

3.2 Physical inactivity

People who are physically inactive, defined for this report as undertaking 'insufficient' physical activity to achieve measurable health outcomes, are at increased risk for all-cause mortality and for a range of chronic diseases. Physical inactivity is also associated with other chronic disease risk factors such as high blood cholesterol and high blood pressure.

Description

Levels of physical activity are categorised in this report as 'sufficient' or 'insufficient' activity (see Box 3.2.1). Although there is no clear level of physical activity that does not confer a health benefit, the definition of sufficient activity, and therefore insufficient activity, is based on emerging evidence on the health benefits of regular participation in physical activity (AIHW: Armstrong et al. 2000).

Box 3.2.1: Defining physical activity

'Sufficient' activity is defined as 150 minutes of activity per week, using the sum of walking, moderate activity and vigorous activity (weighted by two).

'Insufficient' activity combines the constructs of no participation in physical activity and physical activity that is less than the amount required to meet the 'sufficient' category.

Source: AIHW: Armstrong et al. 2000:17.

Health outcomes

There is substantial literature outlining the relationship between physical inactivity and a range of health outcomes (see Box 3.2.2).

A lack of regular physical activity is associated with higher overall death rates for adults of any age (Blair et al. 1995). The strongest evidence is for an increased risk of mortality and morbidity from heart and vascular diseases, particularly coronary heart disease and acute myocardial infarction (heart attack) (USDHHS 1996).

Those who are physically inactive have a one-and-a-half to two-fold increase in risk for a fatal or non-fatal coronary event compared to those who are active (Kohl 2001). There is also some association between physical inactivity and an increase in risk of some types of stroke, although the evidence is less clear (Hu et al. 2000).

Insufficient physical activity increases the risk of Type 2 diabetes. Participation in sufficient physical activity reduces risk especially among people already at risk of Type 2 diabetes and influences the degree and severity of disability suffered from diabetes (Tuomilehto et al. 2001). It has been estimated that up to 50% of new cases of Type 2 diabetes could be prevented by participation in appropriate levels of physical activity (Manson & Spelsberg 1994).

Box 3.2.2: Health problems associated with physical inactivity

Chronic conditions

*Heart and vascular diseases and conditions
Type 2 diabetes
Musculoskeletal disorders
Some cancers*

Biomedical factors

*High blood pressure
High blood cholesterol
Atherosclerosis
Excess weight*

Sources: Bauman & Owen 1999; USDHHS 1996.

Physical inactivity is also associated with an increased risk for some cancers; in particular, an increased risk for post-menopausal breast cancer (Cancer Council Australia 2001) and colon cancer (Colditz et al. 1997).

These negative outcomes of physical inactivity contrast with the beneficial health outcomes associated with undertaking sufficient physical activity. In addition to reducing health risks for a variety of diseases and comorbidities, as outlined above, positive outcomes include weight control, increases in muscle and bone strength, reduction in risk for chronic conditions such as osteoporosis, lower back pain and arthritis, and protection against injury (specifically falls). Physical activity has also been associated with a reduction in risk for poor mental health, mainly through a reduction in the severity of depressive symptoms and anxiety (Bauman & Smith 2000; USDHHS 2000; Bauman & Owen 1999).

Patterns

Prevalence

In 1999, around 44% of the Australian adult population (aged 18–75) undertook insufficient physical activity (AIHW: Armstrong et al. 2000). Almost 15% reported undertaking no physical activity at all (Figure 3.2.1).

Levels of insufficient physical activity were higher in females (46%) than males (40%). Among males, the level of insufficient activity was highest among those aged 45–59 (50%) and lowest among those aged 18–29 (26%). Among females, levels of insufficient activity increased with increasing age, 36% in those aged 18–29 to 52% in those aged 60–75.

Trends

There was little change in physical activity patterns during the 1980s. But in the latter part of the 1990s there was a significant increase in the proportion of Australian adults categorised as insufficiently physically active.

In 1997, 38% of adult Australians were insufficiently physically active (doing no or little physical activity). Two years later, this proportion had grown to 43% (AIHW: Armstrong et al. 2000). The greatest increase in insufficient physical activity over that period was seen among those aged 30–44 (from 36% to 46%) (Figure 3.2.2). There was no change in the proportion of insufficiently physically active adults aged 60–75 (around 54%) between 1997 to 1999.

Impacts

Deaths

Physical inactivity is not recorded as an underlying cause of death. However, the Australian Burden of Disease and Injury Study (AIHW: Mathers et al. 1999) estimated that 13,019 deaths in 1996 were attributable to physical inactivity. Of these, 53% were attributed to coronary heart disease, 22% to stroke and 12% to colorectal cancer.

Costs

In 1993–94, the estimated direct health care costs attributable to physical inactivity were about \$377 million (Stephenson et al. 2000). This total consists of \$161 million for coronary heart disease, \$101 million for stroke, \$28 million for Type 2 diabetes, \$16 million for colon cancer, \$16 million for breast cancer, and up to \$56 million for depressive disorders.



Figure 3.2.1: Levels of physical activity, adults aged 18–75, 1999

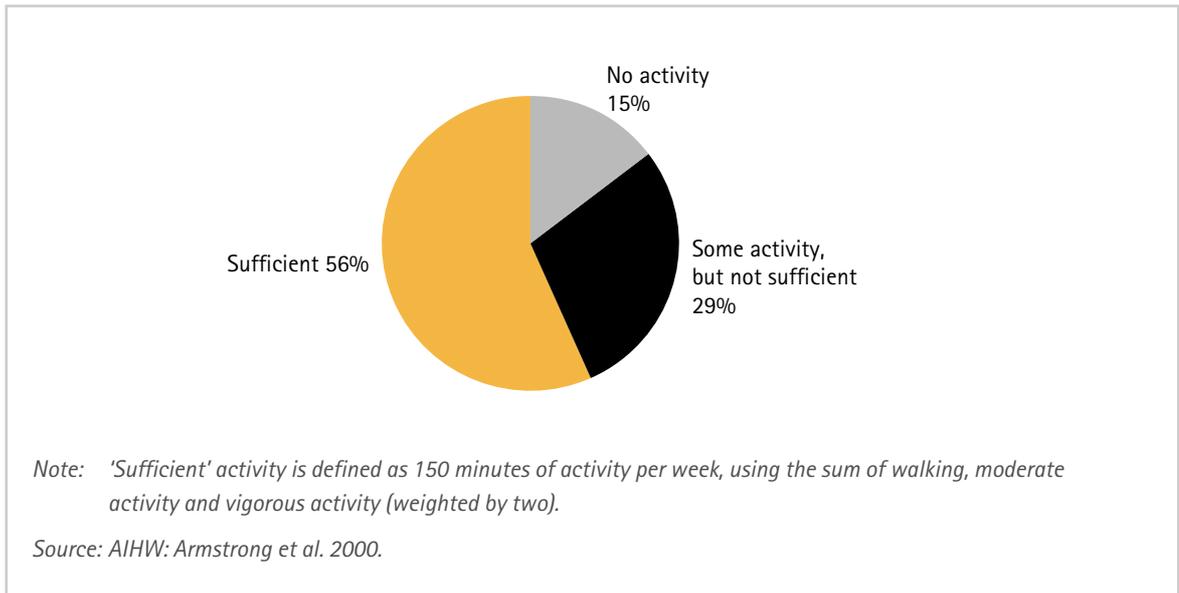
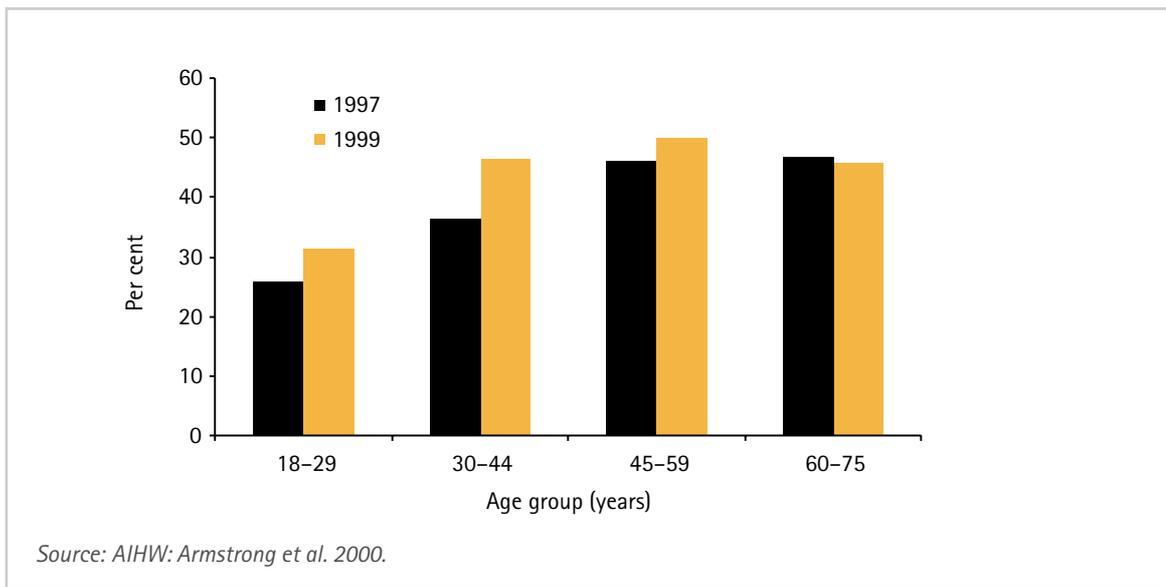


Figure 3.2.2: Trends in insufficient levels of activity, 1997 and 1999



Prevention

Promoting higher levels of participation in physical activity is a public health priority for most developed nations, including Australia. Increasing population levels of physical activity has significant potential to reduce chronic disease morbidity and mortality. Influences on increased population participation in physical

activity may be in the form of government and community policies, projects, and campaigns.

Active Australia, launched in 1996, is an initiative that recognises the importance of physical activity and aims to increase participation in physical activity. It contains strategies that encompass education, the physical environment, infrastructure and

monitoring of physical activity patterns in Australia (DHFS 1998).

To make Australians more aware of the benefits of physical activity, National Physical Activity Guidelines for Australians were released in 1999 (DHAC 1999). These guidelines emphasise that people should become generally more active, along with recommending that Australians should accumulate at least 30 minutes of physical activity of at least moderate intensity on most, if not all, days of the week to

obtain a health benefit. Moderate physical activities include, for example, brisk walking and cycling. The guidelines also mention the additional health benefits of participating in more vigorous activities, such as jogging and competition tennis. The National Heart Foundation of Australia and Cancer Council Australia, among others, are supportive and actively involved in campaigns to increase physical activity (NHFA 2001; Cancer Council Australia 2001).

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3.3 Tobacco

The use of tobacco, largely in the form of cigarette smoking, is a widespread behaviour with serious health consequences. It is the risk factor associated with the greatest burden of disease in Australia. In 1998, approximately 3.3 million adult Australians (22% of the adult population) were regular smokers and therefore at a significantly higher risk of heart disease, a range of serious cancers, and other major chronic conditions.

Cigarettes and other tobacco products (cigars, snuff, and chewing tobacco) contain carcinogens (cancer-causing agents), nicotine (an addictive agent) and numerous other poisonous substances. Tobacco smoke affects not only the individual user, but also others who may be exposed to it. Smoking during pregnancy carries risks of complications for the child and mother.

Health outcomes

People who use tobacco are at increased risk of vascular and heart diseases, cancers, and respiratory diseases (see Box 3.3.1). The risks increase with the number of cigarettes smoked daily, with the number of years of smoking, and especially when the habit is started at an early age.

Most of these risks are not apparent in people who have used tobacco for a short period, but due to the addictive nature of tobacco many users are unable to give up the habit and the health risks accumulate over their lifetimes. Long-term health consequences of smoking are reinforced by the fact that many young people who smoke regularly continue to smoke into and throughout adulthood.

Many of the health effects associated with active smoking have been noted for passive smoking (see Box 3.3.2). Environmental tobacco smoke has been shown to be associated particularly with childhood respiratory diseases including asthma, bronchitis, and pneumonia. The effects appear to be dose related—respiratory illnesses are more frequent in children with two smoking parents compared to children with only one parent who smokes (Fielding 1986:1015–6).

Box 3.3.1: Health problems associated with tobacco smoking

Heart and vascular diseases and conditions

Coronary heart disease

Stroke

Peripheral vascular disease

Cancers

Lung

Mouth

Oesophagus

Kidney

Pancreas

Bladder

Larynx

Stomach

Cervix

Respiratory diseases

Chronic obstructive pulmonary disease (COPD)

Asthma

Other

Oral diseases

Sexual dysfunction

Source: AIHW: Mathers et al. 1999:106.

Box 3.3.2: Health problems associated with passive smoking*Asthma in children**Lower respiratory tract infections**Lung cancer**Coronary heart disease**Source: NHMRC 1997.*

Both direct and passive exposure to tobacco smoke pose special hazards to pregnant mothers, babies, and young children (see Box 3.3.3). Babies and children who are exposed to maternal tobacco smoking have more ear infections and asthma and have higher rates of sudden infant death syndrome (SIDS). Mothers who smoke during pregnancy are more likely to have low birthweight babies, with the attendant increased health risks.

Box 3.3.3: Health problems associated with smoking during pregnancy and childhood*Complications of pregnancy**Premature birth**Foetal death**Spontaneous abortion**Low birth weight**Sudden infant death syndrome (SIDS)**Asthma**Lower respiratory tract infections**Reduced lung function**Bronchial hyper-responsiveness**Middle ear disease**Source: NHMRC 1997.*

Patterns

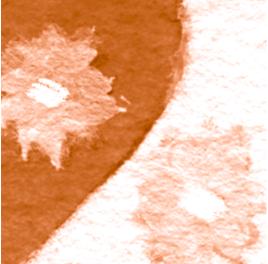
Prevalence

Tobacco smoking is highly prevalent in Australia. The 1998 National Drug Strategy Household Survey (NDSHS) measured tobacco consumption patterns among Australians aged 14 and above, and found that 25% of males and 20% of females were regular smokers (used tobacco daily or most days) at the time of the survey (Figure 3.3.1). A further 4% of both males and females reported that they were occasional smokers (smoked less often than daily or on most days), and a further 43% of males and 36% of females said that they were ex-smokers (AIHW: Adhikari & Summerill 2000).

Smoking was most prevalent in the 20–29 age group (33% males and 30% females), and lowest in the 60 and above age group (15% and 10% respectively). More than 16% of the youngest age group (ages 14–19) were smokers. The prevalence of regular smoking was higher among males at all ages.

The NDSHS also measured the amount of smoking by recent smokers (those classified above as ‘regular’ or ‘occasional’ smokers). The majority of recent smokers (60%) smoked 11 or more cigarettes a day, with more than a third of elderly smokers (37%) smoking in excess of 20 cigarettes a day. Among teenage smokers, nearly a third (32%) smoked 11 or more cigarettes a day (AIHW: Adhikari & Summerill 2000:7).

Smoking is highly associated with socioeconomic factors and is significantly more common among those in lower socioeconomic categories, the unemployed, those with lower levels of education, and those living in rural and remote areas (AIHW: Adhikari & Summerill 2000:11).



A high prevalence of smoking has also been found among Indigenous Australians. The 1995 ABS National Health Survey found that, among adults living in non-remote areas, 56% of Indigenous males and 46% of Indigenous females said they currently smoked, compared with 27% of non-Indigenous males and 20% of non-Indigenous females (ABS & AIHW 1999:52).

Trends

Smoking rates in Australia have declined since the early 1970s, but the rate of this decline slowed in the 1990s (AIHW: Mathers et al. 1999:104). Between 1991 and 1998, the prevalence of smoking declined only slightly. In 1991, 28% of Australians aged 14 and over were 'regular' or 'occasional' smokers, compared to 26% in 1998 (Figure 3.3.2). The proportion

Figure 3.3.1: Proportion of regular smokers, by age group, 1998

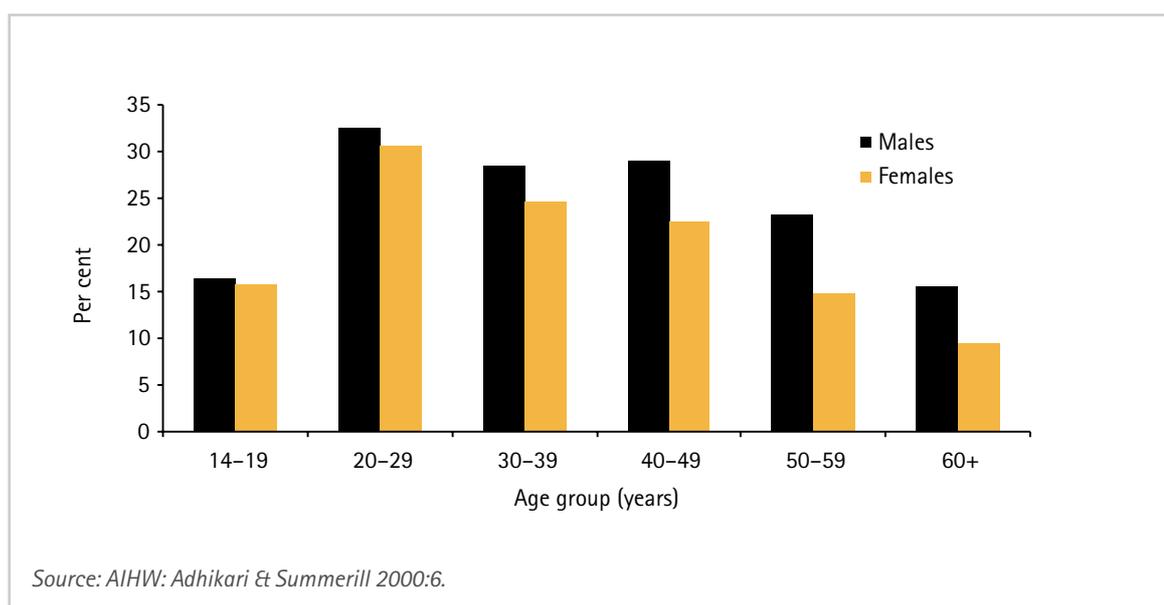
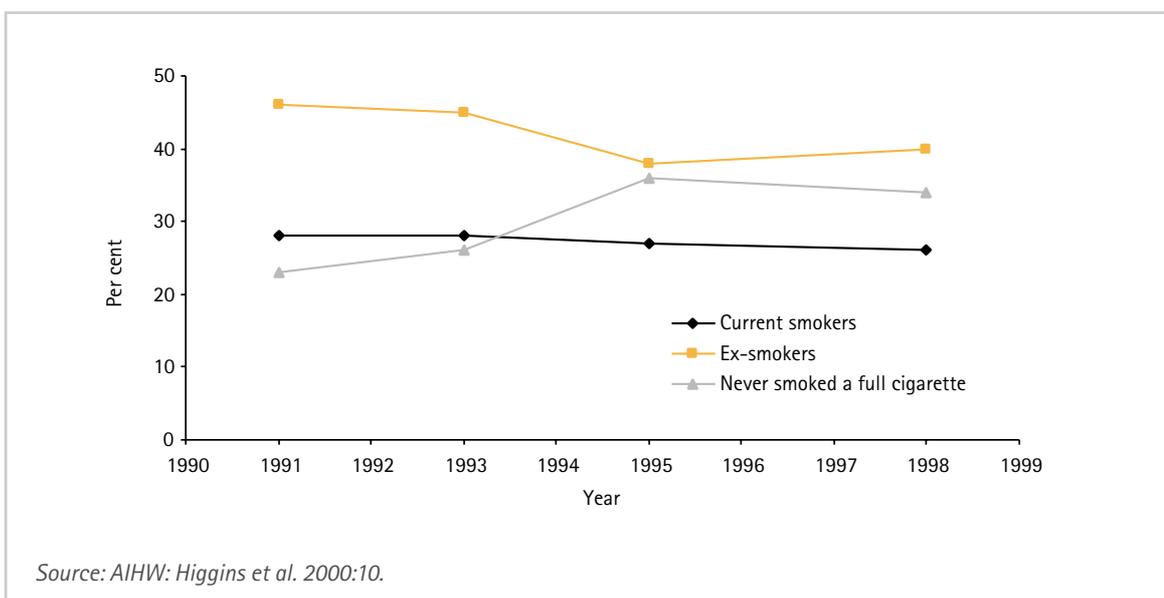


Figure 3.3.2: Tobacco smoking, persons aged 14 and over, 1991 to 1998



of those who had never smoked, on the other hand, rose from 23% to 34% over the same period.

Based on a national survey of secondary students, it is estimated that more than 276,000 students aged 12–17 were current smokers (defined for students as at least one cigarette in the past week) in 1996. There was a decline in current smoking rates for students aged 12–17 from 1984 through to 1990, but this decline has since ceased. In 1996, the smoking rate for those aged 12–15 was 16% for both boys and girls, with the rate rising to 28% among boys aged 16–17 and 32% among girls aged 16–17 (Figure 3.3.3).

The level of cigarette consumption by smokers appears to have declined slightly. A national survey of smoking patterns in 1992 found that the average number of cigarettes smoked per day by smokers was 22.1 for males and 19.1 for females, compared to 19.7 for males and 18.1 for females in 1995 (Hill et al. 1998:210–3). These figures indicate that the average consumption by smokers has been about one 20-cigarette pack per day.

Overall consumption of tobacco in Australia has declined more markedly (Figure 3.3.4). Consumption of tobacco by Australians aged

15 years and over exceeded 3 kg each year from 1951 to 1978, peaking at 3.54 kg in 1961. Since then there has been a sustained decline in consumption, to 1.37 kg per person (age 15+) in 1998.

Impacts

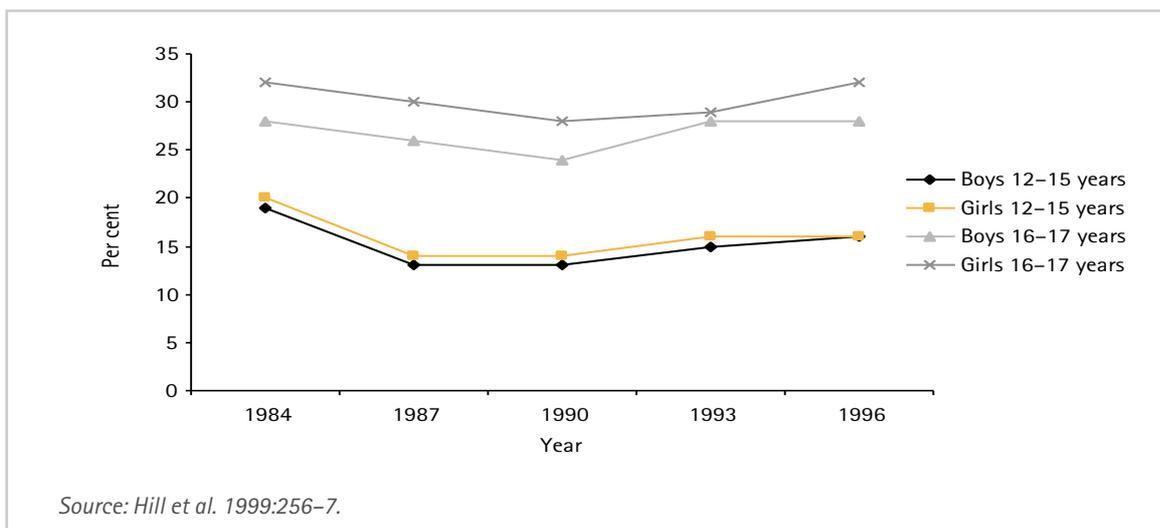
Deaths

The number of deaths attributable to tobacco in 1996 was estimated to be 16,875, 17% of male and 9% of female deaths. Of these deaths, 37% were attributed to lung cancer, 15% to coronary heart disease (CHD), and 28% to COPD (AIHW: Mathers et al. 1999:106).

Use of services

In 1997–98, over 142,500 hospital separations were attributed to tobacco use, representing 2.6% of all separations in that year. The largest single cause of these hospitalisations was CHD (26%), followed by COPD and cancers (about 20% each). In contrast to the deaths attributed to tobacco, only half (52%) of these separations were of people aged 65 and above. Another 42% of hospital separations were of people aged 35–64, due mainly to the high rate of

Figure 3.3.3: Proportion of adolescents (aged 12–17) who are smokers, 1984 to 1996





hospitalisation in this age group for CHD (AIHW: Ridolfo & Stevenson 2001:98).

Direct health care costs attributable to tobacco in 1992 have been estimated to be \$833 million (Collins & Lapsley 1996, cited in AIHW: Higgins et al. 2000:12).

Prevention

As cigarette smoking is still the most important preventable cause of premature death and illness in Australia, reducing the prevalence of smoking remains a high priority on the public health agenda (AIHW 2000:306–9). This requires a wide range of educational, regulatory and other measures that must be sustained over the long term. The aim should be primarily to prevent the uptake of smoking by children and young adults, and also to encourage and support cessation by smokers and protection of non-smokers from environmental tobacco smoke.

Measures to achieve these aims include:

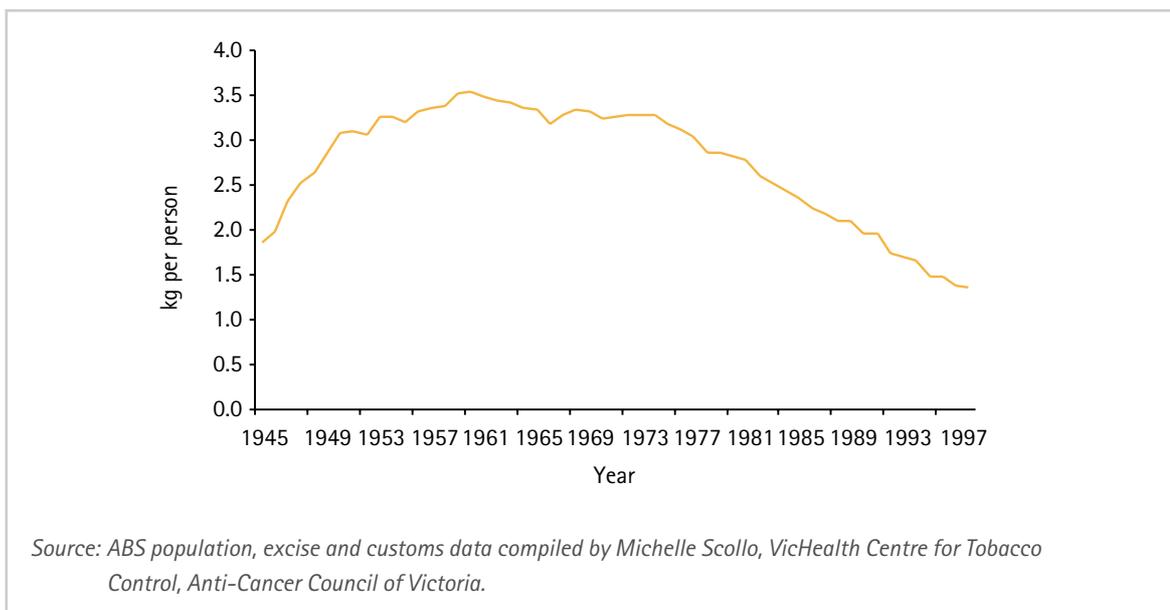
- 1 public and school-based education programs;

- 1 progressive increases in the price of tobacco products;
- 1 bans on smoking in buildings or other public enclosed spaces; and
- 1 restrictions on tobacco advertising and promotion, including sponsorship of sport and the arts.

The National Tobacco Strategy (DHAC 2001) has as its goal the improvement of the health of all Australians by eliminating or reducing their exposure to tobacco. The four objectives of the strategy are to:

- 1 prevent the uptake of tobacco use in non-smokers, especially children and young people;
- 1 reduce the number of users of tobacco products;
- 1 reduce the exposure of users to the harmful health consequences of tobacco products; and
- 1 reduce exposure to tobacco smoke.

Figure 3.3.4: Tobacco consumption (kg per person aged 15 and over), 1945 to 1999



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3.4 Alcohol misuse

Alcohol consumption by Australians is a topic of considerable public health importance. Although most people drink moderately and without ill-effect, excessive use of alcohol contributes to several chronic physical, psychological and behavioural health problems.

The negative health consequences of alcohol use include alcohol dependence ('alcoholism'), a number of chronic diseases, and acute conditions from large doses in a short time period, such as poisoning and injuries from motor vehicle accidents. Persons who suffer from alcohol dependence often sustain both the acute and chronic effects of alcohol.

Description

Definition

There are no standard definitions of terms such as alcohol misuse, alcohol dependence, or alcoholism. Statistics of alcohol misuse and its consequences have used a variety of techniques and definitions.

Several classifications have been used in Australia for measuring use of alcohol. One of these is based on the National Health and Medical Research Council's (NHMRC) guidelines for responsible drinking. The NHMRC distinguishes between males and females for amounts of alcohol intake considered to be 'hazardous' (more than four standard drinks per day for males, and more than two per day for females) or 'harmful' (more than six standard drinks per day for males, and more than four for females) (Table 3.4.1). These are collectively referred to as 'alcohol misuse' in this report.

Health outcomes

Some of the chronic health problems and conditions associated with hazardous or harmful use of alcohol are listed in Box 3.4.1. This list does not include all the neurological conditions resulting from alcohol dependence, nor does it cover all the behavioural problems and injuries that can result from the effects of alcohol.

Alcohol use during pregnancy is also a known risk factor for the health of the foetus and newborn.

Hazardous consumption of alcohol is frequently found together with tobacco smoking, and the two combined are strongly associated with oral, throat and oesophageal cancers. Alcohol misuse is associated with increased risk of stroke and coronary heart disease (CHD) through its contribution to high blood pressure.

Table 3.4.1: Classification of alcohol intake levels

Alcohol intake	Average number of standard drinks per day (1 standard drink = 10 g alcohol)	
	Males	Females
Abstinence	0–0.25	0–0.25
Low	0.26–4.00	0.26–2.00
Hazardous	4.01–6.00	2.01–4.00
Harmful	>6	>4

Sources: AIHW: Mathers et al. 1999:108–9; NHMRC 1992.

Box 3.4.1: Health problems associated with hazardous or harmful alcohol use

Liver cirrhosis

Oral cancer

Cancer of the upper gastrointestinal tract

Liver cancer

Breast cancer

Colorectal cancer

Pancreatitis

Diabetes

Epilepsy

High blood pressure

Stroke

Coronary heart disease

Source: AIHW 2000:146, 355.

Low to moderate levels of alcohol consumption have been found to protect against some chronic diseases and risk factors, including high blood pressure, CHD, and stroke (AIHW 2000:147). While the benefits of moderate alcohol use are still being assessed, the important public health message remains that alcohol use, for some individuals even at moderate levels, increases the risk of many diseases and injuries.

Patterns

Prevalence

The 1998 National Drug Strategy Household Survey (NDSHS) produced two estimates of the level of hazardous or harmful alcohol use among Australians aged 14 and over. The 'conservative' estimate, based on the lower values of responses to questions using ranges such as 2–3 days per week or 3–4 drinks per day, showed that at least 7% of males and 4% of females were drinking at hazardous or harmful levels. The 'non-conservative' estimate (using the upper values of the ranges) was 16%

for males and 10% for females. Comparable estimates based on the 1995 ABS National Health Survey, for respondents aged 15 and over, were 15% for males and 13% for females (AIHW: Mathers et al. 1999:109).

Using 'non-conservative' estimates from the 1998 survey, males are more likely than females to drink at hazardous or harmful levels at all ages except the 14–19 age group, where the levels of hazardous or harmful drinking were similar for both sexes at around 6%. Among males, hazardous or harmful drinking was highest (21%) in the 50–59 years group, while among females it was highest (12%) in the 40–49 years group (Figure 3.4.1).

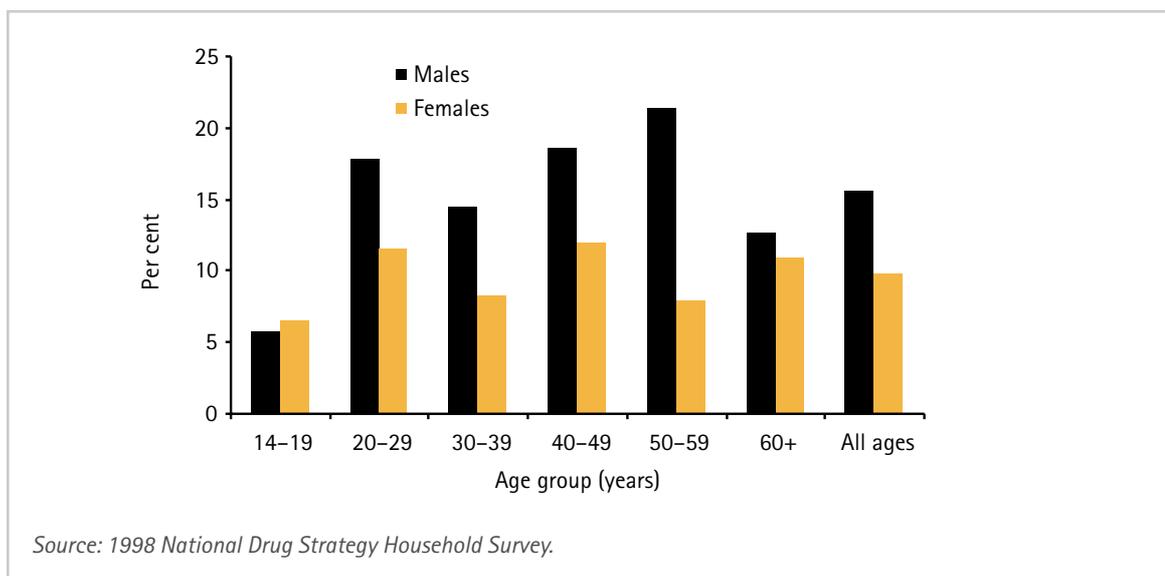
In 1998, there were proportionately more regular drinkers (at least once per week) among the highest socioeconomic group compared to other socioeconomic groups, among those with tertiary education qualifications compared to those with no qualifications, and among employed persons compared to the unemployed and those not in the labour force (AIHW: Adhikari & Summerill 2000:21).

A number of studies have shown that Indigenous Australians are less likely than non-Indigenous Australians to be drinkers of alcohol. For example, in the 1995 ABS National Health Survey (NHS), among persons aged 18 and above and living in non-remote areas, 55% of Indigenous males were 'recent' drinkers (at least one drink in the last week) compared to 66% of non-Indigenous males. For females, the corresponding figures were 33% compared to 46% (ABS & AIHW 2001:156).

Despite the lower proportion of Indigenous adults who drink, alcohol continues to be of concern for Indigenous people because those who do drink alcohol are more likely to consume it at hazardous levels. In the 1995 NHS, 12% of Indigenous adult males were classified as drinking at hazardous levels (more



Figure 3.4.1: Hazardous or harmful drinking, 1998



than four standard drinks per day), compared to 5% of non-Indigenous males. Similarly, nearly 3% of Indigenous adult females used alcohol at hazardous levels (more than two standard drinks per day), compared to 1% of non-Indigenous adult females (ABS & AIHW 2001:156).

Trends

Alcohol consumption patterns have remained largely unchanged over the last decade (Figure 3.4.2), with around 50% of the population aged 14 and above drinking regularly (at least once per week). A further 30% drink on only a few occasions each month, and the remainder either no longer drink alcohol or have never consumed a full glass of alcohol (AIHW 2000:147).

Alcohol consumption in Australia has been relatively stable over the past 5 years, at around 7.6 litres of pure alcohol per person per year. The peak year for alcohol consumption was 1981, when Australians consumed on average 9.7 litres of pure alcohol per person. Part of the decline is attributable to a reduction in consumption of beer (AIHW: Higgins et al. 2000:14-5).

Impacts

Deaths

The Burden of Disease and Injury Study estimated that 4,492 deaths in 1996 were attributable to 'alcohol harm'. These deaths represented 4.7% of all male deaths and 2.1% of female deaths. The main underlying causes of death attributable to alcohol harm were liver cirrhosis (16% of all deaths due to alcohol harm), stroke (14%), road traffic accidents (11%), colorectal cancer (9%) and alcohol dependence (9%). The study also estimated that in the same year 7,157 deaths were averted due to the protective effects of low to moderate use of alcohol, mainly reduced deaths from CHD and stroke (AIHW: Mathers et al. 1999:111).

The study also found that the harmful effects of alcohol were distributed relatively evenly across all age groups, whereas almost all the benefits from alcohol were found in age groups over 45, and particularly in older people. The study concluded that moderate alcohol use was beneficial in middle and older ages, while alcohol misuse was harmful at all ages (AIHW: Mathers et al. 1999:109-10).

Use of services

In 1997–98, over 43,000 hospital separations were attributed to alcohol misuse. Sixty per cent of these were for alcoholism and alcoholic liver cirrhosis, 14% for cancer, and 14% for road injuries (AIHW: Ridolfo & Stevenson 2001:106).

Direct health care costs attributable to alcohol misuse in 1992 have been estimated to be \$145 million, plus an additional \$767 million in road accident costs (Collins & Lapsley 1996, cited in AIHW: Higgins et al. 2000:12).

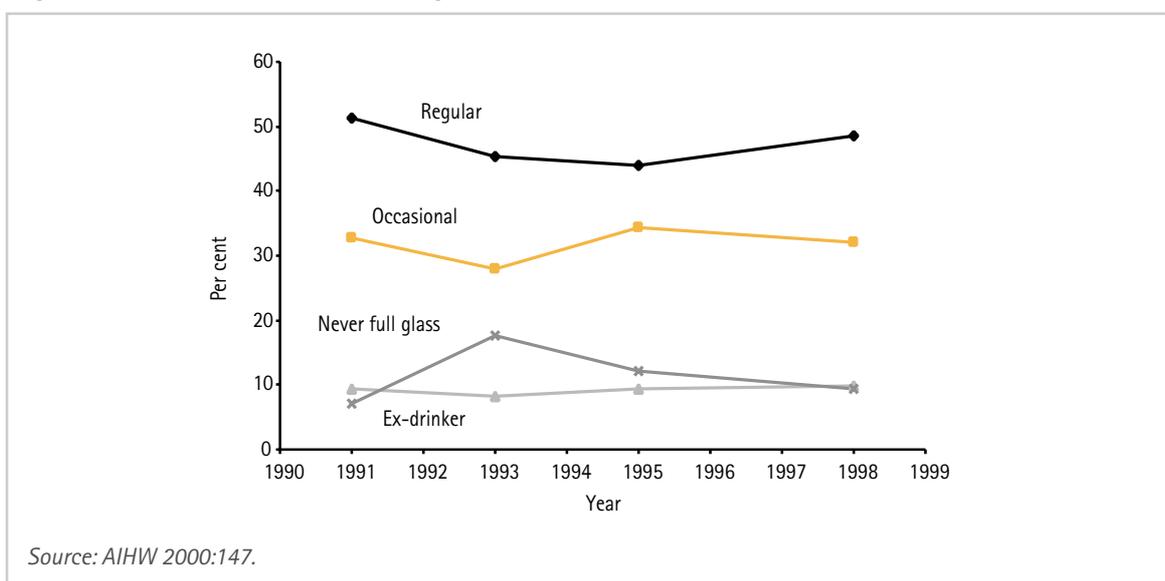
There are also social costs from the excessive use of alcohol. In 1998, over one-third of adult Australians reported being either verbally or physically abused by someone under the influence of alcohol. About one in ten persons reported being the victims of alcohol-related property damage or theft (AIHW 2000:147).

Prevention

A range of measures aim to prevent the misuse of alcohol. These include legislative and regulatory control on prices, sales outlets and the level of alcohol in various beverages. There are also public education programs aimed at special groups such as pregnant women, young people, the elderly, and Indigenous Australians. The National Alcohol Strategy for 2000–01 to 2002–03 provides national direction for minimising the consequences of alcohol-related harm (DHAC 2001). The strategy aims to:

- 1 reduce mortality and morbidity caused by alcohol;
- 1 reduce social disorder, family disruption and crime related to the misuse of alcohol; and
- 1 reduce the level of economic loss due to alcohol misuse.

Figure 3.4.2: Alcohol use, persons aged 14 and over, 1991 to 1998





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