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JOURNAL OF  
ADOLESCENT  
HEALTH

www.jahonline.org

Original article

## Cigarette Packaging: Youth Perceptions of “Natural” Cigarettes, Filter References, and Contraband Tobacco

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### ABSTRACT

**Purpose:** The current study examined youth perceptions of appeal and harm of cigarette packaging with “natural” tobacco descriptors and references to filtration, as well as contraband tobacco in generic packaging.

**Methods:** In a between-group experiment, 7,647 youth were randomized to view a pair of cigarette packages and rate perceptions of appeal and relative risk.

**Results:** The findings indicate that packages with “natural” descriptors were rated as significantly more appealing and less harmful. Packages with filter references were rated as significantly less harmful, whereas contraband cigarettes were rated as significantly less appealing than leading brands.

**Conclusions:** The findings suggest that cigarette packaging can enhance the appeal of cigarettes and may promote false beliefs about the reduced harm of brands. The lower appeal of contraband cigarettes suggests that other factors, such as reduced price and ease of access, likely account for contraband use among youth.

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### IMPLICATIONS AND CONTRIBUTION

Cigarette packaging with “natural” tobacco descriptors and references to filtration properties can enhance the appeal of cigarettes and may promote false health beliefs. The findings from this study provide evidence about the impact of current industry practices, and may have implications for regulatory actions, including plain packaging.

In Canada, as in most Western countries, smoking initiation occurs before the age of 18 years for most established smokers. In 2011, one in four Canadian youth (24.3%) reported smoking a whole cigarette [1]. Trying a cigarette for the first time represents the beginning of a process that may result in regular smoking, and typically continues from youth into young adulthood [2]. Therefore, despite restrictions on tobacco marketing to minors, youth remain critically important to the long-term viability of the tobacco industry.

Given restrictions on traditional advertising, cigarette packaging has become a particularly important form of marketing [3]. Previous research has shown that tobacco packaging strongly influences perceptions of risk, brand appeal, and interest in

trying tobacco products [4,5]. Many themes depicted on tobacco packages mirror those in traditional advertising, including elements that reassure consumers about the health risks of smoking. Package descriptors, such as “light,” “mild,” and “low tar” are among the most notable examples, and were incorrectly perceived by many smokers as indicators of reduced harm relative to “regular” cigarettes [5]. These terms are currently prohibited in more than 50 countries on the grounds that they are inherently misleading, including Canada, in which “light” and “mild” descriptors were removed from packages in 2007 [6].

To date, there is relatively little evidence on perceptions of other prominent marketing themes that remain on packages, particularly among youth. For example, an increasing number of major brands feature references to cigarette filtration technology [7]. Major Canadian brands such as du Maurier and international brands such as Kent include references such as “3-Tek triple filter,” “advanced filter technology,” and “activated charcoal filter.” References to filtration as a form of marketing are not

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new; rather, they became prominent in the 1950s, rising in parallel with health concerns associated with smoking [4]. Advertising commonly referred to new filter technology, including charcoal, chambered filters, or filters that trapped gases. For instance, British American Tobacco produced various filtered iterations of its “less harmful” Kent product, despite the absence of evidence of reduced risk [4]. Internal tobacco industry documents also indicate that filter references help to reassure consumers about the risk of their products [4,8]. To date, however, there is little independent research on consumer perceptions of these products, particularly in the absence of the prohibited terms “light” and “mild.”

The theme of “natural” tobacco is also prominent on cigarette packaging. In the 1980s, the natural and organic food movement spread through Western markets, making organic foods increasingly desirable among consumers [9]. Concerns about freshness and taste, as well as cleanliness and safety, became mainstream. Research has shown that Western consumers commonly exhibit a “natural” preference, in which they regard foods that are not altered by chemicals or genetically modified as healthier [10,11]. A similar preference may have been created in the tobacco industry, involving the use of “natural” tobacco descriptors to establish brand identity. Terms such as “nature” and “natural” became more prominent in the 1970s and 1980s, often to denote product attributes, whereas “additive-free” came into effect in the 1990s and early 2000s [12]. Currently, major brands such as Natural American Spirit and Lucky Strike feature references to “organic” and “additive-free” tobacco. Given that “additive-free” cigarettes are no less harmful than regular cigarettes, marketing of “natural” cigarettes may provide false reassurance to health-concerned smokers [4,12]. However, to date, the authors are unaware of any consumer research studies on “natural” or “organic” cigarettes in Canada or among youth in other countries, despite the prominence of these products on the market.

Perhaps the most notable trend in cigarette branding in Canada is the use of contraband tobacco. Contraband tobacco has been identified as a priority for tobacco control, given that it undermines many effective policy measures. In the mid-2000s, estimates suggested that contraband tobacco accounted for as much as 40% of the market, followed by recent decreases to approximately 15%–20% [13]. Among youth smokers, estimates of contraband use range from 4% to 43% [1,14,15]. In Canada, much of the contraband tobacco market is concentrated on First Nations reserves and is widely associated with these communities, as opposed to large multinational tobacco companies. To date, there is no evidence to indicate whether consumers perceive contraband tobacco as more or less harmful than legal or “regular” brands. Anecdotal evidence suggests that some smokers associate contraband tobacco with fewer additives and a more “natural” product based on associations with First Nations. Alternatively, more established smokers anecdotally report that contraband tobacco is of lower quality and potentially more harmful because of less oversight by regulators.

The current study sought to examine youth perceptions of brand appeal and risk for three types of cigarette package designs: (1) “natural” tobacco product descriptors, including additive-free tobacco, organic tobacco, and premium quality tobacco; (2) references to filtration, including 3-Tek triple filter, advanced filter technology, and activated charcoal filter; and (3) contraband tobacco compared with popular “legal” brands. Based on previous literature and industry marketing practices, it

was hypothesized that participants would perceive cigarette packages with “natural” tobacco product descriptors and filter references as more appealing and less harmful than cigarette package controls, whereas contraband tobacco would be perceived as less appealing and less harmful than regular cigarette package controls. In addition, it was hypothesized that most participants would agree that cigarette package design can make smoking more attractive to youth.

## Methods

### *Study design and protocol*

The researchers designed a between-group experiment as part of a large school-based survey administered in Ontario, Canada, in 2009–2010. The School Health Action, Planning and Evaluation Systems (SHAPES) tool was used to collect data from youth in grades 5–12 using a self-completed questionnaire (<http://www.shapes.uwaterloo.ca>). In the current study, a convenience sample of schools was selected in Hamilton and Thunder Bay at the discretion of local health units. The study involved a one-page supplement on cigarette package design. Respondents viewed images of two cigarette packages printed on the supplement and responded to three questions (described below). The study received approval from the Office of Research Ethics at the University of Waterloo. Approval for SHAPES data collection was obtained from the province and from each participating school board, with schools requiring active information with passive consent.

### *Participants*

Participants were recruited from two sites: Hamilton and Thunder Bay in Ontario, Canada. In 2011, smoking prevalence rates among people aged  $\geq 12$  years for the City of Hamilton and Thunder Bay District Public Health Units were 19.5% and 25%, respectively [16].

The authors recruited students from grades 9 to 12 to participate in the study. All surveys used in-class self-administered questionnaires. In Hamilton, eight of 10 schools that were approached participated in the SHAPES survey, whereas in Thunder Bay, all nine schools that were approached participated. All classes in each of the schools took part in the survey, and all consenting students were eligible to participate. A total of 7,647 respondents completed the survey. Individuals were excluded from the analysis owing to missing or inconsistent information regarding grade, age, or sex ( $n = 76$ ); missing responses to the three survey questions ( $n = 499$ ); and incomplete reporting of smoking status or smoking susceptibility measures ( $n = 95$ ).

### *Cigarette packages*

Participants were randomized to one of 45 experimental conditions, each consisting of a different pair of cigarette packages. Cigarette packages featured branding from leading cigarette brands in Canada and were modified according to experimental condition. Each experimental condition included a control package and a modified package. Participants were asked to view and compare the packages on appeal and relative risk (described below). Several conditions were then grouped together to form a product set. In this report, data for 11 of the 45 conditions are presented according to their relevance to three

**Table 1**  
Cigarette package conditions

Product set	Control condition		Experimental conditions		
“Natural” tobacco descriptors	Capri package with no descriptors		Capri additive-free tobacco package	Capri organic tobacco package	Capri premium quality tobacco package
Filter references	Kent package with no filter references		Kent 3-Tek triple filter package	Kent advanced filter technology package	Kent activated charcoal filter package
Contraband tobacco	du Maurier regular package	Player’s regular package	Contraband tobacco		

product sets: “natural” tobacco descriptors filter references, and contraband tobacco (Table 1).

### Measures

Demographic variables included age and sex. Smoking status was defined as current smoker (had smoked  $\geq 100$  whole cigarettes in their lifetime and had smoked in the past 30 days); ever-smoker (had smoked in the past 30 days but had not smoked  $\geq 100$  cigarettes in their lifetime); and never-smoker (had never tried a cigarette, not even a few puffs).

Susceptibility to future smoking among never-smokers was measured using the validated method of Pierce et al. [17]: “Do you think in the future you might try smoking cigarettes?” “If one of your best friends were to offer you a cigarette, would you smoke it?” “At any time during the next year, do you think you will smoke a cigarette?” Never-smokers who answered “definitely not” to all three questions were classified as non-susceptible; those who responded positively to at least one of the questions were classified as susceptible.

Three questions were presented on the survey immediately below the image of each brand pair: (1) “Which brand do you think would be *more appealing* to people your age?”; (2) “In your opinion, which brand would be *less harmful* to smoke?”; and (3) “In general, can the design of cigarette packs make smoking *more attractive to youth*?” For Questions 1 and 2, participants were asked to select one of the two packages or to select a prominently displayed “No difference” option. For Question 3, participants were asked to respond “Not at all,” “A little,” or “A lot.”

### Analysis

To test whether randomization to conditions was successful, analysis of variance and  $\chi^2$  tests examined differences in age, sex, survey site, smoking status, and smoking susceptibility between conditions within each product set. Logistic regression models were used to test the effect of experimental condition for two primary outcomes: perceptions of appeal and harm. Appeal and harm were measured as binary variables (0, 1), where 0 represented participants who rated the control package as more appealing/less harmful or indicated “No difference” in appeal/harm, and 1 represented participants who rated the modified package as more appealing/less harmful. A third logistic regression model was conducted to examine correlates of beliefs about the attractiveness of cigarette packaging to youth, where 0 represented participants who indicated “Not at all” and 1 represented participants who indicated “A little” or “A lot.” All logistic regression models included age, sex, survey site, and smoking status as covariates, as well as an indicator variable for experimental condition. All analyses were conducted using SPSS, Version 20 (IBM, Chicago, IL).

## Results

### Sample characteristics

Table 2 lists sample characteristics. There were no significant differences in the sample profile across experimental conditions, with the exception of smoking susceptibility in the filter references product set ( $\chi^2 = 11.9$ ;  $p = .008$ ). Specifically, respondents in the advanced filter technology experimental condition were less likely to be susceptible (42%) than were those who rated the control condition (61%).

### “Natural” tobacco

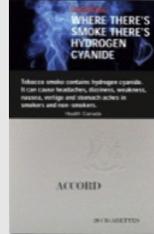
Table 3 shows the results between experimental conditions for the “natural” tobacco product set. Compared with the control condition, each experimental condition was rated as significantly more appealing: organic tobacco (odds ratio [OR] = 4.7, 95% confidence interval [CI] = 1.8–11.8;  $p = .001$ ), premium quality tobacco (OR = 3.1, 95% CI = 1.2–7.9;  $p = .022$ ), and additive-free tobacco (OR = 4.6, 95% CI = 1.8–11.67;  $p = .001$ ), adjusting for age, sex, survey site, and smoking status. In addition, ever-smokers (OR = 2.3, 95% CI = 1.3–4.0;  $p = .003$ ) and current

**Table 2**  
Sample characteristics

Variable	Frequency, % (n)
Age, years	
13	.7% (51)
14	27.1% (2,071)
15	27.5% (2,104)
16	24.7% (1,885)
17	15.0% (1,148)
18	5.1% (388)
Mean (standard deviation)	15.4 (1.2)
Education level, grade	
9	31.1% (2,382)
10	27.6% (2,113)
11	24.3% (1,861)
12	16.9% (1,291)
Sex	
Male	49.8% (3,812)
Female	50.2% (3,835)
Site	
Hamilton	62.7% (4,793)
Thunder Bay	37.3% (2,854)
Smoking status	
Never-smoker	65.3% (4,994)
Ever-smoker	27.0% (2,065)
Current smoker	7.7% (588)
Smoking susceptibility	
Non-Susceptible	51.5% (3,938)
Susceptible	48.5% (3,709)

n = 7,647.

**Table 3**  
Perceptions of appeal and harm of “natural” tobacco<sup>a</sup>

	Control (n = 175)			Additive-free tobacco (n = 174)		
	Capri	Accord	“No difference”	Capri additive-free tobacco	Accord	“No difference”
						
More appealing	3.4%	23.4%	73.1%	13.2%	14.9%	71.8%
Less harmful	4.6%	3.4%	92.0%	23.6%	1.7%	74.7%
	Organic tobacco (n = 180)			Premium quality tobacco (n = 187)		
	Capri organic tobacco	Accord	“No difference”	Capri premium quality tobacco	Accord	“No difference”
						
More appealing	14.4%	13.3%	72.2%	9.6%	19.8%	70.6%
Less harmful	25.0%	3.9%	71.1%	8.0%	10.2%	81.8%

n = 716.

<sup>a</sup> Full-size images of cigarette packages are available online: <http://www.davidhammond.ca/downloads/Pack%20Images/>.

smokers (OR = 2.5, 95% CI = 1.1–5.7; *p* = .028) were more likely to rate experimental conditions as more appealing, compared with never-smokers. Participants from Hamilton were also more likely to rate packages as more appealing compared with those from Thunder Bay (OR = 1.9, 95% CI = 1.1–3.5; *p* = .028). No other variables were significantly associated with rating of appeal.

Perceptions of harm followed a similar pattern as ratings of appeal. Compared with the control condition, additive free tobacco (OR = 6.9, 95% CI = 3.1–15.3; *p* < .001) and organic tobacco (OR = 7.0, 95% CI = 3.1–15.5; *p* < .001) were rated as less harmful, after adjusting for age, sex, survey site, and smoking status. Participants also rated additive-free tobacco (OR = 2.1–7.6; *p* < .001) and organic tobacco descriptors (OR = 4.0, 95% CI = 2.1–7.7; *p* < .001) as less harmful compared with premium tobacco. Ever-smokers (OR = 1.7, 95% CI = 1.0–2.7; *p* = .047) and current smokers (OR = 5.1, 95% CI = 2.6–10.0; *p* < .001) were more likely to rate experimental conditions as less harmful compared with never-smokers, as were current smokers (OR = 3.1, 95% CI = 1.5–6.3; *p* = .002). Participants from Hamilton were also more likely to rate packages as more appealing compared with those from Thunder Bay (OR = 1.9, 95% CI = 1.1–3.1; *p* = .013). No other variables were significantly associated with rating of harm.

*Filter references*

Table 4 shows results between experimental conditions for the filter reference product set. No significant differences in rating of appeal were found between conditions. However, after

adjusting for age, sex, survey site, and smoking status, ever-smokers (OR = 2.4, 95% CI = 1.3–4.4; *p* = .005) and current smokers (OR = 3.3, 95% CI = 1.4–7.7; *p* = .005) were more likely to rate experimental conditions as more appealing compared with never-smokers. In addition, males were more likely to rate packages as more appealing compared with females (OR = 1.8, 95% CI = 1.0–3.1; *p* = .049). No other variables were significantly associated with rating of appeal.

Compared with the control condition, the 3-Tek triple filter (OR = 2.9, 95% CI = 1.5–5.8; *p* = .002), advanced filter technology (OR = 4.7, 95% CI = 2.4–9.0; *p* < .001), and activated charcoal filter (OR = 3.7, 95% CI = 1.8–7.2; *p* < .001) were more likely to be rated as less harmful, after adjusting for age, sex, survey site, and smoking status. In addition, ever-smokers (OR = 3.3, 95% CI = 2.1–5.1; *p* < .001) and current smokers (OR = 3.3, 95% CI = 1.7–6.6; *p* = .001) were more likely to rate packages as less harmful, compared with never-smokers. No other variables were significantly associated with rating of harm.

*Contraband tobacco*

Table 5 shows results for the contraband product set. After adjusting for age, sex, survey site, and smoking status, both the Player’s control condition (OR = 7.4, 95% CI = 2.9–19.2; *p* < .001) and the du Maurier control condition (OR = 11.8, 95% CI = 4.6–30.4; *p* < .001) were rated as more appealing than contraband tobacco. In addition, ever-smokers (OR = 7.3, 95% CI = 3.8–14.3; *p* < .001) and current smokers (OR = 85.1, 95% CI = 30.2–239.4;

**Table 4**  
Perceptions of appeal and harm of filter references<sup>a</sup>

	Control (n = 162)			3-Tek triple filter (n = 162)		
	Kent	Accord	"No difference"	Kent 3-tek triple filter	Accord	"No difference"
						
More appealing	9.3%	27.2%	63.6%	6.2%	24.1%	69.8%
Less harmful	8.6%	2.5%	88.9%	20.4%	4.9%	74.7%
	Advanced filter technology (n = 172)			Activated charcoal filter (n = 163)		
	Kent advanced filter technology	Accord	"No difference"	Kent activated charcoal filter	Accord	"No difference"
						
More appealing	12.2%	18.0%	69.8%	8.0%	22.1%	69.9%
Less harmful	27.3%	2.9%	69.8%	22.7%	3.7%	73.6%

n = 659.

<sup>a</sup> Full-size images of cigarette packages are available online: <http://www.davidhammond.ca/downloads/Pack%20Images/>.

$p < .001$ ) were more likely to rate packages as more appealing compared with never-smokers, and current smokers were more likely than ever-smokers to do so, as well (OR = 11.6, 95% CI = 4.5–29.4;  $p < .001$ ). Youth were less likely to rate packages as more appealing with increasing age (OR = .8, 95% CI = 0.6–1.0;  $p = .036$ ). No other variables were significantly associated with rating of appeal.

No significant differences in rating of harm were found between contraband tobacco and control conditions. However, ever-smokers were more likely to rate packages as less harmful compared with never-smokers (OR = 2.4, 95% CI = 1.1–5.0;  $p = .021$ ). In addition, males were more likely to rate packages as more appealing compared with females (OR = 2.2, 95% CI = 1.1–4.6;  $p = .031$ ), and participants from Hamilton were more

**Table 5**  
Perceptions of appeal and harm of contraband tobacco<sup>a</sup>

	Contraband Tobacco (n = 176)			Control (n = 173)			Control (n = 172)		
	Contraband	Accord	"No difference"	du Maurier	Accord	"No difference"	Player's	Accord	"No difference"
									
More appealing	5.1%	32.4%	62.5%	23.1%	11.6%	65.3%	16.9%	8.1%	75.0%
Less harmful	8.0%	15.3%	76.7%	9.2%	5.8%	85.0%	5.2%	4.7%	90.1%

n = 521.

<sup>a</sup> Full-size images of cigarette packages are available online: <http://www.davidhammond.ca/downloads/Pack%20Images/>.

likely to do so, as well (OR = 2.6, 95% CI = 1.2–5.7;  $p = .018$ ). No other variables were significantly associated with rating of harm.

#### *Perceptions of pack influence on youth*

When asked whether the design of cigarette packages could make smoking more attractive to youth, 31.5% of participants responded “Not at all,” 45.8% responded “A little,” and 22.7% responded “A lot.” Logistic regression analyses showed no significant differences by covariates or by experimental condition.

#### *Parallel analyses*

With respect to appeal and harm, parallel analyses were conducted with binary measures of appeal and harm (0, 1), where 0 represented participants who rated the control package as more appealing/less harmful, and 1 represented participants who rated the modified package as more appealing/less harmful, thereby excluding participants who indicated “No difference.” A parallel model was also run to examine the influence of package design on youth, where 0 represented participants who indicated “Not at all” or “A little,” and 1 represented participants who indicated “A lot.” Furthermore, all regression models were run with smoking susceptibility included as a variable in the place of smoking status. All parallel analyses produced comparably similar results.

### **Discussion**

#### *Main findings*

Overall, the study findings indicate that current trends in cigarette packaging can influence the appeal of tobacco products and perceptions of relative risk among youth.

Cigarette packages labeled with “additive-free,” “organic,” and “premium” tobacco descriptors were significantly more appealing and less harmful to youth. For example, approximately one quarter of youth reported that “additive-free” cigarettes would be less harmful than a “regular” brand. Given the scientific consensus that all cigarettes—including those with organic tobacco—are equally harmful, these product descriptors appear to promote false health beliefs. Previous studies have examined the effects of descriptors pertaining to strength, such as “light” and “mild” (e.g., [4,18,19]) and flavor (menthol or cherry) [20–22]; however, the current findings are the first published evidence, to our knowledge, about perceptions of terms such as “additive-free” and “organic” cigarettes. The results are consistent with tobacco industry documents describing the implied health benefits of “natural” cigarettes to smokers [12], as well as research in other domains documenting the appeal of products labeled as “organic” and “additive-free” among young people [10,11].

Packages with references to filtration were not associated with perceptions of appeal, but were perceived as less harmful. These findings are consistent with a study of risk perceptions among Canadian adults [19], in which participants perceived packs with images of “advanced” cigarette filters as less harmful. Past smoking experience seemed to influence these associations, because youth who had ever tried smoking or were currently smoking were significantly more likely to report such beliefs. This is consistent with the theory of cognitive dissonance, which

supports a greater motivation among current smokers than others to believe that some products are less harmful [23]. Overall, the findings suggest that references to filtration on cigarette packages may represent what has been referred to as truthful but misleading advertising. For example, Hastak and Mazis [24] identified intra-attribute misleadingness, in which a “claim about an attribute leads to misleading inference about the same attribute” (p. 159). The current findings suggest that filtration references may fall into this category.

The current study also provides some of the first published findings on perceptions of contraband tobacco among Canadian youth. Youth rated contraband tobacco as less appealing than regular package controls, with no differences in perceptions of risk. More generally, the findings reinforce that the primary motivation for using contraband tobacco is likely reduced price or easier access, rather than product appeal [14,25].

Finally, more than two thirds of youth agreed that the design of cigarette packages makes smoking more attractive to youth, with no differences across experimental conditions. This level of endorsement is consistent with other studies, which found significant differences in product appeal for packaging elements including color, branding, and product references, such as flavoring (e.g., [26]).

#### *Strengths and limitations*

Participants in this study were not recruited using random sampling; therefore, the findings are not necessarily representative of all Ontario or Canadian youth. Nevertheless, the large sample size and high response rate within schools represent considerable strengths and serve to minimize non-response bias. Another potential limitation is the “discrete choice” nature of the package ratings, in which participants were asked to choose one of the two packages presented to them. However, unlike many other studies using this methodology, participants were given the option of selecting a “No difference” option, which was prominently displayed next to the packages. A further concern is social desirability response bias: Given the public health messages that all cigarettes are equally harmful, one might expect a higher level of endorsement of the “No difference” option when rating packages. However, the between-group experimental design and randomization of participants to conditions help to ensure that any bias is equally distributed across groups.

#### *Implications*

The current study is the first to test perceptions of several current trends in tobacco marketing among youth. The findings suggest that references to “natural” tobacco as well as filtration can increase appeal among youth and promote false beliefs about the relative health risk of brands. At least one jurisdiction, Australia, has taken steps to remove misleading elements from packaging, such as images of filtration. As of December 2012, plain packaging regulations will be implemented in Australia, under which brand imagery will be prohibited and packs will feature a single standardized color and font, along with government-mandated warnings. However, these regulations do not restrict brand descriptors, and to the authors’ knowledge, no jurisdiction has yet prohibited descriptors such as “organic” and “additive-free” or text-based references to filter technology from

packages. In the absence of brand imagery, brand descriptors and other text elements may increase in importance.

### Acknowledgments

Funding to collect SHAPES youth data in Hamilton came from the Hamilton Public Health Services, and in Thunder Bay from the Thunder Bay District Health Unit. This research was also supported by a grant from the Canadian Cancer Society Research Institute, as well as the Canadian Institutes of Health Research Training Grant in Population Intervention for Chronic Disease Prevention: A Pan-Canadian Program (Grant 53893) (C.D.C.), the Ontario Tobacco Research Unit Ashley Studentship for Research in Tobacco Control (C.D.C.), the Ontario Graduate Scholarship (C.D.C.), the Propel Centre for Population Health Impact, a Canadian Institutes for Health Research New Investigator Award (D.H.), and a Canadian Cancer Society Research Institute Junior Investigator Research Award (D.H.). The authors thank Dana Zummach for technical assistance with the manuscript. The authors express appreciation for the opportunity to use data collected as part of the SHAPES project, and to the students and staff at the participating schools.

### References

- [1] Reid JL, Hammond D, Burkhalter R, et al. Tobacco use in Canada: Patterns & trends. Waterloo, Ontario, Canada: Propel Centre for Population Health Impact; 2013.
- [2] Hammond D. Smoking behaviour among young adults: Beyond youth prevention. *Tob Control* 2005;14:181–5.
- [3] Henriksen L. Comprehensive tobacco marketing restrictions: Promotion, packaging, price and place. *Tob Control* 2012;21:147–53.
- [4] Pollay RW, Dewhirst T. Marketing cigarettes with low machine measured yields. In: Shopland DR, Burns DM, Benowitz NL, Amacher RH, eds. *Smoking and Tobacco Control Monograph 13: Risks Associated With Smoking Cigarettes With Low Machine-Measured Yields of Tar and Nicotine*. Bethesda: United States (US) Department of Health and Human Services; 2001. p. 199–233.
- [5] United States Department of Health and Human Services. The tobacco industry's influences on the use of tobacco among youth and young adults. In: Perry CL, Stigler MH, Norman L, Taylor PL, eds. *Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General*. Atlanta (GA): US: Dept. 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; 2012. p. 483–603.
- [6] WHO framework convention on tobacco control. World Health Organization. Available at: [http://www.who.int/fctc/text\\_download/en/index.html](http://www.who.int/fctc/text_download/en/index.html). Accessed May 2, 2012.
- [7] Passport. New product development in cigarettes: Innovate or fail—keeping price in power. Available at: <http://www.euromonitor.com/new-product-development-in-cigarettes-innovate-or-fail-keeping-price-in-power/report>. Accessed August 28, 2013.
- [8] Market potential of a health cigarette. Johnston ME Jr. Available at: <http://tobaccodocuments.org/landman/1000338644-8671.html>. Accessed June 12, 2012.
- [9] Burros M. The fresh appeal of foods grown organically. *New York Times*. January 28, 1987. Available at: <http://www.nytimes.com/1987/01/28/garden/the-fresh-appeal-of-foods-grown-organically.html>. Accessed April 25, 2012.
- [10] Bredahl L. Consumers' cognitions with regard to genetically modified foods: Results of a qualitative study in four countries. *Appetite* 1999;33:343–60.
- [11] Rozin P. The meaning of "natural": Process more important than content. *Psychol Sci* 2005;16:652–8.
- [12] McDaniel PA, Malone RE. "I always thought they were all pure tobacco": American smokers' perceptions of "natural" cigarettes and tobacco industry advertising strategies. *Tob Control* 2007;16:e7.
- [13] Mortensen JR. Investor Day. Philip Morris International; 2012.
- [14] Callaghan RC, Veldhuizen S, Ip D. Contraband cigarette consumption among adolescent daily smokers in Ontario, Canada. *Tob Control* 2011;20:173–4.
- [15] Callaghan RC, Veldhuizen S, Leatherdale S, et al. Use of contraband cigarettes among adolescent daily smokers in Canada. *CMAJ* 2009;181:384–6.
- [16] Smoke-Free Ontario strategy evaluation report. Ontario Tobacco Research Unit. Available at: <http://otru.org/2012-smoke-free-ontario-strategy-evaluation-report-full-report/>. Accessed May 8, 2013.
- [17] Pierce JP, Choi WS, Gilpin EA, et al. Validation of susceptibility as a predictor of which adolescents take up smoking in the United States. *Health Psychol* 1996;15:355–61.
- [18] Ashley MJ, Cohen J, Ferrence R. "Light" and "mild" cigarettes: Who smokes them? Are they being misled? *Can J Public Health* 2001;92:407–11.
- [19] Hammond D, Parkinson C. The impact of cigarette package design on perceptions of risk. *J Public Health (Oxf)* 2009;31:345–53.
- [20] Carpenter CM, Wayne GF, Connolly GN. Designing cigarettes for women: New findings from the tobacco industry documents. *Addiction* 2005;100:837–51.
- [21] Kreslake JM, Wayne GF, Alpert HR, et al. Tobacco industry control of menthol in cigarettes and targeting of adolescents and young adults. *Am J Public Health* 2008;98:1685–92.
- [22] Doxey J, Hammond D. Deadly in pink: The impact of female-oriented cigarette packaging among young women. *Tob Control* 2011;20:353–60.
- [23] Slovic P. *Smoking: Risk, perception, & policy*. London (UK): Sage; 2001.
- [24] Hastak M, Mazis MB. Deception by implication: A typology of truthful but misleading advertising and labeling claims. *J Public Policy Marketing* 2011;30:157–67.
- [25] Moodie C, Hastings G, Joossens L. Young adult smokers' perceptions of illicit tobacco and the possible impact of plain packaging on purchase behaviour. *Eur J Public Health* 2012;22:251–3.
- [26] Hammond D, Daniel S, White CM. The effect of cigarette branding and plain packaging on female youth in the United Kingdom. *J Adolesc Health* 2013;52:151–7.