

Brief Report

Targeted Advertising, Promotion, and Price For Menthol Cigarettes in California High School Neighborhoods

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Abstract

Objectives: To describe advertising, promotions, and pack prices for the leading brands of menthol and nonmenthol cigarettes near California high schools and to examine their associations with school and neighborhood demographics.

Methods: In stores ($n = 407$) within walking distance (0.8 km [1/2 mile]) of California high schools ($n = 91$), trained observers counted ads for menthol and nonmenthol cigarettes and collected data about promotions and prices for Newport and Marlboro, the leading brand in each category. Multilevel modeling examined the proportion of all cigarette advertising for any menthol brand, the proportion of stores with sales promotions, and the lowest advertised pack price in relation to store types and school/neighborhood demographics.

Results: For each 10 percentage point increase in the proportion of Black students, the proportion of menthol advertising increased by 5.9 percentage points (e.g., from an average of 25.7%–31.6%), the odds of a Newport promotion were 50% higher (95% $CI = 1.01, 2.22$), and the cost of Newport was 12 cents lower (95% $CI = -0.18, -0.06$). By comparison, the odds of a promotion and the price for Marlboro, the leading brand of nonmenthol cigarettes, were unrelated to any school or neighborhood demographics.

Conclusions: In high school neighborhoods, targeted advertising exposes Blacks to more promotions and lower prices for the leading brand of menthol cigarettes. This evidence contradicts the manufacturer's claims that the availability of its promotions is not based on race/ethnicity. It also highlights the need for tobacco control policies that would limit disparities in exposure to retail marketing for cigarettes.

Introduction

Although more adolescents smoke nonmenthol than menthol cigarettes, preference for menthol cigarettes among teenage

smokers in the United States increased from 43.4% in 2004 to 48.3% in 2008 (Caraballo & Asman, 2011). When annual surveys were combined over the five-year period, more Black smokers (ages 12–17) preferred menthols (71.9%) than Hispanic smokers (47.0%) and non-Hispanic Whites (41.0%). Newport (manufactured by Lorillard, Inc.) has been the most popular menthol brand since 1993, and its share of the total U.S. cigarette market was 9.8% in 2009 (Altria Client Services, 2010). The brand is distinctly more popular with younger smokers: In 2005, 23.2% of adolescent smokers (ages 12–17) and 17.8% of young adult smokers (ages 18–25) smoked Newport, but only 8.7% of older smokers preferred it (Office of Applied Studies, 2007). Newport is the most popular cigarette brand among Black smokers of all ages and second to Marlboro as the most popular brand among adolescent smokers (Tobacco Products Scientific Advisory Committee, 2011).

Tobacco industry documents provide ample evidence of efforts to target youth and Blacks with marketing for menthol cigarettes (Anderson, 2011; Hafez & Ling, 2006; Johnson et al., 2008; Yerger, Przewoznik, & Malone, 2007). For example, Brown & Williamson, a manufacturer of almost exclusively menthol cigarettes, placed a greater quantity of interior and exterior signs in so-called “focus” communities or stores—predominately low-income, Black areas that were identified as being critical to increasing market share (Cruz, Wright, & Crawford, 2010). Corroborating evidence is apparent in three studies that observed a disproportionate concentration of outdoor or storefront advertising for menthol cigarettes in predominantly Black neighborhoods of Boston, MA (Laws, Whitman, Bowser, & Krech, 2002; Pucci, Joseph, & Siegel, 1998; Seidenberg, Caughey, Rees, & Connolly, 2010). However, the extent to which selectively targeted advertising translates into a greater availability of promotions and lower prices for menthol cigarettes has received little attention.

Two previous studies examined promotions and prices for menthol and nonmenthol cigarettes by area demographics. The presence of promotion and the lowest advertised pack price for Newport and Marlboro were recorded annually in a representative sample of U.S. tobacco retailers (Ruel et al., 2004). Over time, a

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larger increase in the proportion of stores with promotion was observed for Newport (from 25% in 2000 to 44% in 2002) than for Marlboro (from 42% to 49%). Although an increase of Newport promotions in urban areas is consistent with an effort to target low-income and racial/ethnic minority residents, the demographic analysis was limited to type of locale (urban, suburban, and town, rural) and regions (West, Midwest, South, and Northeast). A different study purchased single packs of menthol and nonmenthol varieties of the same (unidentified) brand from a random sample of Minneapolis convenience stores (Toomey, Chen, Forster, Van Coevering, & Lenk, 2009). Menthol price was not correlated with the proportions of non-White residents and youth in the census tracts where the stores were located; nonmenthol price was positively correlated with the proportion of non-White residents and negatively correlated with the proportion of youth. The proportion of stores with a price promotion was not reported, and the use of single-pack purchases would miss any influence of multipack discounts on price. Moreover, neither study examined menthol promotions and price in relation to neighborhood demographics for Blacks, who are a primary target of menthol marketing (Gardiner, 2004; Unger, Allen, Leonard, Wenten, & Cruz, 2010) and who are more likely than other smokers to report using promotional offers (White, White, Freeman, Gilpin, & Pierce, 2006).

To remedy these concerns, we conducted a secondary analysis of retail cigarette marketing near a random sample of California high schools (Henriksen et al., 2008). This report extends the research about targeted marketing for menthol cigarettes in two ways. It examines the availability of promotions as well as the price for menthol and nonmenthol cigarettes as a function of neighborhood demographics for Blacks and youth. It also focuses on school neighborhoods where adolescents' exposure to retail cigarette marketing has been shown to promote smoking uptake (Henriksen, Schleicher, Feighery, & Fortmann, 2010; Slater, Chaloupka, Wakefield, Johnston, & O'Malley, 2007).

Methods

Of the 156 randomly selected schools that were invited to participate in the 2005–2006 California Student Tobacco Survey, 135 schools that agreed to be surveyed were eligible for an ancillary study about retail tobacco marketing in school neighborhoods. Using the state's tobacco retailer licensing records and ArcGIS (v9.3, ESRI, 2009), we identified 726 tobacco retailers within 0.8 km (1/2 mile; straight-line distance) of the surveyed schools. The 44 schools without any tobacco retailers within this distance were excluded from the analytic sample ($n = 91$).

In school neighborhoods with six or fewer tobacco retailers, we observed all of them; in 31 neighborhoods, we randomly selected 6 or 50%, whichever yielded the larger number. Trained coders completed observations in 407 stores ($M = 4.5$ per school neighborhood, $SD = 2.9$, completion rate = 94.9%) between September and October 2006. Because business classification data were not available with the retailer licensing records, the coders used standard definitions to categorize stores according to type: convenience with or without gas, gas station (only), liquor, small market, supermarket, pharmacy/drug store, and other. All cigarette advertisements were counted and categorized by flavor (menthol, nonmenthol, or both) and by brand (Marlboro, Newport, Camel, and other). Newport was an exclu-

sively menthol brand at the time these data were collected. For the menthol and nonmenthol variety of each brand category (Marlboro, Newport, Camel, and other), coders noted the presence of any advertised promotion (multipack discount, other discount, or gift with purchase). Because collecting price data for the menthol and nonmenthol varieties of the three major brands was cost prohibitive, coders recorded the lowest pack price for Marlboro (nonmenthol), Newport (menthol), and Camel (nonmenthol). Coders indicated whether the price was discounted (e.g., a multi pack discount or other sale price) and recorded the number of packs received for the advertised price. Prices for cartons were not recorded because the majority of smokers, particularly menthol smokers, purchase cigarettes by the pack (Fernander, Rayens, Zhang, & Adkins, 2010).

For analyses, we computed menthol share of voice for each store, defined as the proportion of all cigarette advertisements in a store that featured any menthol variety. Observed prices were converted to the price of a single pack before sales tax. For the current study, analyses of brand-specific data regarding advertised promotions and prices focused exclusively on Newport and Marlboro, the two most popular cigarette brands among U.S. youth.

To account for clustering of stores within school neighborhoods, multilevel models (HLM6.0) estimated each of the following outcomes as a function of neighborhood demographics: menthol share of voice, the presence of an advertised promotion for Newport and Marlboro (nonmenthol and menthol), as well as the lowest pack price for Newport and Marlboro (nonmenthol only). Enrollment data described the proportions of racial/ethnic groups and the proportion of students eligible to receive free or reduced-price lunches, a common measure of school socioeconomic status (Education Data Partnership, 2010). We used enrollment data for race/ethnicity because schools were the primary sampling unit. In addition, our previous research observed high correlations between those variables measured by school enrollment data and by census data for the 1/2-mile radius from the school (Henriksen et al., 2008). The total number of tobacco retailers in each school neighborhood was obtained from the geocoded licensing data. Neighborhood data for population density (residents per square mile) and proportion of residents ages 10–17 were obtained from Census 2000 and weighted in proportion to tract area. All multilevel models included a random intercept and adjusted for store type, treating convenience stores as the reference category because they were the most prevalent store type. All numeric predictors were centered at the mean. The predictors that represent percentages were scaled to equate a one-unit increase with an increase of 10 percentage points; population density was scaled to represent an increase of 1,000 residents per square mile. Linear outcome multilevel models were estimated using restricted maximum likelihood and robust *SEs*. For models of dichotomous outcomes, such as the presence of an advertised promotion for specific brands, hierarchical generalized linear population average models were estimated.

Results

Table 1 describes the characteristics of stores and schools/neighborhoods that comprised the study sample. The stores contained an average of 25.4 ($SD = 26.1$) cigarette advertisements, and the average share of voice for menthol was 25.7%

Table 1. Sample Description and Associations of Cigarette Advertising With School/Neighborhood Demographics: California High School Neighborhoods, 2006

	Descriptive measures		Menthol advertising share of voice	Store advertised promotional offer	
			(% of ads for menthol)	Newport (menthol)	Marlboro (nonmenthol)
	% or <i>M</i>	<i>SD</i>	Coef (95% <i>CI</i>)	Odds (95% <i>CI</i>)	Odds (95% <i>CI</i>)
Level 1: stores (<i>n</i> = 407)					
Intercept			27.2** (24.4, 30.0)	0.7 (0.5, 1.0)	22.5** (10.1, 50.1)
Store type					
Convenience	31%		Ref	Ref	Ref
Gas only	4%		-2.1 (-11.5, 7.3)	0.9 (0.3, 2.8)	0.2* (0.0, 0.9)
Liquor	14%		3.5 (-2.1, 9.1)	0.6 (0.3, 1.3)	0.4 (0.1, 1.2)
Other	5%		-8.1** (-14.7, -1.5)	0.3 (0.1, 1.0)	0.1** (0.0, 0.3)
Small market	27%		-4.1 (-8.9, 0.7)	0.3** (0.1, 0.5)	0.1** (0.0, 0.2)
Supermarket/drug store	20%		-7.3** (-11.5, -3.1)	0.2** (0.1, 0.5)	0.1** (0.1, 0.3)
Level 2: schools (<i>n</i> = 91)					
School enrollment					
Non-Hispanic White, %	35%	25%			
Black, %	7%	7%	5.9* (0.9, 10.9)	1.5* (1.0, 2.2)	1.4 (0.9, 2.1)
Asian/PI, %	13%	14%	-1.5 (-3.5, 0.5)	1.0 (0.8, 1.3)	1.0 (0.7, 1.3)
Hispanic, %	39%	26%	0.0 (-1.6, 1.6)	1.0 (0.8, 1.2)	1.0 (0.8, 1.3)
Other, %	7%	6%	-5.7** (-8.9, -2.5)	0.8 (0.4, 1.3)	1.1 (0.6, 1.8)
Free/reduced price meals, %	34%	24%	-1.8** (-3.0, -0.6)	1.0 (0.8, 1.2)	1.0 (0.8, 1.2)
School neighborhood					
Residents ages 10–17, %	12%	3%	11.6* (1.7, 21.6)	5.3* (1.5, 18.7)	0.9 (0.2, 3.6)
Population density	7454	4609	0.8* (0.0, 1.6)	1.0 (0.9, 1.1)	1.0 (0.9, 1.1)
Number of tobacco retailers	8	7	0.0 (-0.4, 0.4)	1.0 (0.9, 1.1)	1.0 (0.9, 1.0)

Note. Estimates for promotional offers by brand were derived from hierarchical generalized linear models. *CI* = confidence interval.

p* = .05; *p* < .01.

(*SD* = 20.1). For each 10 percentage point increase in the proportion of Black students at the nearby high school, the menthol share of voice increased by 5.9 percentage points (e.g., from an average of 25.7% to 31.6%; see Table 1). The menthol share of voice increased by 11.6 percentage points with each 10 percentage point increase in the proportion of neighborhood residents ages 10–17 years.

The proportion of observed stores that advertised a promotional offer was 27.0% for Newport, 75.2% for Marlboro (nonmenthol), and 51.4% for Marlboro Menthol. For each 10 percentage point increase in the proportion of Black students, the odds of a store advertising a Newport promotion were 1.5 times greater (see Table 2). For each 10 percentage point increase in the proportion of residents ages 10–17 years, the odds of a Newport promotion were 5.3 times greater. Unlike Newport, the odds of a store advertising a Marlboro (non-menthol) promotion were unrelated to any school/neighborhood demographic. Similarly, the odds of a Marlboro Menthol promotion were unrelated to any school neighborhood demographics (results for this subbrand are not shown).

The average pack price for Newport was \$4.37 (*SD* = 0.51, *n* = 320 stores). The average estimated discount for Newport was \$0.52 (95% *CI* = \$0.42–\$0.62; see Table 2). Adjusting for store type and other school neighborhood demographics, the price of Newport decreased 12 cents for each 10 percentage

point increase in the proportion of Black students at the nearby high school. The average pack price for Marlboro was \$3.99 (*SD* = 0.49, *n* = 388 stores). The average estimated discount was \$0.39 (95% *CI* = \$0.27–\$0.51; see Table 2). Unlike Newport, the price of Marlboro was unrelated to any school or neighborhood demographics.

In an ancillary analysis, we examined whether the amount of a Newport discount varied across school neighborhoods. However, the variance estimate for this slope was not significantly different from zero. Although the availability of a promotion for Newport increased with the proportion of African-African students, the amount of the discount did not.

Discussion

This study is the first we know of to examine the availability of promotions as well as the price of menthol cigarettes by neighborhood demographics. The findings suggest that a disproportionate quantity of menthol advertising and a greater availability of promotions for menthol brands translate into lower prices for menthol cigarettes near California high schools with more Black students. The current study also provides further evidence that menthol marketing is concentrated in Black neighborhoods. Targeted advertising in school neighborhoods is particularly concerning because exposure to retail tobacco marketing is a risk factor for

Table 2. Lowest Pack Price, by Brand in Relation to Store Type and Neighborhood Demographics: California High School Neighborhoods, 2006

	Newport (menthol)	Marlboro (nonmenthol)
	Coef (95% CI)	Coef (95% CI)
Level 1	(<i>n</i> = 318)	(<i>n</i> = 387)
Intercept	4.47** (4.37, 4.57)	4.21** (4.07, 4.35)
Store type		
Convenience	Ref	Ref
Gas only	-0.24* (-0.46, -0.02)	-0.08 (-0.34, 0.18)
Liquor	0.04 (-0.10, 0.18)	0.07 (-0.03, 0.17)
Other	-0.20 (-0.42, 0.02)	-0.16 (-0.40, 0.08)
Small market	-0.04 (-0.16, 0.08)	0.10 (-0.02, 0.22)
Supermarket/drug store	0.34** (0.20, 0.48)	0.24** (0.12, 0.36)
Price was discounted	-0.52** (-0.62, -0.42)	-0.39** (-0.51, -0.27)
Level 2	(<i>n</i> = 88)	(<i>n</i> = 90)
School enrollment		
Non-Hispanic White, %		
Black, %	-0.12** (-0.18, -0.06)	-0.01 (-0.09, 0.07)
Asian/PI, %	0.01 (-0.03, 0.05)	-0.01 (-0.05, 0.03)
Hispanic, %	-0.03 (-0.07, 0.01)	-0.03 (-0.07, 0.01)
Other, %	-0.01 (-0.07, 0.05)	0.04 (-0.04, 0.12)
Free/reduced price meals, %	0.00 (-0.04, 0.04)	0.00 (-0.04, 0.04)
School neighborhood		
Residents ages 10–17, %	-0.07 (-0.29, 0.15)	-0.08 (-0.34, 0.18)
Population density	0.00 (-0.02, 0.02)	0.02 (0.00, 0.04)
Number of tobacco retailers	0.01* (0.01, 0.01)	0.01 (-0.02, 0.02)

Note. Pack price before sales tax for single or multi-pack offer (excluded cartons); CI = confidence interval. **p* = 05; ***p* < .01.

smoking uptake and influences high school smokers' brand choice (Wakefield, Ruel, Chaloupka, Slater, & Kaufman, 2002).

The observation of higher prices for Newport than Marlboro is consistent with other studies that observed higher prices for menthol than for nonmenthol cigarettes (Tobacco Products Scientific Advisory Committee, 2011) and with Lorillard's statement that its Newport brand maintains the highest average retail price of major U.S. cigarette brands (Lorillard Tobacco Company, 2010; Ruel et al., 2004). One finding that is unique to this study is that Newport cigarettes cost less near high schools with more Black students, a pattern that was not observed for Marlboro.

According to Lorillard's submission to the Food and Drug Administration (Lorillard Tobacco Company, 2010), the company offers retail promotions for Newport in 27 states. Within a given state, approximately 34% of all retailers that sell cigarettes have a promotional agreement with Lorillard, and retailers with such promotions are typically located in areas where there is relatively strong Newport or menthol category sales. This study observed at least one Newport promotion in 27% of tobacco retailers near California high schools. However, the greater availability of Newport promotions and lower prices for the brand near schools with more Black students contradict the manufacturer's statement that "the availability and amount of Lorillard's retail price promotions are not, in any way, based on ethnicity" (Lorillard Tobacco Company, 2010, p. 39).

A limitation of studying prices for the leading brands of menthol and nonmenthol cigarettes is that these reflect pro-

motional strategies that are determined by different manufacturers. Future research should examine prices for menthol and nonmenthol versions of multiple brands in order to determine whether more than one tobacco company charges less for menthol cigarettes in Black neighborhoods. This study was also limited to California high school neighborhoods, although we can think of no a priori reason why the observed associations would differ in other states. Research is needed to determine whether the observed patterns generalize to stores located further from schools or whether menthol marketing targets stores near high schools. In addition, these cross-sectional data cannot address how changes in retail marketing strategies contributed to recent increases in market share for some menthol brands (Tobacco Products Scientific Advisory Committee, 2011).

In California, the proportion of stores that advertised a promotion for cigarettes has increased over time and more so in neighborhoods with a larger proportion of Black residents (Feighery, Schleicher, Cruz, & Unger, 2008). Given that Black smokers and youth are among the most price-sensitive groups (Hyland et al., 2005) and that menthol smokers are more likely than others to take advantage of promotional offers (White et al., 2006), further investigation of the disparities in promotions and price for menthol and nonmenthol cigarettes is warranted. Evidence about the environmental (in)justice of menthol marketing should inform the Food and Drug Administration's regulation about the use of menthol as a characterizing flavor in cigarettes.

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Declaration of Interests

None declared.

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