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Behavioural intentions in response to a potential menthol cigarette sales ban: a survey examining smokers in Washington, DC public housing

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ABSTRACT

Objectives Local, national and international policies are being proposed to ban the sale of menthol-flavoured tobacco products. With more bans being implemented, it is increasingly important to understand reactions to these bans among smokers of low socioeconomic status. This study examined public housing residents' behavioural intentions if menthol-flavoured cigarettes were no longer sold.

Setting 15 District of Columbia Housing Authority properties between March 2019 and March 2021.

Participants 221 District of Columbia Housing Authority residents ages 18–80 years who reported smoking menthol cigarettes (83.3% African-American/black).

Primary and secondary outcomes Cigarette quitting and switching intentions due to a hypothetical menthol-flavoured cigarette sales ban.

Results Nearly one-half (48.0%) of residents said they intended to quit cigarette use if menthol-flavoured products were no longer sold, while 27.2% were unsure if they would quit, and 24.9% reported they would not quit. Older residents (OR 0.94 per year, 95% CI 0.91 to 0.97), senior/disabled building versus family building residents (OR 0.50, 95% CI 0.25 to 0.97), those who smoked within 30 min of waking (OR 0.48, 95% CI 0.23 to 0.98) and daily smokers (OR 0.42, 95% CI 0.21 to 0.84) had lower odds of reporting quit intentions associated with a menthol ban. Of those not intending to quit, 40.7% reported they would switch to non-menthol cigarettes, 20.4% to another non-menthol product, 13.0% to menthol e-cigarettes and 20.4% to another menthol product.

Conclusions Results suggest banning the sale of menthol-flavoured products has the potential to impact cigarette smoking cessation. Nearly three-quarters of smokers in public housing indicated a possibility of quitting smoking because of a menthol cigarette ban. Bans that include all flavours in all tobacco products may be most effective for facilitating overall tobacco cessation.

STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ The study population includes a group with high rates of menthol-flavoured tobacco use.
⇒ Study data represent residents from one public housing authority and may not generalise to other US public housing authorities or other low socioeconomic status groups.
⇒ The study assessed resident reactions to a hypothetical ban as opposed to the effect of an actual menthol-flavoured sales ban.

INTRODUCTION

Menthol flavour in cigarettes contributes to ongoing tobacco-related health disparities.[1–3] Menthol flavouring contributes to smoking initiation among youth, increasing the harm of smoke particulates, increasing nicotine dependency symptoms and making it harder to quit smoking.[2 4 5] Menthol is the last allowable flavour in cigarettes in the USA.[1] It is notable that menthol-flavoured cigarette consumption based on market share data remained stable across the country between 2000 and 2018 when overall cigarette consumption declined.[6]

To improve quit rates and address tobacco-related health disparities, policies are being proposed to ban the sale of menthol-flavoured tobacco products. Several other countries and many local US jurisdictions ban the sale of flavoured tobacco products, including menthol.[7 8] On 29 April 2021, the US Food and Drug Administration (FDA) declared their intent to pursue tobacco product standards to ban menthol-flavoured cigarettes.[1] With bans going into effect across the world and on a local US level, it is increasingly important to understand how people respond to these bans, particularly those of lower socioeconomic status (SES).

Evidence examining the effect of proposed US menthol sales bans on smokers indicates they promote cessation intentions.[9] Evidence related to behavioural intentions in response to a hypothetical menthol-flavoured product ban indicates some smokers intend to quit once it goes into effect. In a recent review of studies examining behavioural intentions if menthol-flavoured products were no longer sold, between 24% and 64% of smokers

indicate they would attempt to quit, with most studies of smokers in the USA estimating between 40% and 50% of adults smokers intend to quit.[9] One study found that a higher proportion of African-American menthol smokers report they would quit as a result of a hypothetical ban compared with white menthol smokers (76.0% vs 30.3%).[10] Additionally, those who smoke less frequently, report greater current quit intentions and report making a quit attempt in the prior year are more likely to say they would quit if a menthol ban went into effect.[10 11]

A ban on menthol-flavoured cigarettes may have a particular bearing on individuals living in the Department of Housing and Urban Development (HUD) housing. In 2018, HUD instituted a smoke-free rule for all properties prohibiting lit tobacco products in indoor spaces and within 25 feet of housing authority buildings. Public housing residents have been found to have higher smoking rates compared with the general population. The most recent examination of a nationally representative sample of public housing residents in 2017 showed that 33.6% of residents used tobacco[12] compared with 14% of the general population at that time.[13] More recent studies of public housing residents in 2019 as part of smoke-free rule evaluations estimate between 9.5% and 29.0% of residents smoke[14–16] compared with an estimated 20.8% of adults using any tobacco product and 16.7% of adults using cigarettes in 2019.[17] The 2017 study of public housing residents also showed that over 80% of residents who smoke are reported to be daily smokers and approximately two-thirds smoke >10 cigarettes per day.[12]

Public housing residents represent groups most likely to use menthol-flavoured tobacco products in the USA, notably individuals of lower SES and a high proportion of African-Americans.[1 18 19] The prevalence of menthol-flavoured cigarette use among those in families earning <US$35 000 (7.0%) is double than those in families earning >US$75 000 a year (2.3%),[20] and approximately 85% of all African-American smokers use menthol-flavoured cigarettes, compared with approximately 30% of white smokers.[21] Furthermore, African-Americans use menthol-flavoured products at a disproportionate rate, a disparity highly correlated with tobacco industry targeted advertising.[2 22] Of note, the industry heavily advertised menthol-flavoured products specifically in this community.[22] A study of one public housing authority found 93.1% of residents who smoke use menthol-flavoured cigarettes.[23] Although this is not nationally representative of all public housing residents, results suggest that residents are susceptible to using menthol-flavoured cigarettes.

Evidence suggests that banning the sale of menthol-flavoured products may increase intentions to quit and improve cessation outcomes among users in the general population; however, behavioural intentions of public housing residents in response to a potential menthol-flavoured product ban are understudied. The present study examined public housing residents' (1) intention to quit if menthol-flavoured cigarettes were no longer sold, and (2) expected alternative tobacco products of choice among if they did not intend to quit. The study fills an important literature gap by providing a current examination of the potential consequences of a menthol-flavoured product ban in a population with high rates of menthol-flavoured tobacco use.

METHODS

Study sample

Data were collected from residents of the Washington, DC Housing Authority (DCHA) between March 2019 and March 2021. Inclusion criteria required participants to be a DCHA property resident (not using Section 8 vouchers) between the ages of 18 and 80 years. Residents represented 15 DCHA properties, 8 family and 7 senior/disabled buildings. In the overall study, 754 residents completed surveys. Non-smokers were not included in this analysis (n=296) and 237 smokers were not included because they responded to an earlier version of the survey that did not contain questions about a hypothetical menthol ban (n=152), did not usually use menthol cigarettes (n=16) or had missing data for one or more of the menthol cigarette use questions (n=68). One respondent who identified gender as 'non-binary' was omitted from the analysis because confidentiality could not be maintained. Thus, the present sample included 221 residents who reported past 30-day use of menthol-flavoured cigarettes and were not missing data for questions asking about behavioural intentions if menthol-flavoured products were no longer sold.

Procedures

Data collection took place in community spaces on DCHA property. Study staff and DCHA administrators held survey participation events. DCHA and building staff advertised and told residents about the events. Flyers for the study were placed in common areas in buildings notifying residents where and when data collection events would be held, and resident council presidents and DCHA staff told residents about data collection events during community meetings. During data collection events, residents frequently found out about the event from other residents (word-of-mouth).[23 24] Interested residents completed a screening assessment to establish residence and age eligibility and past 30-day smoking status. Eligible participants completed a consent form, which research staff read aloud. Participants completed surveys using audio computer-assisted self-interviewing software (four times a day), where all questions and answer options were spoken to participants. Participants had the option to skip any question and end the survey at any point. Residents received a US$25 gift card for their survey participation.

Patient and public involvement

Patients and the public were not involved in the research design, conduct, reporting or dissemination.

Measures

Demographics

Respondents indicated their gender (male/female), age (in years, open numerical response) and race/ethnicity. Residents reported if they were Hispanic (yes/no), and selected as many racial categories as were applicable from the following: American Indian or Alaskan Native, Asian, black or African-American, Native Hawaiian or Other Pacific Islander, white and other. The study applied DCHA classifications for building type (eg, family or senior/disabled).

Cigarette and other tobacco use

Residents reported past 30-day use of cigarettes, cigars, little cigars and cigarillos, smokeless tobacco, hookah and e-cigarettes using questions derived from the National Adult Tobacco Survey (NATS).[25] Cigarette smokers indicated whether they usually used a menthol-flavoured product (yes/no), days used in the past 30 days (0–30) and the number of self-identified quit attempts in the past 3 months (open numerical response). Daily smoking was defined as cigarette smoking all days in the past 30 days.

Nicotine dependency

The primary measure of nicotine dependency was smoking within 30 min of waking.[26 27] Residents indicated if they typically first smoked within 5 min, between 5 and 30 min, between 31 and 60 min or after 60 min of waking. This variable was dichotomised for analysis purposes (smoke within 30 min of waking and smoke 31+ min after waking).[26 27]

Quitting and switching behavioural intentions

Respondents reported whether they were currently thinking of quitting smoking cigarettes for good (yes/no), as derived from the NATS.[25] Those who said they were thinking of quitting indicated how sure they were that they could quit if they tried using a 4-point scale (very sure to not at all sure). Analysis used a dichotomised version of this variable (very sure/sure and not sure/not at all sure). Participants indicated if they would consider quitting if menthol-flavoured cigarettes were no longer sold in stores (yes/no/not sure). A dichotomous variable was created for analysis purposes (yes and no/not sure). Residents who indicated they would not quit reported what they would do if menthol-flavoured products were no longer sold. Response options included switching to non-menthol-flavoured cigarettes, switching to some other non-menthol-flavoured tobacco product, switching to menthol-flavoured e-cigarettes, switching to some other menthol-flavoured tobacco product, buying menthol-flavoured cigarettes online, something else or none of these. Participants could select multiple options.

Analysis

Descriptive statistics assessed intention to quit if menthol-flavoured products were no longer sold and the alternative products of choice among those who said they would not quit. Logistic regression modelling, clustered by data collection site, assessed characteristics associated with quit intentions if menthol-flavoured products were no longer sold. Logistic regression models used complete case analysis. Regression models clustered by data collection site accounted for intragroup correlations that could arise from similarities in residents at each housing site. The model included age, gender, senior/disabled or family building residence status, using a tobacco product besides cigarettes, smoking within 30 min of waking, daily smoking status, whether they were sure they could quit and having made a quit attempt in the past 3 months to predict whether residents would quit if menthol-flavoured products were no longer sold. Because most residents (85.6%, n=101/118 (103 missing)) identified as black or African-American, race and ethnicity was not included in further analysis. Results from a test for multicollinearity between age and senior/disabled building resident status indicated these two variables were significantly correlated (r=0.22, p<0.01), but not highly correlated. Both variables were included in the model due to the low risk for multicollinearity.[28] The regression model included 177 cases with full data for all selected variables. Analyses were conducted using SAS software, V.9.4 (SAS Institute, Cary, North Carolina, USA).

RESULTS

Descriptive statistics

The sample included slightly more females and residents of senior and disabled buildings (table 1). The mean age of participating residents was 57 years. Most residents reported thinking about quitting (regardless of the ban; 83.2%, n=184) and a high proportion thought they could quit if they tried (very sure and sure; 45.3%, n=100). Additionally, about half of the residents made at least one recent quit attempt during the last 3 months (49.3%, n=109). Close to one-half of residents were daily smokers (47.5%, n=105) and nearly two-thirds reported smoking within 30 min of waking (62.9%, n=139). Under 20% of respondents said they used another tobacco product (17.2%, n=38).

Overall, given a menthol ban, 48.0% (n=106) of residents said they would quit, 27.2% (n=60) indicated they were not sure if they would quit and 24.9% (n=55) indicated they would not quit. Of those who would continue smoking and answered questions about preferred alternatives (n=54), 40.7% (n=22) indicated they would switch to non-menthol-flavoured cigarettes, 20.4% (n=11) indicated switching to another non-menthol-flavoured product, 20.4% (n=11) said they would use another menthol-flavoured product, 13.0% (n=7) would switch to menthol-flavoured e-cigarettes and 13.0% (n=7) would buy menthol-flavoured cigarettes online. An additional 9.3% (n=5) indicated they would do something else and 14.6% (n=8) saying they would not do any of these options. Only one respondent specified the other action they would take as ‘chew gum’ without making clear they would quit using tobacco.

Table 1 Demographics, tobacco use characteristics

	% (N) or mean (SD)
Demographics	
Gender	
Female	60.6% (134)
Male	39.4% (87)
Age (mean years, continuous)	57.2 (11.0)
Building type	
Family	40.7% (90)
Senior or disabled	59.3% (131)
Tobacco use characteristics	
Use another tobacco product	
Yes	17.2% (38)
No	82.8% (183)
Smoke within 30 min of waking	
Yes	62.9% (139)
No	36.2% (80)
Missing	0.9% (2)
Daily smoker	
Yes	47.5% (105)
No	52.0% (115)
Missing	0.5% (1)
Thinking about quitting	
Yes	83.2% (184)
No	16.3% (36)
Missing	0.5% (1)
How sure you could quit cigarettes?	
Very sure	19.5% (43)
Sure	25.8% (57)
Not sure	29.9% (66)
Not at all sure	7.7% (17)
Missing	17.2% (38)
How much support have you received to quit tobacco	
A lot of support	11.8% (26)
Some support	15.4% (34)
A little support	14.9% (33)
No support	38.5% (85)
Missing	19.5% (43)
Made at least one quit attempt (past 3 months)	
Yes	49.3% (109)
No	32.6% (72)
Missing	18.1% (40)
Would quit if menthol-flavoured cigarettes were no longer sold	
Yes	48.0% (106)
Not sure	27.2% (60)
No	24.9% (55)
Changes if menthol-flavoured products are banned* (n=54)	
Switch to non-menthol-flavoured cigarettes	40.7% (22)
Switch to some other non-menthol-flavoured product	20.4% (11)
Switch to menthol-flavoured e-cigarette	13.0% (7)
Switch to other menthol-flavoured product	20.4% (11)
Buy menthol-flavoured cigarettes online	13.0% (7)
Something else	9.3% (5)
None of these	14.8% (8)

*Participants were able to mark multiple options.

Regression results

Regression results indicated that increases in age (OR 0.94, 95% CI 0.91 to 0.97) and living in a senior/disabled building (OR 0.50, 95% CI 0.25 to 0.97) were associated with decreased odds that residents would quit cigarettes if menthol-flavoured products were no longer available (table 2). Residents who smoked within 30 min of waking (OR 0.48, 95% CI 0.23 to 0.98) and daily smokers (OR 0.42, 95% CI 0.21 to 0.84) were less likely to say they would quit if menthol-flavoured products were no longer sold.

DISCUSSION

The primary study aim examined whether public housing residents had intentions to quit if menthol-flavoured cigarettes were no longer sold, and what factors were associated with intentions to quit or other alternative products of choice among those who did not intend to quit if menthol-flavoured cigarettes were no longer sold. Nearly three-quarters of menthol-flavoured cigarette smokers indicated consideration of quitting cigarettes if menthol-flavoured products were no longer sold. About one in four said they would continue smoking. Similar to the present study, prior evidence in the general population assessing responses to a hypothetical menthol ban showed 25%–64% of smokers intended to attempt to quit smoking and 11%–46% of smokers considered switching to other tobacco products, including 15%–30% to e-cigarettes. However, the intention to quit for African-Americans were higher than these ranges. In one US study where 79.4% of African-Americans used menthol-flavoured cigarettes, 76.0% of smokers expressed an intention to quit smoking when asked about a hypothetical ban, compared with 30.3% of whites.[10] Another US study found 44.5% of African-Americans who used menthol-flavoured cigarettes said they would quit in the event of a ban on menthol-flavoured cigarettes and 23.6% would switch to a non-menthol brand and try to quit.[29]

Table 2 Association between intentions to quit if menthol were not available and demographics and tobacco use

	Logistic regression model	
	OR	95% CI
Demographics		
Gender		
Female	1.33	0.42 to 4.18
Male	Ref	
Age (per year, continuous)	0.94**	0.91 to 0.97
Building type		
Senior or disabled	0.50*	0.25 to 0.97
Family	Ref	
Tobacco use		
Use another tobacco product		
Yes	0.41	0.12 to 1.35
No	Ref	
Smoke within 30 min of waking		
Yes	0.48*	0.23 to 0.98
No	Ref	
Daily smoker		
Yes	0.42*	0.21 to 0.84
No	Ref	
How sure you could quit cigarettes?		
Very sure/sure	1.76	0.87 to 3.58
Not sure/not at all sure	Ref	
Made at least one quit attempt (3 months)		
Yes	1.17	0.41 to 3.32
No	Ref	

*P<0.05, **p<0.01.
Ref, reference.

African-American young adults were also twice as likely to say they would quit than whites in response to hypothetical menthol sales restrictions.[30] Past studies also show that African-American young adults indicated 79.3% intended to quit in the event of a menthol-flavoured product ban.[31] The present study showed that residents with high rates of menthol-flavoured tobacco use is similar to the general population and other African-American populations. Additionally, residents reporting intentions to switch to another tobacco product aligned with the previously reported estimates.[9] Slightly fewer residents than the general population indicated they may switch to e-cigarettes. This is potentially due to e-cigarette use being less common in those of higher average age and lower SES, and African-Americans, the demographic group predominantly represented in this sample.

Consistent with previous findings, results suggested smoking behaviour has a high degree of influence on reactions to a menthol-flavour sales ban.[10 11] Smoking within 30 min of waking and being a daily smoker significantly reduced the odds of residents' expressing an intention to quit if menthol-flavoured products ceased to be sold. Older residents had lower odds of reporting intentions to quit, aligned with prior evidence that older adults are less likely to want to quit than younger adults.[2] Findings may be due to older residents exhibiting more nicotine dependency characteristics and smoking more frequently as they may have smoked for longer.

A menthol-flavoured ban may provide additional influence on this population of uniquely at-risk predominantly African-Americans residents, given that they already live in HUD-mandated smoke-free housing. Evidence from a 40-year simulation of smoking projecting the influence of a menthol-flavoured ban showed that between 323 000 and 633 000 deaths could be avoided, with the hypothetical ban potentially avoiding an estimated 237 000 deaths in African-Americans. The combination of these two policies (smoke-free housing and menthol-flavour ban) may exert a robust influence on a significant proportion of residents' smoking cessation intentions. However, it is important to underscore that one in four would continue smoking. Many of these residents indicated they would switch to an unflavoured product, which may increase their intent to quit and improve their cessation outcomes.[3 9] Still, others planned to continue to use other menthol-flavoured products. While many local jurisdictions have banned the sales of flavoured tobacco products,[8] a nationwide policy may increase the benefits of removing these products from the market by reaching smokers in all national jurisdictions. Prohibiting the sale of all characterising flavours, as the proposed FDA nationwide menthol ban would,[1] and should be considered to promote cessation among all resident tobacco users.

In the presence of a comprehensive menthol-flavoured tobacco product sales ban, policies and programmes should address the unique needs of individuals who report more dependency symptoms and are older, and groups that are consistently less likely to say they will quit.[2] Furthermore, menthol smokers, and especially African-American menthol smokers, are more likely to attempt to quit, but less likely to sustain cessation. African-Americans who use menthol-flavoured products are more likely to report an attempt to quit when asked about their reactions to a hypothetical sales ban. To reach a population of African-American public housing residents who use menthol-flavoured cigarettes, interventions need to be tailored and consistently available to help them act on their intentions to quit and improve cessation outcomes. Implementing cessation supports along with a menthol-flavoured tobacco sales ban would help this group that is disproportionally impacted by menthol-flavoured tobacco products and may be disproportionally affected by a sales ban.

Additionally, the evidence of long-term successful cessation following a menthol-flavoured tobacco sales ban is insufficient. One study examining smokers 1 year after a menthol-flavoured product ban found no significant

difference in sustained cessation between menthol-flavoured and non-menthol-flavoured product users for those who quit after the ban, but previously daily menthol smokers had a higher odds of sustaining cessation than previously daily unflavoured smokers if they quit before the ban. Additional research is needed to identify long-term cessation outcomes for those affected by these sales bans.

This study has three limitations that warrant mention. First, these data represent residents from the Washington, DC housing authority and may not generalise to other public housing authorities and other countries. This is especially important because US public housing consists of a racially diverse population, and the current study consisted of primarily African-American residents. A second limitation is the inability to assess the unique effects of menthol-flavoured cigarettes on successful quitting because residents were reacting to a hypothetical ban. Third, conducting complete case analysis for our regression models meant the analysis omitted 44 cases due to missing data on one or more predictor variables. Because of this, we cannot know how these residents would have affected the regression results and they may have attributes that made them skip the question that will be unmeasured.

Despite these limitations, study findings add timely evidence describing the impact of a menthol-flavored flavour ban on a population with high rates of tobacco use in the USA. Results showed how public housing residents may react to a ban in ways that could reduce smoking prevalence and address current tobacco-related health disparities. Findings also indicated that specialised programmes for older and more dependent low-income African-Americans may improve outcomes, including intention and action towards cessation. For the proposed nationwide FDA ban and other tobacco control policies to achieve outcomes of reducing avoidable US deaths and tobacco-related health disparities, it is essential to provide accessible and effective, evidence-based support for translating quit intentions into successful cessation.

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Contributors CTD: conceptualisation, data curation, formal analysis, methodology, software, project administration, writing—original draft, writing—review and editing; KH: conceptualisation, formal analysis, methodology, project administration, resources, supervision, writing—original draft, writing—review and editing; IC: formal analysis, investigation, methodology, software; DHB: conceptualisation, formal analysis, methodology, project administration, resources, supervision, writing—original draft, writing—review and editing, guarantor.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study was approved by the George Washington University Institutional Review Board, number 180523. Participants gave informed consent to participate in the study before taking part.

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