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## Factors Associated With Small Cigar Use Among College Students

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### Abstract

**Objective**—To assess small cigar use among college students in the southeastern United States.

**Methods**—Data from a 2010 online survey were analyzed to examine small cigar smoking and its sociodemographic and psychosocial correlates among 4388 college students, aged 18–30.

**Results**—Small cigar users were more likely to be younger, male, black, and current cigarette, cigar, hookah, or marijuana smokers ( $p$ 's < .05). They reported lower perceived harm of smoking and greater sensation seeking and perceived stress. Menthol cigarette smokers were more likely to smoke small cigars.

**Conclusions**—Small cigar use and the co-occurrence of other tobacco and substance use should be addressed among college students.

### Keywords

small cigars; little cigars; cigarillos; young adults; cigars

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Despite the approximate 2% per year reduction in cigarette sales in the United States since 1998,<sup>1</sup> the decline in cigarette use may have been partially offset by an increased consumption of nontraditional tobacco products such as small cigars, including little cigars and cigarillos.<sup>2</sup> Compared to large cigars, trend data from 1993 to 2006 suggest that small cigars were the fastest growing tobacco product in the market,<sup>3</sup> with unit sales of little cigars increasing from 37% to 47% and sales of cigarillos increasing from 25% to 32%.<sup>4</sup> Smoking

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#### Human Subjects Statement

The institutional review boards at each university approved this study.

small cigars (ie, little cigars and cigarillos) can deliver sufficient amounts of nicotine to maintain dependence<sup>5,6</sup> and has been associated with several chronic diseases, including coronary heart disease, lung diseases, and several types of cancers.<sup>7-9</sup> Small cigar smoking is a public health threat that merits attention.

Small cigar smoking is most common among young adult smokers. Although no national data estimate the type of cigar used (ie, regular versus small) among young adults, national data on cigar brand consumption suggest differences exist. According to the 2007 National Survey on Drug Use and Health data, the leading brand preferred by all young adult cigar smokers was Black & Mild (33.4%), a small cigars brand.<sup>10</sup> Cross-sectional studies note that young-adult small cigar smokers have sociodemographic profiles similar to those of cigarette smokers: they are more likely to be male<sup>10</sup> and have fewer years of education and lower annual household incomes than do nonsmokers.<sup>11,12</sup> Small cigar smokers in cross-sectional studies often report smoking them occasionally<sup>13,14</sup> and report the products' lower cost, ease of accessibility, and availability of flavors compared to cigarettes as contributors to their use. Evidence also suggests that small cigar smokers are concomitant users of other tobacco products and substances, such as cigarettes<sup>11</sup> and marijuana.<sup>12</sup>

Notably, studies have found racial disparities in small cigar smoking among young adults. Blacks and young adults from other racial/ethnic minority groups are more likely to be small cigar smokers than whites. Cullen and colleagues<sup>12</sup> found among a nationally representative sample of 18-to-25-year-olds that blacks were twice as likely to smoke small cigar brands in the past 30 days compared to whites. Similar findings were reported by Borawski and colleagues.<sup>11</sup> The racial disparity found in small cigar smoking is similar to what is known about cigarette smoking among racial/ethnic minorities. Blacks typically smoke fewer cigarettes compared to whites<sup>15-18</sup> and are also more likely to use mentholated cigarettes than whites are.<sup>15-18</sup> Perhaps an association between small cigar and menthol cigarette smoking exists, because racial disparities in smoking are found for each product. Though the association has not been tested empirically, it could have important implications for tobacco control interventions.

Despite racial differences in small cigar smoking, factors associated with small cigar smoking among a racially diverse sample of young adult college students have not been thoroughly documented in the literature. The present study contributes to a gap in the scientific literature by examining the prevalence and correlates of small cigar use among a sample of racially diverse young adult college students (38% black or African American), who may be considered at high risk for small cigar use. Understanding factors associated with small cigar use among this group may be informative for developing interventions that reflect the diverse social and cultural experiences of college student smokers. Comparing small cigar smokers (ie, either smokers of little cigars or cigarillos) to nonusers (ie, those who did not smoke small cigars, but used other tobacco products) and nonsmokers (ie, those who did not use any tobacco products), this study examined the sociodemographic and psychosocial factors and concomitant use of other tobacco products and substances among our sample of young adult college students. We also examined the relationship between mentholated cigarette use and small cigar use. We hypothesized that (1) small cigar users would have higher rates of other tobacco, marijuana, and alcohol use; less negative attitudes and lower perceived harm of cigars, little cigars, and cigarillos compared to cigarettes; and higher levels of sensation seeking, perceived stress, and depressive symptoms; and (2) among current cigarette smokers, those who smoke menthol are more like to be small cigar users.

## METHODS

### Procedure

In October 2010, undergraduate students at 6 colleges in the southeastern United States were recruited to complete an online survey (for further methodological details, see Berg et al<sup>38</sup>). These 6 schools were chosen to represent rural and urban locations and included various types of college settings including 3 technical colleges, 2 state universities, and a historically black college/university (HBCU). A random sample of 5000 students aged 18–30 years of age at each school was selected using a random number generator on the registrar's student list and was invited to complete the survey, with the exclusion of 2 schools that had enrollment less than 5000, in which all students were invited to participate (total invited N = 24,055). Students received an e-mail containing a link to the consent form with the alternative of opting out. Students who consented to participate were directed to the online survey. To encourage participation, students received up to 3 e-mail invitations to participate. As an incentive for participation, all students who completed the survey received entry into a drawing for cash prizes of \$1000 (one prize), \$500 (2 prizes), and \$250 (4 prizes) at each participating school. Each student was assigned a unique URL to prevent participating in the survey more than once.

Of students who received the invitation to participate, 4840 (20.1%) returned a completed survey, which was roughly the same across the colleges. Due to some missing data, the analyses were conducted on a final sample size of N = 4388. This subset did not differ significantly in terms of sociodemographics or small cigar use from the complete data set.

### Measures

*Sociodemographic characteristics* assessed included students' age, gender, race, and highest parental educational attainment (as a proxy for socioeconomic status). Race/ethnicity was categorized as non-Hispanic white, black, or other due to the small numbers of participants who reported other races/ethnicities. Highest parental educational attainment was categorized as attaining less than a bachelor's degree versus at least a bachelor's degree based on the distribution of parental educational attainment.

**Small cigar use**—To assess small cigar use, students were asked, “In the past 30 days, on how many days did you: Smoke little cigars (such as Black and Milds)? Smoke cigarillos (such as Swisher Sweets cigarillos)?” These assessments were developed from measures of tobacco use used by the American College Health Association (ACHA) surveys, National College Health Risk Behavior Survey (NCHRBS), and Youth Risk Behavior Survey (YRBS); and their reliability and validity have been documented by previous research.<sup>19</sup> Consistent with a prior study,<sup>11</sup> we created a variable for “small cigar use,” which included any use of cigarillos or little cigars in the past 30 days.

**Other tobacco use**—To assess tobacco use, students were asked, “In the past 30 days, on how many days did you: Smoke a cigarette (even a puff)? Use chewing tobacco, snuff, or dip, such as Redman, Levi Garrett, Beechnut, Skoal, Skoal Bandits, or Copenhagen? Smoke cigars (Please do not include little cigars or cigarillos, such as Black and Milds, when answering this question)? Smoke tobacco from a water pipe (hookah)?” Students who reported any use of each tobacco product on at least one day in the past 30 days were categorized as current users. In addition, students who reported smoking cigarettes on all 30 days of the past month were considered daily smokers versus nondaily smokers (ie, those who smoked from 1 to 29 days of the past 30 days), consistent with how ACHA, Substance Abuse and Mental Health Association (SAM-SHA), and others have defined these

categories of cigarette smokers.<sup>20</sup> We also asked current cigarette smokers, “Do you typically use menthol cigarettes?”

**Other substance use**—Students were asked, “In the past 30 days, on how many days did you: Drink alcohol? Use marijuana (pot, weed, hashish, hash oil)?” These questions were adapted from formats used by ACHA and the YRBS.<sup>19,20</sup>

**Perceived harm of cigars, cigarillos, and little cigars**—An item asked participants, “Compared to cigarettes, how harmful are cigars, cigarillos, and little cigars?” Response options were less harmful, equally harmful, or more harmful.

**Smoking attitudes**—The Smoking Attitudes Scale<sup>22</sup> is an assessment of attitudes toward smoking. The Smoking Attitudes Scale asked participants to rate on a 7-point scale how strongly they agree (1 = strongly disagree, 7 = strongly agree) with 17 smoking-related statements across 4 dimensions: interpersonal relationships with smokers, laws and societal restrictions on smoking in public places, health concerns, and the marketing and sale of cigarettes.<sup>22</sup> Higher scores indicate more negative attitudes regarding smoking (ie, more negative thoughts regarding relationships with smokers, more positive attitudes toward smoking restrictions, more negative attitudes regarding smoking-related health risks, and more negative attitudes regarding the marketing and sale of cigarettes). The scale has good construct validity and subscale alphas ranging from .69 to .88 in this sample, which is similar to prior research.<sup>22</sup>

**Sensation seeking**—The Brief Sensation Seeking Scale<sup>23</sup> is a 4-item version of the 8-item Brief Sensation Seeking Scale.<sup>24</sup> Participants are asked to respond using a 5-point scale (1 = strongly disagree to 5 = strongly agree). Higher scores indicate greater propensity to be a sensation seeker. Psychometric analyses revealed appropriate internal consistency (Cronbach’s alpha of .75), convergent validity, and test-retest reliability.<sup>23</sup> Cronbach’s alpha in the current study was .75.

**Perceived stress**—Participants were asked to complete the Perceived Stress Scale– 4 item (PSS-4),<sup>25</sup> which assesses the degree to which situations in one’s life are appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives. The questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way. Psychometric analyses revealed appropriate internal consistency (Cronbach alpha of .73), convergent validity, and test-retest reliability. Cronbach’s alpha in the current study was .74.

**Depressive symptoms**—Participants were asked to complete the Patient Health Questionnaire (PHQ-2),<sup>26</sup> which is a 2-item depression screening tool, based on DSM-4 diagnostic criteria, assessing frequency of depressed mood (“feeling down, depressed or hopeless”) and anhedonia (“little interest or pleasure in doing things”) over the past 2 weeks. Responses were rated on a 4-point Likert scale and range from not at all (0) to nearly every day (3). A total score  $\geq 3$  has been used to reflect clinical depression.<sup>26</sup> Cronbach’s alpha in the current study was 0.74.

## Data Analysis

Participant characteristics were summarized using descriptive statistics. For variables with skewed distributions, we reported median and interquartile range (IQR). Using chi-squared tests for categorical variables and t-tests for continuous variables, bivariate analyses were conducted comparing those who smoked small cigars (ie, either little cigars or cigarillos) in the past 30 days versus those who had not. Binary logistic regression was used to determine

factors associated with small cigar use (1) among all participants, (2) among non-users of other tobacco products, and (3) among current (past-30-day) smokers. We then conducted 3 multivariate models, examining correlates of small cigar use among each of the aforementioned subgroups. Age, gender, race, parental education, and type of school were forced into each model, and other factors significant at the  $p < .10$  level in the bivariate analyses were entered into the regression model using backwards stepwise entry. SPSS 19.0 was used for all data analyses.<sup>40</sup> Statistical significance was set at  $\alpha = .05$  for all tests.

## RESULTS

Of the 4388 participants, 12.1% (95% confidence interval [CI] 11.1%, 13.0%;  $N = 531$ ) reported smoking small cigars during the past 30 days prior to the survey. Of all participants, 5.1% (CI 4.5%, 5.8%;  $N = 224$ ) reported smoking cigarillos, and 10.2% (CI 9.3%, 11.1%;  $N = 448$ ) reported smoking little cigars, with 3.2% (CI 2.6%, 3.8%;  $N = 140$ ) smoking both cigarillos and little cigars. Among current little cigar users, the average number of days of use in the past 30 days was 5.19 (SD = 6.94), with a median of 2.0 days (interquartile range [IQR] = 1 to 5). Among current cigarillo users, the median was 3.0 days (IQR = 1 to 10). These statistics indicate that the vast majority of small cigar users smoke them infrequently.

### Analyses Among All Participants

Compared to nonusers, small cigar users were more likely to be younger, male, and black (Table 1). In our sample, 72.0% of small cigar smokers reported concurrent cigarette use, with over half of small cigar smokers reporting nondaily cigarette smoking. Small cigar smokers reported more frequent use of alcohol and were also more likely to report current use of cigars, smokeless tobacco, hookah, and marijuana. Small cigar smokers versus nonusers were more likely to report perceiving the harm of little cigars, cigarillos, and cigars to be less than that of cigarettes. Compared to non-users, small cigar smokers had less negative attitudes toward smoking, higher scores on both the perceived stress and depressive symptoms scales, and higher scores on the sensation seeking scale.

Table 2 presents the results of the binary logistic regression analyses. Small cigar users were more likely to be younger, male, black, and current cigarette smokers, cigar smokers, hookah users, and marijuana users. Current small cigar users, compared to nonusers, also reported lower perceived harm of smoking, greater sensation seeking, and higher perceived stress.

### Analyses Among Nonusers of Other Tobacco Products

Among those not using other forms of tobacco in the past 30 days ( $N = 2679$ ), small cigar smokers were younger ( $p < .001$ ), more likely to be black than white or other ( $p < .001$ ), and attending an HBCU rather than a state university or technical college ( $p < .001$ ). They reported greater alcohol use ( $p < .001$ ) and were more likely to report current use of marijuana ( $p < .001$ ). Compared to non-users of any other tobacco products, small cigar smokers had less negative attitudes toward smoking ( $p < .001$ ); perceived the harm of little cigars, cigarillos, and cigars to be less than that of cigarettes ( $p < .001$ ); and had greater perceived stress ( $p = .009$ ), depressive symptoms ( $p < .02$ ), and sensation-seeking scale scores ( $p < .001$ ).

We also developed a multivariate model comparing small cigar users to nonusers among just those participants who did not use any other form of tobacco product, including cigarettes, in the past 30 days. Compared to nonusers, we found that factors associated with small cigar use included being younger; being black versus white; more days of alcohol use; current

marijuana use; less perceived harm of cigars, little cigars, and cigarillos versus cigarettes; and greater sensation seeking (Table 3).

### Analyses Among Current Cigarette Smokers

Next, we examined the relationship of using small cigars to smoking mentholated cigarettes among current (past-30-day) cigarette smokers. Small cigar smokers were younger ( $p < .001$ ), more likely to be black than white or other ( $p < .001$ ), and attending an HBCU rather than a state university or technical college ( $p < .001$ ). They were more likely to report current use of cigars ( $p < .001$ ), chew ( $p = .002$ ), hookah ( $p < .001$ ), and marijuana ( $p < .001$ ). They were also more likely to be non-daily cigarette smokers versus daily smokers ( $p < .001$ ). Compared to nonusers, small cigar smokers perceived the harm of little cigars, cigarillos, and cigars to be less than that of cigarettes ( $p < .001$ ) and had greater perceived stress ( $p = .04$ ) and sensation seeking scale scores ( $p < .001$ ).

In our multivariate model identifying correlates of menthol cigarette use among current smokers, we aimed to most directly assess the relationship of menthol cigarette use and small cigar use. Thus, age, gender, race, parental education, and type of school were forced into each model, and then smoking level (nondaily vs daily), use of menthol, and interactions of interest, specifically ethnicity x menthol use, gender x menthol use, ethnicity x gender, and smoking level x menthol use, were entered into the equation. The multivariate results indicated that factors significantly related to small cigar use among current cigarette smokers included being younger (OR = .90, CI .86, .93,  $p < .001$ ), being male (OR = .34, CI .24, .48,  $p < .001$ ), being black (OR = 18.18, CI 8.36, 39.53,  $p < .001$ ) or other (OR = 2.55, CI 1.31, 4.96,  $p = .006$ ) vs white, and menthol use (OR = 1.76, CI 1.15, 2.70,  $p = .009$ ). We also found a significant interaction between ethnicity and menthol use on small cigar use such that white smokers who smoke mentholated cigarettes versus those who do not smoke mentholated cigarettes were more likely to also smoke small cigars, whereas black smokers who smoked mentholated cigarettes versus those who do not smoke mentholated cigarettes were actually less likely to smoke small cigars (OR = 0.21, CI 0.08, 0.52,  $p = .001$ ; Nagelkerke  $R^2 = 0.298$ ).

## DISCUSSION

Small cigar smoking is a largely understudied, but emerging public health concern. Our sample of racially diverse young adult college students reported a 30-day small cigar smoking prevalence of 12.1%. Small cigar smokers in our sample were mostly nondaily users, with little cigar smokers reporting use on average 4 days per month and cigarillo smokers reporting use on average 3 days per month. Our study confirmed that college students from racial minority groups and those who are concomitant users of other tobacco products, marijuana, and alcohol, are more likely to smoke small cigars.

Our findings, and that of others,<sup>11,13,14,27,28</sup> suggest that there is a racial disparity in small cigar smoking for black college student smokers and those from other racial minority groups. Though racial differences in small cigar smoking have been noted previously,<sup>11-13,27,28</sup> these differences were not documented at the very high disparity as found in our sample. As hypothesized, an association between small cigar and menthol cigarette smoking was also found in our study. Though additional studies are needed to explore these findings, perhaps they can be explained by exposure to targeted marketing of both products.<sup>27,29,30</sup> Exposure to pro-tobacco messages has been associated with cigarette smoking<sup>36,37</sup> and may partially explain the high prevalence of small cigar use in blacks and other racial minorities. Further, small cigars come in a variety of flavors (eg, apple, strawberry, grape). Although the FDA has banned the use of characterizing flavors (other than menthol) in cigarettes, they are still permitted in other tobacco products, including

small cigars. The association between smoking mentholated cigarettes and small cigars might reflect a preference among some college student smokers for flavored combustible tobacco products.

Concomitant use of other tobacco products (eg, cigarettes, smokeless tobacco, and hookah) and substances (eg, alcohol and marijuana) was associated with small cigar smoking in our sample. Concurrent use of tobacco products and other substances may increase the risk for developing nicotine dependence, increase the exposure to carcinogens and other toxins, and make tobacco use cessation more difficult for young adult college students.<sup>31</sup> Individual-, group-, and institutional-level interventions are available on some college and university campuses to interaction assist smokers between with quitting cigarette smoking.<sup>35</sup> Our study highlights the importance of addressing other forms of tobacco use, including small cigar use, in college-based smoking cessation programs. Respondents in our sample and those in other studies perceive small cigar smoking is a less-harmful behavior compared to cigarette smoking.<sup>13,14,27,28</sup> Tobacco cessation counseling for college students should also debunk this myth and inform students of the health risks associated with small cigar smoking. Small cigar smoking in our sample was associated with higher levels of perceived stress and greater sensation seeking behaviors. Similarly for cigarette smoking, health care providers should discuss coping mechanisms for handling stress when counseling students about small cigar use. A commonly used strategy in smoking cessation counseling is that of gradually reducing the amount of cigarettes smoked. Though not reported in this study, reports from qualitative studies suggest that some young adult smokers use small cigars as a way to reduce their cigarette smoking.<sup>13,14</sup> Health care providers administering smoking cessation programs in college health clinics must also discuss the importance of *not* replacing cigarette smoking with small cigar smoking as a strategy to quit. In addition to communicating the harm associated with small cigar use, institutional-level antismoking messages that address the attitudes about and norms toward small cigar smoking are warranted for college students.

Alcohol and marijuana use were associated with small cigar smoking among our sample. About half of small cigar users also reported marijuana use in the past 30 days. Prior studies have found that some young adult smokers may not use small cigars as intended, but will remove the tobacco from small cigars and replace it with marijuana,<sup>13,28</sup> in a process called “blunting” a small cigar. Other studies have reported participants smoking marijuana in conjunction with small cigars to heighten the effects of the marijuana.<sup>14</sup> Taken together, our findings suggest that health care providers in college health clinics should discuss the concomitant use of alcohol and marijuana when counseling students about small cigar smoking.

Our study had limitations with regard to measurement, generalizability, and survey response rate. Though brand-specific items may estimate small cigar use more accurately,<sup>32</sup> use of these items limits comparability to studies that used other measures to capture small cigar use (ie, single catchall question assessing cigar product use). Though national-based estimates of small cigar use are emerging (ie, Monitoring the Future), more specific measures of use of all cigars are needed. In terms of generalizability, the survey sample was largely female and drawn from southeastern US colleges and, thus, may not generalize to other college populations from other regions of the country or young adults in general, particularly those not attending college. However, the sample characteristics are similar to the demographics of the participants' school populations, although there was a larger proportion of females who responded. It is also uncertain what other factors not measured differed between respondents and nonrespondents and between those randomly selected to participate versus those not selected. Nonetheless, a significant strength was the strong representation of white and black college students. Finally, the survey response rate was

20.1%. Previous online research has yielded similar response rates (29–32%) among the general population<sup>33</sup> and a wide range of response rates (17–52%) among college students. Moreover, many participants likely did not open the invitation e-mail or had inactive accounts, and their removal from the “denominator” would increase our response rate. Prior work has demonstrated that, despite lower response rates, Internet surveys yield similar statistics regarding health behaviors compared to mail and phone surveys.<sup>34</sup>

Tobacco control efforts among young adults have typically focused on cigarette use. Findings from this study suggest that small cigar use is prevalent among young adult college students and highlight correlates of use. Our results, along with evidence from a growing number of studies, suggest that existing tobacco control efforts need to consider small cigar use among young adult college students.

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## References

- Orzechowski, W.; Walker, RC. *The Tax Burden on Tobacco: Historical Compilation*. Vol. 44. Arlington, VA: Orzechowski and Walker; 2009.
- Connolly GN, Alpert HR. Trends in the use of cigarettes and other tobacco products, 2000–2007. *JAMA*. 2008; 299(22):2629–2630. [PubMed: 18544722]
- United States Department of Agriculture Economic Research Service. [Accessed May 24, 2012] Tobacco Briefing Room. 2007. Available at: <http://www.ers.usda.gov/briefing/Archive/tobacco/index.htm>
- Kozlowski LT, Dollar KM, Giovino GA. Cigar/cigarillo surveillance: limitations of the U.S. Department of Agriculture System. *Am J Prev Med*. 2008; 34(5):424–426. [PubMed: 18407010]
- Hoffmann, D.; Hoffman, I. *Cigars: Health Effects and Trends Smoking and Tobacco Control Monograph No 9*. U.S. DHHS, National Institutes of Health, National Cancer Institute; 1998. Chemistry and toxicology; p. 55-104.
- Baker F, Ainsworth SR, Dye JT, et al. Health risks associated with cigar smoking. *JAMA*. 2000; 284(18):735–740. [PubMed: 10927783]
- National Cancer Institute. *Smoking and Tobacco Control Monograph No 9*. Bethesda, MD: U.S. DHHS, National Institutes of Health, National Cancer Institute; 1998. *Cigars: Health Effects and Trends*.
- Boffetta P, Pershagen G, Jockel K, Forastiere F. Cigar and pipe smoking and lung cancer risk: a multicenter study from Europe. *J Natl Cancer Inst*. 1999; 91(8):697–701. [PubMed: 10218507]
- Dollar KM, Mix JM, Kozlowski LT. Little cigars, big cigars: omissions and commissions of harm and harm reduction information on the Internet. *Nicotine Tob Res*. 2008; 10(5):819–826. [PubMed: 18569755]
- Johnston, LD.; O’Malley, PM.; Bachman, JG.; Schulenberg, JE. [Accessed December 1, 2011] Smoking stops declining and shows signs of increasing among younger teens. 2010. Available at: <http://www.monitoringthefuture.org>
- Borawski EA, Brooks A, Colabianchi N, et al. Adult use of cigars, little cigars, and cigarillos in Cuyahoga County, Ohio: a cross-sectional study. *Nicotine Tob Res*. 2010; 12(6):669–673. [PubMed: 20418382]
- Cullen J, Mowery P, Delnevo C, et al. Seven-year patterns in US cigar use epidemiology among young adults aged 18–25 years: a focus on race/ethnicity and brand. *Am J Public Health*. 2011; 101(10):1955–1962. [PubMed: 21852638]
- Richter PA, Pederson LL, O’Hegarty MM. Young adult smoker risk perceptions of traditional cigarettes and nontraditional tobacco products. *Am J Health Behav*. 2006; 30(3):302–312. [PubMed: 16712444]



14. Jolly DH. Exploring the use of little cigars by students at a historically black university. *Prev Chronic Dis.* 2008; 5(3):A82. [PubMed: 18558032]
15. Delva J, Tellez M, Finlayson TL, et al. Cigarette smoking among low-income African Americans: a serious public health problem. *Am J Prev Med.* 2005; 29(3):218–220. [PubMed: 16168872]
16. Fagan P, King G, Lawrence D, et al. Eliminating tobacco-related health disparities: directions for future research. *Am J Public Health.* 2004; 94(2):211–217. [PubMed: 14759929]
17. Okuyemi KS, Pulvers KM, Cox LS, et al. Nicotine dependence among African American light smokers: a comparison of three scales. *Addict Behav.* 2007; 32(10):1989–2002. [PubMed: 17307303]
18. Evans N. Occasional smoking among adults: evidence from the California Tobacco Survey. *Tob Control.* 1992; 1:169–175.
19. Substance Abuse and Mental Health Services Administration. The National Survey on Drug Use and Health: 2005 Detailed Tables. Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies; 2006. Available at: <http://www.oas.samhsa.gov/NSDUH/2k5nsduh/tabs/Sect7peTabs58to67.pdf>
20. American College Health Association. National College Health Assessment Spring 2008 Reference Group Data Report (Abridged). *J Am College Health.* 57(5):477–488. Available at: [http://www.achancha.org/docs/JACH\\_March\\_2009\\_SP08\\_Ref\\_Grp.pdf](http://www.achancha.org/docs/JACH_March_2009_SP08_Ref_Grp.pdf).
21. Berg, CJ.; Parelkar, PP.; Lessard, L., et al. [Accessed August 13, 2010] Defining “smoker”: college student attitudes and related smoking characteristics. *Nicotine Tob Res.* 2010. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/20675365>
22. Shore TH, Tashchian A, Adams JS. Development and validation of a scale measuring attitudes toward smoking. *J Soc Psychol.* 2000; 140(5):615–623. [PubMed: 11059207]
23. Stephenson MT, Hoyle RH, Palmgreen P, Slater MD. Brief measures of sensation seeking for screening and large-scale surveys. *Drug Alcohol Depend.* 2003; 72(3):279–286. [PubMed: 14643945]
24. Hoyle R, Stephenson M, Palmgreen P, et al. Reliability and validity of a brief measure of sensation seeking. *Pers Individ Diff.* 2002; 32(3):401–414.
25. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav.* 1983; 24(4):385–396. [PubMed: 6668417]
26. Kroenke K, Spitzer RL, Williams JBW, Löwe B. The Patient Health Questionnaire Somatic, Anxiety, and Depressive Symptom Scales: a systematic review. *Gen Hosp Psychiatry.* 2010; 32(4):345–359. [PubMed: 20633738]
27. Malone RE, Yerger V, Pearson C. Cigar risk perceptions in focus groups of urban African American youth. *J Subst Abuse.* 2001; 13(4):549–561. [PubMed: 11775082]
28. Richter P, Caraballo R, Pederson LL, Gupta N. Exploring use of nontraditional tobacco products through focus groups with young adult smokers. 2002. *Prev Chronic Dis.* 2008; 5(3):A87. [PubMed: 18558037]
29. Kwate NOA, Lee TH. Ghettoizing outdoor advertising: disadvantage and ad panel density in black neighborhoods. *J Urban Health.* 2007; 84(1):21–31. [PubMed: 17146710]
30. Singer M, Mirhej G, Page JB, et al. Black 'N Mild and carcinogenic: cigar smoking among inner city young adults in Hartford, CT. *J Ethn Subst Abuse.* 2007; 6(3–4):81–94. [PubMed: 19842307]
31. Jordan HM, Delnevo CD. Emerging tobacco products: hookah use among New Jersey youth. *Prev Med.* 2010; 51(5):394–396. [PubMed: 20817023]
32. Terchek JJ, Elizabeth MG, Male M, Frank S. Measuring cigar use in adolescents: Inclusion of a brand-specific item. *Nicotine Tob Res.* 2009; 11(7):842–846. [PubMed: 19474182]
33. Kaplowitz M, Hadlock T, Levine R. A comparison of web and mail survey response rates. *Public Opin Q.* 2004; 68(1):94–101.
34. An LC, Hennrikus DJ, Perry CL, et al. Feasibility of Internet health screening to recruit college students to an online smoking cessation intervention. *Nicotine Tob Res.* 2007; 9(Suppl 1):S11–S18. [PubMed: 17365722]
35. Murphy-Hoefer R, Griffith R, Pederson L, et al. A review of interventions to reduce tobacco use in colleges and universities. *Am J Prev Med.* 2005; 28:188–200. [PubMed: 15710275]

36. Donovan R, Jancey J, Jones S. Tobacco point of sale advertising increases positive brand user imagery. *Tob Control*. 2002; 11:191–194. [PubMed: 12198267]
37. Wakefield M, Morley C, Horan J, Cummings K. The cigarette pack as image: new evidence from tobacco industry documents. *Tob Control*. 2002; 11:173–180. [PubMed: 12198262]
38. Bert CJ, Nehl E, Sterling K, et al. The development and validation of a scale assessing individual schemas used in classifying a smoker: implications for research and practice. *Nicotine Tob Res*. 2011; 3(12):1257–1265.
39. NSDUH. [Accessed: February 25, 2010] Results from the 2007 NSDUH: National Findings, SAMHSA, OAS. Results from the 2007 National Survey on Drug Use and Health: National Findings. [Online]. Available at: <http://www.oas.samhsa.gov/nsduh/2k7nsduh/2k7results.cfm#Ch4>
40. SPSS, Inc. SPSS Base 19.0 for Windows. SPSS Inc; Chicago, IL: 2010.

Table 1

## Small Cigar Smoking Characteristics by Use Status

Variable	Total N = 4388 N (%) or M (SD)	Nonusers N = 3859 N (%) or M (SD)	Users N = 529 N (%) or M (SD)	p-value
<b>Sociodemographics</b>				
Age (SD)	23.5 (7.09)	23.7 (7.30)	21.5 (4.88)	***
Gender (%)				
Male	1256 (28.6)	1035 (26.8)	221 (41.8)	
Female	3132 (71.4)	2824 (73.2)	308 (58.2)	***
Race (%)				
White	2008 (45.8)	1835 (47.6)	173 (32.7)	
Black	1704 (38.8)	1438 (37.3)	266 (50.3)	
Other <sup>a</sup>	676 (15.4)	586 (15.2)	90 (17.0)	***
Parental Education (%)				
< BA degree	2724 (62.1)	2416 (62.6)	308 (58.2)	--
BA degree	1664 (37.9)	1443 (37.4)	221 (41.8)	
Type of School (%)				
2-year technical school	1655 (37.7)	1483 (38.4)	172 (32.5)	
4-year state university	2103 (47.9)	1853 (48.0)	250 (47.3)	
HBCU	630 (14.4)	523 (13.6)	107 (20.2)	***
<b>Other Tobacco Use</b>				
Cigarettes (%)				
Nonsmokers	3214 (73.2)	3066 (79.5)	148 (28.0)	
Nondaily smoker	747 (17.0)	449 (11.6)	298 (56.3)	
Daily smoker	427 (9.7)	344 (8.9)	83 (15.7)	***
Cigars (%)				
No	4213 (96.2)	3773 (97.8)	440 (84.5)	
Yes	166 (3.8)	85 (2.2)	81 (15.5)	***
Smokeless tobacco (%)				
No	4254 (97.0)	3771 (97.8)	483 (91.5)	
Yes	130 (3.0)	85 (2.2)	45 (8.5)	***
Hookah (%)				
No	4188 (95.7)	3742 (97.2)	446 (84.3)	
Yes	189 (4.3)	106 (2.8)	83 (15.7)	***
<b>Other Substance Use</b>				
Days alcohol use (SD)	3.29 (5.17)	3.00 (4.98)	5.35 (6.02)	***
Marijuana (%)				
No	3762 (86.3)	3494 (91.2)	268 (50.8)	
Yes	598 (13.7)	338 (8.8)	260 (49.2)	***
<b>Psychosocial Variables</b>				
Perceived harm of cigars, cigarillos, little cigars vs cigarettes (%)				
Less harmful	308 (7.1)	233 (6.1)	75 (14.2)	
No difference	2812 (64.5)	2513 (65.6)	299 (56.6)	

Variable	Total N = 4388 N (%) or M (SD)	Nonusers N = 3859 N (%) or M (SD)	Users N = 529 N (%) or M (SD)	p-value
More harmful	1240 (28.4)	1086 (28.3)	154 (29.2)	***
Attitudes Toward Smoking (SD)	88.06 (18.06)	89.29 (17.89)	78.90 (16.74)	***
Sensation Seeking (SD)	3.32 (0.90)	3.28 (0.90)	3.61 (0.86)	***
Perceived Stress (SD)	6.16 (3.39)	6.07 (3.39)	6.93 (3.34)	***
Depressive Symptoms (%)				
No	3619 (91.5)	3235 (92.0)	384 (87.3)	
Yes	338 (8.5)	282 (8.0)	56 (12.7)	**

\*  
p < .05,

\*\*  
p < .01,

\*\*\*  
p < .001

Note.

<sup>a</sup>“Other” includes 0.5% American Indian/Alaskan Native, 4.2% Asian/Pacific Islander, 3.5% Hispanic, 5.0% biracial/multiracial, 2.0% other.

**Table 2**

Correlates of Small Cigar Smoking (N = 4388)

Variable	OR	95% CI	p-value
<b>Sociodemographics</b>			
Age	0.93	0.90, 0.96	***
Gender			
Male	Ref	--	--
Female	0.71	0.54, 0.93	*
Race			
White	Ref	--	--
Black	6.49	4.56, 9.22	***
Other	3.36	2.27, 4.99	***
Parental Education			
< BA degree	Ref	--	--
BA degree	0.93	0.71, 1.22	--
Type of School			
2-year technical school	Ref	--	--
4-year state university	1.27	0.92, 1.76	--
HBCU	1.34	0.91, 1.98	--
<b>Other Tobacco Use</b>			
Cigarettes			
Nonsmokers	Ref	--	--
Nondaily smoker	14.33	10.37, 19.81	***
Daily smoker	7.30	4.54, 11.74	***
Cigars			
No	Ref	--	--
Yes	3.72	2.35, 5.91	***
Hookah			
No	Ref	--	--
Yes	2.66	1.71, 4.13	***
<b>Other Substance Use</b>			
Marijuana			
No	Ref	--	--
Yes	3.81	2.85, 5.09	***
<b>Psychosocial Variables</b>			
Perceived harm of cigars, cigarillos, little cigars vs cigarettes			
Less harmful	Ref	--	--
No difference	0.41	0.27, 0.62	***
More harmful	0.38	0.24, 0.59	***
Attitudes Toward Smoking	0.99	0.99, 1.00	--
Sensation Seeking	1.18	1.02, 1.38	*
Perceived Stress	1.04	1.00, 1.09	*

Variable	OR	95% CI	p-value
Depressive Symptoms			
No	Ref	--	--
Yes	0.69	0.45, 1.06	--

\*  
p < .05,

\*\*  
p < .01,

\*\*\*  
p < .001

Note.

<sup>a</sup>Nagelkerke R<sup>2</sup> = 0.440

**Table 3**

Correlates of Small Cigar Smoking Among Nonusers of Any Tobacco Products, (N = 2679)

Variable	OR	95% CI	p-value
<b>Sociodemographics</b>			
Age	0.91	0.84, 0.99	*
Gender			
Male	Ref	--	--
Female	0.86	0.51, 1.47	--
Race			
White	Ref	--	--
Black	6.80	3.33, 13.88	**
Other	2.34	0.95, 5.76	--
Parental Education			
< BA	Ref	--	--
BA	1.04	0.63, 1.71	--
Type of School			
2-year technical school	Ref	--	--
4-year state university	1.20	0.60, 2.43	--
HBCU	1.26	0.71, 2.25	--
<b>Other Substance Use</b>			
Days Alcohol Use	1.08	1.03, 1.14	**
Marijuana			
No	Ref	--	--
Yes	13.50	7.99, 22.82	***
<b>Psychosocial Variables</b>			
Perceived harm of cigars, cigarillos, little cigars vs cigarettes			
Less harmful	Ref	--	--
No difference	0.36	0.19, 0.72	**
More harmful	0.24	0.11, 0.53	***
Sensation Seeking	1.34	1.01, 1.77	*

\*  
p < .05,\*\*  
p < .01,\*\*\*  
p < .001

Note.

<sup>a</sup>Nagelkerke R<sup>2</sup> = 0.285