

# The Association Between Tobacco Retailer Density and Alternative Tobacco Product Use Among Canadian Secondary School Students

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## BACKGROUND

The use of alternative tobacco products (ATPs) has grown in popularity among youth,<sup>1</sup> and public health programs and policies that specifically address the prevention of use of ATPs are lacking. Research on youth manufactured cigarette use suggests that tobacco retailer density surrounding schools is an important risk factor for use.<sup>2</sup> Therefore, it is important for research to examine if the same association exists for ATPs, especially given that tobacco retailer licensing is a potential avenue for tobacco control policy intervention within the Canadian context.<sup>3</sup>

## OBJECTIVES

1. To describe the prevalence of current use of five ATPs: little cigars or cigarillos, cigars, roll-your-own (RYO) cigarettes, smokeless tobacco (SLT) and a hookah
2. To calculate the variance in ATP use rates that is attributable to school-level characteristics
3. To examine the association between tobacco retailer density within 1km of secondary schools and the current use of ATPs

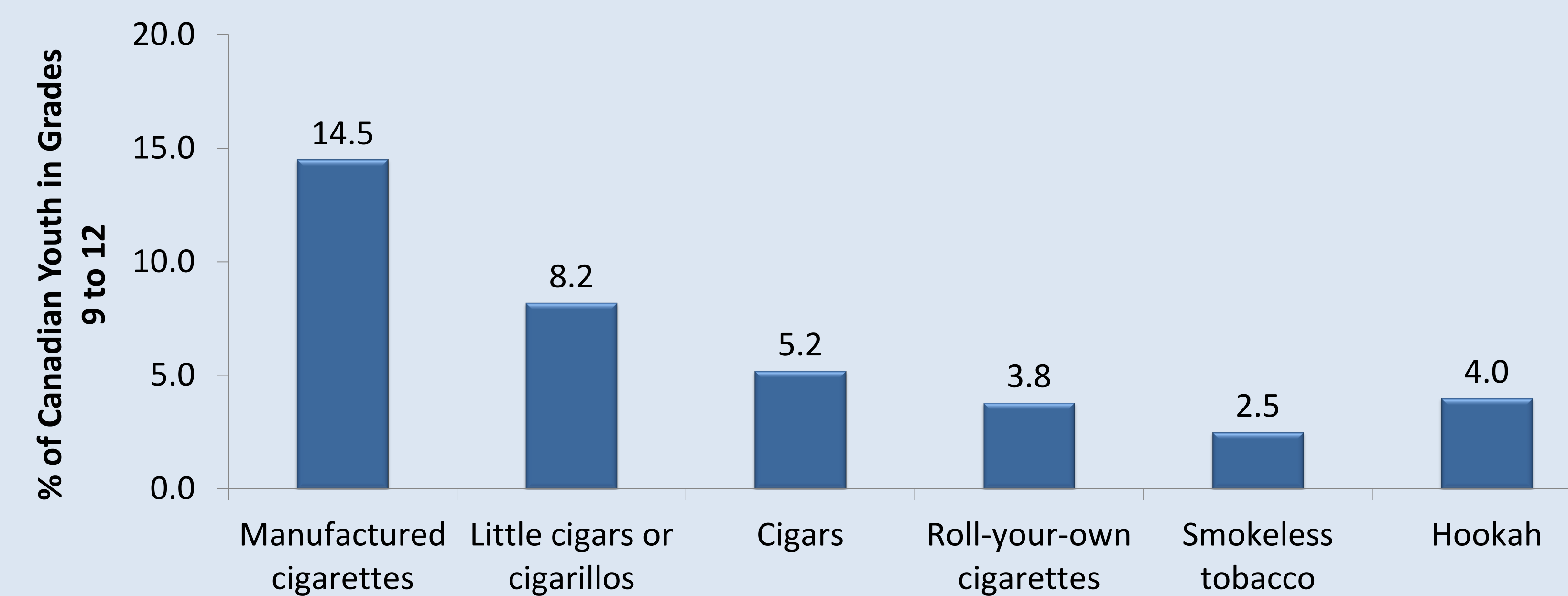
## METHODS

Representative weighted student-level data were provided by the 2010/2011 cycle of the Canadian Youth Smoking Survey (YSS). The number of tobacco retailers within 1km of each school were provided by the 2010 Enhanced Points of Interest geographic information system (GIS). The GIS data were linked to YSS data through 3 steps.<sup>4</sup>

We conducted two multilevel regression models per tobacco product. The first model examined whether ATP use varied across schools through calculation of the intraclass correlation coefficient. The second model examined whether tobacco retailer density was associated with the current use of each ATP while controlling for region and various student-level characteristics.

## RESULTS

**Figure 1. Prevalence of current tobacco use among Canadian youth in grades 9 to 12**



**68.8%** The number of secondary schools with at least 1 tobacco retailer within a 1km radius

**2.9** The average tobacco retailer density (range 0 to 39)

**11.0%** The minimum amount of variability in ATP current use accounted for by school-level factors

↑ Likelihood a student currently uses RYO cigarettes (OR 1.03, 95%CI 0.99 to 1.07) or a hookah (OR 1.02, 95%CI 0.98 to 1.07) with each additional tobacco retailer\*

↓ Likelihood a student currently uses little cigars or cigarillos (OR 0.95, 95%CI 0.93 to 0.98) with each additional tobacco retailer\*

\*after controlling for region and relevant student-level characteristics

**Table 1. Intraclass correlation coefficients for current use of various alternative tobacco products among Canadian youth**

Alternative tobacco product	$\sigma^2_{\mu 0}$	Intraclass Correlation Coefficient
Cigarillos or little cigars	0.405 (0.069)	0.110
Cigars	0.437 (0.082)	0.117
Roll-your-own cigarettes	0.747 (0.139)	0.185
Smokeless tobacco	1.408 (0.269)	0.300
Hookah	0.465 (0.097)	0.124

## CONCLUSIONS

The prevalence of ATP current use varies considerably across products. As a result, surveillance tools that collect data on a range of tobacco products are necessary to allow decision makers to accurately measure tobacco use in Canada and distribute funds and plan interventions accordingly.

The school environment continues to play an important role in tobacco control, and these data indicate that the current use of RYO cigarettes and SLT accounted for more school-level variability than manufactured cigarettes<sup>5</sup>. Therefore, it is likely that the school environment is more important for predicting the use of some ATPs compared to manufactured cigarettes – something that is currently neglected in most school-based tobacco control programming in Canada.

Additional longitudinal research is necessary to understand the relationship between manufactured cigarettes, ATPs and tobacco retailer density. Furthermore, evidence is necessary to evaluate the influence of tobacco retailer zoning policies to tobacco use rates.

## ACKNOWLEDGEMENTS

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