Factors Associated with Different Cigarette Access Behaviours Among Underage Smoking Youth Who Usually Smoke Contraband (Native) Cigarettes

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ABSTRACT

Objectives: Given that little is known about how youth access contraband cigarettes, the current study seeks to examine factors associated with how underage smoking youth report usually accessing contraband cigarettes.

Methods: This study used nationally representative data collected from 41,886 students (grades 9 to 12) as part of the 2006-07 Canadian Youth Smoking Survey (YSS). Using data from current smokers who report that their usual brand of cigarettes is contraband, three logistic regression models were used to examine factors associated with buying cigarettes from a store, getting cigarettes from a family member, or getting cigarettes from friends or strangers.

Results: In 2006, 7.9% (n=13,300) of Canadian youth who were current smokers reported that their usual brand of cigarettes was contraband. Among these youth, the majority reported that they usually get their cigarettes from a friend or stranger (54.8%), whereas 26.4% report usually getting them from a family member and 18.8% usually buying their own from a store. Boys were more likely to buy contraband cigarettes from a store, whereas youth with a parent who smokes contraband cigarettes were substantially more likely to get contraband cigarettes from a family member and youth with friends who smoke contraband cigarettes were substantially more likely to get contraband cigarettes from a friend or stranger.

Conclusion: Ongoing surveillance of contraband cigarette use among youth and how youth access contraband cigarettes is required for guiding future tobacco control policy and programming activities.

Key words: Smoking; adolescent; contraband; Youth Smoking Survey; access

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

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Point-of-sale access restrictions have been developed to prevent under-age youth from purchasing tobacco,^{1,2} yet they are often ineffective.³⁻⁵ It is common for youth to obtain cigarettes through retailers or through social sources such as family, friends and strangers.^{3,4,6-8} Under-age youth obtain cigarettes relatively easily, even with access restrictions. We also know that although smoking rates have declined in recent years,⁹ the recent emergence of contraband cigarettes is cause for concern. According to the Royal Canadian Mounted Police (RCMP), there are currently four major types of contraband tobacco available in the Canadian market: 1) unlawfully/lawfully manufactured Canadian products or US products smuggled into Canada; 2) diverted tax-exempt tobacco products; 3) counterfeit tobacco products; and 4) tobacco products from other criminal activities (i.e., cargo thefts, store thefts, etc.).¹⁰ At the present time, two of the larger sources of contraband tobacco in Canada are: native manufacturers that either unlawfully or lawfully manufacture products in Canada or in the US and then smuggle them into Canada; and tax-exempt cigarettes designated for purchase by Aboriginals on First Nations Reserves that are illegally diverted to the general population.¹⁰ Not only are contraband cigarettes more affordable for youth smokers (which is important given the association between the price of cigarettes and youth smoking prevalence¹¹), but they also appear to undermine access restrictions.¹² For instance, research suggests that strategies that effectively restrict commercial access to cigarettes can increase the reliance youth have on social sources of contraband cigarettes.¹³ Considering the extremely low price and the apparent ease with

which youth smokers access these products,¹⁴⁻¹⁶ we need to better understand how youth smokers access contraband cigarettes.

Social Cognitive Theory¹⁷ suggests that social, personal and behavioural characteristics would be associated with how youth access cigarettes. This has been supported with empirical research.^{3,6,7,13-22} For instance, youth smokers commonly report getting cigarettes from friends or strangers.^{6,7,13,18,19} We also know that youth who believe it is difficult to obtain tobacco from retailers are more apt to use social sources such as family members,²⁰ whereas heavier smokers are more likely to buy their own from a store.^{3,12,21,22} The current study seeks to explore if characteristics from these three domains are associated with the cigarette access behaviour of Canadian youth who smoke contraband cigarettes.

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METHODS

This exploratory study used nationally representative data collected from 41,886 students in grades 9 to 12 as part of the 2006-07 Canadian Youth Smoking Survey (YSS).⁹ In brief, the target population for this paper consisted of all young Canadian residents in grades 9 to 12 attending public and private secondary schools in 10 Canadian provinces; youth residing in the Yukon, Nunavut and the Northwest Territories were excluded from the target population, as were youth living in institutions or on First Nation Reserves, and youth attending special schools or schools on military bases. The sample design consisted of a two-stage stratified clustered design with schools as primary sampling units and classes as secondary sampling units. All of the students in the selected classes were surveyed during class time and participants were not provided compensation. The survey design and sample weights allow us to produce population-based estimates in this paper. Active information with passive consent was used to reduce demands on schools and to increase student participation rates. The researcher informed the parents of the students via mail, and asked them to call a toll-free number if they refused their child's participation. The University of Waterloo Office of Research Ethics and appropriate School Board and Public Health Ethics committees approved all procedures, including passive consent. Detailed information on the 2006-07 YSS is available in print⁹ or online (www.yss.uwaterloo.ca).

Consistent with previous research,^{12,16} current smokers were asked to indicate "What brand of cigarette do you *usually* smoke?" A list of popular Canadian cigarette brands consumed by youth was listed and respondents indicated their usual brand. From this list, we were able to identify youth smokers who usually smoke contraband cigarettes based on respondents stating that their usual brand of cigarette was "cigarettes from First Nations/Native Brands". Also consistent with previous research,³ respondents were asked "Where do you *usually* get your cigarettes?" A list of sources was provided and respondents indicated their usual source. Responses were grouped into three categories: buys them from a store, gets them from a family member, gets them from a friend or stranger. Correlate measures for socio-demographic, personal and behavioural characteristics are consistent with previous research.^{9,12,16}

Using data from current smokers who usually smoke contraband cigarettes, descriptive analyses examining cigarette access behaviour were performed according to social, personal and behavioural characteristics. We then conducted three series of logistic regression models to examine factors that differentiate our three different access behaviours: Series 1 examined all of the socio-demographic characteristics; Series 2 examined all of the personal characteristics; and Series 3 examined all of the behavioural characteristics. We do not present the results of a final model examining the significant characteristics from Series 1 to 3 due to the large effect sizes from variables in Series 2. Survey weights were used in the descriptive statistics to adjust for differential response rates across regions or groups. The statistical package SAS 8.02 was used for all analyses.²³

RESULTS

In 2006, 10.2% (n=167,900) of Canadian youth in grades 9 to 12 were current smokers and 7.9% (n=13,300) reported that their usual brand of cigarettes was contraband. Among these youth, the majority reported that they usually got their cigarettes from a friend or stranger (54.8%), whereas 26.4% reported usually getting them

Table 1. Descriptive Statistics for the Sample of Youth (Grades 9 to 12) Who Usually Smoke Contraband Cigarettes by Their Usual Source of Cigarette Access, 2006-2007, Canada

	Buys Them From a Store (n=2,281), %*	Gets Them From a Family Member (n=3,195), %*	Gets Them From a Friend or Stranger (n=6,632), %*
Socio-demographic characteristics			
Sex			
Boy	25.4	24.6	50.0
Girl	—	29.0	64.3
Grade			
9 & 10	—	26.4	57.6
11 & 12	22.5	26.4	51.1
Aboriginal status			
Non-Aboriginal	13.2	21.8	65.0
Aboriginal	—	43.1	—
Spending money			
≤\$20 per week	—	23.1	62.5
>\$20 per week	21.7	25.4	52.9
Parent(s) smoke(s)			
No	—	—	64.1
Yes	15.8	31.7	52.5
Sibling(s) smoke(s)			
No / I have no siblings	18.9	61.4	19.7
Yes	16.8	52.8	30.4
Friend smoking			
<5 friends smoke	—	27.8	63.4
≥5 friends smoke	22.2	28.2	49.6
Reasons for smoking a particular brand			
My friends smoke the same brand			
No	20.8	26.3	52.9
Yes	—	—	62.3
My parents smoke the same brand			
No	20.5	17.4	62.1
Yes	—	82.8	—
Costs less than other brands			
No	25.1	26.2	48.7
Yes	—	26.6	59.4
I like the taste			
No	13.9	26.6	59.5
Yes	—	—	37.0
They are the only ones I can get			
No	22.2	23.6	54.2
Yes	—	38.6	57.3
For the nicotine buzz			
No	18.9	24.6	56.5
Yes	—	—	—
Behavioural characteristics			
Average number of cigarettes per day			
≤10	16.1	23.3	63.6
≥11	25.9	38.6	35.5
Asked a stranger to buy cigarettes			
No	19.4	22.3	58.3
Yes	—	—	30.9
Frequency of sharing cigarettes			
Never	—	—	—
Sometimes	—	20.3	62.8
Usually or always	—	31.4	51.0
Ever tried marijuana			
No	—	—	—
Yes	14.9	28.5	56.6

* weighted population estimate

— estimate not reportable due to small cell size

from a family member and 18.8% usually buying their own from a store. Descriptive statistics by cigarette access behaviours are presented in Table 1.

Girls were more likely to report getting cigarettes from a friend or stranger, whereas boys were more likely to report buying their cigarettes from a store ($\chi^2=12.39$, $df=2$, $p<0.01$). Similarly, youth in grades 9 and 10 were more likely to report getting cigarettes from a friend or stranger, whereas youth in grades 11 and 12 were more likely to report buying cigarettes from a store ($\chi^2=6.30$, $df=2$, $p<0.05$). Youth were more likely to get cigarettes from a family

Table 2. Logistic Regression Analyses Examining Socio-demographic Characteristics Associated with Cigarette Access Behaviour Among Youth (Grades 9 to 12) Who Usually Smoke Contraband Cigarettes, 2006-2007, Canada

		Adjusted Odds Ratio† (95% CI)		
		Model 1 Usually Buys Them From a Store	Model 2 Usually Gets Them From a Family Member	Model 3 Usually Gets Them From a Friend or Stranger
Sex	Girl	1.00	1.00	1.00
	Boy	3.53 (1.46, 8.56)**	1.16 (0.63, 2.15)	0.49 (0.28, 0.86)*
Grade	9 & 10	1.00	1.00	1.00
	11 & 12	0.78 (0.38, 1.60)	1.34 (0.74, 2.42)	0.88 (0.50, 1.53)
Aboriginal status	Non-Aboriginal	1.00	1.00	1.00
	Aboriginal	3.93 (1.88, 8.22)***	2.49 (1.26, 4.91)**	0.17 (0.08, 0.33)***
Spending money	≤\$20 per week	1.00	1.00	1.00
	>\$20 per week	2.06 (0.98, 4.34)	0.75 (0.41, 1.36)	0.80 (0.46, 1.38)
Parent(s) smoke(s)	No	1.00	1.00	1.00
	Yes	0.56 (0.27, 1.16)	3.57 (1.76, 7.27)***	0.49 (0.28, 0.87)*
Sibling(s) smoke(s)	No	1.00	1.00	1.00
	Yes	0.76 (0.36, 1.61)	1.09 (0.59, 2.00)	1.02 (0.59, 1.77)
Friend smoking	<5 friends smoke	1.00	1.00	1.00
	≥5 friends smoke	2.31 (1.02, 5.26)*	0.86 (0.47, 1.58)	0.68 (0.39, 1.19)

† Odds ratios adjusted for all other variables in the table.

Model 1: 1 = Usually buys them from a store (n=43), 0 = Does not usually buy them from a store (n=256).

Model 2: 1 = Usually gets them from a family member (n=83), 0 = Does not usually get them from a family member (n=216).

Model 3: 1 = Usually gets them from a friend or someone else (n=173), 0 = Does not usually get them from a friend or someone else (n=126).

*p<0.05 **p<0.01 ***p<0.001

Table 3. Logistic Regression Analyses Examining How Reasons for Smoking a Particular Brand Are Associated With Cigarette Access Behaviour Among Youth (Grades 9 to 12) Who Usually Smoke Contraband Cigarettes, 2006-2007, Canada

		Adjusted Odds Ratio† (95% CI)		
		Model 1 Usually Buys Them From a Store	Model 2 Usually Gets Them From a Family Member	Model 3 Usually Gets Them From a Friend or Stranger
My friends smoke the same brand	No	1.00	1.00	1.00
	Yes	0.53 (0.22, 1.30)	0.08 (0.02, 0.36)***	7.07 (2.79, 17.92)***
My parents smoke the same brand	No	1.00	1.00	1.00
	Yes	0.68 (0.21, 2.17)	96.61 (21.84, 427.44)***	0.01 (0.003, 0.05)***
Costs less than other brands	No	1.00	1.00	1.00
	Yes	0.69 (0.37, 1.28)	1.03 (0.56, 1.89)	1.72 (1.02, 2.89)*
I like the taste	No	1.00	1.00	1.00
	Yes	3.88 (2.00, 7.51)***	0.63 (0.28, 1.39)	0.46 (0.25, 0.86)*
They are the only ones I can get	No	1.00	1.00	1.00
	Yes	0.17 (0.04, 0.71)*	1.44 (0.66, 3.13)	2.07 (0.96, 4.47)
For the nicotine buzz	No	1.00	1.00	1.00
	Yes	0.91 (0.26, 3.17)	1.59 (0.55, 4.66)	1.24 (0.44, 3.47)

† Odds ratios adjusted for all other variables in the table and for gender and grade.

Model 1: 1 = Usually buys them from a store (n=64), 0 = Does not usually buy them from a store (n=348).

Model 2: 1 = Usually gets them from a family member (n=117), 0 = Does not usually get them from a family member (n=295).

Model 3: 1 = Usually gets them from a friend or stranger (n=231), 0 = Does not usually get them from a friend or stranger (n=181).

*p<0.05 **p<0.01 ***p<0.001

member if their parents smoked the same brand ($\chi^2=78.39$, $df=2$, $p<0.001$). Youth who were heavier smokers were more likely to buy cigarettes from a store compared to youth who were lighter smokers ($\chi^2=17.71$, $df=2$, $p<0.001$). Results of the logistic regression models examining socio-demographic characteristics are presented in Table 2, personal characteristics in Table 3, and behavioural characteristics in Table 4.

Factors associated with buying cigarettes from a store

In terms of socio-demographic characteristics, boys were more likely than girls to buy cigarettes from a store, as were Aboriginal youth and youth with five or more close friends who smoke. In terms of personal characteristics, youth who reported that a reason for smoking their usual brand was because they like the taste were more likely to buy cigarettes from a store, whereas youth were less likely to report buying cigarettes from a store if they reported that a reason for smoking their usual brand was because those were the only cigarettes they could get. In terms of behavioural characteristics, youth were less likely to report buying cigarettes from a store

if they have asked a stranger to buy them cigarettes in the last 30 days.

Factors associated with getting cigarettes from a family member

In terms of socio-demographic characteristics, youth were more likely to get cigarettes from a family member if they were Aboriginal or had a parent who smokes. In terms of personal characteristics, youth who reported that a reason for smoking their usual brand was because their parents smoke the same brand were substantially more likely to get cigarettes from a family member, whereas youth were less likely to report getting cigarettes from a family member if they reported that a reason for smoking their usual brand was because their friends smoke the same brand. In terms of behavioural characteristics, youth were more likely to get cigarettes from a family member if they smoked 11 or more cigarettes per day or had asked a stranger to buy the cigarettes in the last 30 days, whereas youth were less likely to report getting cigarettes from a family member if they reported that they sometimes share cigarettes.

Table 4. Logistic Regression Analyses Examining Behavioural Factors Associated With Cigarette Access Behaviour Among Youth (Grades 9 to 12) Who Usually Smoke Contraband Cigarettes, 2006-2007, Canada

		Adjusted Odds Ratio† (95% CI)		
		Model 1 Usually Buys Them From a Store	Model 2 Usually Gets Them From a Family Member	Model 3 Usually Gets Them From a Friend or Stranger
Average number of cigarettes per day	≤10	1.00	1.00	1.00
	≥11	1.91 (0.93, 3.90)	2.34 (1.30, 4.22)**	0.33 (0.19, 0.58)***
Has asked a stranger to buy them	No	1.00	1.00	1.00
cigarettes in the last 30 days	Yes	0.20 (0.05, 0.73)*	3.00 (1.37, 6.55)**	0.69 (0.30, 1.57)
Frequency of sharing cigarettes with	Never	1.00	1.00	1.00
others	Sometimes	0.44 (0.17, 1.16)	0.30 (0.12, 0.74)**	6.33 (2.26, 17.70)***
	Usually or always	0.43 (0.15, 1.20)	0.49 (0.20, 1.21)	4.43 (1.56, 12.59)**
Ever tried marijuana	No	1.00	1.00	1.00
	Yes	0.45 (0.17, 1.22)	1.39 (0.49, 3.91)	1.26 (0.52, 3.06)

† Odds ratios adjusted for all other variables in the table and for gender and grade.

Model 1: 1 = Usually buys them from a store (n=57), 0 = Does not usually buy them from a store (n=328).

Model 2: 1 = Usually gets them from a family member (n=113), 0 = Does not usually them from a family member (n=272).

Model 3: 1 = Usually gets them from a friend or stranger (n=215), 0 = Does not usually get them from a friend or stranger (n=170).

*p<0.05 **p<0.01 ***p<0.001

Factors associated with getting cigarettes from a friend or stranger

In terms of socio-demographic characteristics, youth were less likely to report getting cigarettes from a friend or stranger if they were a boy, Aboriginal, or if they had a parent who smokes. In terms of personal characteristics, youth were more likely to get cigarettes from a friend or stranger if they reported that a reason for smoking their usual brand was because their friends smoke the same brand or the brand costs less than others. Conversely, youth were less likely to get cigarettes from a friend or stranger if they reported that a reason for smoking their usual brand was because their parents smoke the same brand or they like the taste. In terms of behavioural characteristics, youth were more likely to report getting cigarettes from a friend or stranger if they sometimes or usually or always share cigarettes with others, whereas they were less likely to get cigarettes from a friend or stranger if they smoke 11 or more cigarettes per day.

DISCUSSION

The data presented here suggest that Canadian youth commonly access contraband cigarettes from friends, family members, and directly from retailers. The results highlight two emerging concerns. First, a substantial number of youth smokers report accessing their contraband cigarettes from a family member, especially if their parent also smokes contraband cigarettes. Second, it appears that a considerable number of tobacco retailers are providing under-age smoking youth with access to contraband cigarettes. Ongoing surveillance of the contraband cigarette use among youth and how youth access contraband cigarettes is required for guiding future tobacco control activities.

These results suggest that any attempts to reduce youth access to contraband tobacco must encompass restrictions on retailers, and policies designed to discourage family members and other social sources from providing youth with contraband cigarettes. However, given the challenges of developing policies to regulate the behaviour of family and social sources, it may be more feasible to begin with policies aimed at changing the behaviour of retailers. Our finding that youth commonly report getting contraband cigarettes from retailers suggests that there is an immediate need to impose and enforce strict regulations and penalties for retailers who sell contraband cigarettes. For instance, it may be timely to evalu-

ate the effectiveness of new licensing strategies that would allow regulatory bodies to remove the license of retailers caught illegally selling any tobacco products (especially contraband) to minors. It may also be timely to consider moving toward a system of designated sales outlets run by the government as a mechanism to continually reduce the number of tobacco retailers that provide under-age youth with access to cigarettes. This type of approach may be especially timely as the Canadian Convenience Stores Association (CCSA) is currently trying to advance their own agenda to reduce the availability of contraband tobacco: 2010 Contraband Objective (refer to www.10-2010contrabandobjective.com). Considering that the current CCSA president has previously worked as a public relations representative for two tobacco companies (Benson & Hedges (currently Rothman's Benson & Hedges) and Imasco Ltd. (Imasco controlled Imperial Tobacco at that time)), there is an urgent need for this issue to be led by the public health community and not a group with ties to the tobacco industry.

The most alarming finding was that a large number of youth report accessing contraband tobacco from family members. For instance, it was almost inevitable that a smoking youth reported usually getting contraband cigarettes from a family member if they also reported that their parent smokes contraband cigarettes. This is consistent with research on non-contraband tobacco from the UK which identified that smoking youth commonly reported acquiring contraband cigarettes from their parents.¹³ Although it would be difficult to restrict social access from parents through legislation, there appears to be a dire need to identify effective means to curb the practice of parents providing their children with contraband cigarettes. A recent report on better practices in contraband tobacco control suggests that public awareness campaigns may have some impact by clearly outlining to consumers which cigarettes are illegal,²⁴ however, our data suggest that such campaigns should also consider highlighting the social responsibility of parents to not provide contraband tobacco to their children. Parents need to clearly understand how their actions can facilitate tobacco use progression among their children, and understand that they are modelling participation in an illicit behaviour.

This study also identified that Aboriginal youth were more likely than non-Aboriginal youth to either buy their own contraband cigarettes or get their cigarettes from a family member. Under Canadian law, First Nations people purchasing cigarettes on reserves are

exempt from federal sales tax and provincial tobacco tax; however, Aboriginal youth purchasing tobacco off-reserve would be subject to paying tobacco taxes.¹⁰ Since the YSS does not collect data from students located on reserves, this suggests that the native brand cigarettes used by Aboriginal youth in our study would be considered contraband products, and also suggests that tailored policies and interventions may be required to prevent retailers and family members from providing Aboriginal youth with contraband tobacco products.

Although youth commonly access non-contraband cigarettes from friends,^{13,19} we identified that having smoking friends was actually associated with an increased likelihood of youth buying their own cigarettes. However, among youth who also reported that a reason they smoke contraband cigarettes was because their friends smoke the same brand, their likelihood of getting contraband cigarettes from friends increased dramatically. Considering that youth who reported frequently sharing cigarettes were also more likely to report usually getting their cigarettes from friends suggests that we need to develop a better understanding of how youth access and exchange contraband tobacco within their social networks. This may be especially important as the Royal Canadian Mounted Police (RCMP) have recently stated that youth are becoming increasingly involved in organized crime through the distribution of contraband tobacco.¹⁰

Although the response rate was high and the data were weighted to help account for non-response, the findings are nevertheless subject to sample bias. The findings also likely reflect some under-reporting for contraband tobacco use considering we were only able to identify smokers of contraband tobacco based on the brand that smokers reported they usually smoke rather than the brand(s) that they may also periodically smoke. Similarly, our measures are specific to how youth report usually accessing tobacco, rather than how they may also sporadically access tobacco. The cross-sectional design does not allow for causal inferences regarding the associations examined in this paper. Longitudinal data are required to determine the temporal relationships among correlates.

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RÉSUMÉ

Objectifs : Comme on en sait peu sur les méthodes d'accès des jeunes aux cigarettes de contrebande, nous avons examiné les facteurs associés aux diverses façons dont les jeunes fumeurs mineurs disent habituellement se procurer ces cigarettes.

Méthode : Notre étude utilise des données représentatives à l'échelle nationale recueillies auprès de 41 886 élèves (9^e à 12^e année) dans le cadre de l'Enquête sur le tabagisme chez les jeunes (ETJ) menée au Canada en 2006-2007. À partir des données obtenues auprès des fumeurs actuels ayant pour « marque » habituelle les cigarettes de contrebande, nous avons utilisé trois modèles de régression logistique pour examiner les facteurs associés à l'achat de cigarettes dans un magasin, à l'obtention de cigarettes auprès d'un membre de la famille, ou à l'obtention de cigarettes auprès d'amis ou d'inconnus.

Résultats : En 2006, 7,9 % (n=13 300) des jeunes Canadiens qui étaient des fumeurs actuels disaient fumer des cigarettes de contrebande comme « marque habituelle ». Parmi ces jeunes, la majorité disaient qu'ils se procuraient d'habitude leurs cigarettes auprès d'un ami ou d'un inconnu (54,8 %); 26,4 % disaient se les procurer habituellement auprès d'un membre de leur famille; et 18,8 % disaient habituellement les acheter au magasin. Les garçons étaient plus susceptibles d'acheter des cigarettes de contrebande dans un magasin, tandis que les jeunes ayant un parent fumeur de cigarettes de contrebande étaient beaucoup plus susceptibles de se procurer leurs cigarettes auprès d'un membre de leur famille; les jeunes dont les amis fumaient des cigarettes de contrebande étaient aussi beaucoup plus susceptibles de se procurer ces cigarettes auprès d'un ami ou d'un inconnu.

Conclusion : Il faudrait exercer une surveillance permanente de la consommation de cigarettes de contrebande chez les jeunes et de leurs voies d'accès à ce type de cigarettes pour orienter les futurs programmes et politiques de lutte contre le tabagisme.

Mots clés : tabagisme; adolescent; contrebande; Enquête sur le tabagisme chez les jeunes; accès