

Slim cigarette smoking prevalence among Canadian youth smokers: Implications for federal standardized packaging legislation

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ABSTRACT

OBJECTIVES: Tobacco companies market to females and young people through slim cigarette design features and packaging. This study assessed the prevalence and perceptions of slim cigarette smoking in grades 9–12 student smokers across Canada using multiple data sources.

METHODS: Data from three cycles of the Youth Smoking Survey (2008/2009 to 2012/2013) and one cycle of the Cancer Risk Assessment in Youth Survey (2015) were used. The prevalence and perceptions of slim cigarette smoking among current smokers were compared by sex and grade.

RESULTS: In all surveys, the rate of slim cigarette use was higher among females than males; however, this difference was not statistically significant. In the two most recent surveys, grades 9–10 students had a significantly higher prevalence of use compared with grades 11–12 students. The majority of students (59.8% of females and 53.3% of males) responded, “I don’t know” to the survey item seeking to determine perceptions of harm of slim cigarettes compared with regular cigarettes.

CONCLUSION: Slim cigarette use among Canadian grades 9–12 students represents a small but growing problem. Youths’ uncertainty around the harms associated with slim cigarette use and the effect of slim cigarette packaging and design on harm perceptions indicate the need for product design regulations and further education in Canada.

KEY WORDS: Adolescent; smoking; product packaging

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

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Tobacco use poses major health risks¹ and continues to be the leading cause of preventable death globally.^{2,3} In Canada, almost 17% of all deaths are attributable to smoking, and over 85% of lung cancer cases are related to smoking.⁴ Despite dramatic declines in smoking among Canadian youth, 11% of those aged 15–19 in Canada are current smokers.⁵ Adolescence is a critical time for smoking initiation, and therefore policy interventions targeting and protecting youth are a crucial element of tobacco control efforts.

In Canada, tobacco industry marketing has been curtailed through tobacco control policies such as those that disallow print, radio, and television advertising,⁶ restrictions on in-store displays (known as point-of-sale displays),⁶ banning of the terms “light” and “mild” from being associated with cigarette brands, and mandatory warning labels on cigarette packages, which currently take up 75% of the front and back of packages.⁷ One of the last frontiers in traditional tobacco industry marketing in Canada is the cigarette packaging and product itself, which is central to the tobacco industry’s efforts to promote tobacco use.⁸

Packaging plays an important role in creating and reinforcing brand imagery.^{9,10} Consumer research by tobacco companies has demonstrated that alternative cigarette packaging and design can reduce risk perceptions and positively affect purchase interest.¹¹ Deviations from standard cigarette packaging and product design have been associated with positive imaging, consumer perceptions of quality, and false health beliefs.^{11,12} Slim and superslim cigarettes are one such innovation that is used to entice women,

reduce perceptions of harm, and attract new smokers.¹³ Furthermore, youth are attracted to novelty and branded cigarette packs.^{10,14}

Although slim cigarettes have been available in Canada for some time, superslim cigarettes were introduced to the Canadian market as recently as 2007.¹⁵ The introduction of slim/superslim cigarettes (hereafter, we refer to slim/superslim cigarettes simply as slim cigarettes) is of concern because they have a smaller diameter than traditional cigarettes and can reduce harm perceptions.¹⁶ Borland and Savvas¹⁷ found that cigarette rod design features have measurable effects on participant perceptions of product attractiveness, quality,

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SLIM CIGARETTE SMOKING IN CANADIAN YOUTH SMOKERS

and taste. Slim cigarettes are perceived to be less harmful than regular cigarettes by youth and women,¹⁸ and are more likely to be described by consumers as mild or low-tar relative to regular cigarettes.¹¹ Further, slim cigarettes are perceived as more pleasant for beginner smokers.¹⁶ In a national sample of US 18–19-year-old women, slim cigarette packages were more likely to be rated as less harmful than regular packages, even when the colour and brand were removed.¹⁹ Young women tend to find slim cigarettes attractive and prefer them to standard “fat” cigarettes.^{11,16,17,20} Appealing qualities include sizes appropriate for fitting easily into hands or purses.¹¹

Tobacco surveillance conducted among adults in Canada, the US, the UK, and Australia revealed that slim cigarette smokers are more likely to believe their own brand to be less harmful than regular cigarettes.¹⁸ These misconceptions are worrying, given that slim cigarettes are at least as harmful as regular cigarettes.^{15,21} Slim cigarettes are specifically promoted to females and youth^{18,22} using themes and imagery from historic advertisements,^{18,23} which associate slim cigarette smoking with body weight maintenance.^{20,12} Evidence from tobacco industry documents suggests that pack structure is used to attract young consumers.¹¹ One experimental study found that the most important feature in determining young women’s intention to try cigarettes was pack structure,²⁴ which can be addressed through legislation on plain packaging, as discussed below.

Currently, 4 countries have finalized requirements for plain packaging, and another 14 are formally considering or are in the process of developing plain packaging legislation.²⁵ Legislation in Australia, which was the first country to implement plain packaging legislation in 2012, regulates tobacco packaging but not cigarette size or shape. Other countries, including Canada, are considering plain and standardized packaging, which would regulate both the package and the cigarettes themselves.²⁵

In May 2016, the Canadian federal government released a report for consultation on “Plain and Standardized Packaging” for tobacco products.²⁶ The government sought feedback on the proposal, which included requiring a common appearance for cigarettes, in part based on scientific evidence that slim cigarettes convey weaker or milder taste and false beliefs that they are less harmful.²⁶

There is ample evidence from surveillance data, experimental data, and the tobacco industry itself that slim cigarettes are successfully marketed to women, girls, and youth. Despite this, the prevalence of slim cigarette smoking among Canadian youth is unknown. The current study combines three waves of youth tobacco use surveillance data and data from a 2015 multi-province, school-based survey to describe the prevalence and perceptions of slim cigarette smoking among Canadian grades 9–12 students. This study therefore fills a gap in knowledge about the prevalence of slim cigarette smoking in Canada and provides timely and relevant evidence given recent federal announcements to move ahead on plain packaging in Canada.

METHODS

Data from three waves of the Youth Smoking Survey (YSS; now the Canadian Student Alcohol, Tobacco and Drugs Survey, CSTADS) (2008/2009, 2010/2011, and 2012/2013) were used in the current study, as were data from the 2015 Cancer Risk Assessment in Youth Survey (CRAYS). Briefly, the YSS is a biennial, national, and provincially generalizable, school-based, paper-and-pencil survey that measures knowledge, attitudes, and behaviours related to tobacco use among Canadian students (also see www.cstads.ca). CRAYS is a provincially generalizable, paper-and-pencil, school-based survey implemented in seven provinces from January to December 2015 and measures tobacco use and perceptions, and other cancer risk behaviours (see <https://uwaterloo.ca/crays/>). Table 1 describes the data sources used in the current study,

Table 1. Data sources used in the current study: Youth Smoking Survey (YSS) waves 2008/2009, 2010/2011, 2012/2013, and Cancer Risk Assessment in Youth Survey (CRAYS) 2015

Target population	2008/2009 YSS	2010/2011 YSS	2012/2013 YSS	2015 CRAYS
	Grades 6–12	Grades 6–12	Grades 6–12	Grades 9–12
Number of participating provinces	10	9 (New Brunswick excluded)	9 (Manitoba excluded)	7 (Manitoba, New Brunswick, Prince Edward Island excluded)
Sampling strategy	Stratified random sample. Stratified by province; regional smoking rate; school type (elementary vs. secondary school); urban vs. rural (for Ontario, Quebec, Alberta).	Stratified random sample. Stratified by province; regional smoking rate; school type (elementary vs. secondary school); urban vs. rural (for Ontario, Quebec, Alberta).	Stratified random sample. Stratified by province; regional smoking rate; school type (elementary vs. secondary school); urban vs. rural (for Ontario, Quebec, Alberta).	Stratified random sample. Stratified by province.
School participation rate*	59%	56%	64%	30%
Number of participating schools	329	426	450	74
Student participation rate†	73%	73%	72%	41%
Number of participating students	29 296	31 396	27 404	12 110

* School participation rate: percentage of schools that participated out of those approached to participate.

† Student participation rate: percentage of eligible students within participating schools who participated.

including the survey design, target population, participation rates, and number of participating schools and students.

All four waves of data collection were administered during class time in the various school years, and student participants were not remunerated. Given the low prevalence of tobacco use among grades 6–8 students and to maintain consistent age ranges for the data collected in this study, data from grades 9–12 students were used in the following analyses. Analyses were conducted in 2016. YSS and CRAYS were approved by the Office of Research Ethics at the University of Waterloo and school board ethics review committees, as required. YSS was also approved by the Health Canada Research Ethics Board.

MEASURES

The current study presents data from all questions in these four surveys related to slim and superslim cigarette use and attitudes. Questions on attitudes toward and use of slim and superslim cigarettes represent dependent variables in the current study and are described below.

Dependent variables

2008/2009 YSS

Participants were asked what brand of cigarettes they usually smoked and then asked “For the cigarette brand that you indicated, what size cigarette do you usually smoke? (Check only one)”. Response options included: I do not smoke; I do not have a regular size; King Size; Regular Size; Superslim; 100s; Other. Students were coded as slim cigarette smokers if they marked “Superslim” or “100s”, since in Canada, 100s (cigarettes that are 100 mm in length) are almost exclusively slim or superslim varieties.

2010/2011 YSS

Participants were asked what brand of cigarettes they usually smoked and then asked, “For the cigarette brand that you indicated, what size cigarette do you usually smoke? (Mark all that apply).” Response options included: I do not smoke; I do not have a regular size; King Size; Regular Size; Superslim; 100s; Other. Students were coded as slim cigarette smokers if they marked “Superslim” and/or “100s”.

2012/2013 YSS

Participants were asked, “Why do you smoke the brand of cigarettes that you do? (Mark all that apply).” Response options included: I do not smoke; I do not have a usual brand; My friends smoke the same brand; My parents smoke the same brand; I like the packaging; The brand costs less than other brands; I like the image of the brand; I like the taste; They are the only ones that I can get; For the nicotine buzz; I like the slim (or super-slim) size; I like the menthol flavour; Other. Students were coded as slim cigarette smokers if they responded “I like the slim (or super-slim) size”.

2015 CRAYS

To assess students’ harm perceptions, the following question was asked, “Compared to regular cigarettes, slim cigarettes are ...”, with response options: a lot less harmful; a little less harmful; as harmful; a little more harmful; a lot more harmful, and; I don’t

know. Responses were collapsed to provide the following variables: Less harmful; As harmful; More harmful; I don’t know.

One additional question assessed students’ usual brand of cigarettes through the question, “Do you have a usual brand of cigarettes? If yes, please describe your usual brand”. Response options included: I do not smoke; I do not have a usual brand; Yes, I have a usual brand. For students who reported having a usual brand, they were asked, using an open-ended format question, to identify the brand, identify the type (e.g., slim), and identify the size (e.g., king or regular). All open-ended survey responses were compiled verbatim in an Excel spreadsheet and were coded to reflect whether any information contained in the brand (e.g., brand names of slim cigarettes), type (e.g., “slim”, or brand colours of slim cigarettes), and/or size fields (e.g., 100s) indicated slim or superslim cigarettes.

Covariates

Covariates of interest included the respondent’s sex (male, female), grade (9–12), and number of cigarettes usually smoked each day in the previous 30 days, which were derived from the question, “Thinking back over the last 30 days, on the days that you smoked, how many cigarettes did you *usually* smoke each day?” Response options included: None; A few puffs to one whole cigarette; 2–3 cigarettes; 4–5 cigarettes; 6–10 cigarettes; 11–20 cigarettes; 21–29 cigarettes; 30 or more cigarettes. Responses were collapsed to the following categories: None; 1–10 cigarettes; more than 10 cigarettes.

STATISTICAL ANALYSIS

Survey weights were used to adjust for sample selection (school and class levels), as well as non-response (at the school, class, and student levels), and post-stratification of the sample population relative to grade and sex distribution in the total population. Bootstrap weights were applied for all analyses in YSS data. Strata and cluster information were applied for all analyses in CRAYS data.

Descriptive statistics were used to show the prevalence of grades 9–12 student smokers who reported smoking slim or superslim cigarettes in the different survey years by sex and grade. Rao Scott chi-square statistics were applied to calculate *p* values for associations.

RESULTS

Table 2 shows the weighted prevalence of slim cigarette smoking among current smokers (defined as those who reported smoking at least one cigarette in the previous 30 days) by sex and by grade. In 2008/2009, 1.3% (95% confidence interval [CI]: 0.6–2.1) of current smokers reported usually smoking slim cigarettes. The prevalence was 2.6% (95% CI: 0.8–4.4) in 2010/2011 and 5.1% (95% CI: 2.7–7.5) in 2012/2013. The difference between females and males in all datasets was not statistically significant. On the other hand, the higher prevalence of slim cigarette use among grades 9–10 students relative to grades 11–12 students was statistically significant in the 2012/2013 YSS ($p = 0.0022$).

Table 3 describes the results from the 2015 CRAYS data. Specifically, 2.9% (95% CI: 1.8–4.0) of students who reported a usual brand of cigarettes reported usually smoking slim cigarettes. While there was no significant difference in prevalence of slim

Table 2. Weighted prevalence of slim cigarette smokers among grades 9–12 current smokers (at least one cigarette in the last 30 days), 2008/2009 YSS, 2010/2011 YSS, and 2012/2013 YSS

Characteristics of survey population	2008/2009 YSS			2010/2011 YSS			2012/2013 YSS		
	N weighted = 308 400			N weighted = 237 104			N weighted = 174 485		
	% (N)*	95% CI	p value	% (N)†	95% CI	p value	% (N)‡	95% CI	p value
Canada	1.3 (4124)	0.6–2.1		2.6 (6171)	0.8–4.4		5.1 (8902)	2.7–7.5	
Sex									
Female	1.4 (1879)	0.6–2.1	0.8612	3.3 (3402)	0.1–6.6	0.2025	6.5 (4893)	1.9–11.1	0.2189
Male	1.3 (2245)	0.4–2.2		2.1 (2769)	1.1–3.0		4.0 (4009)	2.3–5.8	
Grade									
9–10	1.8 (2376)	0.7–2.9	0.1822	3.1 (2863)	1.6–4.6	0.4263	8.5 (5622)	2.9–14.2	0.0022
11–12	1.0 (1748)	0.2–1.8		2.3 (3309)	0.0–4.5		3.0 (3280)	2.0–4.1	

Note: CI = confidence interval.

* 2008/2009 Youth Smoking Survey (YSS): Weighted prevalence of students reporting usually smoking super slim cigarettes or 100s in response to the question, “For the cigarette brand that you indicated, what size cigarette do you usually smoke? (Check only one)”.

† 2010/2011 YSS: Weighted prevalence of students reporting usually smoking super slim cigarettes and/or 100s in response to the question, “For the cigarette brand that you indicated, what size cigarette do you usually smoke? (Mark all that apply)”.

‡ 2012/2013 YSS: Weighted prevalence of students who reported, “I like the slim (or super-slim) size” in response to the question, “Why do you smoke the brand of cigarettes that you do? (Mark all that apply)”.

cigarette use by sex, grades 9–10 students had a significantly higher prevalence of use compared with grades 11–12 students ($p = 0.0191$). The vast majority of students (59.8% of females and 53.3% of males) responded, “I don’t know” to the survey item seeking to determine perceptions around how harmful slim cigarettes are compared with regular cigarettes.

DISCUSSION

A small but growing proportion of Canadian youth smokers report usually smoking slim or superslim cigarettes. There were no significant sex differences in slim cigarette use, but in the two most recent surveys, younger students (grades 9 and 10) had a significantly higher prevalence of slim cigarette use relative to older students (grades 11 and 12). Finally, the majority of students were unsure whether slim cigarettes were more or less harmful than regular cigarettes. Each of these findings is discussed in more detail below.

Few studies to date have assessed the prevalence of slim cigarette use at a population level, and none has done so among Canadian youth. Data from the 2006 International Tobacco Control study found that among adult smokers, 1.2% of Canadians, 5.4% of Americans, 0% of British respondents, and 1.3% of Australians reported a slim usual brand.¹⁸ In the US, over one-third of adult current smokers reported smoking long/ultra-long cigarettes in 2011/2012 (virtually all of which are also slim cigarettes), despite an overall decline in long/ultra-long cigarette smoking from 1999 to 2012.²⁷ This is the first study to our knowledge to report the prevalence estimates of slim cigarette use among youth smokers in a nationally generalizable population.

The lack of significant difference in prevalence of slim cigarette use by sex was surprising, given the evidence that slim cigarettes predominantly target women and girls,²⁸ and that women and girls report slim cigarette packs more attractive than “plain” packs.¹⁹ One explanation for this discrepant finding is that gendered tobacco use may become more apparent over time, and our study examined youth rather than adults. Regardless of this, gendered tobacco industry marketing strategies raise issues of gender equity in tobacco control research, practice, and policy.²⁹ Cigarettes are

marketed to women as a symbol of emancipation,^{30–32} beauty, independence, and sexual desirability.^{13,23} In part, this explains why the gap between men’s and women’s smoking is narrow in high-income countries and particularly in countries with high levels of women’s empowerment,³³ including Canada.³⁴ Marketing that targets women’s and girls’ weight concerns undermines women’s emancipation and, by drawing women into the tobacco epidemic, may increase gendered health inequity. The fact that these types of marketing strategies are often countered by government-led, gendered social marketing campaigns like, “If you smoke, your future’s not pretty”³⁵ can further play into gendered social structures and systems.³⁶ Legislation to create plain and standardized packaging, which is currently under consideration in Canada, is an example of positive action towards a framework that improves gender equity. Such legislation would reduce the industry’s ability to profit from the pressure women face to be slender/desirable.³⁷ Gender-responsive health promotion efforts should be used to adjust for the aggressive targeting of young women by tobacco companies while working to undermine persistent, shaming, and stereotyped ideas about womanhood and the values women hold.^{29,36}

Second, in terms of age, in the most recent surveys we examined (2011/2012 YSS and 2015 CRAYS), a larger proportion of grades 9–10 students reported slim cigarettes use compared with grades 11–12. This is a novel finding to our knowledge, although unsurprising, given that youth are receptive to novelty packs^{11,38} and that slim cigarettes are perceived as more pleasant and palatable for new smokers.¹⁶ Moreover, youth perceive slim cigarettes to be weaker, less harmful, lighter, and cleaner than regular cigarettes, and as mild or low-tar,^{11,16} which is related to our next major finding regarding perceptions of harm.

Third, the majority of youth smokers (56.2%) reported not knowing whether slim cigarettes were more or less harmful than regular cigarettes. Recent evidence suggests that slim cigarettes are not actually less harmful than regular cigarettes.¹⁵ Despite this, industry documents reveal that tobacco companies are aware of and exploit the effects of slim cigarette packaging on consumer perception of harm²⁸ and, as noted, slim cigarettes are often

Table 3. Weighted prevalence of slim cigarette smokers among grades 9–12 current smokers (at least one cigarette in the last 30 days) and perceptions of harm (full sample), 2015 Cancer Risk Assessment in Youth Survey (CRAYS)

Characteristics of survey population		2015 CRAYS N weighted = 86 444													
		Prevalence of slim cigarette use			Less harmful†			As harmful			More harmful‡			I don't know	
% (N)*	95% CI	p value	% (N)	95% CI	% (N)	95% CI	% (N)	95% CI	% (N)	95% CI	% (N)	95% CI	% (N)	95% CI	p value
Canada	2.9 (2534)	1.8–4.0	13.0 (10 994)	10.1–15.9	28.5 (24 033)	22.6–34.3	2.3 (1954)	1.2–3.4	56.2 (47 407)	50.3–62.1					
Sex															
Female	3.0 (1152)	1.0–4.9	12.3 (4671)	8.4–16.2	26.3 (9973)	16.4–36.3	1.6 (594)	0.0–3.1	59.8 (22 642)	48.6–70.9	0.5471				
Male	2.9 (1382)	1.2–4.5	13.6 (6323)	10.0–17.2	30.2 (14 060)	24.1–36.4	2.9 (1360)	1.3–4.5	53.3 (24 765)	46.4–60.1					
Grade															
9–10	5.1 (1352)	2.4–7.9	11.7 (3027)	7.5–15.9	27.4 (7102)	16.4–38.5	4.6 (1177)	1.6–7.5	56.3 (14 568)	44.5–68.1	0.2846				
11–12	2.0 (1182)	0.8–3.1	13.6 (7967)	9.1–18.1	29.0 (16 931)	22.6–35.2	1.3 (777)	0.4–2.3	56.1 (38 239)	49.1–63.1					

* 2015 CRAYS: Weighted prevalence of students who indicated smoking slim, super-slim, or 100s cigarettes within the open-ended brand, size and type question.

† Weighted prevalence of students who responded “A lot less harmful” or “A little less harmful” to the statement, “Compared to regular cigarettes, slim cigarettes are...”.

‡ Weighted prevalence of students who responded “A little more harmful” or “A lot more harmful” to the statement, “Compared to regular cigarettes, slim cigarettes are...”.

perceived as less harmful than regular cigarettes among adults^{18,19} and youth.^{11,16,39} The findings here, along with existing evidence, indicate that tobacco control campaigns should continue to educate youth and adults on the harms associated with all types of combustible tobacco.

This study has several limitations. First and foremost, survey items assessing slim cigarette use in the YSS were not consistently worded over time. In 2008/2009 YSS, students were instructed to “check only one” option in response to the question, “For the cigarette brand that you indicated, what size cigarette do you usually smoke?” In 2010/2011 YSS, students were instructed to “mark all that apply” to the same question. The change in survey items may have increased the number of students reporting that they usually smoke slim cigarettes. In 2012/2013 YSS, students who responded “I like the slim (or super-slim) size” in response to a question about why they smoke their particular brand of cigarettes was used to assess slim cigarette use. Had the questions been consistent, we could have accurately compared changes over time. Another limitation is that questions assessed the size of the cigarettes that participants “usually” smoked. Therefore, students who smoke slims in addition to other sizes of cigarettes may not have been captured, and the results may therefore underestimate the overall prevalence of slim cigarette use among Canadian youth. CRAYS data, on the other hand, had different sampling methods and target population, and only students who reported smoking a “usual brand” and who reported slim cigarettes in an open-ended question format were included as slim cigarette smokers.

Despite the limitations, this nationally and provincially generalizable study provides the first evidence on students’ slim cigarette use in Canada. It has reinforced trends found in the literature and supports the need for further surveillance efforts to determine whether use of novel or non-traditional tobacco product among youth is growing or declining.⁴⁰ Eliminating slim cigarettes from the Canadian market may serve to reduce youth uptake of smoking, which would reduce future cancer incidence. These findings therefore support federal action on plain and standardized packaging such as that currently being considered by the federal government in Canada.⁴¹

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RÉSUMÉ

OBJECTIFS : Les fabricants des produits du tabac ciblent les femmes et les jeunes en utilisant les caractéristiques de conception et les emballages des cigarettes minces. Nous avons évalué la prévalence et les perceptions de l'usage des cigarettes minces chez les élèves fumeurs de la 9^e à la 12^e année au Canada à l'aide de sources de données multiples.

MÉTHODE : Nous avons utilisé les données de trois cycles de l'Enquête sur le tabagisme chez les jeunes (2008-2009 à 2012-2013) et d'un cycle de l'enquête Cancer Risk Assessment in Youth Survey (2015). La prévalence et les perceptions de l'usage des cigarettes minces chez les fumeurs actuels ont été comparées par sexe et par classe.

RÉSULTATS : Dans toutes les enquêtes, le taux d'utilisation des cigarettes minces était supérieur chez les filles que chez les garçons; l'écart n'était toutefois pas significatif. Dans les deux enquêtes les plus récentes, les élèves de 9^e et de 10^e année présentaient une prévalence d'utilisation sensiblement plus élevée que les élèves de 11^e et de 12^e année. La majorité des élèves (59,8 % de filles et 53,3 % de garçons) ont répondu « je ne sais pas » à la question d'enquête visant à déterminer les perceptions des méfaits des cigarettes minces comparativement aux cigarettes ordinaires.

CONCLUSION : L'utilisation des cigarettes minces chez les élèves canadiens de la 9^e à la 12^e année représente un problème petit mais croissant. L'incertitude des jeunes quant aux méfaits associés à l'utilisation des cigarettes minces, et l'effet des emballages et de la conception des cigarettes minces sur les perceptions des méfaits, indiquent qu'il faut réglementer la conception de ces produits et y sensibiliser la population au Canada.

MOTS CLÉS : adolescent; tabagisme; emballage de produit