

# Trends in smoking initiation in Canada: Does non-inclusion of young adults in tobacco control strategies represent a missed opportunity?

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## ABSTRACT

**OBJECTIVES:** Young adults face high prevalence rates for smoking. Recent evidence suggests that many people initiate smoking during young adulthood, but little is currently known about trends in initiation rates for this age group.

**METHODS:** We examined rates of initiation to first cigarette (FC) and daily smoking (DS) during youth (5–17 years) and young adulthood (18–25 years) using nationally representative data from the 2001, 2003, 2005, 2007, 2009, 2011 and 2013 cycles of the Canadian Community Health Survey. We included all participants aged 25–26 to obtain seven mutually exclusive retrospective cohorts ( $n = 16\,216$ ). We used logistic regression to examine four correlates of smoking – sex, education, poverty status, and immigration status – and whether these factors modify time trends in smoking.

**RESULTS:** We found that initiation rates decreased during youth ( $p < 0.001$  for FC,  $p = 0.02$  for DS) but not during young adulthood ( $p = 0.94$  for FC,  $p = 0.28$  for DS). We found that men and respondents with fewer educational credentials had relatively higher odds of initiating during young adulthood. Trends in young adulthood stayed constant across subgroups. Trends in youth were modified by education: participants who did not complete high school had no decrease in initiation to FC and DS while those with post-secondary education experienced a decrease in both outcomes.

**CONCLUSION:** Tobacco control has failed to address smoking initiation during young adulthood. Given the considerable amount of initiation that occurs during this period, practitioners and policy-makers should direct more of their planning toward young adults.

**KEY WORDS:** Smoking; young adult; socioeconomic factors; Canada

La traduction du résumé se trouve à la fin de l'article.

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Cigarette smoking remains one of the main preventable causes of morbidity and mortality in Canada and other Western countries and its prevalence continues to rise among developing countries.<sup>1</sup> With regard to preventing the initiation of smoking, tobacco control initiatives have included among their top priorities interventions targeted towards children and adolescents (5–17 years of age). These include school-based and community interventions, anti-smoking media campaigns, tobacco advertising restrictions, and youth access restrictions.<sup>2,3</sup> Certain public health institutions, including the Surgeon General's Office<sup>4</sup> and the Institute of Medicine,<sup>5</sup> have proposed to extend this age bracket up to 25 years of age and establish new priorities specific to the young adult (18–25) age group. In Canada, cigarette smoking prevalence is now highest among young adults.<sup>1</sup> The large decline in prevalence observed since the 1950s, particularly salient among children and adolescents, has also been slowest in this age group.<sup>1</sup> Evidence from the United States suggests that smoking cessation rates have remained constant in young adults over the last three decades, while they have steadily increased among people aged 45+ during that time.<sup>6</sup>

Twenty years ago, smoking initiation was believed to occur almost entirely during adolescence.<sup>4</sup> In the last decade, however, public health experts have begun to examine college students' and young adults' smoking initiation trends and their determinants.<sup>7–9</sup>

Recent studies suggest that young adult smoking initiation rates in Canada and the US could be as high as 30%.<sup>10–13</sup> Of particular concern, certain reports suggest that young adult initiation rates might even be increasing for some groups.<sup>5,13,14</sup> For instance, Terry-McElrath and O'Malley found using large consecutive American young adult cohorts that initiation rates during young adulthood of experimental and occasional smoking increased almost twofold over the last three decades.<sup>14</sup>

There is reason to believe that these rates and trends are unequally distributed among the young adult population.

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Socio-demographic correlates of initiating during young adulthood include being male, not being married, not having a college degree, living in a poor neighbourhood and currently attending college.<sup>10,15,16</sup> Evidence related to racial/ethnic differences in young adult smoking initiation is mixed: in the US, Asian/Pacific Islander and African-American smokers are more likely to have initiated during young adulthood and non-Hispanic whites are more likely to initiate cigarette smoking during college.<sup>10</sup> Inquiries into young adult initiation should therefore examine how rates develop specifically among the disadvantaged segments of the Canadian population. Unfortunately, the majority of this evidence has been based upon single cross-sectional and cohort studies, limiting our understanding of the evolution of smoking initiation over time and across socio-economic subgroups.<sup>17</sup>

The objectives of this study are twofold. First, we examine and compare trends in youth (5–17 years) and young adult (18–25 years) smoking initiation rates using data from the Canadian Community Health Survey (CCHS). Second, we examine whether youth and young adult smoking initiation rates are associated with four important correlates of smoking (sex, education, poverty status, and immigration status) and whether trends in initiation during these two periods differ with regard to these factors.

## METHODS

### Data

The CCHS is a repeated cross-sectional survey that collects information related to health status, health care utilization and health determinants for the Canadian population.<sup>18</sup> Statistics Canada conducted the CCHS in 2001, 2003 and 2005 and annually from 2007. The target populations for these cross-sectional surveys were all persons 12 years of age and older residing in Canada, excluding individuals living on Indian Reserves and on Crown Lands, institutional residents, full-time members of the Canadian Armed Forces and residents of some remote regions. One eligible person was chosen randomly from each household to complete the survey. Response rates for the surveys range from a high of 84.7% in 2001 to a low of 67.3% in 2013. The larger project to which this study belongs was approved by the Behavioural Research Ethics Board at the University of British Columbia.

### Measures

We used two outcomes related to smoking initiation as dependent variables: initiation to first cigarette and initiation to daily smoking. *Initiation to first cigarette* was measured using the questions “Have you ever smoked one entire cigarette in your life?” and “At what age did you smoke your first cigarette?” The variable was coded as never smoked, youth initiator and young adult initiator. *Initiation to daily smoking* was measured using the questions, “At the present time, do you smoke cigarettes every day, occasionally or not at all?”, “Have you ever smoked daily?”, and “At what age did you begin to smoke (cigarettes) daily?” The variable was coded as never smoked, youth initiator and young adult initiator.

For socio-demographic correlates, we examined sex, education, poverty status, and immigration status. *Education* was measured from a battery of four questions and was combined to produce four categories: 1) High school not completed, 2) High school

completed, 3) Some post-secondary education, and 4) Post-secondary education completed. *Poverty status* is a dichotomous variable (living in poverty/not living in poverty) and was defined as being in the bottom quintile of household income adjusted for household size. *Immigration status* is a dichotomous variable (born in Canada/immigrated).

### Statistical analyses

Using a full adult sample can hide important cohort effects in regard to smoking initiation trends. We therefore restrict our analyses to participants who were 25 or 26 years of age at the time of the survey. We examine these participants’ initiation to smoking in CCHS cycles 2001, 2003, 2005, 2007, 2009, 2011 and 2013 (initial  $n = 16\,216$ ).

We first present unweighted descriptive data of our sample and weighted proportions of initiation of first cigarette and daily smoking during youth and young adulthood between 2001 and 2013. We also report relative proportions that are calculated by dividing the proportion “initiation among young adulthood” by the sum of the two proportions (initiation during youth and during young adulthood). We then conduct three separate analyses. First, we test whether there were significant changes in the proportions over time by modeling survey year as an independent variable in binary logistic regression models. Survey year (2001–2013) was transformed using its natural logarithm to account for nonlinearity since it improved model fit. We tested trends in an unadjusted bivariate model and an adjusted multivariate model controlling for sex, education, poverty status, and immigration status. Second, we examine correlates of initiation of first cigarette and daily smoking during youth and young adulthood using multinomial logistic regression models controlling for independent variables and survey year. Finally, we examine differences in trends in initiation of first cigarette and daily smoking during youth and young adulthood by sex, education, poverty status, and immigration status using interaction terms in binary logistic regression models. Interaction terms were modeled separately. All variables had less than 2% of missing cases except for poverty status (7.1%). The analyses were performed using a listwise deletion approach given the small amount of missing cases in multivariate models (8.9%). To account for the complex sampling design, we applied the master weight and 500 bootstrap replicate weights provided by Statistics Canada to our models, a strategy recommended by Statistics Canada to produce more accurate point estimates and standard errors respectively.<sup>18</sup> All statistical analyses were conducted in Stata 13.<sup>19</sup>

## RESULTS

### Description of the sample

Table 1 presents the distribution of study variables according to initiation status. In the pooled (unweighted) CCHS sample of participants who were 25–26 years old at the time of survey, 50.1% were 26 years old and 55.2% were women. The yearly sample size varied from 3,351 in 2001 to 1,355 in 2013. In this (unweighted) sample, 36.6% have never initiated a full cigarette, 51.4% did so before age 18, and 12.0% did so during young adulthood. For daily smoking, 74.4% of participants had never initiated daily smoking, 17.6% did so before age 18, and 7.7% did so during young adulthood.

**Table 1.** Description of the study sample (CCHS, 2001–2013) (*n* = 16 216)

Variables	Initiation of first cigarette (FC)			Initiation of daily smoking (DS)			Missing
	Never <i>n</i> (%)	Youth (5–17) <i>n</i> (%)	Young adult (18–25) <i>n</i> (%)	Never <i>n</i> (%)	Youth (5–17) <i>n</i> (%)	Young adult (18–25) <i>n</i> (%)	
Total	5894 (36.6)	8280 (51.4)	1926 (12.0)	12 067 (74.4)	2861 (17.6)	1247 (7.7)	FC = 41 (0.3) DS = 116 (0.7)
Age (years)							
25	2940 (49.9)	4125 (49.8)	971 (50.4)	6005 (49.8)	1454 (50.8)	615 (49.3)	0
26	2954 (50.1)	4155 (50.2)	955 (49.6)	6062 (50.2)	1407 (49.2)	632 (50.7)	
Sex							
Men	2421 (41.1)	3707 (44.8)	1071 (55.6)	5188 (43.0)	1312 (45.9)	740 (59.3)	0
Women	3473 (58.9)	4573 (55.2)	855 (44.4)	6879 (57.0)	1549 (54.1)	507 (41.7)	
Education							
Less than high school	290 (5.0)	1221 (14.9)	113 (5.9)	759 (6.4)	718 (25.5)	157 (12.7)	258 (1.6)
High school completed	895 (15.5)	1657 (20.3)	330 (17.4)	1923 (16.2)	681 (24.2)	300 (24.3)	
Post-secondary education received	449 (7.8)	838 (10.3)	214 (11.3)	1011 (8.5)	330 (11.7)	160 (13.0)	
Post-secondary education completed	4158 (71.8)	4454 (54.5)	1243 (65.4)	8189 (68.9)	1086 (38.6)	617 (50.0)	
Poverty							
Bottom quintile	997 (18.0)	1707 (22.4)	370 (20.5)	1975 (17.5)	843 (32.8)	277 (23.8)	1158 (7.1)
Top quintiles	4543 (82.0)	5916 (77.6)	1439 (79.5)	9323 (82.5)	1724 (67.2)	885 (76.2)	
Immigration status							
Immigrated	892 (15.4)	405 (5.0)	276 (14.5)	1362 (11.5)	82 (2.9)	134 (10.8)	267 (1.7)
Born in Canada	4894 (84.6)	7764 (95.0)	1627 (85.5)	10 507 (88.5)	2736 (97.1)	1102 (89.2)	
Survey year							
2001	1116 (18.9)	1769 (21.4)	440 (22.9)	2364 (19.6)	662 (23.1)	313 (25.1)	0
2003	1170 (19.6)	1818 (22.0)	368 (19.1)	2512 (20.8)	620 (21.7)	239 (19.2)	
2005	1237 (21.0)	1901 (23.0)	388 (20.2)	2600 (21.5)	674 (23.6)	265 (21.3)	
2007	574 (9.7)	873 (10.5)	167 (8.7)	1214 (10.1)	290 (10.1)	117 (9.4)	
2009	605 (10.3)	730 (8.8)	160 (8.3)	1174 (9.7)	223 (7.8)	109 (8.7)	
2011	585 (9.9)	658 (8.0)	195 (10.1)	1134 (9.4)	215 (7.5)	97 (7.8)	
2013	607 (10.3)	531 (6.4)	208 (10.8)	1069 (8.9)	177 (6.2)	107 (8.6)	

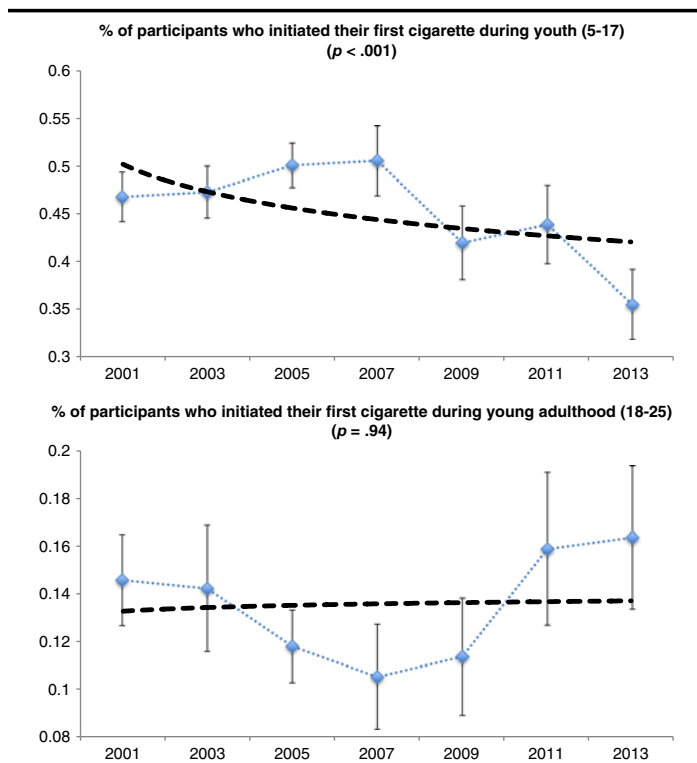
Note: Percentages do not take into account missing values and are rounded to the first decimal.

**Trends in initiation during youth and young adulthood**

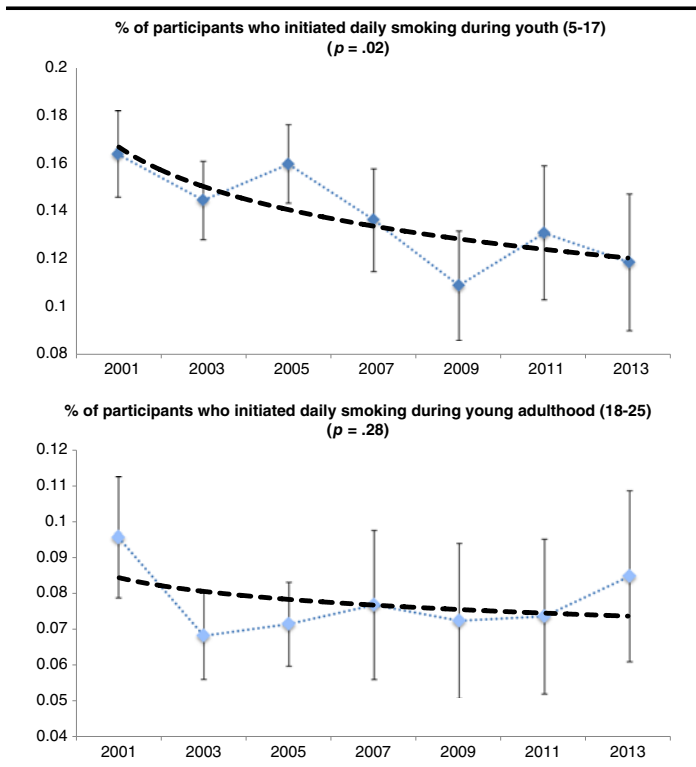
Figures 1 and 2 present the weighted proportions of participants aged 25–26 in the CCHS who initiated their first cigarette (FC) and daily smoking (DS) during youth (5–17 years) and young adulthood (18–25 years). The proportions and their 95% confidence intervals are reported in Supplementary Table 1 (supplementary files mentioned in this article are accessible in the ARTICLE TOOLS section on the journal site). We added a logarithm trend in the plots to represent graphically the tests performed in logistic regression models. Detailed outputs from these models are available in Supplementary Table 2.

For initiation of FC, the proportion of participants in 2001 who had smoked their first cigarette was 46.8% (95% CI 44.2–49.3) during youth and 14.6% (95% CI 12.7–16.5) during young adulthood. In 2013, the proportion for those who initiated their FC during youth decreased to 35.6% (95% CI 31.8–39.2). The downward trend was statistically significant after controlling for socio-demographic characteristics (*p* < 0.001). The proportion for those who initiated their FC during young adulthood in 2013 changed to 16.4% (95% CI 13.4–19.4). There was no statistically significant trend in changes over time (*p* = 0.94).

For initiation of DS, the proportion of participants in 2001 who started smoking daily was 16.4% (95% CI 14.6–18.2) during youth and 9.6% (95% CI 7.9–11.3) during young adulthood. In 2013, the proportion decreased to 11.9% (95% CI 9.0–14.7) for those who initiated DS during youth. This downward trend was statistically significant after controlling for socio-demographic characteristics



**Figure 1.** Initiation of first cigarette among participants aged 25–26 years in the CCHS (2001–2013)



**Figure 2.** Initiation of daily smoking among participants aged 25–26 years in the CCHS (2001–2013)

( $p = 0.02$ ). The proportion of participants who initiated DS during young adulthood changed to 8.5% (95% CI 6.1–10.9) in 2013. There was no statistically significant trend in changes over time ( $p = 0.28$ ).

Relative proportions over time are presented in Figure 3. Looking at the 2001 estimates, we can divide the proportion of participants who initiated their first cigarette during young adulthood (14.58%) by the sum of this proportion and the proportion of initiation to FC during youth (46.76%) for a relative proportion of 23.8% ( $0.1458 / (0.1458 + 0.4676)$ ). This means that 23.8% of participants who have ever initiated did so during their young adulthood. For initiation to FC, the relative proportion of initiators during young adulthood increased from 23.8% (95% CI 20.9–26.7) in 2001, to a low of 17.26% (95% CI 13.9–20.6) in 2007 up to 31.5% in 2013

(95% CI 26.6–36.5). Relative proportions in 2005, 2007 and 2009 were significantly lower than the relative proportion in 2013. When modelling the time trend for these relative proportions, we found that a quadratic trend best fit the changes over time (linear and quadratic terms were both significant at the  $p < 0.001$  level). In this model controlling for socio-demographic characteristics, the predicted relative proportions for the 2003, 2005, 2007, 2009 and 2011 survey cycles were significantly lower than the 2013 predicted proportion. We present the quadratic time trend in Supplementary Figure 1. For initiation to daily smoking, the relative proportion of initiators during young adulthood increased from 36.9% (95% CI 31.7–42.0) in 2001, down to 30.9% (95% CI 26.7–35.2) in 2005 and up to 41.7% (95% CI 32.3–51.1) in 2013. There was no statistically significant trend in changes in relative proportions for initiation to DS during young adulthood over time.

**Correlates of initiation during youth and young adulthood**

Table 2 presents associations between four independent variables – sex, educational attainment at age 25–26, living in poverty at age 25–26, and immigration status – and the four outcomes, i.e., having initiated a first cigarette or daily smoking during youth or young adulthood in comparison to having never initiated.

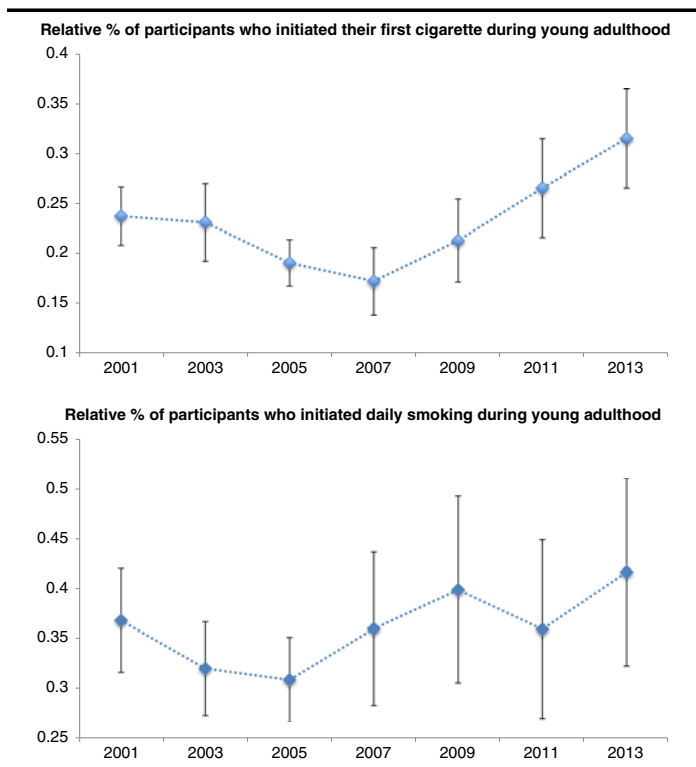
For initiation of FC, we found that women (RRR = 0.80, 95% CI 0.71–0.91) and immigrants (RRR = 0.27, 95% CI 0.22–0.33) had lower relative odds of having initiated during youth. Those who did not finish high school (RRR = 3.95, 95% CI 3.08–5.05), only completed high school (RRR = 1.58, 95% CI 1.34–1.86), or received some post-secondary education (RRR = 1.52, 95% CI 1.22–1.91) at 25–26 years of age had higher relative odds of having initiated during their youth in comparison to those who completed post-secondary education. With regard to initiation of FC during young adulthood, women (RRR = 0.55, 95% CI 0.45–0.66) had lower relative odds of having initiated then. Participants with some post-secondary education at 25–26 years old (RRR = 1.59, 95% CI 1.13–2.26) had higher relative odds of having initiated during young adulthood.

For initiation of DS, immigrants (RRR = 0.21, 95% CI 0.14–0.31) had lower relative odds of having initiated during youth. Participants who lived in poverty at 25–26 years old

**Table 2.** Correlates of smoking initiation during youth and young adulthood (CCHS, 2001–2013)

Variables	Initiation of first cigarette				Initiation of daily smoking			
	Youth		Young adult		Youth		Young adult	
	RRR	95% CI	RRR	95% CI	RRR	95% CI	RRR	95% CI
Sex								
Female (male = ref.)	<b>0.80</b>	<b>(0.71, 0.91)</b>	<b>0.55</b>	<b>(0.45, 0.66)</b>	0.88	(0.75, 1.05)	<b>0.46</b>	<b>(0.37, 0.57)</b>
Education at 25–26 years								
Less than high school	<b>3.95</b>	<b>(3.08, 5.05)</b>	1.34	(0.90, 2.01)	<b>7.46</b>	<b>(5.94, 9.37)</b>	<b>2.59</b>	<b>(1.78, 3.77)</b>
High school completed	<b>1.58</b>	<b>(1.34, 1.86)</b>	1.15	(0.91, 1.46)	<b>2.89</b>	<b>(2.37, 3.51)</b>	<b>1.64</b>	<b>(1.26, 2.15)</b>
Post-secondary received (post-secondary completed = ref.)	<b>1.52</b>	<b>(1.22, 1.91)</b>	<b>1.59</b>	<b>(1.13, 2.26)</b>	<b>2.62</b>	<b>(2.00, 3.43)</b>	<b>1.69</b>	<b>(1.24, 2.31)</b>
Poverty at 25–26 years								
Bottom quintile (above = ref.)	1.12	(0.96, 1.31)	1.06	(0.84, 1.33)	<b>1.65</b>	<b>(1.36, 1.99)</b>	1.22	(0.95, 1.60)
Immigrant status								
Immigrated (born in Canada = ref.)	<b>0.27</b>	<b>(0.22, 0.33)</b>	0.86	(0.68, 1.09)	<b>0.21</b>	<b>(0.14, 0.31)</b>	1.03	(0.80, 1.39)

Note: Weighted multinomial logistic regression using listwise deletion. Models included all independent variables and controlled for survey year. Confidence intervals were computed using 500 bootstrap replicate weights. Bold coefficients are significant at the  $\alpha < 0.05$  level.



**Figure 3.** Relative proportions of initiation during young adulthood versus youth in the CCHS (2001–2013)

(RRR = 1.65, 95% CI 1.36–1.99) had higher relative odds of having initiated during youth. Participants who did not finish high school (RRR = 7.46, 95% CI 5.94–9.37), only completed high school (RRR = 2.89, 95% CI 2.37–3.51) or completed some post-secondary education (RRR = 2.62, 95% CI 2.00–3.43) at 25–26 years old had higher relative odds of initiating during their youth in comparison to those who completed post-secondary education. With regard to initiation of DS during young adulthood, women (RRR = 0.46, 95% CI 0.37–0.57) had lower relative odds of having initiated then. We also found that those participants who did not finish high school (RRR = 2.59, 95% CI 1.78–3.77), only completed high school (RRR = 1.64, 95% CI 1.26–2.15) or had some post-secondary education (RRR = 1.69, 95% CI 1.24–2.31) at 25–26 years old had higher relative odds of initiating during young adulthood in comparison to those who completed post-secondary education.

**Differences in trends in initiation during youth and young adulthood**

Next we examine whether sex, educational attainment at age 25–26, living in poverty at age 25–26, and immigration status also modify trends in smoking initiation during youth and young adulthood. Detailed results from the logistic regression models that tested interaction terms are shown in Supplementary Table 2. Two groups defined by education – those who did not finish high school and those who finished post-secondary education at 25–26 years old – had significant differences in the rates of change in initiation of first cigarette ( $p = 0.03$ ) and daily smoking ( $p = 0.02$ ) during youth over time. Other interaction terms were not statistically significant.

Supplementary Figure 2 presents the predicted probabilities of participants to have initiated their first cigarette and daily smoking

during youth for those who did not finish high school and those who finished post-secondary education at 25–26 years old, with other factors held at their mean values. For initiation of FC, predicted probabilities of having initiated during youth among those who did not finish high school changed from 67.5% (95% CI 60.7–74.2) in 2001 to 72.4% (95% CI 66.1–78.8) in 2013. In comparison, predicted probabilities of having initiated during youth among those who completed post-secondary education decreased significantly from 46.2% (95% CI 43.1–49.3) in 2001 to 37.0% (95% CI 34.3–39.7) in 2013. For initiation of DS, predicted probabilities of having initiated during youth among those who did not finish high school changed from 33.5% (95% CI 26.7–40.3) in 2001 to 35.7% (95% CI 29.1–42.3) in 2013. In comparison, predicted probabilities of having initiated during youth among those who completed post-secondary education decreased significantly from 10.6% (95% CI 8.6–12.6) in 2001 to 6.2% (95% CI 5.2–7.3) in 2013.

**DISCUSSION**

Our goal was to examine and compare the rates and trends in initiation during youth and young adulthood and to examine whether selected demographic and socio-economic factors were associated with smoking initiation and influenced changes in smoking initiation over time. The transition from adolescence to adulthood is accompanied by changes in family, school and work environments,<sup>20</sup> and we currently know very little about the promoting or deterring exposures that young adults experience with regard to smoking uptake.<sup>13</sup> These transitions are further shaped by young adults’ socio-economic resources which may help them avoid smoking initiation. The imperative to address the unequal distribution of smoking comes after decades of research showing the potentially unequal influence of tobacco control initiatives on smoking behaviour.<sup>21</sup> This issue remains critically important in light of the deficient evidence on interventions able to reliably reduce smoking-related inequalities<sup>22,23</sup> and the widening of inequalities in smoking initiation over time.<sup>24–26</sup>

Consistent with an increasing amount of research on young adult initiation,<sup>10–13</sup> we found that proportions of initiation made during young adulthood had not decreased in our retrospective cohorts between 2001 and 2013. This means that initiation during young adulthood also represented a progressively larger proportion of initiation behaviour, which is in stark contrast with the first reports to study this issue.<sup>2</sup> In the most recent retrospective cohort of adults (2013), more than 30% of those who initiated their first cigarette did so during their young adulthood and more than 40% of those who initiated daily smoking did so during this period (however, changes in the relative proportions of initiation to DS during young adulthood were non-significant). These results highlight the missed opportunities of integrating young adults in tobacco control initiatives.

As with initiation during youth, men and participants with fewer educational credentials were disproportionately likely to initiate DS during young adulthood, a finding consistent with the current literature.<sup>10</sup> For initiation of a first cigarette, we found statistically significant differences between the “some post-secondary education” and “post-secondary education completed” groups, supporting other studies which suggest that post-secondary institutions may provide a fertile ground for smoking initiation

in certain groups.<sup>8–10</sup> Living in poverty and having immigrated, while influencing risk of initiation during youth, were not significantly associated with participants' odds of initiating specifically during young adulthood. None of these factors modified the stagnant initiation rates during young adulthood.

In contrast to the disappointing results in young adulthood, initiation rates during youth decreased by approximately 24% (first cigarette) and 27% (daily smoking) between cohorts in 2001 and 2013. These results suggest that Canada's public health efforts – nation-wide legislations and programs that promoted restrictions on tobacco advertising, youth access and smoking in public spaces, tax hikes on tobacco products and graphic warnings on packaging – have been successful in reducing youth initiation.<sup>27,28</sup> Efforts directed towards young adults could reap similar benefits. However, certain groups did not enjoy the same level of success in youth initiation: in particular, the most socially disadvantaged (as measured by their lack of educational credentials in adulthood) witnessed no progress at all. These results suggest that tobacco control initiatives have failed to address inequalities and had unforeseen negative consequences on its reduction.<sup>21,29</sup>

### Strengths and limitations

The main strengths of this study lie in the strong methodology, large sample size and repeated nature of the Canadian Community Health Survey, Statistics Canada's flagship health survey. There are two main limitations in this study. The first pertains to the non-overlapping time periods between youth and young adult trends that are observed by this study design. Examining retrospectively the initiation that occurred in participants when they were 18 to 25 between 2001 and 2013 refers to what occurred in the seven-year period preceding each survey year. Correspondingly, examining retrospectively the initiation that occurred when participants had not reached 18 years old refers to the period that occurred before that seven-year period. Readers should not compare directly trends in youth and young adulthood occurring over the same year. The second limitation pertains to the causality implied in certain associations. We emphasize that the associations between education, poverty, and smoking initiation are correlational and that we cannot rule out reverse causation or confounding by other correlates of smoking such as the consumption of other tobacco products, alcohol and drugs.

### CONCLUSION

Young adults now represent an important group for tobacco control. While initiating at an earlier age increases one's risk of smoking later,<sup>30</sup> a sizable proportion of those who initiate during young adulthood still become regular smokers.<sup>6</sup> Evidence suggests that even light and intermittent smoking (which is more prevalent among young adults) has a high risk of promoting daily smoking, morbidity and mortality in adulthood.<sup>31,32</sup> Young adulthood initiation needs to be part of the focus of future tobacco control initiatives. One first step in this direction should be the systematic inclusion of young adults in Canadian youth tobacco surveillance enterprises in order to produce strong evidence on young adult smoking. In the meantime, practitioners and policy-makers should seek to incorporate young adults in their tobacco control strategies and ensure that these strategies do not contribute to widening inequalities in smoking.

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## RÉSUMÉ

**OBJECTIFS :** Des données récentes suggèrent que plusieurs jeunes adultes continuent de s'initier à la cigarette à partir de 18 ans. Il existe peu de données probantes sur les tendances en matière d'initiation tabagique.

**MÉTHODES :** Nous avons examiné les taux d'initiation à la première cigarette (PC) et au tabagisme quotidien (TQ) chez les jeunes (5-17 ans) et les jeunes adultes (18-25 ans) en utilisant les données de 2001, 2003, 2005, 2007, 2009, 2011 et 2013 de l'Enquête sur la santé dans les collectivités canadiennes. Nous avons utilisé tous les participants âgés de 25-26 ans afin d'obtenir sept cohortes rétrospectives mutuellement exclusives. Nous avons ensuite examiné quatre corrélats de l'initiation tabagique – le sexe, l'éducation, le statut de pauvreté et le statut d'immigrant – et si ces facteurs modifiaient les tendances temporelles.

**RÉSULTATS :** Les taux d'initiation ont diminué au cours de la période <18 ( $p < 0,001$  pour PC,  $p = 0,02$  pour TQ), mais pas au cours de la période 18-25 ( $p = 0,94$  pour PC,  $p = 0,28$  pour TQ). Pendant cette période, nous avons constaté que les hommes et les répondants moins diplômés avaient un risque plus élevé d'initier et que ces tendances étaient constantes dans tous les sous-groupes. Les tendances au cours de la période <18 étaient cependant différentes selon le niveau d'éducation : les participants qui n'ont jamais terminé leurs études secondaires n'ont apprécié aucune diminution comparativement à ceux qui ont fait des études postsecondaires.

**CONCLUSION :** La lutte contre le tabagisme n'a pas influencé l'initiation tabagique qui se produit à l'âge du jeune adulte. Les décideurs gagneraient donc à les intégrer davantage dans leur planification.

**MOTS CLÉS :** tabagisme; jeunes adultes; facteurs socioéconomiques; Canada