



Published in final edited form as:

*Am J Prev Med.* 2015 January ; 48(1): 93–97. doi:10.1016/j.amepre.2014.07.044.

## Menthol Cigarette Smoking among Lesbian, Gay, Bisexual, and Transgender Adults

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### Abstract

**Background**—Menthol can mask the harshness and taste of tobacco, making menthol cigarettes easier to use and increasing their appeal among vulnerable populations. The tobacco industry has targeted youth, women, and racial minorities with menthol cigarettes, and these groups smoke menthol cigarettes at higher rates. The tobacco industry has also targeted the lesbian, gay, bisexual, and transgender (LGBT) communities with tobacco product marketing.

**Purpose**—To assess current menthol cigarette smoking by sexual orientation among a nationally representative sample of U.S. adults.

**Methods**—Data were obtained from the 2009–2010 National Adult Tobacco Survey, a national landline and cellular telephone survey of non-institutionalized U.S. adults aged ≥18 years, to compare current menthol cigarette smoking between LGBT ( $n=2,431$ ) and heterosexual/straight ( $n=110,841$ ) adults. Data were analyzed during January–April 2014 using descriptive statistics and logistic regression adjusted for sex, age, race, and educational attainment.

**Results**—Among all current cigarette smokers, 29.6% reported usually smoking menthol cigarettes in the past 30 days. Menthol use was significantly higher among LGBT smokers, with 36.3% reporting that the cigarettes they usually smoked were menthol compared to 29.3% of heterosexual/straight smokers ( $p<0.05$ ); this difference was particularly prominent among LGBT females (42.9%) compared to heterosexual/straight women (32.4%) ( $p<0.05$ ). Following adjustment, LGBT smokers had greater odds of usually smoking menthol cigarettes than heterosexual/straight smokers (OR=1.31, 95% CI=1.09, 1.57).

**Conclusions**—These findings suggest that efforts to reduce menthol cigarette use may have the potential to reduce tobacco use and tobacco-related disease and death among LGBT adults.

## Introduction

In 2009, certain characterizing flavors in cigarettes were prohibited in the U.S.; however, menthol-flavored cigarettes can still be legally manufactured and sold.<sup>1</sup> Menthol is a mint-flavored additive with analgesic and cooling effects that can mask the harshness and taste of tobacco, making these products easier to use and increasing their appeal among youth and other vulnerable populations.<sup>2–4</sup> Additionally, menthol has a synergistic effect with nicotine.<sup>5</sup>

The tobacco industry has targeted youth, women, and minorities with menthol cigarettes,<sup>2,6</sup> and studies indicate that these groups smoke menthol cigarettes at higher rates.<sup>2,7,8</sup> Little is known about whether another vulnerable group, lesbian, gay, bisexual, and transgender (LGBT) individuals, smoke menthol at higher rates than their heterosexual/straight counterparts. The LGBT community is important to consider because LGBT individuals smoke at a higher rate than the general population,<sup>9,10</sup> and the tobacco industry has selectively targeted the LGBT community with tobacco product marketing.<sup>11,12</sup> The tobacco industry's strategy to target the LGBT community was first uncovered through the discovery of internal industry documents pertaining to "Project Subculture Urban Marketing (SCUM)."<sup>12</sup> The tobacco industry has continued to infiltrate LGBT communities by funding AIDS and LGBT organizations, and sponsoring LGBT pride parades, street fairs, and film festivals.<sup>13</sup>

During 2009–2010, current cigarette smoking was considerably higher among U.S. LGBT adults (32.8%) than the general adult population (19.5%).<sup>9</sup> Although one study of U.S. adults aged 18–34 years found comparable odds of menthol cigarette smoking between LGBT and heterosexual respondents,<sup>14</sup> the extent of menthol cigarette smoking among all U.S. LGBT adults is uncertain. To address this research gap, this study assessed current menthol cigarette smoking by sexual orientation among a nationally representative sample of adults using the 2009–2010 National Adult Tobacco Survey (NATS).

## Methods

### Sample

The 2009–2010 NATS is a stratified, national landline and cellular telephone survey of non-institutionalized adults aged 18 years residing in the 50 U.S. states and District of Columbia.<sup>9</sup> The sample was designed to yield nationally representative data. Respondent selection varied by phone type. For landline numbers, one adult was randomly selected from each eligible household. For cellular numbers, adults were selected if a cellular phone was the only method they could be reached by telephone at home. In total, 118,581 interviews were completed ( $n=110,634$  landline,  $n=7,947$  cellular) from October 2009 to February 2010, yielding a response rate of 37.6% (landline=40.4%, cellular=24.9%). Ethics approval was not required for this project because secondary data were used.

### Measures

Current smokers were defined as respondents who reported smoking 100 cigarettes in their lifetime and reported smoking "every day" or "some days" at the time of interview. Among

current smokers, menthol cigarette smoking was determined using the question *During the past 30 days, were the cigarettes that you usually smoked menthol?* Response options were *yes, no, don't know, or not sure*. Sexual orientation was determined using the question *Do you consider yourself to be...?* with the response options *heterosexual or straight, gay or lesbian, bisexual, or transgender*. Owing to sample size constraints, individual LGBT categories were combined for analysis.

Assessed respondent characteristics included sex (male or female); age group (18–24, 25–34, 35–50, or 51 years); race/ethnicity (non-Hispanic white, non-Hispanic black, non-Hispanic other race, or Hispanic); and education (less than high school, high school, some college, associate degree, college graduate, or graduate degree). “Other” races included Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, multiple races, and “other” race.

### Statistical Analysis

Data were analyzed during January–April 2014 using Stata, version 11. Data were weighted to adjust for the differential probability of selection and response. Final weights were also adjusted for undercoverage using post-stratification by sex, age, race/ethnicity, marital status, education, and telephone type. Data were analyzed using descriptive statistics (*t*-test, chi-square) and multivariate logistic regression, with menthol smoking as the dependent variable and sexual orientation as the independent variable; covariates included sex, age, race/ethnicity, and education.

### Results

Among all respondents, current menthol cigarette smoking was higher among LGBT adults (9.7%) than heterosexual/straight adults (4.2%) (Table 1,  $p<0.05$ ). Among current cigarette smokers, menthol cigarette smoking was higher among LGBT smokers (36.3%) than heterosexual/straight (29.3%) smokers. This difference was particularly notable among women (LGBT=42.9%, heterosexual/straight=32.4%,  $p<0.05$ ); Hispanics (LGBT= 57.6%, heterosexual/straight=36.0%,  $p<0.05$ ); individuals of non-Hispanic other races (LGBT=41.8%, heterosexual/straight=29.2%,  $p<0.05$ ); non-Hispanic whites (LGBT=28.9%, heterosexual/straight=23.2%,  $p<0.05$ ); those with less than a high school education (LGBT= 54.8%, heterosexual/straight=31.9%,  $p<0.05$ ); and those aged 25–34 years (LGBT=47.7%, heterosexual/straight= 32.6%).

Following adjustment, LGBT smokers had higher odds (AOR=1.31, 95% CI=1.09, 1.57) of smoking menthol cigarettes than heterosexual/straight smokers (Table 2). Higher odds of menthol smoking were also observed among current smokers who were female (AOR=1.63, 95% CI=1.51, 1.75); non-Hispanic black (AOR=13.79, 95% CI=11.99, 15.85); non-Hispanic other races (AOR=1.37, 95% CI=1.20, 1.56); Hispanic (AOR=1.73, 95% CI=1.46, 2.05); and aged 18–24 (AOR=2.05, 95% CI=1.78, 2.36) or 25–34 (AOR=1.31, 95% CI=1.18, 1.45) years.

## Discussion

The findings from this study reveal that LGBT smokers have higher odds of using menthol cigarettes than heterosexual/straight smokers, which is consistent with previous evidence showing that the tobacco industry has selectively marketed tobacco products to LGBT individuals.<sup>11,12</sup> Younger people, women, and racial/ethnic minorities also have higher prevalence of menthol cigarette smoking, which is consistent with previous surveys.<sup>15</sup> For example, during 2004–2008, 44.8% of U.S. current cigarette smokers aged 12–17 years had smoked menthols, compared to 36.5% of those aged 18–25 years and 30.1% of those aged 26 years. Additionally, among current smokers, 36.4% of women and 82.6% of black individuals had smoked menthols compared to 28.3% and 23.8% among male and white individuals, respectively.<sup>15</sup> These findings suggest that efforts to reduce menthol cigarette use may have the potential to reduce tobacco use and tobacco-related disease and death among multiple vulnerable populations, including LGBT adults.

Targeted efforts to prevent smoking initiation among high-risk groups are warranted. In tailoring interventions, it is important to consider the complex interplay of multiple risk factors, including sexual orientation, race/ethnicity, and SES. Tobacco taxes and advertising restrictions have the potential to reduce smoking among vulnerable populations.<sup>16</sup> However, continued access to menthol cigarettes could diminish the public health impact these interventions would otherwise have on tobacco prevention and control in the U.S.

Strengths of this study include a large and representative sample, the inclusion of cell phone respondents, and the ability to assess differences across multiple sociodemographic subpopulations. However, at least four limitations should be noted. First, data were self-reported, which could lead to underrepresentation of LGBT individuals because of social stigma surrounding sexual orientation. Second, NATS did not include institutionalized populations and the military; therefore, results might not be generalizable to these groups. Third, other differences between LGBT and heterosexual/straight populations may exist that were not included in the analysis. Finally, the response rate of 37.6% may have introduced bias; however, data were adjusted for non-response.

## Conclusions

LGBT smokers, particularly those who are female, have less than a high school education, are non-Hispanic black or non-Hispanic other races, or are between the ages of 26 and 34 years, have higher odds of using menthol cigarettes than their heterosexual/straight counterparts. Efforts to reduce menthol cigarette smoking have the potential to reduce the health and economic burden of cigarette smoking among LGBT adults.

## Acknowledgments

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of CDC.

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Current menthol cigarette smoking among all adults and current cigarette smokers only, %

Table 1

Characteristic	All adults (n=110,841)		Current cigarette smokers only (n=16,116)			
	Overall (n=110,841)	LGBT (n=2,431)	Heterosexual (n=108,431)	Overall (n=16,116)	LGBT (n=650)	Heterosexual (n=15,466)
<b>Sexual orientation</b>						
LGBT	9.7	—	—	36.3	—	—
Heterosexual/straight	4.2	—	—	29.3	—	—
<b>Sex</b>						
Female	4.4	11.1	4.3	32.8	42.9	32.4
Male	4.1	8.3	4.0	25.5	30.0	25.3
<b>Race/ethnicity</b>						
White, non-Hispanic	3.3	7.0	3.1	23.3	28.9	23.2
Black, non-Hispanic	14.8	25.6	14.5	77.9	81.8	77.7
Other race, non-Hispanic <sup>a</sup>	6.0	16.1	5.7	29.9	41.8	29.2
Hispanic	5.9	12.0	5.6	36.0	57.6	36.0
<b>Education</b>						
Less than high school	9.5	23.5	9.2	32.6	54.8	31.9
High school graduate	6.1	16.6	5.9	30.0	37.2	29.7
Some college	5.2	12.7	5.1	29.6	37.1	29.3
Associate's degree	5.3	12.9	5.2	31.5	40.2	31.2
College graduate	2.1	4.5	2.1	25.9	27.3	25.8
Graduate degree	1.3	3.5	1.3	24.2	26.3	24.0

Characteristic	All adults (n=110,841)		Current cigarette smokers only (n=16,116)			
	Overall (n=110,841)	LGBT (n=2,431)	Heterosexual (n=108,431)	Overall (n=16,116)	LGBT (n=650)	Heterosexual (n=15,466)
Age (years)						
18-24	9.8	19.8	<b>9.2</b>	43.1	50.5	42.4
25-34	7.0	16.0	<b>6.8</b>	33.3	47.7	<b>32.6</b>
35-50	4.7	9.9	<b>4.5</b>	27.6	32.9	27.4
51	3.2	5.1	<b>3.2</b>	27.6	27.2	27.6
Total	4.3	9.7	<b>4.2</b>	29.6	36.3	<b>29.3</b>

Note: Boldface indicates value is significantly different from menthol use among corresponding LGBT subpopulation ( $\chi^2$ ,  $p < 0.05$ ). Current menthol cigarette smoking was determined using the question *During the past 30 days, were the cigarettes that you usually smoked menthol?*

<sup>a</sup> Other race included Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, multiple race, and those of "other" race.

LGBT, lesbian, gay, bisexual, transgender.

**Table 2**

Predictors of current menthol cigarette smoking among all adults and current cigarette smokers only

Characteristic	All adults		Current cigarette smokers only	
	<i>n</i>	AOR <sup>a</sup> (95% CI)	<i>n</i>	AOR <sup>a</sup> (95% CI)
<b>Sexual orientation</b>				
LGBT	2,431	<b>2.35 (2.03, 2.72)</b>	650	<b>1.31 (1.09, 1.57)</b>
Heterosexual/straight	108,410	ref	15,466	ref
<b>Sex</b>				
Female	66,967	<b>1.09 (1.03, 1.16)</b>	9,008	<b>1.63 (1.51, 1.75)</b>
Male	43,865	ref	7,106	ref
<b>Race/ethnicity</b>				
Other race, non-Hispanic <sup>b</sup>	5,876	<b>1.72 (1.53, 1.93)</b>	1,184	<b>1.37 (1.20, 1.56)</b>
White, non-Hispanic	92,040	ref	13,149	ref
Black, non-Hispanic	7,915	<b>4.28 (3.96, 4.61)</b>	1,507	<b>13.79 (11.99, 15.85)</b>
Hispanic	4,079	<b>1.23 (1.06, 1.41)</b>	667	<b>1.73 (1.46, 2.05)</b>
<b>Education</b>				
Education status	110,443	<b>0.72 (0.70, 0.73)</b>	16,116	0.99 (0.96, 1.02)
<b>Age (years)</b>				
18–24	4,932	<b>2.15 (1.93, 2.41)</b>	1,116	<b>2.05 (1.78, 2.36)</b>
25–34	11,529	<b>2.24 (2.05, 2.45)</b>	2,432	<b>1.31 (1.18, 1.45)</b>
35–50	29,205	<b>1.54 (1.43, 1.65)</b>	4,927	0.94 (0.87, 1.03)
51	63,354	ref	7,440	ref

Note: Boldface indicates statistical significance ( $p < 0.05$ )

<sup>a</sup> Adjusted for all covariates listed in table.

<sup>b</sup> Other race included Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, multiple race, and those of “other” race.

LGBT, lesbian, gay, bisexual, transgender.