



Availability of menthol cigarettes in Oakland, California after a partial flavor ban

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ABSTRACT

This study measures the availability of menthol cigarettes in Oakland, California where such products were banned from the majority of tobacco retailers, except for those who sold a significant amount of tobacco (e.g., 60% gross income). Out of a total of 385 retailers in Oakland, only forty-eight retailers were exempt from this ban at the time of data collection. In February 2019, seven months after the ban went into effect, we selected a stratified random sample of 15 census tracts, based on race/ethnicity. In pairs, data collectors walked on opposite sides of the street and collected all discarded cigarette packs ($n = 641$) from the streets and sidewalks on weekdays. Overall, we found almost half (46.0%; 95% CI = 32.6%–59.3%) of the packs collected were menthol, with Newport as the dominant brand. We found at least one pack of menthol cigarettes in 14 of the 15 sampled census tracts. In predominantly black/African American census tracts, the proportion of menthol cigarettes collected was significantly higher (70.1%; 95% CI = 62.6%–77.7%) when compared to mixed race/ethnicity (55.9%; 95% CI = 41.0–70.9%) and white tracts (35.1%; 95% CI = 13.2%–57.1%). Finally, there was a moderate and negative correlation between distance to exempt tobacco retailer and menthol availability ($r = -0.66, p < .05$). The proportion of menthol cigarette packs decreased the further away census tracts were from exempt tobacco retailers. Results from this study lend support that partial bans provide disproportionate availability of menthol cigarettes in black/African American census tracts. Complete bans may help eliminate disparities associated with menthol cigarette use across communities.

1. Introduction

Menthol cigarettes are disproportionately marketed to youth and minorities. Menthol flavoring makes the product easier to smoke and is associated with increased initiation and decreased cessation (Hersey et al., 2006; Delnevo et al., 2011 TPSAC, 2011). In 2011, the FDA Tobacco Products Scientific Advisory Committee (TPSAC) concluded that, “removal of menthol cigarettes from the marketplace would benefit public health in the United States” (TPSAC, 2011). The FDA has failed to take action against menthol cigarettes, despite concluding themselves in 2013 that “menthol cigarettes pose a public health risk above that seen with non-menthol cigarettes” (U.S. Food and Drug Administration, 2013).

To date, four states and over 270 localities have passed local laws and ordinances banning the sale of flavored tobacco products

(Campaign for Tobacco Free Kids, 2020), and while early efforts typically exempted menthol, recent efforts, like those in Oakland, California have also restricted the sale of menthol cigarettes (Cal, 2017). Of note, the Oakland ban in effect between July 2018 and May 2020 had an exemption for retailers that did not permit anyone under the age of 18 on premises and whose gross annual income from tobacco and tobacco paraphernalia exceeds 60%. This study assesses the availability of menthol cigarettes in Oakland, California seven months after the flavor ban's effective date.

2. Methods

Oakland, CA is geographically defined by 145 census tracts (US Census Bureau, 2018). We selected 15 of the city's 141 census tracts with population size greater than 0 using a stratified random sample.

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Table 1
Cigarette Characteristics by Strata (n = 15).

	Black/African American (n = 5)	White (n = 5)	Mixed Race/Ethnicity (n = 5)
Cigarette flavoring	%, 95 CI	%, 95 CI	%, 95 CI
Menthol	70.1 (62.6–77.7)	35.1 (13.2–57.1)	55.9(41.0–70.9)
Number of tobacco stores exempt from flavor ban at:	n	n	n
0.5 mile buffer zone*	8.6	2.4	1.2
1 mile buffer zone	17.2	8	6.4
1.5 mile buffer zone	27	18.8	11

Note: Buffer distance is calculated from the edges of each census tract.

First, we divided the tracts into three race/ethnicity strata: (1) predominantly white (non-Hispanic) tracts (2) mixed (non-white majority) tracts and (3) predominantly black/African American tracts. Tracts were defined as predominantly white if the percentage of white residents exceeded that of either black/African American or Hispanic residents. Tracts were characterized as mixed (non-white majority) if either Hispanic or black/African American residents or both combined exceeded the percent of white residents. We then randomly chose 5 tracts from each strata. This sampling method allowed us to capture variability in census tract demographics. Among the black/African American tracts we sampled, the median household income was lower (\$49,992) than in mixed (\$65,244) and white (\$103,020) tracts (US Census Bureau, 2018). Overall, across the city's census tracts (n = 141), there was a small, yet positive relationship between the number of exempt tobacco retailers and percent of the population that was black/African American ($r = 0.19$, $p < .05$).

Prior to data collection, six collectors attended a half day training event in New Brunswick, NJ where they learned how to identify and collect cigarette packs in public spaces. In February 2019, seven months after the ban's effective date, collectors were dispatched to the sampled census tracts in Oakland, CA. Collectors, walking in pairs and on opposite sides of the streets, covered all of the streets nested within the selected census tracts and collected all discarded cigarette packs found on the street and sidewalks. Collection took place between 7:00 AM and 5:00 PM on weekdays under the assumption that it would minimize bias from visitors who may be discarding packs purchased from areas without flavor bans. Unlike self-report surveys, this unobtrusive method can estimate the proportion of packs that bear menthol product descriptors without recall bias, or misclassification of menthol cigarettes (TPSAC, 2011; Giovino et al., 2004; Kreslake et al., 2008).

3. Analysis

All of the packs littered on the streets and sidewalks were collected and coded for brand name (e.g., 1 = Marlboro, 2 = Newport, etc.), menthol descriptions (0 = non-menthol, 1 = menthol), and state tax stamps (1 = no tax stamp, 2 = CA tax stamp, 3 = other state tax stamp). Pack data collected at the street level were aggregated to the census tract. We double coded a portion of the sample (10%, n = 65) to ensure accuracy. Cohen's kappa indicating rater agreement was high across brand name ($\kappa = 1.00$, $p < .001$), tax stamp ($\kappa = 0.96$, $p < .001$), and menthol designation ($\kappa = 1.00$, $p < .001$).

We clustered pack observations at the census tract level and then calculated the proportion of menthol cigarettes across each strata (i.e., black/African American, white, and mixed race/ethnicity) using post stratification weights. Next, we mapped retailers within a 1.5 mile distance from the chosen census tracts that were allowed to continue to sell flavored tobacco products in Oakland and neighboring cities including San Leandro, Piedmont, Alameda, and Emeryville (Oakland Police Department, 2019; California Department of Tax and Fee Administration, 2019).

We then examined the number of tobacco retailers exempt from the flavor ban neighboring each census tract at various distances (0.5 miles,

1 mile and 1.5 miles). Finally, we examined whether there was a relationship between availability of menthol per census tract and distance to exempt tobacco retailers. Distance was calculated as the airplane distance between the edges of each census tract to the nearest exempt retailer. A distance of 0 feet was set when exempt retailers operated within the census tract boundaries.

4. Results

Weighted data indicate that 46.0% (95% CI = 32.6%–59.3%) of packs in Oakland are menthol. Among menthol cigarettes, the unweighted popular brands included Newport (80.29%, n = 330); Marlboro (7.3%, n = 30) and Camel (4.7%, n = 20). Tax stamp data can only be collected if the bottom portion of the cellophane wrapper is intact. Approximately, 71.3% (n = 457) of the packs collected had an intact cellophane wrapper. Menthol cigarette packs with cellophane wrappers indicated that they were overwhelmingly (98.6%) purchased in California.

In predominantly black/African American census tracts, the proportion of menthol cigarettes collected was significantly higher (70.1%; 95% CI = 62.6%–77.7%) when compared to mixed race/ethnicity (55.9%; 95% CI = 41.0–70.9%) and white (non-Hispanic) census tracts (35.1%; 95% CI = 13.2%–57.1%).

Across the strata, there were on average 1.3 stores within black/African American tracts, 0 in white (non-Hispanic) and mixed race/ethnicity tracts. On average, there were a higher number of tobacco stores exempt from the tobacco flavor ban in close proximity (0.5 mile buffer) to black/African American census tracts (8.6 stores) than mixed race/ethnicity census tracts (2.4 stores) and white census tracts (1.2 stores). Significant differences were observed even when the buffer distances were increased to 1 and 1.5 miles (Table 1). We found significant differences in the mean distance to the nearest exempt tobacco retailer between black/African American and white tracts. The average distance between black/African American census tracts and at least one exempt retailer was 151 feet. In contrast, for white census tracts, the average distance to an exempt retailer was 1,158 feet, and for mixed race/ethnicity census tracts, it was 1,995 feet. Further, we found a moderate negative correlation between the proportion of the menthol packs per census tract and the distance to exempt tobacco retailers ($r = -0.66$, $p = .05$). As the distance between census tracts and retailers increased, the proportion of menthol cigarettes decreased. There was no significant relationship between neighborhood income and proportion of menthol cigarettes. This finding may be skewed because there were no menthol packs found in one census tract.

5. Conclusions

Overall, almost half (46.0%; 95% CI = 32.6%–59.3%) of the packs collected were menthol, with Newport as the dominant brand. The tax stamps on the packs indicated that they were purchased in the state of California. While this availability seems high, there were forty-five stores that were allowed to sell menthol cigarettes (Oakland Police Department, 2019). Smokers could also easily travel to nearby census

tracts where menthol cigarette sales are permitted. Alternatively, non-compliant retailers could also continue to sell flavored products without regard to the law and assume the risk of receiving a violation.

We also found that across census tracts, the proportion of menthol cigarettes is quite varied, with the proportion of menthol cigarettes collected being highest among black/African American census tracts. Continued availability of menthol cigarettes in black/African American census tracts may be facilitated by greater consumer demand and density of tobacco retailers exempt from the flavor ban. For example, across the five sampled black/African American census tracts, there were on average 8.6 stores within 0.5 miles. Distance from census tracts to exempt tobacco retailers may also impact availability. We found that the proportion of menthol cigarette packs decreased the further away census tracts were from exempt tobacco retailers. We note, however, these findings are limited because they are cross-sectional and bear no comparison group (e.g., nearby areas without tobacco flavor bans). We are also limited by the small number of sampled census tracts ($n = 15$).

Overall, the availability of menthol cigarettes continues to be a public health concern. Partial bans are not optimal for materially curtailing the availability of menthol cigarettes because of the difficulty in maintaining high compliance rates. A recent audit of Chicago's partial ban on menthol cigarettes found poor compliance among retailers (57%) (Czaplicki et al., 2019). Instead of partial menthol bans, comprehensive menthol bans should be supported because, as data from Canada shows, they have greater potential to increase cigarette quit attempts among smokers (Chaiton et al., 2019). Full bans may also be easier to implement as enforcement agencies do not have to treat exempted retailers differentially. Most retailers would likely welcome comprehensive menthol bans. For example, some retailers in Chicago, which has a partial menthol ban, welcomed a comprehensive ban because it would level the playing field (Czaplicki, 2018). In May 2020, the Oakland City Council voted to close the loophole exempting certain stores from the menthol sales ban (City of Oakland, 2020). Assuming Oakland implements the full ban, as expected, further analysis could offer a useful comparison between a partial and a complete ban of menthol cigarettes.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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