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Smoking prevalence and consumption in Victoria: key findings from the 1998–2007 population surveys

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ABSTRACT

Since 1998, there has been a significant overall linear decline in regular smoking prevalence across the years, decreasing to 17.3% in 2007. Regular smoking declined at a similar rate over this time for both males and females, with no significant difference in smoking rates between the sexes in 2007 (18.6%, males; 16.1%, females).

In 2007, older Victorians (aged 50 years or more) were less likely to be regular smokers (11.9%) than were younger Victorians aged 18–29 years (18.6%) and those aged 30–49 years (21.8%). Trends indicate that smoking rates among younger (aged 18–29 years) Victorians have declined between 1998 and 2007, while over this period there was a trend toward a decline in smoking rates among Victorians aged 30–49 years and 50 years or more.

In 2007, regular smoking prevalence was significantly lower among those with a tertiary qualification (12.3%), compared with those who had a Year 12/part tertiary education (18.6%), and those who had completed their education up to Year 11 or less (23.9%). Between 1998 and 2007 there was a significant decline in regular smoking among those with a Year 12/part tertiary education. However, smoking among the lower and higher education groups remained relatively unchanged over this time.

Regular smoking rates were lowest among those Victorians living in high socio-economic areas (SEIFA 4) at 11.3%, compared with lower socio-economic areas (SEIFA 1, 23.7%; SEIFA 2, 23.5%; and SEIFA 3, 19.7%). Smoking significantly declined in the period 1998 to 2007 for the highest socio-economic group, while there was a trend toward a significant decline in smoking over this time among those in the lower socio-economic groups combined (SEIFA 1–3).

Overall, the past decade has seen a significant decline in regular smoking prevalence since 1998. While those most likely to smoke continue to be younger, have a lower level of education and lower SES, trends indicate smoking prevalence among these Victorians have also declined over the years.

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INTRODUCTION

Since 1983, the Centre for Behavioural Research in Cancer has been collecting data on smoking prevalence in Victoria (among other smoking and health related issues) through an annual telephone survey* of Victorian adults.

Over the past two decades, the prevalence of smoking in Victoria has declined dramatically, coinciding with a number of legislative and social changes. During the mid 1980s, the first smokefree areas began to appear in Australia and following the introduction of one of the most significant pieces of legislation for tobacco control in 1987 – the Tobacco Act – cigarette advertising began to slowly disappear from Victoria, with the elimination of print, cinema and outdoor tobacco advertising (including at sporting events).¹ During the mid-nineties, the *Tobacco Act (Amendment) 1993* came into effect, increasing the age for sale of cigarettes in Victoria from 16 years to 18 years, while the Federal Government also announced an increase in excise duty that saw the cost of cigarettes rise by 18%.¹ A national anti-smoking campaign *Every Cigarette is Doing You Damage* also hit Victorian's television screens between 1997 and 2000, providing graphic information on the health effects of smoking. These ads generated a significant increase in the knowledge of the health effects of smoking, quitting intentions and also doubled calls to the Quitline.²

Over the past decade, Victoria has experienced a rise in smokefree environments, including the introduction of total smoking bans in shopping centres (introduced in 2001), enclosed restaurants and cafés (from 2001) and smoking restrictions in licensed venues (from 2002).³ The last form of traditional tobacco advertising (advertising at the point-of-sale) was also abolished by January 1, 2002.³ There have been regular mass media campaigns over the past 20 years, improved availability and promotion of Quitline and other quit smoking services/resources, and considerable focus by the news media on tobacco issues.⁴ As of March 2006, graphic health warnings were also introduced to all Australian manufactured and imported tobacco packaging, replacing old black-and-white text warnings. The introduction of these graphic warnings, with an associated media campaign, related to a substantial increase in calls to the Quitline⁵ and an increase in smokers' awareness of specific smoking-related illnesses highlighted by the campaign.⁶

By July 1, 2007, Victorians could no longer smoke within Victorian licensed venues, pubs, clubs or gaming venues (excluding the high roller room at Melbourne's Crown Casino) to reduce secondhand smoke exposure on hospitality staff and patrons of these venues.

The current report presents the most recent Victorian data on smoking prevalence and consumption from a population survey conducted among Victorian adults in November and December 2007. Data on prevalence and consumption from similar surveys conducted annually from 1998 to 2006 are also reported.

METHOD

The data presented in this report are from telephone surveys of randomly sampled Victorians conducted in November 1998 ($n=1982$), 1999 ($n=1986$), 2000 ($n=1991$), 2001 ($n=1963$), 2002 ($n=1995$), and November and December 2003 ($n=3001$), 2004 ($n=2998$), 2005 ($n=2999$), 2006 ($n=2996$), and 2007 ($n=3001$). These population surveys are commissioned by the Centre for Behavioural Research in Cancer (CBRC) from a market research company which interviews a representative sample of Victorians by telephone each year. The questions, designed by CBRC, are asked in an eight to sixteen minute interview conducted during weekends and weeknights.

* Note: face-to-face household surveys were used prior to 1998.

The standard tobacco use question⁷ has been used to determine smoking status. In this report, smoking status is presented in two ways. The first way categorises respondents as *regular smokers* (smoke daily or at least weekly), *irregular smokers* (smoke less than weekly), *former smokers* (do not smoke currently but have smoked at least 100 cigarettes in their lifetime, regardless of whether they have ever smoked daily), and *never smokers* (do not smoke at all and have not smoked 100 or more cigarettes in their lifetime).

The second way of categorising smoking status is taken directly from the survey question, and categorises respondents as *daily smokers* (smoke daily), *weekly smokers* (smoke at least weekly), *less than weekly smokers* (smoke less than weekly), and *not at all smokers (current)* (do not smoke at all currently, but may have smoked in the past).

Statistical analysis

A comparison of the sample socio-demographic characteristics with the Australian Bureau of Statistics (ABS) Census Data for the Victorian population revealed that women and older people were over-represented in the telephone survey samples. To adjust for this, the data from all years were weighted by age and sex according to ABS 2001 final estimates of the Victorian population, from the 2001 Census.⁸ Final estimates of the Victorian population from the 2006 Census were unavailable from the ABS at the time of authoring this paper. The 2008 update of this research paper, to be completed early 2009, will use new weights based on the final 2006 Census estimates.

Analyses of variance and logistic regression analyses were used to examine the changes in smoking prevalence and consumption from 1998 to 2006, including the relationships between demographic variables and smoking prevalence across these years. It should be noted that it is common to have fluctuations in prevalence between single years (as shown in Table 1a) and to gain a reliable indication of the trends in smoking prevalence, it is therefore important to examine change over a number of years (linear trends).

For ease of reading, details of statistical tests of significance are not included in the report text. Where relationships between variables are reported, the p-value was less than 0.01. This indicates that the probability of obtaining a result at least as big as the one observed, assuming that there is no relationship, is less than 1 in 100. Where trends towards a relationship between variables are reported, the p-value was less than 0.05, indicating that the probability of obtaining a result at least as big as the one observed, assuming that there is no relationship, is less than 1 in 20.

Socio-Economic Index for Areas (SEIFA)

This paper includes an analysis of smoking rates among socio-economic groups. The Socio-Economic Index for Areas (SEIFA), developed by the ABS, has been used to classify respondents into socio-economic groups based on 2001 Census data of the area in which they live.⁹ In the following analyses, the Index of Socio-Economic Advantage/Disadvantage (one of the five ABS SEIFA indexes) has been used, based on the respondent's residential postcode. This index ranks postal areas (postcodes) on a continuum of advantage to disadvantage, taking into consideration characteristics such as income, education, occupation and housing (for example) that may enhance or reduce socio-economic conditions of the area. For the purpose of analysis we have grouped respondents into four groups based on this scale.

1. the first group (SEIFA 1) comprises people who live in areas with a SEIFA score in the bottom 25% of ranked Victorian postal areas (this represents a lower level of advantage and a higher level of disadvantage relative to the other three groups);
2. the second group (SEIFA 2) includes people who live in areas with a SEIFA score between 26% and 50% of ranked postal areas;
3. the third group (SEIFA 3) includes those who live in areas with a SEIFA score between 51% and 75% of ranked postal areas; and

4. the fourth group (SEIFA 4) comprises those who live in areas with a SEIFA score above 75% of ranked postal areas (reflecting a higher level of advantage and a lower level of disadvantage relative to the other groups).

As these quartiles have been compiled by dividing the ranked postal areas into four groups, the number of people in each group are not equal. Just over 40% of the sample fell into SEIFA 4 (highest advantage/lowest disadvantage); 29.3% in SEIFA 3; 14.3% in SEIFA 2; and 14.8% in SEIFA 1, similar to the Victorian population overall (ABS, 2003).

Logistic regression analyses using the SEIFA variable have controlled for the effects of respondent's age and sex to adjust for areas that may have a greater proportion of younger or older residents.

RESULTS

Trends in smoking status, 1998–2007

Between 1998 and 2007, regular smoking prevalence declined significantly from 21.3% to 17.3% respectively, a relative decline of 19%. Irregular smokers represented a very small proportion of the Victorian population at 1.8% in 2007, a trend towards an increase since 1998 (0.7%). The proportion of former smokers over this period declined significantly, reaching a high of 32.2% in 2001 and back down to 28.0% in 2007 (the same proportion as in 1998). There was a significant increase in those Victorians who said they have never smoked, from 49.9% in 1998 to 52.8% in 2007. Between 2006 and 2007, regular smoking among Victorian adults remained relatively steady at 18.2% and 17.3% respectively.

Similar to regular smoking rates, the proportion of daily smokers among Victorian adults significantly declined from 19.7% in 1998 to 15.7% in 2007, a relative decline of 20%. There was a trend toward a decline in the proportion of weekly smokers, a trend toward an increase in occasional smokers over this time. The proportion of non-smokers also increased significantly over this time (78% in 1998 to 80.9% in 2007). There were no significant changes in the proportion of daily, weekly, less than weekly or non-smokers between 2006 and 2007.

Table 1a: Smoking prevalence among Victorian adults, 1998–2007

Year	N	Smoking status			
		Regular % (± 95% CI)	Irregular % (± 95% CI)	Former % (± 95% CI)	Never % (± 95% CI)
1998	(1982)	21.3 (± 1.8)	0.7 (± 0.4)	28.0 (± 2.0)	49.9 (± 2.2)
1999	(1986)	21.6 (± 1.8)	1.8 (± 0.6)	31.1 (± 2.0)	45.4 (± 2.2)
2000	(1991)	19.7 (± 1.8)	1.4 (± 0.5)	31.1 (± 2.0)	47.8 (± 2.2)
2001	(1963)	20.8 (± 1.8)	1.5 (± 0.5)	32.2 (± 2.1)	45.6 (± 2.2)
2002	(1995)	19.2 (± 1.7)	1.4 (± 0.5)	26.9 (± 2.0)	52.6 (± 2.2)
2003	(3001)	16.6 (± 1.3)	1.0 (± 0.4)	29.5 (± 1.6)	52.9 (± 1.8)
2004	(2998)	19.4 (± 1.4)	1.9 (± 0.5)	27.9 (± 1.6)	50.9 (± 1.8)
2005	(2999)	18.5 (± 1.4)	1.4 (± 0.4)	27.9 (± 1.6)	52.2 (± 1.8)
2006	(2996)	18.2 (± 1.4)	1.5 (± 0.4)	27.4 (± 1.6)	52.9 (± 1.8)
2007	(3001)	17.3 (± 1.4)	1.8 (± 0.5)	28.0 (± 1.6)	52.8 (± 1.8)

Note: This table excludes 'don't know/can't say' responses.
Data are weighted by age and sex to Victorian ABS 2001 figures.

Table 1b: Smoking prevalence and smoking status by frequency of smoking among Victorian adults, 1998–2007

Year	N	Smoking status			
		Daily % (\pm 95% CI)	Weekly % (\pm 95% CI)	Less than weekly % (\pm 95% CI)	Non-smoker % (\pm 95% CI)
1998	(1982)	19.7 (\pm 1.8)	1.6 (\pm 0.5)	0.7 (\pm 0.4)	78.0 (\pm 1.8)
1999	(1986)	18.6 (\pm 1.7)	2.9 (\pm 0.7)	1.8 (\pm 0.6)	76.7 (\pm 1.9)
2000	(1991)	18.0 (\pm 1.7)	1.6 (\pm 0.5)	1.4 (\pm 0.5)	79.1 (\pm 1.8)
2001	(1963)	18.6 (\pm 1.7)	2.1 (\pm 0.6)	1.5 (\pm 0.5)	77.8 (\pm 1.8)
2002	(1995)	17.6 (\pm 1.7)	1.5 (\pm 0.5)	1.4 (\pm 0.5)	79.5 (\pm 1.8)
2003	(3001)	15.0 (\pm 1.3)	1.5 (\pm 0.4)	1.0 (\pm 0.4)	82.5 (\pm 1.4)
2004	(2998)	18.0 (\pm 1.4)	1.3 (\pm 0.4)	1.9 (\pm 0.5)	78.7 (\pm 1.5)
2005	(2999)	17.0 (\pm 1.3)	1.4 (\pm 0.4)	1.4 (\pm 0.4)	80.2 (\pm 1.4)
2006	(2996)	16.3 (\pm 1.3)	1.9 (\pm 0.5)	1.5 (\pm 0.4)	80.3 (\pm 1.4)
2007	(3001)	15.7 (\pm 1.3)	1.6 (\pm 0.4)	1.8 (\pm 0.5)	80.9 (\pm 1.4)

Note: This table excludes 'don't know/can't say' responses.
Data are weighted by age and sex to Victorian ABS 2001 figures.

Smoking prevalence by demographic subgroups, 2007

Smoking prevalence and demographic information for the 2007 population survey is presented in Table 2. Logistic regression analyses were carried out to investigate the differences in smoking prevalence by demographic groupings.

In 2007, there was no significant difference between the proportion of males who were regular smokers (18.6%) compared to females (16.1%). Regular smoking was more prevalent among younger Victorians, with those aged 18–29 years and 30–49 years more likely to regularly smoke than those aged 50 years or more (18.6% and 21.8% compared with 11.9%, respectively). There was no significant difference between the two younger age groups.

Table 2: Smoking status by gender, age, education level, occupational status and region, 2007

Demographic characteristic	(n) ^a	Regular smokers	Irregular smokers	Former smokers	Never smokers
Sex					
Males	1455	18.6 (\pm 2.0)	2.3 (\pm 0.8)	30.0 (\pm 2.4)	49.0 (\pm 2.6)
Females	1535	16.1 (\pm 1.8)	1.4 (\pm 0.6)	26.1 (\pm 2.2)	56.4 (\pm 2.5)
Age					
18–29	662	18.6 (\pm 3.0)	3.5 (\pm 1.4)	14.4 (\pm 2.7)	63.5 (\pm 3.7)
30–49	1185	21.8 (\pm 2.4)	2.3 (\pm 0.9)	27.6 (\pm 2.5)	48.3 (\pm 2.9)
50+	1143	11.9 (\pm 1.9)	0.4 (\pm 0.3)	36.4 (\pm 2.8)	51.3 (\pm 2.9)
Education					
Yr 11 or less	765	23.9 (\pm 3.0)	0.9 (\pm 0.7)	32.5 (\pm 3.3)	42.7 (\pm 3.5)
Yr 12/some tertiary	986	18.6 (\pm 2.4)	2.4 (\pm 1.0)	25.1 (\pm 2.7)	53.8 (\pm 3.1)
Tertiary	1232	12.3 (\pm 1.8)	1.9 (\pm 0.8)	27.6 (\pm 2.5)	58.2 (\pm 2.8)
SEIFA*					
SEIFA 1 (low SES)	444	23.7 (\pm 4.0)	0.5 (\pm 0.7)	24.3 (\pm 4.0)	51.5 (\pm 4.7)
SEIFA 2	430	23.5 (\pm 4.0)	0.8 (\pm 0.9)	26.4 (\pm 4.2)	49.3 (\pm 4.7)
SEIFA 3	879	19.7 (\pm 2.6)	1.9 (\pm 0.9)	27.1 (\pm 2.9)	51.3 (\pm 3.3)
SEIFA 4 (high SES)	1226	11.3 (\pm 1.8)	2.6 (\pm 0.9)	30.6 (\pm 2.6)	55.4 (\pm 2.8)
Region					
Melbourne	2114	16.6 (\pm 1.6)	1.9 (\pm 0.6)	27.9 (\pm 1.9)	53.6 (\pm 2.1)
Rural Vic	876	19.2 (\pm 2.6)	1.7 (\pm 0.9)	28.3 (\pm 3.0)	50.8 (\pm 3.3)

* Index of Relative Socio-Economic Advantage/Disadvantage.

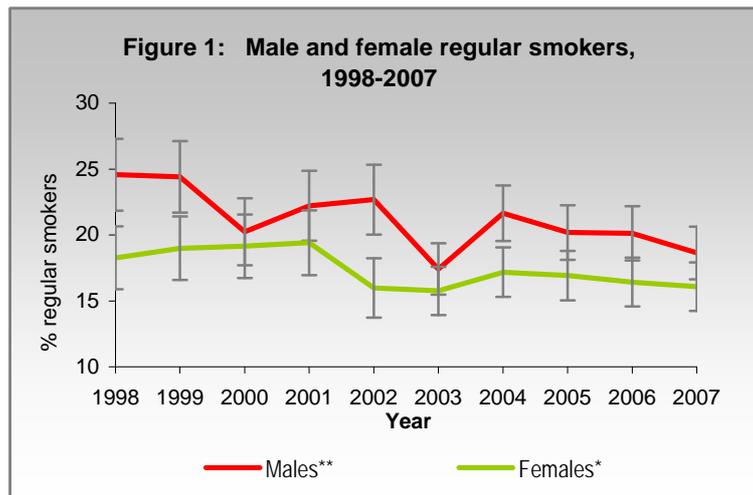
^a Sample sizes exclude 'don't know/can't say' responses.

Victorian adults who had a lower level of education (either Year 11 or less, or Year 12/some tertiary) were more likely to be regular smokers (23.9% and 18.6%, respectively) than those with a Tertiary education (12.3%). In turn, those with a Year 11 or less education were more likely to smoke regularly than those educated to a Year 12/some tertiary level.

Regular smoking rates were the lowest among those Victorians living in high socio-economic areas (SEIFA 4) at 11.3%, compared with lower socio-economic areas (SEIFA 1, SEIFA 2 and SEIFA 3). Victorians living in areas of low socio-economic status (SEIFA 1) were more likely to regularly smoke than those in SEIFA 4 areas, and tended to be more likely to do so than those living in SEIFA 3 areas (23.7% compared with 11.3% and 19.7%, respectively). In addition, those living in SEIFA 2 areas tended to be more likely to smoke regularly than SEIFA 3, and significantly more likely to smoke than the highest SES group (SEIFA 4). There was no significant difference in regular smoking between the two lowest socio-economic groups (SEIFA 1 and SEIFA 2).

Trends in smoking prevalence by demographic subgroups, 1998–2007

The following graphs illustrate changes in regular smoking prevalence from 1998 to 2007 for demographic variables including sex, age, education level and socio-economic status. Where appropriate, significant linear reductions in prevalence from 1998 to 2007 are indicated at the bottom of the graphs. Actual percentages and confidence intervals are presented in Appendix A.

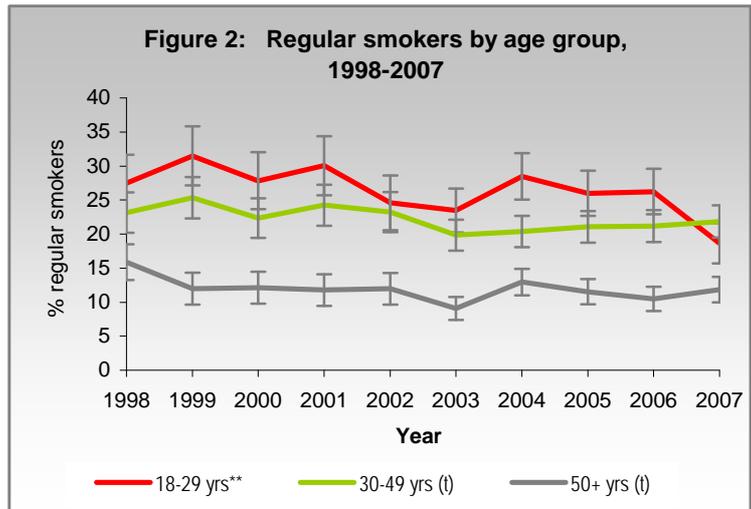


*p<0.01 for linear decline across the years 1998 to 2007.

**p<0.001 for linear decline across the years 1998 to 2007.

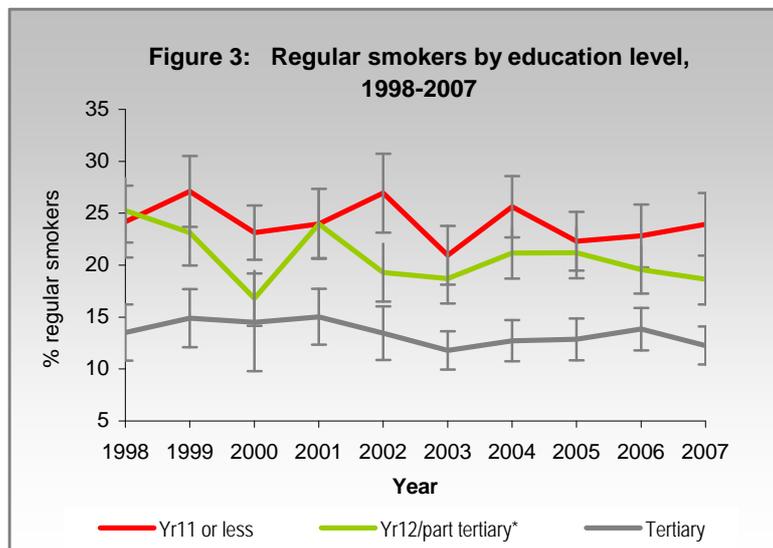
As illustrated in Figure 1, regular smoking declined significantly among both males and females across the period 1998 to 2007. Further analyses indicate that regular smoking among these two groups declined at similar rates over this time.

Figure 2 illustrates that, between 1998 and 2007, regular smoking among Victorians aged 50 years and over remained consistently (although not always significantly) lower than regular smoking among younger Victorians (aged 18–29 years and 30–49 years). Regular smoking rates among the youngest age group (18–29 years) declined significantly between 1998 (27.5%) and 2007 (18.6%), a relative decline of 32%. There was a trend toward a significant decrease in regular smoking among those aged 30–49 years (from 23.1% in 1998 to 21.9% in 2007), and also among the oldest age group (15.9% in 1998 to 11.9% in 2007).



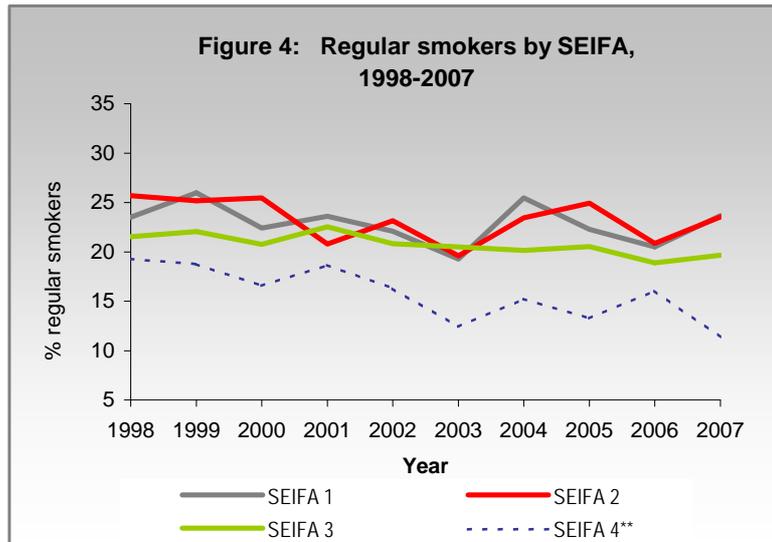
**p<0.001 for linear trends across the years 1998 to 2007.
 (t) Trend toward a significant decline across the years 1998 to 2007 (p<0.05).

As shown in Figure 3, across 1998 to 2007, regular smoking has remained consistently lower among Victorians who had completed their tertiary education, compared to those with a Year 11 or less education. Across this period, regular smoking rates declined significantly among those with a Year 12/part tertiary education, from 25.3% in 1998 to 18.6% by 2007 (Figure 3), a relative decline of 26%. Regular smoking remained relatively stable over this period among those with a Year 11 or less education and among those with a tertiary education.



*p<0.01 for linear decline across the years 1998 to 2007.

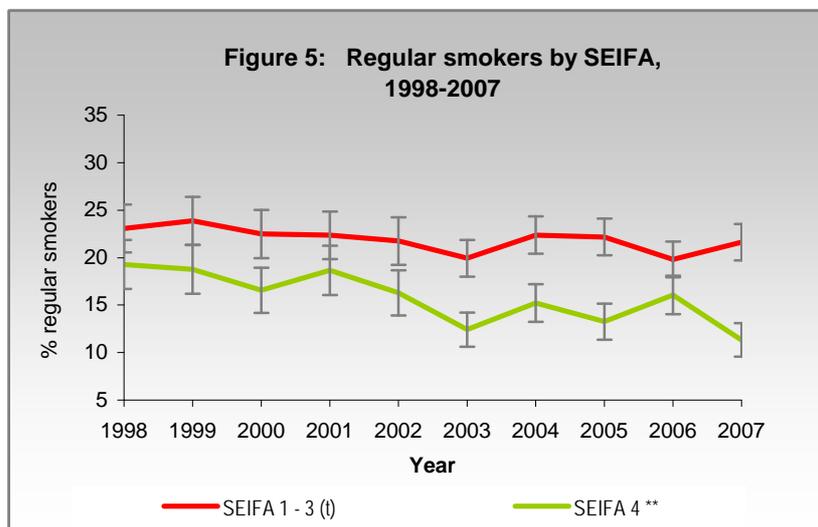
Figure 4 illustrates estimated regular smoking rates across socio-economic groups. For clarity, confidence intervals are not shown in this graph (see Appendix A for confidence intervals). Regular smoking among respondents in the fourth SEIFA group of the Index of Relative Socio-Economic Advantage/Disadvantage (reflecting a high level of advantage and a low level of disadvantage) declined significantly over the period 1998 to 2007 (from 19.3% to 11.3%, respectively), while there was no significant change over this time in each of the lower three SEIFA groups.



** p<0.001 for linear trends across the years 1998 to 2007.

As smoking rates among respondents in the first, second and third SEIFA groups followed a similar rate of movement between 1998 and 2007, we combined these three quartiles into one group representing the bottom 75% of Victoria in terms of advantage/disadvantage. When combining these groups, a trend toward a significant decline in regular smoking existed across the period 1998 to 2007 (see Figure 5).

Further analysis indicated that across the period 1998 to 2007, the rate of decline in smoking among the higher socio-economic group (above 75% of the distribution) was stronger than for those in the lower socio-economic group (bottom 75%).



** p<0.001 for linear trends across the years 1998 to 2007.

(t) Trend toward a significant decline across the years 1998 to 2007(p<0.05).

Trends in cigarette consumption

Among daily smokers, the average number of cigarettes consumed per day significantly declined from 18.0 cigarettes per day in 1998 to 15.0 cigarettes in 2007. Similarly, among those who smoke either daily or weekly, consumption declined significantly over this period from 16.9 cigarettes per day in 1998 to 14.1 cigarettes per day in 2007.

Table 3: Mean number of cigarettes smoked per day for daily and daily/weekly smokers, 1998–2007

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
	Mean (SD)									
Daily smokers	18.0 (12.9)	17.0 (16.0)	16.5 (13.1)	17.0 (9.8)	17.3 (11.9)	17.2 (11.0)	15.9 (12.4)	15.1 (10.2)	15.0 (10.1)	15.0** (9.5)
Regular smokers	16.9 (13.0)	17.6 (16.7)	15.4 (13.2)	15.6 (10.3)	16.5 (12.1)	16.1 (11.2)	15.1 (12.4)	14.4 (10.3)	14.0 (10.3)	14.1** (9.7)

** p<0.001 for linear trends across the years 1998 to 2007.

Regular smokers were categorised into heavy, medium or light smokers based on their reported daily consumption levels. Heavy smokers (25+ cigarettes a day) made up 16.3% of regular smokers in 2007; medium smokers (15–24 cigarettes a day) accounted for 32.3%, and light smokers (fewer than 15 cigarettes a day) comprised over half (51.5%) of regular smokers.

Logistic regression analyses indicate the percentage of heavy smokers significantly declined across the years 1998 to 2007 (ranging from 27.0% in 1998, down to 16.3% in 2007). In turn, there was also a significant increase in the proportion of light smokers across this period (from 46.1% in 1998, up to 51.5% in 2007). The proportion of medium smokers remained relatively constant between the period 1998 to 2007 (see Table 4).

There were no significant changes in the proportion of light, medium or heavy smokers between 2006 and 2007.

Table 4: Proportion of heavy, medium and light regular smokers, 1998 to 2007

Level of smoking	1998 (n=410) % (CI)	1999 (n=411) % (CI)	2000 (n=386) % (CI)	2001 (n=395) % (CI)	2002 (n=363) % (CI)	2003 (n=478) % (CI)	2004 (n=562) % (CI)	2005 (n=533) % (CI)	2006 (n=524) % (CI)	2007 (n=507) % (CI)
Heavy ^a	27.0 (± 4.3)	24.1 (± 4.1)	18.0 (± 3.8)	19.9 (± 3.9)	23.1 (± 4.3)	21.9 (± 3.7)	20.1 (± 3.3)	16.1 (± 3.1)	15.7 (± 3.1)	16.3** (± 3.2)
Medium ^b	26.9 (± 4.3)	33.0 (± 4.5)	30.8 (± 4.6)	32.2 (± 4.6)	31.8 (± 4.8)	32.5 (± 4.2)	27.2 (± 3.7)	33.6 (± 4.0)	29.7 (± 3.9)	32.3 (± 4.1)
Light ^c	46.1 (± 4.8)	42.9 (± 4.8)	51.2 (± 5.0)	47.9 (± 4.9)	45.0 (± 5.1)	45.6 (± 4.5)	52.7 (± 4.1)	50.3 (± 4.2)	54.7 (± 4.3)	51.5* (± 4.3)

* p<0.01 for linear trends across the years 1998 to 2007.

** p<0.001 for linear trends across the years 1998 to 2007.

^a 25 cigs per day or more.

^b 15 to 24 cigs per day.

^c Less than 15 cigs per day.

DISCUSSION

The past decade has seen a significant decline in regular smoking prevalence among Victorian adults, reaching a low of 17.3% in 2007, a relative decline of 19% since 1998. Over this time, smoking rates have declined significantly among both males and females, young Victorians (aged 18–29 years), those with a Year 12/part tertiary education, and Victorians living in areas of high socio-economic advantage. In 2007, those most likely to regularly smoke remain the younger age groups, those with a lower level of education, and those living in lower socio-economic areas.

Regular smoking among 18–29 year olds experienced a relative decline of 30% between 2006 (26.2%) and 2007 (18.6%). However, this finding should be interpreted with caution. Although this decrease in smoking may be due to increased tobacco control activity relevant for this age group (eg, graphic health warnings on cigarette packs and total smoking bans inside hospitality venues), the decline in smoking experienced by this age group may also be due to sampling variation. Only with additional years of survey data will we be able to identify the likely cause.

By 2007, Victorian adult smokers were smoking significantly less than a decade ago. Cigarette consumption declined significantly among both daily and regular smokers (daily/weekly). The number of heavy smokers declined between 1998 and 2007, while the proportion of light smokers increased.

The current trends have occurred during a decade-long period of considerable tobacco control activity. However, sustained population-wide interventions are necessary to continue the downward trend in smoking prevalence in Victoria. Despite bans on traditional tobacco advertising, Victorians are still faced with tobacco marketing every time they walk into a convenience store, supermarket or petrol station. Research has shown that point-of-sale cigarette pack displays encourage impulse purchasing of cigarettes among smokers, and hinder successful cessation among those trying to quit smoking.¹⁰ Evidence suggests that removing tobacco displays from sight in stores would make it easier for smokers to quit,¹⁰ providing strong evidence for placing tobacco out of the line of sight in retail stores as has already been implemented in Iceland, Ireland, and several jurisdictions in Canada. Previous research has also provided strong evidence associating increases in real cigarette price with measurable declines in smoking prevalence, a strong economic disincentive for smokers.^{11,12,13} Similarly, mass-media anti-smoking campaigns implemented at adequate levels of population-wide exposure over relatively frequent intervals have been shown to be effective in driving down smoking prevalence.¹¹ As such, in Victoria a multi-level approach such as implementing price increases on tobacco, ensuring sufficient funding continues to regularly broadcast population-wide mass media campaigns, and the adoption of further restrictions on tobacco promotion at the point-of-sale needs to be considered in order to maintain the downward trend of smoking in Victoria.

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APPENDIX A

Table A1: Percentage of regular smokers¹ in Victoria: 1998 to 2007² by separate demographic groups

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Linear trend OR ³	95% CI for OR
Total	(N=1973) 21.3 (± 1.8) N ⁴	(N=1975) 21.6 (± 1.8)	(N=1983) 19.7 (± 1.8)	(N=1953) 20.8 (± 1.8)	(N=1983) 19.2 (± 1.7)	(N=2986) 16.6 (± 1.3)	(N=2998) 19.4 (± 1.4)	(N=2983) 18.5 (± 1.4)	(N=2984) 18.2 (± 1.4)	(N=2990) 17.3 (± 1.4)	0.97**	0.96-0.98
Sex												
Males	(n=951 to 1459) 24.5 (± 2.7)	24.4 (± 2.7)	20.2 (± 2.5)	22.2 (± 2.6)	22.7 (± 2.7)	17.4 (± 2.0)	21.7 (± 2.1)	20.2 (± 2.1)	20.2 (± 2.1)	18.6 (± 2.0)	0.97**	0.95-0.98
Females	(n=1001 to 1539) 18.3 (± 2.4)	19.0 (± 2.4)	19.2 (± 2.4)	19.4 (± 2.5)	16.0 (± 2.3)	15.8 (± 1.8)	17.2 (± 1.9)	16.9 (± 1.9)	16.4 (± 1.9)	16.1 (± 1.8)	0.98*	0.96-0.99
Age group (years)												
18-29 y/o	(n=433 to 666) 27.5 (± 4.2)	31.4 (± 4.3)	27.9 (± 4.2)	30.0 (± 4.3)	24.6 (± 4.0)	23.5 (± 3.2)	28.5 (± 3.4)	26.0 (± 3.3)	26.2 (± 3.4)	18.6 (± 3.0)	0.96**	0.94-0.98
30-49 y/o	(n=774 to 1187) 23.1 (± 3.0)	25.4 (± 3.0)	22.4 (± 2.9)	24.3 (± 3.0)	23.3 (± 3.0)	19.9 (± 2.3)	20.4 (± 2.3)	21.1 (± 2.3)	21.2 (± 2.3)	21.9 (± 2.4)	0.98 ⁵	0.96-1.00
50+ y/o	(n=746 to 1145) 15.9 (± 2.6)	12.0 (± 2.3)	12.2 (± 2.3)	11.8 (± 2.3)	12.0 (± 2.3)	9.1 (± 1.7)	12.9 (± 2.0)	11.5 (± 1.9)	10.5 (± 1.8)	11.9 (± 1.9)	0.98 ⁵	0.95-1.00
Education												
Yr 11 or less	(n=523 to 996) 24.2 (± 3.5)	27.0 (± 3.4)	23.1 (± 2.6)	24.0 (± 3.4)	27.0 (± 3.8)	20.9 (± 2.8)	25.6 (± 3.0)	22.3 (± 2.8)	22.8 (± 3.0)	23.9 (± 3.0)	0.99	0.97-1.01
Yr 12/tertiary	(n=641 to 1141) 25.3 (± 3.1)	23.1 (± 3.2)	16.9 (± 2.7)	24.0 (± 3.3)	19.3 (± 2.8)	18.7 (± 2.4)	21.1 (± 2.5)	21.2 (± 2.5)	19.5 (± 2.3)	18.6 (± 2.4)	0.98*	0.96-0.99
Tertiary	(n=215 to 1232) 13.6 (± 2.7)	14.9 (± 2.8)	14.4 (± 4.7)	15.0 (± 2.7)	13.4 (± 2.6)	11.8 (± 1.9)	12.7 (± 2.0)	12.9 (± 2.0)	13.9 (± 2.0)	12.3 (± 1.8)	0.98	0.96-1.01
SEIFA ⁵												
Bottom 25% (low advantage)	(n=268 to 488) 23.5 (± 4.7)	25.8 (± 5.2)	22.4 (± 5.0)	23.6 (± 4.9)	22.0 (± 4.8)	19.2 (± 3.9)	25.4 (± 4.0)	22.2 (± 3.9)	20.5 (± 3.6)	23.6 (± 4.0)	0.99	0.97-1.02
26% - 50%	(n=250 to 491) 25.6 (± 5.4)	25.2 (± 5.0)	25.4 (± 5.0)	20.8 (± 4.7)	23.1 (± 5.1)	19.6 (± 3.5)	23.4 (± 4.0)	24.9 (± 3.9)	20.9 (± 3.9)	23.5 (± 4.0)	0.99	0.96-1.01
51% - 75%	(n=487 to 879) 21.6 (± 3.6)	22.0 (± 3.6)	20.7 (± 3.6)	22.5 (± 3.7)	20.8 (± 3.6)	20.5 (± 2.8)	20.1 (± 2.7)	20.5 (± 2.7)	18.9 (± 2.7)	19.7 (± 2.6)	0.98	0.96-1.00
Above 75% (high advantage)	(n=867 to 1290) 19.3 (± 2.6)	18.7 (± 2.6)	16.5 (± 2.4)	18.7 (± 2.6)	16.3 (± 2.4)	12.4 (± 1.8)	15.2 (± 2.0)	13.3 (± 1.9)	16.0 (± 2.0)	11.3 (± 1.8)	0.95**	0.93-0.96
Region												
Melbourne	(n=1371 to 2130) n/a	n/a	19.0 (± 2.1)	20.1 (± 2.1)	18.7 (± 2.0)	17.4 (± 1.6)	19.2 (± 1.7)	17.8 (± 1.6)	18.1 (± 1.6)	16.6 (± 1.6)	0.98 ⁵	0.96-1.00
Rural Vic	(n=581 to 878) n/a	n/a	21.2 (± 3.3)	22.2 (± 3.4)	20.6 (± 3.3)	14.7 (± 2.3)	19.8 (± 2.7)	20.2 (± 2.7)	18.5 (± 2.6)	19.2 (± 2.6)	0.98	0.95-1.01

¹ Regular smokers include daily and weekly smokers only.

² Data are weighted by sex and age according to ABS 2001 Census data.

³ Odds ratios less than 1.00 indicate a reduction in likelihood of being a regular smoker across the years 1998 to 2007.

⁴ Sample sizes do not include 'don't know/can't say' responses.

⁵ Index of Relative Socio-Economic Advantage/Disadvantage.

[†] p<0.05 for linear trends across the years 1998 to 2007.

* p<0.01 for linear trends across the years 1998 to 2007.

** p<0.001 for linear trends across the years 1998 to 2007.