

Retail marketing for chewing tobacco in Los Angeles, California

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ABSTRACT

INTRODUCTION Retail marketing for chewing tobacco may be different across racial/ethnic neighborhoods, possibly leading to diverging patterns of use and disparate health risks relating to consumption. This study aimed to compare the frequencies of available chewing tobacco, available flavored chewing tobacco, price promotions, and exterior advertisements in tobacco retail stores in Los Angeles, California.

METHODS In-person observational audits from tobacco retail stores (n=679) located in predominantly non-Hispanic White (n=196), non-Hispanic Black/African American (n=194), Hispanic/Latino (n=189), or Korean American (n=100) neighborhoods were conducted between January 2016 and April 2017.

RESULTS There were statistically significant associations ($p < 0.001$) between racial/ethnic neighborhood and chewing tobacco marketing, where retailers located in non-Hispanic White neighborhoods sold and advertised chewing tobacco and flavored chewing tobacco, used price promotions, and displayed exterior advertisements more frequently than retailers located in African American, Korean American, and Hispanic/Latino neighborhoods.

CONCLUSIONS Stronger restrictions on chewing tobacco, price promotions and flavored versions could mitigate exposure and access to these products in the retail environment.

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INTRODUCTION

Smokeless tobacco (ST) products include chewing tobacco, dry snuff, and moist snuff (dip and snus). ST use has been shown to be associated with an increased risk of oral and pharyngeal cancer and pancreatic cancer¹⁻³. In the US, ST use is higher among American Indians/Alaska Natives and non-Hispanic Whites compared to other racial/ethnic groups⁴. The 2009 Family Smoking Prevention and Tobacco Control Act granted the Food and Drug Administration regulatory authority over the manufacture, marketing, packaging, and formulation of combustible cigarettes and ST products⁵. Chewing tobacco, specifically, is a common type of ST product that comes in shredded, twisted, or 'bricked' tobacco leaves. Most users place the product between the gum and the cheek or lip to chew or suck, and nicotine is absorbed into the bloodstream through the tissues in the mouth.

Tobacco retail marketing is a significant source of exposure to chewing tobacco. However, little is known about how retail marketing for chewing tobacco varies among stores located in neighborhoods with different racial/ethnic plurality. Additionally, chewing tobacco at retail may be available in a variety of candy and fruit flavors (i.e. mint, apple, grape), thus potentially appealing to new consumers. We compared the frequency of chewing tobacco marketing at the store level (i.e. whether chewing tobacco was sold at the store, if the store sold flavored chewing tobacco, if exterior chewing tobacco advertisement was present at the store) in a sample of stores located in neighborhoods in Los Angeles, California with a high proportion of non-Hispanic Black/African American, Hispanic/Latino, Korean American, or non-Hispanic White residents. Understanding racial/ethnic neighborhood

differences in retail marketing for chewing tobacco can help better inform tobacco control regulatory policy to reduce exposure and access to these products.

METHODS

Study sample

The target sample was 700 stores with tobacco retailer licenses in Los Angeles. Stores were classified into one of five categories: 1) small, independent convenience stores with or without a gas station; 2) beer, wine, and liquor stores; 3) small, independent grocery stores that primarily sold food; 4) tobacco-focused stores; and 5) 'other', such as a discount store, donut shop or gas kiosk. Excluded from this study were pharmacies, big chain markets/supermarkets, and vape shops.

Selection of stores was performed in two steps. In Step 1, zip codes with a median or below median household income for Los Angeles County were ranked by percentage of race/ethnicity and zip codes with the highest percentages of each race/ethnicity were selected (Table 1). The number of zip codes that met the criteria for each race/ethnicity differed (non-Hispanic White = 32 zip codes; Hispanic/Latino = 14 zip codes; African American = 14 zip codes; Korean American = 7 zip codes), so to be consistent across all racial/ethnic zip code clusters, we selected a random sample of up to 15 zip codes from each racial/ethnic zip code cluster. This criterion affected the non-Hispanic White sample since there were 32 eligible zip codes. We exhausted all possible stores in the top 15 zip codes and repeated that process until we reached our desired

sample. In total, we collected store data from 21 zip codes out of the possible 32 zip codes in the non-Hispanic White sample.

In Step 2, stores were randomly selected from ranked zip codes using a comprehensive list of approximately 11600 licensed tobacco retailers in Los Angeles County maintained by the California Department of Tax and Fee Administration⁶. The number of stores selected was based in proportion to the race/ethnicity percentage ranking of each zip code. Store type was categorized using standard definitions⁷. Approximately 10200 of the 11600 licensed tobacco retailers were eligible under our store criteria, and 2556 of the eligible stores were in the selected zip codes for this study (22% of licensed tobacco retail stores in Los Angeles County). The sampling design process is described in detail elsewhere⁸.

Procedure and measures

To record chewing tobacco product and marketing materials, we developed a store audit checklist adapted from the Standardized Tobacco Assessment for Retail Settings (STARS) observation tool⁹. Between January 2016 and April 2017, trained community health workers completed 679 in-store audits out of the pool of 700 stores (21 audits were refused by the store owner or clerk). Chewing tobacco marketing was coded along three domains: availability, advertising, and price promotions. Availability was assessed with the presence or absence (yes or no) of the following inquiries: 'Is chewing tobacco sold here?', and 'Is flavored chewing tobacco sold here?'. Flavoring was

Table 1. Racial/ethnic percentage population and median household income in Los Angeles County, California and established thresholds

	Los Angeles County			Thresholds	
	Total number	Racial/ethnic percentage (%)	Median household income (US\$)	Racial ethnic percentage (%) threshold for each zip code	Median household income threshold (US\$) for each racial ethnic zip code cluster (Rounded to the nearest thousand)
Total Population	9818605	-	55909	-	-
Korean American	216501	2.2	49753	>10	50000
African American	856874	8.7	42071	>30	42000
Non-Hispanic White, not Hispanic or Latino	2728321	27.8	71768	>50	72000
Hispanic or Latino (of any race)	4687889	47.7	44989	>80	45000

FILES: 2015 Census Summary File 2 – California [machine-readable data files]/prepared by the U.S. Census Bureau, 2016.

defined as characterizing flavors other than the one of tobacco (e.g. fruit, candy, menthol). Advertising was assessed with 'yes' or 'no' responses to each of the following question: 'Are chewing tobacco advertisements on the outside of the store?'. Price promotions were coded by location (interior/exterior) and were defined to include any special price (e.g. '50 cents off') or any special discount ('buy one, get one free'). Inter-rater reliability between the coders was excellent with Cohen's kappa statistics ranging from 0.8 to 1.0 for all categorical measures.

Statistical analysis

Frequency distributions and cross tabulations were used for descriptive statistics of store type and racial/ethnic zip code cluster, chewing tobacco availability and advertising overall, and by racial/ethnic zip code cluster. Chi-squared analyses were performed to examine the associations between racial/ethnic zip code cluster and chewing tobacco availability and advertising. Significance of $p < 0.05$ was used in all statistical analyses. Data were analyzed using SAS software version 9.3 (SAS Institute, Cary, NC)¹⁰.

RESULTS

Of the 679 tobacco retail stores in the sample, 35.9% were gas/convenience stores, 28% were grocery stores, and 16.1% were liquor stores, as shown in Table 2. Across zip codes, tobacco-focused stores were found most often in predominantly non-Hispanic White zip codes (17.9%), followed by predominantly African American (8.8%) and Korean American zip codes (8.0%).

As shown in Table 3, chewing tobacco was present in 29.9% of stores, flavored chewing tobacco was present in 25.0% of stores, and chewing tobacco price promotions were present in 9.0% of stores. Overall, 4.4% of stores displayed exterior advertisements. There was a statistically significant association between racial/ethnic zip codes and whether stores sold chewing tobacco ($p < 0.0001$), and flavored chewing tobacco ($p < 0.0001$), where stores in non-Hispanic White were significantly more likely than stores in African American, Hispanic/Latino, and Korean American zip codes to sell chewing tobacco ($p < 0.0001$) and flavored chewing tobacco ($p < 0.0001$). Similarly, there was a

Table 2. Store type, overall and by racial/ethnic zip code cluster in Los Angeles, California

	Overall (N=679)	NHW (N=196)	AA (N=191)	HL (N=189)	KA (N=100)
	n (%)	n (%)	n (%)	n (%)	n (%)
Gas/Convenience store	244 (35.9)	81 (41.3)	73 (37.6)	63 (33.3)	27 (27.0)
Liquor store	109 (16.1)	40 (20.4)	25 (12.9)	24 (12.7)	20 (20.0)
Grocery store	190 (28.0)	27 (13.8)	57 (29.4)	76 (40.2)	30 (30.0)
Tobacco-focused store	64 (9.4)	35 (17.9)	17 (8.8)	4 (2.1)	8 (8.0)
Other	72 (10.6)	13 (6.6)	22 (11.3)	22 (11.6)	15 (15.0)

NHW: Non-Hispanic White, AA: African American, HL: Hispanic/Latino, KA: Korean American. Other: discount store, donut shop or gas kiosk.

Table 3. Chewing tobacco marketing descriptive features, overall and by racial/ethnic zip code cluster in Los Angeles, California

	Overall (N=679)	NHW (N=196)	AA (N=191)	HL (N=189)	KA (N=100)
	n (%)	n (%)	n (%)	n (%)	n (%)
Chewing tobacco	203 (29.9)	111 (56.6)*	40 (20.7)	30 (15.9)	22 (22.0)
Flavored chewing tobacco	170 (25.0)	93 (47.7)**	31 (16.1)	26 (13.8)	20 (20.0)
Exterior advertising	30 (4.4)	18 (9.2)***	4 (2.1)	6 (3.2)	2 (2.0)
Price promotions	61 (9.0)	28 (14.3)****	11 (5.7)	15 (7.9)	7 (7.0)

NHW: Non-Hispanic White, AA: African American, HL: Hispanic/Latino, KA: Korean American. *Association between chewing tobacco available for sale by racial/ethnic zip code cluster was statistically significant ($\chi^2(4)=138.59$; $p < 0.0001$), where chewing tobacco was more likely to be available for sale in non-Hispanic White zip codes. **Association between flavored chewing tobacco available for sale by racial/ethnic zip code cluster was statistically significant ($\chi^2(4)=109.77$; $p < 0.0001$), where flavored chewing tobacco was more likely to be available for sale in non-Hispanic White zip codes. *** Association between chewing tobacco exterior advertising by racial/ethnic zip code cluster was statistically significant ($\chi^2(4)=21.04$; $p=0.0003$), where exterior advertisements were more likely to be displayed in non-Hispanic White zip codes. ****Association between price promotions for chewing tobacco by racial/ethnic zip code cluster was statistically significant ($\chi^2(4)=14.76$; $p=0.0052$), where price promotions were more likely to be advertised in non-Hispanic White zip codes.

statistically significant association between racial/ethnic zip codes and whether stores displayed chewing tobacco price promotions ($p=0.0052$), and exterior advertisements for chewing tobacco ($p=0.0003$), where stores in non-Hispanic White zip codes compared with stores in African American, Hispanic/Latino, and Korean American zip codes were more likely to display chewing tobacco price promotions ($p=0.0052$) and exterior advertisements for chewing tobacco ($p=0.0003$).

DISCUSSION

This study sought to investigate neighborhood racial/ethnic differences in retail marketing of chewing tobacco in Los Angeles, California. Observations within stores revealed availability of chewing tobacco, including flavored chewing tobacco. There were statistically significant associations between racial/ethnic neighborhood and chewing tobacco marketing, where retailers located in non-Hispanic White neighborhoods more frequently displayed and advertised chewing tobacco, including flavored versions, used price promotions, and displayed exterior advertisements compared with retailers located in predominantly African American, Hispanic/Latino, and Korean American neighborhoods. The tendency for stores in non-Hispanic White neighborhoods to have more chewing tobacco marketing than stores in African American, Hispanic/Latino, and Korean American neighborhoods may be explained in part by higher concentrations of tobacco-focused stores in non-Hispanic White neighborhoods than other racial/ethnic neighborhoods.

Flavored tobacco products are perceived as more appealing and less harmful than non-flavored tobacco products¹¹. The tobacco industry uses ST products with characterizing flavors like fruit and candy, to influence experimentation, initiation, and progression to regular use among youth¹². In November 2018, the US Food and Drug Administration (FDA) announced plans to ban flavored e-cigarettes and cigars (except tobacco, menthol, and mint flavors)¹³. However, this groundbreaking announcement does not apply to ST products.

Limitations and strengths

Although zip codes represent reasonably accurate

racial/ethnic boundaries due to the high level of residential segregation in Los Angeles County, they do not always represent exact neighborhood boundaries and provide less granularity than census tracts. Study findings are also limited to select zip codes in Los Angeles County and may not be generalizable to other urban areas in the US, or to rural areas. Nonetheless, strengths of this study include a large representative sample of licensed tobacco retailers in Los Angeles County and a standardized data collection protocol¹⁰.

CONCLUSIONS

Local/state/federal regulations to ban the sale of flavored chewing tobacco may help reduce youth exposure and use. Previously published research^{12,13} suggests that removing characterizing flavors in tobacco products has the potential for substantial reductions in the prevalence of tobacco product use, including ST use among adolescents and young adults. Further, limiting availability of ST products in retail locations that are age-restricted may help prevent or reduce youth exposure to ST products.

REFERENCES

1. Boffetta P, Hecht S, Gray N, Gupta P, Straif K. Smokeless tobacco and cancer. *Lancet Oncol.* 2008;9(7):667-675. doi:10.1016/s1470-2045(08)70173-6
2. Warnakulasuriya S, Dietrich T, Bornstein MM, Casals Pedro E, Preshaw PM, Walter C, Wennstrom JL, Bergstrom J. Oral health risks of tobacco use and effects of cessation. *Int Dent J.* 2010;60(1):7-30.
3. Smokeless Tobacco and Some Tobacco-specific N-Nitrosamines: IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. No. 89. Lyon: International Agency for Research on Cancer; 2007. <https://www.ncbi.nlm.nih.gov/books/NBK326497/>. Accessed November 11, 2018.
4. Nelson D, Mowery P, Tomar S, Marcus S, Giovino G, Zhao L. Trends in smokeless tobacco use among adults and adolescents in the United States. *Am J Public Health.* 2006;96(5):897-905. doi:10.2105/ajph.2004.061580
5. Food and Drug Administration. Regulations restricting the sale and distribution of cigarettes and smokeless tobacco to protect children and adolescents. Final rule. *Federal Register.* 2010;75:13225-13232.
6. California Department of Tax and Fee Administration. <https://www.cdtfa.ca.gov/>. Accessed May 9, 2018.
7. Henriksen L, Andersen-Rodgers EA, Zhang X, et al. Neighborhood Variation in the Price of Cheap Tobacco Products in California: Results From Healthy Stores for a Healthy Community. *Nicotine Tob Res.* 2017;19(11):1330-1337. doi:10.1093/ntr/ntx089

8. Baezconde-Garbanati L, Cruz TB, Sussman S, Unger JB, Pentz MA, Samet JM. Maximizing Compliance with Tobacco Policy in Vulnerable Community Retail Environments: A Multicultural Case Study in Community-Based Participatory Research. *SAGE Research Methods Cases*; 2017.
9. Henriksen L, Ribisl KM, Rogers T, et al. Standardized Tobacco Assessment for Retail Settings (STARS) dissemination and implementation research. *Tob Control*. 2016;25(Suppl 1):i67-i74. doi:10.1136/tobaccocontrol-2016-053076
10. SAS. Version 9.4 of the SAS System for Windows. Cary, NC: SAS Institute Inc; 2013.
11. Kowitt SD, Meernik C, Baker HM, Osman A, Huang L-L, Goldstein AO. Perceptions and experiences with flavored non-menthol tobacco products: a systematic review of qualitative studies. *Int J Environ Res Public Health*. 2017;14(4):338. doi:10.3390/ijerph14040338
12. Kostygina G, Ling PM. Tobacco industry use of flavourings to promote smokeless tobacco products. *Tob Control*. 2016;25(Suppl 2):ii40-ii49. doi:10.1136/tobaccocontrol-2016-053212
13. U.S Food and Drug Administration. <https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm625884.htm>. Accessed November 11, 2018.

CONFLICTS OF INTEREST

The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none was reported.

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