

Smoking, risky drinking and obesity

Lifestyle behaviours such as tobacco smoking, risky alcohol consumption, and obesity are three of the more prominent health risks in modern Australian society.

These three risk factors may affect a person's ability to work, as well as the ability to participate in other aspects of life such as family and community activities. On a broader scale each of these risks have wider implications for both society and the economy.

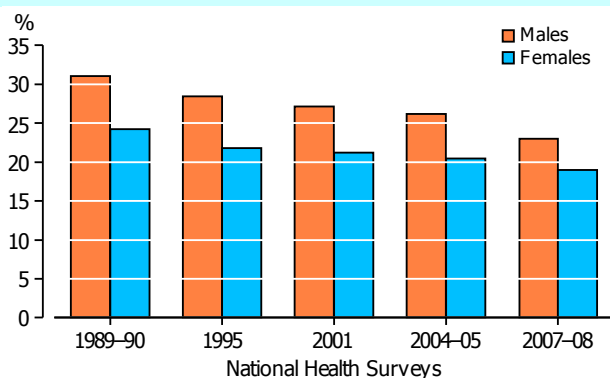
Both smoking and obesity are associated with social disadvantage, while excessive alcohol consumption affects society in a number of ways, such as through property damage, road accidents and the need for law enforcement. From an economic point of view, diseases or conditions resulting from these risk factors (e.g. diabetes, some cancers, cardiovascular disease, mental illness, and injury) place demand upon Australia's health care system. The annual cost to Australia of harm arising from smoking and drinking has been estimated to exceed \$31 billion and \$15 billion respectively, while obesity had direct costs of \$8.3 billion in 2008.^{1,2,3}

In 2008, the Australian Government set up the [Preventative Health Taskforce](#) which focuses on the burden of chronic disease to which these three risk factors contribute.

Smoking tobacco

Despite the social acceptance of tobacco smoking, its many negative effects, most notably its relation to various cancers, have been known for many years.⁴ Tobacco contains the powerfully addictive stimulant nicotine, which can make smoking a regular and long-term habit that isn't easy to quit.⁴ In recent

Current smokers, aged 18 years or over(a)



(a) Age standardised to the 2001 Estimated Resident Population (ERP).

Source: ABS, 1989-90, 1995, 2001, 2004-05 and 2007-08 National Health Surveys

Data sources and definitions

The data in this article are mainly drawn from the 2007-08 National Health Survey.

Current smokers are those who reported at the time of interview that they smoked cigarettes, cigars or pipes. *People who ever smoked*, includes current smokers as well as *ex-smokers* (those who reported that they had smoked at least 100 cigarettes, or smoked pipes, cigars etc. at least 20 times in their lifetime, but did not currently smoke).

Risky or high risk drinking refers to relative risk levels as defined by the National Health and Medical Research Council (NHMRC) in 2001. The analysis in this article focuses on the guidelines for reducing long-term risk unless otherwise stated. For more information, see the 'National Health and Medical Research Council Drinking guidelines' box later in this article.

Overweight and obesity are defined according to Body Mass Index (BMI), using the formula weight in kilograms divided by the square of height in metres. Adults are classed as overweight if their BMI score is 25 to less than 30 and obese if 30 or greater. You can use this formula to calculate your own BMI on the [Department of Health and Ageing's website](#). In this article BMI scores were based on measured height and weight.

This article discusses diseases or conditions that may be associated with the risks above. This analysis is limited to *chronic or long-term conditions* (i.e. those that have lasted or are expected to last for six months or more).

In order to counter the different age profiles present in populations with certain conditions, where appropriate data in this article have been age standardised to the 2001 Estimated Resident Population (ERP).

For more detail refer to the [National Health Survey: Summary of Results, 2007-08](#) (ABS cat. no. 4364.0).

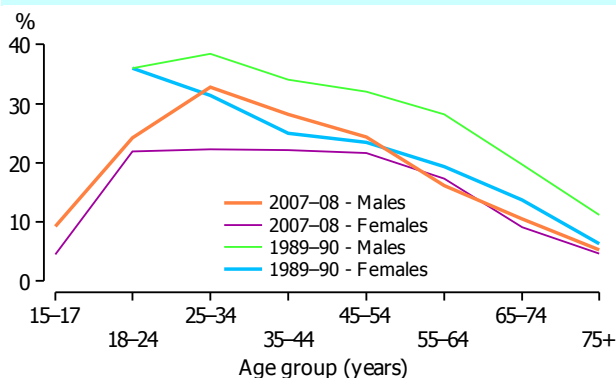
years the negative effects of passive smoking have also been highlighted, demonstrating that the risks to health of smoking affect more than just the smoker.⁵

...over time

As awareness of the negative impacts of tobacco smoke has increased, the proportion of people who smoke has declined steadily, as reported by the National Health Survey (NHS), since tobacco consumption was first included in the survey in 1989-90. Decreasing by 24% over the 18 year period, this represents an annual average decline of around 1.5%.

The NHS reported around 3 million *daily smokers* in 2007-08. There were 716,000 people who had been a daily smoker 12

Current smokers, by sex and age – 1989-90 and 2007-08



Source: ABS, 1989-90 and 2007-08 National Health Surveys

months prior, but who either now smoked less than daily (112,000 people) or were no longer smokers at all (604,000).

...age and sex

In 2007-08, around 8 million Australian adults aged 15 years and over had smoked at some time in their lives. Around 3.3 million were *current smokers*, with the vast majority (91%) of these people smoking daily. Males were more likely to be current smokers than females (22% compared with 18%).

Around 9% of young men aged 15-17 years were current smokers, with the rate peaking at 33% for those aged 25-34 years before declining to around 5% for men aged 75 years or over. The smoking rate for young women aged 15-17 years was slightly lower than for men of the same age (4.5%). For women aged 18-54 years, the smoking rate plateaued at 22% before declining in the older age groups.

A large decrease in smoking rates from 1989-90 to 2007-08 occurred in the 18-24 year age bracket (dropping by a third for men and 39% for women). This was accompanied by a rise in the number of 18-24 year olds who had never smoked (from 55% to 64% for men and 52% to 65% for women).

...as a health risk

Research shows that smoking is associated with increased risk of coronary heart disease, stroke, peripheral vascular disease and cancer.⁶

While the 2007-08 NHS collected information on long-term health conditions, it is not possible to infer causality. Nevertheless, smokers were more likely to have certain conditions. Current smokers were 3.9 times as likely to have emphysema than were non-smokers although there was not much difference in relation to other chronic conditions. However, those who had ever smoked were more likely than those who had never smoked to have

particular illnesses, suggesting that certain health conditions may be associated with a history of smoking rather than just a person's current smoking status. People who had ever smoked were 6.3 times more likely to have emphysema, twice as likely to have a heart disease and 1.6 times as likely to have bronchitis, than those who had never smoked.

...passive smokers

Around 459,000 (or 3.5% of) adults aged 15 years or over who were not current smokers and 291,000 (or 7.2% of) children aged under 15 years lived in a household where a daily smoker was reported to have smoked indoors. These people may be exposed to environmental tobacco smoke and the associated health risks of tobacco consumption.

People who had ever smoked were 6.3 times more likely to have emphysema than those who had never smoked.

...age first started

People in their teens may take up smoking as part of a social activity that is perceived to be well suited to their youth culture and allows them to better fit in with or rebel against friends or family.⁷ People who started smoking daily at a younger age were less likely than others to have reduced their frequency of smoking or to have kicked the habit altogether at the time of interview.

Of people who had ever smoked daily, 61% first took up the habit on a daily basis when aged 15-19

Burden of disease and injury

Exposure to tobacco or alcohol and high body mass have been identified as three of the main risk factors contributing to the burden of disease and injury within Australia. This burden was calculated using Disability-Adjusted Life Years (DALYs), which include years of life lost due to premature death as well as 'healthy' years lost due to disability.

Exposure to tobacco, accounting for 7.8% of the total burden, was strongly linked with lung cancer, chronic obstructive pulmonary disease and ischaemic heart disease.

High body mass (a little more inclusive than the traditional overweight and obesity categories) accounted for 7.5% of the total burden, with Type 2 diabetes and ischaemic heart disease major contributors to this.

Alcohol harm was responsible for 3.2% of the total burden of disease and injury and accounted for the greatest amount of burden specifically for males under the age of 45 years. Alcohol abuse, road traffic accidents and suicide made up two-thirds of the harm attributed to alcohol.

For more information see [The burden of disease and injury in Australia 2003](#) (Australian Institute of Health and Welfare, cat. no. PHE 82).

years. About one in five (18%) of those who had ever smoked daily had first started doing so under the age of 15 years.

Of people aged 25–54, those who first started smoking daily as a child aged under 15 years were more likely to have also been a daily smoker at the time of interview (55%) than those who first started at an older age (46%).

Drinking alcohol

Many Australians drink alcohol on a regular basis. However, excessive consumption can cause serious harm, and the past decade has seen an increase in community awareness of this problem.²

The National Health and Medical Research Council (NHMRC) considers people who drink regularly at high levels to have an increased risk of chronic ill health and premature death (i.e. high levels in relation to the 2001 drinking guidelines – see the box *National Health and Medical Research Council Drinking guidelines*). The NHMRC guidelines provide information that allows Australians to “enjoy alcohol, if they choose to drink, while avoiding or minimising harmful consequences.”⁸

...over time

Between 2001 and 2004–05, rates of drinking at levels considered risky or high risk to health in the long-term increased slightly (11% to 13%) but remained steady over the following three years to the 2007–08 National Health Survey.

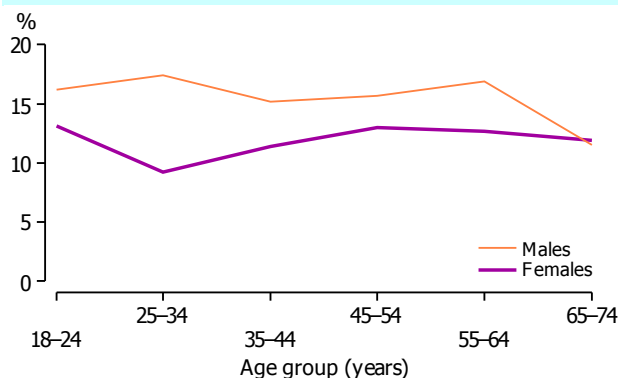
...age and sex

Of all adults in Australia, just over four-fifths (81%) had consumed alcohol within the year before the survey, with most having done so within the previous month (70%), or within the previous week (59%). Rates of drinking in the week prior to interview were higher among men than women (68% compared with 51%) and peaked for the 35–54 year age bracket for men (75%) and at 45–54 years for women (60%). Most people (78%) who drank alcohol in the

National Health and Medical Research Council Drinking guidelines

Recognising the risks of excessive alcohol consumption in 2001 the National Health and Medical Research Council provided guidelines for drinking alcohol. The main guideline to minimise risks in the long-term limits consumption to no more than an average of 4 standard drinks a day for a man and 2 standard drinks a day for a woman. In this article, *risky or high risk drinking* refers to drinking above these guidelines based on a seven-day average. Although these guidelines were revised in mid-2009, the analysis in this article is based on the 2001 guidelines as it is not possible to create meaningful measures relating to the 2009 guidelines from the 2007–08 NHS.

Risky or high risk drinking, by sex and age – 2007-08



Source: ABS 2007-08 National Health Survey

week prior to interview did not do so at levels considered risky or high risk to their health in the long-term.

In 2007–08, around 13% of Australians aged 15 years or over consumed alcohol at a level that posed a risk to their health in the long-term (according to 2001 NHMRC guidelines). The rate was higher for men (14%) than for women (11%).

Around 16% of men in the age groups between 18–64 years drank at risky or high risk levels, with the proportion dropping to 12% for those aged 65–74 years. However, for women the proportion drinking at risky and high risk levels sat generally around 12% for most age groups with a dip for those in their prime childbearing years, aged 25–34 years (9%).

...a health risk

Excessive alcohol consumption is associated with risks to health both in the short and long-term. Between 1995–96 and 2005–06, around 813,000 Australians were hospitalised for alcohol-attributable injury or disease. In the 10 years to 2005, it was estimated that around 32,700 Australians aged 15 years or over died from causes attributable to risky or high risk drinking.⁹ For discussion of associated short-term risks of drinking see the box '*Drinking as a risk to health in the short-term*'.

Risky or high risk drinking is associated with certain chronic conditions, such as mood and anxiety problems or a chronic condition caused by injury. While it is not possible to infer causality, in 2007–08 people who reported drinking at levels considered risky or high risk to health in the long-term were 1.3 times more likely to have a chronic condition caused by injury than those who didn't drink at those levels. People who drank at risky or high risk levels were also 1.6 times more likely to have long-term affective (mood) or anxiety problems, such as depression, bipolar or social phobia than those who didn't drink at risky levels, or didn't drink at all.

Drinking as a risk to health in the short-term

While excessive alcohol consumption is associated with long-term health risks, more people die from the acute effects than the long-term or chronic effects.² These acute effects or short-term health risks include an increased association with dangerous driving and violence that can lead to injury or death of the drinker and/or others.

According to the 2005 Personal Safety Survey, there were 625,000 people aged 18 years or over whose most recent experience of violence within the previous year was physical assault by a male. Alcohol contributed to a significant amount of these assaults, with three-in-five victims reporting that they themselves or the perpetrator had been drinking.

For more information on excessive drinking and other related risks specifically amongst young Australians aged 15–24 years see *Australian Social Trends 2008, 'Risk taking by young people'*.

...type of alcohol

The type of alcohol consumed by those who drank at risky or high risk levels varied depending on their sex and age.

Beer was the most common drink consumed by men aged 15 years or over who drank at risky or high risk levels (85%). Spirits (36%) and ready-to-drink spirits or liqueurs (RTDs; 35%) were more popular among young men, aged 15–24 years, who were risky or high risk drinkers than those aged 25 years or over (18% and 10% respectively).

Women who drank at risky or high risk levels had a different pattern in terms of the type of alcohol consumed. The type of alcohol consumed by young women, aged 15–24 years, who were risky or high risk drinkers was varied, with no one type significantly more popular than any other. However, these young women were around 4.9 times as likely to have consumed RTDs, and 3.7 times as likely to have consumed spirits, than those aged 25 years or over who mostly drank wine (82%).

Type of alcohol consumed by risky or high risk drinkers(a) – 2007-08

	Males		Females	
	15-24 years	25 years or over	15-24 years	25 years or over
	%	%	%	%
Beer	81.0	85.0	41.0	25.0
Wine	*15.0	42.0	53.0	82.0
Spirits	36.0	18.0	52.0	14.0
RTDs(b)	35.0	10.0	44.0	9.0

* estimate has a relative standard error of 25% to 50% and should be used with caution

(a) Type of alcohol reported to have been consumed in the week prior to survey.

(b) Ready-to-drink spirits or liqueurs.

Source: ABS 2007-08 National Health Survey

...age first started

As with tobacco, young people may first consume alcohol for many reasons, such as to fit in with peers, or because they want to experiment. Some young people may also be introduced to alcohol by their parents or other family members. While it is not legal for people below the age of 18 years to consume alcohol, the 2007 National Survey of Mental Health and Wellbeing shows that over one-quarter (27%) of Australians aged 16–85 years had first drunk alcohol when under 15 years of age, with a further two-fifths (40%) having first done so when aged 15–17 years. The latest NHMRC guidelines advise that children under 15 years are at the greatest risk of harm from drinking, and that not drinking at all is especially important at this age. They also state that those aged 15–17 years should delay initiation to alcohol as long as possible.¹⁰

Overweight and obesity

Using the Body Mass Index (see definitions box on first page of article), people can be categorised as underweight, normal weight, overweight or obese.

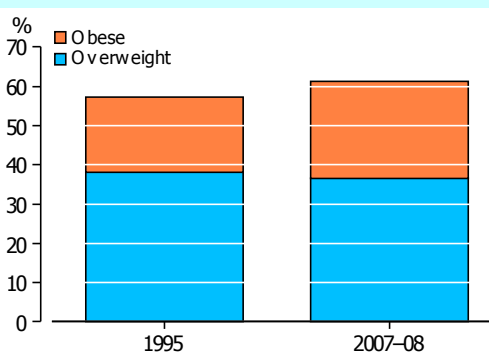
While genetics may play a role in a person's propensity to become overweight or obese, the fundamental cause is an imbalance between energy consumed and energy expended.¹¹ Shifts towards energy-dense diets and decreasing physical activity are some of the factors that have contributed to increases in overweight and obesity.¹¹

...over time

Measured Body Mass Index scores from the 2007–08 NHS can be compared with those from the 1995 Nutrition Survey to see how the population has changed over the 13 years in between.

While the proportion of people who are overweight or obese has grown by 7% (an

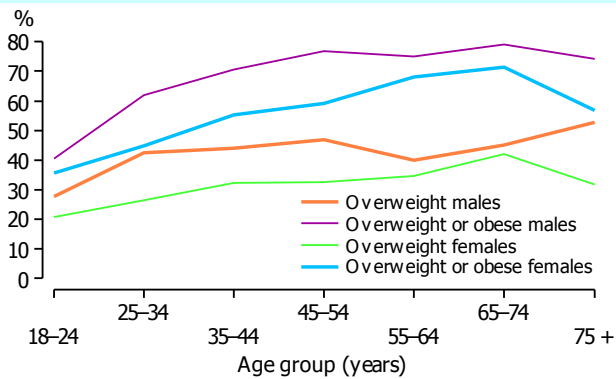
People overweight or obese, aged 18 years or over(a)



(a) Age standardised to the 2001 Estimated Resident Population (ERP).

Source: *National Health Survey: Summary of Results, 2007-08* (ABS cat. no. 4364.0)

Overweight and obesity, by sex and age – 2007-08



Source: ABS 2007-08 National Health Survey

annual average of 0.5%) this movement has been more focused at the obese end of the spectrum, with obesity increasing by 29% in the 13 year period (an increase of 2.0% per year on average).

...age and sex

Of all adults aged 18 years or over in 2007–08, almost two-fifths (37%) were overweight and a further quarter (25%) were obese. Being overweight or obese was more common for men than women (68% compared with 55%) and tended to increase with age (being 79% for men and 71% for women in the 65–74 year age bracket).

...a health risk

Being overweight or obese increases a person's chance of having certain conditions such as cardiovascular disease, diabetes, osteoarthritis and certain types of cancer (endometrial, breast and colon).¹¹

In 2007–08, people who were overweight or obese were almost twice (1.9 times) as likely as people within the normal BMI range to have Type 2 diabetes, 1.7 times as likely to have high blood pressure, 1.7 times as likely to have high cholesterol and 1.4 times as likely to have heart disease. Risks of chronic conditions increased progressively with increasing BMI¹¹ and were therefore higher at the obese end of the spectrum. People who were obese were more than two and a half times (2.7 times) as likely to have Type 2 diabetes as those within the normal BMI range.

...morbidly obese

As risks to health in the long-term increase with BMI scores, those who are more obese are at much higher risk than others. In 2007–08 there were 275,000 people with a BMI of 40 or more (class III obesity¹²), or around 2.4% of Australian adults aged 18 years or over. The rate was higher for women (3.1%) than for men (1.8%).

Body Mass Index (BMI)

A person's BMI can be calculated by dividing their weight in kilograms by the square of their height in metres. This BMI can be used to determine whether a person is overweight or obese.

BMI Scores for adults

Underweight	Less than 18.5
Normal range	18.5 to less than 25.0
Overweight	25.0 to less than 30.0
Obese	30.0 and greater
Obese class I	30.0 to less than 35.0
Obese class II	35.0 to less than 40.0
Obese class III	40.0 and greater

Source: World Health Organisation's [Global Database on Body Mass Index](#)

...among children

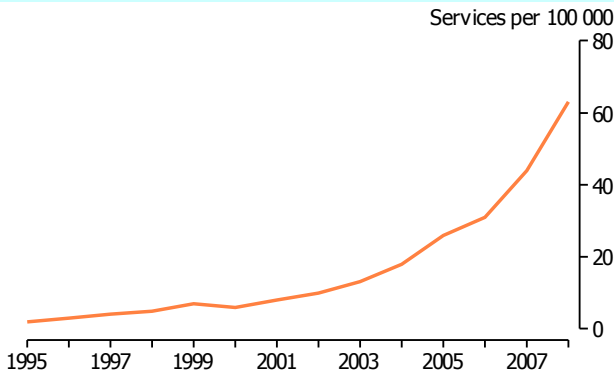
In 2007–08, one-quarter of all Australian children aged 5–17 years, were overweight or obese, up four percentage points from 1995 (21%). Studies have shown that once children become obese they are more likely to stay obese into adulthood and have an increased risk of developing the associated diseases mentioned above.¹³ For more information on childhood obesity see *Australian Social Trends September 2009*, '[Children who are overweight or obese](#)'.

...surgery for the obese

While preventative and weight loss measures, focusing on education about diet and exercise, play the major role in the fight against obesity, there are more radical options available to the severely obese who have been unable to lose their excess weight through more traditional means. Bariatric surgery involves modification of the gastrointestinal tract to reduce the intake of calories and aims to improve the chance of sustained significant weight loss.¹⁴

In 2002 and 2003 gastric bypass was the most frequent weight loss surgery performed worldwide (65% of bariatric procedures at this time).¹⁴ However, within Australia gastric banding and other gastric reduction surgeries (as opposed to gastric bypass) accounted for the vast majority of bariatric surgeries within Australia with 13,600 surgeries in 2008 (compared to only 211 gastric bypasses – both excluding public patients in public hospitals). The rate of gastric reductions has grown by 800% over the last decade from seven surgeries per 100,000 people in 1999 to 63 per 100,000 in 2008.¹⁵ The rapid growth in gastric reductions is associated with the uptake of adjustable gastric banding which is perceived as a relatively safe, effective and reversible procedure.¹⁴

Gastric reduction procedures(a), per 100,000 people – 1995-2008



(a) Gastric reduction for obesity (30511) as classified on the Medicare Benefits Schedule. This data is based on health insurance data and therefore does not include bariatric surgery performed on public patients in public hospitals.

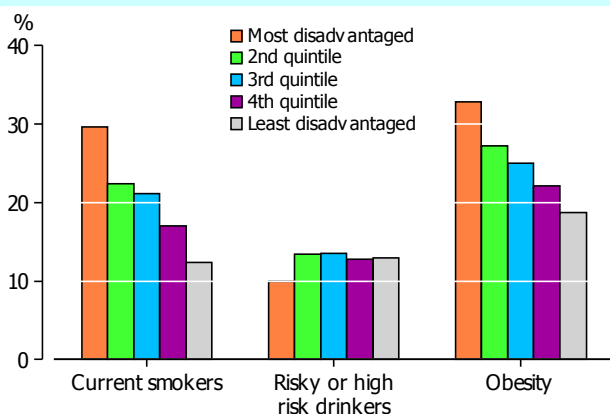
Source: [Medicare Australia Statistics](#)

...inactivity

Exercise enables the body to burn off surplus energy stores. Exercising at only low levels, or having no exercise at all, is a lifestyle behaviour that is strongly related to being overweight or obese. The NHS graded a person's level of exercise in the two weeks prior to survey based on frequency, intensity, and duration of exercise (for more information on exercise scores see [2007-08 National Health Survey Users' Guide](#), ABS cat. no. 4363.0.55.001).

Of all adults, almost three-quarters (72%) had inadequate exercise (i.e. only a low level, or no exercise) in the two weeks prior to interview. Women (76%) and those aged 75 years or over (83%) had higher rates of inadequate exercise than the average. Around two-thirds (68%) of men also had inadequate levels of exercise.

Risk factors by Index of Relative Socio-Economic Disadvantage ranking(a)(b) – 2007-08



(a) Based on the Socio-Economic Indexes for Areas (SEIFA).

(b) Where the first quintile represents the 20% of the total population living in areas with the most disadvantage and the fifth quintile represents the 20% of the total population living in areas with the least disadvantage.

Source: ABS 2007-08 National Health Survey

Of all adults who were inactive, over one-quarter (27%) were obese, compared with 16% of people who had a high level of exercise.

Socioeconomic factors

The Socio-Economic Indexes For Areas (SEIFA) Index of Disadvantage summarises various attributes (such as income, unemployment, and educational attainment) of an area in which people live.

Obesity and smoking were more common in the most disadvantaged areas. The rate of current smokers among the 20% of people living in most disadvantaged areas was two and a half times the rate among the 20% of people in the least disadvantaged areas (30% compared with 12%). The gap in rates of obesity between these quintiles was also quite wide (33% compared with 19%).

The pattern was different for people who drank at a level risky to their health, this being slightly less common among the lowest quintile (10%) than the other quintiles (13%).

Occupation

Blue collar workers such as technicians, trade workers, labourers, drivers and machinery operators were much more likely to be current smokers (30%) than people in all other occupations (18%). This was the case for both men (31% compared with 17%) and women (27% compared with 18%).

Multiple risk factors

In 2007-08 there were 6.9 million people who were overweight or obese. Almost one-fifth of these people were also current smokers (19% or 1.3 million), and 5% (or 319,000) were overweight or obese smokers who also drank at risky or high risk levels.

Overweight or obese smokers were twice as likely to have heart disease as people who were within the normal weight range and who had never smoked, 2.2 times as likely to have Type 2 diabetes, and 2.8 times as likely to have bronchitis. While the population of those who as well as being overweight or obese were also risky drinkers was too small to gauge their relative risks, they would have the added burden of increased risk of chronic injury and mental health disorders as discussed earlier in the article.

Looking ahead

In June 2009, The National Preventative Health Taskforce released [*Australia: The Healthiest Country by 2020*](#), Australia's national preventative health strategy covering obesity, tobacco and alcohol. The report presents seven strategic directions including sharing responsibility, acting early, engaging communities, reducing inequality, influencing markets, refocusing primary healthcare towards prevention and a focus on Indigenous Australians.

Endnotes

- 1 Preventative Health Taskforce, 2008, [*Technical Report No 2: Tobacco control in Australia: making smoking history*](#), p. v.
- 2 Preventative Health Taskforce, 2008, [*Technical Report No 3: Preventing alcohol-related harm in Australia: a window of opportunity*](#), p. 2.
- 3 Preventative Health Taskforce, 2008, [*Technical Report No 1: Obesity in Australia: a need for urgent action*](#), p. 6.
- 4 Gilman, Sander L. and Zhou, Xun (Eds.), 2004, *Smoke: a global history of smoking*, Reaktion Books, Hong Kong, p. 321, 331.
- 5 Better Health Channel, 2007, *Passive Smoking*, viewed 27 October, <www.betterhealth.vic.gov.au/bhcv2/bhcarticles.nsf/pages/Passive_smoking>.
- 6 Australian Institute of Health and Welfare, 2008, [*Australia's Health 2008*](#), cat. no. AUS 99, AIHW, Canberra, p. 133.
- 7 Tilleczek K. and Hine D., 2006, 'The meaning of smoking as health and social risk in adolescence' in *Journal of Adolescence*, Volume 29, Issue 2, April 2006, pp. 273–287.
- 8 National Health and Medical Research Council, 2001, *Australian Alcohol Guidelines: Health Risks and Benefits*, NHMRC, p. 3.
- 9 National Drug Research Institute, 2009, [*National Alcohol Indicators: Bulletin 12: Trends in estimated alcohol-attributable deaths and hospitalisations in Australia, 1996–2005*](#), Australian Government Department of Health and Ageing, p. 1.
- 10 National Health and Medical Research Council, 2009, [*Australian guidelines to reduce health risks from drinking alcohol*](#), pp. 2–4.
- 11 World Health Organisation, 2006, [*Obesity and Overweight*](#), Fact sheet no. 311, WHO.
- 12 World Health Organisation, 2009, 'BMI Classification' on *Global Database on Body Mass Index*, viewed 27 October 2009, <www.apps.who.int/bmi/index.jsp?introPage=intro_3.html>.
- 13 Australian Institute of Health and Welfare, 2004, *Risk Factor Monitoring, A Rising Epidemic: Obesity in Australian Children and Adolescents*, AIHW, Canberra.
- 14 Victorian Government Department of Human Services, 2009, [*Surgery for morbid obesity: Framework for bariatric surgery in Victoria's public hospitals*](#), Melbourne, p. 7.
- 15 Medicare Australia Statistics, 2009, *Medicare Item Reports*, viewed 30 Oct 2009, <www.medicareaustralia.gov.au/statistics/mbs_item.shtml>; The item number for gastric reduction is 30511 and for gastric bypass is 30512 (see Medicare Benefits Schedule Online, <www.health.gov.au/internet/mbsonline/publishing.nsf/Content/Medicare-Benefits-Schedule-MBS-1>).