



## 2. Obesity in Australia

The prevalence of overweight and obesity has been increasing significantly over the last two decades. Data from the 2004–2005 National Health Survey indicate that nearly half of all Australian adults (based on self-reported height and weight) were overweight or obese in 2004–2005: around 7.4 million adults were overweight or obese (over one-third of these were obese) and close to three in every 10 Australian children and young people were overweight or obese.(2)<sup>1</sup>

The most recent measured national prevalence estimates for adults are from a survey conducted in 1999–2000 among Australians aged 25 years and over:(2, 3)

- Overall, almost 60% of the participants were overweight or obese (59.6%).(4) Males (67.4%) were more likely than females (52.0%) to be overweight or obese.(2)
- The prevalence of being overweight but not obese was 39.1%: 48.2% for males and 30.2% for females.(3)
- The prevalence of obesity was 20.5%: 19.1% for males and 21.8% for females.(3)

The number of overweight and obese adults increased from 4.6 million in 1989–90 to 5.4 million in 1995, 6.6 million in 2001 and 7.4 million in 2004–05.(5) Approximately 25% of children are overweight or obese, up from an estimated 5% in the 1960s.(6, 7) The mean body mass index (BMI) at which Australians enter adulthood has been gradually increasing.(8) Over the past 20 years, the average weight of Australian adults increased by around 0.5 to 1kg per year, attributable to a mean energy imbalance of around 100 kcal per day.(148)

### 2.1 Health, social and economic impact of obesity

According to the Burden of Disease and Injury in Australia (BoD) study, in 2003 high body mass<sup>2</sup> was responsible for 7.5% of the total burden of disease and injury, ranked behind only tobacco (7.8%) and high blood pressure (7.6%).(10) High body mass caused approximately 55% of the burden associated with diabetes and 20% of cardiovascular disease.(10) Other major conditions for which obesity predicts higher mortality and/or morbidity are cardiovascular disease, some cancers and, increasingly, osteoarthritis. Obesity is also strongly associated with a wider range of conditions, including back, reproductive and mental health problems, and sleep apnoea. Overweight and obese children and adolescents face some of the same health conditions as adults, and may be particularly sensitive to the effects on their self-esteem and peer-group relationships.

Together, high body mass and physical inactivity are responsible for around 60% of the burden for type 2 diabetes.(10) Similarly, the combined effect of the cluster of associated risk factors – poor diet, physical inactivity, high body mass, high blood pressure and high cholesterol – is responsible for more than 50% of the total burden of cardiovascular disease.(10) The burden of disease attributable solely to high body mass (7.5% of total burden) is now very close to that of tobacco (7.8%). High body mass is likely to overtake tobacco as the leading modifiable cause of burden as smoking rates decline. This is already occurring for some age groups.(11, 12)

The most recent estimates of the impact of obesity in Australia<sup>2</sup> show that obesity causes almost one-quarter of type 2 diabetes (23.8%) and osteoarthritis (24.5%), and around one-fifth of cardiovascular disease (21.3%) and colorectal, breast, uterine and kidney cancer (20.5%).(13)

<sup>1</sup> Height and weight data may be collected in surveys as measured (by interviewers) or self-reported data. Rates of overweight and obesity based on self-reported data are likely to be underestimates of the true rates (as people tend to overestimate their height and underestimate their weight, leading to an underestimate of BMI) and should not be directly compared with rates based on measured data.(2)

<sup>2</sup> The standard definition of obesity is BMI $\geq$ 30. The health effects of 'high body mass' in the Burden of Disease study were estimated using new methods – please see references 10 and 11 for details.



### Consequently, in 2008:(13)

- 242,033 Australians had type 2 diabetes as a result of being obese
- 644,843 Australians had CVD as a result of being obese
- 422,274 Australians had osteoarthritis as a result of being obese
- 30,127 Australians had colorectal, breast, uterine or kidney cancer as a result of being obese.

Health problems related to excess weight impose substantial economic burdens on individuals, families and communities. Society as a whole bears the economic brunt. It has been estimated that the overall cost of obesity to Australian society and governments was \$58.2 billion in 2008 alone.<sup>3</sup> (13) The total direct financial cost of obesity for the Australian community was estimated to be \$8.3 billion in 2008. (13) Of these costs, the Australian Government bears over one-third (34.3% or \$2.8 billion per annum), and state governments 5.1%. This estimate includes productivity costs of \$3.6 billion (44%), including short- and long-term employment impacts, as well as direct financial costs to the Australian health system of \$2 billion (24%) and carer costs of \$1.9 billion (23%). (13) The net cost of lost wellbeing (the dollar value of the burden of disease, netting out financial costs borne by individuals) was valued at \$49.9 billion.

Obesity was associated with over four million days lost from Australian workplaces in 2001. (14) Obese employees tend to be absent from work due to illness significantly more often than non-obese workers, and for a longer time, and are more likely than non-obese people to be 'not in the labour force'. As a potential indicator of productivity, absenteeism is an important factor when assessing the economic implications of an ageing Australia. (14)

### 2.2 Those at special risk

While overweight and obesity are widely distributed among Australian adults and children, there are some significant variations in its distribution across the Australian population. Obesity is particularly prevalent among men and women in the most disadvantaged socio-economic groups, people without post-school qualifications, Aboriginal and Torres Strait Islander peoples, and among many people born overseas, as outlined below:

- Among Aboriginal and Torres Strait Islander people, high body mass is the second highest contributor to disease burden (11.4%), after tobacco use (12.1%). (15) In comparison, among the general Australian population, high body mass is the third highest contributor to disease burden (7.5%), after tobacco use (7.8%) and high blood pressure (7.6%). (16)
- In 2004–2005, after adjusting for differences in age structure and survey non-response, approximately 60% of Indigenous Australians aged 18 years and over were overweight, of whom 31% were obese. (17)
- Indigenous Australians were:<sup>4</sup>
  - 1.2 times as likely as non-Indigenous Australians to be overweight
  - 1.9 times as likely to be obese
  - over three times as likely to be morbidly obese (BMI  $\geq$ 40). (17)
- Across all age groups, Indigenous Australians were more likely than non-Indigenous Australians to be obese. The greatest differences in obesity rates were observed among young people aged 18–24 years (2.4 times as high as the rate for

3 This includes an estimate of \$49.9 billion for the impact of obesity on quality of life. Readers of companion technical papers in this series should note that equivalent estimates are not available for the burden of diseases caused by alcohol and tobacco.

4 Based on results of the 2004-2005 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) and adjusting for differences in the age structure of the Indigenous and non-Indigenous populations and survey non-response for height and weight measurements.



non-Indigenous Australians) and among people aged 65 years and over (2.1 times as high).(17)

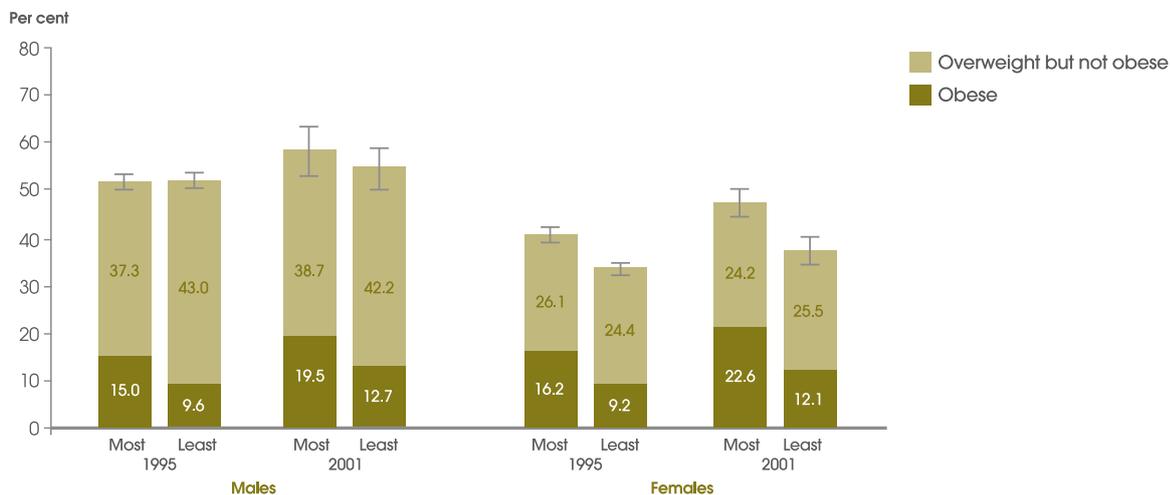
- There are significant differences in overweight and obesity for adults from different regions of birth and cultural backgrounds. On average, people born overseas who arrived in Australia before 1996 had a slightly lower age standardised rate of obesity (15%), while the rate was even lower (11%) for more recent arrivals (between 1996 and 2006) compared to the adult obesity rate of 18% in 2004–2005.(18) However, adults born in Southern and Eastern Europe and the Oceania region (excluding Australia) were more likely to be overweight or obese (65% and 63% respectively), while adults born in South East Asia were least likely to be classified in this way (31%).(18)
- Among school children the differences in overweight and obesity are also marked. A New South Wales study (6) found that overweight and obesity prevalence was around 50% in Year 8 boys of Middle Eastern descent, compared with 26% from English-speaking backgrounds. Prevalence in boys of European background was also high. Similarly, there is evidence that obesity is significantly more prevalent among boys and girls of all ages from Pacific Islander backgrounds. Among adolescents, those most likely to be obese (four to five

times more likely) were boys and girls of Pacific Islander or Middle Eastern/Arabic background.(19)

- Populations from certain ethnic and cultural backgrounds in Australia that are disproportionately more overweight and/or obese suffer higher rates of diabetes and cardiovascular disease. For example, the prevalence of type 2 diabetes among Asian Australians (including those from the Indian subcontinent, East Asia and South East Asia) has been reported to be increasing at a disproportionately high rate compared to non-Asian Australians.(18, 20)

Data on weight status from national health surveys provide evidence of the difference in weight related to socio-economic status. In 2001 the most striking differences between the most and least disadvantaged socio-economic groups were observed in the prevalence of obesity rather than overweight.(21)

- Women in the most disadvantaged socio-economic group had nearly double the rate of obesity (22.6%) of those in the most advantaged group (12.1%).
- Men in the most disadvantaged group were also significantly more likely to be obese than those in the most advantaged group (19.5% compared with 12.7%).



**Notes**

1. Age-standardised to the 2001 Australian population.
2. Error bars indicate 95% confidence intervals for the prevalence of overweight (BMI  $\geq$  25).

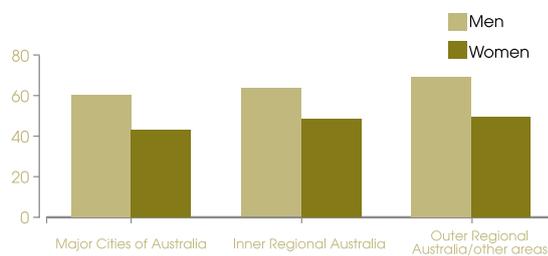
**Figure 1:** Prevalence of overweight and obesity among men and women aged 20 years and over in the most and least disadvantaged quintiles of socio-economic disadvantage, 1995 to 2001

**Source:** AIHW analysis of the 1995 and 2001 ABS National Health Surveys (AIHW 2003) (21)

Between 1995 and 2001, the gap (rate ratio) between the highest and lowest socio-economic quintiles for obesity slightly increased in conjunction with the absolute increases seen for adults of both sexes (Fig. 1).

Current research at Deakin University aims to determine at what age socio-economic influences on physical activity and eating emerge by following a cohort of children aged 5–6 and 10–12 years over a five-year period. While adults from lower socio-economic groups have lower levels of physical activity and healthy eating than those from more advantaged backgrounds, these differences are not as clear for children. Evidence seems to suggest that many problems become apparent once adolescents leave school. This may be a key point at which to target appropriate dietary and physical activity initiatives. (22)

In general, rural and remote populations have poorer health than their metropolitan counterparts with respect to several health outcomes. Increasingly higher rates of overweight and obesity are found between major cities, inner regional areas and outer regional and remote areas for both men and women (Fig. 2).



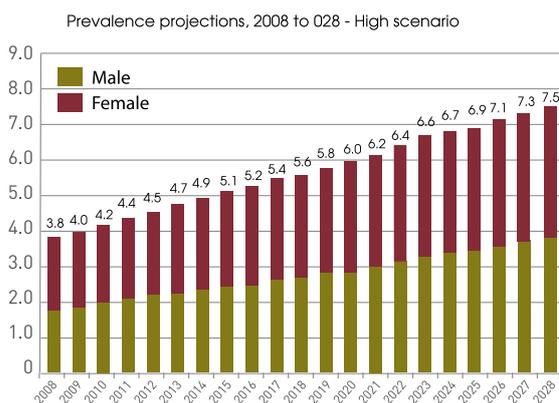
**Figure 2:** Overweight and obesity by geographical areas<sup>a, b</sup>

**Source:** ABS 2008 (5)



### 2.3 Trends and scale of the problem

Based on current trends there is an urgent and immediate need to address the growing prevalence of obesity and overweight in Australia. The most recent projections from Access Economics, assuming a constant increase in obesity prevalence over the next 20 years in line with current trends, estimate that there will be 6.9 million obese Australians by 2025 (Fig. 3). Even more conservative estimates, which assume no further change in age-gender prevalence rates, such that all further increases are due to demographic ageing alone, indicate that 4.6 million Australians (18.3% of the population) will be obese by 2025.(13)



**Figure 3:** Population obesity prevalence projections, Australia, 2008-2028 (assuming current trends continue)  
**Source:** Access Economics 2008(13)

Predictions of health loss (loss of healthy life) to the year 2023 conducted for the Burden of Disease study indicate the largest projected increases will be for neurological disorders and diabetes, with a lesser increase for musculoskeletal disease. In comparison, for conditions such as cardiovascular disease, cancer, injuries and chronic respiratory conditions, rates of health loss are expected to decline.(10) Significantly, the projected increase in rates of loss of healthy life associated with diabetes is due mainly to expected increases in body mass.

Diabetes prevalence is projected to increase two- to threefold over the next 25 years, due to expected increases in the prevalence of obesity, along with demographic changes.

Diabetes is also expected to cause the largest growth in disability in the elderly.(12)

A modelled case study prepared for the United Nations estimated that Australia's total health expenditure will increase in real terms by 127% over the period 2002 to 2032, and that health expenditure would increase as a percentage of GDP from 9.4% to 10.8%. (12) A study in the US found that, as for Australia, if trends continue, disability rates will increase across all age groups, offsetting past reductions in disability(23) – it was estimated that if this continued in the US, one-fifth of US healthcare expenditure would be needed for treating the consequences of obesity by 2020.(24)

Recent conservative estimates based on Australian data indicate that life expectancy at age 20 is about one year less among overweight Australian adults compared with Australians within the healthy weight range, while life expectancy is reduced by an average of around four years for obese Australian adults. For Australian children, it has been estimated that if current obesity trends continue, the life expectancy for children alive now will fall two years by the time they are 20 years old. This would represent a loss of five to 10 years in life expectancy gains and a return to life expectancy values seen in 2001 for males and in 1997 for females. These estimates, particularly those for children's life expectancy, are likely to be conservative and are particularly compelling given that life expectancy is otherwise increasing for healthy Australians.(25)

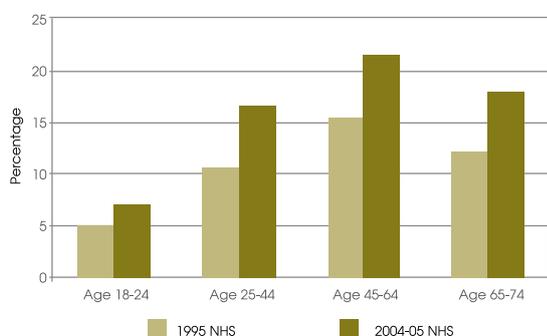
Recent analyses estimated the current and future prevalence of overweight and obesity in Australian children and adults based on measured height and weight data from national and state population surveys.(26) The results predict a continued rise in BMI for both males and females and across the age span. Based on past trends, and assuming no effective interventions are in place, 16.9 million Australians will be overweight or obese by 2025.



## 2.4 Trends in weight gain by age

Some age groups have gained weight at a faster rate than others, showing a trend towards earlier weight gain at younger ages. Between 1995 and 2004–2005, the greatest increase in the prevalence of obesity was observed for:

- Adults 25–44 (up 6.1%)
- Adults 45–64 (up 6.1%) (Fig. 4).



**Figure 4:** Percentage of obese persons by age group: 1995 vs 2004–2005<sup>5</sup>

**Source:** Unpublished DoHA analysis (2008) of 1995 and 2004–2005 National Health Survey data

As illustrated in Figure 5A & B (over), the mean BMI of young adults is increasing compared with previous generations. (27, 28) In addition, younger generations are gaining weight faster than previous generations. On current trends, Generation X males – those born from the mid-1960s to late 1970s – will have the highest mean BMI of any generation (Fig. 5A). Similarly, while baby-boomer generation women (Fig. 5B) are predicted to have the highest average BMI in 2010, younger women (Generation X) are gaining weight faster than other generations of women.

Overweight Generation Xers are now the parents of young children, placing these children also at risk. With the rapid increase in BMI in younger women (Generation X and Generation Y), there is mounting concern about the impact of an unhealthy body weight on pregnancy outcomes. Excessive weight gain during pregnancy is directly associated with having an overweight child, and with gestational diabetes, and may lead to weight gain and diabetes in later life in the mother.

<sup>5</sup> The increase observed in 25–44-year-olds may be partly explained by the fact that, between 1989–1990 and 2001, despite relatively low absolute levels of obesity, obesity prevalence in 20–24-year-olds more than doubled from 4.4% to 9.5% (AIHW 2003).



### BMI for Australian men

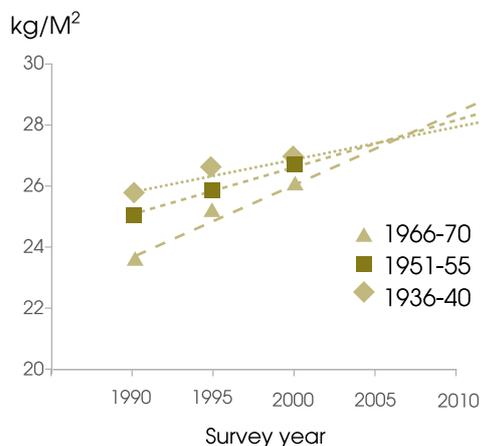


Figure 5A

### BMI for Australian women

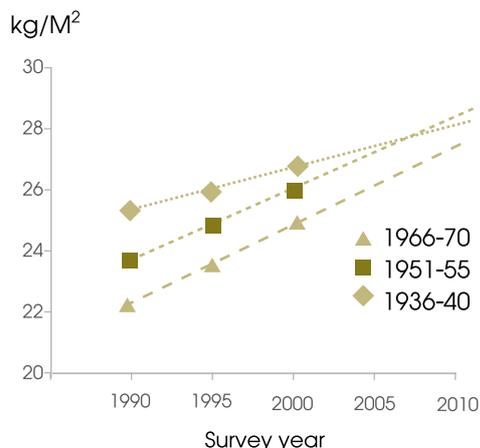


Figure 5B

**Figure 5A and B:** Mean BMI by birth cohort for men and women in Australia 1990–2000 and 2010 projections

Source: Allman-Farinelli et al 2006 (27, 28)

## 2.5 Middle-aged and older Australians

Another major contributor to the rise in mean BMI in Australia has been that the heaviest groups within the population have put on disproportionately more weight (around 7 BMI units) than lighter groups.(149) This suggests the need for specific targeting of those already at higher levels of BMI. These are predominantly people in middle age. There has been a steady and substantial increase in the number of older Australians who are obese, from 310,000 in 1980 to 940,000 in 2000.(9) This represents an increase from 11% to 23% of older Australians who are obese. About one-third of the increase in number has been as a result of the ageing of the population and two-thirds as a result of the increased obesity rates.

Older Australians are about 6–7kg heavier on average than their counterparts were 20 years ago. Australians in their 50s and 60s are now also gaining weight as they gain years, at least into their mid-70s. The number of older Australians aged 55 years or older is increasing, as is their representation in the total population. Their number is projected to increase from 4.2 million in 2001 to 7.2 million in 2021, which is an increase from 22% to 31% of the population. The combined trend of population ageing and the obesity epidemic is likely to result in continuing increases in the number of older, obese Australians.(149)

Many of the middle-aged overweight and obese population already have co-morbidities. In the National Health Surveys, the proportion of those reporting no long-term conditions is consistently significantly lower for obese people of both sexes. Among adults aged 20 years and over, obese men were more likely than healthy weight men to have five or more long-term conditions in 2001 (26.1% compared with 19%). Similarly, proportionately more obese women reported five or more long-term conditions than women of healthy weight (36.6% compared with 23.1%). The results for overweight but not obese men and women were similar to the results for obesity, although the differences from those of healthy weight were not as marked.(150)