QUANTITATIVE RESEARCH

Socio-economic Status and Smoking in Canada, 1999-2006: Has There Been Any Progress on Disparities in Tobacco Use?

Jessica L. Reid, MSc, David Hammond, PhD, Pete Driezen, MSc

ABSTRACT

Objectives: Comprehensive tobacco control policies implemented in Canada have succeeded in lowering overall smoking prevalence; however, the extent to which they have impacted socio-economic disparities in tobacco use is not known. This study examined smoking rates and related measures across socio-economic groups over a 7-year period in Canada.

Methods: Regression analyses tested associations between smoking-related outcomes (prevalence, frequency, consumption, quit intentions and attempts, quit ratios), education level and time, using data from adults 25 years and older who completed the 1999 to 2006 waves of the Canadian Tobacco Use Monitoring Survey (CTUMS), a repeated cross-sectional survey with nationally representative samples (n=86,971).

Results: Between 1999 and 2006, smoking prevalence, daily smoking, and cigarette consumption decreased, while the proportion of smokers who planned to quit increased, as did the proportion of ever-smokers who had quit. However, significant educational differences were observed: Canadians with less education had greater odds of current smoking (prevalence approximately doubled between the most and least educated groups) and daily smoking, and consumed more cigarettes, compared to university graduates. Highly-educated ever-smokers were also more likely to have quit smoking. These disparities remained stable over the time period studied. Intentions and attempts to quit were not consistently associated with education.

Conclusions: The decline in smoking among Canadians between 1999 and 2006 represents a major public health achievement. However, considerable smoking-related disparities exist between socio-economic groups, and have changed very little. Therefore, while recent programs and policies have succeeded in reducing overall tobacco use, they have not addressed socio-economic disparities.

Key words: Tobacco; smoking; socioeconomic status; Canada

La traduction du résumé se trouve à la fin de l'article.   *Can J Public Health* 2010;101(1):73-78.

Tobacco use remains the leading cause of preventable death in Canada, with over 37,000 Canadians dying of tobacco-related illness each year.[1] This risk behaviour is not randomly distributed within the population; smoking prevalence exhibits a clear gradient, with lower socio-economic status groups showing increased rates of tobacco use.[2-5] Smoking cessation tends to follow an inverse pattern, with higher socio-economic status (SES) groups more likely to quit smoking.[6-8] Thus, the burden of tobacco use and related illness is disproportionately borne by lower SES groups, making tobacco use a substantial contributor to overall health disparities.[2,9-11] Reducing smoking, particularly among lower SES populations, is therefore a key strategy for reducing overall socio-economic inequalities in health and improving population health.[12]

Population-level policy interventions to reduce tobacco use are currently being implemented in many countries, and have been credited with reducing overall smoking prevalence.[13] Canada is a world leader in tobacco control policies, such as advertising and sale restrictions, taxation, public smoking bans, and strong anti-smoking messaging. However, such policies may have differential effects on subgroups of smokers, and it is unclear whether the impact of these policies has been equally distributed. In particular, there is concern that reductions in smoking prevalence have mainly been achieved among smokers with higher SES. To date, little information is available on recent Canadian trends in smoking and quitting by socio-economic status which could provide insight into tobacco-related disparities and the potential impact of recent tobacco control efforts on such disparities.

This study examined current smoking trends in Canada, identifying existing socio-economic disparities and documenting their progress over time. Specifically, this study sought to identify: 1) any differences by socio-economic status in smoking prevalence, quit ratios, and rates of quitting intentions and attempts among smokers, and 2) any changes in socio-economic differences over time, from 1999 to 2006.

METHODS

This study analyzed data collected through the Canadian Tobacco Use Monitoring Survey (CTUMS) from 1999 to 2006. CTUMS has been conducted by Statistics Canada on an ongoing basis since 1999, and was designed to provide continuous estimates of smok-

Table 1. Sample Characteristics, by Survey Year, 1999-2006 (n=86,971)

	Survey Year							
Variable	1999 (n=10,634)	2000 (n=10,154)	2001 (n=10,958)	2002 (n=11,855)	2003 (n=10,849)	2004 (n=10,404)	2005 (n=10,797)	2006 (n=11,320)
Sex								
Male	44.2	44.2	44.2	43.5	44.0	44.2	43.3	44.3
Female	55.8	55.8	55.8	56.5	56.0	55.8	56.7	55.7
Age (range: 25-85)								
Mean	48.3	48.6	48.9	49.6	49.9	49.7	50.6	50.8
SD	15.6	15.5	15.7	15.4	15.6	15.5	15.6	15.6
Education level								
Less than secondary	26.7	26.4	24.9	25.6	24.0	21.0	21.2	20.6
Completed secondary	39.4	40.0	40.8	37.2	37.8	38.4	36.7	36.2
Completed college	14.4	14.6	15.1	17.0	17.9	17.2	18.8	17.7
Completed university	19.5	19.1	19.2	20.2	20.3	23.5	23.4	25.5
Region								
Atlantic	40.6	41.3	39.6	37.2	37.8	39.9	36.2	40.9
Quebec	9.4	10.0	10.1	9.2	9.7	10.1	8.6	9.7
Ontario	8.8	8.0	10.3	18.2	9.7	9.5	8.4	9.2
Western	31.7	30.8	29.7	26.2	27.5	31.0	38.4	30.6
British Columbia	9.4	10.0	10.4	9.2	15.3	9.5	8.5	9.6

Data presented as unweighted percentages unless otherwise noted

ing prevalence in order to monitor changes over time. The overall design is repeated cross-sectional surveys of nationally representative samples of Canadians. Data were collected using computer-assisted telephone interviewing, conducted by trained interview staff at two Statistics Canada offices. Interviews were conducted every month, from February to December, in all survey years. A full description of the CTUMS methodology is available from Statistics Canada.[14-21]

Sample

The CTUMS target population is all persons 15 years of age and older, living in Canada, with the exception of residents of the territories and institutions. The sample design is a two-phase stratified random sample of telephone numbers, where households are first selected through random digit dialling, and then individual respondents are selected based on household composition. An equal number of respondents in each province are surveyed, and youth (15-24 year-olds) are over-sampled to comprise half of the respondents.

This analysis was limited to respondents 25 years and older (n=86,971), since education was used as the measure of SES, and is a less reliable indicator of SES at younger ages when education may still be in progress.

Measures

Demographic variables included: sex, age (continuous), and region of residence (Atlantic, Quebec, Ontario, Western, BC). Socio-economic status was measured by highest level of education completed, with 4 levels: less than secondary, completed secondary, completed community college, and completed university. Income information was not available for all survey years, and thus was not included as a measure of SES.

Smoking status was determined by whether one had smoked 100 cigarettes in their lifetime, current use, and frequency of use (daily/not). A 3-category smoking status variable classified respondents into "current smokers" (smoked 100+ cigarettes, currently smokes daily or occasionally), "former smokers" (smoked 100+ cigarettes, does not currently smoke), and "never-smokers" (smoked <100 cigarettes, does not currently smoke). From this, a dichotomous variable for "current smoker" vs. "non-smoker" (including "former" and "never") was created. In addition, a

Figure 1. Smoking prevalence (including all current daily and non-daily smokers) in Canada, by education level, 1999-2006
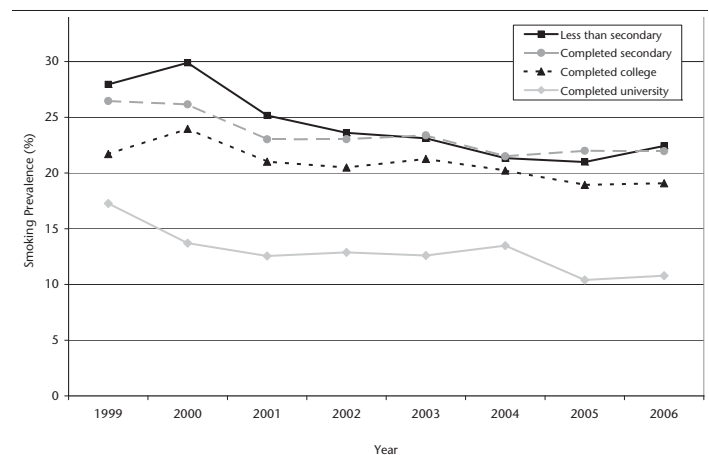
smoking frequency variable was created for all current smokers, distinguishing "daily" vs. "occasional" smoking. For all smokers, consumption was measured on a continuous scale of average cigarettes per day. Respondents were also asked at what age they began smoking, and total years smoked was calculated for each smoker.

Quitting-related variables were added to the questionnaire in 2000. Six-month quit intentions were measured by yes/no responses to the item, "Are you seriously considering quitting within the next 6 months?" Also, both current smokers and former smokers who had quit in the past year were asked, "In the past year, how many times did you stop smoking for at least 24 hours because you were trying to quit?"

Quit ratios were also calculated for each educational group in each survey year. The quit ratio was calculated as the number of former smokers divided by the number of ever-smokers (current and former smokers) at a given point in time,[22] and provides an indication of cessation relative to the proportion of smokers within each socio-economic group.

Analysis

Separate regression models were conducted for each of the dependent variables to test their associations with education and time.

Table 2. Odds Ratios for Current Smoking (Compared to University Graduates), 1999-2006

	Survey Year							
Education Level	1999 (n=10,634)	2000 (n=10,154)	2001 (n=10,958)	2002 (n=11,855)	2003 (n=10,849)	2004 (n=10,404)	2005 (n=10,797)	2006 (n=11,320)
Less than secondary	2.95* (2.24-3.88)	4.05* (3.05-5.38)	3.46* (2.64-4.53)	3.25* (2.54-4.14)	3.20* (2.38-4.30)	3.18* (2.36-4.30)	3.77* (2.73-5.21)	3.79* (2.81-5.11)
Completed secondary	1.92* (1.49-2.46)	2.50* (1.96-3.20)	2.37* (1.86-3.02)	2.26* (1.83-2.79)	2.36* (1.81-3.07)	2.09* (1.63-2.67)	2.85* (2.20-3.68)	2.62* (2.07-3.31)
Completed college	1.26 (0.94-1.71)	2.01* (1.48-2.73)	1.81* (1.35-2.42)	1.69* (1.33-2.15)	1.86* (1.38-2.50)	1.59* (1.18-2.14)	2.00* (1.49-2.68)	1.96* (1.48-2.59)
Completed university	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.

Data presented as ORs (95% confidence intervals), from weighted regression models conducted separately for each year, controlling for age, sex, and region
* Significantly different (at $p<0.01$) from university graduate education level, in weighted regression models conducted separately for each year that controlled for age, sex, and region

Logistic regression analysis was conducted using the sample of all respondents for smoking prevalence (current smoker vs. not), with ever-smokers only for quit ratios, and with smokers only for smoking frequency (daily smoker vs. occasional smoker), quit intentions, and quit attempts in the past year. Multiple regression analysis was conducted using the sample of smokers for cigarettes per day (CPD) and years smoked. All regression analyses included age, sex, education level, and region of residence, and those for quit intentions and quit attempts also controlled for CPD. Data were analyzed using the survey procedures available in SAS version 9.1 (SAS Institute Inc., Cary, NC) to account for CTUMS' stratified sampling design using province as the strata variable. Analyses were also weighted to ensure that estimates are representative of the Canadian population.

First, the data sets for each year were analyzed separately to examine any differences between educational groups within the cross-sectional samples. Second, the full data set was analyzed over time to test for any time trend in the outcomes. As a final step, the interaction of time by education was added to these models to examine whether any associations of education with the outcomes varied over time.

This research was reviewed by and received ethics clearance from the Office of Research Ethics at the University of Waterloo, Waterloo, ON.

RESULTS

Sample
Table 1 shows the demographic characteristics of the full sample for analysis, including both smokers and non-smokers.

Smoking prevalence
Overall smoking prevalence (including both daily and occasional smoking) decreased over the study period, from 24% in 1999 to 18% in 2006. This decline was due mainly to decreases in daily smoking, as occasional smoking prevalence remained stable throughout this time period. Significant within-year variation was observed by education level (see Figure 1). Compared to university graduates, respondents with less than secondary school education had more than 3 times the odds of being a current smoker, and those who completed secondary school or college had more than double the odds of being a current smoker (see Table 2). In the models including all survey years (not shown) there was a main effect of time ($\chi^2=30.3$, $p<0.0001$), but no interaction between time and education ($\chi^2=4.3$, $p=0.23$), indicating that while prevalence decreased during this time, educational differences in smoking prevalence were consistent between 1999 and 2006.

Smoking and quitting outcomes for smokers
Table 3 displays the demographic characteristics and outcome measures for current smokers within each survey year, both overall and by education level. Each educational group was compared to university graduates, and significant within-year differences are noted.

Smoking Frequency
The proportion of current smokers reporting daily smoking decreased from 85% in 1999 to 79% in 2006. Smokers with less education were more likely to smoke daily (versus occasionally) than university graduates in almost all survey years, although differences between college and university groups were not significant in 2000, 2002, and 2006 (see Table 3). In the models including all years (not shown), there was a significant effect of time ($\chi^2=6.4$, $p=0.01$), but no significant interaction between time and education ($\chi^2=0.28$, $p=0.96$).

Cigarette Consumption
Average daily cigarette consumption decreased during the study period, from 16.4 in 1999 to 13.6 in 2006. Cigarette consumption also differed by education level: university graduates smoked significantly fewer cigarettes per day than smokers with secondary school education or less in all survey years except 2000, and significantly less than college graduates in 2003, 2004, and 2005 (see Table 3). In the models including all years (not shown), there was a significant effect of time ($F=30.8$, $p<0.0001$), but no significant interaction between time and education level ($F=0.96$, $p=0.41$).

Quit Intentions
Over half of smokers were considering quitting smoking in the next six months (see Table 3). Few within-year educational differences in intentions to quit were observed (see Table 3). In the models including all survey years (not shown), the main effect of time was significant ($\chi^2=8.3$, $p=0.004$), but time and education did not interact ($\chi^2=3.5$, $p=0.32$).

Quit Attempts
Among current smokers and recent (past year) quitters, nearly half had made a quit attempt lasting at least 24 hours in the past year (see Table 3). As with quit intentions, few educational differences were observed within survey years (see Table 3). In the models including all years (not shown), the main effect of time was not significant ($\chi^2=0.59$, $p=0.44$), nor was there an interaction between time and education ($\chi^2=5.8$, $p=0.12$).

Quit ratio
The majority of ever-smokers in Canada had quit smoking at the time they were surveyed (see Table 4). Within each survey year, uni-

Table 3. Characteristics of Smokers, by Education Level and Survey Year, 1999-2006 (n=19,033)

	Survey Year							
	1999	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Variable, Education Level	**(n=2705)**	**(n=2583)**	**(n=2542)**	**(n=2471)**	**(n=2276)**	**(n=2095)**	**(n=2109)**	**(n=2252)**
Sex (% male)	52.9%	52.1%	54.4%	53.5%	55.9%	55.4%	57.2%	52.9%
Age (years)	43.5 (13.1)	43.9 (13.1)	44.1 (13.2)	43.7 (13.1)	43.7 (12.9)	42.9 (12.7)	43.5 (12.4)	44.2 (12.9)
Daily smoking (%)								
All groups	**85.0%**	**82.8%**	**85.5%**	**84.0%**	**82.6%**	**78.8%**	**83.4%**	**79.1%**
Less than secondary	90.4**	87.1**	91.4**	91.5**	86.2**	88.1**	90.4**	86.1**
Completed secondary	86.5**	86.5**	83.7*	85.8**	86.2**	81.6**	84.4**	83.4**
Completed college	85.5*	75.4	90.2**	76.5	81.5*	79.5**	88.2**	74.1
Completed university (ref)	71.9	70.6	75.6	74.6	68.5	62.7	67.1	67.3
Cigarettes per day								
All groups	**16.4 (10.2)**	**15.6 (10.4)**	**15.1 (9.5)**	**15.3 (9.6)**	**14.6 (9.3)**	**13.6 (9.4)**	**14.6 (9.6)**	**13.6 (9.4)**
Less than secondary	19.2** (10.6)	18.2 (11.1)	18.2** (11.0)	18.2** (10.6)	17.1** (10.2)	17.3** (9.4)	17.3** (9.7)	14.7 (10.7)
Completed secondary	16.0* (9.2)	15.5 (8.8)	15.0** (9.0)	15.6** (8.7)	15.0** (8.6)	13.9** (9.7)	15.6** (9.7)	14.7* (9.1)
Completed college	15.2 (9.4)	12.9 (9.1)	13.5 (8.0)	12.7 (9.3)	13.5* (8.6)	13.1** (8.6)	13.2* (7.7)	11.6 (7.7)
Completed university (ref)	13.6 (11.8)	14.6 (14.2)	11.8 (11.8)	12.4 (9.0)	11.2 (9.6)	9.5 (7.9)	10.6 (9.8)	12.0 (9.8)
Years smoked								
All groups	**27.3 (12.8)**	**28.2 (13.3)**	**28.0 (13.0)**	**28.0 (12.9)**	**28.4 (13.0)**	**27.2 (12.9)**	**27.6 (12.7)**	**28.5 (12.9)**
Less than secondary	32.2 (13.7)	34.6** (15.0)	33.9** (14.9)	32.7** (13.3)	34.1 (13.8)	33.2** (13.7)	32.7** (14.8)	33.5** (13.9)
Completed secondary	26.5* (11.7)	26.4 (11.7)	27.4** (12.4)	27.8** (12.1)	27.2 (12.6)	27.1** (12.7)	27.5* (11.8)	28.8** (12.8)
Completed college	23.8 (11.4)	24.5 (11.3)	23.9 (10.2)	23.1 (11.9)	25.6 (10.5)	25.8* (10.7)	24.9 (11.7)	24.8* (9.9)
Completed university (ref)	25.0 (13.4)	25.8 (12.6)	25.0 (10.9)	26.8 (12.9)	26.5 (13.3)	22.9 (12.4)	25.3 (11.7)	26.4 (13.1)
Intending to quit† (%)								
All groups	–	**53.6%**	**56.7%**	**59.8%**	**56.7%**	**58.0%**	**57.9%**	**65.7%**
Less than secondary	–	44.4	50.6**	53.9	52.3	51.9	50.7	60.4
Completed secondary	–	57.3	53.6**	59.7	56.4	61.1*	55.6	65.1
Completed college	–	53.7	62.7	66.4	60.8	65.7*	65.4	69.4
Completed university (ref)	–	59.3	70.2	61.9	58.6	49.6	63.1	68.5
Made a quit attempt‡ (%)								
All groups	–	–	–	–	–	**44.5%**	**47.2%**	**46.2%**
Less than secondary	–	–	–	–	–	39.9	52.4*	43.4
Completed secondary	–	–	–	–	–	47.7	43.8	45.4
Completed college	–	–	–	–	–	46.0	55.8*	52.1
Completed university (ref)	–	–	–	–	–	40.5	40.2	45.2

Data presented as weighted means (standard deviation) unless otherwise noted
* Significantly different (at p<0.05) from university graduate education level, in weighted regression models (logistic regression for daily smoking and quit intentions and attempts; multiple regression for CPD and years smoked) conducted separately for each year that controlled for age, sex, and region (and CPD for quit intentions and attempts analyses)
** Significantly different (at p<0.01) from university graduate education level, in weighted regression models (logistic regression for daily smoking and quit intentions and attempts; multiple regression for CPD and years smoked) conducted separately for each year that controlled for age, sex, and region (and CPD for quit intentions and attempts analyses)
† "Seriously considering quitting smoking within the next 6 months"; added to the survey in 2000
‡ Made a quit attempt lasting at least 24 hours within the past year; added to the survey in 2000, but analyzed only for 2004 through 2006, due to inconsistencies in question coverage between this period and earlier survey waves (e.g., 2000-2002 asked current smokers; 2003 included only smokers who had tried to quit in the past 2 years; 2004-2006 asked current smokers and former smokers who had quit in past 12 months)

versity graduates had significantly greater quit ratios than all other groups, with few exceptions (see Table 4). In the model including all years (not shown), there was also an overall significant effect of time (χ^2=28.4, p<0.0001), but no interaction between education and time (χ^2=3.7, p=0.30).

DISCUSSION

Between 1999 and 2006, smoking prevalence and average daily cigarette consumption declined with similar magnitude in all educational groups. This translates to over a million fewer smokers in Canada over a 7-year period – a major public health achievement.

However, the findings also highlight persistent socio-economic disparities in smoking. Canadians with lower education levels were significantly more likely to smoke: smoking prevalence among the least educated was approximately double that of the most educated in each year studied. Although smoking rates generally increased with decreasing education level, the greatest differences observed were between those with a university education and all other groups. The patterns and magnitude of the educational differences in smoking prevalence observed in this study were similar to those observed in the United States,[23] although Canadian rates were lower across all groups. Among smokers, those with lower education were more likely to smoke daily, and the least educated consumed 3 to 8 more cigarettes per day, on average, than the most educated. The proportion of ever-smokers who had quit (quit ratio) also varied considerably by educational group: university-educated Canadians had the highest quit ratios, indicating that a greater proportion of smokers in this group have quit. The lack of interaction between education and time for these outcomes indicates that educational differences in smoking prevalence and frequency, cigarette consumption, and quit ratio were stable over the time period studied.

Studies in other Western countries examining various time periods over the past two decades have also observed persistent socio-economic disparities, despite declining prevalence among all groups.[11,24-27] In the United States, relative educational inequalities in smoking increased significantly in 40 states between 1990 and 2004,[24] although in another study of overall patterns, the educational gap appears fairly stable during this time.[11] A study of nine European countries also found that overall, educational inequalities in smoking prevalence remained stable among men and increased among women between 1985 and 2000; although, in country-specific analyses, some improvements were seen in the UK and Italy.[25] On the other hand, an Australian study found that socio-economic inequalities in smoking remained stable among women and increased among men between 1989/90 and 2001,[26] and a New Zealand study found increasing socio-economic inequalities among both men and women between 1985 and 1996.[27] Overall, the evidence suggests that socio-economic disparities persist in Western countries, with few exceptions, and may even be worsening.

Table 4. Percentage of Ever-Smokers Who Have Quit (Quit Ratio), by Education Level and Year, 1999-2006

	Survey Year							
Education Level	**1999** **(n=5859)**	**2000** **(n=5548)**	**2001** **(n=5799)**	**2002** **(n=6224)**	**2003** **(n=5866)**	**2004** **(n=5427)**	**2005** **(n=5654)**	**2006** **(n=6048)**
Less than secondary	52.6 %** (48.3-56.9)	50.4 %** (45.8-55.0)	55.8 %** (51.6-60.0)	57.6 %** (53.8-61.3)	60.8 %** (56.4-65.1)	60.1 %** (55.2-65.1)	64.5 %** (59.2-69.9)	63.7 %** (59.0-68.5)
Completed secondary	52.6 %** (49.1-56.2)	53.3 %** (49.7-57.0)	53.5 %** (50.0-56.9)	55.7 %** (52.8-58.7)	57.9 %* (54.5-61.3)	58.9 %** (55.3-62.5)	59.4 %** (55.5-63.3)	60.6 %** (57.2-64.0)
Completed college	55.6 % (49.7-61.6)	52.8 %** (46.5-59.1)	53.3 %** (47.6-59.0)	58.8 % (54.3-63.2)	57.3 % (52.1-62.6)	59.0 % (53.4-64.5)	60.1 %** (54.7-65.5)	62.6 % (57.5-67.7)
Completed university (ref)	61.7 % (56.0-67.5)	69.3 % (64.1-74.5)	68.5 % (63.5-73.6)	65.3 % (60.6-70.1)	65.7 % (60.0-71.5)	66.1 % (60.8-71.5)	74.6 % (70.3-78.9)	69.4 % (64.9-73.9)

Data presented as weighted percentages (95% confidence limits)
* Significantly different (at $p<0.05$) from university graduate education level, in weighted logistic regression models conducted separately for each year that controlled for age, sex, and region
** Significantly different (at $p<0.01$) from university graduate education level, in weighted logistic regression models conducted separately for each year that controlled for age, sex, and region

The findings for quit intentions and cessation attempts were more encouraging. Over half of all smokers were considering quitting, and nearly half had made a quit attempt lasting at least 24 hours in the past year. Also, few significant educational differences were found in intentions or attempts to quit, indicating greater socio-economic equity for these measures.

Limitations

This analysis does, however, face some limitations due to the nature of secondary analysis. The CTUMS sample did not include those who live in institutions, on First Nations reserves, or in the territories – all groups with higher smoking rates and generally lower SES. The sample was also limited to those over 25, and some studies have found the greatest socio-economic disparities among younger birth cohorts,[7,28] so estimates for within-year SES differences may be conservative. Also, some data were not available in all survey years due to variation in questionnaire content (e.g., quit attempts). In addition, education was the sole measure of SES; however, previous research has identified education as the SES variable with the greatest correlation with smoking.[7,22] Finally, the cross-sectional nature of the survey meant that individual smoking trajectories and cessation outcomes could not be followed and assessed, which would have strengthened the conclusions made and allowed richer analysis.

CONCLUSIONS AND IMPLICATIONS

The decline in smoking prevalence among Canadians in all education groups between 1999 and 2006 represents a major public health achievement. However, considerable smoking-related disparities persist among socio-economic groups, and have changed very little in the last decade as the tobacco control landscape in Canada has evolved. Therefore, while recent programs and policies have succeeded in reducing tobacco use in all groups, they have not impacted the disparities between socio-economic groups. Increasing access to existing tobacco interventions and/or designing specific, targeted interventions may benefit socio-economically disadvantaged smokers, who are disproportionately affected by the harms of tobacco use.

REFERENCES

1. Baliunas D, Patra J, Rehm J, Popova S, Kaiserman M, Taylor B. Smoking-attributable mortality and expected years of life lost in Canada 2002: Conclusions for prevention and policy. *Chron Dis Can* 2007;27(4):154-62.
2. Jarvis MJ, Wardle J. Social patterning of individual health behaviours: The case of cigarette smoking. In: Marmot M, Wilkinson RG (Eds.), *Social Determinants of Health,* Second Ed. Oxford, UK: Oxford University Press, 2006.
3. Bobak M, Jha P, Nguyen S, Jarvis M. Poverty and smoking. In: Jha P, Chaloupka FJ (Eds.), *Tobacco Control in Developing Countries*. New York, NY: Oxford University Press, 2000.
4. US Department of Health and Human Services. Women and Smoking: A Report of the Surgeon General. Atlanta, GA: US Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2001.
5. US Department of Health and Human Services. Tobacco Use Among U.S. Racial/Ethnic Minority Groups—African Americans, American Indians and Alaska Natives, Asian Americans and Pacific Islanders, and Hispanics: A Report of the Surgeon General. Atlanta: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1998.
6. Kunst A, Giskes K, Mackenbach J. Socioeconomic Inequalities in Smoking in the European Union: Applying an Equity Lens to Tobacco-control Policies. Brussels: European Network of Smoking Prevention, 2006.
7. Schaap MM, Kunst AE, Leinsalu M, Regidor E, Ekholm O, Dzurova D, et al. Effect of nationwide tobacco control policies on smoking cessation in high and low educated groups in 18 European countries. *Tob Control* 2008;17:248-55.
8. Gilpin EA, Pierce JP. Demographic differences in patterns of smoking cessation: United States, 1950-1990. *Ann Epidemiol* 2002;12(3):141-50.
9. Jha P, Peto R, Zatonski W, Boreham J, Jarvis MJ, Lopez AD. Social inequalities in male mortality, and in male mortality from smoking: Indirect estimation from national death rates in England and Wales, Poland, and North America. *Lancet* 2006;368(9533):367-70.
10. Siahpush M, English D, Powles J. The contribution of smoking to socioeconomic differentials in mortality: Results from the Melbourne Collaborative Cohort Study, Australia. *J Epidemiol Community Health* 2006;60:1077-79.
11. Meara ER, Richards S, Cutler DM. The gap gets bigger: Changes in mortality and life expectancy, by education, 1981-2000. *Health Aff* 2008;27(2):350-60.
12. Ogilvie D, Petticrew M. Reducing social inequalities in smoking: Can evidence inform policy? A pilot study. *Tob Control* 2004;13:129-31.
13. World Health Organization. WHO Report on the Global Tobacco Epidemic, 2008: The MPOWER Package. Geneva, Switzerland: WHO, 2008.
14. Statistics Canada. Microdata User Guide: Canadian Tobacco Use Monitoring Survey, Annual, February - December 2006. Available at: http://www.statcan.gc.ca/dli-ild/meta/ctums-esutc/2006/annual-annuel/2006-ctums-estuc-anng-eng.pdf (Accessed January 9, 2008).
15. Statistics Canada. Microdata User Guide: Canadian Tobacco Use Monitoring Survey, Annual, February - December 2005. Available at: http://www.statcan.gc.ca/dli-ild/meta/ctums-esutc/2005/annual-annuel/5902728-eng.pdf (Accessed January 9, 2008).
16. Statistics Canada. Microdata User Guide: Canadian Tobacco Use Monitoring Survey, Annual, February - December 2004. Available at: http://www.statcan.gc.ca/dli-ild/meta/ctums-esutc/2004/annual-annuel/2004-ctums-estuc-anng-eng.pdf (Accessed January 9, 2008).
17. Statistics Canada. Microdata User Guide: Canadian Tobacco Use Monitoring Survey, Annual, February - December 2003. Available at: http://www.statcan.gc.ca/dli-ild/meta/ctums-esutc/2003/annual-annuel/4187682-eng.pdf (Accessed January 9, 2008).
18. Statistics Canada. Microdata User Guide: Canadian Tobacco Use Monitoring Survey, Annual, February - December 2002. Available at: http://www.statcan.gc.ca/dli-ild/meta/ctums-esutc/2002/4215775-eng.pdf (Accessed January 9, 2008).
19. Statistics Canada. Microdata User Guide: Canadian Tobacco Use Monitoring Survey, Annual, February - December 2001. Available at: http://www.statcan.gc.ca/dli-ild/meta/ctums-esutc/2001/annual-annuel/4187655-eng.pdf (Accessed January 9, 2008).
20. Statistics Canada. Microdata User Guide: Canadian Tobacco Use Monitoring Survey, Annual, February - December 2000. Available at: http://www.statcan.gc.ca/dli-ild/meta/ctums-esutc/2000/annual-annuel/4187646-eng.pdf (Accessed January 9, 2008).

21. Statistics Canada. Microdata User Guide: Canadian Tobacco Use Monitoring Survey, Annual, February - December 1999. Available at: http://www.statcan.gc.ca/dli-ild/meta/ctums-esutc/1999/annual-annuel/ 4216924-eng.pdf (Accessed January 9, 2008).
22. US Department of Health and Human Services. Reducing the Health Consequences of Smoking - 25 Years of Progress: A Report of the Surgeon General. Atlanta: US Department of Health and Human Services, Public Health Service, Centers for Disease Control, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 1989.
23. Fagan P, Moolchan E, Lawrence D, Fernander A, Ponder PK. Identifying health disparities across the tobacco continuum. *Addiction* 2007;102(Suppl 2):5-29.
24. Harper S, Lynch J. Trends in socioeconomic inequalities in adult health behaviors among US states, 1990–2004. *Public Health Rep* 2007;122:177-89.
25. Giskes K, Kunst AE, Benach J, Borrell C, Costa G, Dahl E, et al. Trends in smoking behaviour between 1985 and 2000 in nine European countries by education. *J Epidemiol Community Health* 2005;9:395-401.
26. Najman JM, Toloo G, Siskind V. Socioeconomic disadvantage and changes in health risk behaviours in Australia: 1989-1990 to 2001. *Bull WHO* 2006;84:12.
27. Hill SE, Blakely TA, Fawcett JM, Howden-Chapman P. Could mainstream anti-smoking programs increase inequalities in tobacco use? New Zealand data from 1981-96. *Aust N Z J Public Health* 2005;29:279-84.
28. Cavelaars AEJM, Kunst AE, Geurts JJM, Crialesi R, Grotvedt L, Helmert U, et al. Educational differences in smoking: International comparison. *BMJ* 2000;320:1102-7.

RÉSUMÉ

Objectifs : Les politiques de lutte globale contre le tabagisme mises en œuvre au Canada ont réussi à abaisser la prévalence du tabagisme dans l'ensemble; on ignore cependant leur impact sur les disparités socioéconomiques dans l'usage du tabac. C'est pourquoi nous avons examiné les taux et autres mesures du tabagisme dans divers groupes socioéconomiques sur une période de 7 ans au Canada.

Méthode : Au moyen d'analyses de régression, nous avons testé les associations entre les résultats liés au tabagisme (prévalence, fréquence, consommation, intentions et tentatives de renoncement, ratios de renoncement), le niveau d'instruction et la durée des études. Nos données ont été recueillies auprès d'adultes (25 ans et plus) ayant effectué les cycles 1999 à 2006 de l'Enquête de surveillance de l'usage du tabac au Canada (ESUTC), une enquête transversale répétée auprès d'échantillons représentatifs à l'échelle nationale (n=86 971).

Résultats : Entre 1999 et 2006, la prévalence du tabagisme, le tabagisme quotidien et la consommation de cigarettes ont diminué, tandis que la proportion des fumeurs voulant cesser de fumer a augmenté, ainsi que la proportion des gros fumeurs ayant cessé de fumer. Nous avons toutefois observé des écarts significatifs sur le plan de l'instruction : les Canadiens peu instruits étaient plus susceptibles d'être des fumeurs actuels (la prévalence variait du simple au double entre les groupes les plus et les moins instruits), d'être des fumeurs quotidiens et de fumer plus de cigarettes que les diplômés universitaires. Les gros fumeurs très scolarisés étaient aussi plus susceptibles d'avoir cessé de fumer. Ces disparités sont restées stables au cours de la période de l'étude. Les intentions et les tentatives de renoncement au tabac n'étaient pas associées à l'instruction de façon constante.

Conclusion : La baisse du tabagisme chez les Canadiens entre 1999 et 2006 est une grande victoire pour la santé publique. Cependant, les importantes disparités liées au tabagisme entre les groupes socioéconomiques ont très peu changé. Les politiques et les programmes récents ont réussi à réduire le tabagisme dans l'ensemble, mais ne se sont pas attaqués aux disparités socioéconomiques.

Mots clés : tabac; tabagisme; statut socioéconomique; Canada