Original Investigation

Neighborhood Disparities in the Availability, Advertising, Promotion, and Youth Appeal of Little Cigars and Cigarillos, United States, 2015

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Abstract

Introduction: Between 2012 and 2016, sales of cigars increased by 29% in the United States. In small local studies, greater little cigar and cigarillo (LCC) availability and marketing has been documented in neighborhoods with a greater proportion of Hispanic or Latino and black residents, and near schools. This national study of cigarette retailers assesses whether LCC availability and marketing at the point of sale is associated with neighborhood racial, ethnic, income, and percent youth demographics.

Methods: In 2015, we collected LCC availability and marketing data through retailer audits of a nationally representative sample of 2128 cigarette retailers. Using 2011–2015 American Community Survey census tract estimates, we modeled associations of neighborhood demographics (in quartiles) with availability of LCC-flavored products, and presence of exterior advertisements, youth marketing, and promotions.

Results: Nearly 90% of retailers sold LCCs, 83.0% sold flavored LCCs, and 30.9% had youth marketing. Controlling for retailer type and other neighborhood characteristics, neighborhoods with the highest proportion of black residents had significantly higher odds of flavored LCC availability (adjusted odds ratio [AOR] = 2.24, 95% confidence interval [CI] = 1.52, 3.30); exterior advertisements (AOR = 2.84, 95% CI = 1.94, 4.16); price promotions (AOR = 1.62; 95% CI = 1.07–2.45), and youth appeal (AOR = 1.49, 95% CI 1.08–2.08) compared to the lowest. Disparities in flavored LCC availability, exterior advertising, and youth appeal were also present for lower income neighborhoods.

Conclusion: Neighborhoods with a greater proportion of black or lower income residents have greater flavored LCCs availability and LCC marketing. Without stronger LCC regulation, residents of these neighborhoods may be at a greater risk of LCC use.

Implications: LCCs are harmful combustible tobacco products that are less regulated than cigarettes (eg, lower taxation, cheaper outlay due to small package sizes, availability of flavors), which makes them an affordable and appealing product to youth. This study documents greater availability, advertising, and marketing of LCCs in neighborhoods with a higher proportion of black or lower-income residents, potentially putting these populations at a greater risk of using or switching to these products in the face of increasing cigarette regulations. These findings underscore the need for local, state, and federal LCC regulatory action.

Introduction

The 2009 United States Family Smoking Prevention and Tobacco Control Act authorized the Food and Drug Administration (FDA) to regulate cigarettes, smokeless tobacco, and roll-your-own tobacco products.¹ FDA has banned the sales of flavored cigarettes (except for menthol) and required cigarettes to be sold in a minimum pack size of 20 sticks.¹ Between 2010 and 2017, adult cigarette smoking prevalence dropped from 19.3%² to 14.0%.³ Additionally, cigarette smoking prevalence among middle and high school students significantly decreased to the lowest levels ever recorded.⁴

Despite cigar use being associated with an increased risk of numerous cancers, coronary heart disease, and stroke,⁵ it was not until 2016 that the FDA finalized a deeming rule to extend their authority to regulate all other tobacco products, including cigars. The FDA broadly defines cigars as, “a roll of tobacco wrapped in leaf tobacco or in a substance that contains tobacco.”⁶ “Cigars” include little cigars, which typically resemble cigarettes and have a filter, and cigarillos, which are a smaller version of traditional large cigars and usually do not include a filter.⁶ Typically, large cigars are sold as a single unit, little cigars in packages of 20, and cigarillos in packages of varying sizes (eg, 2–5 per package).⁷ However, there is no federal minimum pack size requirement for cigars,⁸ making these products significantly cheaper than cigarettes⁹ (due to smaller quantities), which may be especially appealing to price-sensitive smokers, such as youth.^{10,11} In contrast to declining cigarette use and sales between 2012–2016, average monthly per capita total cigar (ie, large cigars, little cigars, cigarillos) unit sales increased by 29%.¹² This increase was primarily driven by a 78% increase in the sales of cigarillos.¹²

In 2017, approximately 9.3 million (3.8%) adults were current cigar users.¹³ It is difficult to estimate the prevalence of use by cigar type, as many surveys lump large cigars, little cigars, and cigarillos into one overarching “cigar” category. A national analysis of adults in 2013–2014 found the highest use prevalence for cigarillos (1.7%), followed by little cigars (0.9%), premium cigars (0.7%), and non-premium cigars (0.8%).¹⁴ Little cigar and cigarillo (LCC) smoking prevalence differs across adult demographic characteristics, with higher prevalence among males, younger adults, non-Hispanic black individuals, those with a GED/high school diploma, and those with lower income or living below the federal poverty level.^{13–15}

In 2019, 2.3% of middle school students and 7.6% of high school students reported past 30-day use of cigars; furthermore, 41.9% of current tobacco users who used flavored products reported using cigars.¹⁶ Flavored cigars are also popular among young adults, with 57.1% of 18- to 24-year-old cigar users reporting use.¹⁷ Flavored combustible tobacco products are targeted to novice smokers, and are designed to reduce the harshness of smoke, making it easier to inhale these addictive products more deeply.^{18,19} A review of tobacco industry documents indicates that flavored LCCs were specifically designed to increase new user appeal; this appeal was also marketed to young adult black smokers with the introduction of menthol LCCs.¹⁹ Furthermore, among youth and adult ever tobacco users, using a flavored product at first use was associated with a 13% and 32% higher prevalence of current tobacco use.²⁰ The use of flavored cigars is high among both youth and adult current cigar users,²¹ and the sales of flavored cigars in convenience stores increased from \$801.2 million to \$1173.7 million between 2008 and 2015.⁷ Additionally, cigarillos are also often used to roll marijuana in the form of a blunt.^{22–24} When used as a blunt, many youth do not consider smoking cigarillos to be “tobacco use,” with differences in

agreement by race/ethnicity²²; therefore, current estimates of cigar and cigarillo use may actually be underestimated.^{22,25}

The tobacco retailer environment, or the primary venue where people are exposed to tobacco marketing and purchase tobacco products, may impact cigar use behaviors. A systematic review documented significant relationships between exposure to marketing and cigarette smoking, including susceptibility to smoking, experimentation with smoking, smoking frequency, impulse purchases, urges to smoke, and quit attempts.²⁶ While the majority of studies to date have focused on cigarette smoking behavior, a Texas study found that youth recall of cigar marketing was predictive of current, ever, and increased susceptibility to cigar smoking at 6-month follow-up.²⁷ Additionally, a longitudinal California study found that youth (11th and 12th graders) exposed to tobacco marketing of a variety of product types (including cigars/little cigar/cigarillos), had over 3.59 times the odds of smoking cigarettes as a young adult.²⁸ A national sample of youth also indicated that exposure to marketing in the retail environment was associated with greater curiosity to smoke cigars among never tobacco users, a potential pre-cursor to actual use.²⁹

Few studies have examined area-level demographic disparities in LCC availability and marketing; those that have were limited to local regions. The first study to systematically assess LCC marketing and availability by neighborhood demographic characteristics was conducted from 2011 to 2012 in Washington, DC.³⁰ Block groups with the highest proportion of African American residents had 11.8 (95% confidence interval [CI], 4.51–30.67) and 10.16 times the odds of selling and having LCC exterior advertising, respectively.³⁰ Additionally, the prices of these products were significantly lower in neighborhoods with greater proportions of African American residents.³⁰ More recent California-based studies document a higher odds of selling LCCs in zip codes with a higher proportion of non-Hispanic black, Hispanic/Latino, or Korean American residents (as compared to zip codes with a higher proportion of non-Hispanic white residents),³¹ and cheaper Swisher Sweets cigarillo prices in neighborhoods with a higher percent of school-aged youth (5–17 years old) and lower median household income.³²

To date, the FDA and state and local jurisdictions have not regulated LCCs to the same extent as cigarettes, resulting in cheaper products that are a more affordable alternative to cigarettes and that may further appeal to youth through the use of flavors.^{8,9,19,33} Given the increase in the sales of cigars that was largely driven by sales of cigarillos,¹² the high prevalence of flavored little cigar use among youth,³⁴ and that cigarillos and little cigars are the most commonly used cigar type among adults,¹⁴ we focus our current study on LCCs, and do not include large cigars. The purpose of this study is to (1) document the overall availability and presence of advertising, promotions, and youth appeal of LCCs in a nationally representative sample of cigarette retailers and (2) investigate whether there are neighborhood-level racial, ethnic, and income disparities in LCC availability, advertising, promotions, and youth appeal. This study provides the first national-level assessment of point-of-sale LCC availability and marketing, extending limited local studies and serving as an initial benchmark for tracking national trends in LCC point-of-sale disparities over time.

Methods

Data for this study come from a national retailer audit study conducted by Advancing Science and Policy in the Retail Environment

(ASPiRE). The study aimed to assess tobacco product availability and marketing in cigarette retailers and involved three waves of longitudinal data (2012–2015). The current study uses data collected between May and August 2015.

Cigarette Retailer Sample and Data Collection

A two-stage sampling design was used to identify a nationally representative sample of cigarette retailers in the continental United States. We selected counties with minimal replacement using a probability proportionate to size method. Census data from 2010 was used to select 100 counties with a probability of selection proportional to the county population. The final county sample included 97 unique counties. To create a sampling frame of retailers selling tobacco products, we purchased business establishment lists from ReferenceUSA and Dun & Bradstreet. More details regarding sampling and retailer selection is described elsewhere.³⁵

Trained data collectors visited a total of 2157 retailers. The 2015 analytic sample includes the 2128 retailers for which both exterior and interior retailer audits were completed. Two retailers could not be found; 14 were temporarily closed/under construction, and 13 had retailer clerk refusals. For a random sample of 5 counties, retailers were audited twice by different data collectors (227 retailers total). Percent agreement ranged from 75% to 100%.

Measures

For all measures, we grouped LCCs together as a single product type (ie, little cigars or cigarillos), rather than separately identifying little cigars from cigarillos.

Availability

Data collectors documented whether LCCs were sold, and if so, indicated whether flavored LCCs were available. We defined flavored LCCs as any LCC with packaging, words, or description that indicated fruit, candy, chocolate, clove, spice. Consistent with the FDA's definition of flavored *cigarettes*, we did not classify mentholated LCCs as flavored.

Exterior Advertising

Data collectors indicated whether LCCs were advertised outside the retailer (ie, on windows/doors, building, sidewalk, parking lot, or elsewhere).

Branded Header Row

Data collectors were trained to indicate whether any of four specific LCC brands (Black-n-Mild, White Owl, Swisher Sweets, or Phillies) were advertised on the header row of the shelving units.

Price Promotion

Our goal was to have data collectors identify signs in the store (or on product packages), indicating a time-limited reduction in LCC price. If a price promotion was present, data collectors were then asked to report if that promotion included a special price on one product (eg, \$0.50 off a pack of little cigars), a special price on more than one product (eg, \$0.69 per cigarillo when you buy five; save \$1 when you buy three cigarillos), a multi-buy (eg, buy one cigarillo, get another free) offer, or a cross-product (eg, buy a pack of little cigars, get \$1.00 off a pack of cigarettes) promotion. We created a dichotomous variable, indicating whether an establishment had any of the four types of promotions.

Youth Appeal

Data collectors documented retailer characteristics that may make tobacco products more appealing to youth, due to being placed within children's eye line/reach or near non-tobacco youth-oriented products. Data collectors indicated whether LCC ads were within 3 feet of the floor of the retailer, whether LCCs were placed within 12 inches of toys, candy or gum, slushy or soda machines, or ice cream, or whether LCCs were in a self-service display. Distances were visually estimated by data collectors and coder percent agreement ranged from 88% to 90%. We created a dichotomous youth appeal variable where a "yes" response to any of these questions indicated the retailer had youth appeal characteristics and a "no" response to all these questions indicated it did not.

Neighborhood Demographic Characteristics

Census tract-level estimates from the 2011–2015 American Community Survey were used to describe the demographic characteristics of retailer neighborhoods. We created quartiles of percent non-Hispanic black, Hispanic or Latino ethnicity, median household income, and percent youth (ages 5–17) based on the distribution of each variable as has been used in previous studies.^{30,35,36} Each retailer was assigned the demographic variables for the census tract in which they were located.

Retailer Type

We included a measure of retailer type as a control variable in regression models. Data collectors identified each retailer as one of nine retailer types: convenience store with a gas station; convenience store without a gas station; drug store or pharmacy; alcohol outlet; supermarket or grocery store; mass merchandiser (eg, Walmart, Costco); tobacco shop; dollar store; or other retailer type (eg, donut shop, bait, and tackle shop).

Analysis

Sampling weights, which accounted for county and retailer selection in the sampling design and nonresponse, were applied to all descriptive prevalence estimates of LCC product availability, and presence of exterior marketing, branded header rows, promotions, and youth appeal. As an exploratory descriptive analysis, we also examined whether there were differences in LCC availability and characteristics by store type. We fit a total of four models assessing whether neighborhood demographics were associated with the adjusted odds of a retailer selling flavored LCC, or a retailer having exterior advertisements, product promotions, or any youth appeal. In all models, neighborhoods with the lowest proportion of black, Hispanic or Latino, and youth residents were designated as the reference group, while neighborhoods with the highest median household income were designated as the reference group. We assessed polychoric correlations of each of the quartiled (Q) demographic variables: QBlack-QHispanic (0.12); QBlack-QIncome (−0.32); QBlack-QYouth (0.01); QHispanic-QIncome (−0.14); QHispanic-QYouth (0.10); QIncome-QYouth (0.03). Finally, because cigarette retailers were nested within counties, we used general estimating equation (GEE) methods, which adjust both estimates and standard errors due to the nesting of retailers within a county.

Results

LCC Characteristics for Overall Sample

Table 1 indicates the weighted prevalence of LCC availability, advertising, promotion, and youth appeal characteristics for the overall

Table 1. Weighted Prevalence of LCC Availability, Advertising, Promotion, and Youth Appeal Characteristics, 97 Counties, United States, 2015 (*N* = 2128)

	Percent
Availability	
Sold LCCs	89.5
Sold flavored LCCs	83.0
Exterior advertising	19.9
Branded header row (any)	7.5
Black-n-Mild	6.5
White Owl	0.5
Swisher Sweets	0.9
Phillies	0.0
Price promotion (any)	18.2
Special price on >1 product	9.7
Special price on 1 product	8.3
Multi-buy	3.0
Cross-product	0.0
Youth appeal (any)	19.8
Product ad within 3 feet of the floor	10.7
Product within 12 inches of youth-oriented products	9.3
Self-service display	7.9

sample. Nearly all retailers sold LCCs (89.5%), and 83% sold flavored LCCs. About a fifth of retailers had exterior LCC advertising, but branded header rows were not common and were overwhelmingly branded as Black-n-Mild. Almost one in five (18.2%) retailers had an interior price promotion, with the most common being special price on one more than one LCC product (9.7%). Approximately, 20% of all retailers had marketing or product placement with youth appeal.

Nearly 90% of all retailer types sold LCCs (Table 2). Flavored LCCs were commonly sold in all store types but most prevalent in tobacco shops (95.6%) and convenience gas stores (93.1%); exterior advertising was most common in tobacco shops (49.5%); any branded header rows were most common in mass merchandisers (30.4%); any type of price promotion was most common in tobacco shops (52.7%) followed by drug or pharmacy stores; and any type of youth appeal was most common in tobacco shops (66.8%).

LCC Characteristics by Neighborhood Demographics

Because approximately 90% of all retailers sold LCCs and branded header rows were rare with little variability by brand, we did not assess these outcomes in our multilevel GEE models. In Table 3, we indicate weighted prevalence estimates of each outcome and the results of each model. Cigarette retailers in neighborhoods with the highest proportion of black residents (Q4) had over twice the odds (OR, 2.24; 95% CI, 1.52–3.30) of selling flavored LCCs compared to those in neighborhoods with the lowest proportion (Q1) of black residents. Additionally, as compared to retailers located in the highest income neighborhoods (Q4), those in lower-income neighborhoods (Q1–Q3) had a significantly higher odds of selling flavored LCCs (adjusted odds ratio [AOR]: Q1, 1.62; Q2, 1.83; Q3, 2.30).

Retailers in neighborhoods with the highest proportion of black residents had almost three times the odds of having exterior LCC advertising (95% CI = 1.94–4.16) compared to retailers located in communities with the lowest proportion of black residents. Similarly, compared to retailers in the highest income neighborhoods (Q4), those in the lowest income quartile had 1.68 (95% CI = 1.02–2.76)

times the odds of exterior advertising. In contrast, retailers in neighborhoods with the highest proportion of Hispanic or Latino residents were less likely to have exterior advertising (AOR = 0.60, 95% CI = 0.40–0.90) compared to those in the lowest. The likelihood of a retailer having any LCC promotion was higher in neighborhoods with the greatest proportion of black residents, compared to those in neighborhoods with the lowest (AOR = 1.62; 95% CI = 1.07–2.45); however, no significant associations were present for any other demographic characteristics.

Finally, retailers in neighborhoods with the highest proportion of black residents had 1.49 times the odds (95% CI = 1.08–2.08) of having any type of LCC youth appeal, and this likelihood was also higher and significant for retailers located in lower-income neighborhoods (AOR: Q1, 2.04; Q2, 1.84, Q3, 1.55). One significant association was present for quartile youth (Q2 AOR = 1.37; 95% CI, 1.02–1.82).

Discussion

We find that LCCs, including flavored LCCs, are commonly sold in cigarette retailers across the United States. Our study also documents that LCC flavored availability, advertising, and marketing characteristics were significantly more likely in neighborhoods with lower income and those with a greater proportion of black residents.

Flavored LCCs were sold in the vast majority (83%) of the stores in our sample, providing easy access to a tobacco product that may ease initiation of LCC use. In March 2019, the FDA announced its intention to ban LCCs with “characterizing” flavors (eg, cherry, grape)³⁷; however, the FDA is still in the process of reviewing public comments and finalizing this policy, so this regulation has not yet been implemented.³⁸ Furthermore, the popularity and production of “concept” flavors (eg, Jazz, Sweet) is growing, perhaps as an industry attempt to circumvent any regulations on “characterizing” flavors.^{12,39} To truly regulate the flavored LCC market, policies need to extend to both. While our study did not assess the presence of concept flavors, this represents an area for future audits.

Lower-income and black individuals are two populations that the tobacco industry has systematically targeted with LCCs (and other) tobacco products.^{19,33,40} We find that even after controlling for retailer type and other neighborhood demographics, flavored LCCs were significantly more likely in both neighborhoods with lower income (compared to highest income) and those with a higher proportion of black residents (compared to lowest proportion). These results are consistent with one local study in California, indicating that communities with a greater proportion of black residents are at an increased risk for flavored LCC availability.³¹ While proportion youth was not significantly associated, youth living in poorer and higher proportion of black neighborhoods may have greater availability of flavored LCCs than their peers in other neighborhoods. Regulations of LCC flavor products similar to those for cigarettes may, therefore, have the potential to reduce disparities in the tobacco retail environment.

Although exterior LCC advertising and marketing with youth appeal were less prevalent than sales of any or flavored LCCs, each was documented in about one in five stores in our sample. Furthermore, the odds of each of these marketing tactics were significantly higher in neighborhoods with a greater proportion of black residents and lower median household incomes. The odds of price promotions were also significantly higher in neighborhoods with the highest proportion of black residents. Our study

Table 2. Weighted Prevalence of LCC Availability, Advertising, Promotion, and Youth Appeal Characteristics by Retailer Type, 97 Counties, United States, 2015 (N = 2128)

	n	Sold	Flavor sold	Exterior advertising	Any branded header row ^a	Any price promotion ^b	Any youth appeal ^c
Convenience (with gas)	899	96.7	93.1	30.0	11.1	21.8	22.2
Supermarket or grocery	373	78.3	67.4	6.7	3.0	10.6	11.0
Convenience (without gas)	215	92.0	86.9	27.2	6.3	19.7	20.8
Alcohol	212	68.6	58.4	8.5	1.3	4.8	23.2
Dollar store	151	95.3	91.3	0.8	0.0	5.1	24.4
Drug or pharmacy	136	91.5	78.5	2.4	0.8	28.7	24.0
Tobacco shop	53	100.0	95.6	49.5	15.0	52.7	66.8
Mass merchandiser	53	97.3	90.5	0.0	30.4	12.6	6.2
Other	18	53.5	53.5	23.1	0.0	10.9	18.3
All retailer types	2128	89.5	83.0	19.9	7.5	18.2	19.8

^aBlack-n-Mild, White Owl, Swisher Sweets, Phillies.^bSpecial price on >1 product, special price on 1 product, multi-buy, or cross-product.^cProduct ad within 3 feet of the floor, product within 12 inches of youth-oriented products, or products placed in self-service display.**Table 3.** Neighborhood (Tract) Associations of Quartiles of Proportion Black, Hispanic or Latino, Median Household Income, and Percent Youth with LCC Availability and Marketing Characteristics, 97 Counties, United States, 2015 (N = 2182)

Neighborhood characteristic	Flavor sold			Exterior advertising			Any price promotion ^a			Any youth appeal ^b		
	Percent	AOR	95% CI	Percent	AOR	95% CI	Percent	AOR	95% CI	Percent	AOR	95% CI
% Black, non-Hispanic												
Q1: 0–1.14	77.8	Ref		12.7	Ref		16.7	Ref		18.9	Ref	
Q2: 1.15–4.81	80.5	1.37	0.99–1.88	17.8	1.29	0.90–1.85	18.0	1.22	0.89–1.67	18.0	0.98	0.74–1.29
Q3: 4.82–13.85	81.7	1.36	0.95–1.95	15.8	1.35	0.91–2.01	16.4	1.20	0.86–1.68	15.0	0.86	0.62–1.18
Q4: 13.86–98.79	90.4	2.24	1.52–3.30	31.0	2.84	1.94–4.16	20.9	1.62	1.07–2.45	25.8	1.49	1.08–2.08
% Hispanic or Latino												
Q1: 0–3.54	85.1	Ref		22.3	Ref		17.8	Ref		22.6	Ref	
Q2: 3.55–9.75	82.7	0.98	0.70–1.38	22.5	0.99	0.73–1.35	20.6	1.15	0.83–1.60	20.5	1.06	0.75–1.48
Q3: 9.76–27.90	80.0	0.91	0.62–1.33	17.5	0.71	0.50–1.01	18.8	0.98	0.68–1.40	16.4	0.77	0.57–1.03
Q4: 27.91–99.48	83.7	1.01	0.68–1.49	15.1	0.60	0.40–0.90	14.6	0.85	0.53–1.39	18.7	0.74	0.51–1.07
Median household income (\$)												
Q1: 8007–38 869	86.9	1.62	1.04–2.52	26.0	1.68	1.02–2.76	18.9	1.21	0.80–1.85	26.3	2.04	1.38–3.02
Q2: 38 870–51 898	87.6	1.83	1.18–2.86	19.0	1.58	0.99–2.51	19.2	1.36	0.95–1.95	20.7	1.84	1.21–2.80
Q3: 51 899–72 375	87.9	2.30	1.54–3.43	20.4	1.55	0.98–2.46	21.7	1.42	0.96–2.08	19.7	1.55	1.08–2.22
Q4: 72 376–196 635	67.0	Ref		12.6	Ref		12.3	Ref		10.5	Ref	
% Youth (5–17)												
Q1: 0–13.5	79.2	Ref		16.5	Ref		17.7	Ref		17.3	Ref	
Q2: 13.6–16.5	86.4	1.43	0.93–2.20	22.2	1.43	0.97–2.12	19.6	0.92	0.72–1.17	23.3	1.37	1.02–1.82
Q3: 16.6–19.6	83.3	1.22	0.85–1.76	20.3	1.34	0.93–1.93	20.2	1.14	0.88–1.47	21.8	1.29	0.97–1.72
Q4: 19.7–32.3	82.9	1.22	0.85–1.76	20.4	1.30	0.92–1.82	15.1	1.14	0.83–1.55	16.9	1.06	0.75–1.48

AOR = adjusted odds ratio; CI = confidence interval. Reported percents have been weighted. Bolding indicates statistical significance. All models control for other neighborhood demographic characteristics, retailer type, and the nesting of retailers within counties.

^aSpecial price on >1 product, special price on 1 product, multi-buy, or cross-product.^bProduct ad within 3 feet of the floor, product within 12 inches of youth-oriented products, or products placed in self-service display.

extends the current evidence that has primarily focused on racial and ethnic disparities in exterior LCC advertising.^{30,31,36} Given that exposure to tobacco retail advertising and marketing is associated with cigarette smoking and purchase behaviors,²⁶ it is plausible that exposure to LCC marketing may also be associated with LCC use behaviors. Furthermore, the disparities in marketing documented here represent a social justice concern, given systematic industry targeting of tobacco products to lower-income and black individuals, and the neighborhoods where they disproportionately reside.^{19,33,40} Although we only found one difference in marketing based on the youth composition of a neighborhood, the differences by neighborhood racial proportions and income levels may

mean that black and lower-income youth may face more LCC marketing than their peers.

LCCs, and specifically little cigars, provide a cheaper alternative to cigarettes,^{33,41} making them especially appealing to price-sensitive smokers, including lower-income and younger individuals.^{10,11,42} Cheaper cigarillo prices have been documented in lower-income neighborhoods.³² Although our study did not replicate these findings, the greater availability of price promotions in neighborhoods with a greater proportion of black residents (which is moderately inversely correlated with neighborhood income) could incentivize residents in these neighborhoods to purchase LCCs. Local, state, and federal regulations need to better define cigars and their sub-types

and consider implementing regulations that ensure their prices keep pace with those for cigarettes, in order to prevent LCC use and potential product switching or dual use due to affordability.^{9,43} Policies that prohibit the use of promotions on these already cheap products can help ensure that new price policies are not offset by the use of promotions.^{44,45}

The presence of any type of youth appeal (ie, LCC ad within 3 feet of the floor; LCCs placed within 12 inches of youth-oriented products; LCCs placed in self-service display) marketing is another potential feature of a risky tobacco retailer environment. A 2016 meta-analysis of 13 studies found that youth who are more frequently exposed to tobacco retailer advertising and promotion have 1.61 (95% CI = 1.33–1.96) times the odds of ever cigarette smoking and 1.32 (95% CI = 1.09–1.61) times the odds of smoking susceptibility among never smokers.⁴⁶ Youth have a higher cigar use prevalence than adults,^{4,13} and black young adults also more commonly use cigars than white young adults.^{47,48} That LCCs are placed and advertised in ways that may be more appealing or accessible to youth and young adults in neighborhoods with a greater proportion of black and lower-income residents likely reinforces the disparity in product use. Regulations prohibiting the placement of LCCs and advertisements in ways that may directly target youth could counteract this possibility.

In addition to the substantial disparities we document in LCC marketing in lower-income neighborhoods and neighborhoods with a greater proportion of black residents, we find a small protective relationship in some communities with a higher proportion of Hispanic or Latino residents, where exterior LCC advertising was less likely than in neighborhoods with the lowest proportion of Hispanic or Latino residents.

Finally, we document that drug stores and pharmacies are very likely to sell LCCs and are more likely to market them through price promotions than many other retailer types. The availability of tobacco products in pharmacies has gained national attention due to the recognition of the inconsistency of a wellness retailer selling a deadly product, the 2014 removal of tobacco products in CVS, and the passage of several local tobacco product pharmacy bans. Removal of tobacco products from pharmacies would reduce not only availability of the product, but also tobacco marketing, in a store type that otherwise focuses on improving population health.

Our study did not discern between little cigars and cigarillos. As noted previously, while both of these products are defined as “cigars,” their product characteristics are different, with little cigars seemingly acting as a lower-cost substitute for cigarettes.^{33,42} Yet the increasing sales of cigars documented from 2012 to 2016 was actually driven by a 78% unit increase in the sales of cigarillos while a decrease in the sales of little cigars was observed.¹² Furthermore, the characteristics (eg, demographics, dual cigarette use, other tobacco product use) of those using little cigars versus cigarillos may differ.^{14,49} More specific surveillance on whether the availability and marketing characteristics of each of these products differ by neighborhood-level factors may help inform definitions and regulations of specific cigar products, which could further inform tobacco control policy design. Finally, future studies, especially those focused on cigars specifically, should document the availability, advertising, promotion, youth appeal, and pricing of these products separately, and may consider including more brand-specific information.

Some researchers have recently written about the importance of documenting the co-marketing of marijuana with cigarillos, which are often used to roll marijuana in the form of a blunt.^{22–24} Through

the use of cigar products that use the term “blunt” or “roll,” have marijuana concept flavors or brands, or have green colors or labels,^{23–25} this co-marketing is present in cigarette retailers that do not actually sell marijuana. As more jurisdictions legalize and likely normalize recreational marijuana use, surveillance on whether the co-marketing of the two products increases over time, and in certain neighborhoods, is needed. An observed increase in cigarillo availability or marketing, especially those that reference marijuana in some way, may reflect a strategic tobacco industry response to marijuana legalization policies. This may result in increased cigarillo use over time. Continued surveillance of this marketing strategy in tobacco retailers is needed.

This study is the first to investigate racial, ethnic, and income disparities in LCC availability, advertising, promotion, and youth appeal in a national sample of cigarette retailers, and it indicates that previously documented local-level disparities in some of these outcomes are widespread. Our study represents a cross-sectional analysis of the 2015 tobacco retailer environment. It is possible that LCC availability and point-of-sale marketing characteristics have changed in the last few years, in response to industry trends or the passage of local retail regulations. However, results from this study are the first to document a national overview of the point-of-sale LCC landscape overall and with neighborhood demographics, which may be useful as a comparison for future national-level monitoring, evaluation, and regulatory intervention. The tobacco control field should continue to assess the evolving tobacco retailer environment and the array of products sold, with careful attention to those neighborhoods with an increased risk of selling and marketing these harmful products to consumers that the industry has historically targeted.

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Declaration of Interests

KMR has served as an expert consultant in litigation against tobacco companies. KMR has a royalty interest in a mobile store observation system owned by UNC-Chapel Hill; however, this system was not used or described in this study.

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