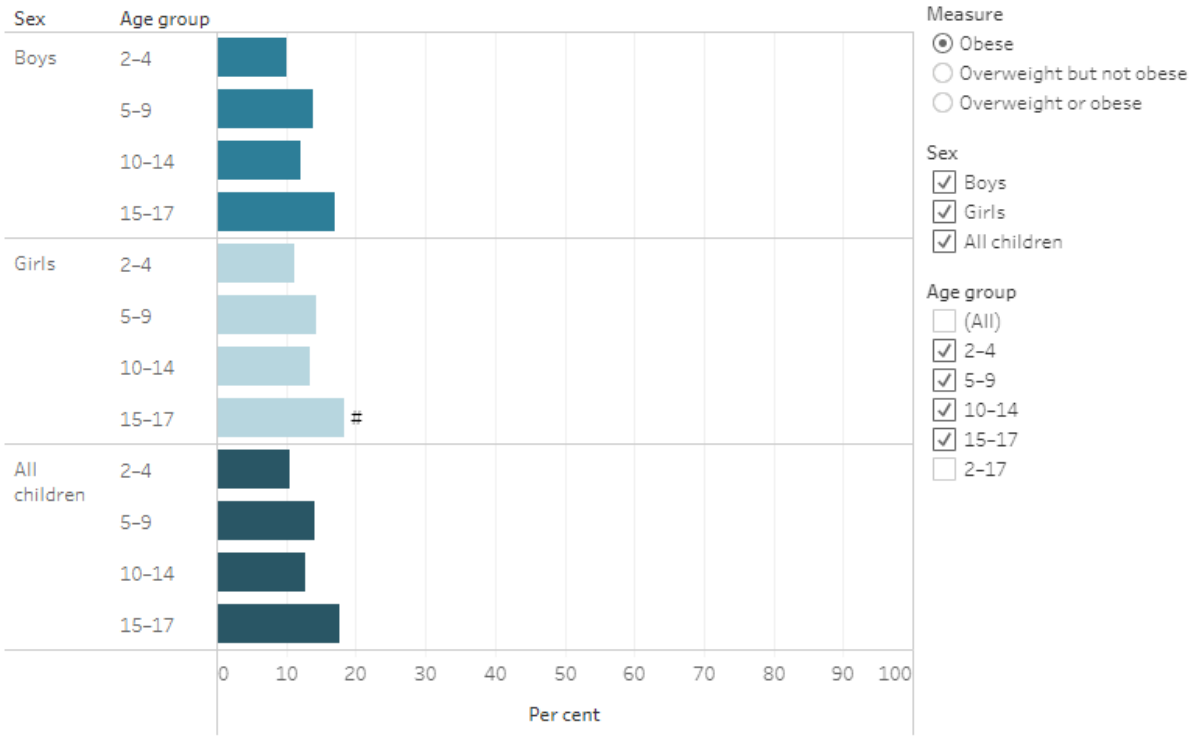
Among Aboriginal and Torres Strait Islander children and adolescents aged 2–17, 38% are living with overweight or obesity, according to the latest data from the 2018–19 ABS National Aboriginal and Torres Strait Islander Health Survey. This is an increase from the 31% estimated from the previous Australian Aboriginal and Torres Strait Islander Health Survey in 2012–13 (ABS 2015a, ABS 2019c). It is also higher than the 24% of non-Indigenous children and adolescents estimated from the National Health Survey in 2017–18 (ABS 2019b).

The proportion of Indigenous boys living with overweight or obesity increases with age from 21% of those aged 2–4 years to 33% of those aged 5–9 and 45% of those aged 10–

14. For girls, there are no significant differences in the proportion living with overweight or obesity across age groups (ABS 2019a) (Figure 4).

See Overweight and obesity among Australian children and adolescents for more information.

Figure 4: Proportion of Indigenous children and adolescents aged 2–17 living with overweight and obesity, by age group and sex, 2018–19



Percentage has a margin of error greater than 10 percentage points which should be considered when using this information.
Source: AIHW analysis of ABS 2019a. See table S13 data and footnotes.
http://www.aihw.gov.au/

Based on the latest available data, of Indigenous Australians aged 18 and over:

- 74% are living with overweight or obesity, increasing from 69% in 2012–13.
- 45% are living with obesity, increasing from 40% in 2012–13 (ABS 2014a, ABS 2019c).

After adjusting for differences in the age structure of Indigenous and non-Indigenous populations, Indigenous adults are 1.2 times as likely to be living with overweight or obesity as non-Indigenous adults (77% compared with 66%), and 1.5 times as likely to be living with obesity (47% compared with 31%) (ABS 2019c).

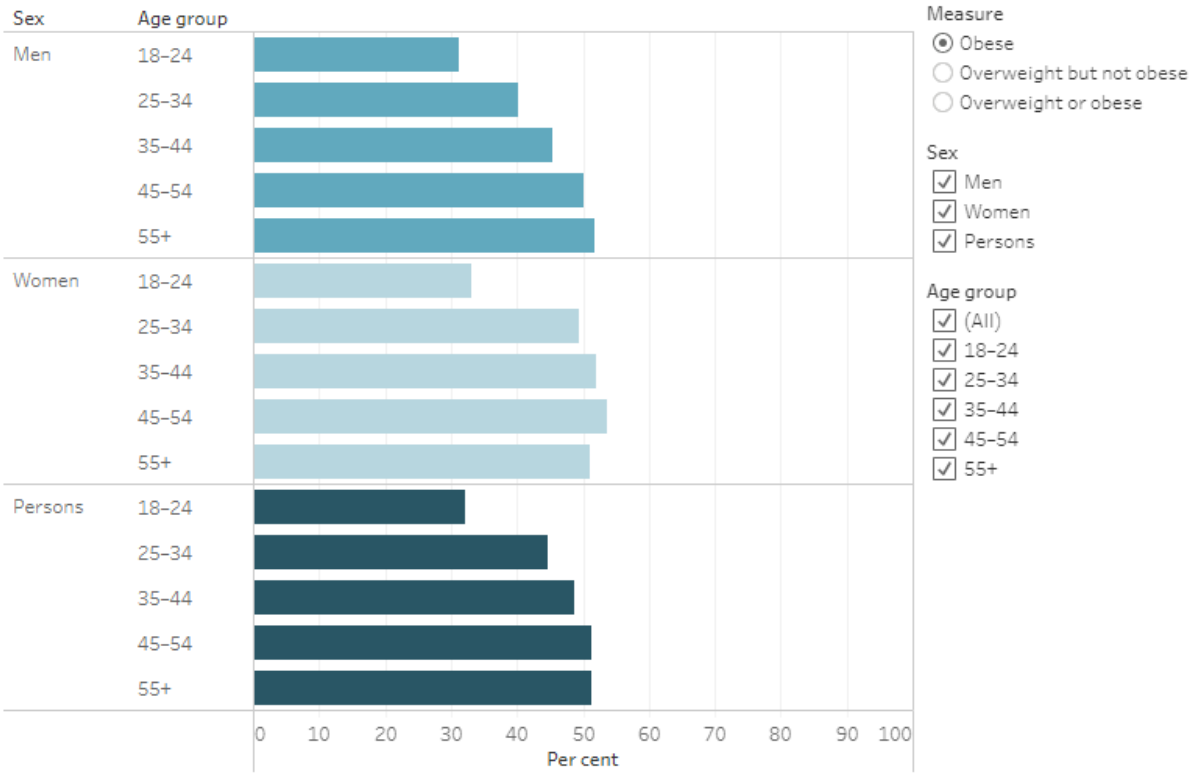
When comparing between Indigenous men and women, there are no statistically significant differences between the proportion living with overweight or obesity, and the proportion living with overweight alone. However, slightly more Indigenous women are living with obesity (48%) than Indigenous men (43%) (ABS 2019c).

The proportion of overweight or obesity generally increases with age. This was seen in both Indigenous men and women (Figure 5) (ABS 2019c):

- For Indigenous men, the proportion increases from 56% at 18–24 to 72% at 25–34 and 81% at 35–44. It peaks at 84% at 55 years and over.
- For Indigenous women, the proportion increases from 60% at 18–24 to 73% at 25–34. It peaks at 83% at 45–54.

For obesity alone, the proportion also increases with age. The proportion of Indigenous adults aged 18–24 living with obesity is 32% compared with the 51% of Indigenous adults aged 45 and over (Figure 5) (ABS 2019c).

Figure 5: Proportion of Indigenous adults living with overweight and obesity, by age group and sex, 2018–19



Source: ABS 2019c. See table S6 for data and footnotes.
http://www.aihw.gov.au/

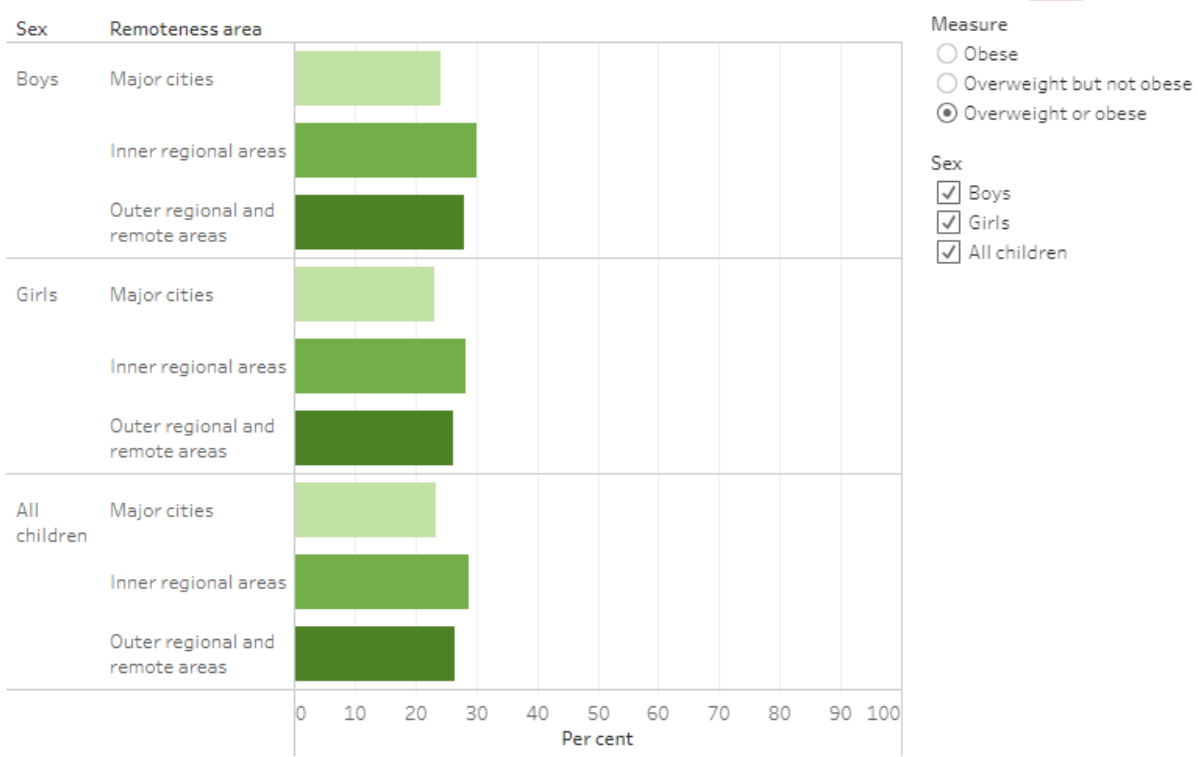
How does overweight and obesity vary by population groups?

An important factor associated with poorer health outcomes, including higher rates of overweight and obesity is the area in which an individual lives, such as remoteness area and the relative socioeconomic advantage and disadvantage of the area (AIHW 2018a).

Remoteness areas

Based on the latest available data, a higher proportion of Australian children and adolescents aged 2–17 in *Inner regional* areas is living with overweight or obesity compared with those in *Major cities* (29% and 24%, respectively) (Figure 6). For children and adolescents in *Outer regional and remote* areas, the proportion is 27%. This pattern is similar for boys and girls (ABS 2019e).

Figure 6: Proportion of children and adolescents aged 2–17 living with overweight and obesity, by remoteness area, 2017–18

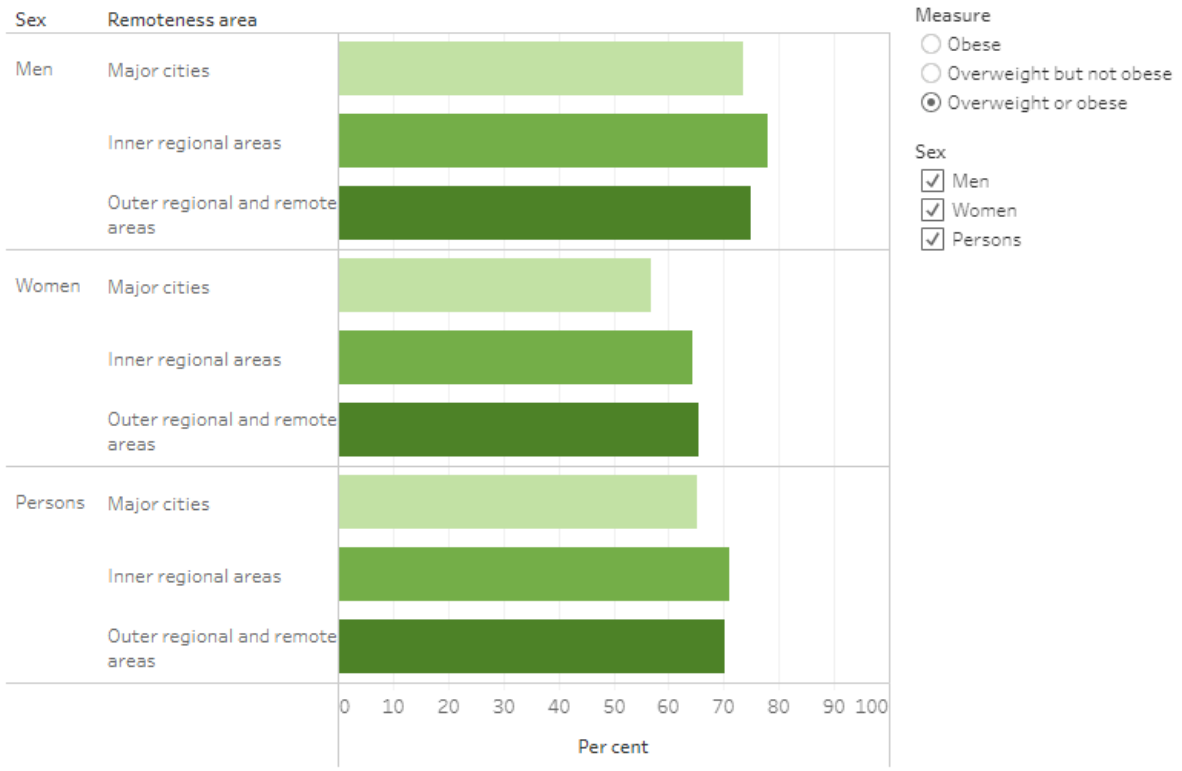


Source: ABS 2019e. See table S12 for data and footnotes.
http://www.aihw.gov.au/

The proportion of Australians aged 18 and over who are living with overweight or obesity varies by remoteness areas (Figure 7). After adjusting for age (ABS 2019e):

- a greater proportion in the *Outer regional and remote* (70%) and *Inner regional* areas (71%) are living with overweight and obesity, compared with those in *Major cities* (65%).
- a greater proportion of men in *Inner regional* areas (78%) is living with overweight and obesity, compared with those in *Major cities* (73%).
- a greater proportion of women in *Outer regional and remote* (65%) and *Inner regional* areas (64%) are living with overweight and obesity, compared with those in *Major cities* (57%).

Figure 7: Age-standardised proportion of adults living with overweight and obesity, by remoteness area, 2017–18



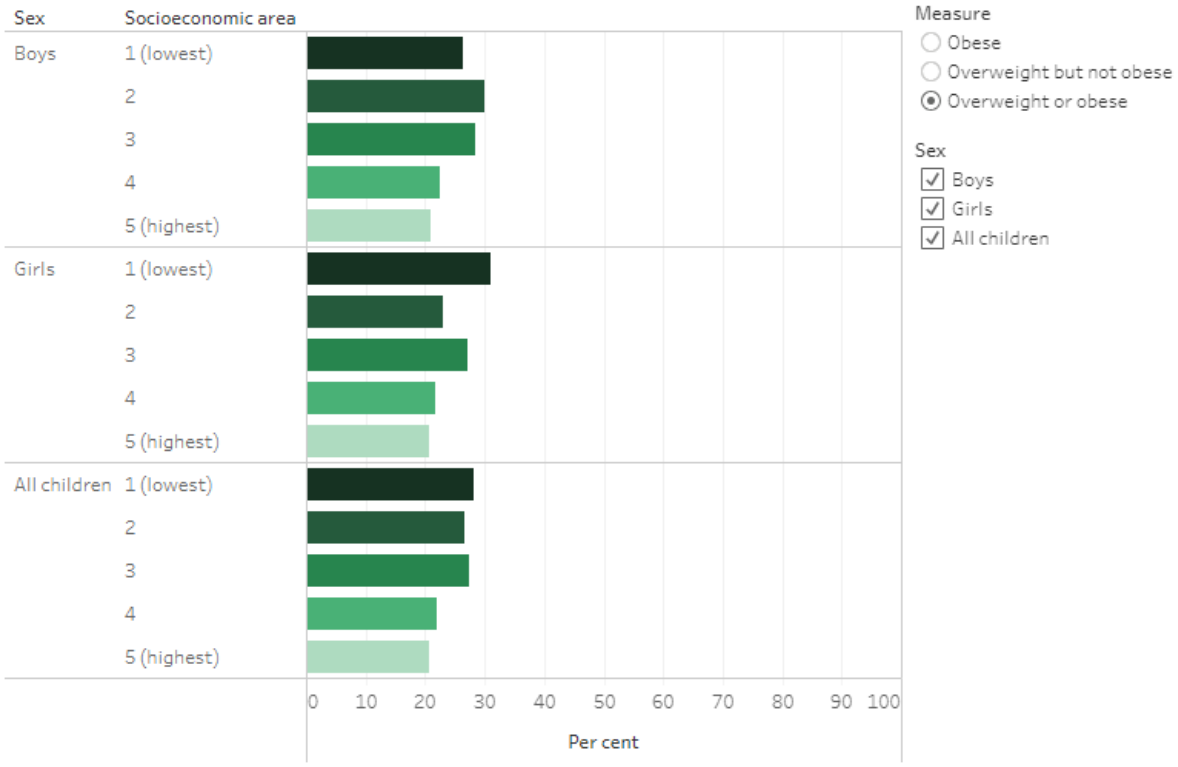
Note: Rates are age standardised to the 2001 Australian standard population.
Source: ABS 2019e. See table S5 for data and footnotes.
http://www.aihw.gov.au/

Socioeconomic areas

Based on the latest available data, children and adolescents aged 2–17 in the lowest socioeconomic areas are more likely to be living with overweight or obesity (28%) than those in the highest socioeconomic areas (21%) (Figure 8). The proportion of those living with obesity in this age group is also higher for those in the lowest socioeconomic areas (11%) compared with the highest socioeconomic areas (4.4%) (ABS 2019e).

Among girls, the proportion living with overweight orobesity is higher for those in the lowest socioeconomic areas (31%) compared with those living in the highest socioeconomic areas (21%). Among boys, the proportion living with overweight and obesity does not differ significantly between the lowest and highest socioeconomic areas (Figure 8).

Figure 8: Proportion of children and adolescents aged 2–7 living with overweight and obesity, by socioeconomic area, 2017–18



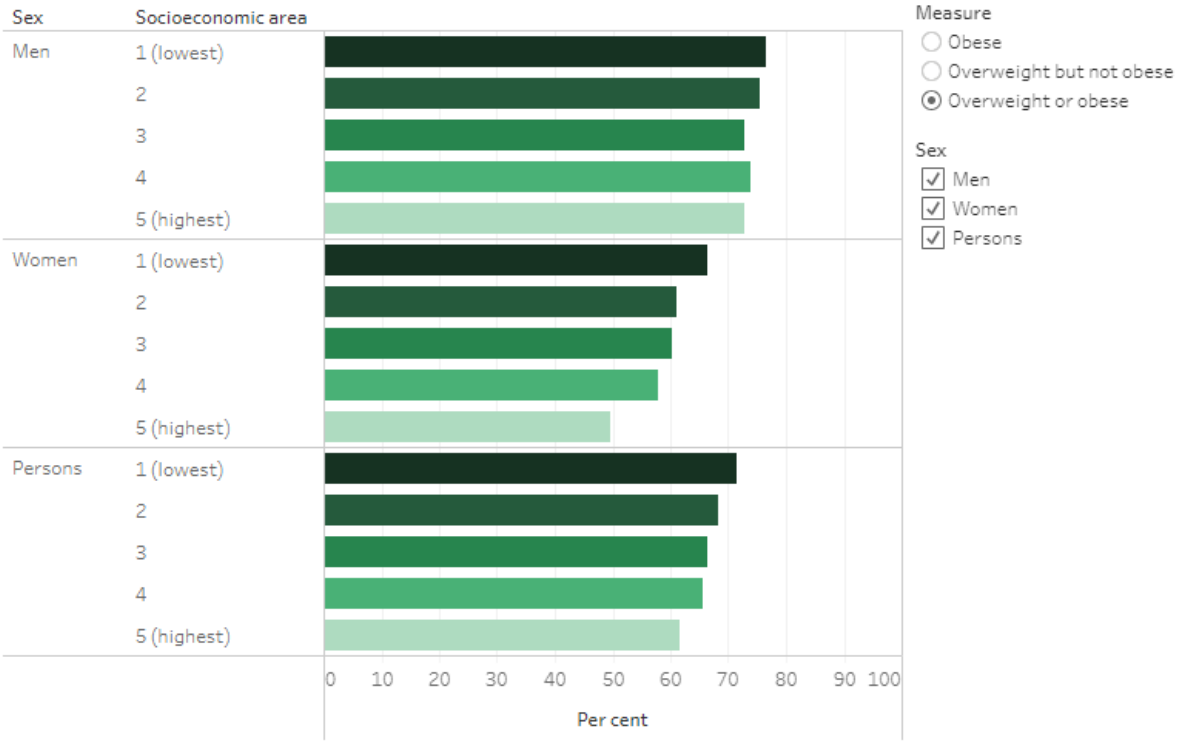
Source: ABS 2019e. See table S12 for data and footnotes.
http://www.aihw.gov.au/

The proportion of Australians aged 18 and over who are living with overweight or obesity varies by socioeconomic areas. After adjusting for age (Figure 9):

- a greater proportion in the lowest socioeconomic areas (72%) are living with overweight or obesity, compared with those in the highest socioeconomic areas (62%).
- a greater proportion of men in the lowest socioeconomic areas (77%) are living with overweight or obesity, compared with those in the highest socioeconomic areas (73%).
- a greater proportion of women in the lowest socioeconomic areas (66%) are living with overweight or obesity, compared with those in the highest socioeconomic areas (50%).

For both men and women, the prevalence of obesity is the underlying reason for the difference by socioeconomic areas. Among men, the age-adjusted proportion of those living with obesity is 37% in the lowest socioeconomic areas, compared with 26% in the highest areas. Among women, 38% are living with obesity in the lowest socioeconomic areas, compared with 22% in the highest areas, after adjusting for age (Figure 9).

Figure 9: Age-standardised proportion of adults living with overweight and obesity, by socioeconomic area, 2017–18

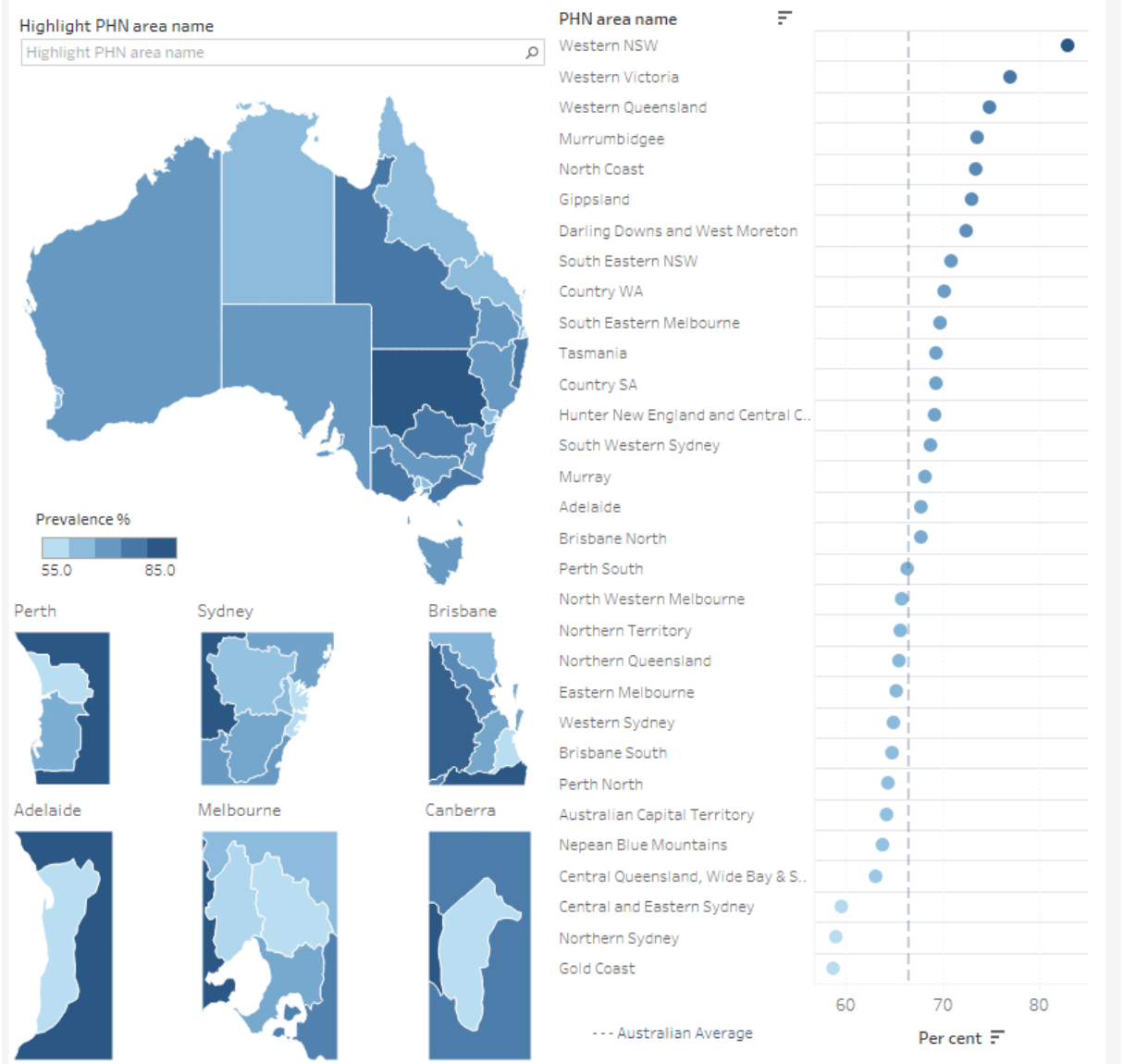


Note: Rates are age-standardised to the 2001 Australian standard population.
Source: ABS 2019e. See table S5 for data and footnotes.
http://www.aihw.gov.au/

Primary Health Networks

In 2017–18, after adjusting for age, the Western New South Wales PHN area had the highest prevalence of overweight an obesity, with 4 in 5 adults living with overweight or obesity (83%). The Gold Coast PHN area had the lowest prevalence, with about 3 in 5 adults living with overweight or obesity (59%) (Figure 10).

Figure 10: Age-standardised proportion of overweight and obesity in persons aged 18 and over, by Primary Health Network (PHN) areas, 2017–18



† Interpret with caution — The 2017–18 National Health Survey excluded very remote areas which comprised 20% of the population of the Northern Territory.
# Proportion has a margin of error greater than 10 percentage points which should be considered when using this information.
Note: Rates have been age-standardised to the 2001 Australian standard population.
Source: ABS 2019c.
https://www.aihw.gov.au

How does overweight and obesity change over time?

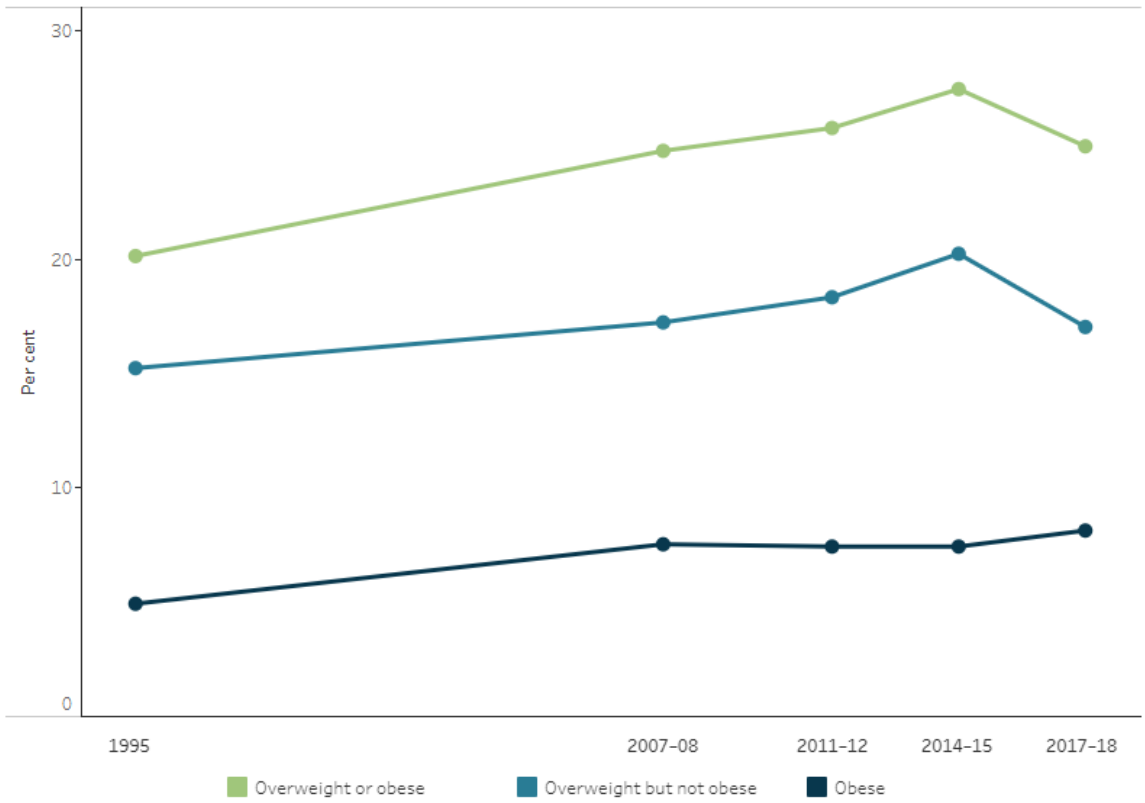
Children and adolescents

The proportion of children and adolescents living with overweight or obesity increased between 1995 and 2007–08 (from 20% to 25%), then remained relatively stable from

2007–08 to 2017–18 (ABS 2009b, ABS 2013a, ABS 2013b, ABS 2015b, ABS 2019b) (Figure 11).

Similarly, the proportion of children and adolescents living with obesity increased from 4.9% in 1995 to 7.5% in 2007–08, then remained relatively stable to 2017–18 (81%). The proportion living with overweight (but not obesity) in children rose between 1995 and 2014–15 (from 15% to 20%), then declined to 17% in 2017–18.

Figure 11: Proportion of overweight and obesity in children and adolescents aged 5–17, 1995 to 2017–18

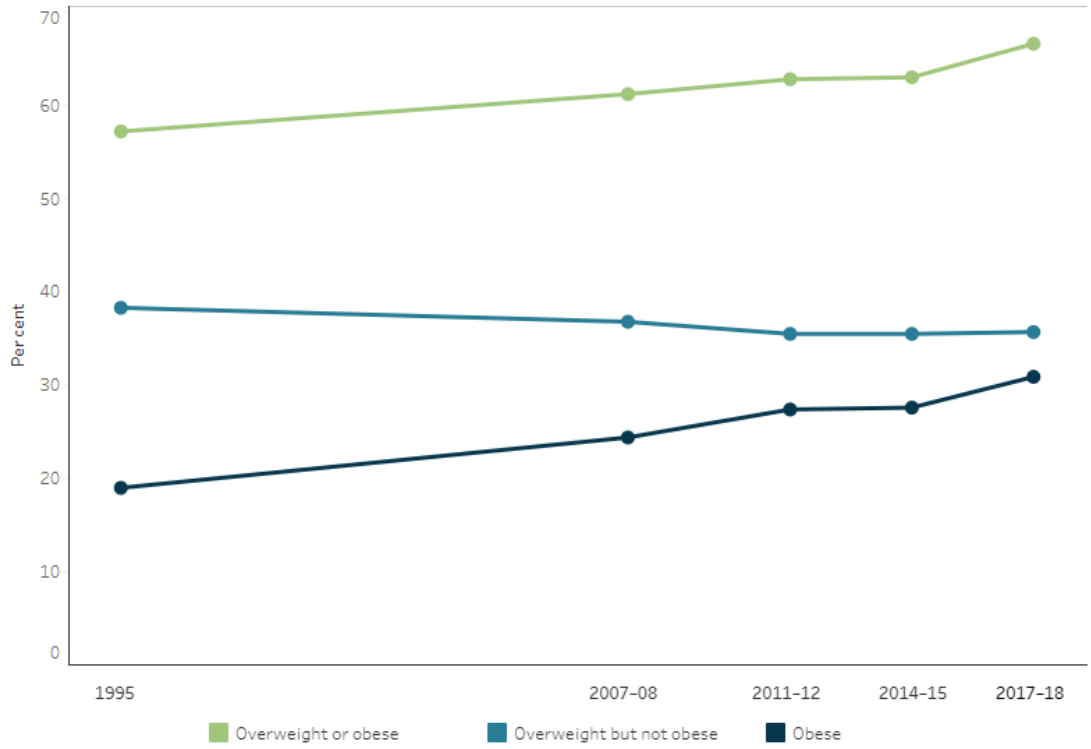


Sources: ABS 2009b, 2013a, 2013b, 2015b and 2019e; see Table S11 for data and footnotes.
http://www.aihw.gov.au

Adults

After adjusting for different population age structures over time, the proportion of adults aged 18 and over living with overweight or obesity increased from 57% in 1995 to 67% in 2017–18. Over this time, the proportion of the population living with obesity almost doubled, from 19% in 1995 to 31% in 2017–18. The proportion living with overweight but not obesity declined from 38% to 36% (Figure 12).

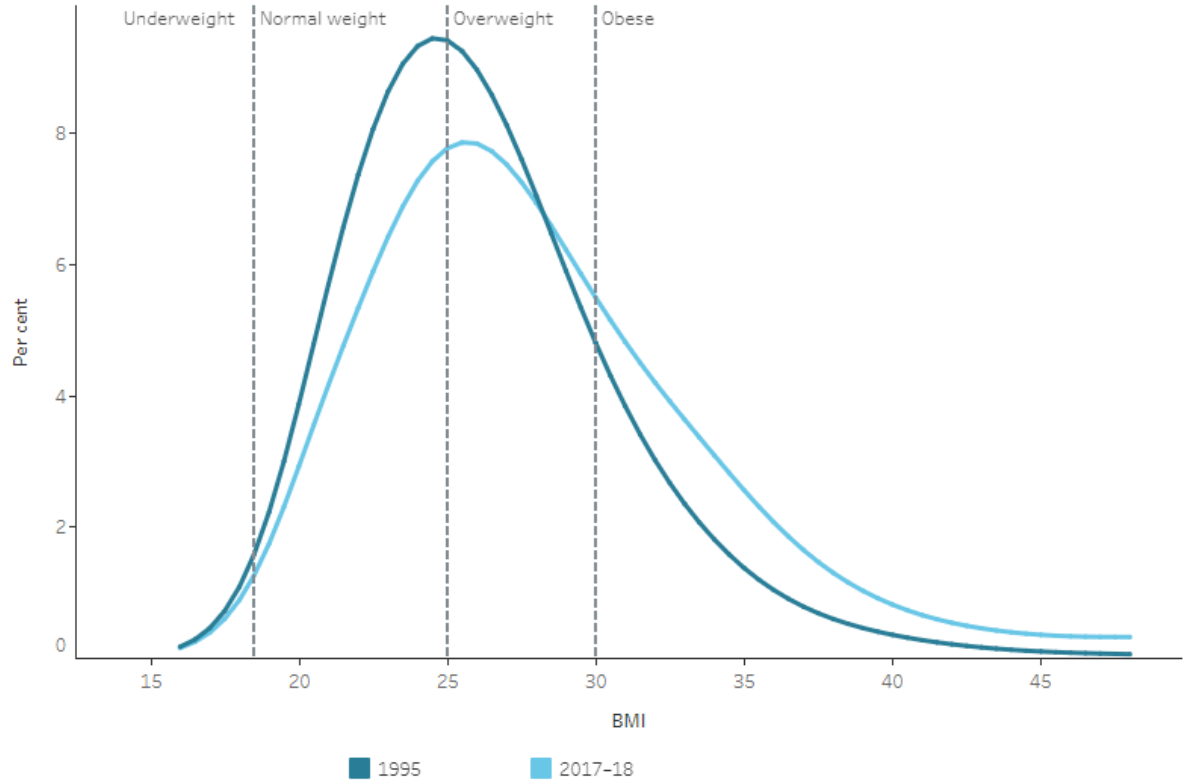
Figure 12: Age-standardised proportion of overweight and obesity in persons aged 18 and over, 1995 to 2017–18



Note: Rates have been age standardised to the 2001 Australian standard population.
Sources: ABS 2009a, 2013b, 2014b, 2016, and 2019e. See table S4 for data and footnotes.
http://www.aihw.gov.au

The distribution of BMI in adults shifted towards higher BMIs from 1995 to 2017–18, due to an increase in obesity in the population over time (Figure 13).

Figure 13: Distribution of BMI among persons aged 18 and over, 1995 and 2017–18



Note: The distributions have been smoothed, including the minimum and maximum values which are based on aggregates of 16 or less and 48 or more.
Sources: ABS 2013b, 2019b. See table S15 for data and footnotes.
http://www.aihw.gov.au

Birth cohorts

Birth cohort analysis looks at how health outcomes differ between birth cohorts, which is a group of people born in the same year or years. This type of analysis can be used to identify groups of people more at risk of a health outcome (AIHW 2020a). Analyses comparing the prevalence of overweight or obesity in Australians across three different time points (1995, 2007–08 and 2017–18) show that those born more recently are more likely to be living with overweight or obesity than people at the same age in previous years (AIHW 2020a, AIHW 2020b).

For the age group 5–14, those born most recently (in 2003–2012) are (Figure 14):

- more likely to be living with overweight or obesity (25%), compared with those born in 1981–1990 at the same age (20%)
- more likely to be living with obesity (7.7%), compared with those born in 1981–1990 at the same age (5.1%)

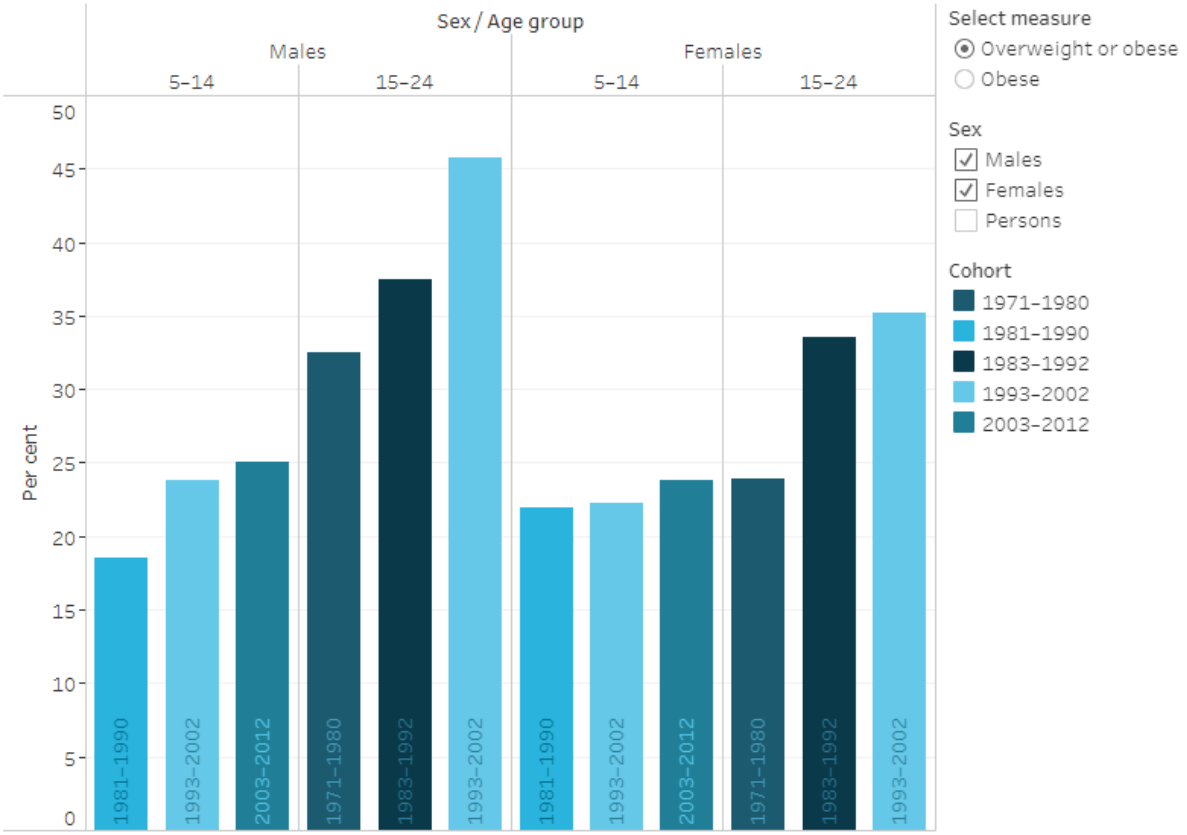
- not significantly more likely to be living with overweight or obesity than those born in 1993–2002.

For the age group 15–24, those born most recently (in 1993–2002) are (Figure 14):

- more likely to be living with overweight or obesity (41%) than those born in 1983–1992 at the same age (36%) and those born in 1971–1980 at the same age (28%)
- more likely to be living with obesity than those born in 1971–1980 at the same age (8.4%).

When comparing the 1993–2002 birth cohort as they aged from 5–14 to 15–24, the prevalence of overweight and obesity increased (from 23% to 41%). Obesity also increased, from 6.4% to 14% (Figure 14) (ABS 2009a).

Figure 14: Proportion of overweight and obesity in children, adolescents and young adults aged 5–24, by birth cohort and age group; measured at 1995, 2007–08 and 2017–18



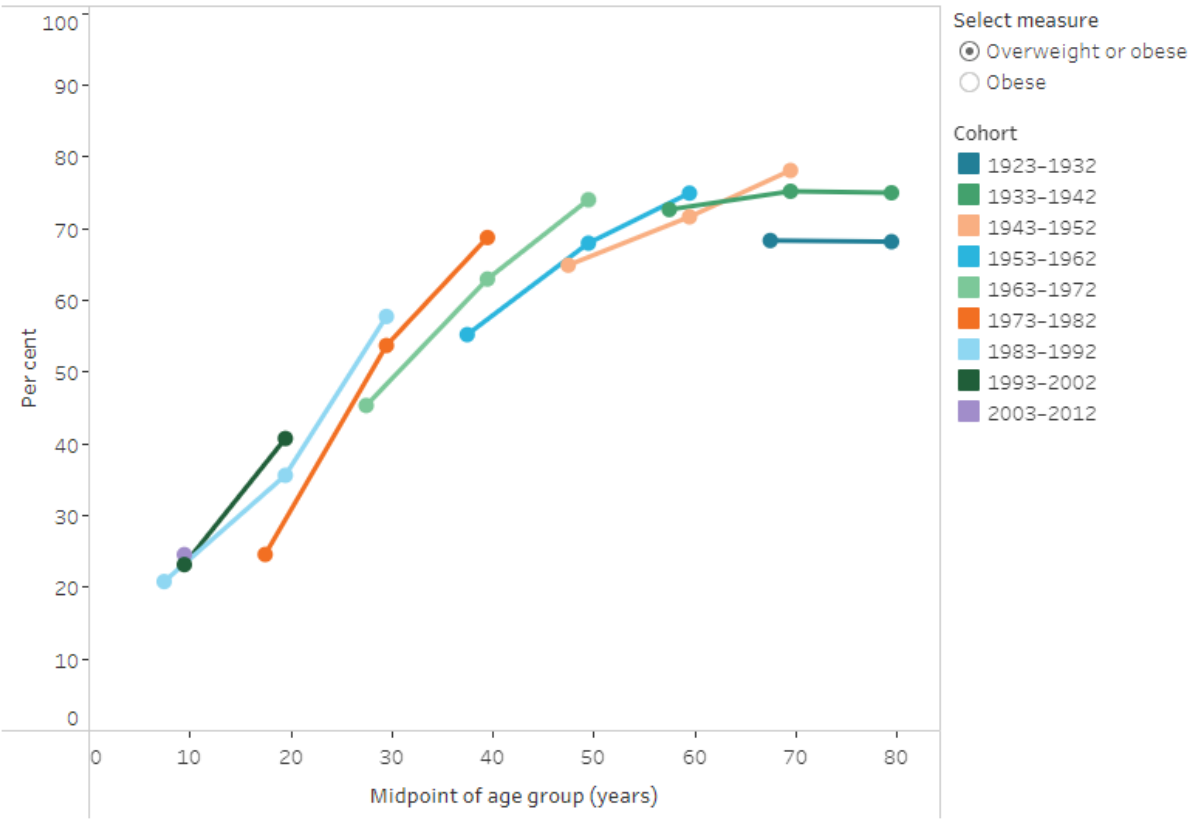
Sources: ABS 2009a, 2013b, 2019b. See table S16 for data and footnotes.
http://www.aihw.gov.au

For adults aged 18 and over, those born most recently are more likely to be living with obesity than those born 10 years earlier. The largest absolute difference was at age 75–84, where an additional 11 in every 100 adults were living with obesity at age 75–84 in 2017–18 (37%) compared with those at the same age in 2007–08 (26%) (Figure 15).

Between 1995, 2007–08 and 2017–18, the prevalence of obesity increased for almost all birth cohorts. The largest absolute change in the prevalence of obesity over the 22 years was among the 1973–1982 birth cohort. The prevalence of obesity in this birth cohort nearly tripled from 6.5% when they were aged 13–22 (in 1995) to 19% when they were aged 25–34 (in 2007–08), then increased to 31% when they were aged 35–44 (in 2017–18) (Figure 15).

To learn more on birth cohort analyses, see Overweight and obesity in Australia: an updated birth cohort analysis and Overweight and obesity among Australian children and adolescents.

Figure 15: Prevalence of overweight and obesity over time, by birth cohort and age group; 1995, 2007–08 and 2017–18



Note: Data are for 10 year age groups plotted at the midpoint of each respective age group.
Sources: ABS 2009a, 2013b, 2019b. See tables S17, S18 and S19 for data and footnotes.
http://www.aihw.gov.au

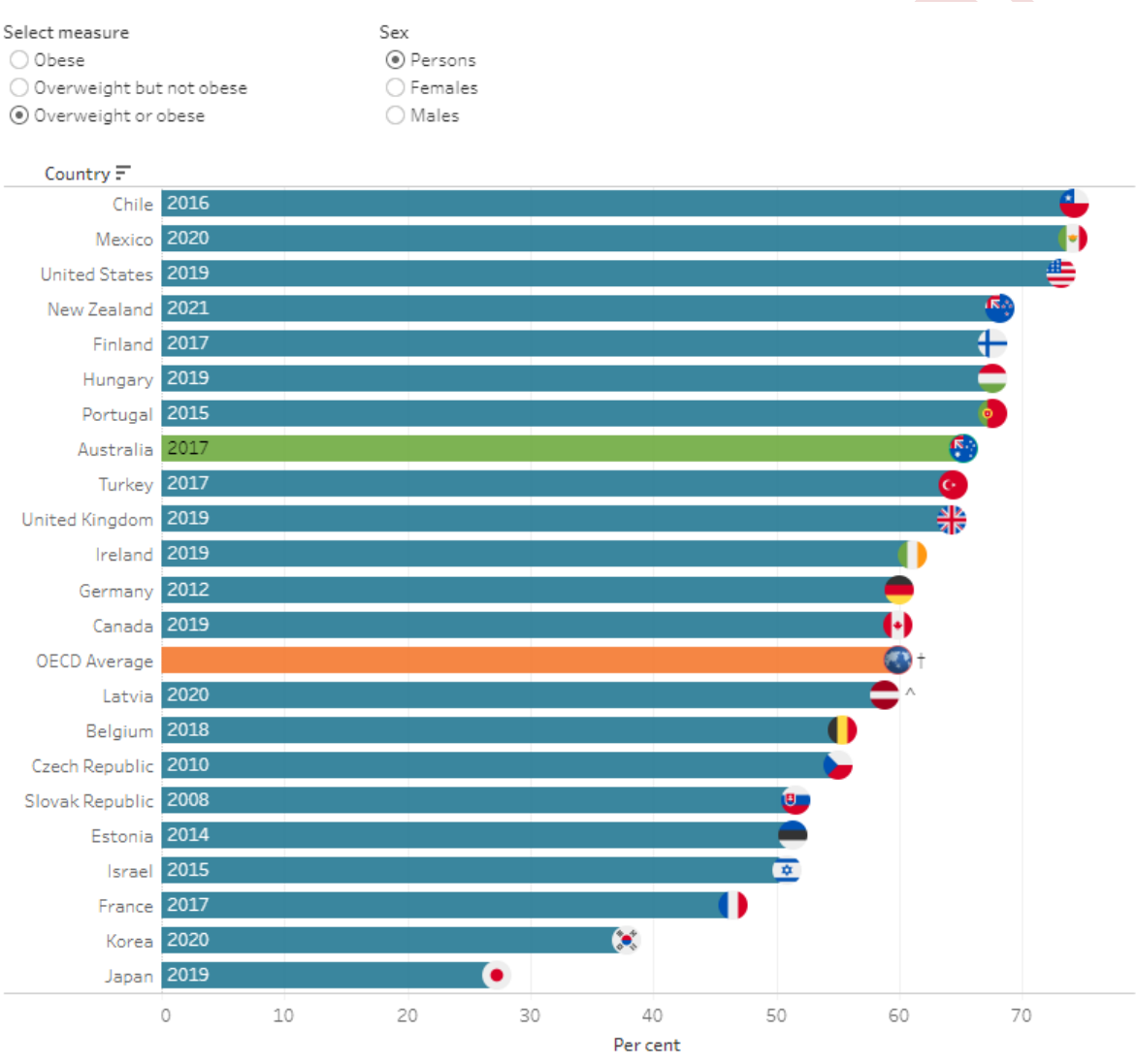
How does Australia compare internationally?

International comparisons of the prevalence of overweight and obesity can be made for member countries of the Organisation for European Co-operation and Development (OECD 2022). Comparisons for measured body weight are based on data from 2021 or the latest available year (OECD 2022).

Australia ranked 9th out of 21 countries with available data for the proportion of people aged 15 and over who were living with overweight or obesity (65%) – this was greater than the OECD average of 60%.

When comparing the proportion of obesity in men and women across OECD countries, Australia had the 4th highest proportion of men living with obesity (32%), behind New Zealand (33%), Hungary (36%) and the United States (44%). The proportion of obesity in women in Australia was 9th highest out of 21 countries (29%) – higher than the OECD average of 26% for women (Figure 16).

Figure 16: Proportion of overweight or obesity in persons aged 15 years and over, OECD countries, 2021 or nearest year



† AIHW derived ^ Difference in methodology
Source: OECD 2022. See table S21 for data and footnotes.
http://www.aihw.gov.au

Notes:

1. Self-reported overweight and obesity data have been omitted due to concerns about reliability of estimates.

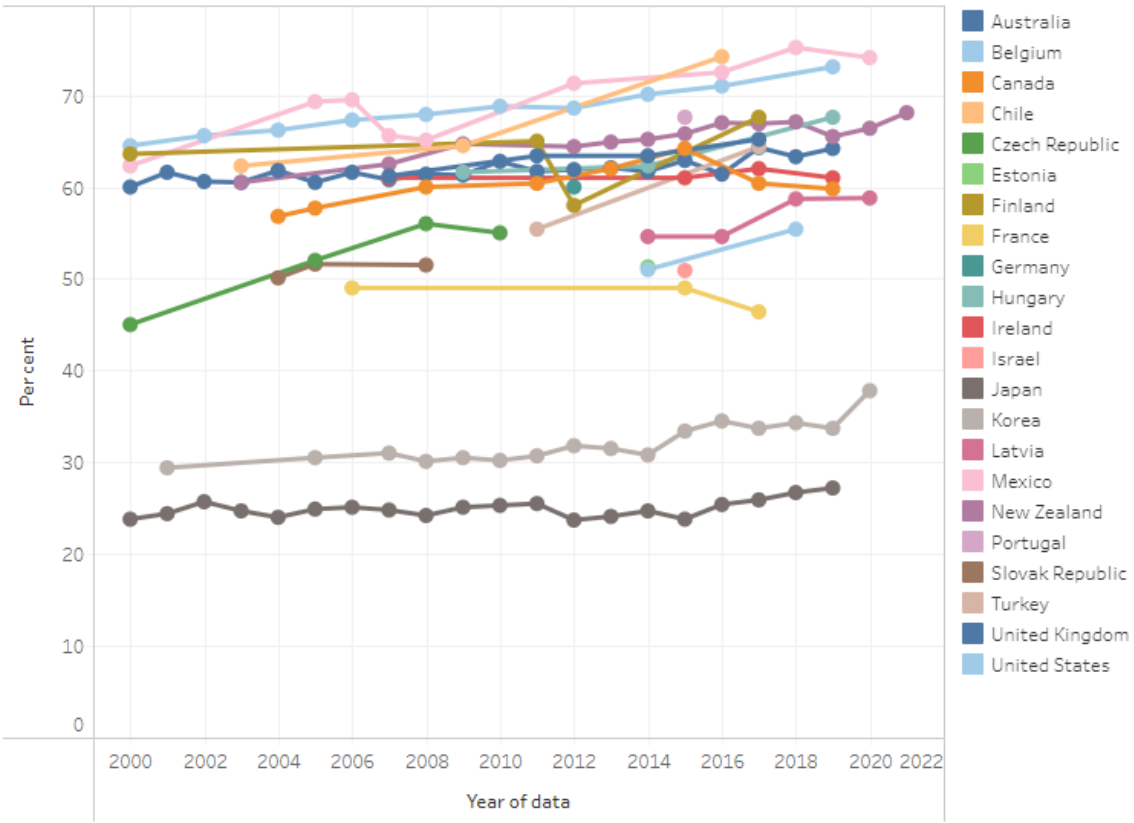
2. Results are for 2021 or the nearest available year of data, for countries with available data. All data are sourced from the OECD Health Statistics 2022 website, published on 30 November 2022.

3. The 'OECD average' for each indicator has been calculated by the AIHW from the latest year of data available for each of the 37 OECD member countries with available data for that indicator. It was not possible to calculate confidence intervals to indicate variability around estimates from the published data available.

4. Variation between indicator results for each country may occur due to differences in data collection, the data quality and the years of data available. For more information on indicator methodology and country-specific data sources used, please see OECD Health Statistics 2022 Definitions, Sources and Methods document.

Australia is among a number of OECD member countries in which the prevalence of overweight and obesity has increased over recent decades (OECD 2022) (Figure 17). These increases have been driven by the increased proportion of people who are living with obesity (OECD 2022). This upward trend is expected to continue – OECD projections show a steady increase in obesity rates until at least 2030 (OECD 2017).

Figure 17: Proportion of overweight or obesity in persons aged 15 years and over, OECD countries, 2000 to 2021



Source: OECD 2022. See table S20 for data and footnotes.
http://www.aihw.gov.au

Notes:

1. Unconnected markers represent countries for which data were available for only 1 of the years presented

2. Data are sourced from the OECD Health Statistics 2022 website, published on 30 November 2022. Results are presented for years of available data for each country, between 2000 and 2021.

3. Results are based on overweight and obesity classifications based on measured height and weight only (self-reported data have been excluded due to concerns about reliability).

4. Variation in results between countries may occur due to differences in data collection and data quality. For more information on indicator methodology and country-specific data sources used, please see OECD Health Statistics 2022 Definitions, Sources and Methods document.

For more information, see International health data comparisons, 2022.

What are the health impacts of overweight and obesity?

Burden of disease is a measure of the years of healthy life lost from living with ill health or dying prematurely from disease and injury. A portion of this burden is due to modifiable risk factors. Burden of disease analysis estimates the contribution of these risk factors to this burden.

Overweight (including obesity) is the 2nd leading risk factor (after tobacco use) contributing to ill health and death, responsible for 8.4% of the total disease burden in Australia, in 2018 (AIHW 2019). Overweight (including obesity) is linked to 30 diseases, including 17 types of cancers, 4 cardiovascular diseases, 3 musculoskeletal conditions, type 2 diabetes, dementia, asthma and chronic kidney disease.

In 2018, overweight (including obesity) was responsible for:

- 55% of type 2 diabetes disease burden.
- 51% of hypertensive heart disease.
- 49% of uterine cancer.
- 43% of gout.
- 42% of chronic kidney disease.

Overweight (including obesity) contributed to around 16,400 deaths (10% of all deaths) (AIHW 2019).

The total disease burden attributable to overweight (including obesity) in 2018 was 2.2 times greater in the lowest socioeconomic group compared with the highest socioeconomic group (AIHW 2019).

See Australian Burden of Disease Study 2018: Interactive data on risk factor burden for more information on the burden of disease associated with overweight and obesity.

Impacts of COVID-19 on overweight and obesity

Nationally representative data on people's weight in Australia during COVID-19 are not currently available. However, emerging research suggests that COVID-19 might have had an impact on the weight of some Australians.

Data from SiSU health check stations across Australia between January 2020 to December 2020 showed that on average, more people gained weight than lost weight. An average weight of 3.0 kgs per member was gained, by those who gained weight during 2020. This is a swing from net weight loss of 3.0 kgs per member during 2019. The prevalence of people with a BMI greater than 25 (classified as overweight or obese) has also increased when comparing the pre-COVID period (January 2017 to March 2020) and COVID period (April 2020-August 2021). This was seen across all age groups, except

for the 65–74 and 75 and over age groups, indicating widespread population weight gain (Hannebery et al. 2021).

It should be noted that users of SiSU health check stations tend to be younger, female and more socioeconomically advantaged than the general Australian population (Flitcroft, et al. 2020).

To learn more about how the pandemic has affected the population's health in the context of longer-term trends, please see 'Chapter 2: Changes in the health of Australians during the COVID-19 period' in Australia's health 2022: data insights.

Where do I go for more information?

For more information on overweight and obesity, see:

- Overweight and obesity in Australia: a birth cohort analysis
- Overweight and obesity in Australia: an updated birth cohort analysis
- Overweight and obesity among Australian children and adolescents

Visit Overweight and obesity to see more on this topic.

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Measuring overweight and obesity

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Body Mass Index

Body Mass Index (BMI) is an internationally recognised standard for classifying overweight and obesity in adults. BMI is calculated by dividing a person's weight in kilograms by the square of their height in metres.

BMI does not necessarily reflect body fat distribution or describe the same degree of fatness in different individuals. However, at a population level, BMI is a practical and useful measure for identifying overweight and obesity. Figure 1 can be used to calculate your BMI.

Figure 1: BMI calculator and distribution, persons aged 18 and over, by sex, 2017–18

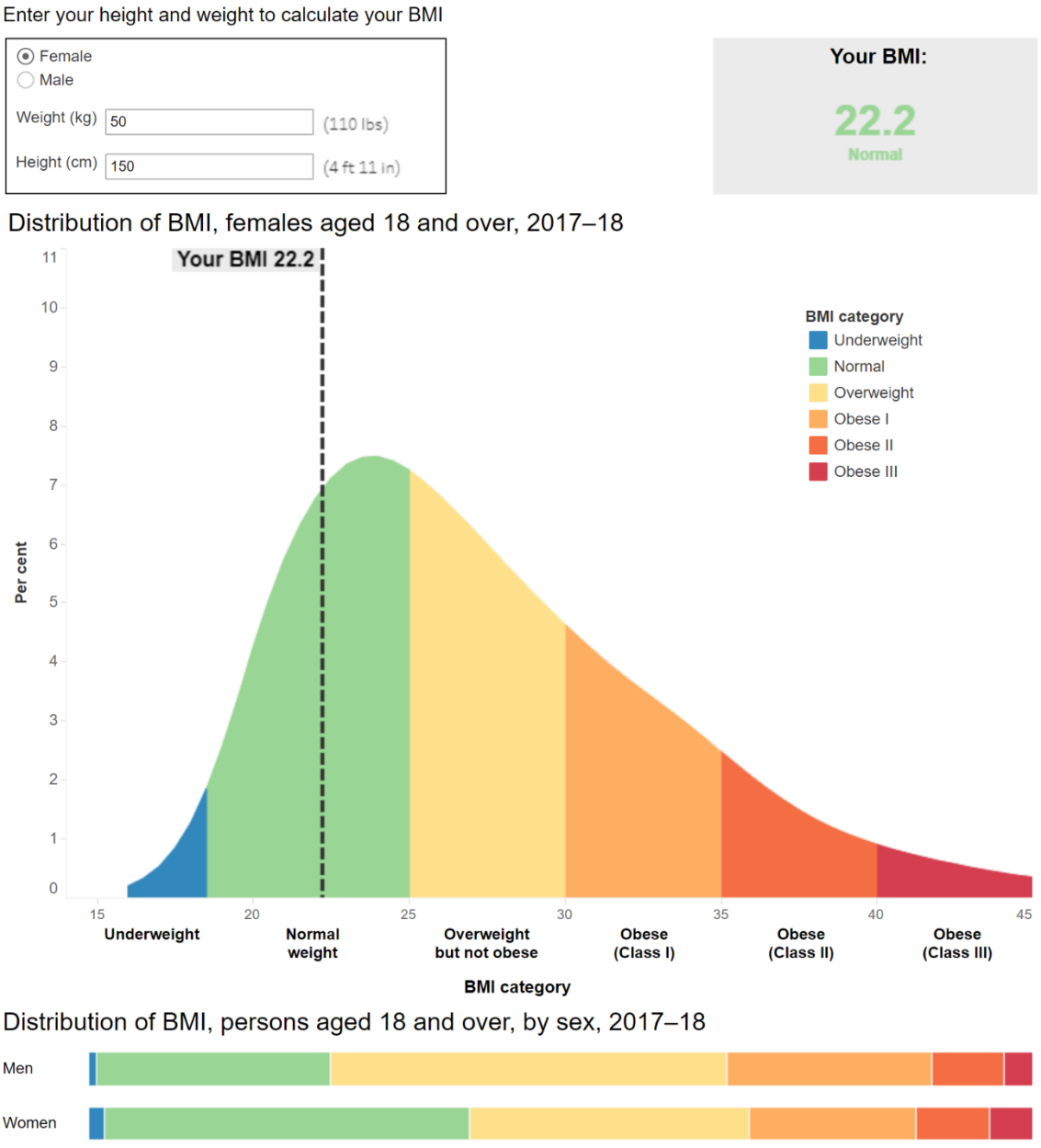

Table 1: BMI classification in adults

BMI (kg/m²)	Classification
Less than 18.5	Underweight
18.5 to less than 25	Normal weight
25 or more	*Overweight or obese*
25 to less than 30	Overweight but not obese

30 or more	*Obese*
30 to less than 35	Obese class I
35 to less than 40	Obese class II
40 or more	Obese class III

Source: WHO 2000.

Height and body composition are continually changing for children and adolescents as they grow. Different BMI cut-off points based on age and sex are used when assessing their BMI at a population level (Cole et al. 2000).

Waist circumference

Waist circumference is an alternative way to assess the risk of developing obesity-related chronic diseases. A higher waist measurement is associated with an increased risk of chronic disease. The threshold at which waist circumference indicates an increased risk of developing disease are dependent on gender and ethnicity (NHMRC 2013). The threshold may also be less accurate in some situations such as pregnancy and medical conditions where there is distension of the abdomen (Heart and Foundation 2023). The risk levels presented below are for Caucasian men and women.

Table 2: Waist circumference associated with increased risk of metablic complications

Sex	Increased risk	Substantially increased risk
Men	94 cm	102 cm
Women	80 cm	88 cm

Source: NHMRC 2013.

For information on how to correctly measure your waist, visit the National Heart Foundation website.

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Causes of overweight and obesity

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Waist circumference

The root causes of overweight and obesity are varied and complex. Overweight and obesity mainly occurs when there is a sustained energy imbalance, where too much energy is consumed through food and drink, and not enough is expended through physical activity. However, many other factors also influence overweight and obesity, including:

- Genetics/physiology (for example, metabolism, appetite, satiety and body fat distribution)
- Health inequalities (for example, area of remoteness, socioeconomic disadvantage, ethnic/cultural groups)
- Environmental factors (for example, availability of fast-food outlets, portion sizes, home and neighbourhood environments)
- Societal factors (for example, media and advertising, retail environments).

Healthy eating and physical activity are important for a healthy, active life. Maintaining your weight means balancing the energy going into your body and the energy being used for growth and repair, for physical activity, and to keep your bodily functions working.

Food and nutrition

The total amount of food that your body needs depends on your age, sex, body size, level of physical activity and whether you are pregnant or breastfeeding. Children and adolescents need enough nutritious food to grow and develop normally. Older people need to eat nutritious foods to help maintain a healthy weight.

The body converts the protein, fat and carbohydrate in food to energy. Excess energy intake, even a small amount over a long period, will cause weight gain. Visit eatforhealth.gov.au to calculate your individual energy requirements.

The Australian Guide to Healthy Eating is a food selection guide that visually represents the proportion of the five food groups recommended for consumption each day. Following these recommendations and limiting the number of energy-dense, nutrient-poor discretionary foods and drinks is the best way to maintain a healthy weight.

For more information, see Diet.

Physical activity

The human body expends energy in 3 ways:

- Basal metabolism (the energy used to keep the body functioning at rest, such as breathing and blood circulation)
- Thermic processes (the energy taken to digest and absorb food)
- Physical activity (the energy used to move around).

Physical activity is the component a person has the most control over. Being physically active throughout life helps to promote health and wellbeing and prevent chronic disease. Not expending enough energy can contribute to weight gain, and overweight and obesity (AIHW 2018b).

Too much sedentary behaviour (sitting or lying down, except when sleeping) can also contribute to overweight and obesity (AIHW 2018b). Australia's Physical Activity and Sedentary Behaviour Guidelines recommend the type, duration, intensity and frequency of physical activity, and practices for sedentary behaviour, for people during different life stages.

For more information, see Physical activity.

Obesogenic environments

The term 'obesogenic environment' is used to describe an environment that promotes obesity (Swinburn, et al. 1999). Schools, workplaces, homes and neighbourhoods, the media, availability of convenience foods, and portion sizes can all influence a person's body weight. See A picture of overweight and obesity in Australia for more information on obesogenic environments.

References

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Technical notes

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Australian Bureau of Statistics data

This report uses data from the following surveys conducted by the Australian Bureau of Statistics (ABS):

- 2018–19 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS)
- 2017–18 National Health Survey (NHS)
- 2014–15 NHS
- 2012–13 Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS)
- 2011–12 Australian Health Survey (AHS)
- 2007–08 NHS
- 1995 National Nutrition Survey (NNS).

These data sources were chosen because they provide nationally representative measured height and weight data. Please note, the most recent 2020–21 NHS was conducted during the COVID-19 pandemic. To ensure the safety of interviewers and respondents, there were no face-to-face interviews, and no measured height and weight data was collected. Only self-reported height and weight data was collected but these data usually underestimate the measured height and weight. For this reason, the 2020–21 NHS was not used to report on overweight and obesity. For more information, please refer to the ABS release on Self-reported height and weight and the ABS National Health Survey: First results methodology.

Information about the surveys, including data quality statements, is available on the ABS website.

The scope of these surveys was restricted to residents of private dwellings, and excluded residents of non-private dwellings such as hospitals, nursing homes, hotels, motels, boarding schools, and prisons.

The 2017–18 NHS, 2014–15 NHS, 2011–12 AHS, 2007–08 NHS and 1995 NNS excluded people living in very remote areas of Australia and discrete Aboriginal and Torres Strait Islander communities.

The 2018–19 NATSIHS and 2012–13 AATSIHS only collected information from people who identified as Aboriginal or Torres Strait Islander. These surveys included people living in non-remote and remote areas, including discrete Aboriginal and Torres Strait Islander communities.

All of these surveys (except the 2007–08 NHS) included measured height and weight data for people aged 2 and over. The 2007–08 NHS included these data for people aged 5 and over.

Each survey included the collection of measured height and weight by trained interviewers. The tools used for measuring height and weight varied over time, and in particular this changed the maximum weight that could be measured. For example, the 1995 NNS used scales that could weigh a maximum weight of 140 kg. However, the 2007–08 NHS used scales that could weigh a maximum weight of 150 kg, and the 2017–18 NHS used scales that could weigh a maximum weight of 200 kg.

The response rates for physical measures varied between surveys with decreasing response rates over time. The ABS imputed BMI for those people for whom BMI was not measured in the 2014–15 NHS, 2017–18 NHS and 2018–19 NATSIHS. In this method, participants with a missing response were given the response of similar participants.

A very similar imputation method was used for the 2017–18 NHS and the 2018–19 NATSIHS, but this method was different for adults and children. For adults, the similarity of participants was based on age group, sex, part of state, self-perceived body mass, level of exercise, whether or not a participant had high cholesterol as a long-term health condition, and self-reported BMI category (calculated from self-reported height and weight) (ABS 2018d, ABS 2019d). (ABS 2018c, 2019). For 2–14-year-olds, the similarity was based on age group, sex, self-reported BMI and part of state, while for 15–17-year-olds, level of exercise and self-perceived body mass (only if a person answered for themselves) were also used.

The imputation method for the 2014–15 NHS was similar to the 2017–18 NHS and 2018–19 NATSIHS, except it did not use self-reported BMI (ABS 2015c).

There was no imputation of BMI in the 1995 NNS, 2007–08 NHS, 2011–12 AHS and 2012–13 AATSIHS and participants without a measured BMI were excluded from analysis.

Primary Health Networks

This report includes the number of adults aged 18 years and over who were classified as overweight or obese, by Primary Health Network (PHN). PHNs are local organisations that connect health services across a specific geographic area, with the boundaries defined by the Australian Government Department of Health.

Proportions have been age standardised to the 2001 Australian population to account for differences in the age structure of the population in different areas. Results are presented in Table S8 as both crude and age-standardised rates.

The quality of estimates from the NHS can vary across PHN areas, as the survey was not specifically designed to produce estimates at this level of geography. Table S8 includes 95% confidence intervals, as an indication of the reliability of the proportions.

Proportions that have a margin of error that is 10 percentage points or greater have been indicated and these should be used with caution due to the wide confidence interval.

Data for the Northern Territory should be interpreted with caution as the 2017–18 NHS excluded *Very Remote* areas which comprises of 20% of the estimated resident population of the Northern Territory (ABS 2018d).

Remoteness areas

This report uses the remoteness areas from the 2016 Australian Statistical Geography Standard (ABS 2018a). The national health surveys exclude *Very Remote Australia* so these are not included in results in this publication.

Due to low sample size, *Remote Australia* has been combined with *Outer Regional Australia* for results presented by remoteness areas.

Socioeconomic areas

Information on socioeconomic areas in this report is based on Socio-Economic Indexes for Areas (SEIFA), a product developed by the ABS that ranks areas in Australia according to relative socioeconomic advantage and disadvantage. The indexes are based on information from the five-yearly Census. Each index is a summary of a different subset of Census variables and focuses on a different aspect of socioeconomic advantage and disadvantage (ABS 2018b).

This report uses the Index of Relative Socio-economic Disadvantage (IRSD) from 2016, based on the Statistical Area Level 1 (SA1) that each household was within. Areas were ranked and put into 5 equally sized groups based on the IRSD score of these SA1s; these form the socioeconomic areas used in this report. The 20% of areas living with the greatest overall level of disadvantage are described as living in the lowest socioeconomic areas. The 20% of areas at the other end of the scale – those living in areas with the least overall level of disadvantage – are described as living in the highest socioeconomic areas.

Methods

Prevalence

Crude and age-standardised prevalence estimates are presented as percentages in this report. Crude prevalence, as a percentage, is defined as the number of people with a particular characteristic, divided by the number of people in the population of interest, multiplied by 100.

In calculating crude prevalence estimates, those people for whom BMI was not available were excluded from the denominator. For the 2014–15 NHS, 2017–18 NHS and the

2018–19 NATSIHS, imputed data were used for those people for whom BMI had not been measured.

All prevalence estimates in this report are weighted estimates that use person weights allocated to each survey participant by the ABS.

The jack-knife weight replication method was used to derive the standard error (SE) for each estimate, using replicate weights provided by the ABS.

The statistical significance of any difference in prevalence (percentage) estimates between people across time or population groups (e.g. between age groups, socioeconomic quintile, or sex) was assessed using z scores or 95% confidence intervals.

Age-standardised estimates

Age-standardised prevalence estimates are presented to remove the influence of age when comparing populations with different age structures. This is necessary because rates of overweight and obesity vary (usually increasing) with age.

The age-standardised proportions in this report have been directly age-standardised to the 2001 Australian standard population.

Measuring overweight and obesity

For children and adolescents:

- age- and sex-specific half-year BMI cut-off points were used to classify overweight and obesity (Cole et al. 2000).

For adults:

- overweight and obesity was classified as a BMI of 25.00 kg/m² or more.
- obesity was classified as a BMI of 30.00 kg/m² or more (WHO 2000).

Relative standard error, margin of error and confidence intervals

The relative standard error (RSE) of an estimate is a measure of the error likely to have occurred due to sampling. The RSEs of the estimates were calculated using the standard errors (SEs):

$$\text{RSE\%} = \frac{\text{SE(estimate)}}{\text{estimate}} \times 100$$

The margin of error (MoE) at the 95% confidence level for each estimate was calculated using 1.96 as the critical value:

$$\text{MoE} = 1.96 \times \text{SE(estimate)}$$

The MoE was then used to calculate the 95% confidence interval (CI) around each estimate:

$$95\%\ \text{CI} = \text{estimate} \pm \text{MoE(estimate)}$$

The 95% CI is a range of values determined by the variability in data, within which there is a 95% chance that the confidence interval will contain the true value of the population quantity being estimated.

Significance testing

Variation or difference in observed values or rates may be due to a number of causes including, among other things, actual differences in the study's populations and sampling error. A statistical test of significance indicates how incompatible the observed data are with a specified statistical model. To assess whether differences between estimates are incompatible with a null hypothesis that the survey estimates are normally distributed and that there is no difference between the groups being compared, 95% CIs were used.

A difference between estimates was considered statistically significant if the 95% CIs around the estimates did not overlap. Where there was an overlap between 95% CIs, a 95% CI for the difference between estimates was calculated. To do this, the SE of the difference was approximated by:

$$SE = \sqrt{SE(estimate_1)^2 + SE(estimate_2)^2}$$

The 95% CI for the difference between estimates was then calculated as:

$$95\%\ CI = (estimate_1 - estimate_2) \pm (1.96 \times SE(estimate_1 - estimate_2))$$

If the 95% CI for the difference between estimates included 0, then the difference was not statistically significant. If it excluded 0, then the difference was considered to be statistically significant.

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