YOUTH SMOKING

by Margot Shields

According to the Canadian Community Health Survey (CCHS), in 2003, about one in ten 12- to 17-year-olds smoked cigarettes. More than half of them (58%) did so daily.

Boys and girls aged 12 to 17 were almost equally likely to report smoking: 10% of boys and 11% of girls. However, the smoking rate for 15- to 17-year-olds was five times that of 12- to 14-year-olds (17% versus 3%).

Income, education

Smoking was related to socio-economic status. Youths in low or lower-middle income households were more likely to be smokers (13%) than were those in households with higher incomes (9%). There was also a strong association between youth smoking and household education. While 9% of young people in households where the highest level of education was postsecondary graduation were smokers, 23% of those in households where no member had graduated from high school said they smoked.

Provincial differences

Young people living in rural areas were no more or less likely to smoke than were those in urban areas. However, provincial/territorial differences were pronounced. Youth smoking rates were significantly above the national level in Nunavut, the Northwest Territories and Québec, and significantly below it in British Columbia and Ontario.

Smoking rates of 12- to 17-year-olds, by selected characteristics

	Total smokers		Daily smokers	
	'000	%	'000	%
Total	255.2	10.2	148.5	5.9
Sex				
Boys†	123.9	9.6	69.7	5.4
Girls	131.3	10.8	78.8	6.5
Age group				
12 to 14†	43.5	3.4	20.3	1.6
15 to 17	211.7	17.1*	128.2	10.3*
Household income				
Low/Lower-middle	22.5	12.7*	15.1	8.5*
Middle/Upper-middle/High†	147.1	9.3	83.2	5.3
Highest level of education in household				
Less than secondary graduation	30.3	22.9‡	19.6	14.9‡
Secondary graduation	33.2	10.3	21.7	6.7
Some postsecondary	19.8E	11.8	13.1E	7.8E
Postsecondary graduation	157.6	8.9‡	85.4	4.8‡
Residence				
Urban†	195.3	9.9	115.1	5.8
Rural	59.9	11.1	33.4	6.2
Province/Territory				
Newfoundland and Labrador	6.2	13.0	4.5E	9.4‡E
Prince Edward Island	1.2E	9.3E	1.0E	7.7E
Nova Scotia	6.8E	8.7E	4.4E	5.6E
New Brunswick	5.0E	8.5E	3.5E	5.9E
Québec	80.5	14.5‡	48.2	8.7‡
Ontario	88.3	9.1‡	47.2	4.9‡
Manitoba	9.3E	10.0E	6.2E	6.6E
Saskatchewan	9.7	10.9	5.0E	5.6E
Alberta	23.9	8.8	14.1	5.2
British Columbia	21.7	6.7‡	12.6E	3.9‡E
Yukon	F	F	F	F
Northwest Territories	0.9E	21.8‡E	0.7E	15.7‡E
Nunavut	F	51.5‡E	F	F

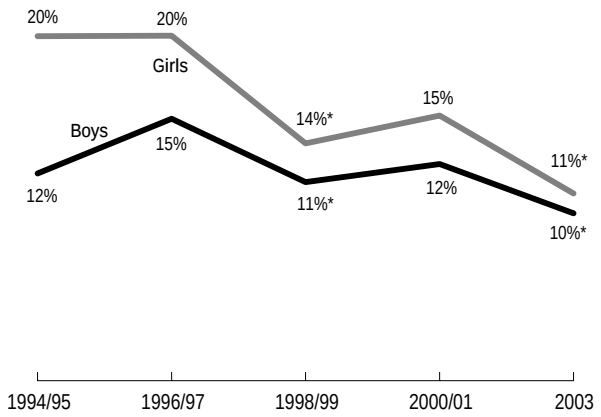
Data source: 2003 Canadian Community Health Survey
Note: Because "missing" categories for some variables were excluded, detail may not add to totals.
† Reference category
‡ Significantly different from estimate for total ($p < 0.05$)
** Significantly higher than estimate for reference category ($p < 0.05$)*
E Coefficient of variation 16.6% to 33.3%
F Coefficient of variation greater than 33.3%

Declining rates

In Canada, the proportion of young people who smoked declined during the 1970s and early 1980s, stabilized in the late 1980s, and then increased in the early 1990s.[1] This pattern mirrored trends in the United States.[2] By the mid-1990s, youth smoking rates in Canada were again decreasing. The gap between the percentage of boys and girls who smoked had also narrowed. From 1996/97 to 2003, the proportion of boys who smoked fell from 15% to 10%; for girls, the figure dropped from 20% to 11%.

Three distinct processes may account for the downturn in youth smoking rates: fewer youths may be starting (initiation); more may be quitting; and/or fewer may be returning to smoking after they have quit (relapse). With longitudinal data from the National Population Health Survey (NPHS), the contribution of each process to the decline in youth smoking rates can be examined.

Percentage of 12- to 17-year-olds who smoke, by sex, 1994/95 to 2003



Data sources: 1994/95, 1996/97 and 1998/99 National Population Health Survey, cross-sectional sample, Health file; 2000/01 and 2003 Canadian Community Health Survey
Note: The smoking rate for girls was significantly higher than the rate for boys in 1994/95, 1996/97 and 2000/01.
** Significantly lower than estimate for preceding period (p < 0.05)*

Starting

Initiation rates were calculated based on youths who, in one NPHS cycle, indicated they did not smoke and never had, but reported that they were smokers when they were interviewed two years later. During the eight years from 1994/95 to 2002/03, initiation rates between successive two-year periods declined from 14% (between 1994/95 and 1996/97) to 5% (between 2000/01 to 2002/03). This contrasts with stable, but much lower (approximately 2%), initiation rates among adults in each two-year period (see *The journey to quitting smoking* in this issue).

Stopping

The quit rate is the percentage of youths who had been daily or occasional smokers in one NPHS cycle, but two years later, reported that they did not smoke. Over the eight years, the two-year quit rate for smokers aged 12 to 17 was relatively stable at around 17%, and no differences between any successive two-year periods were significant. By contrast, among adults, the proportion of smokers who quit rose from 14% between 1994/95 and 1996/97, to 22% between 2000/01 and 2002/03.[3]

Relapsing

Relapse rates were calculated for youths who reported they were former smokers; that is, they did not currently smoke, but had smoked in the past. If they had resumed smoking two years later, they were defined as "relapsers." The average two-year relapse rate for youths over the eight years was 35%, substantially above the rate for adult smokers (7%) (data not shown). This difference likely results from the strong association between relapsing and the number of years of abstinence. Adults who manage

Two-year smoking initiation, quit and relapse rates among 12- to 17-year-olds, by selected characteristics

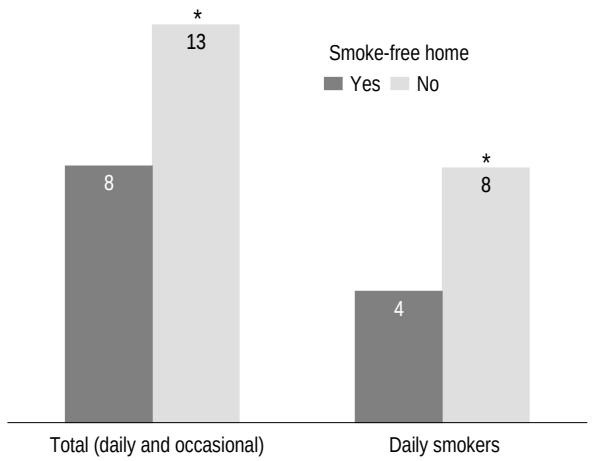
	Initiation rate (never-smokers)	Quit rate (smokers)	Relapse rate (former smokers)
	%	%	%
Average two-year rates (1994/95 to 2002/03)	8.9	17.4	35.0
Two-year period			
1994/95 to 1996/97	13.7	16.9[E]	40.6
1996/97 to 1998/99	6.3†	20.0[E]	32.5
1998/99 to 2000/01	10.2	15.1[E]	36.4
2000/01 to 2002/03	4.8†	16.3[E]	29.9
Sex			
Boys	8.1	12.1[E]	35.5
Girls‡	9.8	21.4*	34.5
Age group			
12 to 14‡	8.7	16.0[E]	35.3
15 to 17	9.2	17.8	34.8
Type of smoker			
Daily‡	...	10.2[E]	...
Occasional	...	31.7*	...
Former daily‡	...	...	57.4
Former occasional	...	...	30.7*
Smoke-free home			
Yes	6.8*	20.7[E]	30.3*
No‡	13.9	15.3	40.9

Data source: 1994/95 to 2002/03 National Population Health Survey, longitudinal sample, Health file
† Significantly lower than estimate for previous two-year period (p < 0.05)
‡ Reference category
** Significantly different from estimate for reference category (p < 0.05)*
E Coefficient of variation 16.6% to 33.3%
... Not applicable

to go more than five years without smoking are far less likely to start again than are those who have been abstinent for two years or less.[3] Young smokers have not had the opportunity to experience a long period of abstinence. However, two-year relapse rates among both youths and adults were relatively stable over the eight years.

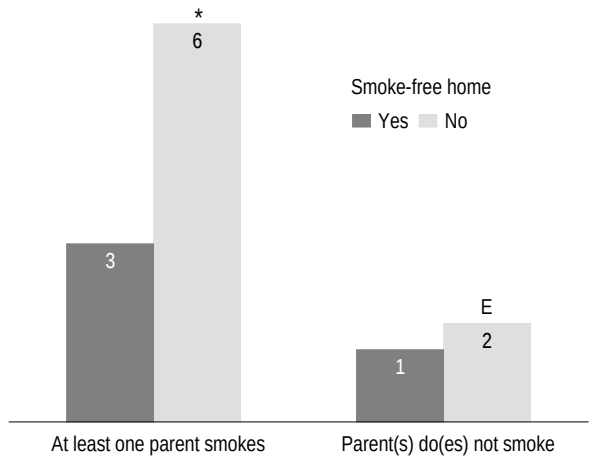
These trends in initiation, quit and relapse rates over successive two-year periods show that the drop in youth smoking can be attributed to declining initiation rates. For adults, however, the drop in smoking prevalence stemmed from rising quit rates.

Percentage of 12- to 17-year-olds who smoke, by smoke-free home status



Data source: 2003 Canadian Community Health Survey
** Significantly higher than estimate for smoke-free home (p < 0.05)*

Percentage of students in Grades 5 to 9 who smoke, by parents' smoking status and smoke-free home status



Data source: 2002 Youth Smoking Survey
** Significantly higher than estimate for smoke-free home (p < 0.05)*
E Coefficient of variation 16.6% to 33.3%

Smoke-free homes

According to 2003 CCHS data, 56% of 12- to 17-year-olds lived in homes where people were asked to refrain from smoking in the house. These youths were less likely to be smokers (8%) than were those who lived in homes where smoking was permitted (13%). The percentage of young people living in smoke-free homes who were *daily* smokers was 4% or half that for those in homes where smoking was permitted (8%).

In the NPHS and the 2000/01 CCHS, the criterion for a smoke-free home was less restrictive than in the 2003 CCHS. Respondents were asked if any household member regularly smoked inside the house. Based on this definition, the percentage of 12- to 17-year-olds living in smoke-free homes rose from 61% in 1994/95 to 68% in 2000/01 (data not shown).

NPHS longitudinal data indicate that youths in smoke-free homes were much less likely to start smoking in a two-year period: 7%, compared with 14% of those regularly exposed to smoke in their homes. The relapse rate was also lower for youths who reported that they were living in smoke-free homes (30% versus 41%).

Parental influence

The lower smoking rates among youths in smoke-free homes may be partly attributable to the smoking behaviour of the parents. According to the 2002 Youth Smoking Survey, 2.7% of students in Grades 5 to 9 (ages 9 to 15) smoked. Those who reported that at least one parent smoked were four times more likely to be smokers than those whose parents did not smoke: 5.0% versus 1.2%. Among children living with two parents, the smoking rate was 7.2% if both parents smoked, 3.7% if one parent smoked, and 1.1% if neither parent smoked (data not shown).

However, even if parents smoked, living in a smoke-free home made a difference. Among children with at least one parent who smoked, the

smoking rate was 2.9% for those in smoke-free homes, but 6.4% when smoking was permitted. It has been suggested that parents (even those who smoke) who ban smoking at home send a clear message that it is not condoned,[10] which may help reduce youth smoking rates.

Data sources

Data from the 2003 Canadian Community Health Survey (CCHS)[4] were used to produce smoking rates for 12- to 17-year-olds by selected socio-demographic factors. The CCHS is a general health survey that covers the population aged 12 or older living in private households. It does not include residents of Indian reserves, Canadian Forces bases, and some remote areas. The overall response rate for the 2003 CCHS was 80.6%. The sample size of youths aged 12 to 17 used for this article was 14,136.

Historical estimates of youth smoking rates were based on the 2000/01 and 2003 CCHS and the 1994/95, 1996/97 and 1998/99 National Population Health Survey (NPHS).

Two-year smoking initiation, quit and relapse rates were calculated using NPHS longitudinal data collected from a panel of respondents who were re-interviewed every two years. The rates are based on four cohorts of pooled observations. The baseline years were 1994/95, 1996/97, 1998/99 and 2000/01. Initiation rates were based on 12- to 17-year-olds who, in baseline years, reported that they had never smoked, but two years later reported daily or occasional smoking. Quit rates were based on youths who were smokers in baseline years, but who reported not smoking two years later. Relapse rates were based on youths who were former smokers in the baseline years and who had resumed smoking two years later. Detailed descriptions of the NPHS design, sample and interviewer procedures can be found in published reports.[5,6]

Associations between youth smoking and smoke-free home status were explored using data from the 2003 CCHS, NPHS longitudinal files, and the 2002 Youth Smoking Survey (YSS). Between October and December 2002, the YSS was administered to 19,018 children in Grades 5 to 9 in a sample of classes selected from a list of all public and private schools in the 10 provinces.

All estimates are based on weighted data. Standard errors and coefficients of variation were estimated using the bootstrap technique, which accounts for the survey design effects.[7-9]

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The Questions

Both the National Population Health Survey (NPHS) and the Canadian Community Health Survey (CCHS) asked, "At the present time do you smoke cigarettes daily, occasionally, or not at all?" *Daily smokers* were those who answered "daily"; *occasional smokers,* those who responded "occasionally." *Total smokers* included daily and occasional smokers.

In the NPHS, respondents who did not smoke were asked, "Have you ever smoked cigarettes at all?" and "Have you ever smoked cigarettes daily?" *Former occasional smokers* were those who responded "yes" to the first question and "no" to the second; *former daily smokers* were those who responded "yes" to both questions.

In the 2002 Youth Smoking Survey (YSS), two questions were used to classify *current smokers*: "Have you smoked 100 or more cigarettes in your life?" and "On how many of the last 30 days did you smoke one or more cigarettes?" Smokers were defined as those who replied "yes" to the first question and indicated at least one day in the second. The smoking rate for 12- to 14-year-olds based on the YSS was 3.2%, which was very close to the rate based on 2003 CCHS data for the same age group (3.4%).

Parental smoking status for the YSS was measured by asking, "Does your father smoke?" and "Does your mother smoke?" Youths who did not live with a father (or mother), but most of the time lived with someone who was like a father (or mother), were instructed to answer the question about this person.

The 2003 CCHS contained two questions that were used to identify *smoke-free homes*: "Are there any restrictions against smoking cigarettes in your home?" Those who responded "yes" were asked, "How is smoking restricted in your home? … smokers are asked to refrain from smoking in the house; smoking is allowed in certain rooms only; smoking is restricted in the presence of young children; or other restriction." Youths were defined as living in smoke-free homes if they said that smokers were asked to refrain from smoking in the house.

For the analyses based on NPHS longitudinal data, a smoke-free home was identified by a response of "no" to the question, "Does anyone in this household smoke regularly inside the house?"

For the YSS, the questions and definition used to identify smoke-free homes were the same as those for the 2003 CCHS. These questions were asked in a follow-up survey conducted with a parent of each youth in the YSS sample.