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Cigarette smoking among women in Australia

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1 Summary

Trends in smoking among women and girls

Until the early 20th century, Australian women on the whole did not smoke. Cigarette smoking was predominantly a male preserve and an activity strongly regarded as unfeminine. However, despite the strong social disapproval of women smoking, the number of women who smoked began to increase during the 1920s and 1930s. By 1945, 26 per cent of Australian women smoked cigarettes.

Since 1974 there has been a substantial fall in the percentage of Australian men who smoke, from 45 per cent to 27 per cent. In contrast, for women, the peak smoking prevalence was 31 per cent in 1976 and 1980, declining by almost 8 per cent to 23 per cent in 1995.

The number of women who had never smoked decreased from 60 per cent in 1974 to 51 per cent in 1983 and has remained stable since then.

Women tend to smoke fewer cigarettes per day than men and also choose lower tar brands.

The prevalence of smoking generally peaks between the ages of 20 to 24 and remains high among women aged 25 to 29, after which time it declines.

Smoking prevalence is consistently higher among girls than boys. From 1993 to 1996 the smoking rates among girls and boys remained the same for 12 to 14 year olds and increased slightly for 15 to 17 year olds.

While more girls smoke than boys, boys in all age groups smoke more cigarettes per week than girls.

Current figures suggest that within the next decade smoking will be more common among women than men. This has implications for women s health for many years to come.

Health consequences of active smoking

Tobacco smoking is a recognised risk factor for coronary heart disease, stroke and peripheral vascular disease, as well as lung cancer and a range of other cancers, other diseases and conditions. It causes the greatest number of drug related deaths in Australia.

In 1998, an estimated 6˚075 women died in Australia as a result of cigarette smoking, approximately 10 per cent of all deaths. While the proportion of all deaths caused by cigarette smoking has declined in men, it has increased in women (in line with the trends in prevalence of smoking).

The largest number of smoking related deaths among women are due to lung cancer, accounting for 25 per cent of all smoking related deaths. Chronic obstructive pulmonary disease (22 per cent) and ischaemic heart disease (20 per cent) also account for large proportions of smoking related deaths.

Lung cancer is the third most common cause of cancer deaths among women, preceded by breast and colorectal cancer. Lung cancer death rates for women increased during 1940 to 1967 and continued to rise steeply in the period 1967 to 1993. Since 1993 the death rate for lung cancer among women has been relatively stable.

Smoking related diseases in Australian women account for almost half of the years of healthy life lost due to premature death, impairment and disability.

For women, smoking is also related to difficulties becoming pregnant, and risk of miscarriage, menstrual symptoms and early menopause. Young women who currently smoke or have smoked in the past are at increased risk of menstrual symptoms compared with their contemporaries who have never smoked.

Health consequences of passive smoking

There is evidence of adverse health effects for women and their children due to passive smoking.

While there has been substantial progress in reducing environmental tobacco smoke (ETS), including legislation to ban smoking in workplaces and public places, women and their children remain at risk of exposure to ETS at home.

Further reductions in passive smoking could be achieved from changes in public attitudes towards smoke-free houses so smoking members of a household can only smoke outside the house.

Cigarette smoking and pregnancy

About 20 per cent of women smoke during pregnancy, although this percentage appears to be declining.

Cigarette smoking can result in problems becoming pregnant, pregnancy complications including miscarriage and birthing difficulties, and problems for the baby.

Pregnancy or the desire to become pregnant is a powerful motivational factor for women to give up smoking.

Pregnancy and smoking cessation

Australian data indicate that approximately 20 to 30 per cent of women who were smokers at the time they became pregnant quit smoking.

Approximately half of the women who quit smoking during pregnancy relapse within six months of delivery and approximately 70 per cent relapse within 12 months.

Behavioural interventions can help about 50 per cent of pregnant smokers to quit.

If the woman s partner also stops smoking, the woman will find it easier to quit and not relapse after the baby is born.

Due to the concerns of pregnant women about the use of pharmacological aids to quit smoking, focus has been on behavioural strategies.

Smoking cessation programs targeting pregnant women and their partners should become the key component of the national strategy to control tobacco smoke.

Cigarette smoking among Indigenous women and girls

Smoking prevalence among Indigenous people is extremely high — twice that of the non-Indigenous population.

The proportion of Indigenous women who smoke and the number of cigarettes they smoke varies considerably between communities.

Cigarette smoking is a cause of some of the excess mortality and morbidity experienced by Indigenous people.

Fewer Indigenous people attempt to quit smoking than non-Indigenous people.

Cigarette smoking is strongly associated with alcohol consumption, lower levels of education and unemployment.

To some degree, community health and resource workers reinforce the lower priority of smoking as a health concern, as many smoke themselves.

In the context of other health and social issues that Indigenous people have to deal with, there is less concern about cigarette smoking.

Culturally-specific tobacco control strategies are being developed but considerably more work is needed to find interventions which are effective.

Smoking initiation and maintenance

Over the last 50 years, women have been taking up smoking at younger ages.

People who start smoking when they are young are:

- more likely to smoke heavily
- to become more dependent on nicotine
- to be at increased risk for smoking-related illnesses or death.

As the majority of smokers commence smoking during the teenage years, most research on smoking initiation focuses on adolescents.

Factors associated with adoption and maintenance of smoking are predominantly environmental (eg peer and family smoking behaviour). These are influenced by social norms and expectations. Therefore, social marketing has a role to play in reducing cigarette smoking.

Smoking cessation

More than half of all smokers say they intend to quit.

While the financial and health benefits of quitting are acknowledged, women in particular, are concerned about gaining weight.

Most women who give up smoking quit by the 'cold turkey' method without help.

There is good evidence that the following methods improve quit rates by at least 50 per cent:

- nicotine replacement therapy
- help from doctors or nurses
- individual or group behavioural therapy.

The benefits to women in particular, of quitting smoking should be emphasised in mass media campaigns and their concern about weight gain taken into account.

Information about ways of quitting and access to these resources should be made readily available to all women who smoke.

2 Cigarette smoking among women and girls

Historical trends

Current smoking

Until the early 20th century, Australian women on the whole did not smoke.[1] Cigarette smoking was predominantly a male preserve and an activity strongly regarded as unfeminine.[1] However, despite the strong social disapproval of women smoking, the number of women who smoked began to increase during the 1920s and 1930s. This has been attributed to the social and cultural changes of the time, which gave women greater freedom and independence.[1] Social acceptability of women who smoked increased as cigarette advertising became more directly aimed at women and as more women went into civil and military jobs during the Second World War.[1] By 1945, 26 per cent of Australian women smoked cigarettes.[2]

More recently, regular national surveys have monitored changes in smoking patterns, identifying differences over time between men and women. Since 1974 there has been a substantial fall in the percentage of Australian men who smoke, from 45 per cent to 27 per cent, a decline of 18 per cent. In contrast, for women, the peak smoking prevalence was 31 per cent in 1976 and 1980, declining by almost 8 per cent to 23 per cent in 1995 (Figure 2.1a).[2]

Ex-smoking

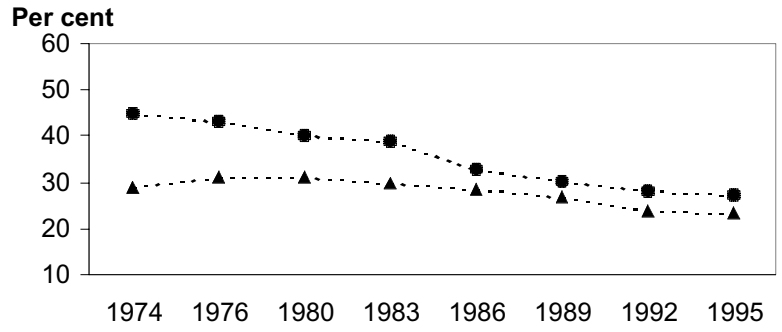
From 1974 to 1995, more men than women were ex-smokers (Figure 2.1b).[2] Over this 21 year period, the proportion of ex-smokers increased steadily for both men and women, indicating increasing levels of giving up smoking.

Never smoking

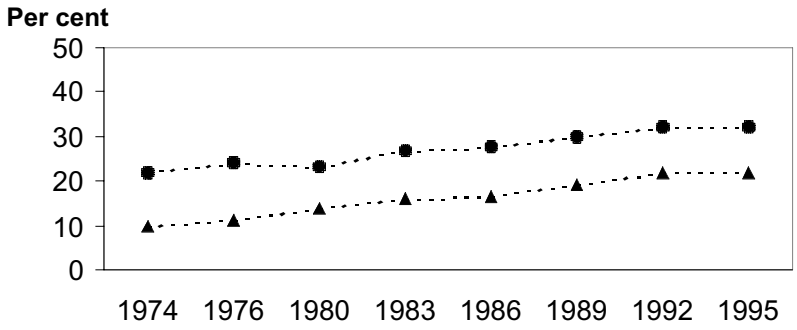
There has been an increase from 1974 to 1995 in the number of men who have never smoked (Figure 2.1c).[2] The number of women who had never smoked decreased from 60 per cent in 1974 to 51 per cent in 1983 and has remained stable since then.

Figure 2.1 Crude prevalence (per cent) of current smoking, ex-smoking and never smoking among men and women aged 16 years or older, Australia 1974 to 1995

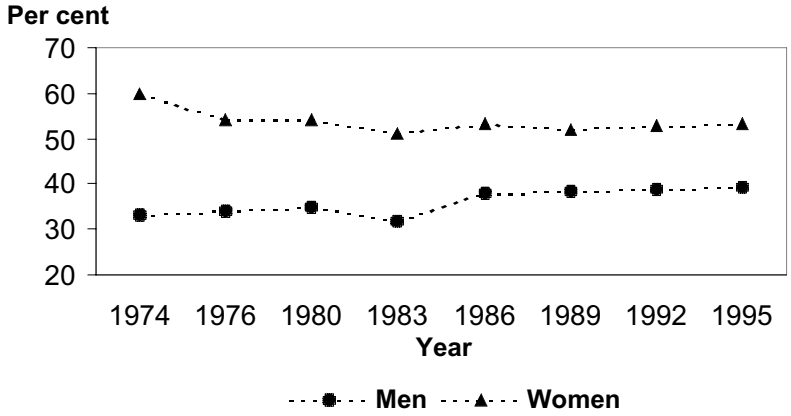
a. Current smoking



b. Ex-smoking



c. Never Smoked

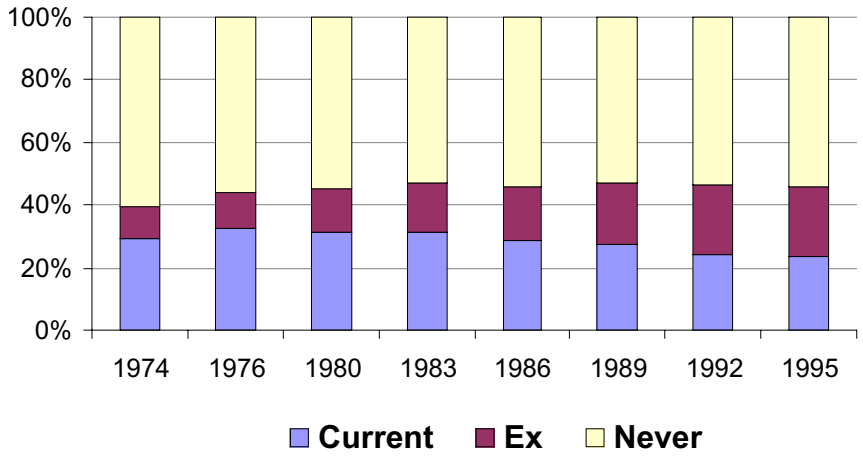


Note: Data in Table 2A.1, Appendix

Sources: Gray and Hill[3]; Gray and Hill[4]; Hill and Gray[5]; Hill and Gray[6]; Hill[7]; Hill, White and Gray[8]; Hill and White[9]; Hill, White and Scollo[10]

Figure 2.2 summarises the smoking patterns among Australian women since 1974.

Figure 2.2 Smoking patterns among women aged 16 years or older, Australia, 1974 to 1995

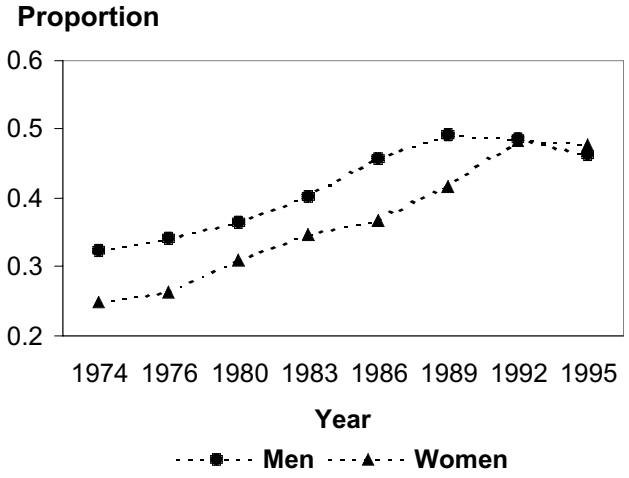


Note: Data in Table 2A.1, Appendix
Sources: Gray and Hill[3]; Gray and Hill[4]; Hill and Gray[5]; Hill and Gray[6]; Hill[7]; Hill, White and Gray[8]; Hill and White[9]; Hill, White and Scollo[10]

Quit proportions

The proportion of people who have ever smoked who are now ex-smokers is defined as the quit proportion.[8] In Australia, quit proportions used to be lower for women than men but have increased steadily for both sexes since 1974 and are now approximately equal (Figure 2.3).[10, 11]

Figure 2.3 Age adjusted quit proportions for women and men, Australia, 1974 to 1995



Notes: Data in Table 2A.2, Appendix
Age-adjusted to 1986 Australian population
Sources: Victorian Smoking and Health Program[11]; Hill and White[9]; Hill, White and Scollo[10]

Trends in number of cigarettes smoked by women

Almost all tobacco consumed by Australian women is in the form of factory-made cigarettes. National surveys of smoking behaviour suggest that less than one per cent of women use pipes, cigars or loose tobacco (used in roll-your-own cigarettes).[11]

Women tend to smoke fewer cigarettes per day than men (Table 2.1) and also choose lower tar brands.[11] Since 1980 there has been very little change in the average number of cigarettes smoked per day for both men and women.

Table 2.1 Self-reported mean number of cigarettes smoked per day for men and women aged 16 years and older, 1980 to 1995

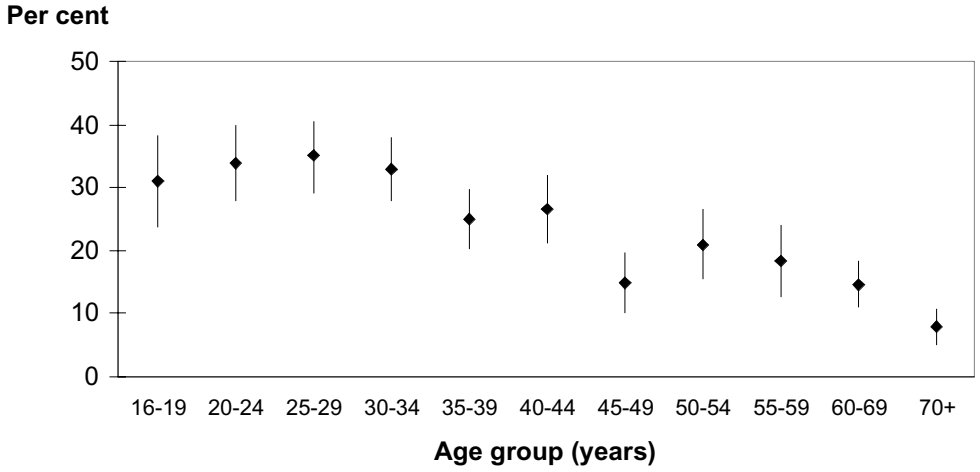
Year	Women	Men
1980	18.1	22.1
1983	17.3	18.3
1986	19.8	22.3
1989	18.9	22.0
1992	19.1	22.1
1995	18.1	19.7

Sources: Hill and Gray[5]; Hill and Gray[6]; Hill[7]; Hill, White and Gray[8]; Hill and White[9]; Hill, White and Scollo[10]

Age differences in prevalence of current smoking among women

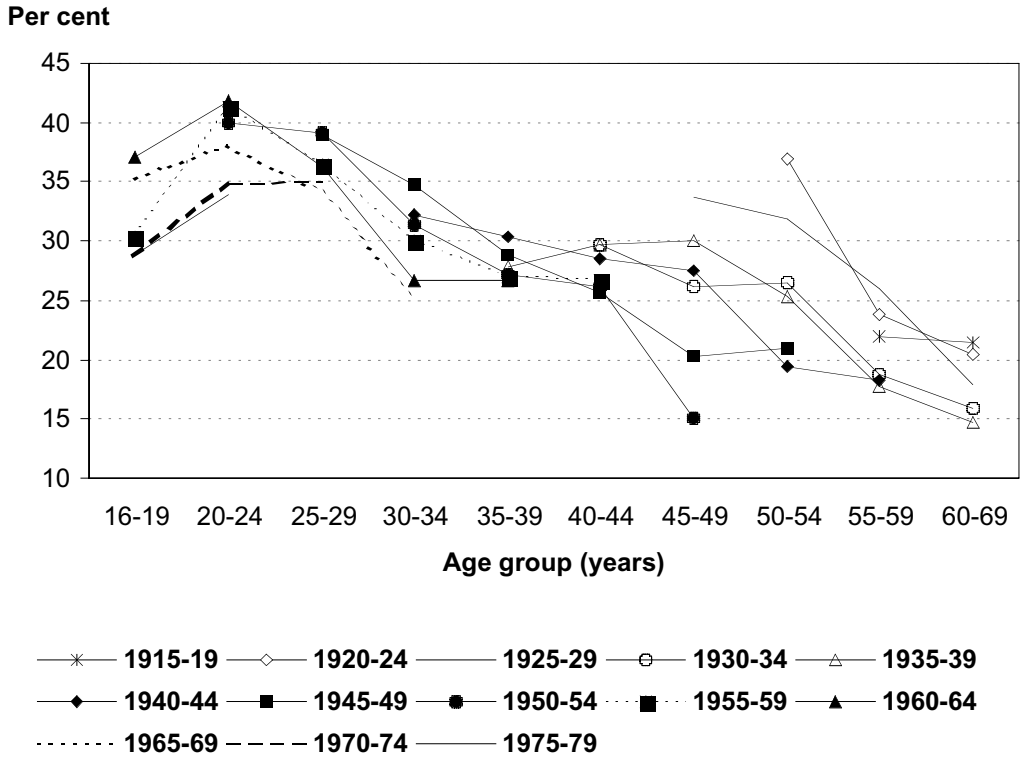
Smoking rates have been consistently higher among younger women than older women. The prevalence of smoking generally peaks between the ages of 20 to 24 and remains high among women aged 25 to 29, after which time it declines (Figure 2.4). This is typical of all birth cohorts in the twentieth century (Figure 2.5).

Figure 2.4 Age specific prevalence (per cent) of current smoking among Australian women in 1995



Note: Data in Table 2A.3
Source: Hill, White and Scollo[11]

Figure 2.5 Smoking prevalence (per cent) among birth cohorts from 1915-1919 to 1975-1979



Note: Based on data in Table 2A.3, Appendix

For all the five year birth cohorts for whom data are available, smoking prevalence appears to peak around the age group 20 to 24 years and then decline. From 1974 to 1995 smoking prevalence has ranged from 34 per cent to 43 per cent for women aged 20 to 24 and 33 per cent to 42 per cent for women aged 25 to 29.

Smoking prevalence among women with different demographic characteristics

Data from the 1995 National Health Survey[12] show patterns of cigarette smoking in relation to a range of demographic characteristics (Table 2.2). Married women (and men) are less likely to smoke than women who were previously married or never married. Smoking prevalence is reduced with increasing socioeconomic advantage and family income and is lowest among those with more years of formal education.

Table 2.2 Prevalence (per cent) of current smoking among men and women with various demographic characteristics, Australia, 1995

	Women	Men
Marital status		
Currently married	18.0	23.8
Previously married	23.8	36.8
Never married	28.7	32.9
Region		
Metropolitan	20.2	26.5
Non-metropolitan	22.7	28.0
Country of birth		
Australia/ New Zealand	22.8	27.8
UK/Ireland	21.6	25.3
Southern Europe	13.6	29.0
Western Europe	20.6	29.5
Easter Europe/USSR	17.8	20.1
Middle East	18.3	36.7
Asia	5.0	20.0
Other	16.3	23.0
Index of relative socio-economic status[a]		
First quintile	27.4	36.0
Second quintile	22.5	29.7
Third quintile	21.3	28.1
Fourth quintile	20.6	25.8
Fifth quintile	15.3	19.5
Education		
Low (left school < 15yrs of age)	17.1	27.0
Medium (left school 15-17 yrs of	23.2	28.8
High (left school >= 18yrs of age)	16.4	21.4
Family income[b]		
First quintile	25.6	34.2
Second quintile	22.2	26.9
Third quintile	22.9	31.1
Fourth quintile	21.2	27.7
Fifth quintile	17.8	21.9

Notes: (a) First quintile denotes high disadvantage and the fifth quintile denotes low disadvantage.
(b) First quintile denotes low income and the fifth quintile denotes high income.
Source: 1995 National Health Survey[12]

Smoking prevalence among women in Australia compared with women in selected countries

Smoking prevalence among women in selected countries is presented in Table 2.3.[11] These figures should be viewed with some caution as data from different countries may not be directly comparable and are not available for the same year.[11]

In general, smoking rates are highest in economically developed countries and lowest in developing countries.[13] While increases in smoking prevalence generally coincide with improving economies, this trend declines as anti-smoking activities increase.[13] The response by the tobacco industry to declining demand in developed countries has been to increase marketing in countries where demand remains high or has the potential to increase.[13]

There is increasing evidence that the tobacco industry is focusing its efforts on the marketing of tobacco to women and girls, particularly in Asian countries.[14] Tobacco companies rank among the top ten marketers in several Asian countries and women s brands of cigarettes have been introduced in many Asian countries.[14]

Table 2.3 Smoking prevalence (per cent) among adult women in selected countries

Country	Year	Per cent
Denmark	1993	37
Norway	1994	36
Russian Federation	1993	30
Poland	1993	29
Netherlands	1994	29
Canada	1994	29
Greece	1994	28
Ireland	1993	28
United Kingdom	1996	28
France	1993	27
Italy	1994	26
Spain	1993	25
Sweden	1994	24
Australia	**1995**	**23**
New Zealand	1992	22
United States	1993	22
Bangladesh	1984	20
Belgium	1993	19
Finland	1994	19
Portugal	1994	15
Japan	1994	15
India	1985	7
Korea (Republic)	1990	7
Malaysia	1986	7
China	1986	7
Thailand	1995	4
Indonesia	1986	4
Hong Kong	1990	3
Singapore	1995	3

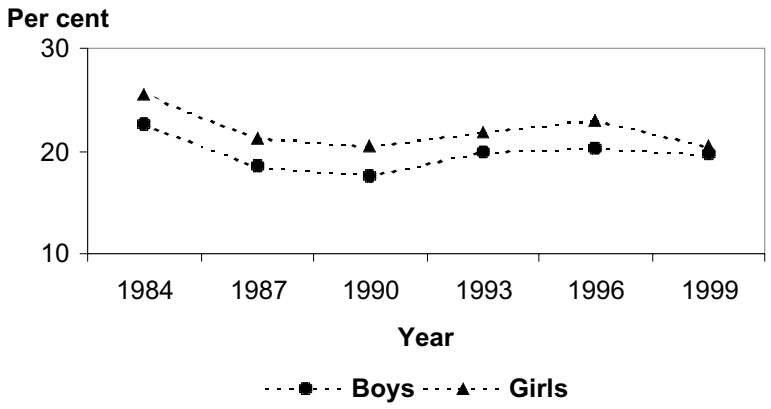
Sources: Hill, White and Scollo[10]; Lopez[15]; Office of National Statistics[16] cited in Victorian Smoking and Health Program[11]

Trends in smoking prevalence among girls

Since 1984, the Centre for Behavioural Research in Cancer within the Anti-Cancer Council of Victoria has been conducting national surveys every three years of Australian schoolchildren s smoking habits. These surveys provide comparable data on smoking prevalence among 12 to 17 year olds from 1984 to 1999.

Figure 2.6 shows the percentage of students who were current smokers (classified as having smoked in the week before the survey) from 1984 to 1999. Smoking prevalence was consistently higher among girls than boys, except in 1999 when prevalence rates were similar.

Figure 2.6 Smoking prevalence (per cent) among secondary schoolchildren aged 12 to 17 years, Australia, 1984 to 1999

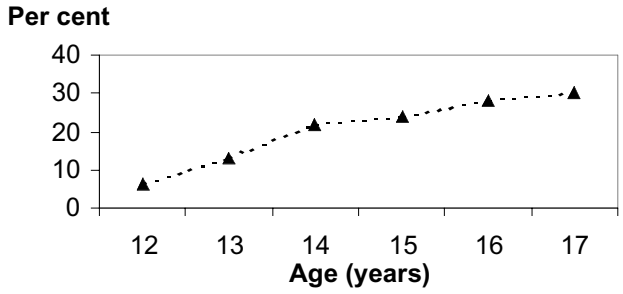


Note: *Data in Table 2A.4, Appendix*

Sources: *Hill, Willcox, Gardner and Houston[17]; Hill, White, Pain and Gardner[18]; Hill, White and Williams[19]; Hill, White and Segan[20]; Hill, White and Letcher[21]; Hill, White and Effendi[22]*

Smoking prevalence among schoolgirls rises sharply between the ages of 12 and 17 years (Figure 2.7). While decreases in smoking prevalence among girls across all age groups (12 to 17) was evident between 1984 and 1987, this trend did not continue (Table 2A.4, Appendix). Recent comparisons between 1996 and 1999, however, also show decreases in smoking prevalence among girls across all age groups (Table 2A.4, Appendix).

Figure 2.7 Smoking prevalence (per cent) in the past week by age among girls aged 12 to 17 years, Australia, 1999

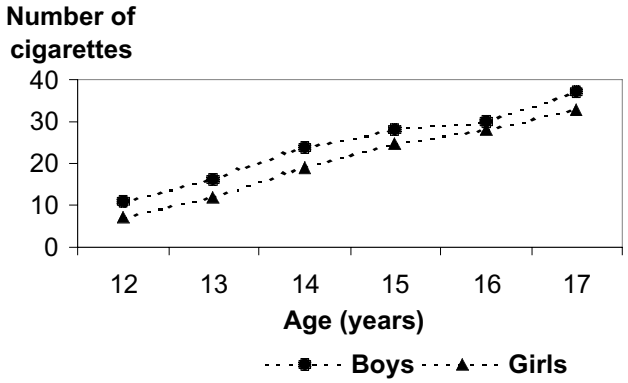


Note: Data in Table 2A.4, Appendix
Source: Hill, White and Effendi[22]

Trends in number of cigarettes smoked by girls

Figure 2.8 shows the average number of cigarettes that Australian schoolchildren reported smoking in the week prior to the survey. While generally, more girls smoke than boys, boys in all age groups smoked more cigarettes per week than girls. For both boys and girls cigarette consumption increases with age, with the highest level of consumption reported among 17 year olds.

Figure 2.8 Self-reported mean number of cigarettes smoked per week by schoolchildren aged 12 to 17 years who smoked in the last week, Australia, 1999

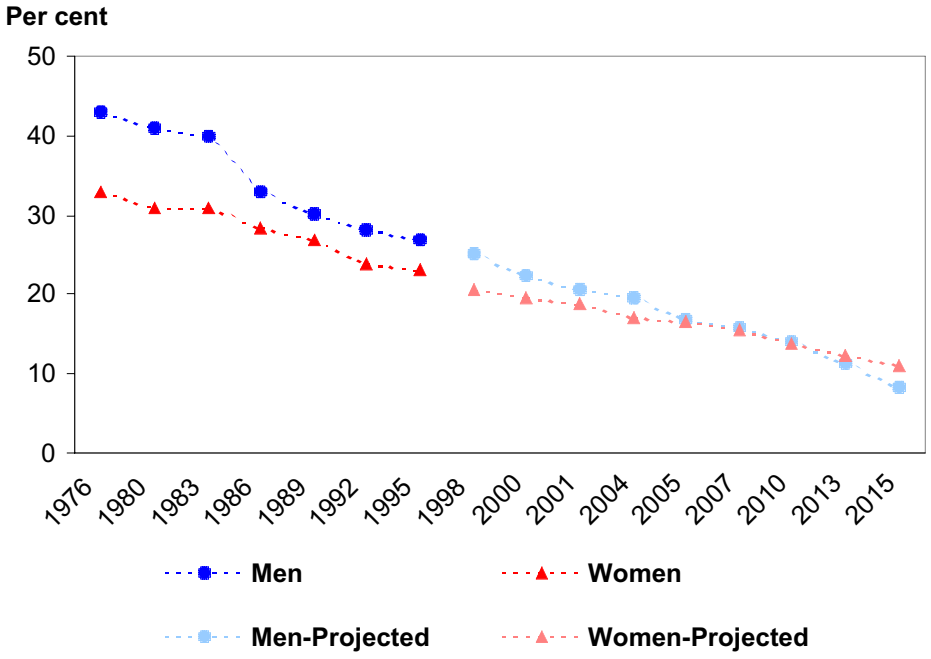


Note: Data in Table 2A.5, Appendix
Source: Hill, White and Effendi[22]

Future trends in smoking prevalence among adults

Based on smoking prevalence data from 1976 to 1995, smoking rates for Australian women and men have been projected out to 2015 (Figure 2.9).[11] While speculative, recent projections suggest that within the next decade, smoking will be more common among women than men. This has implications for women s health for many years to come.

Figure 2.9 Projected adult smoking prevalence among Australian women and men



Sources: *Data provided by Quit Victoria; 1995 prevalences — Hill, White and Scollo*[10]

Implications

Smoking prevalence among men is declining faster than among women.

The long-term consequences for declining women s health will continue for many years to come.

Tobacco control needs to be equally serious for women and men during the next decade.

3 Health consequences of active smoking

Tobacco smoking is a recognised risk factor for coronary heart disease, stroke and peripheral vascular disease, as well as a range of cancers and other diseases and conditions. It causes the greatest number of drug related deaths in Australia.[23]

Total mortality

In 1998, an estimated 6˚075 women died in Australia as a result of cigarette smoking,[24] approximately 10 per cent of all deaths (Table 3.1). While the proportion of all deaths caused by cigarette smoking has declined in men, it has increased in women (in line with the trends in prevalence of smoking).

Table 3.1 Estimated deaths from all causes, caused by cigarette smoking in Australia: 1986, 1992, 1998

	Estimated number of deaths caused by cigarette smoking		Total number of deaths from all causes		Per cent due to smoking	
Year	Women	Men	Women	Men	Women	Men
1986	4 470	13 330	52 771	62 210	8.5	21.4
1992	5 063	13 857	57 543	66 108	8.8	21.0
1998	6 075	12 944	60 129	67 073	10.1	19.3

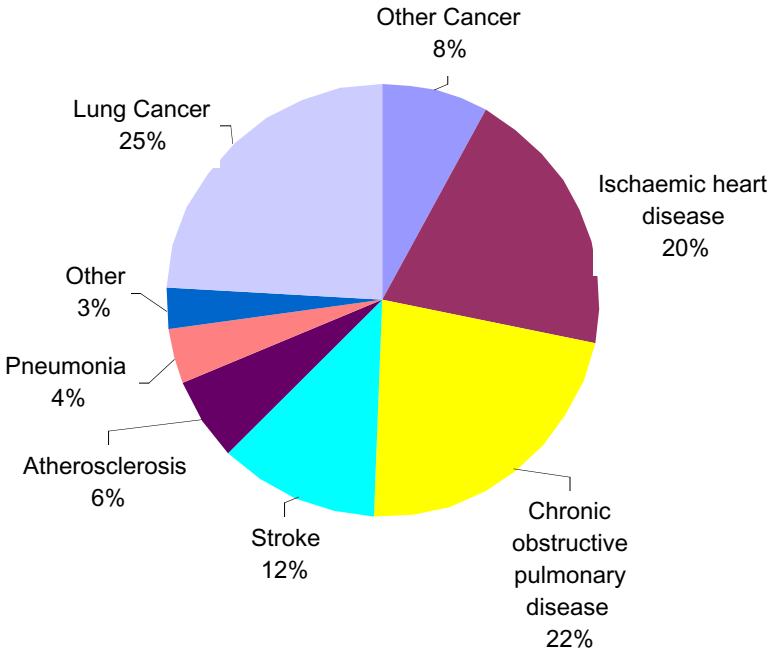
Sources: Holman et al.[25]; English et al.[26]; Ridolfo and Stevenson[24]

Smoking related mortality

In 1998, the largest number of smoking related deaths among women were due to lung cancer, accounting for 25 per cent of all smoking related deaths.[24] Other smoking related cancer deaths were for oesophageal cancer (2.3 per cent), pancreatic cancer (2.3 per cent), bladder cancer (1.3 per cent) and oropharyngeal cancer (1 per cent). Chronic obstructive pulmonary disease (22 per cent) and ischaemic heart disease (20 per cent) also accounted for large proportions of smoking related deaths. The remaining 33 per cent of deaths attributable to active smoking were from a

variety of causes including stroke (12 per cent), atherosclerosis (6 per cent) and other cancers and pneumonia (Figure 3.1).

Figure 3.1 Deaths attributable to active smoking by cause of death for women, Australia, 1998



Source: Ridolfo and Stevenson[24]

It has been estimated that half of those people who smoke throughout their life will die as a direct result of their habit. Half of the deaths will occur in middle age with an average of 21 years of life lost due to tobacco. The remainder occur in old age with around eight years lost.[27]

Table 3.2 shows the percentage of deaths from various causes that can be attributed to active smoking among men and women.

Table 3.2 Number and per cent of deaths attributable to active smoking by cause for women and men, Australia, 1998

	Women			Men		
	Deaths	Deaths attributable to active smoking		Deaths	Deaths attributable to active smoking	
Cause	n	n	%		n	%
Cancer	**14 970**	**1 960**	**13.1**	**19 590**	**5 582**	**28.5**
Lung cancer	2 053	1 470	71.6	4 821	4 298	89.2
Other cancers	12 739	490	3.8	14 769	1 284	8.7
Diseases of the circulatory system	**26 051**			**24 746**		
Ischaemic heart disease	12 801	1 186	9.3	15 024	2 848	19.0
Cerebrovascular disease (Stroke)	7 170	697	9.7	4 812	843	17.5
Atherosclerosis and related disorders	1 330	348	26.1	1 415	569	40.2
Other circulatory	5 470			3 495		
Chronic obstructive pulmonary disease	**2 486**	**1 335**	**53.7**	**3 628**	**2 504**	**69.0**
Pneumonia and influenza	**2 530**	**258**	**10.2**	**2 049**	**373**	**18.2**
Other deaths	**18 842**	**211**		**40 145**	**177**	
Deaths from all causes	**60 129**	**5995**	**10.0**	**67 073**	**12 896**	**19.2**

Sources: Australian Bureau of Statistics[28]; Ridolfo and Stevenson [24]

Lung cancer

Cigarette smoking is the main risk factor for lung cancer and is responsible for approximately 65 per cent of lung cancer deaths in women aged 35 years or more. [24]

Although tobacco smoking is the main cause of lung cancer, the disease takes 20 years or more to develop. While lung cancer mortality rates among men are in decline, rates for women are still increasing.[11, 29]

Lung cancer is the third most common cause of cancer deaths among women, preceded by breast and colorectal cancer.[29] Lung cancer death rates for women increased during 1940 to 1967 and continued to rise steeply in the period 1967 to

1993.[29] Since 1993 the death rate for lung cancer among women has been relatively stable.[11]

Between 1992 and 1997 the male incidence rate for smoking related cancers fell by an average of 1.5 per cent per year, while the rate for women rose by 0.6 per cent per year — both probably a reflection of the changing lung cancer incidence rates.[30] Over the same period, mortality rates fell by 1.9 per cent per annum for men and rose by 0.7 per cent per annum for women.

Due to long time lags between smoking and diagnosis of lung cancer, it is estimated that rates of lung cancer among women in Australia may increase during the first quarter of the 21st century, despite the recent plateau.

Other smoking related cancers

The organs associated with the respiratory system are most likely to be affected by cigarette smoke.[30] Smoking is also a major cause of cancers of the oral cavity, oesophagus and larynx.[11]

Diseases of the circulatory system

Tobacco smoking increases risk for all cardiovascular diseases including coronary heart disease, stroke and peripheral vascular disease.[31] In Australia, death rates from cardiovascular diseases increased steadily from 1921 to the late 1960s and have been in decline since then.[31, 32]

While a number of lifestyle factors increase risk of cardiovascular disease, current cigarette smoking has been estimated to cause 33 per cent of all ischaemic heart disease among women aged less than 65 years and 23 per cent of atherosclerosis deaths among women aged 18 years or more.[24]

Chronic obstructive pulmonary diseases

Chronic obstructive pulmonary diseases include bronchitis and emphysema and are characterised by the narrowing of small airways and destruction of air sacs in the lungs. These changes lead to impaired oxygen exchange. Smoking is the main cause of these diseases.[33]

Cigarette smoking is responsible for approximately 58 per cent of deaths among women aged 35 years or more from chronic obstructive pulmonary diseases.[24]

Total disease burden

The combined burden of both fatal and non-fatal health outcomes is estimated as disability adjusted life years (DALYs).[23] DALYs for the main smoking related diseases are shown in Table 3.3. Smoking related diseases in Australian women, account for almost half of the years of healthy life lost due to premature death, impairment and disability.

Table 3.3 Disability adjusted life years associated with major smoking related diseases, 1996

	Women		Men	
Disease category	**Number**	**Per cent**	**Number**	**Per cent**
Cancer	**226 461**	**19.2**	**252 118**	**18.9**
Lung cancer	30 521	2.6	60 000	4.5
Other cancers	195 940	16.6	192 118	14.4
Diseases of the circulatory system	**249 918**	**21.2**	**298 667**	**22.4**
Ischaemic heart disease	130 700	11.1	180 630	13.6
Cerebrovascular disease	72 248	6.1	64 330	4.8
Other circulatory	46 970	4.0	53 707	4.0
Chronic obstructive pulmonary disease	**93 772**	**8.0**	**55 866**	**4.2**
Pneumonia and influenza	**10 673**	**0.9**	**9 844**	**0.7**
Other diseases	**598 139**	**50.7**	**714 816**	**53.7**
All diseases	**1 178 963**	**100.0**	**1 331 311**	**100.0**

Source: Mathers, Vos and Stevenson[23]

Other smoking related health consequences for women

Smoking is related to difficulties becoming pregnant, and risk of miscarriage, menstrual symptoms and early menopause.[34] Details of smoking related problems and pregnancy are provided in Chapter 5. Young women who currently smoke or have smoked in the past are at increased risk of menstrual symptoms compared with their contemporaries who have never smoked. This effect increases with the quantity smoked and the age at which women start to smoke.[35] Table 3.4 shows odds ratios for

severe period pain. Odds ratios are similar for premenstrual tension, irregular monthly bleeding and heavy periods.

Table 3.4 Odds ratios and 95% confidence intervals for severe period pain by smoking status and age of adopting smoking among women aged 18 to 23 years, Australia, 1996

	Odds ratio (95% CI)
Smoking status	
Never smoked	1
Ex-smoker	1.2 (1.1 to 1.3)
Less than 10 per day	1.3 (1.1 to 1.4)
10 to less than 20 per day	1.5 (1.3 to 1.8)
More than 20 per day	1.5 (1.4 to 1.7)
Age when starting to smoke	
Never smoked	1
18-23 years	1.3 (1.2 to 1.5)
16-17 years	1.3 (1.1 to 1.4)
15 years	1.4 (1.2 to 1.6)
14 years	1.5 (1.3 to 1.7)
13 years	1.4 (1.2 to 1.7)
12 years or less	1.4 (1.1 to 1.7)

Note: All odds ratios adjusted for type of contraception use, number of child births, occurrence of miscarriage, alcohol consumption, number of times dieted, age, body mass index, exercise and stress levels, level of education, and area of residence.

Source: Mishra, Dobson and Schofield[35]

Implications

Smoking has adverse effects on health - both in the long-term (eg disability due to chronic lung or heart disease) and short-term (eg increased menstrual symptoms, pregnancy difficulties).

As smoking prevalence in women increased during the second half of the 20th century, and this trend does not yet show clear signs of reversal, health consequences are expected to increase for many years.

4 Passive smoking

Health consequences of passive smoking

Given the well-known health effects of active smoking, researchers and health authorities have for some time been concerned about the possible health effects of passive smoking or environmental tobacco smoke (ETS). Since the 1980s, there have been a number of major reviews of the scientific evidence on passive smoking and health.[36-43]

Table 4.1 provides an overview of the major conclusions from recent reports on the adverse health effects from passive smoking.[36-39]

Table 4.1 Major conclusions from recent scientific reviews on health effects of exposure to ETS in adults

Health effects	The health effects of passive smoking 1997 (NHMRC, Australia)	Health effects of exposure to environmental tobacco smoke 1997 (California EPA)	Report of the Scientific Committee on Tobacco and Health 1998 (UK)	Women and Smoking: A Report of the Surgeon General-2001 (USA)
Cancer				
Lung	Exposure to ETS increases the risk of lung cancer in non-smokers.	Causal association between ETS exposure and lung cancer.	Exposure to ETS is a cause of lung cancer and, in those with long-term exposure, the increased risk is in the order of 20 to 30 per cent.	Exposure to ETS is a cause of lung cancer among women who have never smoked.
Other Cancers	Data on possible associations between passive smoking and other cancers (excluding lung cancer) are inconsistent. Strongest evidence for an association between passive smoking and nasal sinus cancer.	ETS exposure increases the risk of nasal sinus cancer. Suggestive evidence that exposure to ETS may increase the risk of cervical cancer.	(Not reported)	(Not reported)
Cardiovascular diseases				
Ischaemic heart disease (IHD)	Increases the risk of IHD.	Causal association with heart disease mortality. Causal association with acute and chronic coronary heart disease morbidity.	Exposure to ETS is a cause of IHD.	Epidemiologic and other data support a causal relationship between ETS exposure from the spouse and coronary heart disease mortality among women non-smokers.
Cerebrovascular disease (Stroke)	Insufficient evidence to determine whether ETS affects the risk of cerebrovascular disease.	(Not reported)	(Not reported)	(Not reported)

Table 4.1 Major conclusions from recent scientific reviews on health effects of exposure to ETS in adults (Cont.)

Health effects	The health effects of passive smoking 1997 (NHMRC, Australia)	Health effects of exposure to environmental tobacco smoke 1997 (California EPA)	Report of the Scientific Committee on Tobacco and Health 1998 (UK)	Women and Smoking: A Report of the Surgeon General-2001 (USA)
Respiratory effects				
Upper and lower respiratory tracts	Adult non-smokers exposed to ETS frequently experience symptoms resulting from irritation of the upper and lower respiratory tract.	Eye and nasal irritation are the most commonly reported symptoms. Regular ETS exposure may increase risk of occurrence of lower respiratory symptoms.	(Not reported)	(Not reported)
Lung function	Small decreases in lung function, both acutely and chronically, are often evident, with larger decreases occurring in people with asthma.	Effect of chronic ETS exposure on pulmonary function in otherwise healthy adults likely to be small.	(Not reported)	(Not reported)
Reproductive outcomes				
Low birthweight	Maternal exposure to ETS during pregnancy is associated with a small reduction in birthweight.	ETS exposure adversely affects fetal growth — primary effect is a small reduction in birthweight (25-50 grams.	(Not reported)	Infants born to women who are exposed to ETS during pregnancy may have a small decrement in birthweight and a slightly increased risk for intrauterine growth retardation compared with infants born to women who are not exposed.
Spontaneous abortion	Suggestive evidence of a causal association.	(Not reported)	(Not reported)	Studies of ETS exposure and the risks for delay in conception, spontaneous abortion and perinatal mortality are few, and the results are inconsistent.
Sudden infant death syndrome (SIDS)	Causal association between SIDS and exposure to ETS.	Post-natal ETS exposure is an independent risk factor for SIDS.	SIDS is associated with exposure to ETS. The association is judged to be one of cause and effect.	

Sources: National Health and Medical Research Council[39]; California Environmental Protection Agency (EPA)[38]; Scientific Committee on Tobacco and Health[37]; Department of Health and Human Services[36]

Estimated deaths from ETS

In 1998, among females of all ages, there were estimated to be 80 deaths from exposure to ETS in Australia.[24] For the age group 0 to 15 years, nine deaths were from sudden infant death syndrome, lower respiratory illness and asthma. The remaining 71 deaths occurred among women aged 35 years or more and were attributable to lung cancer and ischaemic heart disease.[24]

Lung cancer

Estimates of overall relative risk for lung cancer among non-smoking women who lived with a spouse who smoked have ranged from 1.2 (for those ever exposed to ETS) to 1.4 (for those exposed at the highest level).[38, 40, 43, 44] A meta-analysis of the association between passive smoking and lung cancer by Taylor and colleagues estimated a pooled relative risk of 1.3 (95% CI: 1.2 to 1.4) for never-smoking women exposed to ETS from spouses, compared to unexposed women who never smoked.[45] The pooled relative risk from studies conducted in Western industrialised countries was 1.2.[45]

Using a median relative risk of 1.3 (from 34 studies available from 1981 to 1997), the 1997 National Health and Medical Research Council (NHMRC) report on passive smoking estimated that 12 new cases of lung cancer per year in Australia were attributable to exposure to tobacco smoke from spousal smoking among never-smokers (plausible range of 4 to 25).[39] The corresponding number of lung cancer deaths attributable to passive smoking was 11 (plausible range of 3 to 22).[39]

Other cancers

The 1997 NHMRC report concluded that the scientific evidence of the effects of passive smoking on risk of cancer at sites other than the lung was inconsistent, and there was strong evidence only for an association between passive smoking and nasal sinus cancer.[39] A more recent review of the literature on ETS and nasal and sinus disease also supported the view that ETS is associated with nasal sinus cancer.[46]

Cardiovascular disease

Since the NHMRC first reported an increased risk of cardiovascular disease from passive smoking in 1987,[41] the scientific evidence has accumulated to support a causal association between passive smoking and coronary heart disease (CHD) mortality and morbidity.[36, 38, 39]

A recent meta-analysis of epidemiological studies by Vupputuri and colleagues estimated non-smokers exposed to ETS had a relative risk of CHD of 1.3 (95% CI: 1.2 to 1.3) compared to non-smokers not exposed to ETS.[47] The relative risk for women was 1.2 (95% CI: 1.2 to 1.3). The California Environmental Protection

Agency (EPA)[38] and US Surgeon General[36] reports concluded a 30 per cent increase in risk for cardiovascular disease from exposure to ETS. Using a median relative risk of 1.2, the 1997 NHMRC report attributed 77 coronary deaths in Australia each year to exposure to tobacco smoke from spousal smoking among never-smokers (plausible range of 6 to 193).[39] A further 132 hospital separations each year for acute myocardial infarction were attributed to passive smoking at home (plausible range of 12 to 330 hospital separations).

Few studies have examined the relationship between passive smoking and cerebrovascular disease. The 1997 NHMRC report concluded there was insufficient evidence to determine whether passive smoking affects cerebrovascular disease, however further research was necessary.[39] A recent case-control study by Bonita and colleagues found a significantly increased risk of stroke among non-smokers and long-term ex-smokers (OR = 1.8; 95% CI: 1.3 to 2.5).[48]

Respiratory effects

The 1997 NHMRC report concluded that irritant symptoms of the upper and lower respiratory tracts commonly occur among non-smokers exposed to ETS.[39] These include effects on the upper respiratory tract such as irritation of the eyes, nasal and throat symptoms and effects on the lower respiratory tract such as cough, wheezing and breathing difficulties.

While it has been accepted that passive smoking is a risk factor for the development of asthma in children (as well as increasing the frequency and severity of asthma symptoms),[38, 39] the effects of ETS exposure on asthma in adults is less well understood. There is, however, suggestive evidence that passive smoking may exacerbate adult asthma[38] and may induce asthma in adults.[49, 50]

Both the 1997 NHMRC and California EPA reports concluded that the effect of ETS exposure on lung function in healthy adults appeared to be small.[38, 39] However, this effect may be more important in adults with co-existing diseases. In a seven-year longitudinal study of non-smoking adults, Carey and colleagues examined the effects of ETS exposure on lung function.[51] Their results also indicated small deficits in adult lung function.

Reproductive outcomes

Epidemiological studies on the perinatal effects of ETS exposure during pregnancy have been extensively reviewed.[36, 39] The effects examined included fetal growth (low birthweight, growth retardation and prematurity), fetal loss (spontaneous abortion and perinatal mortality) and congenital malformations. Each of the reviews concluded that exposure to ETS during pregnancy is associated with a small reduction in birthweight.[36, 39] The size of this effect is small (ranging from 25 to 50 grams) and

may have little clinical significance for most infants, but the effect may be greater in socially disadvantaged sub-groups.[52]

The 2001 US Surgeon General s report did not draw any conclusions relating to ETS exposure and fetal loss and congenital malformations due to the small number of studies in this area and inconsistent results.[36] However, the 1997 NHMRC and 1997 California EPA reports both concluded that there was suggestive evidence of a causal association between ETS exposure and spontaneous abortion as well as sudden infant death syndrome.[38, 39]

Exposure to ETS

Exposure to ETS can take place in any environment where time is spent, such as the home, the workplace and recreational settings (for instance, bars and casinos).[39] For women, the key environment is the home but women may also be exposed to ETS in work and transportation environments, public places and leisure settings.[53]

Workplace

Following recognition in the mid-1980s of the health dangers of passive smoking, there has been a substantial increase in the proportion of people in Australia who work in a smoke-free workplace.[54] Each state and territory has occupational health and safety legislation, which requires employers to provide a safe and healthy workplace. In addition, the Australian Capital Territory Workcover has published a Code of Practice for Smoke-free Workplaces and Western Australia has introduced smoke-free workplace legislation.[54]

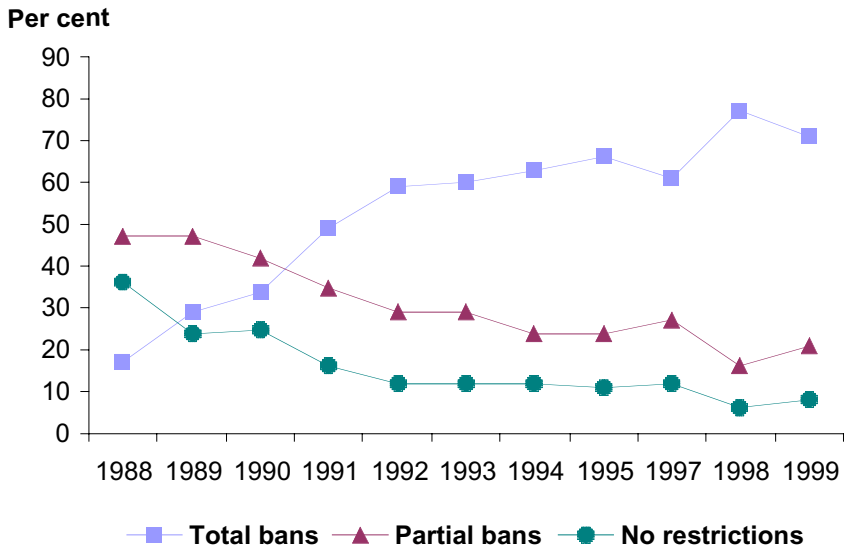
The public sector played a leading role in the adoption of workplace smoking policies. The Commonwealth Health Department became smoke-free in December 1986, followed by all Commonwealth government departments in March 1988.[11] Many major public and private sector organisations followed with the adoption of workplace smoking restrictions. There are, however, a small number of workplaces that have remained resistant to the implementation of smoking bans.[54] Letcher and Borland found in 1998-1999, that Victorian workers employed in restaurants/hotels, workshops/factories or warehouses/stores were less likely to have total smoking bans in their work area than workers employed in schools, open plan offices, hospitals, home offices, shops and supermarkets.[55]

Prevalence of workplace smoking bans

There is no national survey tracking the prevalence of workplace smoking bans throughout Australia. However, trend data on workplace smoking restrictions have been collected by the Centre for Behavioural Research in Cancer, Anti-Cancer Council of Victoria.

Figure 4.1 shows the level of workplace smoking restrictions for indoor workers in Victoria from 1988 to 1999.[55] The percentage of indoor workers reporting total smoking bans increased from 17 per cent in 1988 to 71 per cent in 1999. The percentage of partial bans has declined (47 per cent in 1988 to 21 per cent in 1999), as has the percentage of workplaces without any smoking restrictions (36 per cent in 1988 to 8 per cent in 1999).[55] The results are comparable to other state data. In South Australia, 62 per cent of indoor workers in 1994 reported a total smoking ban[56] and in 1995, approximately 60 per cent of Western Australian workplaces had a total smoking ban.[57]

Figure 4.1 Per cent of indoor workers, aged 18 years and over, reporting workplace smoking restrictions, Victoria, 1988 to 1999



Note: Data in Table 4A.1, Appendix
Source: Letcher and Borland[55]

Public places

The control of ETS is largely the responsibility of state and territory governments. However, the Commonwealth Government has implemented smoking restrictions in areas where it has the power to do so, such as Commonwealth workplaces, in aircrafts and airports.[58]

Currently all states and territories, except the Northern Territory, have enacted and implemented legislation to reduce ETS exposure in enclosed public places (Table 4A.2, Appendix). While each state and territory has approached the issue differently, the types of enclosed public places controlled by legislation include the following:[54]

- shopping centres, malls and plazas
- restaurants, cafeterias and other eating places
- clubs
- educational facilities
- professional, trade, commercial and other business premises
- community centres or halls and places of worship
- theatres, cinemas, libraries and galleries
- trains, buses, trams, aeroplanes, taxis and hire cars, and ferries and other vessels
- hospitals
- common areas of multi-unit residential facilities such as hostels and nursing homes
- common areas of short-stay facilities such as motels
- sporting and recreational facilities.

A Cochrane Review was conducted by Serra and colleagues to determine the effectiveness of interventions that aimed to reduce tobacco consumption in public places.[59] Eleven studies, mostly conducted in the USA, met the inclusion criteria. The reviewers found that the most effective strategies used comprehensive, multi-component approaches to implement policies banning smoking within institutions. Less comprehensive strategies, such as posted warnings and educational material had a moderate effect.

Home

The home is likely to be a major source of ETS exposure for women who live with smokers. National data show a trend towards both smokers and non-smokers making their homes smoke-free.[54] As Table 4.2 shows, the proportion of people in Australia who reported at least one person in their household regularly smoking inside decreased from 32 per cent in 1995 to 24 per cent in 1998.[54] Over this period there was also a small increase in the proportion of smoker households who reported that smoking only takes place outside.[54]

Table 4.2 Prevalence (per cent) of persons aged 14 years and over, reporting smoking behaviour in the home, Australia, 1995 and 1998

	1995	1998
Inside	32	24
Only outside	15	19
No-one at home smokes	53	57

Source: Weighted data from the 1995 and 1998 National Drug Strategy Household Surveys[54]

This national trend towards smoke-free homes is consistent with state data. An increase in smoke-free homes in South Australia was evident from 1993 (60 per cent) to 1997 (68 per cent).[54] As shown in Table 4.3, the proportion of smokers in Victoria reporting to always smoke outside' the home more than doubled between 1995 and 1999, and the proportion of smokers reporting to always smoke inside' has decreased three-fold.[60]

Table 4.3 Prevalence (per cent) of smokers aged 18 years and over, reporting smoking behaviour in the home, Victoria, 1995 to 1999

	1995	1996	1997	1998	1999
Always inside	29	17	16	16	9
Usually inside	10	10	8	9	9
Sometimes in, sometimes out	30	33	34	20	26
Usually outside	10	14	14	16	13
Always outside	20	22	27	37	43

Source: Mullins, Trotter and Letcher[60]

Mullins and colleagues found that smokers from homes classified as lower blue collar were less likely to always smoke outside' (33 per cent) than those from upper blue collar (57 per cent), lower white collar (44 per cent) or upper white collar (54 per cent) homes.[60]

Educational and policy interventions

While the home is a key environment for ETS exposure among women, the majority of interventions to reduce passive smoking in the home have focused on reducing children s ETS exposure. For instance, in 1992 the Victorian Smoking and Health Program ran a campaign called 'Whose Habit?' to raise awareness of the dangers of smoking around children, particularly in the home.[54] In 1995, the Health Department of Western Australia ran a passive smoking and children campaign, which also aimed to increase awareness of the health effects of passive smoking on children and to encourage parents to provide children with smoke-free environments.[54]

Attitudes and beliefs toward ETS

Since the early 1990s, a high proportion of Australians have believed that passive smoking is harmful to one s health.[54] National data show that in 1998, 83 per cent of Australians believed that non-smokers who live with smokers might develop health problems one day.[61] The public is generally supportive of smoking restrictions and a high proportion of non-smokers avoid places where they may be exposed to ETS. As Table 4.4 shows, support to ban smoking in shopping centres, workplaces and restaurants was high among both women and men.[61]

Table 4.4 Prevalence (per cent) of persons aged 14 years and over, supporting smoking restrictions, Australia, 1998

	Women	Men
Banning smoking in shopping centres	84.6	80.5
Banning smoking in the workplace	83.6	76.3
Banning smoking in restaurants	76.9	77.4
Banning smoking in pubs/clubs	52.1	47.7

Source: 1998 National Drug Strategy Household Survey[61]

Table 4.5 shows over 80 per cent of non-smokers always or sometimes avoid places where they may be exposed to other people s cigarette smoke.[62]

Table 4.5 Prevalence (per cent) of non-smokers aged 14 years and over, reporting avoidance of places where they may be exposed to other people s cigarette smoke, Australia, 1998

	Women	Men
Yes, always	40.5	36.9
Yes, sometimes	42.2	43.7
No, never	17.2	19.4

Source: 1998 National Drug Strategy Household Survey[62]

Implications

There is some evidence of adverse health effects for women and their children due to passive smoking.

While there has been substantial progress including legislation to ban smoking in workplaces and public places, women and their children remain at risk of exposure to ETS at home.

Further reductions in passive smoking could be achieved from changes in public attitudes towards smoke-free houses so smoking members of a household can only smoke outside the house.

5 Cigarette smoking among pregnant women and girls

Smoking prevalence during pregnancy

At present there are no long-term data on Australian trends in smoking prevalence during pregnancy. However, national data (1996 and 2000) are available from the younger cohort in the Australian Longitudinal Study on Women's Health (ALSWH).[63] State-based estimates are provided by Tasmanian women attending their initial antenatal appointment in 1993,[26] and by women at the time of birth in New South Wales in 1997[64] (Table 5.1).

Table 5.1 Prevalence (per cent) of cigarette smoking and consumption levels among women during pregnancy, 1993, 1996 and 2000

		All current	Current smokers: cigarettes per day		
Year	Age group	smokers	1-9	10-20	21 or more
1993[26]		29.0	13.0	12.0	4.0
1996[65]	18-23 years	34.8	9.0	10.2	9.5
1997[64]		20.6			
2000[65]	22-27 years	17.7	6.6	9.5	1.6

Sources: English et al.[26]; ALSWH[63]; NSW Midwives Data Collection[64]

Given the societal pressures against smoking during pregnancy, reliance on self-reported smoking status may result in under-estimates of smoking prevalence and consumption.[66] While some studies have claimed reasonably accurate reporting of cigarette smoking among pregnant women,[67, 68] other studies have found that approximately one-quarter of pregnant smokers do not admit they smoke.[69-71]

In the New South Wales Midwives Data Collection, 50 per cent of pregnant women who smoked reported smoking more than ten cigarettes per day in the second half of pregnancy.[64] Reports of smoking prevalence during pregnancy in developed countries range from 13 per cent [36] to 38 per cent.[66]

Smoking during the second half of pregnancy was found to be more common among mothers born in English speaking countries than mothers born in non-English speaking countries (Table 5.2).[64]

Table 5.2 Smoking prevalence (per cent) in the second half of pregnancy by country of birth group, New South Wales, 1997

Country of birth	Smoking prevalence
English speaking	22
Central and South America	8
East Europe, Russia, Central Asian and Baltic states	10
Melanesia, Micronesia and Polynesia	10
Middle East and Africa	10
North East Asia	1
South East Asia	2
Southern Asia	1
Southern Europe	14
Western and Northern Europe	10

Source: NSW Midwives Data Collection[64]

Smoking and reproductive outcomes

Cigarette smoking has detrimental effects on fertility, pregnancy complications and birth outcomes. The following section provides a summary of the findings and conclusions on the reproductive effects of maternal smoking from the 2001 US Surgeon General's report.[36] Where available, estimates of the size of these effects in Australia are given.

Difficulties becoming pregnant

Delayed conception results from a low probability of conception per menstrual cycle.

Compared with non-smokers, women who smoke have 10 to 40 per˚cent lower probability of conception at each menstrual cycle.

Time to conception increases with increasing number of cigarettes smoked.

The effect of cigarette smoking appears to be reversible - conception rates among ex-smokers are similar to rates for those who have never smoked.

Infertility is commonly defined as the failure to conceive after unprotected sexual intercourse over a period of 12 months.

Women who smoke have increased risks for both primary infertility (no previous conception) and secondary infertility (at least one previous conception).

There is some evidence of greater impairment of fertility with higher levels of smoking.

Ex-smokers appear to have little excess risk of infertility.

Loss of fetus

Ectopic pregnancy results from implantation of fertilised ovum outside the uterus, usually in the fallopian tubes.

Women who smoke may have a slightly higher risk of ectopic pregnancy than non-smokers.

Relative risks between 1.5 and 2.5 have been estimated among smokers compared to non-smokers.

Of the 4˚127 hospital separations for ectopic pregnancy in Australia for 1999-2000,[72] 446 can be attributed to current smoking (attributable fraction 0.108[24]) and 198 can be attributed to smoking in the past (attributable fraction 0.048[24]).

Spontaneous abortion (miscarriage) is the involuntary termination of an intrauterine pregnancy before 28 weeks' gestation.

Women who smoke may have a modest increase in risk for spontaneous abortion.

Table 5.3 shows that the odd ratios for miscarriages increase with the number of cigarettes smoked and the age at which women begin to smoke.

Table 5.3 Odds ratios for the risk of having one or more miscarriage for categories of smoking status and age of adopting smoking, young and mid-aged women, Australia, 1996

	Ages 18 to 23 years[35] [a]	Ages 45 to 49 years[73] [b]	
	1 or more miscarriage	1 miscarriage	2 or more miscarriages
Smoking status			
Never smoked	1	1	1
Ex-smoker	1.6 (1.3 to 2.2)	1.2 (1.1 to1.4)	1.3 (1.1 to1.5)
Less than 10 per day	1.7 (1.1 to 2.5)		
10 to less than 20 per day [c]	1.6 (1.1 to 2.3)	1.1 (0.9 to 1.3)	1.4 (1.1 to1.8)
More than 20 per day [d]	2.0 (1.5 to 2.8)	1.2 (1.0 to 1.5)	1.8 (1.4 to 2.2)
Age starting to smoke			
Never smoked	1		
18-23 years	1.7 (1.1 to 2.6)		
16-17 years	1.3 (0.9 to 1.1)		
15 years	1.4 (1.0 to 2.1)		
14 years	1.8 (1.2 to 2.7)		
13 years	2.3 (1.5-3.4)		
12 years or less	2.3 (1.6 to 3.5)		

Notes: *(a) Odds ratios for 18 to 23 year olds adjusted for number of childbirths, number of terminations, education, age, marital status and area of residence.*
(b) Odds ratios for 45 to 49 year olds adjusted for number of live births and terminations, the joint effect of births and terminations, alcohol consumption, education, marital status and area of residence.
(c) Category for women aged 45-49 years is less than 20 per day .
(d) Category for women aged 45-49 years is 20 or more per day .

Sources: Mishra, Dobson and Schofield[35]; Schofield, Mishra and Dobson[73]

Difficulties with pregnancy and birth

Pre-eclampsia is hypertension with proteinuria and oedema.

Women who smoke during pregnancy have a decreased risk for pre-eclampsia.

In Australia during 1999-2000, approximately 13 cases of pre-eclampsia are estimated to have been prevented by smoking (attributable fraction 0.07[74]).

Pre-term premature rupture of membranes occurs with leakage of amniotic fluid occurring before 37 weeks of gestation.

Smoking during pregnancy is associated with increased risk of pre-term premature rupture of membranes.

Relative risks vary from approximately 2 to 5 among smokers compared to non-smokers.

Women who stop smoking during pregnancy are at lower risk than those who continue.

Of the 12˚943 hospital separations for premature rupture of membranes in Australia during 1999-2000,[72] 2˚666 can be attributed to smoking (attributable fraction 0.206[24]).

Abruptio placentae is the premature separation of the normally implanted placenta from the uterine wall.

Smoking during pregnancy is associated with increased risk for abruptio placentae.

Relative risks range from 1.4 to 2.4 among smokers compared to non-smokers.

The risk increases with number of cigarettes smoked.

The effect of smoking on abruptio placentae is difficult to assess due to complicated interrelationships between smoking, preterm premature rupture of membranes, preeclampsia and abruptio placentae.

Of the 996 hospital separations for premature separation of the placenta in Australia during 1999-2000,[72] between 110 and 179 can be attributed to smoking (attributable fraction 0.11-0.18[74]).

Placenta Previa occurs when the placenta partially or totally obstructs the cervical os (opening of the birth canal), increasing risks for haemorrhage and preterm birth.

Smoking during pregnancy is associated with increased risk for placenta previa.

Relative risks are typically between 1.5 and 3 among smokers compared to non-smokers.

Of the 2˚729 hospital separations for placenta praevia in Australia during 1999-2000,[72] between 273 and 464 can be attributed to smoking (attributable fraction 0.10-0.17[74]).

Problems for the baby

Pre-term delivery is defined as birth at less than 37 weeks of gestation.

Smoking during pregnancy is associated with a modest increase in risk for pre-term delivery.

Relative risks range from 1.2 to more than 2 among smokers compared to non-smokers.

Smoking cessation during pregnancy reduces this risk.

Low birthweight (LBW) is defined as birthweight less than 2˚500g.

Babies born to women who smoke during pregnancy have a lower average birthweight than babies born to women who do not smoke.

Average difference in birthweight is about 250g.

Relative risks for LBW range from approximately 1.5 to 3.5 among smokers compared to non-smokers.

The difference in birthweight and the relative risk for LBW increase with the amount smoked.

20 per cent or more of the incidence of low birthweight can be attributed to cigarette smoking.

Of the 16˚854 babies with low birthweight born in Australia for 1998,[75] 3˚792 can be attributed to active smoking (attributable fraction 0.225[24]).

Small for gestational age (SGA) infants are those whose weight at birth falls below a defined criterion for gestational age.

Infants born to women who smoke during pregnancy are more likely to be small for gestational age than are infants born to women who do not smoke.

Relative risks range from approximately 1.5 to more than 10 (depending on the amount smoked and other modifying factors).

Relative risks for SGA increase with the number of cigarettes smoked.

20 per cent or more of incidence of SGA is attributed to cigarette smoking.

Birth defects encompass a wide variety of structural malformations that occur during gestation.

Smoking does not appear to affect the overall risk for congenital malformations.

May be modestly related to an increased risk for certain birth defects such as oral clefts, limb reductions and urogenital or gastrointestinal defects.

Stillbirth includes all fetal deaths after 28 weeks of gestation.

The risk for stillbirth is higher among the offspring of women who smoke during pregnancy compared to those of non-smokers.

There is a moderate increase in risk with increasing cigarette consumption.

Smoking cessation during pregnancy may reduce risk.

Of the 1˚284 stillbirths recorded in Australia in 1999,[76] 116 can be attributed to active smoking (attributable fraction 0.09[26]).

Neonatal deaths are deaths of infants within 28 days of birth.

The risk for neonatal deaths is increased among the offspring of women who smoke during pregnancy.

It is not clear whether the risk is related to the amount smoked.

Smoking cessation during pregnancy appears to reduce excess risk.

Perinatal mortality includes stillbirth and neonatal mortality.

The risk for perinatal mortality is higher among the offspring of women who smoke during pregnancy compared to non-smokers.

Estimates of relative risk are 1.3 (cohort studies) and 1.2 (case-control studies).

It is estimated that 3.4 to 8.4 per cent of perinatal deaths could be attributed to maternal smoking during pregnancy.

Elimination of smoking during pregnancy might lead to a 10 per cent reduction in all infant deaths and a 12 per cent reduction in death from perinatal conditions.

Of the 2˚133 perinatal deaths recorded in Australia in 1999,[76] 149 can be attributed to active smoking (attributable fraction 0.07[74]).

Sudden infant death syndrome includes all sudden deaths of infants younger than one year of age.

The risk for sudden infant death syndrome is increased among the offspring of women who smoke during pregnancy.

Risk increases with number of cigarettes smoked.

Of the 155 sudden infant deaths in Australia in 1999,[76] 51 can be attributed to active smoking (attributable fraction 0.329[24]).

Factors influencing cigarette smoking during pregnancy

Factors associated with continuing to smoke during pregnancy include demographic factors and parity:

- Smoking during pregnancy is more common among younger women (less than 25 years).[66, 77]
- Unmarried women are more likely to smoke during pregnancy.[66, 77]
- Less educated women are more likely to smoke during pregnancy.[66, 77]
- Women with low socio-economic status are more likely to continue smoking during pregancy.[77, 78]
- Women who continue to smoke during pregnancy are also more likely to have two or more children.[77, 78]

While a substantial number of women continue smoking during pregnancy, many reduce their cigarette intake or attempt to quit smoking once they find out they are pregnant. In a study of pregnant women in New South Wales,[66] 37 per cent of pregnant women claimed to have reduced their cigarette intake 'a little' and 38 per cent to have reduced their intake 'a lot'. Half (51 per cent) of the continuing smokers in this study reported they had tried to quit smoking completely. In a South Australian study, almost 59 per cent of pregnant women reported they had tried to stop smoking.[79] Most of these women who continued to smoke agreed they would like to quit if they could do so easily, and most admitted feeling guilty about not quitting.

Implications

> Smoking during pregnancy increases risks for the woman and the baby. However, pregnancy or the desire to become pregnant is a powerful motivational factor for women to give up smoking.

Chapter 6 is devoted to smoking cessation in relation to pregnancy.

6 Pregnancy and smoking cessation

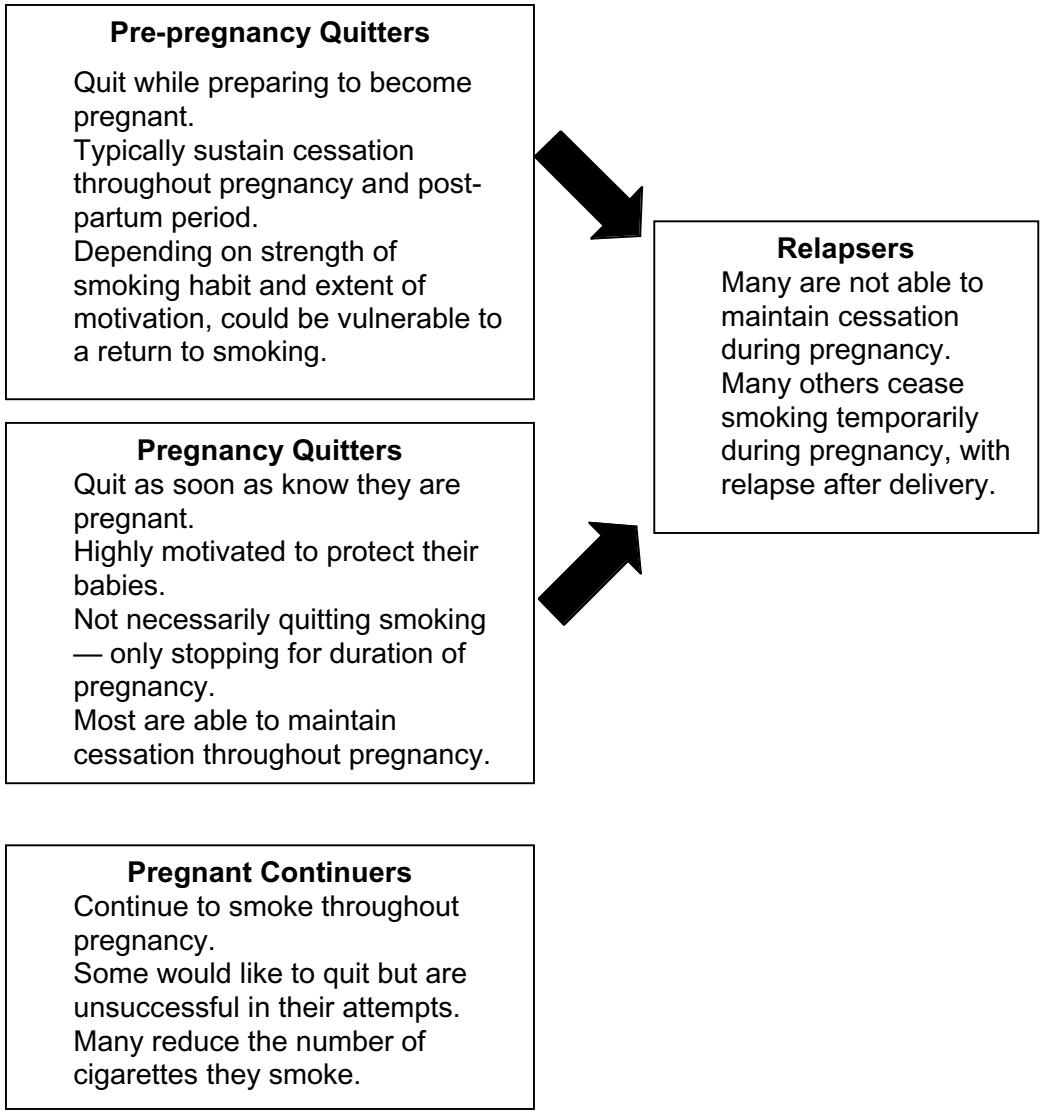
Smoking cessation during pregnancy

Pregnancy is an important trigger for women to quit smoking. Women are highly motivated to stop smoking at this time when they are primarily concerned about the health of their baby and secondarily concerned for their own health.[80, 81] Some women may quit smoking as they prepare to become pregnant and many others quit as soon as they learn that they are pregnant.[81] Figure 6.1 summarises the process of smoking cessation in relation to pregnancy.

Studies of pregnant women and smoking use varying definitions of cessation and data collection methods. Reports of smoking cessation rates among pregnant women in developed countries vary from less than 20 per cent[82] to more than 40 per cent.[83, 84] Australian data indicate that approximately 20[85] to 30 per cent[79] of women who were smokers at the time they became pregnant quit smoking. The majority of pregnant 'quitters' stop smoking in the first trimester.[86]

While women are more likely to stop smoking when they become pregnant, there is strong evidence that they return to smoking. Pregnant women who quit smoking are typically abstinent for five to seven months.[36] However, approximately half of the women who quit smoking during pregnancy relapse within six months of delivery[84] and approximately 70 per cent relapse within 12 months.[87]

Figure 6.1 The process of smoking cessation in relation to pregnancy



Source: Information extracted from DiClemente, Dolan-Mullen and Windsor[81]

Factors influencing smoking cessation and relapse

Smoking by others

The smoking habits of other people around pregnant women predict their ability to give up smoking.

Mothers who smoke during pregnancy are more than twice as likely to have a husband/partner who smokes than those who quit during pregnancy.[88]

Women who live in a household where no one else smokes are more than 12 times more likely to quit smoking than those who live with smokers.[79]

The social influence of having a partner or friends who smoke predicts the ability of women to quit smoking and maintain cessation throughout pregnancy and the post-partum period.[89-91]

Number of cigarettes smoked

The number of cigarettes smoked per day prior to pregnancy is a major predictor of smoking cessation.

Successful quitting during pregnancy and after giving birth has been consistently associated with lighter smoking levels prior to pregnancy.[77, 92]

Pregnant women who smoke less than 15 cigarettes per day are three times more likely to quit than women with a pre-pregnancy consumption level of 15 or more cigarettes.[79]

Compared with the heaviest smokers, quitting is most common among women who smoke less than 10 cigarettes per day (adjusted OR = 12.3) and intermediate for women smoking between 10 and 19 cigarettes per day (adjusted OR = 2.7).[93]

Other factors

Numerous factors including personal and demographic characteristics can influence the ability to quit smoking.

Lack of success in quitting smoking during pregnancy, and relapse after giving birth have been associated with:

- less confidence in ability to maintain cessation[90, 94]
- higher levels of alcohol consumption[82, 88]
- concern about weight gain[84, 91]
- shorter duration of breastfeeding.[95, 96]

In the ALSWH, young women who were pregnant in 2000 and who had been smokers four years earlier, were more likely to quit if:[65]

- they had more than Year 10 education
- they were married
- their mother was employed in a managerial or professional capacity
- they were living with a partner or living with a partner and children
- they had an intermediate level of income.

Smoking cessation interventions

Numerous trials of anti-smoking interventions during pregnancy have been conducted since the late 1970s. The majority of intervention studies have focused on increasing cessation rates among pregnant women. More recently, studies have begun to focus on preventing relapse to smoking both during pregnancy and after delivery, as well as targeting partners of pregnant women who smoke.

Pre-natal smoking cessation interventions

Lumley and colleagues carried out a Cochrane Review of 44 trials of smoking cessation interventions for pregnant smokers (conducted between 1975 and 1998).[69] Over 17,000 healthy pregnant women were included in the trials, which typically utilised a hospital or community antenatal clinic setting. Table 6.1 lists the types of interventions delivered in these smoking cessation trials.

Table 6.1 Types of interventions delivered in smoking cessation trials among pregnant women

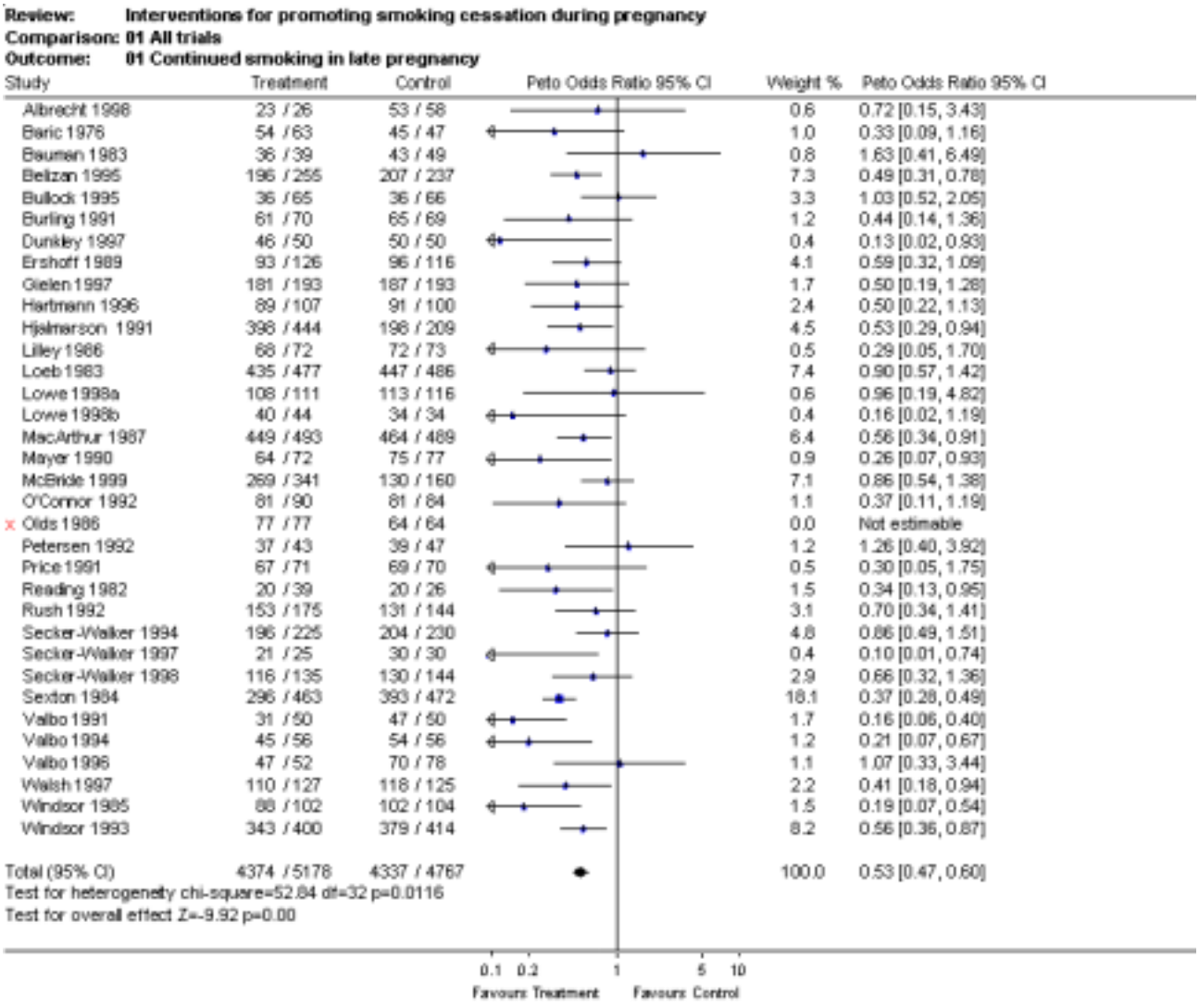
Information about the harmful effects of smoking on the fetus and infant, the mother herself or other family members.
Advice by a health professional to stop smoking.
Supplementation of advice by reinforcement at subsequent antenatal visits.
Supplementation of advice by group counselling.
Supplementation of advice by the provision of peer support.
Supplementation of advice by recording smoking status, or measuring by-products of smoking at other antenatal visits.
Supplementation of advice by feedback of the effects of smoking on the fetus (fetal movements, fetal breathing, fetal heart rate).
Supplementation of advice by positive information about the fetus and fetal development (eg describing the ultrasound in detail).
Individualised advice and support for smoking cessation based on 'stages of change'.
Provision of pregnancy-specific self help manual on strategies for quitting.
Provision of the following as an adjunct to information and advice: • nicotine replacement therapy (controversial in pregnancy) • telephone follow-up with reinforcement of advice and strategies for quitting • rewards and incentives.
Strategies to change the attitudes, knowledge and behaviour of health care providers with respect to smoking cessation.

Source: Information extracted from Lumley, Oliver and Waters[69]

Lumley et al. analysed the effectiveness of low intensity interventions (including information about the risks of continued smoking and advice on quitting), as well as the effectiveness of high intensity interventions (information and advice in conjunction with more intensive efforts such as counselling, feedback on pathophysiological effects of smoking on mother or fetus).[69] Pooled data from 34 trials of both low and high intensity interventions revealed a significant reduction in the odds of continued smoking in late pregnancy in the intervention groups (OR = 0.5; 95% CI: 0.5 to 0.6) (Figure 6.2). These results were similar for trials with

biochemically validated smoking cessation (OR = 0.5; 95% CI: 0.5 to 0.6) and trials with high intensity interventions (OR = 0.5; 95% CI: 0.5 to 0.6).[69]

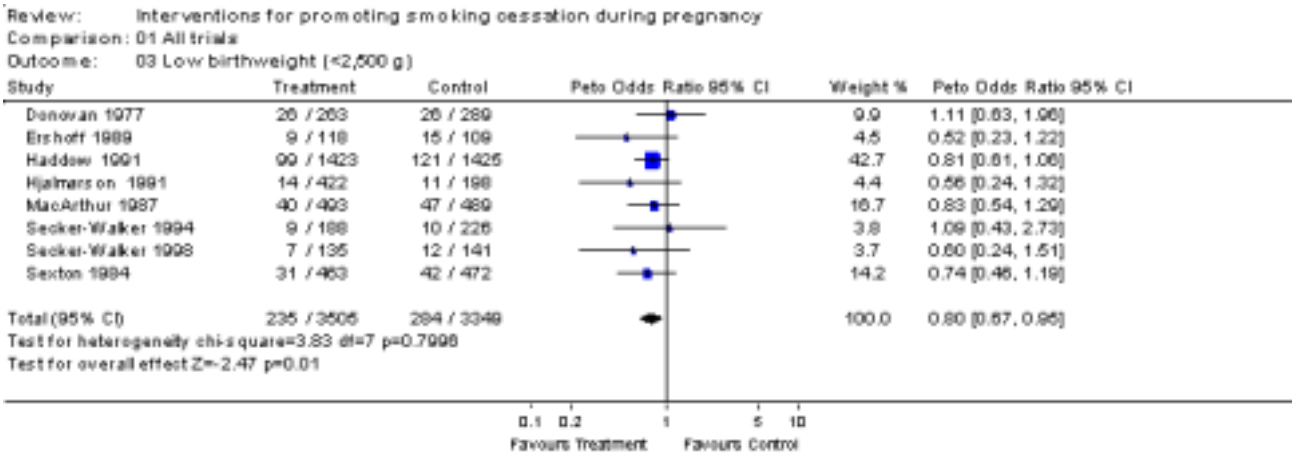
Figure 6.2 Review of smoking cessation interventions during pregnancy, 1975 to 1998: odds ratio for continued smoking



Source: Lumley, Oliver and Waters[69]

An analysis of trials that measured fetal outcome was also carried out. The results revealed a reduction in low birthweight (OR = 0.8; 95% CI: 0.7 to 1.0**)** (Figure 6.3), a reduction in preterm birth (OR = 0.8; 95% CI: 0.7 to 1.0) and an increase in mean birthweight of 29g (95% CI: 9 to 49).[69]

Figure 6.3 Review of smoking cessation interventions during pregnancy with low birthweight outcome, 1975 to 1998: odds ratio for low birthweight



Source: Lumley, Oliver and Waters[69]

Interventions to prevent relapse during pregnancy

Lumley et al. also analysed the effectiveness of interventions that aimed to prevent smoking relapse among women who stopped smoking in early pregnancy.[69] The majority of these interventions (which included strategies such as physician advice, relapse prevention counselling, provision of materials) did not significantly reduce smoking relapse rates. The pooled odds ratio for these trials was 0.7 (95% CI: 0.5 to 1.0).[69]

Interventions to prevent post-partum smoking relapse

Despite the high number of women who relapse to smoking after giving birth, very few intervention studies have specifically focused on preventing relapse over this crucial period.

A few researchers have extended their smoking cessation and relapse prevention interventions into the early post-partum period (six to eight weeks after delivery).

These studies, which have typically utilised low intensity interventions such as relapse prevention messages and advice at post-natal care visits, have had limited success in maintaining smoking cessation after childbirth.[97, 98] A more extensive smoking cessation and relapse prevention intervention study was undertaken by Severson and colleagues.[99] Advice and materials were provided to mothers of newborns at paediatric visits during the first six months post-partum. The intervention significantly reduced relapse rates (55 per cent vs 45 per cent) and increased cessation rates (3 per cent vs 6 per cent). However, no significant treatment effect was found at 12 months follow-up.[99] Ratner and colleagues examined the long-term effectiveness of a post-partum smoking relapse prevention intervention.[100] Mothers in the intervention group received written materials, a brief in-hospital intervention following birth and telephone follow-up sessions during the first three months post-partum. At the 12 months following delivery, 50 per cent of the control group and 41˚per cent of the intervention group reported smoking daily (OR = 1.5; 95% CI: 0.9 to 2.4).[100]

Interventions to address partner smoking

Smoking cessation programs which aim to encourage smoking cessation among partners of pregnant women have been conducted. An Australian study by Wakefield and Jones examined the effectiveness of a minimal smoking cessation intervention delivered as part of routine antenatal and post-natal care.[101] Pregnant women were given advice to quit smoking and provided with feedback on the fetus' heart beat before and after smoking a cigarette. In addition, advice and information on smoking cessation were provided to partners who smoked. A significantly greater percentage of partners in the intervention group (34 per cent) reported trying to quit during the pregnancy than in the comparison group (15 per cent). However, quit rates did not differ between groups either during pregnancy or post-partum.[101]

DiClemente and colleagues also attempted to address partner smoking in an intervention study.[102] Videos and newsletters were mailed to the women and their partners during the final weeks of the pregnancy and the first six weeks post-partum. At three months post-partum, more partners from the intervention group (28 per cent) were not smoking than the control group (14 per cent), although there were no differences at later follow-up.[102]

Qualitative research by Wakefield and colleagues explored the beliefs about passive smoking among male smokers whose partners were pregnant.[103] They found that men were largely unaware that their smoking could pose a specific risk to the fetus. Barriers to quitting among these men included a lack of understanding of the effect of passive smoking on the fetus, lack of motivation to quit early in pregnancy due to the baby not being 'real' and concern about stress-induced marital discord associated with cigarette withdrawal.[103]

Pharmacological interventions

Nicotine replacement therapy (NRT) and other pharmacotherapies combined with behavioural methods are the most effective treatment procedures for assisting smokers to quit.[104] NRT is available 'over-the-counter' in Australia, so it is likely that some pregnant women would be using this type of therapy.[74]

However, the safety and efficacy of NRT during pregnancy has not been well established and remains controversial. Nicotine may have adverse effects on the fetus, through alterations in uterine, placental or fetal blood flow or directly on the brain.[69] While some researchers suggest that NRT should be considered for pregnant women who are heavy smokers and who have been unsuccessful in their attempts to quit,[74] the efficacy of NRT in pregnant women has not been established.

One randomised controlled trial evaluated the effect of nicotine patches on smoking cessation in pregnant women.[105] The researchers concluded that nicotine patches had no influence on smoking cessation during pregnancy. The overall quit rate at the fourth pre-natal visit was 26 per cent and 14 per cent at one year post-partum, with no differences between the nicotine and placebo groups. However, the mean birthweight was 186g higher (95% CI: 35 to 336) in the nicotine group compared to the placebo group.[105]

Implications

Pregnancy is a time when women are more highly motivated to quit smoking.

Behavioural interventions can help about 50 per cent of pregnant smokers to quit.

If the woman s partner also stops smoking, the woman will find it easier to stop and not relapse after the baby is born.

Due to the concerns of pregnant women about the use of pharmacological aids to quit smoking, focus has been on behavioural strategies.

Smoking cessation programs targeting pregnant women and their partners should become the key component of the national strategy to control tobacco smoke.

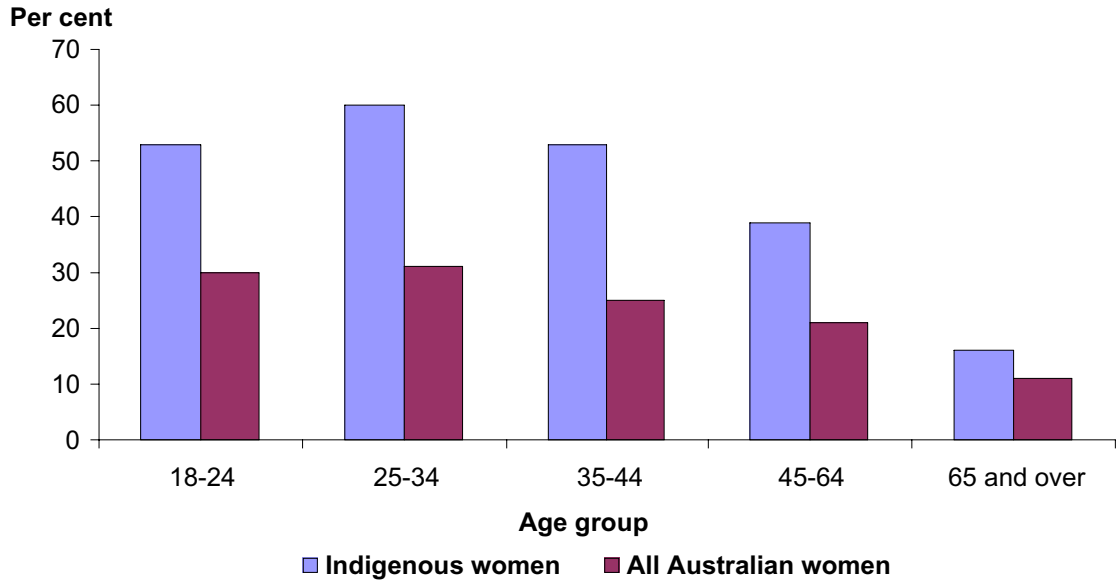
7 Cigarette smoking among Indigenous women and girls

Smoking prevalence among Indigenous women

The prevalence of smoking among Aboriginal and Torres Strait Islander peoples is about twice that for non-Indigenous people.[106] In 1994, the National Aboriginal and Torres Strait Islander Survey (NATSIS) estimated that 48 per cent of Indigenous women aged 15 years or more smoked.[107]

As Figure 7.1 shows, smoking prevalence is higher among Indigenous adult women than non-Indigenous adult women across all age groups.

Figure 7.1 Prevalence (per cent) of current smoking by age group, among Indigenous and all Australian women



Note: *Data in Table 7A.1, Appendix*
Sources: *Indigenous women: 1994 NATSIS[107]; All Australian women: 1995 National Health Survey[108]*

Smoking prevalence differs between Aboriginal women and Torres Strait Islander women. Both the 1994 NATSIS and the Well Persons Health Check in Queensland (1998-2000) found that Torres Strait Islander women were less likely to report smoking than Aboriginal women (Table 7A.2, Appendix).[107, 109] Smoking prevalence among Indigenous women also varies from region to region (Table 7.1). Data is from varying sources, so care must be taken when making comparisons.

Table 7.1 Regional differences in prevalence (per cent) of smoking in Indigenous women

	Smoking prevalence		
Place	**Current**	**Ex**	**Never**
Tennant Creek region[107]	17		
Aputula region[107]	20		
Perth[110]	49	21	31
Cherbourg[111]	54		
Woorabinda[111]	58		
Toowoomba[111]	62		
Ballarat region[107]	69		

Sources: 1994 NATSIS[107]; Gilchrist[110]; Unpublished data from the ALSWH: Aboriginal and Torres Strait Islander Community Project[111] (The assistance of these communities in gathering these data is acknowledged.)

Smoking prevalence among Indigenous girls

NATSIS found approximately 14 per cent of Indigenous girls aged 13 to 15 years reported smoking in 1994.[107] The 1993 national prevalence rate of current smoking among Australian girls aged 13 to 15 years was approximately 22 per cent.[20] Differing definitions of smoking were used in these two surveys, so care must be taken in making comparisons.[107]

Smoking prevalence during pregnancy

There are no national data on smoking prevalence during pregnancy among Indigenous mothers. However, New South Wales data show that in 1997 Indigenous women were three times more likely to report smoking at some time during their pregnancy (61 per cent) than non-Indigenous women (21 per cent).[64]

Cigarette smoking is a risk factor for low birthweight (less than 2˚500 grams) and low birthweight is about twice as common among babies born to Indigenous mothers (13 per cent) than babies born to non-Indigenous mothers (6 per cent).[106]

Number of cigarettes smoked

The number of cigarettes smoked per day by Indigenous people is less than or similar to the number of cigarettes smoked by non-Indigenous people, however, this may differ among communities.[107] Unpublished data from a study of three Indigenous communities in Queensland shows marked variation between communities (Table 7.2).[111]

The number of cigarettes smoked per day also appears to increase with age among Indigenous Australians.[107] About one in ten Indigenous smokers aged 15 to 17 years reported smoking more than 20 cigarettes per day, compared to four in ten Indigenous smokers aged 45 to 64 years. Indigenous women are also less likely to report smoking more than 20 cigarettes per day than Indigenous men. Increased consumption of cigarettes with age has been generally supported by more recent data from Indigenous communities in Queensland (Table 7.2).[111]

Table 7.2 Mean number of cigarettes smoked per day by Indigenous women from community-based samples, Queensland and among all Australian women

Age group	Cherbourg 1997[111]	Woorabinda 1998[111]	Toowoomba 2000[111]	All Australian 1995[112] [a]	Age group
				8.1	14-19 years
16-24 years	25.0	14.5	14.8	12.3	20-29 years
25-34 years	31.0	13.9	18.3	14.1	30-39 years
35 years or more	27.6	15.1	22.8	17.6	40 years or more [b]
All ages	**27.6**	**14.7**	**18.8**	**14.3**	**All ages**

Notes: *(a) Data presented as mean cigarettes per day (source data presented as mean cigarettes per week).*
(b) Data aggregated for 40 years and over.

Sources: *Unpublished data from the ALSWH: Aboriginal and Torres Strait Islander Community Project[111] (the assistance of these communities in gathering these data is acknowledged); 1998 National Drug Strategy Household Survey[112]*

Factors influencing cigarette smoking

Table 7.3 shows socio-economic, demographic and cultural factors associated with smoking among Indigenous women. Smoking was most commonly reported among those aged 25 to 44 years, unemployed women and women who drank alcohol within the past week.[107] While cultural factors such as language and being taken away from one's family were significantly associated with smoking, the strongest associations were with alcohol consumption, level of education, employment status, home ownership and age.[107]

It has also been suggested that cultural factors may influence smoking behaviour. Traditional cultural activities promote bonding and social cohesion. The sharing of tobacco plays a large part in the social life of many Indigenous people, reinforcing family relationships and friendships. Non-participation may lead to feelings of isolation and alienation from the community.[113]

Table 7.3 Prevalence (per cent) and odds ratios (OR) for smoking among Indigenous women with selected characteristics, 1994

Selected characteristics	Smoking prevalence	Adjusted OR (95% CI)
Age		
15-24 years	45.0	0.9 (0.8 to 1.1)
25-44 years	57.0	1
45 years and older	34.1	0.5 (0.4 to 0.6)
Area of residence		
Capital city	53.8	1
Other urban area	48.0	0.8 (0.7 to 0.9)
Rural area (population under 1,000)	43.5	0.8 (0.6 to 0.9)
Labour force status		
Community Development Employment Program	47.2	1.4 (1.0 to 2.0)
Other employment	42.0	1
Unemployed	60.8	1.6 (1.3 to 2.0)
Not in the labour force	46.9	1.7 (1.4 to 2.0)
Highest year of school completed		
Still attending school	19.2	0.3 (0.2 to 0.4)
Less than year 10	48.9	1.0 (0.8 to 1.1)
Year 10 or year 11	55.7	1
Year 12 or more	41.0	0.6 (0.4 to 0.7)
Home owner/purchaser		
Yes	36.1	0.6 (0.5 to 0.7)
No	51.0	1
Household composition		
Indigenous members only	48.7	1
Indigenous & non-Indigenous members	47.2	0.9 (0.8 to 1.1)
Most recent alcohol consumption		
Within the past week	70.1	1
More than 1 week ago	48.2	0.4 (0.3 to 0.5)
Never	24.4	0.2 (0.1 to 0.2)
Main language is English		
Yes	51.0	1
No	35.9	0.7 (0.6 to 0.9)
Considers role of elders important		
Yes	49.1	1
No	43.4	0.8 (0.7 to 1.0)
Recognises homelands		
Yes	49.5	1
No	44.5	0.8 (0.6 to 0.9)
Taken away from family as a child		
Yes	60.3	1.4 (1.1 to 1.8)
No	47.2	1

Note: Odds ratios adjusted for other characteristics shown
Source: 1994 NATSIS[107]

Morbidity and mortality

Smoking is a risk factor for a number of diseases and conditions including circulatory disease, cancer and respiratory disease (see Chapter 3). As Table 7.4 shows, Indigenous Australians are at greater risk of dying from these diseases than non-Indigenous Australians. Indigenous people are 2.8 times more likely to die from circulatory diseases, 1.4 times more likely to die from cancer and four times more likely to die from respiratory diseases.[106]

Table 7.4 Causes of death among Indigenous and non-Indigenous people, Australia, 1999

	Non-Indigenous[76]		Indigenous[106]		Standardised mortality ratio [a]
Cause of Death	**Deaths**	**% of Deaths**	**Deaths**	**% of Deaths**	
Circulatory	25 193	43.8	258	31.2	2.8
Malignant neoplasms	14 399	25.0	127	15.4	1.4
Diabetes mellitus	1 343	2.3	67	8.1	9.4
Respiratory	4 063	7.1	67	8.1	4.0
Digestive	1 975	3.4	38	4.6	4.9
Perinatal	225	0.4	26	3.2	
Congenital	282	0.5	22	2.7	
Mental & behavioural	1 492	2.6	11	1.3	2.3
Other medical	6 305	11.0	124	15.0	
External	2 292	4.0	86	10.4	3.3
Genitourinary					7.6
Infectious/parasitic					5.4
Nervous System					1.8
Ill-defined					5.3
All Causes	**57 569**	**100.1**	**826**	**100.0**	

Note: (a) Ratio of age standardised mortality rate for Indigenous people to rate for non-Indigenous people, for the years 1997 to 1999.

Sources: Australian Bureau of Statistics[76]; Edwards and Madden[106]

Using 1989-1991 Western Australian mortality data, Unwin and colleagues estimated the number of deaths attributable to tobacco smoking:[114]

- Tobacco smoking accounted for 13.9 per cent of Aboriginal deaths in Western Australia during 1989-1991.
- The rate for tobacco-caused deaths for Aboriginal women was 3.7 times higher than that for non-Aboriginal women.
- Of those who died as a result of tobacco use, 48 per cent of Aboriginal women died before 55 years of age, compared to 10 per cent of non-Aboriginal women.

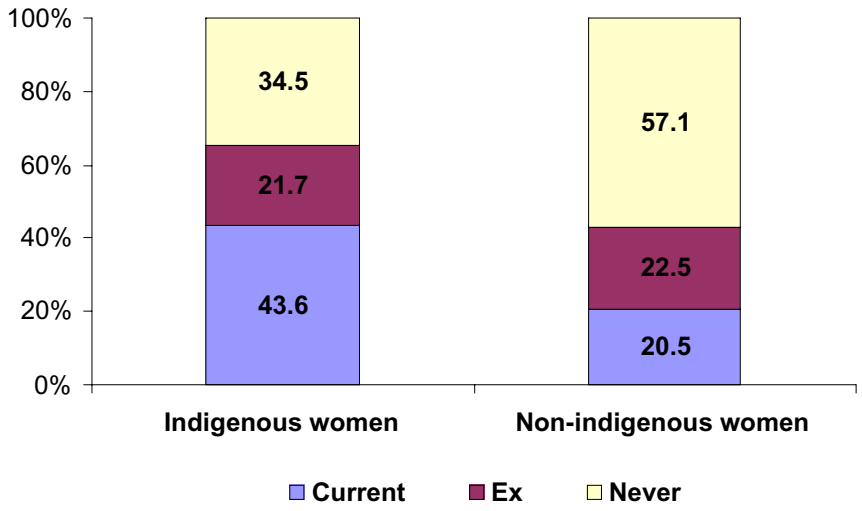
Smoking initiation

Among the 76 per cent of Indigenous people who reported ever smoking in the 1994 National Drug Strategy Household Survey, 64 per cent had tried their first full cigarette before the age of 16 and 36 per cent before the age of 14.[115] The majority (60˚per cent) of current smokers and ex-smokers in Australia report smoking initiation between the ages of 15 and 19 years and a further 16 per cent report starting smoking before 15 years of age.[116] Consistent with this, only 35 per cent of 14 to 19 year old Aboriginal and Torres Strait Islander children have never smoked a cigarette, compared to 43 per cent of the general population of children.[115] This suggests that Indigenous people start smoking at an earlier age.[115]

Smoking cessation

Figure 7.2 shows the prevalence of current, ex and never smokers among Indigenous and non-Indigenous women aged 18 years and over. The quit proportion[8] is much lower among Indigenous women (quit proportion 0.33) than non-Indigenous women (quit proportion 0.52).[106]

Figure 7.2 Prevalence (per cent) of current smoking, ex-smoking and never smoking among Indigenous and non-Indigenous women aged 18 years and over, Australia, 1995



Source: 1995 National Health Survey[106]

Table 7.5 shows that compared to the general population, Indigenous smokers are less successful at quitting smoking. Fewer Indigenous smokers change to low tar/nicotine brand cigarettes than all Australians and fewer Indigenous smokers reduce the number of cigarettes smoked per day.[115]

Table 7.5 Prevalence (per cent) of Indigenous men and women and all Australians using various smoking-related behaviour modifications in last 12 months

Smoking-related behaviour modification	Indigenous 1994	All Australians 1993
Tried unsuccessfully to give up smoking	45	41
Change to low tar/nicotine brand	22	38
Reduce amount smoked per day	32	41

Source: 1994 National Drug Strategy Household Survey[115]

The main reasons given by Indigenous women for giving up smoking are health reasons or sickness (49 per cent) and being pregnant (12 per cent).[110]

Reducing smoking among Indigenous women and girls

Perceptions of smoking

In the context of other health and social issues that Indigenous people have to deal with, there is less concern about cigarette smoking.[115] The 1994 National Drug Strategy Household Survey found 65 per cent percent of Indigenous people agreed that tobacco was a serious problem, compared to 95 per cent who agreed that alcohol was a serious problem.[115] Alcohol-related violence, high unemployment, illegal drugs, racism, poverty and deaths in custody were all considered more serious problems than smoking. Less than one per cent of Indigenous people rated smoking as the most serious problem from this list of social issues. Only three per cent of Indigenous Australians nominated tobacco or cigarettes as a direct or indirect cause of 'most deaths' among Aboriginal and Torres Strait Islander peoples.[115]

Tobacco use was less of an important health issue for women living in Queensland Indigenous communities.[111] When asked broadly about health and social problems of concern in their communities (including unemployment and specific diseases, such as diabetes) around 85 per cent of women specified alcohol and drug use, gambling and violence. Other social problems, such as unemployment, education, boredom, self-esteem, relationships, child-minding and no time for self, tended to be ranked as more important than smoking related illness, such as heart disease, cancer and chest problems.[111]

The risks associated with smoking have been found to be generally under-estimated among Indigenous people, with 5 per cent believing that smoking could not damage their health and 31 per cent considering it safe to smoke a pack or more a day.[115] Among Aboriginal women attending a Perth medical clinic who reported smoking, 26 per cent did not believe that smoking causes lung cancer and 21 per cent did not believe that smoking causes heart problems.[110] While knowledge among Indigenous Australians about the health effects of tobacco is variable, there is evidence of ignorance or misconceptions about the specific harmful effects of tobacco smoking.[113]

Tobacco control initiatives

The National Tobacco Strategy 1999 to 2002-03 recognises the need for a targeted national tobacco action plan for Aboriginal and Torres Strait Islander peoples.[117] One of the initiatives of the National Tobacco Strategy is the National Aboriginal and Torres Strait Islander Tobacco Control Project. This project, which has been undertaken by the National Aboriginal Community Controlled Health Organisation (NACCHO), involved working with Aboriginal and Torres Strait Islander communities to assess attitudes to smoking; identify key issues around tobacco

control; appraise existing Indigenous smoking programs; identify best practice; and make recommendations for future action based on the findings from the research.[118,119]

To assist in the development of a National Indigenous Smoking Strategy, the Victorian Smoking and Health Program evaluated the impact of the 1997-1998 National Tobacco Campaign on Indigenous communities.[120] The key issues emerging from this research are outlined in Table 7.6.

Table 7.6 The impact of the National Tobacco Campaign on Indigenous communities

Knowledge and awareness
Knowledge of the health effects of smoking was assessed as reasonable.
Awareness of quit campaigns was high with no obvious differences between Indigenous communities and the general population.
Barriers to smoking cessation
Tobacco smoking was rated as having relatively low priority as a health concern. Other drugs (particularly alcohol) were considered to have greater impact.
To some degree, community health and resource workers reinforced the low priority of smoking as a health concern as many were smokers themselves.
Quitting was commonly felt to be difficult.
The sharing of goods within the culture was believed to contribute to high smoking rates and to make quitting more difficult.
Implications
A program that encourages health and community workers to quit is important.
Quit strategies should have a community-focused approach, integrating various local community networks.
Respected community figures such as elders and community workers were considered influential on community attitudes and behaviours.
Quit groups and local support would be appropriate given the importance placed on the extended family and social context.
Older smokers should be targeted because of the high prevalence of smoking among older community members and their influence on other community members.

Source: Adapted from Murphy and Mee[120]

A study exploring smoking cessation strategies among Indigenous communities in Queensland also concluded that tobacco control strategies should utilise the contribution of community elders, should be highly localised and should consider tobacco consumption in the social context of Indigenous communities.[121]

As there is some evidence that smoking rates among Aboriginal health workers are comparable to the general smoking rates of the Aboriginal population, training and smoking cessation programs for Indigenous health workers is considered a priority issue.[122, 123]

Some state health departments have also started to address tobacco control among Indigenous communities within their state tobacco action plans.[124, 125] Furthermore, a number of local health promotion programs addressing smoking among Indigenous people have been conducted in various states.[126-131] However, there has been very little research on effective interventions to reduce smoking in Indigenous communities.

Implications

Smoking prevalence among Indigenous people is extremely high — twice that of the non-Indigenous population.

The proportion of Indigenous women who smoke and the number of cigarettes they smoke varies considerably between communities.

Cigarette smoking is a cause of some of the excess mortality and morbidity experienced by Indigenous people.

Fewer Indigenous people attempt to quit smoking than non-Indigenous people.

Cigarette smoking is strongly associated with alcohol consumption, lower levels of education and unemployment.

To some degree, community health and resource workers reinforce the lower priority of smoking as a health concern, as many smoke themselves.

In the context of other health and social issues that Indigenous people have to deal with, there is less concern about cigarette smoking.

Culturally-specific tobacco control strategies are being developed but considerably more work is needed to find interventions which are effective.

8 Smoking initiation and maintenance

Age of initiation of smoking

The age of smoking initiation is an important indicator of smoking behaviour.[36] People who start smoking when they are young are:

- more likely to smoke heavily
- to become more dependent on nicotine
- to be at increased risk for smoking-related illnesses or death.

The majority (60 per cent) of current smokers and ex-smokers in Australia report starting to smoke between the ages of 15 and 19 years and a further 16 per cent report starting to smoke before 15 years of age.[116]

Over the last 50 years, women have been taking up smoking at younger ages.[116] Five per cent of women now aged 65 years or more started smoking before they were 15 years old compared to 22 per cent of women now aged 18 to 24 years.[116]

In a national survey of schoolchildren aged 9 to 15 years, Gliksman and colleagues found a small percentage of 9 year old children had smoked at least one cigarette in the seven days preceding their participation in the survey (Table 8.1).[132]

Table 8.1 Prevalence (per cent) of current smoking among schoolchildren aged 9 to 11 years, Australia, 1985

	Age (years)		
	9	**10**	**11**
Girls	0.4	1.2	3.0
Boys	2.9	2.3	2.8

Source: Gliksman, Dwyer, Wlodarczyk and Pierce[132]

As Table 8.2 shows, from the age of 13 through to 16 years of age, more girls smoke than boys. This pattern continues again through to the mid to late 20s, after which more men smoke than women.[10]

Table 8.2 Prevalence (per cent) of current smoking among schoolchildren aged 12 to 17 years, Australia, 1999

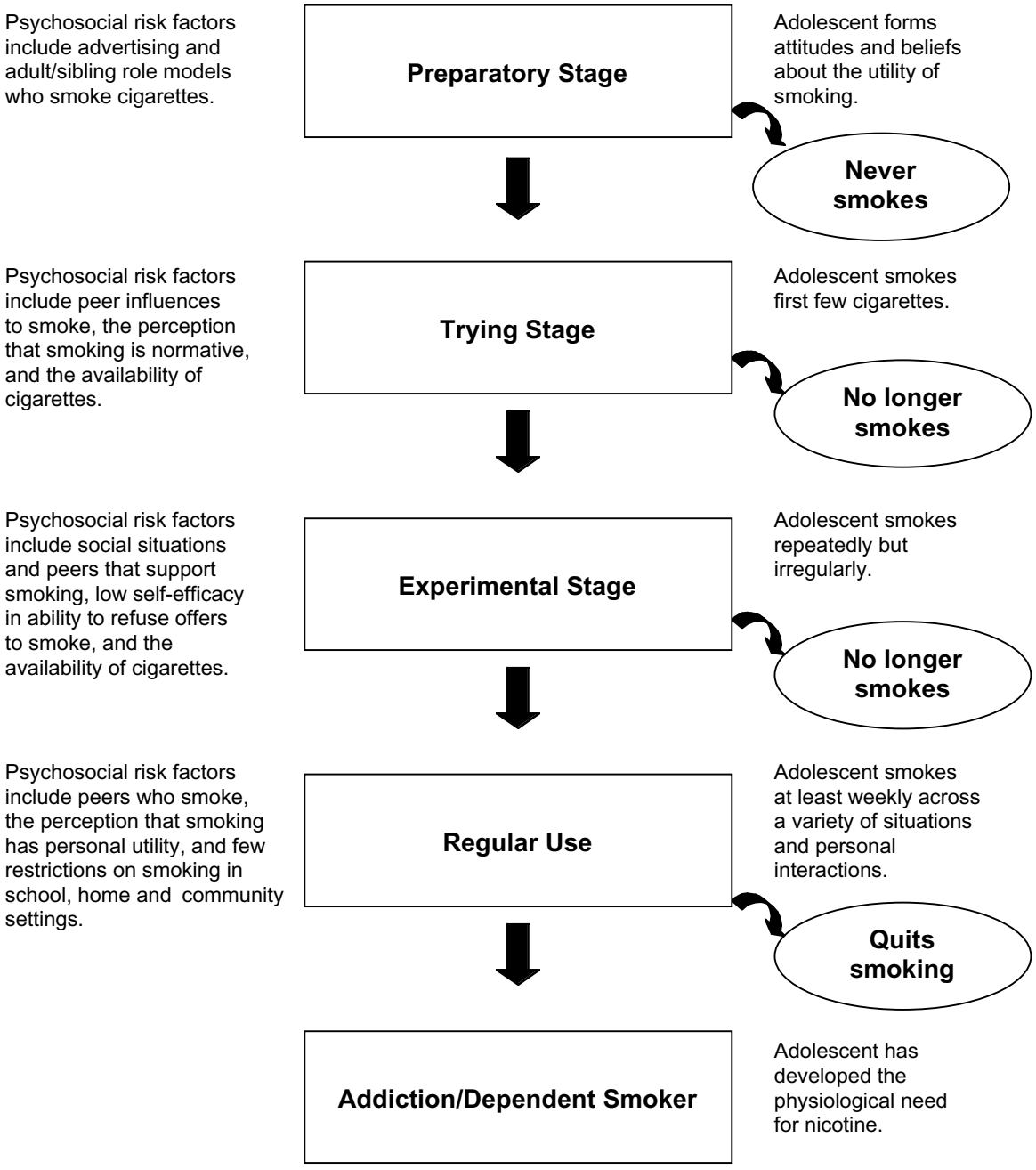
	Age (years)					
	12	**13**	**14**	**15**	**16**	**17**
Girls	6	13	22	24	28	30
Boys	6	11	21	21	27	33

Source: Hill, White and Effendi[22]

Stages of smoking initiation

The development of tobacco use is a staged process, influenced by a complex interplay of psychosocial factors including sociodemographic, environmental, behavioural and personal characteristics. The five primary stages of smoking initiation as highlighted by Flay[133] are presented in Figure 8.1.

Figure 8.1 Stages of smoking initiation among children and adolescents

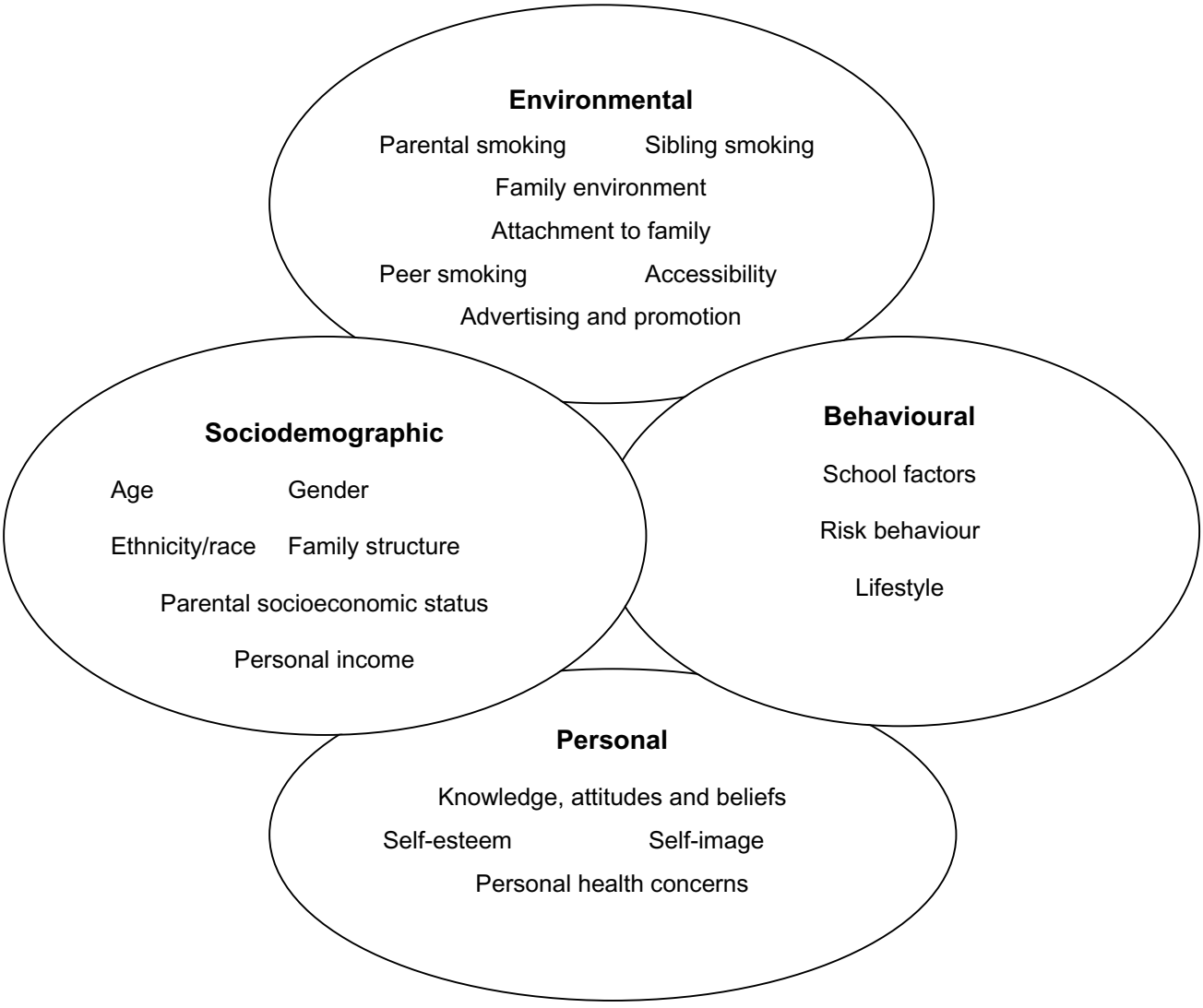


Sources: US Department of Health and Human Services, [134] adapted from Flay[133]

Factors influencing smoking initiation among girls

As the majority of smokers commence smoking during the teenage years, most research on smoking initiation focuses on adolescents. Figure 8.2 and Table 8.3 outline a range of inter-related psychosocial factors associated with adolescent smoking.[135, 136]

Figure 8.2 Psychosocial factors associated with adolescent smoking



Sources: Adapted from Aghi, Asma, Yeong and Vaithinathan[135] and Tyas and Pederson[136]

Table 8.3 Psychosocial factors associated with adolescent smoking

Environmental factors	
Parental smoking	Generally, parental smoking significantly increases the risk of adolescent smoking. Parents' attitudes toward smoking and towards their own children's smoking are related to adolescent smoking. Girls are more likely to smoke if their mother smokes.
Sibling smoking	Smoking among older siblings significantly increases the risk of smoking among adolescents.
Family environment	Lower levels of parental supervision, parents' lack of knowledge about their child's friends and inadequate monitoring are associated with higher prevalence of adolescent smoking. An authoritative, positive parenting style is associated with lower levels of adolescent smoking
Attachment to family	A poor mother-child relationship is associated with a higher prevalence of smoking among adolescents. A poor father-child relationship significantly influences smoking for girls.
Peer smoking	Peer smoking has consistently been found to be related to adolescent smoking, initiation, maintenance and intentions. Female adolescents with a best friend who smokes are much more likely to smoke. The extent to which an adolescent is bonded or attached to peers has been reported to influence the risk of adolescent smoking.
Accessibility	Having access to tobacco products is an important factor influencing smoking initiation among adolescents. The most common source of obtaining cigarettes for both girls and boys is friends.[21] For those adolescents who buy their own cigarettes, milkbars, delicatessans, supermarkets and petrol stations are the most common sources of supply.[21]
Advertising and promotion	Tobacco industry marketing, including product design, advertising and promotion activities is a factor influencing susceptibility to and initiation of smoking. (This topic is discussed more extensively below.)

Table 8.3 Psychosocial factors associated with adolescent smoking (Cont.)

Sociodemographic factors	
Age	Initiation and prevalence of cigarette smoking typically rise with increasing age and school grade. Adolescents who begin smoking at a younger age are more likely to become regular smokers and less likely to quit smoking.
Gender	In Australia, smoking rates among female adolescents aged 13 years and older have been reported to be higher than rates among male adolescents since 1984.[17-21, 132] Higher levels of smoking among female adolescents have also been found in other Western countries.
Ethnicity/race	It appears younger non-Indigenous adolescents may have higher rates of smoking than younger Indigenous adolescents.[107] However, there is evidence that from age 16, smoking prevalence is higher among Indigenous people.[107]
Family structure	Studies have found intact, two-parent families are protective against smoking.
Parental socioeconomic status	Higher levels of parental educational status and social class are inversely related to cigarette smoking among adolescents.
Personal income	Higher levels of smoking have been reported among adolescents with more spending money.
Behavioural factors	
School factors	Students who do well in school, have high academic aspirations and are committed to school are less likely to smoke than those who do not have these characteristics.
Risk behaviour	Deviance and risk-taking behaviour have been found to be related to smoking and to an association with peers who smoke.
Lifestyle	Alcohol and other drug use increases the risk of smoking among adolescents. Participation in sports or other physical exercise has consistently been found to be protective against adolescent smoking.

Table 8.3 Psychosocial factors associated with adolescent smoking (Cont.)

Personal factors	
Knowledge, attitudes and beliefs	While some studies have found knowledge about the detrimental health effects of cigarette smoking to be preventive against smoking, the majority of studies do not support this finding. Positive attitudes toward smoking and smokers are related to an increased likelihood of smoking. Young people under-estimate the risk of becoming addicted to nicotine and therefore under-estimate the future costs from smoking.
Self-esteem and self-image	Self-esteem, whether overall or with regard to specific contexts such as home or school, have been associated with smoking. Adolescents who smoke have been identified as possessing low self-esteem and low expectations for future achievement. Adolescent role models who smoke are frequently seen as tough, sociable and sexually attractive. Some adolescents may smoke to enhance their self-esteem by adopting such a perceived positive social image.
Personal health concerns	The belief that personal health is damaged by smoking has been found to be protective against smoking initiation and daily smoking.

Sources: Adapted from Aghi, Asma, Yeong and Vaithinathan[135], Tyas and Pederson[136] and other sources.

Advertising and promotion

The tobacco industry began to focus its marketing efforts on women in the 1920s and 1930s. Since then women have been extensively targeted in tobacco marketing through advertising, promotions, product packaging and the development of 'niche' brands.[36] Tobacco marketing to women is typically characterised by themes such as slimness, women's equality, freedom of choice, independence, glamour and romance.[36]

Before the ban on advertising in print media in Australia on 28 December 1990, the tobacco industry heavily used women's magazines to promote its products.[11] The development of niche brands and brand imagery may provide some compensation for the loss of this marketing avenue. In Australia, a number of brands such as Alpine and 'designer' brands (St Moritz, Yves St Laurent, Cartier, Dunhill and Vogue) have been specifically targeted at women.[11] Many tobacco companies have also developed long, extra-slim and low tar cigarettes in their attempts to appeal to women. These products are often promoted with words such as mild, light, slim, slender and long, in line with key female aspirations of being slim and attractive.[36]

The use of tobacco products in movies is another marketing strategy. A study of tobacco use in films each year from 1960 to 1990 and again from 1990 to 1996 showed an increase in the overall rate of tobacco use during the 1990s.[137] This study also showed an increase in the portrayal of smoking among women in films. In a recent study of female smoking in 50 Hollywood movies, 42 per cent of lead or supporting actresses smoked.[138] Female smoking was commonly portrayed to control emotions, to manifest power and sex appeal, to enhance body image or self-image, to control weight or to give a sense of comfort and companionship.

It is likely that tobacco use by movie stars popular with adolescent girls and young women may influence their smoking behaviour.[138] Studies have found that adolescents whose favourite movie stars smoked on-screen were more likely to be susceptible to smoking than adolescents whose favourite movie stars were non-smokers.[139, 140]

Interventions to prevent the uptake of smoking

Preventing tobacco sales to minors

In Australia, the legal age for purchase of tobacco products in all states and territories is 18 years of age.[141] However, approximately 38 per cent of young people still obtain cigarettes through illegal sales from retail outlets.[21] In response to this problem, a report, 'A National Approach for Reducing Access to Tobacco in Australia by Young People under 18 Years of Age', has been produced to provide a national best practice model to address the issue of cigarette sales to minors.[141]

Stead and Lancaster conducted a Cochrane Review of interventions which aimed to reduce underage access to tobacco by deterring shopkeepers from making illegal sales.[142] A total of 27 studies with pre- and post- assessment of interventions to change retailers' behaviour were included. The reviewers found that giving retailers information was less effective in reducing illegal sales than active enforcement and/or multi-component educational strategies. No strategy achieved complete, sustained compliance and there was little effect on youth perceptions of access or prevalence of youth smoking. It was concluded that interventions with retailers can lead to large decreases in the number of retail outlets selling tobacco to youths. However, few communities sustained levels of high compliance.

Community interventions

Numerous community interventions have been implemented to try to reduce the number of young people taking up smoking. These multi-component interventions recognise that smoking behaviour is influenced by the broader environment in which young people live.[143]

Sowden and Arblaster conducted a Cochrane Review to determine the effectiveness of community interventions in preventing the uptake of smoking among young people.[143] Thirteen studies were included in the review. Of nine studies which compared community interventions to controls with no intervention, two studies reported lower smoking prevalence. Of three studies comparing community interventions to school-based programs only, one study found differences in reported smoking prevalence. One study found a lower rate of increase in smoking prevalence in a community receiving a multi-component intervention compared to a community exposed to a mass media campaign alone. A significant difference in smoking prevalence between a group receiving a media, school and homework intervention compared to a group receiving the media component only, was found in one study. The reviewers concluded that there was some limited support for the effectiveness of community interventions in helping prevent the uptake of smoking in young people.

Mass media interventions

Mass media campaigns have been widely used to influence the smoking behaviour of young people. Sowden and Arblaster conducted a Cochrane Review to determine the effectiveness of mass media campaigns in preventing the uptake of smoking in young people.[144] A total of six studies which used a controlled trial design met the inclusion criteria. Two of these studies found that the mass media were effective in influencing the smoking behaviour of young people. The reviewers concluded that there was some evidence that the mass media can be effective in preventing the uptake of smoking in young people, but overall the evidence was not strong.

Factors influencing smoking initiation among women

While the majority of smokers take up smoking in their teenage years,[116] smoking adoption does continue into the adult years. The ALSWH found three per cent of young women aged 18 to 23 in 1996, took up smoking between the ages of 22 and 27 (in 2000).[65] This 'late adoption' of smoking was strongly associated with binge drinking of alcohol. Women who binge drank once a week or more were most likely to take up smoking (adjusted OR = 14.2; 95% CI: 6.4 to 32.0).[65]

In the ALSWH, adoption rates were higher in women aged 22 to 24 than in women aged 25 to 27.[65] One possible explanation of 'late adoption' is the transition to paid employment. Hill and Borland found that the work environment is the most important setting for smoking uptake following the school setting.[145] Twenty-eight per cent of women aged more than 19 years who had ever smoked, took up smoking while in their first job.[145] Additionally, the type of occupation may be an important determinant of smoking behaviour. In a study of cigarette smoking among vocational trainees, Setter and colleagues found smoking prevalence was particularly high among vocational trainees in the following occupational groups: hairdressers, service personnel (hotels, restaurants), shop assistants/sellers, cooks, butchers and painters.[146] In the ALSWH, smoking adoption was highest among those in the lower status occupational group of elementary clerical/sales/service worker or labourer.[65]

The ALSWH also found that adoption of smoking in early adulthood was higher among young women who were not born in Australia than among those born in Australia.[65] The post-migration phenomenon of embracing the mores of the adoptive country[11] is a possible explanation of the late adoption of smoking among these young women. Additionally, the smoking uptake of these women could be related to transitional factors such as moving out of the family home to more independent living arrangements and having greater autonomy over lifestyle choices.

Factors influencing maintenance of cigarette smoking

Women continue to smoke because of the physiological addiction to nicotine and psychosocial factors.[135]

Nicotine Addiction

The 1988 US Surgeon General's report on smoking concluded that nicotine delivered by tobacco smoking is addictive.[147] Nicotine pharmacology and the behavioural processes that determine nicotine addiction appear generally similar among women and men.[36] Table 8.4 summarises factors outlined in the 2001 US Surgeon General's report that may promote nicotine dependence and maintain smoking behaviour among women.[36]

Psychosocial factors

Depression

Studies have found depressive disorders to be more prevalent among smokers than non-smokers.[148, 149] This relationship between smoking and depression is a particularly important issue for women because they are about twice as likely to suffer from depression than men (7 per cent versus 3 per cent).[150]

The direction of the association between smoking and depression is not completely understood.[36] Given that smoking can increase the feeling of well-being and elevate mood, one hypothesis is that people with depression smoke as a form of self-medication. This use of smoking for mood management and as a coping mechanism has been reported by women.[151] Depression also reduces the likelihood of smoking cessation.[36] Glassman and colleagues found that smokers who had experienced major depression were less successful at quitting than smokers who had never experienced major depression.[149] Anda and colleagues found that smokers who were classified as depressed were substantially less likely to quit smoking than non-depressed smokers.[152]

Stress

Numerous studies have found stress to be a significant predictor of smoking among women.[153, 154] Approximately 46 per cent of young women in a study by Milligan and colleagues considered 'being tense, anxious or stressed'as a barrier to smoking cessation compared to 34 per cent of males.[155] Consistent with these research findings, young women in the ALSWH who smoked were more likely to report being stressed and to have experienced more life events in the previous 12 months than those women who had never smoked.[65] Women who reported higher stress scores were subsequently more likely to adopt smoking.

Table 8.4 Factors associated with smoking maintenance

Withdrawal symptoms	Symptoms associated with nicotine withdrawal include nausea, headache, constipation, diarrhoea, increased appetite, drowsiness, fatigue, insomnia, inability to concentrate, irritability, hostility, anxiety and craving for tobacco.
Stimuli associated with tobacco use	Nicotine addiction is supported by stimuli associated with tobacco use through learning or conditioning.
	Sensory aspects of smoking such as the smell and taste of cigarette smoking, as well as irritation of the mouth, throat and respiratory tract may become conditioned reinforcers.
	Some studies have found that women are particularly sensitive to the sensory aspects of smoking. Consequently, the presence of sensory cues associated with smoking in the absence of nicotine may cause greater discomfort among women who smoke than among men who smoke.
Mood altering effects	Nicotine can enhance arousal and alertness or can relax and calm.
	The majority of studies have found no differences between men and women in subjective responses to nicotine.
Stress or negative affect	During periods of stress, smokers report a greater desire for cigarettes and demonstrate increased intensity of smoking.
	It is more common for women than for men to smoke in response to negative affect or stress.
Improved human performance	Nicotine may have beneficial effects on several aspects of human performance, including improved attention, learning and memory functioning and enhanced sensory and motor performance.
	Gender specific differences have not been found.
Weight control	Tobacco use is inversely related to body weight.
	Women's concerns about weight may encourage smoking initiation, maintain smoking behaviour and be a barrier to smoking cessation. (This topic is discussed more extensively below.)

Source: US Department of Health and Human Services[36]

Weight control

Women may adopt smoking as a means of weight control and continue to smoke rather than risk weight gain.[135] The belief that smoking controls body weight appears to be developed from an early age. In children aged 9 to 14 years, Tomeo and colleagues found that contemplation of smoking was positively related to weight concerns, and smoking experimentation was positively related to weight control behaviour.[156] Almost 40 per cent of adolescents believed that smoking controlled their body weight,[157] and 39 per cent of female adolescents in a study by Camp et al. reported using smoking to control their appetite and weight.[158] In the ALSWH, 32˚per cent of young women who smoked reported using smoking to control weight.[65]

Smokers on average weigh around three kilograms less than non-smokers,[159] and smoking cessation leads to a net mean gain of 2 to 5 kilograms in weight.[160] Women in particular, show concern about gaining weight if they stop smoking.[161] In a study by Milligan and colleagues, a significantly greater proportion of young women who smoked (27 per cent) considered weight gain as a barrier to adopting or maintaining a non-smoking lifestyle than young men who smoked (14 per cent).[155] Pirie and colleagues found significantly more women who smoked (58 per cent) than men who smoked (26˚per cent) endorsed the statement, 'If I quit smoking, I would probably gain a lot of weight'.[161] Furthermore, weight gain was cited as a withdrawal symptom by 26 per cent of women who smoked and 15 per cent of men who smoked.

Alcohol

A number of studies have found that smoking and alcohol consumption frequently occur together. In a study of combined tobacco and alcohol use among women aged 18 to 44 years, Ebrahim and colleagues found 25 per cent of pregnant and 56 per cent of women who were not pregnant who smoked, also drank alcohol.[162] The Australian 1998 National Drug Strategy Household Survey showed that almost nine out of ten females (aged 14 years and over) who were recent smokers also drank alcohol.[61] A positive association between smoking and binge drinking among young Australian women was also found by Brown et al. (33 per cent of smokers were binge drinkers compared to 12 per cent of non-smokers).[163]

In the ALSWH, the factor most strongly associated with current smoking and adoption of smoking was alcohol binge drinking.[65] Table 8.5 shows that smoking prevalence among women increases as the frequency of binge drinking increases.

Table 8.5 Smoking prevalence (per cent) and alcohol binge drinking among young women, Australia, 2000

Alcohol binge frequency	Smoking prevalence
Non-drinker	14.7
Never binge drinks	12.9
Binge drinks less than once per month	25.7
Binge drinks about once per month	32.8
Binge drinks about once per week	48.6
Binge drinks more than once per week	61.5

Source: ALSWH[65]

Implications

Adoption of smoking is related to life stage.

Peer smoking behaviour (as well as family smoking behaviour) is strongly associated with current smoking, adoption of smoking, and not quitting among Australian women.

Factors associated with adoption and maintenance of smoking are predominantly environmental (eg peer and family smoking behaviour). These are influenced by social norms and expectations. Therefore, social marketing has a role to play in reducing cigarette smoking.

In addition, there are psychological factors (such as depression and stress) and physiological factors (including nicotine dependence) that affect smoking. These require attention at the individual level to reduce smoking (eg behavioural or pharmacological therapy to quit).

For women, the use of smoking for weight control and the strong association between smoking and drinking, provide particular challenges for tobacco control.

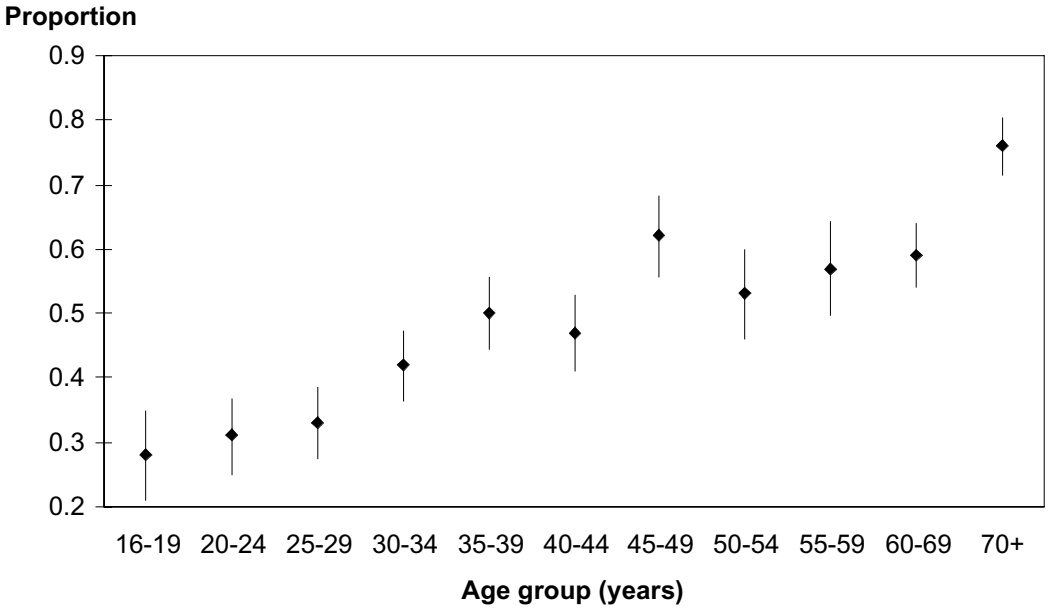
Interventions to reduce smoking are summarised in the next chapter.

9 Smoking cessation

Quit proportions

The proportion of women who have quit smoking increased steadily from 0.25 in 1974 to 0.48 in 1995 (see Chapter 2).[11] The quit proportions for women also increase with age (Figure 9.1).

Figure 9.1 Quit proportions for women by age group, Australia, 1995



Note: Data in Table 9A.1, Appendix
Source: Hill, White and Scollo[10]

Factors influencing smoking cessation

A higher level of quitting activity occurs at a younger age. Table 9.1 shows that among young women in the ALSWH who reported smoking in 1996 (then aged 18 to 23), 26 per cent reported having quit in 2000 (aged 22 to 27)[65] Among mid-aged women who reported smoking in 1996, (then aged 45 to 50), 11 per cent reported having quit in 1998 (then aged 47 to 52).[63]

The proportion of women in Australia who quit smoking generally increases with educational and occupational levels (Table 9.1).

Table 9.1 Proportion of women who quit smoking according to education level, occupation status and place of birth, 1995

National[10]		ALSWH		
Characteristic	**All ages**	**Young[65]**	**Mid-age[63]**	**Characteristic**
Overall	0.48	0.26	0.11	**Overall**
Education				**Education**
< Year 9	0.42	0.20	0.11	≤ Year 10
Years 10 and 11	0.45	0.23	0.09	Year 12
Year 12 or more	0.51	0.23	0.12	Trade/apprenticeship
		0.27	0.12	Certificate/diploma
University graduate	0.65	0.34	0.11	Degree or higher degree
Occupation [a]				**Occupation**
Upper white collar	0.57	0.31	0.11	Manager, professional or associate
Lower white collar	0.53	0.24	0.12	Trade, advanced clerical
Upper blue collar	0.48	0.24	0.13	Intermediate clerical/ sales/ service/ production
Lower blue collar	0.38	0.19	0.09	Elementary clerical/ sales/ service or labourer
		0.31	0.07	No paid work
Country of birth				**Country of birth**
Australia	0.47	0.26	0.10	Australia
Asia	0.43	0.26	0.14	Not Australia
Europe	0.53			
United Kingdom	0.53			
Others	0.52			

Notes: The quit proportion is estimated cross-sectionally in the national sample and over four years for the ALSWH young women and two years for the ALSWH mid-aged women.

(a) Occupation in national sample is for the main income earner of household.

Sources: Hill, White and Scollo[10]; ALSWH[63, 65]

Among young women in the ALSWH, those who had time on their hands about once a week or more were less likely to quit than women with less time on their hands.[65] Young women living with children and no partner were least likely to quit than those living in households of almost all other compositions. The incidence of quitting was also lowest among young women who were intermediate or high-risk drinkers and the likelihood of quitting smoking decreased as the frequency of alcohol binge drinking increased. Experiencing more life events was associated with the decreased likelihood of quitting. The most powerful predictor of quitting, however, was current pregnancy, with an adjusted odds ratio of 3.4 (95 per cent CI: 2.0 to 5.9).[65]

In a review of 13 longitudinal studies relating to women and smoking cessation, the 2001 US Surgeon General's report identified a number of predictors of quit attempts and smoking cessation (Table 9.2).[36] Good predictors of successful smoking cessation were higher education, social support and fewer cigarettes smoked per day. Being highly motivated, expecting to succeed in quitting and having the skills to cope with adaptation and change have also been identified as indicators for successful smoking cessation.[11]

Table 9.2 Factors predicting attempts to stop smoking and smoking cessation among women/persons of different ages

Stage of smoking	Personal factors	Social or cultural factors
Attempted cessation		
Young persons	High perceived likelihood of not smoking in one year High value on health Perception of personally relevant health consequences of smoking cessation Female gender Control of negative affect College education Low sensory motivation	Married More social roles
Cessation		
Young persons	Extroversion Low consumption of cigarettes High perceived likelihood of not smoking in one year High value on health High-sensory motivation Heavy smoking	Low social pressure to stop smoking Employment No children at home More educated parents Some college education
Young and middle-aged adults	Previous attempts to stop smoking Confidence in ability to stop smoking in three months Number of days abstinent on longest previous attempt to stop smoking Job contentment Higher level of education Fewer cigarettes smoked Highest social group Self-rated good health Higher vegetable intake	
Older adults	Depressive symptoms Fewer cigarettes smoked	

Source: Adapted from US Department of Health and Human Services[36]

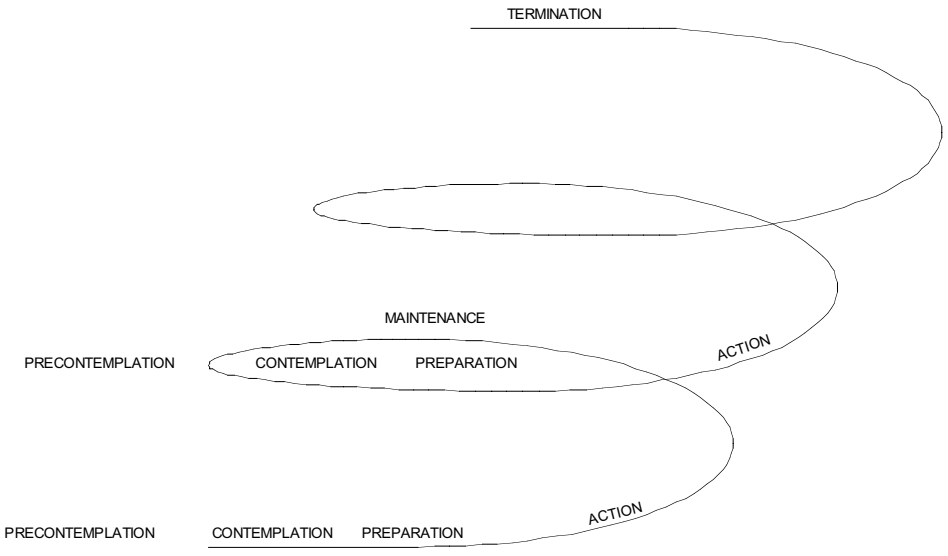
The quitting process

The transtheoretical (stages of change) model of Prochaska and colleagues, identifies a five stage sequence in the process of smoking cessation:[164]

1. *Precontemplation* — the stage at which there is no intention to change smoking behaviour in the foreseeable future.
2. *Contemplation* — the stage in which the smoker considers quitting smoking but has not yet made a commitment to take action.
3. *Preparation* — the stage at which the smoker intends to take action in the near future.
4. *Action* — the stage at which smoking cessation is initiated.
5. *Maintenance* — the process of sustaining smoking cessation.

As the majority of people who attempt to quit smoking relapse a number of times before maintaining smoking cessation, Prochaska and colleagues propose a spiral model of the stages of change.[164] This model (Figure 9.2) shows how most people move through the smoking cessation process from contemplation through to maintenance, and incorporates relapse to smoking before termination of smoking behaviour.

Figure 9.2 Spiral model of the Stages of Change



Source: Prochaska, DiClemente and Norcross[164]

Quitting in Australia

Since 1983, the Anti-Cancer Council of Victoria (ACCV) has conducted annual surveys on smoking knowledge, attitudes and behaviour in Victoria as part of their Quit evaluation studies (ACCV household surveys).[165] These surveys include questions relating to intentions to quit and quitting behaviour.

Intentions to quit

In the 1999 survey, 19 percent of smokers intended to quit in the next 30 days, 34 per cent in the next six months but not in the next 30 days, 40 per cent had no intention to quit and 7 per cent could not say.[165] There was no evidence of any significant differences between women and men in their intention of quitting, however, there was a relationship with age. The youngest age group (16 to 29 years) was more likely to intend to quit in the next 30 days than the middle age group (30 to 49 years) or the oldest age group (50+ years).[165-167]

Quit attempts

Approximately three-quarters of smokers each year report making at least one attempt to quit (ranging from 74 per cent in 1998 to 82 per cent in 1992).[165, 166] Most smokers make multiple attempts to quit. In the 1999 survey, 17 per cent of smokers said they had tried to quit once, 36 per cent made between two and four attempts and 20 per cent made five or more attempts.[165] There is little evidence of significant differences in quit attempts by gender, age, employment or occupation.[165-168]

Perceived advantages and disadvantages of quitting smoking

There is little difference in the perception of advantages of quitting between women and men with both sexes indicating 'saving money' and 'feeling healthier' as the main advantages (Table 9.3).[166] There are, however, significant differences between women and men in their perception of disadvantages of quitting. Overall, women perceive the disadvantages of quitting smoking more than men, especially in relation to weight gain.

Table 9.3 Advantages and disadvantages of quitting (per cent) (multiple response) by sex, 1996

	Women	Men
Advantages		
Saving money	58	57
Feeling healthier	56	53
Improved breathing/fitness	31	35
No advantages	7	9
Disadvantages		
Weight gain*	25	10
Getting irritable*	23	13
Coping with stress*	18	10
No disadvantages*	36	54

*Note: * significant difference between men and women*
Source: Trotter, Mullins, Boulter and Borland[166]

Longest time quit and reported reasons for relapse

In 1999, 14 per cent of respondents in the ACCV household survey reported a maximum break from smoking of one to six days, 24 per cent stopped for between one and four weeks, 28 per cent between one and 12 months and 9 per cent reported a break of more than one year (25 per cent said they had never tried to stop smoking).[165]

The reasons respondents gave from the 1996 ACCV household survey for relapse to smoking were: socialising (24 per cent); 'just drifted back into it' (23 per cent); being with smokers (22 per cent); alcohol (18 per cent); not being able to relax without cigarettes (17 per cent); and inability to stand the craving (17 per cent) or the withdrawal (16 per cent).[166]

Research from the United States has found that the likelihood of relapse among women is inversely related to the duration of abstinence from smoking.[36] Only 1˚per˚cent of women who had abstained for ten years or more relapsed to smoking compared to 20 per cent of women who had abstained for less than two years. In a study of predictors of relapse, Garvey and colleagues found shorter periods of abstinence from smoking during previous quit attempts, lower motivation to quit, lower confidence in the ability to abstain from smoking for three months, and higher alcohol consumption were all associated with relapse within one year.[169]

Smoking cessation activities

The 1998 National Drug Strategy Household Survey found that more women reported taking steps to quit smoking than men (67 per cent compared to 59 per cent).[61] As Table 9.4 shows, the most common smoking cessation activity reported was 'discussing smoking and health at home', followed by reading 'how to quit' literature.[61]

Table 9.4 Activities related to quitting smoking: per cent of recent smokers aged 14 years and over, by sex, Australia, 1998

Activity	Women/girls	Men/boys
Discussed smoking and health at home	47.0	42.3
Read 'how to quit' literature	23.2	16.7
Asked doctor for help	14.1	8.0
Used nicotine gum or patch	13.2	10.2
Telephoned the 'Quit' line	5.8	3.4
Bought a product other than nicotine patch	2.5	2.6
None of the above	32.4	39.0
Something else	10.1	9.6
Can't say	0.9	2.1

Note: Base equals all smokers who currently smoke at least one cigarette a week
Source: 1998 National Drug Strategy Household Survey[61]

Smoking cessation methods

The majority of smokers quit without assistance from external sources such as smoking cessation programs, counselling or nicotine replacement therapies. The most common cessation method used by smokers is to stop smoking all at once, without reducing cigarette consumption (the 'cold turkey' method). Research from the United States shows 88 per cent of women stop smoking 'cold turkey', 25 per cent decrease the number of cigarettes smoked, 17 per cent switch to a low tar or low nicotine cigarette and 11 per cent quit smoking along with friends.[36] (Results total >100 per cent as respondents selected more than one method.)

People who have made more quit attempts and heavier smokers are more likely to use a cessation program or other smoking cessation strategies such as pharmacological interventions.[170]

Pharmacological interventions

There are two types of pharmacological aids for smoking cessation:

1. Those that help to reduce withdrawal symptoms (such as nicotine replacement therapies; anxiolytic medications aimed at reducing anxiety symptoms; and some classes of antidepressants including bupropion).
2. Those that exert their effects through other mechanisms (such as gums with silver compounds, which are a form of self-administered aversive conditioning).[171, 172]

Table 9A.2 (Appendix) presents the findings of Cochrane Reviews of pharmacological interventions for smoking cessation. There is evidence that nicotine replacement therapies (NRT) are effective in aiding smoking cessation (odds ratio for abstinence with NRT compared to control = 1.7; 95% CI: 1.6 to 1.9).[173] Some antidepressants can aid smoking cessation,[174] and a combination of nicotine and mecamylamine may be effective in promoting smoking cessation.[175]

Buproprion, which is sold as Zyban in Australia, is an effective smoking cessation treatment.[171] Since its listing on the Pharmaceutical Benefits Schedule (PBS) on 1 February 2001, the demand for Zyban has been high. While there is promising evidence that Zyban may be more effective than NRT (either alone or in combination),[174] there is a need for further evidence to support recommendations regarding combined use of NRT and Zyban.[171]

Other interventions to reduce the effect of withdrawal symptoms

Other methods to reduce the effect of withdrawal symptoms include acupuncture, exercise interventions and hypnosis. Cochrane Reviews of these interventions (Table 9A.3, Appendix) concluded that there was no evidence that acupuncture or hypnotherapy were effective in promoting smoking cessation,[176, 177] and there was insufficient evidence that exercise aided smoking cessation.[178]

Behavioural interventions

Self-help programs

Self-help materials (such as written materials, video and audiotapes), which provide advice and information on smoking and smoking cessation, may assist smokers to quit. Lancaster and Stead conducted a Cochrane Review to determine the effectiveness of different forms of self-help interventions compared with no treatment and with other minimal contact strategies.[179] The reviewers concluded that self-help materials may provide a small increase in quitting compared to no intervention (OR = 1.23; 95 per cent CI: 1.02 to 1.49). Adding self-help materials to face-to-face advice or to nicotine replacement therapy did not provide additional benefit, however, self-help materials that were tailored for the characteristics of individual smokers were more effective than standard materials (OR = 1.41; 95 per cent CI: 1.14 to 1.75).[179]

Aversion therapy

To reduce the urge to smoke, aversion therapy pairs the pleasurable stimulus of smoking a cigarette with some unpleasant stimulus.[180] The most common form of aversion therapy for smoking cessation is rapid smoking where the smoker is asked to take a puff every six or ten seconds while concentrating on the unpleasant sensation it causes. A Cochrane Review of aversive smoking trials found an odds ratio of 1.98 (95% CI: 1.4 to 2.9) for abstinence following rapid smoking compared to control (Table 9A.4, Appendix).[180] However, because of methodological problems in the trials there was insufficient evidence to conclude that rapid smoking was effective in smoking cessation. Other aversion methods were not shown to be effective.

Interventions in primary health care settings

As general practitioners and other primary health care professionals have a high rate of contact with the general public, they are well positioned to assist patients to quit smoking.[172] A Cochrane Review of advice from physicians in promoting smoking cessation found an increase in the odds of quitting with brief advice compared to no advice (or usual care) (OR = 1.7; 95% CI: 1.5 to 2.0) (Table 9A.4, Appendix).[181] The general practice setting is, however, probably under used for smoking cessation. An Australian study found that only 34 per cent of general practitioners reported providing smoking cessation advice during every routine consultation with a smoker.[182]

Nurse delivered smoking cessation interventions have also been found to be effective. A Cochrane Review which compared nursing interventions to control or usual care found a significant increase in the odds of quitting (OR = 1.5; 95% CI: 1.3 to 1.7) (Table 9A.4, Appendix).[183]

Individual counselling

Individual counselling includes a face-to-face encounter between a smoker and a counsellor trained in smoking cessation. A Cochrane Review of studies comparing individual counselling to a minimal intervention concluded that smoking cessation counselling can assist smokers to quit (Table 9A.4, Appendix).[184] The odds ratio for successful smoking cessation from individual counselling compared to control was 1.6 (95% CI: 1.3 to 1.9). There was no evidence that more intensive counselling was more effective than brief counselling or that there was any difference in effect between individual counselling and group therapy.

Group behaviour therapy

Delivering smoking cessation programs in a group is a common intervention method which may provide benefits to smokers such as the opportunity to share problems and experiences of quitting with others. Behavioural interventions delivered within groups typically include coping and social skills training, contingency management, self-control and cognitive-behavioural interventions.[185] A Cochrane Review found an increase in cessation with the use of a group program compared to self-help materials (OR 2.1; 95% CI: 1.6 to 2.7) (Table 9A.4, Appendix). Group therapy was more effective than no intervention or minimal contact interventions (OR 1.9; 95% CI: 1.2 to 3.0). However, there was no evidence that group therapy was more effective than individual counselling of a similar intensity.

Telephone counselling

Telephone counselling can be used as an adjunct to self-help interventions. In a proactive approach, counsellor initiated phone calls are made to provide support in making a quit attempt or avoiding relapse.[186] A reactive approach includes counselling provided by hotlines such as Australia's Quitline. A Cochrane Review on the efficacy of telephone counselling in smoking cessation found proactive telephone counselling to be effective compared to interventions without personal contact. There was indirect evidence to suggest that reactive telephone counselling can be a useful part of a smoking cessation service (Table 9A.4, Appendix).[186]

Mass-media interventions

Mass-media campaigns, offers of support to smokers and effective Quitline services are essential in promoting smoking cessation.[187] In Australia the National Tobacco Campaign is a mass-media led campaign to promote smoking cessation. The campaign, which was launched in 1997 primarily targets 18 to 40 year old smokers.[188] In 1997, the campaign focused on three health effect advertisements (Artery, Lung, Tumour). The 1998 campaign, which was implemented at a lower level of intensity than the 1997 campaign, included a new health effect advertisement

about stroke (Brain), an advertisement modelling the behaviour of calling the Quitline (Call for help) and the Artery advertisement.

Evaluations of the 1997 and 1998 campaigns show that over the first 18 months there was a significant overall reduction in smoking prevalence among adults of about 1.8%.[189] Recognition of the campaign remained high in 1998 and the campaign continued to be perceived as 'relevant', 'believable' and 'thought-provoking'. While quit rates and quitting activity increased following the 1997 campaign, the 1998 results showed a leveling off in reported effects.[189]

Implications

About half of all smokers say they intend to quit.

While the financial and health benefits of quitting are acknowledged, women in particular, are concerned about gaining weight.

Most women who give up smoking quit by the 'cold turkey' method without help.

There is good evidence that the following methods improve quit rates by at least 50 per cent:

- nicotine replacement therapy
- help from doctors or nurses
- individual or group behavioural therapy.

The benefits to women in particular, of quitting smoking should be emphasised in mass media campaigns and their concern about weight gain taken into account.

Information about ways of quitting and access to these resources should be made readily available to all women who smoke.

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Appendix

Table 2A.1 Prevalence (per cent) of current smoking, ex-smoking and never smoking among men and women aged 16 years or older, Australia, 1974 to 1995

	Current smoker		Ex-smoker		Never smoker	
Year	Women	Men	Women	Men	Women	Men
1945	26	72				
1964	28	58				
1974	29	45	10	22	60	33
1976	31	43	11	24	54	34
1980	31	40	14	23	54	35
1983	30	39	16	27	51	32
1986	28.5	32.9	16.5	27.7	53.5	38
1989	27.0	30.2	19.3	29.8	51.9	38.5
1992	23.8	28.2	21.9	32.2	53.0	39.0
1995	23.2	27.1	21.7	32.1	53.4	39.3

Sources: Woodward[2]; Gray and Hill[3]; Gray and Hill[4]; Hill and Gray[5]; Hill and Gray[6]; Hill[7]; Hill, White and Gray[8]; Hill and White[9]; Hill, White and Scollo[10]

Table 2A.2 Age-adjusted quit proportions, Australia, 1974 to 1995

Year	Women	Men
1974	24.9	32.5
1976	26.3	34.1
1980	31.1	36.4
1983	34.9	40.4
1986	36.8	45.7
1989	41.6	49.4
1992	48.3	48.6
1995	47.9	46.3

Note: Age-adjusted to 1986 Australian population
Sources: Victorian Smoking and Health Program[11]; Hill and White[9]; Hill, White and Scollo[10]

Table 2A.3 Prevalence (per cent) of current smoking among women by age group, Australia, 1974 to 1995

Age (years)	1974	1976	1980	1983	1986	1989	1992	1995
16-19	29	32	37	43	27.5	31.1	24.7	31.0
20-24	38	43	40	43	40.8	37.7	36.2	33.9
25-29	37	42	39	34	38.7	36.7	32.8	35.0
30-34	30	36	35	31	30.7	30.4	28.7	32.9
35-39	29	26	33	28	28.5	26.4	27.6	25.1
40-44	27	34	28	28	29.2	24.2	25.5	26.6
45-49	33	35	19	37	24.6	28.8	27.3	15.0
50-54	37	37	31	25	27.0	27.9	17.5	21.0
55-59	25	17	26	28	23.5	17.6	16.8	18.3
60-69	16	18	23	22	20.6	19.6	17.8	14.7
70+	10	11	10	8	11.5	10.5	6.2	8.0
Total	**29**	**31**	**31**	**30**	**28.5**	**27**	**23.8**	**23.2**

Sources: Gray and Hill[3]; Gray and Hill[4]; Hill and Gray[5]; Hill and Gray[6]; Hill[7]; Hill, White and Gray[8]; Hill and White[9]; Hill, White and Scollo[10]

Table 2A.4 Prevalence (per cent) of smoking in the last week among schoolchildren by age group, Australia, 1984 to 1999

Age	1984	1987	1990	1993	1996	1999
Girls						
12 years	8	5	5	7	7	6
13 years	18	13	13	14	14	13
14 years	29	22	20	23	23	22
15 years	34	28	29	28	29	24
16 years	34	30	28	28	31	28
17 years	30	29	28	31	34	30
12-17 years	**25.5**	**21.2**	**20.5**	**21.8**	**23.0**	**20.5**
Boys						
12 years	10	5	6	8	8	6
13 years	17	10	11	13	14	11
14 years	24	19	17	20	20	21
15 years	29	25	22	24	24	21
16 years	29	27	25	27	27	27
17 years	27	25	24	28	28	33
12-17 years	**22.7**	**18.5**	**17.5**	**20.0**	**20.2**	**19.8**

Sources: Hill, Willcox, Gardner and Houston[17]; Hill, White, Pain and Gardner[18]; Hill, White and Williams[19]; Hill, White and Segan[20]; Hill, White and Letcher[21]; Hill, White and Effendi[22]

Table 2A.5 Self-reported mean number of cigarettes smoked per week by schoolchildren aged 12 to 17 years who smoked in the last week, Australia, 1984 to 1999

Girls	12 years	13 years	14 years	15 years	16 years	17 years
1984	7	13	18	27	34	34
1987	10	12	20	26	30	30
1990	8	13	22	27	28	30
1993	7	13	19	24	31	32
1996	6	13	20	23	31	34
1999	7	12	19	25	28	33

	Age (years)					
Boys	**12**	**13**	**14**	**15**	**16**	**17**
1984	14	19	23	34	35	42
1987	11	15	27	36	37	38
1990	9	19	22	33	38	43
1993	9	12	19	29	37	44
1996	11	15	25	33	34	37
1999	11	16	24	28	30	37

Sources: Victorian Smoking and Health Program[11]; Hill, Willcox, Gardner and Houston[17]; Hill, White, Pain and Gardner[18]; Hill, White and Williams[19]; Hill, White and Segan[20]; Hill, White and Letcher[21]; Hill,˚White and Effendi[22]

Table 4A.1 Prevalence (per cent) of indoor workers aged 18 years and over, reporting workplace smoking restrictions, Victoria, 1988 to 1999

	1988	1989	1990	1991	1992	1993	1994	1995	1997	1998	1999
Total bans	17	29	34	49	59	60	63	66	61	77	71
Partial bans	47	47	42	35	29	29	24	24	27	16	21
No restrictions	36	24	25	16	12	12	12	11	12	6	8

Source: Letcher and Borland[55]

Table 4A.2 Current legislative approaches to ETS in Australian states and territories

State/territory	Smoking prohibitions	Exemptions
Victoria *Tobacco Act 1987 (Vic)*	Enclosed restaurants or cafes. This includes premises that are, or an area in premises that is, used by the public, or a section of the public, predominantly for the consumption of food or non-alcoholic drinks purchased on the premises — but not premises with a general licence or a club licence. Dining areas of premises with a general licence or club licence. Included is an indoor area used by the public, or a section of the public, at any time when the predominant activity in the area is the consumption of food or non-alcoholic drinks. Enclosed areas of all retail shopping centres.	
Australian Capital Territory *Smoke-Free Areas (Enclosed Public Places) Act 1994*	All enclosed public places including: shopping centres, malls and plazas restaurants, cafeterias and other eating places clubs schools, colleges and universities professional, trade, commercial and other business premises community centres or halls and places of worship theatres, cinemas, libraries and galleries omnibuses, taxis and boats hostels, nursing homes and other multi-unit residential premises hotels and motels sporting and recreational facilities.	A restaurant, or a part of licensed premises, granted a certificate of exemption by the Minister. A stage or performance area, by a performer during a performance. Certain common areas of hotels, motels, hostels, nursing homes or other multiple-unit residential premises.

Table 4A.2 Current legislative approaches to ETS in Australian states and territories (Cont.)

State/territory	Smoking prohibitions	Exemptions
South Australia *Tobacco Products Regulation Act 1997*	All enclosed public dining or caf areas (unless it is specifically permitted), and the auditoriums of places of public entertainment.	Permitted in enclosed public dining or caf areas in the following circumstances: On licensed premises, in an area which is not used for sit-down meals. On licensed premises, where: • there are two or more separate enclosed public areas used for sit-down meals • only one of those areas is a bar or lounge area (an area primarily and predominantly used for the consumption of alcoholic drinks rather than meals) • the area is designated a smoking area, with appropriate signage. On licensed premises, in a bar or lounge area exempted by the Minister for Human Services. On licensed premises, consisting of only a single enclosed public area, while meals are neither available nor being consumed in the area. On licensed premises, in an entertainment area, between 9pm and 5am. On unlicensed premises, in an area which is not primarily and predominantly used for the consumption of meals, and is exempted by the Minister for Human Services. In an area while it is not open for business; or where a special arrangement exists (negotiated for a single occasion) under which the area is given over to the exclusive use of the members of a group.

Table 4A.2 Current legislative approaches to ETS in Australian states and territories (Cont.)

State/territory	Smoking prohibitions	Exemptions
Tasmania *Public Health Act 1997*	All enclosed public places. All enclosed workplaces. In work vehicles while being used for work, if another person is present. Outdoors, within three metres from most doorways, except if tables are provided where people are eating or drinking. Outdoors, within ten metres of any air ventilation intake. In reserved seating areas of outdoor cultural or sporting events. Smoking is therefore prohibited in shopping centres; restaurants; cafes; shops; offices; workshops; mines; factories; hotel foyers; corridors; pool rooms; bingo areas; and private function rooms.	Gaming areas — machine gaming and table gaming areas can be totally smoking; In parts of bars — bars must provide a reasonable area on non-smoking of equal amenity, including an area in the vicinity of the bar itself; In bar areas (such as licensed restaurants and traditional front bars and lounges) — though these must be non-smoking when food, other than confectionery or snacks, is served; In individual prison cells — though smoke drift to other areas must not occur; In individual rooms in nursing homes — though smoke drift to other areas must not occur; In hotel rooms - though smoke drift to other areas must not occur.
Queensland *Tobacco and Other Smoking Products (Prevention of Supply to Children) Act 1998*	Enclosed public places. (Restrictions expected to commence operating 31 May 2002.)	Licensed premises — other than a dining area while meals are available for consumption or being consumed, or within 2.4 metres of a gaming table at a casino. Premium gaming (high roller) rooms in a casino. Private home, unless the home is being used for business purposes and another person, such as an employee, is present. Vehicle being used privately, or for business use where only one person is in the vehicle. Private living area in a hostel or other multiple unit dwelling (eg, a motel room). A secure facility (a prison facility). A person who smokes during a performance if smoking is part of the performance.

Table 4A.2 Current legislative approaches to ETS in Australian states and territories (Cont.)

State/territory	Smoking prohibitions	Exemptions
Western Australia *Health (Smoking in Enclosed Public Places) Regulations 1999*	All enclosed public places	Enclosed bar or lounge areas which adjoin a dining area — but not in premises that contain two separate enclosed bar or lounge areas. To fall within this exemption, the area must be adequately ventilated and meals — other than counter meals — must not be served or consumed Enclosed bar or lounge areas which do not adjoin a dining area. Again, to fall within this exemption, the area must be adequately ventilated and meals — other than counter meals — must not be served or consumed. (Note that the status of the area may change during the course of the day. Allocated rooms in restaurants. Smoking is permitted in a single enclosed room within a licensed restaurant provided the room is adequately ventilated, meals are not served or consumed in the room, and the room is not part of the main access way to the licensed restaurant. Cabarets or nightclubs. Smoking is permitted in the public areas of licensed cabarets and nightclubs — but only in 50 per cent of the public floor space, and provided the whole public area of the cabaret or nightclub is adequately ventilated. Covered areas. Smoking is permitted in covered areas (a covered al fresco or outdoor area that can be substantially enclosed by closing coverings, windows and doors) provided sufficient coverings, windows or doors are open so that at that point in time the covered area is not substantially enclosed. Gaming areas of Burswood Casino. Smoking is permitted in all gaming areas of Burswood Casino provided they are adequately ventilated — but only on 50˚per˚cent of the floor space of the main gaming floor. The above (other than gaming areas of Burswood Casino) are subject to the proviso that a maximum of two enclosed public places within premises may permit smoking at any one time.

Table 4A.2 Current legislative approaches to ETS in Australian states and territories (Cont.)

State/territory	Smoking prohibitions	Exemptions
Western Australia (Cont.) *Health (Smoking in Enclosed Public Places) Regulations 1999*		The following special rules apply in premises comprised solely of enclosed bar or lounge areas: In premises comprised of only a single enclosed bar or lounge area, smoking is permitted in that enclosed bar or lounge area. In premises comprised of only two enclosed bar or lounge areas, smoking is permitted in both enclosed bar or lounge areas provided at least one of the enclosed bar or lounge areas contains a no-smoking area. In premises comprised of only three or more enclosed bar or lounge areas, then, if two of the enclosed bar or lounge areas are to permit smoking, at least one of the no-smoking enclosed bar or lounge areas must have a floor area that is greater than, or equal to, the floor area of one of the two exempt enclosed bar or lounge area. This rule does not apply if only one enclosed bar or lounge area within the premises is to permit smoking.
New South Wales *Smoke-Free Environment Act 2000*	Any enclosed public places including: shopping centres, malls and plazas restaurants, cafes, cafeterias, dining areas and other eating places schools, colleges and universities professional, trade, commercial and other business premises community centres or halls and places of public worship theatres, cinemas, libraries and galleries trains, buses, trams, aeroplanes, taxis and hire cars, and ferries and other vessels common areas in hostels common areas in motels fitness centres, bowling alleys and other sporting and recreational facilities child-care facilities hospitals.	A theatre or performance space if smoking is a necessary part of the performance. Hotels — other than a part of the premises being used as a dining area. Registered clubs — other than a part of premises being used as a dining area or for a function at which food is served. Nightclubs — other than a part of premises being used as a dining area. Any part of the premises of a casino that is used solely for the purposes of gaming machines or solely for the purposes of a bar. Any premises, or class of premises, prescribed by regulations.

Source: VicHealth Centre for Tobacco Control[54]

Table 7A.1 Prevalence (per cent) of current smoking by age group, among Indigenous and all Australian women

	Indigenous women		All women	
Age group	**NATSIS[107]**	**ALSWH[63]**	**NHS[108]**	**ALSWH[63]**
18-24 years	53		30	
25-34 years	60	41[a]	31	27[a]
35-44 years	53		25	
45-64 years	39	15[b]	21	17[b]
65 years and over	16		11	

Notes: (a) ages 22-27 years; 2000
(b) ages 47-52 years; 1998
Sources: 1994 NATSIS[107]; ALSWH[63]; 1995 National Health Survey[108]

Table 7A.2 Prevalence (per cent) of current smoking among women by Indigenous identification, 1994 and 1998 to 2000

	Per cent of population		Smoking prevalence	
	NATSIS[107]	**WPHCS[109]**	**NATSIS[107]**	**WPHCS[109]**
Aboriginal only	93.9	58.2	48.7	55.8
Torres Strait Islander only	5.3	35.1	41.7	42.9
Both Aboriginal and Torres Strait Islander	0.8	6.7	42.2	48.5
All Indigenous women	**100.0**	**100.0**	**48.3**	**50.7**

Sources: 1994 NATSIS[107]; Well Persons Health Check Survey[109]

Table 9A.1 Quit proportions for women and men by age group, Australia, 1995

Age group	Women	Men
16-19 years	0.28	0.15
20-24 years	0.31	0.28
25-29 years	0.33	0.35
30-34 years	0.42	0.40
35-39 years	0.50	0.49
40-44 years	0.47	0.49
45-49 years	0.62	0.55
50-54 years	0.53	0.54
55-59 years	0.57	0.58
60-69 years	0.59	0.74
70+ years	0.76	0.79
Total	**0.48**	**0.54**

Source: Hill, White and Scollo[10]

Table 9A.2 Cochrane Reviews of pharmacological interventions for smoking cessation

Aim of review	Background	Conclusions
Antidepressants[174] To assess the effectiveness of antidepressant medications in aiding long-term smoking cessation. *(12 studies included)*	Depression may be a symptom of nicotine withdrawal, and smoking cessation sometimes precipitates depression. Smoking appears to be due, in part, to deficits in dopamine, serotonin and norepinephrine, all of which are increased by antidepressants.	Some antidepressants (bupropion and nortriptyline) can aid smoking cessation. Whether these effects are specific for individual drugs or a class effect is not clear.
Anxiolytics[190] To assess the effectiveness of anxiolytic drugs in aiding long-term smoking cessation. *(25 studies included)*	Anxiety may be a symptom of nicotine withdrawal. Smoking appears to be due, in part, to deficits in dopamine, serotonin and norepinephrine, all of which are increased by anxiolytics and antidepressants	There is no consistent evidence that anxiolytics aid smoking cessation, but the available evidence does not rule out a possible effect.
Clonidine[191] To determine clonidine's effectiveness in helping smokers to quit. *(six studies included)*	Clonidine was originally used to lower blood pressure. It acts on the central nervous system and may reduce withdrawal symptoms in various addictive behaviours, including tobacco use.	Based on a small number of trials, in which there are potential sources of bias, clonidine is effective in promoting smoking cessation. Prominent side-effects limit the usefulness of clonidine for smoking cessation.
Lobeline[192] To assess the effects of lobeline on long-term smoking cessation. *(no studies met full inclusion criteria)*	Lobeline is a partial nicotine agonist, which has been used in a variety of commercially available preparations to help stop smoking.	There is no evidence available from long-term trials that lobeline can aid smoking cessation.
Mecamylamine[175] To determine the effectiveness of mecamylamine in promoting smoking cessation, either alone or in combination with nicotine replacement therapy. *(two studies included)*	Mecamylamine is a nicotine antagonist (blocks the effect of nicotine). It may block the rewarding effect of nicotine and thus reduce the urge to smoke.	Data from two small studies suggest that the combination of nicotine and mecamylamine may be superior to nicotine alone in promoting smoking cessation.

Table 9A.2 Cochrane Reviews of pharmacological interventions for smoking cessation (Cont.)

Aim of review	Background	Conclusions
Nicotine replacement therapy (NRT)[173] 1) To determine the effectiveness of the different forms of nicotine replacement therapy (chewing gum, transdermal patches, nasal spray, inhalers and tablets) in achieving abstinence from cigarettes, or a sustained reduction in amount smoked; 2) To determine whether the effect is influenced by the clinical setting in which the smoker is recruited and treated, the dosage and form of the NRT used, or the intensity of additional advice and support offered to the smoker; 3) To determine whether combinations or NRT are more effective than one type alone; and 4) To determine its effectiveness compared to other pharmocotherapies. *(108 studies included)*	The aim of NRT is to replace nicotine from cigarettes. This reduces withdrawal symptoms associated with smoking cessation thus helping resist the urge to smoke cigarettes.	1) All of the commercially available forms of NRT (nicotine gum, transdermal patch, the nicotine nasal spray, nicotine inhaler and nicotine sublingual tablets) are effective as part of a strategy to promote smoking cessation. The odds ratio for abstinence with NRT compared to control was 1.7 (95 per cent CI: 1.6 to 1.9). 2) The effectiveness of NRT appears to be largely independent of the setting in which NRT was offered, duration of therapy and the intensity of additional support provided to the smoker. 3) There was weak evidence that combinations of forms of NRT are more effective. 4) There is promising evidence that bupropion may be more effective than NRT (either alone or in combination).
Opioid antagonists[193] To evaluate the efficacy of opioid antagonists (naloxone and naltrexone) in promoting long-term smoking cessation. *(15 studies included)*	The reinforcing properties of nicotine may be mediated through release of various neurotransmitters both centrally and systemically. Smokers report positive effects such as pleasure, arousal, and relaxation as well as relief of negative affect, tension, and anxiety. Opioid (narcotic) antagonists are of particular interest to investigators as potential agents to attenuate the rewarding effects of cigarette smoking.	Two trials of naltrexone included. Based on limited data from these two trials it is not possible to confirm or refute whether naltrexone helps smokers quit.
Silver acetate[194] To determine the effectiveness of silver acetate products (gum, lozenge, spray) in promoting smoking cessation. *(three studies included)*	Silver acetate produces an unpleasant taste when combined with cigarettes, thereby producing an aversive stimulus. It has been marketed in various forms with the aim of extinguishing the urge to smoke, by pairing the urge with an unpleasant stimulus.	Existing trials show little evidence for a specific effect of silver acetate in promoting smoking cessation. The combined odds ratio for quitting for silver acetate vs placebo was 1.1 (95 per cent CI: 0.6 to 1.7).

Table 9A.3 Cochrane Review of trials to reduce the effect of withdrawal symptoms

Aim of review	Background	Conclusions
Acupuncture[176] To determine the effectiveness of acupuncture in smoking cessation in comparison with: 1) sham acupuncture; 2) other interventions; and 3) no intervention. *(21 studies included)*	Acupuncture is promoted as a treatment for smoking cessation, and is believed to reduce withdrawal symptoms.	There is no clear evidence that acupuncture is effective for smoking cessation. 1) Acupuncture was not superior to sham acupuncture at any time point. The odds ratio for early outcomes was 1.2 (95 per cent CI: 1.0 to 1.5); after 6 months 1.4 (95 per cent CI: 0.9 to 2.1); and after 12 months 1.0 (95 per cent CI: 0.7 to 1.4). 2) When acupuncture compared with other anti-smoking interventions, there were no differences in outcome at any point. 3) Acupuncture appeared to be superior to no intervention in the early results, but this difference was not sustained
Exercise interventions[178] *(eight studies included)* To determine whether exercise-based interventions combined with a smoking cessation programme are more effective than a smoking cessation intervention alone.	Taking exercise may help people give up smoking by moderating the effects of nicotine withdrawal.	Only one of eight trials offered evidence for exercising aiding smoking cessation. All but one of the other trials were too small to exclude reliably an effect of intervention.
Hypnotherapy[177] To evaluate the effects of hypnotherapy for smoking cessation. *(nine studies included)*	Hypnotherapy is widely promoted as a method for aiding smoking cessation. It is proposed to act on underlying impulses to weaken the desire to smoke or strengthen the will to stop.	There was no evidence that hypnotherapy has a greater effect on six month quit rates than other interventions or no treatment.

Table 9A.4 Cochrane Review of behavioural interventions

Aim of review	Background	Conclusions
Aversion therapy[180] 1) To determine the efficacy of rapid smoking and other aversive methods in helping smokers stop smoking. 2) To determine whether there is a dose-response effect on smoking cessation at different levels of aversive stimulation. *(25 studies included)*	Aversion therapy pairs the pleasurable stimulus of smoking a cigarette with some unpleasant stimulus. The objective is to extinguish the urge to smoke.	1) The existing studies provide insufficient evidence to determine the efficacy of rapid smoking, however it does warrant further evaluation. 2) There was insufficient evidence to determine whether there is a dose-response to aversive stimulation.
Group behaviour therapy programs[185] 1) To determine the effects of smoking cessation programs delivered in a group format compared to self-help materials, or to no intervention; 2) To compare the effectiveness of group therapy and individual counselling; 3) To determine the effect of adding group therapy to advice from a health professional or nicotine replacement; and 4) To determine the rate at which offers of group therapy are taken up. *(26 studies included)*	Group therapy offers individuals the opportunity to learn behavioural techniques for smoking cessation, and to provide each other with mutual support.	There is evidence that groups are better than self-help, and other less intensive interventions. Group programs were more effective than self-help programs (OR = 2.1; 95 per cent CI: 1.6 to 2.7) and more effective than no intervention or minimal contact interventions (OR = 1.9; 95 per cent CI: 1.2 to 3.0). There was not enough evidence on the effectiveness of group programs compared to intensive individual counselling. There was limited evidence that the addition of group therapy to other forms of treatment produced extra benefit. There was variation in the extent to which those offered group therapy accepted the treatment.
Individual counselling[184] To determine the effect of individual counselling. *(11 studies included)*	Individual counselling from a smoking cessation specialist may help smokers to make a successful attempt to stop smoking.	Smoking cessation counselling can assist smokers to quit. Individual counselling was more effective than control (OR = 1.6 (95 per cent CI: 1.3 to 1.9). There was no evidence that more intensive counselling was more effective than brief counselling (OR = 1.2; 95 per cent CI: 0.6 to 2.3). There was no evidence of a difference in effect between individual counselling and group therapy (OR = 1.3; 95 per cent CI: 0.8 to 2.1).
Nursing interventions[183] To determine the effectiveness of nursing delivered smoking cessation interventions. *(23 studies included)*	Health care professionals, including nurses, frequently advise patients to improve their health by stopping smoking. Such advice may be brief, or part of more intensive interventions.	Nursing interventions compared to control or usual care significantly increased the odds of quitting (OR = 1.5; 95 per cent CI: 1.3 to 1.7). There are potential benefits of smoking cessation advice and counselling give by nurses to their patients.

Table 9A.4 Cochrane Review of behavioural interventions (Cont.)

Aim of review	Background	Conclusions
Physician advice[181] 1)To assess the effectiveness of advice from physicians in promoting smoking cessation; 2) To compare minimal interventions by physicians with more intensive interventions; 3) To assess the effectiveness of various aids to advice in promoting smoking cessation; and 4) To determine the effect of anti-smoking advice on disease specific and all cause mortality. *(34 studies included)*	Health care professionals frequently advice patients to improve their health by stopping smoking. Such advice may be brief, or part of more intensive interventions.	1) Simple advice has a small effect on cessation rates. A small but significant increase in the odds of quitting was found with brief advice compared to no advice (or usual care) (OR = 1.7; 95 per cent CI: 1.5 to 2.0). 2) Insufficient evidence to establish a significant difference in the effectiveness of physician advice according to the intensity of the intervention. 3) Direct comparison of intensive versus minimal advice showed a small advantage of intensive advice (OR = 1.4; 95 per cent CI: 1.2 to 1.7). 4) Only one study determined the effect of smoking advice on mortality. No statistically significant differences in death rates at 20 year follow-up were found.
Telephone counselling[186] To evaluate the effect of proactive and reactive telephone support to help smokers quit. *(23 studies included)*	Telephone services can provide information and support for smokers. Counselling may be provided proactively or offered reactively to callers to smoking cessation helplines.	Proactive telephone counselling can be effective compared to an intervention without personal contact. Size of effect uncertain due to heterogeneity between trials. The available evidence neither confirms nor rules out a benefit of telephone counselling or pharmacotherapy.
Training health professionals[195] 1) To assess the effectiveness of training health care professionals to deliver smoking cessation interventions to their patients; and 2) To assess the additional effects of prompts and reminders to the health professional to intervene. *(10 studies included)*	There is good evidence that brief interventions from health professionals can increase rates of smoking cessation. A number of trials have examined whether specific skills training for health professionals leads them to have greater success in helping their patients who smoke.	Training health professionals to provide smoking cessation interventions had a measurable effect on professional performance. There was no strong evidence that it changed smoking behaviour.