



Short Communication

Characteristics of storefront tobacco advertisements and differences by product type: A content analysis of retailers in New York City, USA

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ABSTRACT

Tobacco companies in the U.S. spend billions of dollars advertising at the point-of-sale. Using photographs of storefront tobacco ads in New York City (NYC), we conducted a content analysis to describe the prevalence of common features across four product categories and illuminate ways in which they may influence behavior. In 2017, data collectors photographed exterior ads from a representative sample of tobacco retailers in NYC (n = 796). We coded each ad (n = 976) for the presence of various characteristics (e.g., brand, price displays, warning labels, menthol/flavors, size, location). Chi-square tests examined differences by product type. Most ads were for cigarettes (40%), followed by electronic nicotine delivery systems (ENDS, 27.9%), cigars (26.9%), and smokeless tobacco (5.2%). Over half of cigarette and smokeless tobacco ads promoted a menthol or flavored style (61% each), compared to about a quarter of cigar (25.9%) and ENDS ads (30.3%, $p < .0001$). Cigar and ENDS ads, however, were more frequently placed directly on the door of entry (49.4% and 46.7%, respectively, $p < .001$). Only 5% of ENDS ads displayed a standard warning label. Notably, a quarter of all tobacco ads (23.4%) were for the brand Newport. Cigarette ads still dominate at the point-of-sale with regard to volume and size. Across all products, ad features did not always align with local and federal policies (e.g., flavor bans, warning label mandates). Continued surveillance of advertising strategies and policy compliance can help provide the evidence base needed to inform marketing regulations that reduce the deadly burden of tobacco use.

1. Introduction

The Master Settlement Agreement in 1998 and the Family Smoking Prevention and Tobacco Control Act in 2009 restricted the places in which tobacco companies can market their products in the United States. For example, cigarette and smokeless tobacco advertising is no longer permitted on television, radio, billboards, in transit stations, and at sporting events and concerts with youth audiences (Public Health Law Center, 2018; U.S. Food and Drug Administration, 2018a). In response to these restrictions, the tobacco industry now spends nearly all of its \$9 billion advertising budget on promotional activities occurring at the point-of-sale, such as consumer coupons, price discounts to retailers, and shelving displays (United States Federal Trade Commission, 2018a; United States Federal Trade Commission, 2018b). Perhaps in an effort to recruit and maintain customers amid declining tobacco sales, top companies have recently intensified their marketing strategies in the retail environment. In 2016, the U.S. Federal Trade Commission reported a 43% increase in promotional expenditures on point-of-sale cigarette advertisements (ads), from \$36.4 million in 2015 to \$51.9

million in 2016 (United States Federal Trade Commission, 2018a). Although point-of-sale advertising expenditures for smokeless tobacco decreased from \$33.4 million to \$24.7 million between years, price discounts paid to retailers increased from \$350 million to \$382.3 million (United States Federal Trade Commission, 2018b). These discounts allow retailers to sell and advertise their products at lower costs to consumers. The federal government does not report expenditure data for other tobacco products (e.g., cigars, electronic cigarettes), but store audit studies suggest that non-cigarette categories increasingly employ point-of-sale marketing techniques, including storefront and interior advertising (Giovenco et al., 2018; Beleva et al., 2018; Lee et al., 2014).

Research on point-of-sale tobacco marketing over the last decade consistently demonstrates that exposure to product advertising in stores is associated with tobacco use behaviors (Paynter and Edwards, 2009; Robertson et al., 2015). Youth with more frequent exposure to cigarette ads, for example, have higher odds of smoking initiation and susceptibility to future smoking (Robertson et al., 2015). Adult smokers who observe more tobacco advertising in local retailers report lower quit success and more intense cigarette cravings compared to smokers with

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less advertising exposure (Paynter and Edwards, 2009; Siahpush et al., 2016). The vast majority of studies on tobacco at the point-of-sale focus on cigarettes, but nascent research indicates that exposure to tobacco marketing in stores is associated with use of other product categories, including cigars (Pasch et al., 2018; Portnoy et al., 2014), smokeless tobacco (Portnoy et al., 2014), and electronic cigarettes (Pasch et al., 2018; Giovenco et al., 2016).

The mechanisms through which tobacco advertising in retail settings influences product use are not well understood. Though some research suggests that this effect is partially mediated by perceived tobacco use norms (Setodji et al., 2018), a better understanding of ad features may identify additional explanatory pathways and uncover potential policy approaches to curb use. A major limitation of existing studies on tobacco promotion at the point-of-sale, however, is that they do not often characterize the content or characteristics of ads; rather, they typically document the presence and/or volume of ads in tobacco outlets (Giovenco et al., 2018; Lee et al., 2014; Paynter and Edwards, 2009; Robertson et al., 2015). Using exterior photographs taken from a representative sample of licensed tobacco retailers in New York City (NYC), USA, we conducted a content analysis of storefront tobacco ads for cigarettes, cigars, smokeless tobacco, and electronic nicotine delivery systems (ENDS), describing the prevalence of common features and examining differences by product type.

2. Methods

2.1. Sampling procedure

A list of licensed tobacco retailers in NYC ($n = 8291$) and their latitude and longitude coordinates were obtained from the NYC Open Data Portal in July 2017. “Vape shops,” i.e., retailers that specialize in the sale of ENDS, were identified using a validated, systematic online search methodology ($n = 198$) (Giovenco, 2018; Lee et al., 2016). After geocoding these locations in ArcGIS software, we used stratified, random sampling to select 10% of retailers within each of NYC’s 188 Neighborhood Tabulation Areas to visit for in-person audits. Excluding retailers that did not sell tobacco ($n = 25$) and that we were unable to audit because they were closed or permanently out of business ($n = 58$), a total of 796 retailers were successfully audited by the study team (91% of the sample) between July and October 2017. Details about sampling and data collection procedures for this project have been published previously (Giovenco et al., 2018). All tobacco ads that were displayed on a store’s exterior (i.e., windows, doors, walls, fences), were clearly visible, and were larger than the size of a standard index card were photographed by research staff. An “ad” was operationally defined as an industry-made sign featuring a tobacco company’s logo and/or an image of the product.

2.2. Coding process

Based on a review of the literature on tobacco at the point-of-sale, we first developed a deductive coding system to document ad features that may influence perceptions, use behaviors, and norms. These measures included: brand, product category (i.e., cigarettes, cigars, smokeless tobacco, ENDS), presence of product images, presence of price displays, advertising for a menthol or flavored product (i.e., lists explicit flavors, such as grape or wintergreen, non-descript flavors, such as “Jazz,” or contains images that reflect flavorings, such as pictures of fruit), presence of a standard warning label (i.e., white and black rectangle), height (i.e., higher or lower than 3 ft), location (i.e., window, door, other), and size (i.e., small, medium, large). Ads smaller than the average human head were considered “small,” those smaller than an average human torso were considered “medium,” and those larger than an average torso were considered “large.” During iterative, pilot coding with a random subset of the ads, we added new variables that emerged inductively (i.e., adjacency to ads for: other tobacco products, alcohol,

junk food/candy, energy drinks, lottery tickets). We developed a detailed coding guide with variable definitions and examples, and data collectors completed 3 h of instrument training before final coding commenced in March 2018. Intercoder reliability was assessed in a random sample of ads (10%) that were double-coded; all variables presented in this study had Kappa values exceeding 0.70 (mean = 0.83), indicating strong agreement, and had < 5% missing data (i.e., “can’t tell” responses).

2.3. Statistical analysis

Descriptive statistics characterized features of advertisements overall and by product type, and Chi-Square tests compared variable distributions across the four main product categories. Additionally, we calculated brand prevalence among all ads. SAS (version 9.4) was used for all analyses. Data collection, coding, and analysis procedures were approved as non-human subjects research by Columbia University’s Institutional Review Board.

3. Results

A total of 305 retailers (38% of the sample) had at least one storefront tobacco ad (range: 1–21, mean: 3.2, standard deviation: 2.8). Most stores with advertising were small grocers (e.g., “bodegas,” 43.1%) and non-chain convenience stores (33.2%), followed by chain convenience stores (8.0%). Table 1 describes the characteristics of ads overall ($n = 976$) and by product type. Cigarettes were the most commonly advertised product (40%), followed by ENDS (27.9%), cigars (26.9%), and smokeless tobacco (5.2%). Ads for smokeless tobacco and ENDS had the highest likelihood of displaying an image of the product (92.2% and 69.9%, respectively, $p < .0001$). Despite being heavily flavored product categories, cigar and ENDS ads did not frequently advertise flavored product styles (25.9% and 30.3%, respectively). Approximately 60% of cigarette and smokeless tobacco ads, however, explicitly promoted a menthol or flavored product style ($p < .0001$). These two product categories were also significantly more likely to display a standard warning label compared to other products (90.3% and 100%, respectively, versus 56.9% overall). Notably, < 5% of ENDS ads displayed a standard warning label.

Cigarette ads generally occupied a greater amount of space compared to ads for other products; nearly a quarter (23.7%) were large, “poster size” displays. Conversely, over 90% of cigar, smokeless tobacco, and ENDS ads were small or medium size ($p < .0001$). Almost half of cigar and ENDS ads were placed on the door of entry (49.4% and 46.7%, respectively), versus 34% of cigarette and 29.4% of smokeless tobacco ads ($p < .001$). While over a third of all ads were placed at a height lower than 3 ft (37.2%), which may make them more visible to children, no significant differences were observed by product type. Tobacco ads were frequently displayed directly next to other tobacco ads, particularly ads for the same product type. For example, half of cigarette ads (50.3%) were adjacent to another cigarette ad, and 62.5% of cigar ads were displayed next to another cigar ad. Tobacco ads also commonly clustered near ads for other “vice” products. Indeed, a quarter of cigar (24.6%) and cigarette (26%) ads were adjacent to energy/sugary drink and lottery ticket ads, respectively. Newport cigarettes were the most commonly advertised brand, comprising nearly a quarter (22%) of the sample (Table 2). Blu, a brand of ENDS, was the next most popular brand advertised (8.2%), followed by Marlboro cigarettes (5.4%), Garcia y Vega “Game” cigars (4.7%), Logic (ENDS, 4.6%), and Natural American Spirit cigarettes (4.2%).

4. Discussion

Although non-cigarette tobacco products have gained considerable scientific and media attention in recent years, cigarette advertisements still dominate at the point-of-sale with regard to volume and size.

Table 1
Characteristics of storefront tobacco advertisements and differences by product type, New York City, 2017.

	Cigarettes (n = 390) %	Cigars ^a (n = 263) %	Smokeless tobacco ^b (n = 51) %	ENDS ^c (n = 272) %	Overall (n = 976) %	p-Value ^d
Image of product	46.3	40.2	92.2	69.9	52.5	< .0001
Price display	43.8	14.1	44.0	4.2	24.8	< .0001
Flavored or menthol product	61.2	25.9	61.0	30.3	43.8	< .0001
Standard warning label	90.3	51.0	100.0	4.8	56.9	< .0001
Size ^e						
Small	14.5	75.8	27.5	39.3	38.8	< .0001
Medium	61.7	18.9	70.6	52.2	48.0	
Large	23.7	5.3	2.0	8.5	13.2	
Height						
Lower than 3 ft	37.6	32.4	42.0	40.2	37.2	.249
Higher than 3 ft.	62.4	67.6	58.0	59.8	62.9	
Location						
Door or door frame	34.0	49.4	29.4	46.7	41.3	< .001
Window	48.6	41.0	58.8	43.0	45.4	
Other ^f	17.4	9.6	11.8	10.3	13.3	
Adjacency to other tobacco ads						
Cigarettes	50.3	15.9	33.3	33.8	35.5	< .0001
Cigars	11.2	62.5	37.3	9.6	25.8	< .0001
Smokeless tobacco	5.4	8.3	35.3	4.0	7.3	< .0001
ENDS	20.7	11.4	27.5	42.7	24.5	< .0001
Adjacency to other “vice” ads						
Alcohol	17.1	13.3	7.8	14.0	14.6	.235
Junk food or candy	4.9	1.5	2.0	4.8	3.8	.104
Energy or sugary drinks	14.3	24.6	15.7	18.4	18.1	.009
Lottery tickets	26.0	17.8	5.9	26.1	22.7	.001

^a Includes traditional cigars, mid-size cigarillos, and little cigars.

^b Includes moist snuff and snus.

^c ENDS: electronic nicotine delivery systems.

^d Differences by product type assessed using Chi-Square test.

^e “Small” = smaller than the average human head, “medium” = smaller than the average torso, “large” = larger than the average torso.

^f Other locations included fences, walls, and “sandwich” boards.

Table 2
Brand prevalence among storefront tobacco advertisements, New York City, 2017 (n = 976).

Brand	Parent company	Count	%	Product type
Newport	Reynolds American, Inc.	215	22.0	Cigarette
Blu	Imperial Tobacco Group, LLC	80	8.2	ENDS ^a
Marlboro	Altria Group, Inc.	53	5.4	Cigarette
Garcia y Vega “game”	Swedish Match AB	46	4.7	Cigar
Logic	Japan Tobacco, Inc.	45	4.6	ENDS
Natural American Spirit	Reynolds American, Inc.	41	4.2	Cigarette
Bluntville	NHA, Inc.	40	4.1	Cigar
Vuse	Reynolds American, Inc.	39	4.0	ENDS
Entourage	NHA, Inc.	37	3.8	Cigar
Eon smoke	Eonsmoke, LLC	35	3.6	ENDS
Cosa Nostra	NHA, Inc.	27	2.8	Cigar
Camel	Reynolds American, Inc.	26	2.7	Cigarette
Treezville	NHA, Inc.	25	2.6	Cigar
JUUL	Pax Labs, Inc.	23	2.4	ENDS
Backwoods	Imperial Tobacco Group, LLC	19	1.9	Cigar
Other ^b	Multiple	225	23.1	N/A

^a ENDS: electronic nicotine delivery systems.

^b An additional 66 brands were identified, none constituting > 1.9% of total advertisements.

Newport, in particular, was a highly visible brand in our sample of retailers and nearly always promoted its menthol product line. Product categories notably differed in their advertising strategies and ad features. While cigarette and smokeless tobacco companies were more likely to advertise menthol or flavored products, which may appeal to demographic groups that are more susceptible to using these products (e.g., African Americans, youth), cigar and ENDS ads were more

commonly placed directly on the door of entry, potentially making them more noticeable to all consumers. Ad clustering likely intensified visibility, since the concentration of multiple ads' surface areas created the illusion of larger tobacco advertising space. Tobacco ads were often displayed near ads for other “vice” products (e.g., sugary drinks). Because of the psychological tendency to perceive grouped objects as being related, the proximity of tobacco ads to other ads that may elicit positive emotions is concerning.

Importantly, the content of ads did not always align with local and/or federal policies at the time of data collection. For example, despite NYC's universal ban on flavored cigars, many retailers displayed ads promoting cigarillos with flavors such as “White Grape” and “Mango.” Similarly, 10% of cigarette ads were not compliant with federal warning label mandates (U.S. Food and Drug Administration, 2018b). In 2017, all cigarette and smokeless tobacco ads were required to display warning labels. With the exception of the 7 leading cigar manufacturers, warning labels were not required for cigar or ENDS ads at the time, though voluntary placement was permitted and used by some manufacturers (U.S. Food and Drug Administration, 2018b). Advertising policy violations may be attributed to retailers who leave “older” ads displayed for long periods of time, irrespective of the evolving policy landscape. Given the FDA's recent decision to require warning labels on ads for ENDS and other covered tobacco products (U.S. Food and Drug Administration, 2018b), their intent to ban flavored cigars and menthol cigarettes (Gottlieb, 2018), and their proposal to restrict flavored ENDS sales to adult-only retailers (Gottlieb, 2018), it will be important to monitor changes in point-of-sale tobacco advertising to identify compliance with these policies and threats to their potential effectiveness.

Our study's findings should be interpreted in consideration of several limitations. First, only ads on store exteriors were photographed and coded. Though the characteristics of interior ads may be different

than those on the storefront, exterior ads are likely visible to a broader population of city residents who may frequently pass storefronts, but who may never or less frequently enter the store itself. Second, many of the photographs in our sample were taken from a distance and/or lacked high resolution. This precluded us from coding smaller text in the ads, such as product claims and price promotions. Though this information would have been informative, our focus on larger and more obvious features may be a more accurate representation of the actual experience of community members who may process the ads more peripherally. Finally, we did not document or examine differences in the promotion of various flavor categories (e.g., fruit, mint, sweet) for non-cigarette tobacco products, something that should be assessed in future research.

5. Conclusion

Strong evidence exists that restricting or banning tobacco point-of-sale displays reduces smoking prevalence (He et al., 2018; Levy et al., 2015), but little progress has been made in the U.S., primarily the result of tobacco industry legal challenges. Nevertheless, local, state, and federal governments must forcefully move forward in regulating one of the “last frontiers” and most effective forms of tobacco marketing. Documenting and monitoring specific point-of-sale advertising strategies, compliance with tobacco control policies, and assessing their impact on tobacco use behaviors can help provide the evidence base needed to withstand legal challenges and inform regulation that reduces the deadly burden of tobacco use.

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Conflicts of interest

None.

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