HHS Public Access

Author manuscript

Am J Prev Med. Author manuscript; available in PMC 2015 November 12.

Published in final edited form as:

Am J Prev Med. 2014 August ; 47(2 0 1): S53–S60. doi:10.1016/j.amepre.2014.04.016.

Perceptions of the Relative Harm of Cigarettes and E-cigarettes Among U.S. Youth

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Abstract

Background—Despite progress in reducing youth smoking, adolescents remain highly susceptible to tobacco use. Of concern is whether youth perceive electronic cigarettes (e-cigarettes) as a preferable alternative to conventional cigarettes.

Purpose—To describe cigarette harm perception patterns among youth based on the frequency and intensity of cigarette smoking, and examine the relative harm perceptions of conventional versus e-cigarettes, using data from a large, nationally representative sample of U.S. youth.

Methods—Data from the 2012 National Youth Tobacco Survey (N=24,658) were analyzed in 2013 to identify patterns of cigarette harm perceptions. Multinomial logistic regression was conducted to identify associations between demographic and tobacco use characteristics and cigarette harm perception patterns. Logistic regression was conducted to examine the relationship between cigarette harm perceptions and the perception of e-cigarettes as less harmful than cigarettes for current, ever, and never cigarette smokers.

Results—The majority of youth (64.2%) perceived the harmfulness of cigarettes as dose-dependent. Approximately one in three students perceived e-cigarettes as less harmful than conventional cigarettes. Regardless of cigarette smoking status, ever users of e-cigarettes and those with “dose-dependent” cigarette harm perceptions consistently were more likely to perceive e-cigarettes as less harmful than conventional cigarettes.

Conclusions—Many youth perceive tobacco use on a continuum of harm. Youth who perceive gradations in harm—both by frequency and intensity of cigarette use and by type of product—may be particularly susceptible to e-cigarette use.

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No financial disclosures were reported by the authors of this paper.

Introduction

Despite declines in cigarette smoking prevalence in the U.S., adolescents remain highly susceptible to initiating tobacco use. The increasing diversity of tobacco products on the market, including electronic cigarettes (e-cigarettes), presents new opportunities for youth experimentation and initiation. Between 2011 and 2012, ever use of e-cigarettes among U.S. youth doubled from 3.3% to 6.8% and current use doubled from 1.1% to 2.1%.[1] Previous research has shown that low harm perceptions of cigarettes predict youth experimentation,[2–4] but data regarding the relationship between youth perceptions of e-cigarettes and e-cigarette use are sparse.[5]

Despite the lack of evidence from adequately designed studies, considerable media attention has been given to the e-cigarette's potential as a smoking-cessation aid and less harmful alternative to conventional cigarettes.[6,7] Of particular concern is whether youth, especially those who would not otherwise be susceptible to cigarette smoking, perceive e-cigarettes as a less harmful alternative and may initiate e-cigarette use.

Research has shown that young people generally understand that cigarette smoking is harmful to health but underestimate their personal risk, often because of misjudgment of tobacco-related disease severity or a belief that their personal risk is lower than that of their peers.[8–10] Less is known about how adolescents perceive the relative harm of various tobacco products and different tobacco use patterns. Adolescents may perceive that the harm caused by tobacco use falls along a continuum, or they may have a more absolute (all or nothing) perception of tobacco-related harm. The current study uses data from the 2012 National Youth Tobacco Survey (NYTS), an annual nationally representative in-school survey of U.S. middle and high school students, to (1) describe cigarette harm perception patterns among youth based on the frequency of smoking and number of cigarettes smoked and (2) assess whether patterns of cigarette harm perceptions are associated with perceptions of e-cigarettes.

Methods

Sample

The NYTS uses a stratified three-stage cluster sample design to produce cross-sectional estimates of tobacco use among U.S. middle (Grades 6–8) and high school (Grades 9–12) students, drawing from a sampling frame that includes private, parochial, and public schools in the 50 states and District of Columbia. Details of the methods of this study are available at cdc.gov/tobacco/data_statistics/surveys/nyts.index.htm. The CDC's IRB approved the NYTS data collection protocol. Student participation is voluntary, and parental permission is obtained. Of the 284 schools selected for participation, 228 (80.3%) participated in 2012. A total of 24,658 (91.7%) surveys were completed by students in these schools, yielding an overall response rate of 73.6%.

Measures

Harm perceptions of cigarette smoking—Students responded to three items regarding cigarette harm perceptions: *How much do you think people harm themselves when they*

smoke a few cigarettes every day? How much do you think people harm themselves when they smoke cigarettes some days but not every day? and *How much do you think people harm themselves when they smoke ten or more cigarettes every day?* The four-level response scale for each question was *no harm, little harm, some harm,* and *a lot of harm*.

Relative harm perception of electronic and conventional cigarettes—Students were asked the following question: *Do you believe that electronic cigarettes or e-cigarettes, such as Ruyan or NJOY, are (less harmful, equally harmful, or more harmful) than regular cigarettes?* In addition to the three options indicated, students could also indicate that they had never heard of e-cigarettes or did not know enough about e-cigarettes to make a judgment.

Tobacco use—Cigarette smoking was assessed by first asking: *Have you ever tried cigarette smoking, even one or two puffs?* Respondents answering *no* were designated as "never smokers." Respondents were also asked: *During the past 30 days, on how many days did you smoke cigarettes?* Individuals who reported smoking on at least one of the past 30 days were identified as "current smokers," whereas those who reported ever having tried cigarette smoking but not smoking within the past month were identified as "ever, but not current smokers."

Among current smokers, smoking frequency was recoded as having smoked 1–9 days, 10–19 days, or ≥20 days in the past month. To assess history of e-cigarette use, students were asked to indicate whether they had ever tried "electronic or e-cigarettes, such as Ruyan or NJOY." Students were also asked whether they had used e-cigarettes on at least one of the past 30 days. Dual use was defined as any reported past 30 day use of e-cigarettes among current cigarette smokers.

Susceptibility to smoking—Consistent with prior studies,[11,12] students were asked: *Do you think you will smoke a cigarette in the next year? Do you think you will try a cigarette soon?* and *If one of your best friends were to offer you a cigarette, would you smoke it?* Response options for these items were *definitely yes, probably yes, probably not,* and *definitely not*. Never smokers were defined in a categorical variable as "committed non-smokers" if they responded *definitely not* to each of the three items, "susceptible" if they responded *probably not* to one or more items, and "very susceptible" if they responded *probably* or *definitely yes* to one or more items.

Demographic characteristics—Demographic variables included sex, grade level, and race/ethnicity (Hispanic, non-Hispanic white or "white," non-Hispanic black, or other non-Hispanic).

Data Analysis

Exploratory data analysis showed three general response patterns concerning cigarette smoking harm (Appendix A). Some students perceived all of the scenarios as very harmful, others perceived little or no harm for each of the scenarios, and some perceived smoking a

few cigarettes per day or a few days per week to be less harmful than smoking ten or more cigarettes every day.

Latent class analysis was then conducted using the LCCA package, version 1.1.0 in R, version 3.0.2 (The Methodology Center, Penn State University, University Park PA) to further differentiate harm perception classes. Models with two through eight latent classes were run, and model fit indices including the log likelihood; Akaike information criterion (AIC); and Bayesian information criterion (BIC) were examined. A five-class model was selected based on BIC, as recommended in the research literature.[13]

Inspection of the five latent classes showed that the results were consistent with the exploratory data analysis in that one of the classes viewed all of the scenarios as very harmful, one class viewed all of the scenarios as having little or no harm, and three of the classes viewed smoking a few cigarettes a day or a few days per week as less harmful than smoking ten or more cigarettes every day. Given that these last three classes all viewed cigarette harm as dose-dependent, these classes were combined for the analysis to aid in estimation and interpretation of results.

Individuals were assigned membership in a class based on their highest posterior probability of class membership. In each case, this probability was well above 90%. Class membership information was then exported from R and merged with the full NYTS data set in SAS, version 9.3 (SAS Institute, Inc., Cary NC). Bivariate analyses were conducted to estimate the prevalence of demographic and tobacco use characteristics across cigarette harm perception classes. Multinomial logistic regression was then conducted to assess the AOR of membership in each class.

The harm perception of e-cigarettes compared with cigarettes was analyzed through a binary variable (less harmful versus equally or more harmful), with respondents indicating that they were unaware of or could not make a judgment about e-cigarettes treated as missing. Multiple logistic regression was then conducted to assess the association between cigarette and e-cigarette harm perceptions, stratified by smoking status and adjusted for other variables in the model. All analyses were conducted using SAS-callable SUDAAN, version 11 (RTI International, Research Triangle Park NC) and weighted to produce nationally representative estimates.

Results

Demographic and tobacco use characteristics of the full sample are presented in Table 1. The vast majority of respondents were never smokers (73.6%), 16.9% of students reported having ever smoked cigarettes but not within the past month, and 9.4% of respondents were current smokers. Overall, 6.8% of respondents reported ever having used an e-cigarette and 1.6% reported current dual use of cigarettes and e-cigarettes.

Results of exploratory and latent class analyses are provided in Appendixes A–C. The minimum BIC value was observed for the five-class model. Examination of item response probabilities showed that moving from three to five classes more clearly differentiated the “low,” “high,” and “dose-dependent” response patterns, with the latter differentiated into

three classes ranging from high–moderate to moderate–none (Appendixes B and C). Conceptually, these sub-classes were non-informative, so Classes 3–5 were combined into one “dose-dependent” class in the final model to enhance interpretability. Overall, 2.4% of respondents were classified as “consistent low,” 33.4% as “consistent high,” and 64.2% of respondents were classified with “dose-dependent” harm perception patterns.

Multinomial logistic regression results are presented in Table 1. Compared to committed non-smokers, ever and current smokers as well as students identified as susceptible and very susceptible to smoking were less likely to be classified as consistent low and consistent high and more likely to be classified as dose-dependent. Female participants were more likely than male participants to be classified as consistent low and consistent high and less likely to be classified as dose-dependent.

Compared to students in Grades 6–8, those in Grades 11 and 12 were more likely to be classified as consistent low and consistent high and less likely to be classified as dose-dependent. Compared to whites, other racial/ethnic groups were more likely to be classified as consistent low and consistent high and less likely to be classified as dose-dependent.

Approximately one in three students reported that they believed e-cigarettes were less harmful than conventional cigarettes. This belief varied by smoking status, with 54.2% of current smokers, 41.3% of ever smokers, and 25.0% of never smokers perceiving e-cigarettes as less harmful than conventional cigarettes (Table 2). Half of the sample indicated that they had never heard of or did not know enough about e-cigarettes to make a judgment regarding relative harm and were excluded from analysis. Compared to students that provided an informative answer, these students were more likely to be female (51.9% vs 46.8%); more likely to be never smokers (83.1% vs 64.4%); and less likely to have ever tried a cigarette (12.5% vs 21.4%) or be a current smoker (4.4% vs 14.1%).

Table 3 presents results from the multivariate logistic regression, stratified by smoking status. After adjusting for other covariates, female and Hispanic participants were consistently less likely to perceive e-cigarettes as less harmful than cigarettes compared to male and white participants. Regardless of smoking status, ever e-cigarette use was strongly associated with perceiving e-cigarettes as less harmful than cigarettes.

Among current smokers, 42.2% had a history of e-cigarette use, and these smokers were more than twice as likely to perceive e-cigarettes as less harmful than conventional cigarettes compared to smokers who had never used e-cigarettes (AOR=2.48, 95% CI=1.87, 3.29). Less than 1% of never smokers had ever used e-cigarettes, and they were nearly six times more likely to perceive e-cigarettes as less harmful than conventional cigarettes compared to never smokers without a history of e-cigarette use (AOR=5.88, 95% CI=3.07, 11.25).

Regardless of smoking status, students classified with dose-dependent harm perception profiles were nearly twice as likely to perceive e-cigarettes as less harmful than cigarettes, compared to students classified as consistent high (AOR for current smokers=1.67, 95% CI=1.20, 2.33; AOR for ever smokers=1.66, 95% CI=1.26, 2.19; AOR for never smokers=1.60, 95% CI=1.41, 1.82).

In addition, current and never smokers classified as consistent low for perceptions of cigarette-related harms were more than three times more likely to perceive e-cigarettes as less harmful than cigarettes compared to students classified as consistent high (AOR for current smokers=3.15, 95% CI=1.65, 6.01; AOR for never smokers=3.76, 95% CI=1.72, 8.19). Lastly, susceptibility to cigarette smoking among never smokers was associated with low harm perceptions of e-cigarettes (AOR for susceptible=1.26, 95% CI=1.11, 1.44; AOR for very susceptible 1.94, 95% CI=1.45, 2.59).

Discussion

This paper presents results from one of the first nationally representative surveys to examine relative harm perceptions of conventional cigarettes and e-cigarettes among U.S. middle and high school students. The findings indicated that the majority of youth perceived that smoking-related harm decreased as the frequency and intensity of cigarette smoking decreased. Adolescents who perceived a continuum of cigarette-related harm were consistently more likely to perceive e-cigarettes as less harmful than conventional cigarettes compared to those with a consistently high perception of cigarette-harm. Such findings suggest that many adolescents may be susceptible to e-cigarette use.

The overwhelming majority (88%) of surveyed adolescents responded that smoking ten or more cigarettes per day was associated with a lot of harm, yet only slightly more than 30% of adolescents perceived non-daily smoking to be associated with a lot of harm. This is concerning, given that research has shown that low-dose cigarette consumption is associated with substantial risk of cardiovascular disease and cancer as well as addiction potential.[14–17] Previous research has also shown that youth often erroneously believe that health-related risks are controllable and that they can quit smoking before becoming addicted or ill.[9–11] These misperceptions reinforce the need for continued education about the short- and long-term impacts of cigarette smoking, including the early effects of addiction.

Monitoring trends in youth perceptions of the absolute and relative harmfulness of tobacco products may provide early warning of increasing acceptability and eventual initiation of new tobacco products like e-cigarettes. Previous results from longitudinal studies have shown that smoking-related perceptions are predictive of smoking initiation among adolescents.[18] To date, no longitudinal research has assessed the extent to which e-cigarette harm perceptions predict e-cigarette initiation among U.S. youth.[5]

Given the cross-sectional nature of the NYTS, a temporal relationship between the development of e-cigarette harm perceptions and the initiation of e-cigarette use cannot be assessed. However, current e-cigarette use was consistently associated with the perception that e-cigarettes were less harmful than conventional cigarettes among all students, regardless of cigarette smoking history.

The 2009 Family Smoking Prevention and Tobacco Control Act gave the U.S. Food and Drug Administration (FDA) authority to regulate the manufacture, distribution, and marketing of all tobacco products. In April 2014, the FDA proposed a new rule to assert jurisdiction over e-cigarettes and other products made or derived from tobacco

(www.fda.gov/TobaccoProducts). In utilizing a population health standard to protect public health, FDA must consider the potential for increased harm or benefit among current tobacco users in its regulation of tobacco products as well as the potential for increased initiation among non-users of tobacco, especially youth.

Between 2011 and 2012, ever use of e-cigarettes among U.S. youth doubled from 3.3% to 6.8% and current use doubled from 1.1% to 2.1%.[1] Importantly, 9.3% of current e-cigarette users in 2012 reported never having smoked a conventional cigarette, indicating the potential for e-cigarettes to serve as a starter product in youth.[1] In addition, an increase in the prevalence of dual use of conventional and e-cigarettes was noted, increasing from 0.8% to 1.6% between 2011 and 2012, potentially resulting in greater levels of addiction than cigarette smoking alone.[1] Given e-cigarettes' increase in popularity and the popular perception of e-cigarettes as being less harmful than cigarettes among U.S. youth, more research is needed to better understand the addictive potential and short- and long-term effects of e-cigarette use, alone or in combination with cigarette smoking.

In 2012, half of NYTS respondents had not heard of e-cigarettes or were unable to make a judgment regarding their relative harm. Given that youth exposure to e-cigarettes, including claims related to product safety, is likely to increase, further research is needed to determine whether particular subpopulations of youth may be more receptive to marketing messages concerning potentially reduced-risk tobacco products. Findings from the current study indicate that regardless of smoking status, female and Hispanic youth were less likely to perceive e-cigarettes as a less harmful alternative to cigarettes compared to their male and white counterparts.

These findings are consistent with previous studies of college freshmen that found that gender, race, and smoking status were associated with perceiving non-cigarette tobacco products as less harmful than cigarettes.[19] In addition, a number of previous studies among youth found that current smokers perceived lower harms related to tobacco use than non-smokers.[20,21] In the current analysis, 54.2% of current smokers perceived e-cigarettes to be less harmful than conventional cigarettes, whereas only 25% of never smokers perceived e-cigarettes to be less harmful.

Limitations

This study has certain limitations. A small proportion of respondents (4.6%) were missing responses to the three-item series concerning cigarette harm perceptions. Although the ordering of the cigarette harm questions was altered so as not to imply graduated risk, some students may have responded with what they believed to be the "correct" answer, rather than what they truly believed.

Regarding e-cigarette perceptions, half of the student population was unable to make a judgment concerning relative harm. Although these students were excluded from the final analysis, this finding was informative on its own and highlights the need for annual surveillance data to track trends in increasing awareness of new tobacco products among youth. Additionally, the NYTS relies on self-report of tobacco use, which is subject to social desirability bias. Lastly, results may not be generalizable to students not included in the

survey's sampling frame. Prior research, however, has suggested that anonymous in-school surveys potentially capture a more accurate assessment of tobacco use than other mode of survey administration.[12]

Conclusions

This study explores patterns of harm perceptions of tobacco use among U.S. youth with regard to conventional cigarettes and e-cigarettes. Survey responses indicated that many youth perceive a continuum of harm associated with varying amounts of cigarette smoking. Results suggest that youth who perceive gradations in harm may be susceptible to e-cigarette use. Continued surveillance to monitor trends in youth perceptions of both the absolute and relative harmfulness of tobacco products, as well as the relationship between perceptions and product initiation, will help to provide FDA with an early warning of the net population health impact resulting from tobacco product use and regulatory actions.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Publication of this article was supported by the U.S. Food and Drug Administration, Center for Tobacco Products.

The authors wish to acknowledge Cathy Backinger, PhD, MPH, of the FDA's Center for Tobacco Products, who provided critical input on this manuscript.

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Appendix. Supplementary data

Supplementary data associated with this article can be found at http://dx.doi.org/10.1016/j.amepre.2014.04.016.

Am J Prev Med. Author manuscript; available in PMC 2015 November 12.

Table 1

Multinomial logistic regression model for cigarette harm perception class by demographics and tobacco use

	Total	Consistent low (2.4%)		Consistent high (33.4%)		Dose-dependent (64.2%)	
	n (%)	%	AOR (95% CI)	%	AOR (95% CI)	%	AOR (95% CI)
Grade							
6–8	11,667 (43.9)	38.0	1.00 (ref)	43.3	1.00 (ref)	44.4	1.00 (ref)
9, 10	6,375 (29.8)	36.4	1.11 (1.00, 1.24)	28.8	**1.07 (1.00, 1.14)**	30.1	0.96 (0.92, 1.00)
11, 12	6,524 (26.3)	25.6	**1.26 (1.12, 1.42)**	27.8	**1.15 (1.07, 1.24)**	25.5	**0.91 (0.87, 0.96)**
Sex							
Female	12,275 (48.9)	31.3	**1.09 (1.02, 1.17)**	51.6	**1.05 (1.01, 1.10)**	48.0	**0.97 (0.94, 0.99)**
Male	12,369 (51.1)	68.7	1.00 (ref)	48.4	1.00 (ref)	52.0	1.00 (ref)
Race/ethnicity							
White, non-Hispanic	11,814 (53.9)	33.9	1.00 (ref)	52.3	1.00 (ref)	55.5	1.00 (ref)
Black, non-Hispanic	3,114 (13.9)	18.9	**1.27 (1.11, 1.45)**	14.7	**1.16 (1.07, 1.25)**	13.2	**0.91 (0.86, 0.96)**
Hispanic	5,733 (21.7)	37.0	**1.23 (1.12, 1.35)**	21.7	**1.13 (1.07, 1.20)**	21.1	**0.92 (0.89, 0.96)**
Other, non-Hispanic	3,211 (10.6)	10.1	**1.19 (1.08, 1.31)**	11.4	**1.11 (1.05, 1.18)**	10.1	**0.94 (0.90, 0.97)**
Cigarette smoking							
Committed never smoker	12,870 (53.2)	25.1	1.00 (ref)	65.4	1.00 (ref)	46.9	1.00 (ref)
Susceptible never smoker	4,255 (17.5)	13.1	**0.48 (0.44, 0.53)**	13.0	**0.63 (0.59, 0.67)**	20.4	**1.31 (1.27, 1.36)**
Very susceptible never smoker	752 (2.9)	4.9	**0.42 (0.33, 0.54)**	1.8	**0.57 (0.48, 0.69)**	3.5	**1.36 (1.27, 1.46)**
Ever but not current smoker	4,123 (16.9)	19.4	**0.59 (0.53, 0.65)**	14.5	**0.73 (0.68, 0.78)**	18.3	**1.23 (1.18, 1.28)**
Current smoker	2,247 (9.4)	37.4	**0.48 (0.40, 0.58)**	5.3	**0.63 (0.56, 0.72)**	10.9	**1.31 (1.24, 1.39)**

	Total	Consistent low (2.4%)		Consistent high (33.4%)		Dose-dependent (64.2%)	
	***n* (%)**	**%**	**AOR (95% CI)**	**%**	**AOR (95% CI)**	**%**	**AOR (95% CI)**
Ever used an e-cigarette	1,589 (6.8)	15.6	**0.82 (0.69, 0.97)**	4.4	**0.88 (0.78, 0.99)**	7.9	**1.08 (1.01, 1.14)**
Current dual use (Cigarette+e-cigarette)	373 (1.6)	8.4	**1.45 (1.00, 2.09)**	0.7	**1.23 (1.02, 1.49)**	1.7	0.85 (0.71, 1.02)

Note: Boldface indicates statistical significance ($p<0.05$). Frequencies reflect unweighted data.

Table 2

Relative harm perceptions of e-cigarettes and conventional cigarettes, overall and by cigarette smoking status, % (95% CI)

	Overall	Never smokers	Ever but not current smokers	Current smokers
E-cigarettes are less harmful than cigarettes	30.6 (29.3, 31.9)	25.0 (23.9, 26.2)	41.3 (39.1, 43.6)	54.2 (51.0, 57.4)
E-cigarettes are as equally harmful as cigarettes	15.7 (14.9, 16.5)	15.4 (14.5, 16.2)	17.1 (15.6, 18.6)	16.4 (14.4, 18.6)
E-cigarettes are more harmful than cigarettes	2.9 (2.5, 3.3)	2.2 (1.9, 2.6)	4.1 (3.2, 5.3)	5.4 (4.3, 6.7)
Have never heard of or do not know enough about e-cigarettes	50.8 (49.5, 52.2)	57.4 (56.1, 58.7)	37.5 (35.3, 39.6)	24.0 (21.6, 26.6)

Table 3

Factors associated with perceiving e-cigarettes as less harmful than cigarettes, stratified by cigarette smoking status

	Current smokers (54.2%)		Ever but not current smokers (41.3%)		Never smokers (25.0%)	
	%	AOR (95% CI)	%	AOR (95% CI)	%	AOR (95% CI)
Cigarette harm perception class						
Consistent high	20.8	1.0 (ref)	31.5	1.0 (ref)	40.1	1.0 (ref)
Dose-dependent	70.8	**1.67 (1.20, 2.33)**	64.1	**1.66 (1.26, 2.19)**	58.7	**1.60 (1.41, 1.82)**
Consistent low	8.4	**3.15 (1.65, 6.01)**	2.4	1.42 (0.76, 2.65)	1.2	**3.76 (1.72, 8.19)**
Ever used e-cigarettes	42.2	**2.48 (1.87, 3.29)**	13.6	**2.57 (1.91, 3.46)**	0.9	**5.88 (3.07, 11.25)**
Smoking frequency, past 30 days						
1–9 days	55.5	1.0 (ref)	—	—	—	—
10–19 days	12.1	0.85 (0.57, 1.27)				
≥20 days	32.4	0.85 (0.63, 1.14)	—	—	—	—
Susceptibility to smoking index						
Committed non-smoker	—	—	—	—	72.3	1.0 (ref)
Susceptible	—	—	—	—	23.8	**1.26 (1.11, 1.44)**
Very susceptible	—	—	—	—	4.0	**1.94 (1.45, 2.59)**
Grade						
6–8	16.3	1.0 (ref)	26.1	1.0 (ref)	51.2	1.0 (ref)
9, 10	36.9	0.75 (0. 47, 1.21)	34.7	0.79 (0.57, 1.08)	27.9	0.88 (0.73, 1.06)
11, 12	46.9	0.67 (0.41, 1.09)	39.2	0.71 (0.52, 1.00)	20.9	**0.79 (0.67, 0.94)**
Sex						

	Current smokers (54.2%)		Ever but not current smokers (41.3%)		Never smokers (25.0%)	
	%	AOR (95% CI)	%	AOR (95% CI)	%	AOR (95% CI)
Male	58.4	1.0 (ref)	52.3	1.0 (ref)	49.5	1.0 (ref)
Female	41.6	**0.70 (0.52, 0.93)**	47.7	**0.62 (0.52, 0.75)**	50.5	**0.60 (0.53, 0.68)**
Race/ethnicity						
White, non-Hispanic	58.0	1.0 (ref)	47.6	1.0 (ref)	55.2	1.0 (ref)
Black, non-Hispanic	9.4	1.16 (0.64, 2.10)	16.5	0.77 (0.55, 1.06)	13.6	0.82 (0.67, 1.01)
Hispanic	23.6	**0.51 (0.38, 0.67)**	25.6	**0.69 (0.53, 0.89)**	20.3	**0.71 (0.59, 0.86)**
Other, non-Hispanic	9.0	1.17 (0.77, 1.78)	10.3	0.71 (0.46, 1.11)	10.9	**0.80 (0.67, 0.97)**

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