

Obesity and overweight: geographical variations

Policy context

Each increment in a person's body weight above their optimal level is associated with an increase in the risk of ill health. Overweight arises through an energy imbalance over a sustained period of time. While many factors may influence a person's weight, weight gain is essentially due to the energy intake from the diet being greater than the energy expended through physical activity. The energy imbalance need only be minor for weight gain to occur, and some people, due to genetic and biological factors, may be more likely to gain weight than others. Overweight is associated with higher mortality and morbidity, and those who are already overweight have a higher risk of becoming obese.

Being obese has significant health, social and economic impacts, is more prevalent among disadvantaged populations and is closely related to lack of exercise and diet¹. Obesity increases the risk of suffering from a range of health conditions, including coronary heart disease, type 2 diabetes, some cancers, knee and hip problems, and sleep apnoea^[1].

The data

Overview

The Australian Bureau of Statistics (ABS) reports² that, in 2017-18, two thirds (67.0%) of Australians 18 years and over were overweight or obese. Slightly more than a third (35.6%) were overweight and slightly less than a third were obese (31.3%). Just under one third (31.7%) were within the healthy weight range and one percent (1.3%) were underweight.

Of greatest concern has been the consistent trend toward a higher proportion of the population aged 18 years and over with a Body Mass Index (BMI) of 30 and above, which is considered to be obese. Since 1995, the proportion of adults aged 18 years and over who were overweight or obese has increased from 56.2% to 67.0%; this change was driven by the increase in the proportion of adults categorised as obese, which rose from 18.7% in 1995 to 31.3% in 2017-8. The increase in the proportion categorised as obese was accompanied by a small reduction in the proportion who were overweight (from 37.6% in 1995 to 35.6% in 2017-8) and a larger decrease in the proportion with a BMI in the normal range (or at a 'healthy' weight), from 43.5% in 1995 to 31.7% in 2017-8^[2].

These worrying trends are clearly illustrated in (Figures 1 and 2) – Figure 1 shows the progression from 1995 to 2017-18 as recorded in various ABS health surveys, and Figure 2 highlights the overall extent of the change.

Figures 1 and 2: Measured Body Mass index, people 18 years and over, Australia

Figure 1: 1995 to 2017-18

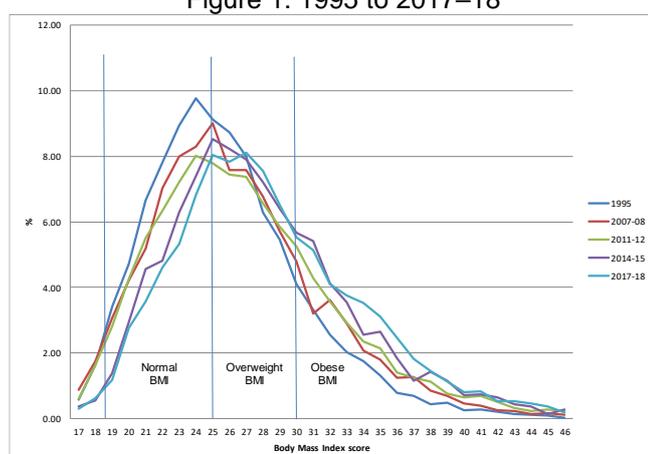
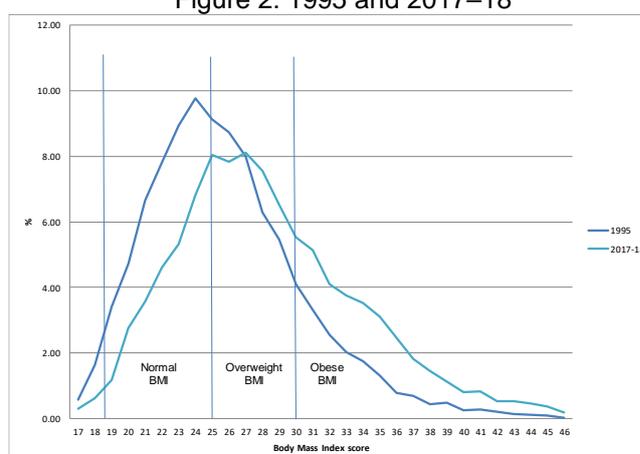


Figure 2: 1995 and 2017-18



¹ Australian Bureau of Statistics (ABS). Measures of Australia's progress, 2010. (ABS Cat. no. 1370.0). Canberra: ABS; 2010

² 4364.0.55.001 - National Health Survey: First Results, 2017-18. Available from <https://www.abs.gov.au/ausstats/abs@nsf/Lookup/by%20Subject/4364.0.55.001~2017-18~Main%20Features~Overweight%20and%20obesity~90>; last accessed 8 January 2020

Source: Data for 1995, 2007–08 and 2011–12 from ABS, as reported in Australian National Preventive health Agency (ANPHA), State of preventive health 2013. Report to the Australian Government Minister of Health. Canberra: ANPHA, 2013; other data extracted from ABS Survey TableBuilder

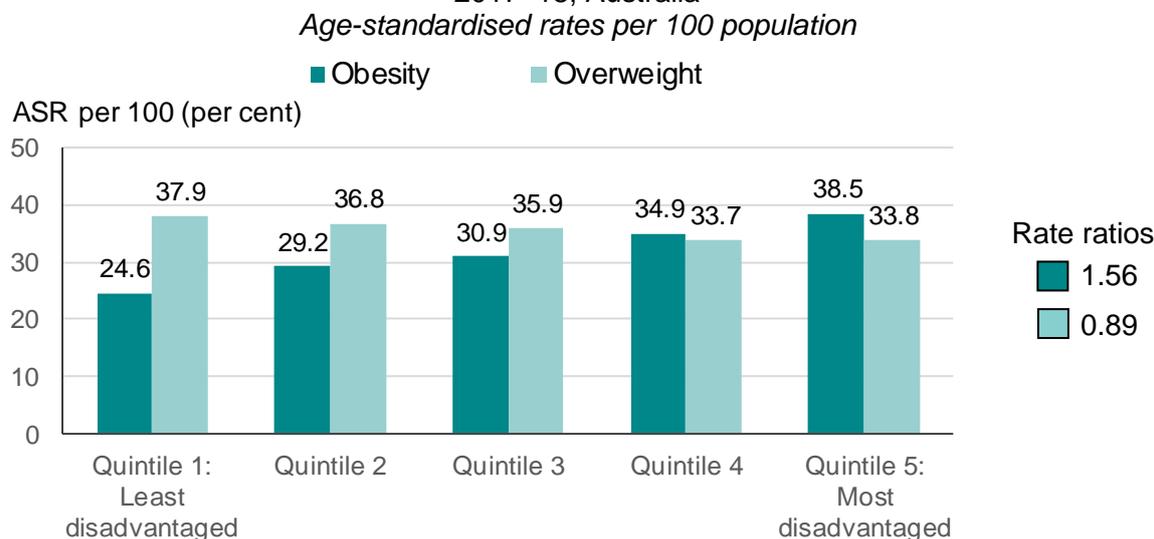
In addition to variations by sex and by age (see Box, below) obesity and overweight vary geographically across Australia. These variations are shown through direct estimates for quintiles of socioeconomic disadvantage of area and Remoteness Areas and, through modelled estimates³, for 1,165 Population Health Areas, the smallest geographical area for which these data are available.

By socioeconomic disadvantage of area

When analysed by socioeconomic disadvantage of area⁴, the rate of obesity increases from 24.6 per 100 people (or 24.6 per cent) in the least disadvantaged areas to 68.5 per cent in the most disadvantaged areas (Figure 3). The ratio of these two rates of 1.56 indicates that the 20 per cent of the population in areas in quintile 5 have a rate of obesity that is 56 per cent higher than the 20 per cent living in areas in quintile 1. Rates in the intermediate quintiles also increase with increasing socioeconomic disadvantage.

However, the rate of overweight among the population aged 18 years and over decreases, by 11 per cent (a rate ratio of 0.89), from quintile 1 to quintile 5. RR: Figure 3 shows that there are markedly fewer obese than overweight people in quintiles 1, 2 and 3, and more obese than overweight people in quintiles 4 and 5.

Figure 3: Obesity and overweight at 18 years and over, by quintile of socioeconomic disadvantage of area, 2017–18, Australia



The rate ratio is the ratio of the rate in quintile 5 to the rate in quintile 1

Source: Direct estimates extracted from ABS Survey TableBuilder and age-standardised in PHIDU

Similar data are available for each State and Territory [here](#) and in interactive graphics software [here](#).

Variations by age and sex ^[2]

In 2017-18, a greater proportion of men than women aged 18 years and over were overweight or obese (74.5% and 59.7% respectively). This difference was greatest in the overweight category, with 42.0% of men compared with 29.6% of women). The proportion of men who were in the obese category was also higher than for women, but the gap was much narrower (32.5% compared with 30.2%). Since 2014-15, the proportion of both men and women in the obese category increased. For men this changed from 28.4% to 32.5% and for women the increase was from 27.4% to 30.2%. The proportion of men and women in the overweight category has remained constant since 2014-15.

In 2017-18, the proportion of adults aged 18 years and over who were overweight or obese in general increased with age. Less than half of those aged 18-24 years (46.0%) were overweight or obese. By age 35-44 years, this had increased to 68.7% and by the age of 65-74 years, the proportion had increased to almost

³ For details of the modelled estimates, see notes [here](#).

⁴ For details of the quintiles of socioeconomic disadvantage, see notes [here](#).

four out of five (78.2%). However, there was a large increase for those aged 18-24 years, with 38.9% overweight or obese in 2014-15 compared with 46.0% in 2017-18.

By Remoteness Area

Direct estimates from the National Health Survey are also available by the ABS Remoteness Areas classification; however, as the Survey does not include people from the Very Remote areas of Australia or from discrete Aboriginal and Torres Strait Islander communities, and as the numbers from the Remote areas are small, data are only available for a shortened form of the classification, as listed in Table 1.

Rates of obesity are lowest in the Major Cities and highest (some 24 per cent higher) in the Inner Regional areas; the slightly lower rate in Outer Regional and Remote areas is 20 per cent above the Major Cities rate. Overweight rates vary little across the Remoteness Areas (Table 1).

Table 1: Obesity and overweight at 18 years and over, by Remoteness Area, 2017–18, Australia
Age-standardised rates per 100 population

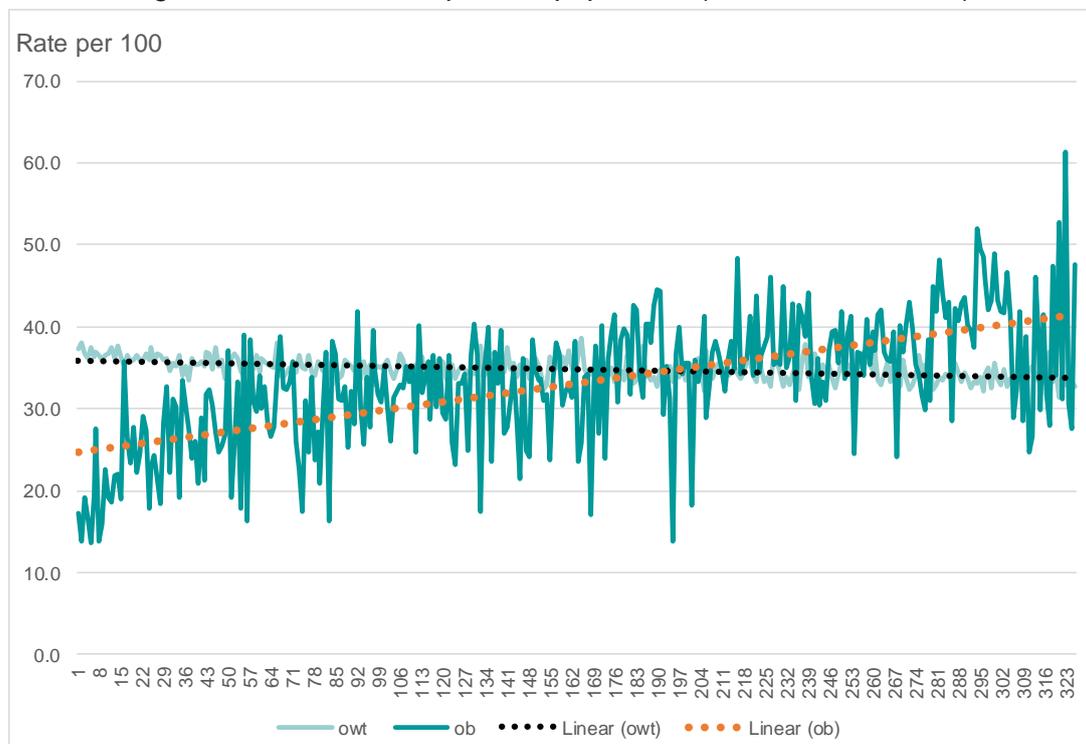
Remoteness Area	Obese persons	Overweight (not obese) persons
Major Cities of Australia	29.4	36.0
Inner Regional Australia	36.5	34.3
Outer Regional Australia and Remote	35.3	35.2
Rate ratio	1.20	0.98

The rate ratio is the ratio of the rate in Outer Regional and Remote to the rate in Major Cities
Source: Direct estimates extracted from ABS Survey TableBuilder and age-standardised in PHIDU

By Population Health Area

Figure 4 shows, for the 326 Population Health Areas in NSW for which estimates of obesity and overweight have been made, that the prevalence of overweight (pale green line) decreases slightly (by 12 per cent) as disadvantage increases (most disadvantaged areas on right-hand side of chart). In contrast, the prevalence of obesity (dark green line) increases and does so more steeply (by 2.75 times) than the overweight rates, as disadvantage increases. A linear trend line has been added to each series to highlight the extent of variation. It is also evident that many areas with a high rate of obesity have a low rate of overweight, and vice versa.

Figure 4: Obesity and overweight rates by at 18 years and over by Population Health Area, ranked by Index of Relative Socio-economic Disadvantage score, 2017–18, New South Wales
Age-standardised rates per 100 population (modelled estimates)



Note: The PHA numbered '1', St Ives/ Turramurra/ Wahroonga - Warrawee, on Sydney's north shore, has the highest 2016 Index of Relative Socio-economic Disadvantage score at this geographic level in New South Wales; at 1125 it is well above the Australian-average of 1000 (and the fourth highest across Australia). The last of the 326 Population Health Areas, Ashcroft - Busby - Miller, in Sydney's west, has an index score of 749 (and the twelfth lowest across Australia).

Source: Age-standardised rates are based on Australian Bureau of Statistics data, produced as a consultancy for PHIDU, from the 2017–18 National Health Survey

The situation in other jurisdictions is similar to that shown in Figure 4 for new South Wales.

Another way to see the extent of variation in rates is shown in Table 2, which lists the Population Health Areas with the highest and lowest rates obesity and overweight for Population Health Areas in the capital cities and, separately, in regional areas (all areas outside of the capital cities).

Across the capital cities, the lowest rate of obesity at the Population Health Area level is estimated to be in Gordon - Killara/ Pymble, and the highest in Bridgewater - Gagebrook, over four times the lowest rate (a rate ratio of 4.19). It is of note that Bridgewater - Gagebrook in Hobart, with the *highest* capital city obesity rate, has the second *lowest* overweight rate (of 30.9 per cent – data not shown). This is a common occurrence and further illustrates the point illustrated in Figure 4, that many areas have a high rate of obesity or overweight and a lower rate for the other category.

Outside of the capital cities, the lowest rate of obesity (21.2% of the population aged 18 years and over) is estimated to be in Noosa Heads/ Noosaville, with the rate in Tamworth - West (61.2 per cent) estimated to be nearly three times greater (a rate ratio of 2.89).

The range in overweight rates (from the lowest to the highest rate at the Population Health Area level across both the capital cities and regional areas is lower than seen for obesity, at 34% (a rate ratio of 1.34) for Population Health Areas in the capital cities and 24 per cent (a rate ratio of 1.24) in regional areas.

Table 2: Obesity and overweight at 18 years and over, Population Health Areas with the highest and lowest rates, 2017–18, Australia
Age-standardised rates per 100 population (modelled estimates)

PHA		Lowest rate	Highest rate	RR
	Obesity			
Gordon - Killara/ Pymble	Sydney	13.6		
Bridgewater - Gagebrook	Hobart		57.0	4.19
Noosa Heads/ Noosaville	Regional Qld	21.2		
Tamworth - West	Regional NSW		61.2	2.89
	Overweight			
Caboolture - South area	Brisbane	30.4		
Beumaris/ Sandringham - Black Rock	Melbourne		40.7	1.34
Airlie - Whitsundays/ Cape Conway/ Prosperpine	Regional Qld	31.4		
Yorke Peninsula - North/ Yorke Peninsula - South	Regional SA		38.9	1.24

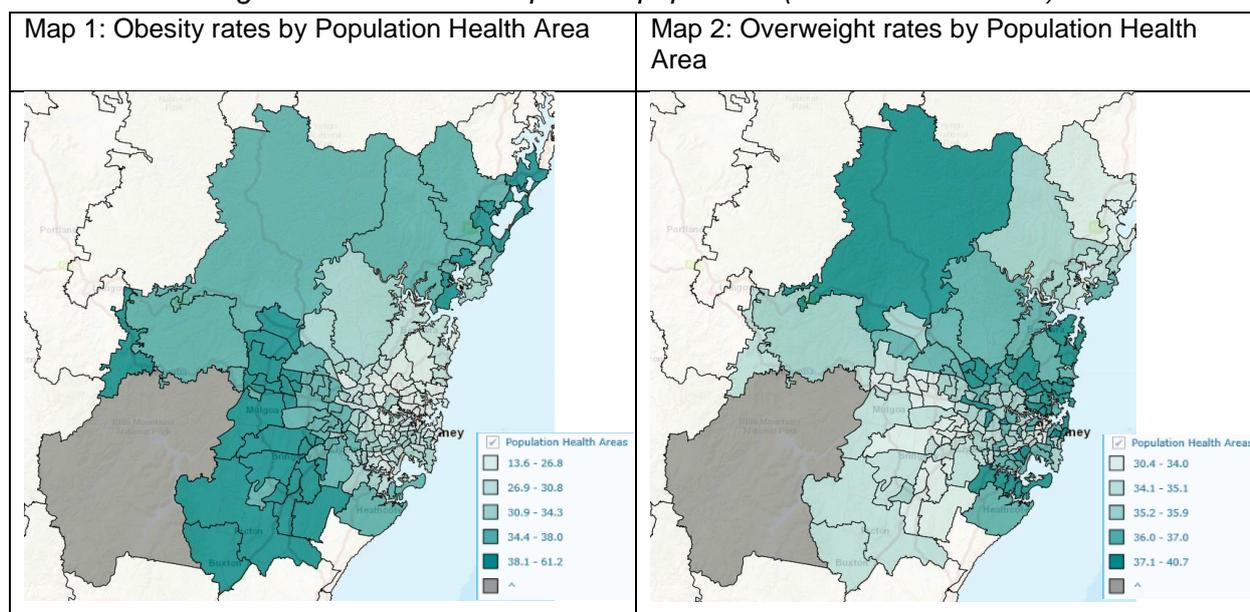
RR is the ratio of the rate in quintile 5 to the rate in quintile 1

Source: Age-standardised rates are based on Australian Bureau of Statistics data, produced as a consultancy for PHIDU, from the 2017–18 National Health Survey

Similar data are available for each State and Territory [here](#).

Data for all Population Health Areas, from which the data in Table 2 were compiled, are available [here](#) and are also available in interactive mapping software [here](#). Examples of maps that can be viewed in the interactive mapping software are provided below for Sydney (Maps 1 and 2). A comparison of these maps also shows the different patterns in the distribution of the estimated obesity and overweight rates by Population Health Area.

Maps 1 and 2: Obesity and overweight at 18 years and over, Population Health Areas, 2017–18, Australia
Age-standardised rates per 100 population (modelled estimates)



Summary

Overall in Australia, slightly more than a third (35.6%) of the population aged 18 years and over were overweight and slightly less than a third were obese (31.3%).

Since 1995, the proportion of adults aged 18 years and over who were obese has increased from 18.7% in 1995 to 31.3% in 2017–8; this change was driven by the increase in the proportion of adults categorised as obese, which rose from 18.7% in 1995 to 31.3% in 2017–8.

The rate of obesity is 38.5 per 100 people (or 68.5 per cent) in the most disadvantaged areas compared with 24.6 per cent in the least disadvantaged areas.

However, the rate of overweight is 33.8 per cent in the most disadvantaged areas compared with a higher 37.9 per cent in the least disadvantaged areas.

Rates of obesity are lowest in the Major Cities and highest (some 24 per cent higher) in the Inner Regional areas; the slightly lower rate in Outer Regional and Remote areas is 20 per cent above the Major Cities rate.

There is a wide variation in rates at the small geographical area level within each capital city and regional area for obesity, from areas with the lowest and those with the highest rates; the variation was less for the overweight category. Additionally, many areas have a high rate of obesity or overweight and a lower rate for the other category.

Additional notes:

Confidence intervals and modelled estimate errors can be found in the tables at the links provided above, as are details of the 2017-18 National Health Survey. Note that modelled estimates are not available for 33 Population Health Areas, as they either have populations of less than 1,000, have a high proportion of their population in areas in the Remote category, or are in the Very Remote category of Australia or comprise discrete Aboriginal and Torres Strait Islander communities; note that these excluded areas comprise 2.8% of Australia's population.

Cross-references to footnotes are shown in square brackets.

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