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7 in 10 students who currently use tobacco used a flavored product

New data show importance of addressing all forms of tobacco use, including flavored products

Press Release

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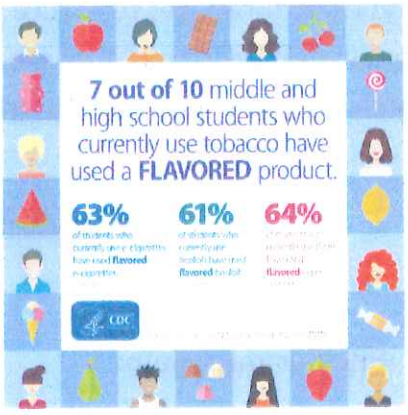
(404) 639-3286

An estimated 70 percent of U.S. middle and high school students who have used a tobacco product in the past 30 days have used at least one flavored tobacco product during this period, according to a study published by the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA) in today's *Morbidity and Mortality Weekly Report* (MMWR).



7 out of 10 middle and high school students and who currently use tobacco have used a flavored product.
Full infographic

Data from the 2014 National Youth Tobacco Survey (NYTS) show that among students who used each of the following tobacco products in the past 30 days (defined as current users), 63.3 percent (1.58 million) had used a flavored e-cigarette, 60.6 percent (1.02 million) had used flavored hookah tobacco, 63.5 percent (910,000) had used a flavored cigar, 58.8 percent (690,000) had used flavored smokeless tobacco, 53.6 percent (900,000) had used menthol cigarettes, and 42.3 percent (120,000) had used flavored tobacco in pipes.

About 18 percent of all high school students reported using at least one flavored product in the past 30 days; 5.8 percent reported using only non-flavored tobacco products. E-cigarettes (8.8 percent) were the most commonly used flavored tobacco product among high school students, followed by hookah (6.0 percent), cigars (5.3 percent), menthol cigarettes (5.0 percent), any smokeless tobacco (4.1 percent), and tobacco in pipes (0.7 percent).

"Flavored tobacco products are enticing a new generation of America's youth into nicotine addiction, condemning many of them to tobacco-related disease and early death," said CDC Director Tom Frieden, M.D., M.P.H. "Nicotine is not safe for the developing brain, and we must do everything we can to protect kids from a lifetime of tobacco use and nicotine dependence."

Among students who currently use tobacco, a higher proportion of high school than middle school students

reported use of flavored e-cigarettes, flavored hookah, flavored smokeless tobacco, and any flavored product, while the proportion of male and female users who reported flavored product use was generally similar. Among students who currently smoke cigarettes, a greater proportion of non-Hispanic blacks reported menthol cigarette use (70.5 percent) than non-Hispanic whites (51.4 percent) and Hispanics (52.3 percent). Among those who used other tobacco products in the past 30 days, non-Hispanic blacks generally had lower prevalence of flavored product use than non-Hispanic whites.

"Given the popularity of flavored tobacco products among youth, it's critical to address flavorings in all tobacco products," said Brian King, Ph.D., deputy director for research translation in CDC's Office on Smoking and Health. "Efforts to curb the availability and use of flavored tobacco products could help reduce overall rates of tobacco use among our nation's youth."

Sustained efforts to implement proven tobacco control programs and policies are necessary to prevent all forms of tobacco use, including use of flavored tobacco products, among U.S. youth. For example, several local jurisdictions, including New York City, Chicago, Providence (Rhode Island), and Santa Clara (California), have acted to limit or restrict sales of flavored tobacco products in these communities.

Additional strategies to reduce youth tobacco use include increasing the price of tobacco products, adopting comprehensive smoke-free laws, implementing national public education media campaigns, and raising the minimum age of purchase for all tobacco products to age 21.

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The New York Times

August 17, 2013

In All Flavors, Cigars Draw In Young Smokers

By SABRINA TAVERNISE

BALTIMORE — At Everest Greenish Grocery, a brightly lit store on a faded corner of this city, nothing is more popular than a chocolate-flavored little cigar. They are displayed just above the Hershey bars along with their colorful cigarillo cousins — white grape, strawberry, pineapple and Da Bomb Blueberry. And they were completely sold out by 9 one recent evening, snapped up by young people dropping by for a snack or stopping in during a night of bar hopping.

"Sorry, no more chocolate," the night clerk, Qudrad Bari, apologetically told a young woman holding a fruit drink.

In 2009, Congress passed a landmark law intended to eliminate an important gateway to smoking for young people by banning virtually all the flavors in cigarettes that advocates said tempted them. Health experts predicted that the change would lead to deep reductions in youth smoking. But the law was silent on flavors in cigars and a number of other tobacco products, instead giving the Food and Drug Administration broad discretion to decide whether to regulate them.

Four years later, the agency has yet to assert that authority. And a rainbow of cheap flavored cigars and cigarillos, including some that look like cigarettes, line the shelves of convenience stores and gas stations, often right next to the candy. F.D.A. officials say they intend to regulate cigars and other tobacco products, but they do not say how or when. Smoking opponents contend that the agency's delay is threatening recent progress in reducing smoking among young people.

Cigarette sales are down by a third over the past decade, according to federal data, but critics of the agency say the gains are being offset by the rise of cheaper alternatives like cigars, whose sales have doubled over the same period and whose flavored varieties are smoked overwhelmingly by young people. Loose tobacco and cigars expanded to 10 percent of all tobacco sold in the United States in 2011, up from just 3 percent in 2000, federal data show.

"The 20th century was the cigarette century, and we worked very hard to address that," said Gregory N. Connolly, the director of the Center for Global Tobacco Control at the Harvard School of Public Health. "Now the 21st century is about multiple tobacco products. They're cheap. They're flavored. And some of them you can use anywhere."

The F.D.A. is now wrestling with how to exercise its authority over an array of other tobacco products. In recent weeks, for example, it sent warning letters to several companies that it says are disguising roll-your-own tobacco as pipe tobacco, a practice that industry analysts say has become a common way to avoid federal taxes and F.D.A. regulation.

"The giant has finally awoken and hopefully will do its job," said Ron Bernstein, the chief executive of Liggett Vector Brands, a cigarette producer that is worried about unfair competition from cigar makers and others.

Mitchell Zeller, 55, a public interest lawyer who became the director of the F.D.A.'s Center for Tobacco Products this spring, acknowledged in an interview that the emergence of new tobacco products meant a new look was needed.

"What we've seen in the past 10 years is this remarkable transformation of the marketplace," Mr. Zeller said. "There are products being sold today — unregulated products — that literally did not exist 10 years ago."

But new rules have to be grounded in scientific evidence, he said, and written to withstand legal challenges. The tobacco industry won a recent court fight against graphic images on cigarette labels.

As for the criticism that the agency has been slow to act, Mr. Zeller said, "Message received."

But the F.D.A.'s careful approach exasperates smoking opponents.

"We shouldn't need 40 years of study to figure out that chocolate- and grape-flavored cigars are being smoked by young people," said Matthew L. Myers, the president of the Campaign for Tobacco-Free Kids. Traditional handmade cigars were seen as a luxury for older men, but much of the recent growth has been in products sold in convenience stores to low-income customers. Flavored cigars now represent more than half of all convenience store and gas station cigar sales, up nearly 40 percent since 2008, according to Nielsen market data analyzed by Cristine Delnevo, a tobacco researcher at Rutgers University.

A three-pack of Good Times flavored cigarillos at Everest costs 99 cents, an alluring price for the store's clientele: young, poor African-Americans.

On a recent evening, Mr. Bari, a native of Pakistan, was in a generous mood. He had just broken his Ramadan fast with sweet tea and was helping a customer with the last 30 cents needed for a pack of Newports. But he said flavored cigars were actually more popular in his store than cigarettes. Sometimes people pay for them with spare change.

Jay Jackson, a 19-year-old nursing assistant in hospital scrubs, rarely has the $6.50 for a pack of cigarettes, which she also smokes, but can usually come up with a dollar for the kind of cigar she likes. Flavors improve the taste of cigars that are otherwise so harsh they make her light headed, she said, paying Mr. Bari for two — chocolate and cherry.

Mr. Bari said he remembered only strawberry, vanilla and chocolate when he first arrived 10 years ago. "Now look at this," he said, motioning toward the cigar shelf disapprovingly. Some

companies are producing small filtered cigars that look like cigarettes in brown wrappers, avoiding the federal taxes and F.D.A. regulation required for cigarettes. Mr. Bernstein, the cigarette producer, contended that such cigars made up much of the recent increase in cigar sales. A typical pack of 20 costs about $2, compared with about $6 for a pack of cigarettes.

Tobacco in cigars is cured by a different method than tobacco in cigarettes. And cigars come in a wrapper made of tobacco, while cigarettes are wrapped in paper. Smaller cigars popular among young people tend to be inhaled more, making the health risks similar to cigarettes.

Nationally, about one in six 18- to 24-year-olds smoke cigars, federal research shows, compared with only 2 percent of people over 65. More than half of the younger users smoke flavored cigars, with the highest rates among the poorest and least educated.

Those are familiar circumstances in certain parts of Baltimore, where life expectancy for men can be as low as 63 years, a level last seen for all American men in the 1940s. The smoking rate here is double the national one — a pattern that Devin Miles, a high school junior who started smoking cigarettes when he was 10, said was obvious at his school.

"Everybody smokes, even the teachers," he said.

Cigar producers say they are bracing for F.D.A. action, even as sales have flattened in the last few years, dampened by new taxes. But they question a flavor ban, pointing out that the F.D.A. has yet to prohibit the most common flavor, menthol, in cigarettes and that chewing tobacco still comes in flavors.

"We continue to ask the question, 'What's the rationale?' " said Joe Augustus, a spokesman for Swisher International, a cigar producer. Flavors have existed "since the beginning of time," he said, and are popular with "the guys who are cutting your lawn and fixing your car."

There is also evidence that cigar purchases are related to marijuana use. In a survey of 5,000 middle and high school students in Massachusetts in 2003, researchers found that about a fifth were using cigar wrappers to smoke marijuana.

Mr. Bari, the night clerk, said many of his customers used the wrappers for marijuana. "It's the younger generation," he said. "Your sister's crying, your daughter's crying, you don't care."

One customer, Torri Stevens, a 19-year-old who said she worked at a strip club in Washington, said she sometimes smoked as many as 12 blunts a day, a name for marijuana in a cigar wrapper that is associated with Phillies Blunt, a cigar brand.

Black youths were the one group that registered a rise in cigar smoking nationally. Twelve percent of black high school students smoked cigars in 2011, compared with 7 percent in 2009, the C.D.C. said.

Maryland, where the legal age to buy cigarettes is 18, did its own survey and found that cigar smoking had increased across the entire high school population. It is now one of at least six states where cigar smoking among youths now equals or surpasses cigarette smoking, according to the C.D.C.

Alarmed officials started a public education campaign. A Web site, TheCigarTrap.com, shows an ice cream truck adorned with a giant lit cigar and children running after it.

On a recent night at Everest Greenish Grocery, Mr. Bari sold cigars to patrons of a nearby transvestite bar and people who were just leaving work.

Trayvon Henderson, 19, was still wearing his McDonald's uniform when he stopped in for a chocolate cigarillo. Cigars are stylish, he said, and some of his favorite rappers smoke them.

"If they take away the flavor, it would be a problem," he said, cigarillo in hand. "I'd probably stop smoking them. Or maybe I'd go back to cigarettes."

Jessica Kourkounis contributed reporting.

http://www.nytimes.com/2013/08/18/health/in-all-flavors-cigars-draw-in-young-smokers.html?emc=eta1&_r=0

Brief Report

Flavored Cigar Smoking Among U.S. Adults: Findings From the 2009–2010 National Adult Tobacco Survey

Brian A. King, Ph.D., M.P.H.,[1,2] *Shanta R. Dube, Ph.D., M.P.H.,*[1] *& Michael A. Tynan, B.A.*[1]

[1] *Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, GA*

[2] *Epidemic Intelligence Service, Division of Applied Sciences, Scientific Education and Professional Development Program Office, Centers for Disease Control and Prevention, Atlanta, GA*

Corresponding Author: Brian A. King, Ph.D., M.P.H., *Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 4770 Buford Highway, MS K-50, Atlanta, GA 30341, USA. Telephone: 770-488-5107; Fax: 770-488-5848; E-mail: baking@cdc.gov*

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Abstract

Introduction: Under its authority to regulate tobacco products, the U.S. Food and Drug Administration prohibited certain characterizing flavors in cigarettes in September 2009; however, flavored cigars are still permitted to be manufactured, distributed, and sold. This study assessed the prevalence and correlates of flavored cigar smoking among U.S. adults.

Methods: Data were obtained from the 2009–2010 National Adult Tobacco Survey, a national landline and cell phone survey of adults aged ≥18 years old residing in the 50 U.S. states and the District of Columbia. National and state estimates of flavored cigar use were calculated overall and among current cigar smokers; national estimates were calculated by sex, age, race/ethnicity, educational attainment, annual household income, U.S. Census Region, and sexual orientation.

Results: The national prevalence of flavored cigar smoking was 2.8% (95% confidence interval [*CI*] = 2.6%–3.1%; state range: 0.6%–5.7%) and was greater among those who were male, younger in age, non-Hispanic Other race, less educated, less wealthy, and lesbian, gay, bisexual, or transgendered (LGBT). Nationally, the prevalence of flavored cigar use among cigar smokers was 42.9% (95% *CI* = 40.1%–45.7%; state range: 11.1%–71.6%) and was greater among those who were female, younger in age, Hispanic, non-Hispanic Other race, less educated, less wealthy, and LGBT.

Conclusions: More than two fifths of current cigar smokers report using flavored cigars. Disparities in flavored cigar use also exist across states and subpopulations. Efforts to curb flavored cigar smoking have the potential to reduce the prevalence of overall cigar smoking among U.S. adults, particularly among subpopulations with the greatest burden.

Introduction

Cigars contain the same toxic and carcinogenic compounds found in cigarettes and are not a safe alternative to cigarettes (National Cancer Institute [NCI], 1998). Regular cigar smoking is associated with an increased risk for cancers of the lung, larynx, oral cavity, and esophagus (NCI, 1998). Moreover, regular cigar smokers who inhale, particularly those who smoke several cigars per day, are also at an increased risk of developing coronary heart disease and chronic obstructive pulmonary disease (NCI, 1998).

The prevalence of cigarette smoking has decreased substantially in the U.S. in recent decades (Centers for Disease Control and Prevention [CDC], 2007a, 2011b). However, cigar consumption increased nearly 50% between 1993 and 1997, reversing a decline that had persisted since advertisements for little cigars were prohibited from television and radio in 1973 (NCI, 1998). This increase has been attributed to a corresponding surge in promotional activities, which enhanced the visibility of cigar consumption and normalized cigar use (NCI, 1998). In 2010, an estimated 13.2 million people in the U.S., or 5.2% of those ≥12 years old, were current cigar smokers (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011).

In 2009, the Family Smoking Prevention and Tobacco Control Act was enacted, which gave the U.S. Food and Drug Administration (FDA, 2009) the authority to regulate tobacco products, including the ability to propose certain requirements and restrictions on manufacturing, marketing, and distribution (U.S. Government Printing Office [GPO], 2009). On September 22, 2009, the FDA prohibited certain characterizing flavors in cigarettes, excluding menthol (FDA, 2009). However, other flavored tobacco products, such as flavored cigars, cigarillos, and little cigars, can still be legally manufactured, distributed,

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and sold in the U.S. Flavors can mask the natural harshness and taste of tobacco, making these products easier to use and increasing their appeal among youth (Carpenter, Wayne, Pauly, Koh, & Connolly, 2005; Klein et al., 2008; Manning, Kelly, & Comello, 2009).

Although recent data on the prevalence and sale of cigars in the United States have been published (Maxwell, 2010; SAMHSA, 2011), the current prevalence of flavored cigar smoking and the characteristics of users are uncertain. To address this research need, we analyzed data from the 2009–2010 National Adult Tobacco Survey (NATS) to determine national and state-specific estimates of the prevalence and sociodemographic correlates of flavored cigar smoking among U.S. adults ≥18 years old.

Methods

Sample

The 2009–2010 NATS was a stratified, national telephone survey of non-institutionalized adults aged ≥18 years residing in the 50 U.S. states and the District of Columbia (CDC, 2011a). The sample was designed to yield data representative at both national and state levels. Each state was divided into separate strata by telephone type. For the landline component, each state was allocated an equal target sample size (n = 1,863). For the cell phone component, each state was allocated a sample size in proportion to its population (range: n = 255–24,100). Four states independently added to their samples (Louisiana, New Jersey, North Dakota, and Oklahoma).

Respondent selection varied by phone type. For landline numbers, one adult was randomly selected from each eligible household. For cell phone numbers, adults were selected if a cell 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 cell phone) between October 2009 and February 2010. The National Council of American Survey and Research Organizations (CASRO, 1997) response rate was 37.6% (landline: 40.4%; cell phone: 24.9%); the national cooperation rate was 62.3% (landline: 61.9%; cell phone: 68.7%). State-specific CASRO response rates ranged from 28.2% in New Jersey to 49.3% in Vermont (median: 37.9%); cooperation rates ranged from 52.9% in Louisiana to 72.4% in Vermont (median: 62.9%).

Measures

Flavored Cigar Smoking

Three questions were used to define current use of cigars and flavored cigars: (a) "Have you ever tried smoking cigars, cigarillos, or very small cigars that look like cigarettes in your entire life, even one or two puffs?" (b) "During the past 30 days, on how many days did you smoke cigars, cigarillos, or very small cigars that look like cigarettes?" (c) "Were any of the cigars, cigarillos, or very small cigars that look like cigarettes that you smoked in the past 30 days flavored to taste like candy, fruit, chocolate, or other sweets?" Current cigar smokers were defined as respondents who reported trying cigars, cigarillos, or very small cigars in their lifetime and reported using these products on at least 1 day within the past 30 days. Flavored cigar smokers were defined as respondents who reported trying cigars, cigarillos, or very small cigars in their lifetime, reported using these products on at least 1 day within the past 30 days, and also reported that the products they used in the past 30 days were flavored.

Respondent Characteristics

Assessed respondent characteristics included: sex (male or female), age in years (18–24, 25–44, 45–64, or ≥65), race/ethnicity (non-Hispanic White, non-Hispanic Black, non-Hispanic Asian, non-Hispanic Other, or Hispanic), education (0–12 years [no diploma], Graduate Equivalency Degree [GED], high school graduate, some college [no degree], associate degree, undergraduate degree, or graduate degree), annual household income (<$20,000, $20,000–$49,999, $50,000–$99,999, ≥$100,000, or unspecified), sexual orientation (heterosexual/straight, lesbian/gay/bisexual/transgender [LGBT], or unspecified), and U.S. Census region (Northeast, Midwest, South, or West). For race/ethnicity, "non-Hispanic Other" included respondents who were American Indian or Alaska Native, Native Hawaiian or Pacific Islander, multiracial, or some other race.

Analysis

Data were analyzed using SAS-Callable SUDAAN, version 10.0.0 (SAS Institute Inc., Research Triangle Park, NC) and weighted to adjust for the differential probability of selection and response. Final weights were also adjusted for undercoverage by sex, age, race/ethnicity, marital status, educational attainment, and telephone type. For states with a small number of cell phone respondents, the use of both landline and cell phone data resulted in a large unequal weighting effect. Therefore, national and state estimates were calculated using separate weights. For the national weight, both cell phone and landline respondents were included. For the state weight, cell phone respondents were only included for states with a cell phone sample of ≥200 (n = 12: California, Florida, Georgia, Illinois, Louisiana, New Jersey, New York, North Carolina, Ohio, Oklahoma, Pennsylvania, and Texas).

National estimates were calculated overall and by respondent characteristics. Due to limited sample size, only overall estimates were calculated at the state level. Differences between estimates were considered statistically significant if 95% confidence intervals did not overlap. Estimates with a relative standard error of ≥40% are not reported.

Results

Flavored Cigar Smoking Among All Respondents

The overall prevalence of flavored cigar smokers was 2.8% (Table 1). Prevalence was higher among males (4.1%) than females (1.7%). Prevalence decreased with increasing age and was highest among persons aged 18–24 years (9.1%). By race/ethnicity, prevalence ranged from 0.8% among non-Hispanic Asians to 7.5% among non-Hispanic Other races. Prevalence generally decreased with increasing education and was greatest among those with a GED (10.5%). By annual household income, prevalence ranged from 1.7% among those with $50,000–$99,999 to 5.3% among those with <$20,000. By sexual orientation, prevalence was higher among LGBT (8.2%)

Table 1. Current Use of Cigars and Flavored Cigars Among U.S. Adults Aged ≥18 Years, by Selected Characteristics, 2009–2010

	Among all respondents ($N = 118,215$)				Among current cigar smokers ($N = 4,326$)	
	Cigar smokers[a]		Flavored cigar smokers[b]		Flavored cigar smokers[b]	
Characteristics	%	95% *CI*	%	95% *CI*	%	95% *CI*
Sex						
Male	10.4	9.7–11.0	4.1	3.6–4.5	39.2	35.9–42.6
Female	3.1	2.8–3.4	1.7	1.4–1.9	60.8	57.4–64.1
Age (years)						
18–24	15.9	14.4–17.7	9.1	7.8–10.5	57.1	51.4–62.5
25–44	7.2	6.6–7.9	3.1	2.7–3.6	43.2	38.7–47.8
45–64	4.9	4.5–5.4	1.4	1.2–1.7	28.9	25.1–33.2
≥65	1.8	1.6–2.1	0.2	0.1–0.3	13.4	9.3–18.9
Race/Ethnicity						
White, non-Hispanic	6.1	5.7–6.4	2.3	2.1–2.5	37.9	34.9–40.9
Black, non-Hispanic	9.2	8.1–10.5	3.6	2.9–4.4	39.4	32.9–46.3
Asian, non-Hispanic	1.8	1.1–2.8	0.8	0.4–1.8	48.0	26.5–70.3
Other, non-Hispanic	12.0	9.7–14.8	7.5	5.5–10.1	62.4	51.8–71.9
Hispanic	6.8	5.5–8.4	4.2	3.2–5.5	61.7	51.2–71.2
Education						
0–8 years (no diploma)	6.2	4.2–9.0	2.5	1.4–4.6	40.9	24.0–60.3
9–12 years (no diploma)	10.0	8.5–11.7	5.3	4.2–6.6	52.8	44.5–60.9
GED	16.2	13.2–19.8	10.5	7.9–13.9	65.3	54.5–74.7
High school graduate	7.9	7.2–8.7	3.4	2.9–4.0	43.6	38.7–48.7
Some college (no degree)	6.1	5.4–6.8	2.7	2.2–3.2	43.9	37.9–50.2
Associate degree	5.5	4.9–6.3	2.3	1.9–2.9	41.7	35.2–48.5
Undergraduate degree	4.0	3.6–4.5	0.8	0.6–1.1	20.1	15.5–25.8
Graduate degree	3.3	2.8–3.8	0.5	0.4–0.8	16.4	11.5–22.7
Annual household income						
<$20,000	10.3	9.1–11.8	5.3	4.4–6.5	51.7	44.8–58.5
$20,000–$49,999	6.9	6.3–7.5	3.3	2.8–3.8	47.8	43.1–52.5
$50,000–$99,999	5.5	5.0–6.1	1.7	1.4–2.1	31.6	26.8–36.9
≥$100,000	6.0	5.2–6.8	1.8	1.3–2.5	29.7	22.6–38.0
Unspecified	5.0	4.2–6.0	2.8	2.2–3.6	56.9	47.2–66.0
Sexual orientation						
Heterosexual/Straight	6.5	6.2–6.9	2.7	2.5–3.0	41.8	38.9–44.7
LGBT	12.2	9.3–15.9	8.2	5.6–11.9	67.0	54.6–77.3
Unspecified	3.9	2.9–5.2	1.4	0.9–2.2	36.7	24.4–51.0
U.S. region						
Northeast	5.0	4.5–5.6	1.7	1.3–2.1	33.5	27.8–39.7
Midwest	6.7	6.0–7.4	3.1	2.6–3.6	46.2	40.9–51.5
South	7.6	7.0–8.2	3.2	2.8–3.6	42.1	37.9–46.5
West	6.4	5.6–7.3	3.0	2.4–3.7	47.0	40.1–54.1
Total	6.6	6.3–7.0	2.8	2.6–3.1	42.9	40.1–45.7

Note. All estimates were calculated among both landline and cell phone respondents. *CI* = confidence interval; GED = graduate equivalency degree; LGBT = lesbian, gay, bisexual, or transgender.

[a]Reported ever using "cigars, cigarillos, or very small cigars that look like cigarettes" in their lifetime, and at the time of survey, reported using "cigars, cigarillos, or very small cigars that look like cigarettes" on at least 1 day within the past 30 days.

[b]Reported ever using "cigars, cigarillos, or very small cigars that look like cigarettes" in their lifetime, and at the time of survey, reported using "cigars, cigarillos, or very small cigars that look like cigarettes" on at least 1 day within the past 30 days that were "flavored to taste like candy, fruit, chocolate, or other sweets."

than heterosexual/straight respondents (2.7%). By region, prevalence was lowest in the Northeast (1.7%). By state, prevalence ranged from 0.6% in New Hampshire to 5.7% in Mississippi (Table 2).

Flavored Cigar Smoking Among Cigar Smokers

Among all cigar smokers (6.6%), a total of 42.9% reported smoking flavored cigars (Table 1). Flavored cigar smoking among all cigar

Table 2. Current Use of Cigars and Flavored Cigars Among U.S. Adults Aged ≥18 Years, by State, 2009–2010

	Among all respondents				Among current cigar smokers	
	Cigar smokers[a]		Flavored cigar smokers[b]		Flavored cigar smokers[b]	
State	%	95% *CI*	%	95% *CI*	%	95% *CI*
Northeast						
Connecticut	6.0	4.2–8.6	2.5	1.2–4.9	40.7	23.4–60.7
Maine	6.4	4.6–8.9	2.4	1.2–4.5	37.1	21.4–56.0
Massachusetts	7.3	4.8–10.9	2.8	1.3–5.8	38.7	19.8–61.7
New Hampshire	5.7	4.2–7.7	0.6	0.3–1.3	11.1	5.1–22.4
New Jersey[c]	4.7	3.9–5.6	1.1	0.8–1.6	23.7	16.9–32.2
New York[c]	4.3	3.3–5.6	1.5	0.9–2.5	35.4	23.0–50.0
Pennsylvania[c]	4.7	3.7–6.0	1.6	1.0–2.5	33.5	22.8–46.3
Rhode Island	8.3	5.9–11.4	3.5	2.0–6.3	42.9	26.7–60.8
Vermont	4.6	3.2–6.6	2.4	1.4–4.0	51.4	33.1–69.2
Midwest						
Illinois[c]	6.5	5.0–8.4	3.6	2.4–5.3	55.3	42.2–67.6
Indiana	8.1	6.1–10.7	3.5	2.2–5.7	44.0	29.8–59.2
Iowa	3.0	2.0–4.3	1.1	0.5–2.3	37.7	20.7–58.5
Kansas	5.2	3.5–7.7	2.5	1.3–4.8	48.3	28.7–68.4
Michigan	7.8	5.8–10.5	4.1	2.6–6.6	54.7	38.8–69.6
Minnesota	3.5	2.1–5.9	2.1	0.9–4.7	59.0	35.1–79.3
Missouri	8.4	5.8–12.1	3.4	2.0–5.6	40.1	23.6–59.1
Nebraska	6.0	4.2–8.5	3.5	2.1–5.9	59.0	41.4–74.5
North Dakota	4.7	3.1–7.1	3.3	1.8–5.8	71.6	55.6–83.6
Ohio[c]	6.2	4.9–7.9	2.7	1.8–3.9	42.8	31.1–55.4
South Dakota	4.2	2.7–6.5	1.8	0.9–3.5	42.8	23.1–65.0
Wisconsin	4.2	2.9–6.0	2.1	1.1–3.8	49.7	31.7–67.7
South						
Alabama	6.5	4.8–8.8	2.3	1.3–4.0	35.0	21.3–51.8
Arkansas	6.7	5.1–8.6	3.0	1.9–4.6	44.8	31.7–58.6
Delaware	6.0	4.2–8.4	3.4	2.0–5.6	57.0	39.9–72.6
District of Columbia	6.5	3.3–12.6	[d]		48.8	18.3–80.3
Florida[c]	7.8	6.2–9.8	3.3	2.2–5.0	43.5	31.8–56.1
Georgia[c]	6.2	4.9–7.9	2.4	1.7–3.6	39.1	28.0–51.6
Kentucky	9.9	7.3–13.2	4.7	2.8–7.9	48.6	32.9–64.6
Louisiana[c]	9.0	7.5–10.6	4.2	3.2–5.6	47.6	38.3–57.0
Maryland	5.0	3.4–7.4	2.2	1.2–4.2	44.8	26.3–64.9
Mississippi	11.9	8.7–16.2	5.7	3.5–9.1	47.6	31.2–64.5
North Carolina[c]	7.9	6.1–10.2	3.5	2.3–5.4	44.5	31.5–58.2
Oklahoma[c]	7.9	6.8–9.3	3.2	2.4–4.1	40.0	32.0–48.5
South Carolina	4.9	3.8–6.4	2.0	1.3–3.1	40.9	28.1–55.0
Tennessee	6.5	4.6–9.2	2.8	1.7–4.5	43.6	27.1–61.7
Texas[c]	8.9	7.3–10.9	3.8	2.7–5.3	42.6	32.4–53.4
Virginia	6.8	5.1–9.1	2.5	1.5–4.3	37.0	23.3–53.1
West Virginia	5.9	4.1–8.3	3.0	1.9–4.9	52.6	34.3–70.2
West						
Alaska	6.0	4.2–8.5	2.0	1.1–3.4	33.4	19.2–51.3
Arizona	3.4	2.2–5.4	1.2	0.6–2.4	34.9	17.6–57.4
California[c]	6.3	5.0–7.8	2.8	2.0–4.0	44.9	33.7–56.7
Colorado	6.3	3.5–10.9	[d]		68.9	44.2–86.2
Hawaii	4.3	2.8–6.5	1.3	0.6–2.7	30.5	14.8–52.6
Idaho	4.8	3.0–7.5	2.6	1.3–5.1	55.9	32.7–76.8
Montana	6.5	4.2–10.1	[d]		[d]	
Nevada	6.0	4.1–8.7	3.0	1.5–5.8	49.7	30.8–68.7
New Mexico	5.7	3.7–8.6	3.9	2.2–6.8	69.0	49.4–83.5
Oregon	2.9	1.8–4.8	[d]		[d]	

Table 2. Continued

State	Among all respondents				Among current cigar smokers	
	Cigar smokers[a]		Flavored cigar smokers[b]		Flavored cigar smokers[b]	
	%	95% *CI*	%	95% *CI*	%	95% *CI*
Utah	1.8	1.0–3.1	0.9	0.4–1.7	48.2	23.2–74.0
Washington	6.4	4.2–9.7	1.8	1.0–3.3	28.3	14.7–47.4
Wyoming	5.7	4.0–7.9	2.5	1.4–4.6	44.3	27.7–62.4

Note. CI = confidence interval.

[a]Reported ever using "cigars, cigarillos, or very small cigars that look like cigarettes" in their lifetime, and at the time of survey, reported using "cigars, cigarillos, or very small cigars that look like cigarettes" on at least 1 day within the past 30 days.

[b]Reported ever using "cigars, cigarillos, or very small cigars that look like cigarettes" in their lifetime, and at the time of survey, reported using "cigars, cigarillos, or very small cigars that look like cigarettes" on at least 1 day within the past 30 days that were "flavored to taste like candy, fruit, chocolate, or other sweets."

[c]Estimate calculated among both landline and cell phone respondents. All other state estimates were calculated among landline respondents only.

[d]Data not shown because relative standard error ≥40%.

smokers was higher among females (60.8%) than males (39.2%) and decreased with increasing age and income. By race/ethnicity, prevalence ranged from 37.9% among non-Hispanic Whites to 62.4% among non-Hispanic persons of other races. Prevalence generally decreased with increasing education and was greatest among those with a GED (65.3%). By sexual orientation, prevalence was higher among LGBT (67.0%) than among heterosexual/straight respondents (41.8%). By region, prevalence was lowest in the Northeast (33.5%). By state, prevalence ranged from 11.1% in New Hampshire to 71.6% in North Dakota (Table 2).

Discussion

Data from the 2009–2010 NATS reveal that more than two fifths (42.9%) of U.S. adult current cigar smokers are using flavored cigars and that disparities in flavored cigar smoking exist across states and subpopulations. Accordingly, efforts to curb flavored cigar smoking have the potential to reduce cigar smoking among U.S. adults (NCI, 2011), particularly among subpopulations with the greatest overall prevalence of use, including persons who are male, younger in age, non-Hispanic Other races, less educated, less wealthy, and LGBT.

This study reveals that flavored cigar smoking comprises a substantial proportion of all cigar use among U.S. adults. This finding is consistent with recent increased trends in flavored tobacco use consumption (Federal Trade Commission [FTC], 1999; Maxwell, 2008). Although the FDA prohibited non-menthol flavorings in cigarettes in September 2009 (FDA, 2009), other flavored products, including cigars, remain available and have increased in popularity in recent years. During 1997–2007, little cigar sales increased 240% (Maxwell, 2008), with flavored brands comprising nearly four fifths of the market share (FTC, 1999).

Disparities observed across subpopulations in this study are consistent with other national surveys of flavored cigar smoking and any cigar smoking among U.S. adults (Regan, Dube, & Arrazola, 2012; SAMHSA, 2011). The causes for these disparities are complex and multifactorial. For example, variations by sex and race/ethnicity could be related to cultural factors or exposure to promotional activities (NCI, 1998), while the higher prevalence observed among LGBT respondents may be due to stresses of social stigma, peer pressure, or targeting by the tobacco industry (Ryan, Wortley, Easton, Pederson, & Greenwood, 2001). Variations by education level are likely related to differences in receptivity toward tobacco-related health messages and understanding of the health hazards of cigar use. Although cigars are not safe alternatives to cigarettes (NCI, 1998), studies suggest that many individuals are poorly informed about the risks of cigar smoking (Baker, Dye, Denniston, & Ainsworth, 2001; Nyman, Taylor, & Biener, 2002). It is possible that variations by income level are due to differences in access to cessation support (Siahpush, McNeill, Borland, & Fong, 2006; U.S. Public Health Service [PHS], 2008), or to the availability of cigars as a lower priced alternative to cigarettes (Campaign for Tobacco-Free Kids [CTFK], 2011; NCI, 1998). Variations were also observed by age, with younger adults showing the greatest prevalence. This finding is consistent with research suggesting that the tobacco industry has selectively marketed flavored tobacco products to young adults (Lewis & Wackowski, 2006; U.S. Department of Health and Human Services [DHHS], 2012).

Strengths of the study include a large and representative sample, the inclusion of cell phone respondents, and the ability to assess disparities across multiple subpopulations. However, at least five study limitations should be noted. First, tobacco use was self-reported and not validated by biochemical tests. Second, cell phone respondents were excluded from state-specific analyses for states with fewer than 200 cell phone respondents, which limits generalizability of the results to this subpopulation (Blumberg & Luke, 2010). Nonetheless, cell phone respondents were included in national estimates and state-specific estimates for the 12 states with sufficient sample size. Third, small sample sizes for some states resulted in estimates that could not be presented because they would have been imprecise. Fourth, the questionnaire did not distinguish between use of little cigars and traditional cigars. Little cigars are comparable to cigarettes with regard to shape, size, filters, and packaging, and the tobacco industry has marketed little cigars as

a lower cost alternative to cigarettes (Delnevo & Hrywna, 2007). Finally, the overall response rate was 37.6%, while state-specific rates were 28.2%–49.3%. These rates were comparable to those of other national and state surveys of adult tobacco use (CDC, 2011b). Nonetheless, lower response rates can increase the potential for bias (Delnevo & Bauer, 2009).

To our knowledge, this study is the first to assess the prevalence and correlates of flavored cigar use at both the national and state levels. In addition to clarifying the scope of flavored cigar smoking among U.S. adults, the findings also underscore the need for full implementation of evidence-based prevention strategies to reduce all forms of combustible tobacco use, particularly among subpopulations with the highest prevalence. Proven population-based prevention strategies—such as tobacco price increases, media campaigns, and smoke-free policies—in concert with full access to clinical cessation interventions, will decrease tobacco use and reduce the health burden and economic impact of tobacco-related diseases in the United States (CDC, 2007b).

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The authors have no competing interests to report.

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Tobacco Use Among Middle and High School Students — United States, 2011–2014

René A. Arrazola, MPH[1], Tushar Singh, MD, PhD[1,2], Catherine G. Corey, MSPH[3], Corinne G. Husten, MD[3], Linda J. Neff, PhD[1], Benjamin J. Apelberg, PhD[3], Rebecca E. Bunnell, PhD[1], Conrad J. Choiniere, PhD[3], Brian A. King, PhD[1], Shanna Cox, MSPH[1], Tim McAfee MD[1], Ralph S. Caraballo, PhD[1] (Author affiliations at end of text)

Tobacco use and addiction most often begin during youth and young adulthood (*1,2*). Youth use of tobacco in any form is unsafe (*1*). To determine the prevalence and trends of current (past 30-day) use of nine tobacco products (cigarettes, cigars, smokeless tobacco, e-cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and bidis) among U.S. middle (grades 6–8) and high school (grades 9–12) students, CDC and the Food and Drug Administration (FDA) analyzed data from the 2011–2014 National Youth Tobacco Surveys (NYTS). In 2014, e-cigarettes were the most commonly used tobacco product among middle (3.9%) and high (13.4%) school students. Between 2011 and 2014, statistically significant increases were observed among these students for current use of both e-cigarettes and hookahs ($p<0.05$), while decreases were observed for current use of more traditional products, such as cigarettes and cigars, resulting in no change in overall tobacco use. Consequently, 4.6 million middle and high school students continue to be exposed to harmful tobacco product constituents, including nicotine. Nicotine exposure during adolescence, a critical window for brain development, might have lasting adverse consequences for brain development (*1*), causes addiction (*3*), and might lead to sustained tobacco use. For this reason, comprehensive and sustained strategies are needed to prevent and reduce the use of all tobacco products among youths in the United States.

NYTS is a cross-sectional, school-based, self-administered, pencil-and-paper questionnaire administered to U.S. middle and high school students. Information is collected on tobacco control outcome indicators to monitor the impact of comprehensive tobacco control policies and strategies (*4*) and inform FDA's regulatory actions (*5*). A three-stage cluster sampling procedure was used to generate a nationally representative sample of U.S. students who attend public and private schools in grades 6–12. This report includes data from 4 years of NYTS (2011–2014), using an updated definition of current tobacco use that excludes kreteks (sometimes referred to as clove cigarettes).* Of 258 schools selected for the 2014 NYTS, 207 (80.2%) participated, with a sample of 22,007 (91.4%) among 24,084 eligible students; the overall response rate was 73.3%. Sample sizes and overall response rates for 2011, 2012, and 2013 were 18,866 (72.7%), 24,658 (73.6%), and 18,406 (67.8%), respectively. Participants were asked about current (past 30-day) use of cigarettes, cigars (defined as cigars, cigarillos, or little cigars), smokeless tobacco (defined as chewing tobacco, snuff, or dip), e-cigarettes,† hookahs,§ tobacco pipes (pipes),¶ snus, dissolvable tobacco (dissolvables), and bidis. Current use for each product was defined as using a product on ≥1 day during the past 30 days. Tobacco use was categorized as "any tobacco product use," defined as use of one or more tobacco products and "≥2 tobacco product use," defined as use of two or more tobacco products. Data were weighted to account for the complex survey design and adjusted for nonresponse; national prevalence estimates with 95% confidence intervals and population estimates rounded down to the nearest 10,000 were computed. Estimates for current use in 2014 are presented for any tobacco use, use of ≥2 tobacco products, and use of each tobacco product, by selected demographics for each school level (high and middle). Orthogonal polynomials were used with logistic regression analysis to examine trends from 2011 to 2014 in any tobacco use, use of ≥2 tobacco products, and use of each tobacco product by school level, controlling for grade, race/ethnicity, and sex and simultaneously assessing for linear and nonlinear trends.** A p-value <0.05 was considered statistically significant. SAS-Callable SUDAAN was used for analysis.

* Kreteks no longer are sold legally in the United States and therefore data on these products were not collected in the 2014 cycle of NYTS. Kreteks also were not included in the definition of tobacco in years (2011, 2012, and 2013) in which the data were collected in order to be enable researchers to assess trends across the study period.

† In 2014, current use of e-cigarettes was assessed by the question, "During the past 30 days, on how many days did you use e-cigarettes such as Blu, 21st Century Smoke, or NJOY?", and in 2011 to 2013, such use was assessed by the question, "In the past 30 days, which [tobacco products] have you used on at least 1 day?"

§ In 2014, current use of hookahs was assessed by the question, "In the past 30 days, which [tobacco products] have you used on at least one day?" and was the first response option available to be selected; whereas from 2011 to 2013, hookah was the fourth or fifth response option.

¶ In 2014, current use of tobacco pipes was assessed by the question, "In the past 30 days, which [tobacco products] have you used on at least 1 day?" and in 2011 to 2013, it was assessed by the question, "During the past 30 days, on how many days did you smoke tobacco in a pipe?"

** A test for linear trend is significant if an overall statistically significant decrease or increase occurs during the study period. Data also were assessed for the presence of nonlinear trends; a significant nonlinear trend indicates that the rate of change changed across the study period.

In 2014, a total of 24.6% of high school students reported current use of a tobacco product, including 12.7% who reported current use of ≥2 tobacco products. Among all high school students, e-cigarettes (13.4%) were the most common tobacco products used, followed by hookahs (9.4%), cigarettes (9.2%), cigars (8.2%), smokeless tobacco (5.5%), snus (1.9%), pipes (1.5%), bidis (0.9%), and dissolvables (0.6%) (Table). Among high school non-Hispanic whites, Hispanics,†† and persons of non-Hispanic other races, e-cigarettes were the most used product, whereas among non-Hispanic blacks, cigars were used most commonly. Current use of any tobacco and ≥2 tobacco products among middle school students was 7.7%

††Persons of Hispanic ethnicity can be of any race or combination of races.

TABLE. Estimated percentage of tobacco use in the preceding 30 days by product,* school level, sex, and race/ethnicity — National Youth Tobacco Survey, United States, 2014

	Sex				Race/Ethnicity										
	Female		Male		Non-Hispanic White		Non-Hispanic Black		Hispanic†		Non-Hispanic other race		Total		
Tobacco product	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	%	(95% CI)	Estimated no. of users§
High school students															
Electronic cigarettes	11.9	(9.7–14.5)	15.0	(12.4–18.2)	15.3	(12.4–18.8)	5.6	(3.7–8.5)	15.3	(11.8–19.5)	9.4	(6.8–12.9)	13.4	(11.2–16.1)	2,010,000
Hookah	9.8	(8.3–11.5)	8.9	(7.5–10.4)	9.4	(8.0–11.0)	5.6	(4.3–7.2)	13.0	(10.5–16.0)	6.0	(4.0–8.8)	9.4	(8.2–10.7)	1,380,000
Cigarettes	7.9	(6.8–9.1)	10.6	(9.0–12.4)	10.8	(9.3–12.5)	4.5	(3.6–5.8)	8.8	(7.2–10.7)	5.3	(3.5–7.8)	9.2	(8.1–10.4)	1,370,000
Cigars	5.5	(4.6–6.7)	10.8	(9.5–12.3)	8.3	(7.1–9.7)	8.8	(6.8–11.4)	8.0	(6.5–9.8)	2.6	(1.7–4.2)	8.2	(7.2–9.2)	1,200,000
Smokeless tobacco	1.2	(0.9–1.6)	9.9	(8.1–12.1)	7.8	(6.4–9.5)	1.1	(0.6–2.0)	3.1	(2.3–4.1)	—¶	—	5.5	(4.6–6.7)	830,000
Snus	0.8	(0.6–1.2)	3.0	(2.2–4.0)	2.4	(1.8–3.2)	0.6	(0.4–1.1)	1.5	(1.0–2.3)	—	—	1.9	(1.5–2.4)	280,000
Pipes	0.9	(0.7–1.3)	2.1	(1.6–2.9)	1.9	(1.4–2.5)	—	—	1.5	(1.0–2.2)	—	—	1.5	(1.2–2.0)	220,000
Bidis	0.6	(0.4–0.8)	1.2	(0.9–1.6)	0.8	(0.6–1.2)	—	—	1.1	(0.7–1.7)	—	—	0.9	(0.7–1.2)	130,000
Dissolvable tobacco	0.4	(0.2–0.6)	0.8	(0.5–1.1)	0.6	(0.4–0.9)	—	—	0.7	(0.4–1.2)	—	—	0.6	(0.5–0.8)	80,000
Any tobacco product use**	20.9	(18.8–23.2)	28.3	(25.6–31.1)	26.5	(23.9–29.4)	17.2	(14.8–20.0)	26.7	(23.0–30.7)	15.3	(11.5–20.1)	24.6	(22.6–26.7)	3,720,000
≥ 2 tobacco product use††	10.0	(8.6–11.6)	15.3	(13.4–17.4)	15.1	(13.3–17.1)	5.4	(4.0–7.3)	12.6	(10.5–15.1)	7.0	(4.7–10.1)	12.7	(11.2–14.3)	1,910,000
Middle school students															
Electronic cigarettes	3.3	(2.5–4.3)	4.5	(3.4–5.9)	3.1	(2.2–4.2)	3.8	(2.5–5.6)	6.2	(4.8–7.9)	—	—	3.9	(3.0–5.0)	450,000
Hookah	2.6	(1.9–3.5)	2.4	(1.9–3.0)	1.4	(1.1–1.9)	—	—	5.6	(4.4–7.1)	—	—	2.5	(2.0–3.0)	280,000
Cigarettes	2.0	(1.5–2.6)	3.0	(2.3–3.9)	2.2	(1.6–3.1)	1.7	(1.1–2.9)	3.7	(2.7–5.1)	—	—	2.5	(2.1–3.0)	290,000
Cigars	1.4	(1.0–2.1)	2.4	(1.7–3.5)	1.4	(0.9–2.4)	2.0	(1.3–2.9)	2.9	(2.2–3.8)	—	—	1.9	(1.5–2.5)	220,000
Smokeless tobacco	—	—	2.1	(1.4–3.1)	1.7	(1.1–2.6)	—	—	1.3	(0.9–2.0)	2.4	(1.4–4.1)	1.6	(1.2–2.2)	180,000
Snus	—	—	0.7	(0.4–1.2)	—	—	—	—	—	—	—	—	0.5	(0.3–0.8)	50,000
Pipes	—	—	0.6	(0.4–0.9)	0.5	(0.3–0.8)	—	—	0.9	(0.6–1.4)	—	—	0.6	(0.4–0.8)	60,000
Bidis	0.3	(0.2–0.5)	—	—	—	—	—	—	0.6	(0.4–0.9)	—	—	0.5	(0.3–0.9)	60,000
Dissolvable tobacco	—	—	0.4	(0.2–0.6)	—	—	—	—	—	—	—	—	0.3	(0.1–0.5)	30,000
Any tobacco product use	6.6	(5.4–8.1)	8.8	(7.6–10.1)	6.2	(5.1–7.4)	7.3	(5.6–9.3)	11.8	(9.9–14.1)	6.4	(4.1–9.9)	7.7	(6.7–8.9)	910,000
≥2 tobacco product use	2.4	(1.8–3.1)	3.8	(3.0–4.7)	2.5	(1.9–3.3)	2.0	(1.3–3.2)	5.0	(4.2–5.9)	—	—	3.1	(2.6–3.7)	360,000

Abbreviation: CI = confidence interval

* Preceding 30-day use of cigarettes was determined by asking, "During the past 30 days, on how many days did you smoke cigarettes?"; preceding 30-day use of cigars was determined by asking, "During the past 30 days, on how many days did you smoke cigars, cigarillos, or little cigars?"; preceding 30 day use of smokeless tobacco was determined by asking, "During the past 30 days, on how many days did you use chewing tobacco, snuff, or dip?"; preceding 30-day use of electronic cigarettes was determined by asking, "During the past 30 days, on how many days did you use electronic cigarettes or e-cigarettes such as Blu, 21st Century Smoke, or NJOY?"; preceding 30-day use of hookahs, pipe (not hookah), snus, dissolvable tobacco, and bidis was determined by asking, "In the past 30 days, which of the following products have you used on at least 1 day?"

† Persons of Hispanic ethnicity can be of any race or combination of races.

§ Estimated total number of users is rounded down to the nearest 10,000.

¶ Data are statistically unreliable because sample size was <50 or relative standard error was >0.3.

** Defined as preceding 30-day use of cigarettes, cigars, smokeless tobacco, electronic cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and/or bidis on ≥1 day in the past 30 days.

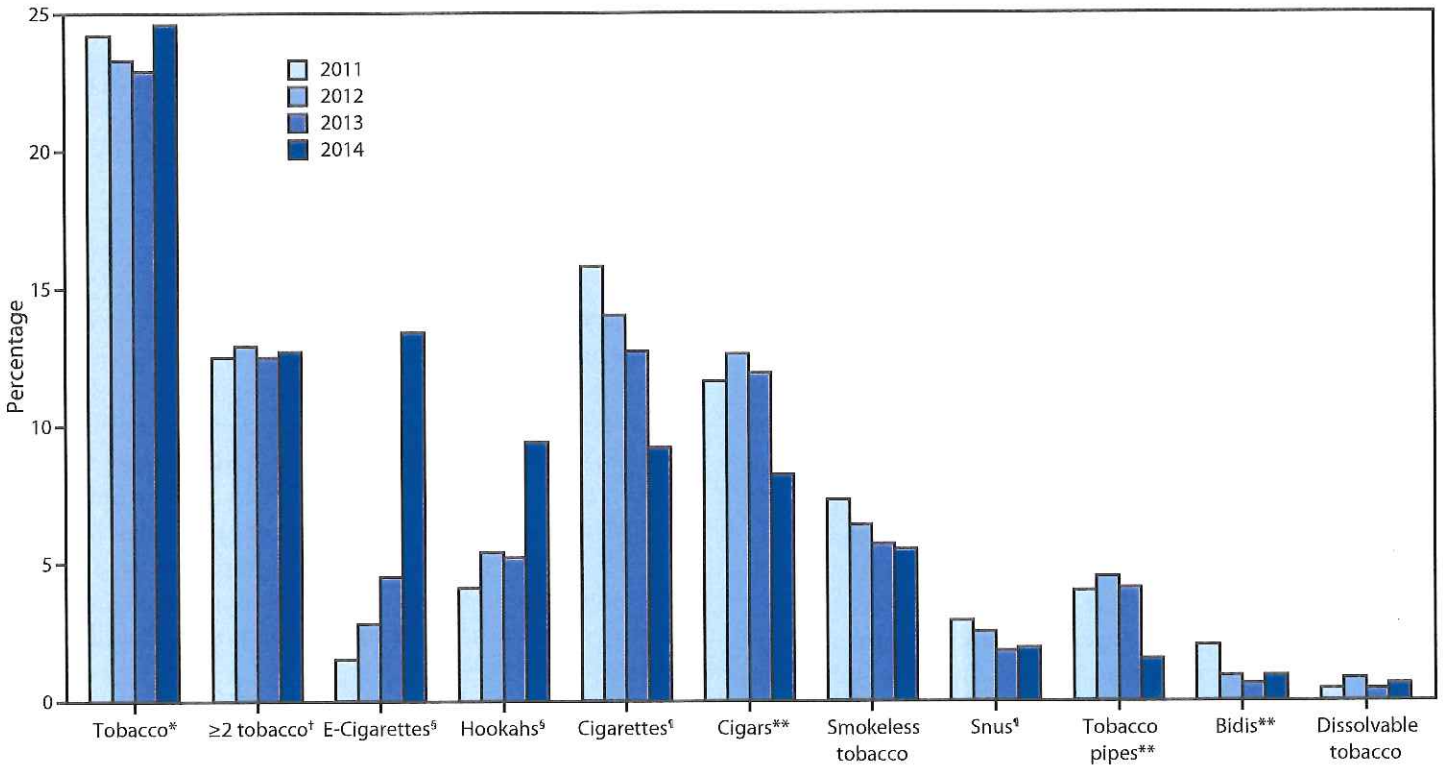
†† Defined as preceding 30-day use of two or more of cigarettes, cigars, smokeless tobacco, electronic cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and/or bidis on ≥1 day in the past 30 days.

and 3.1%, respectively. E-cigarettes (3.9%) were the tobacco product used most commonly by middle school students, followed by hookahs (2.5%), cigarettes (2.5%), cigars (1.9%), smokeless tobacco (1.6%), pipes (0.6%), bidis (0.5%), snus (0.5%), and dissolvables (0.3%).

From 2011 to 2014, statistically significant nonlinear increases were observed among high school students for current e-cigarette (1.5% to 13.4%) and hookah (4.1% to 9.4%) use (Figure 1). Statistically significant linear decreases were observed for current cigarette (15.8% to 9.2%) and snus (2.9% to 1.9%) use. Statistically significant nonlinear decreases were observed for current cigar (11.6% to 8.2%), pipe (4.0% to 1.5%), and bidi (2.0% to 0.9%) use. Current use of any tobacco product (24.2% to 24.6%) and use of ≥2 tobacco products (12.5% to 12.7%) did not change significantly from 2011 to 2014. Among middle school students, similar trends were observed during 2011–2014 (Figure 2). A statistically significant linear decrease was observed only in middle school students currently using ≥2 tobacco products (3.8% to 3.1%).

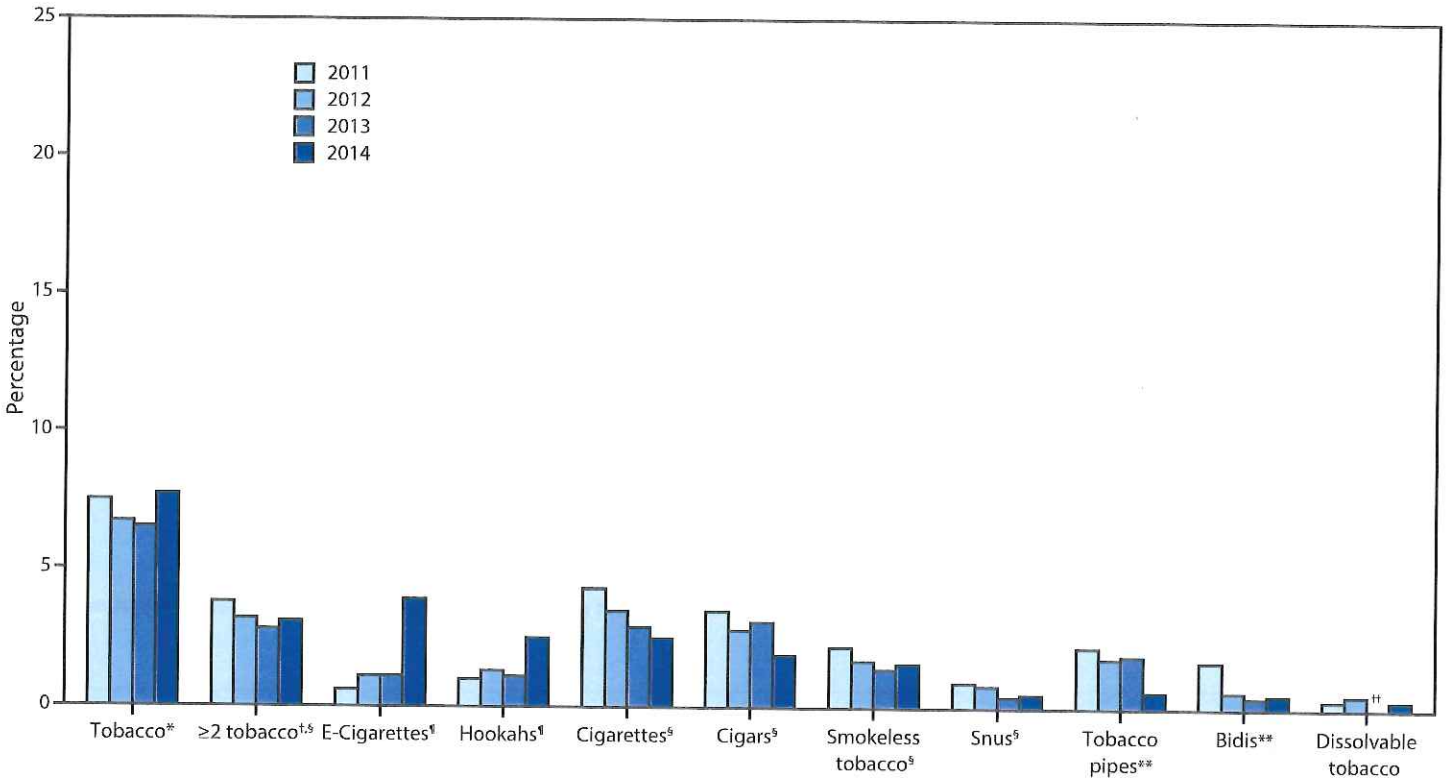
In 2014, an estimated 4.6 million middle and high school students currently used any tobacco product, of which an estimated 2.2 million students currently used ≥2 tobacco products. Of current tobacco users, 2.4 million used e-cigarettes and 1.6 million used hookahs. The largest increase in current e-cigarette use occurred from 2013 to 2014. Current e-cigarette use tripled from 2013 (660,000 [4.5%]) to 2014 (2 million [13.4%]) among high school students (Figure 1); and among middle school students, prevalence increased by a similar magnitude, from 1.1% (120,000) to 3.9% (450,000) (Figure 2). From 2013 to 2014, substantial increases also were observed for current hookah use, with prevalence almost doubling for high school students from 5.2% (770,000) to 9.4% (1.3 million) and for middle school students from 1.1% (120,000) to 2.5% (280,000) over this period.

FIGURE 1. Estimated percentage of high school students who used tobacco in the preceding 30 days, by tobacco product — National Youth Tobacco Survey, United States, 2011–2014



* Defined as preceding 30-day use of cigarettes, cigars, smokeless tobacco, e-cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and/or bidis.
† Defined as preceding 30-day use of two or more of cigarettes, cigars, smokeless tobacco, e-cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and/or bidis.
§ Linear decrease ($p<0.05$).
¶ Nonlinear increase ($p<0.05$).
** Nonlinear decrease ($p<0.05$).

FIGURE 2. Estimated percentage of middle school students who used tobacco in the preceding 30 days, by tobacco product — National Youth Tobacco Survey, United States, 2011–2014



* Defined as preceding 30-day use of cigarettes, cigars, smokeless tobacco, e-cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and/or bidis.
† Defined as preceding 30-day use of two or more of cigarettes, cigars, smokeless tobacco, e-cigarettes, hookahs, tobacco pipes, snus, dissolvable tobacco, and/or bidis.
§ Linear decrease ($p<0.05$).
¶ Nonlinear increase ($p<0.05$).
** Nonlinear decrease ($p<0.05$).
†† Data statistically unstable.

Discussion

From 2011 to 2014, substantial increases were observed in current e-cigarette and hookah use among middle and high school students, resulting in an overall estimated total of 2.4 million e-cigarette youth users and an estimated 1.6 million hookah youth users in 2014. Statistically significant decreases occurred in the use of cigarettes, cigars, tobacco pipes, bidis, and snus. The increases in current use of e-cigarettes and hookahs offset the decreases in current use of other tobacco products, resulting in no change in overall current tobacco use among middle and high school students. In 2014, one in four high school students and one in 13 middle school students used one or more tobacco products in the last 30 days. In 2014, for the first time in NYTS, current e-cigarette use surpassed current use of every other tobacco product, including cigarettes.

These findings are subject to at least three limitations. First, data were collected only from youths who attended either public or private schools and might not be generalizable to all middle and high school-aged youth. Second, current tobacco use was estimated by including students who reported using at least one of the nine tobacco products asked in the survey but might have had missing responses to any of the other eight tobacco products; missing responses were considered as nonuse, which might have resulted in underestimated results. Finally, changes between 2013 and 2014 in the wording and placement of questions about the use of e-cigarettes, hookahs, and tobacco pipes might have had an impact on reported use of these products. Despite these limitations, overall prevalence estimates are similar to the findings of other nationally representative youth surveys (*6,7*).

Tobacco prevention and control strategies, including increasing tobacco product prices, adopting comprehensive smoke-free laws, and implementation of national public education media campaigns, might have influenced the reduction of cigarette smoking in youths (*2*). However, the lack of decline in overall tobacco use from 2011 to 2014 is concerning and indicates that an estimated 4.6 million youths continue to be exposed to harmful constituents, including nicotine, present

What is already known on this topic?

Tobacco use and addiction most often begins during youth and young adulthood. Youth use of tobacco in any form is unsafe and might have lasting adverse consequences on their developing brains.

What is added by this report?

In 2014, an estimated 4.6 million youths, including 3.7 million high school and 900,000 middle school students, reported current use (use on one or more days in the past 30 days) of any tobacco product. From 2011 to 2014, statistically significant increases were observed in e-cigarette and hookah use among high school and middle school students, while statistically significant decreases were observed in the use of cigarettes, cigars, tobacco pipes, bidis, and snus. The increases in current use of e-cigarettes and hookahs offset the decreases in other tobacco products, resulting in no change in overall current tobacco use among youths.

What are the implications for public health practice?

In 2014, nearly one in four high school students and one in 13 middle school students reported current use of any tobacco product. Because the use of emerging tobacco products (e-cigarettes and hookahs) is on the rise among middle and high school students, it is critical that comprehensive tobacco control and prevention strategies for youths should address all tobacco products and not just cigarettes.

in tobacco products (Table). Youth use of tobacco in any form, whether it be combustible, noncombustible, or electronic, is unsafe (*1*); regardless of mode of delivery, nicotine exposure during adolescence, a critical time for brain development, might have lasting adverse consequences for brain development (*1*), causes addiction (*3*), and might lead to sustained use of tobacco products. Rapid changes in use of traditional and emerging tobacco products among youths underscore the importance of enhanced surveillance of all tobacco use.

Sustained efforts to implement proven tobacco control policies and strategies are necessary to prevent youth use of all tobacco products. In April 2014, FDA issued a proposed rule to deem all products made or derived from tobacco subject to FDA jurisdiction, and the agency is reviewing public comments on the proposed rule (*8*). Regulation of the manufacturing, distribution, and marketing of tobacco products coupled with full implementation of comprehensive tobacco control and prevention strategies at CDC-recommended funding levels could reduce youth tobacco use and initiation (*1,2,9*). Because use of emerging tobacco products (e-cigarettes and hookahs) is increasing among middle and high school students, it is critical that comprehensive tobacco control and prevention strategies for youths should address all tobacco products and not just cigarettes.

[1]Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, CDC; [2]Epidemic Intelligence Service, CDC; [3]Center for Tobacco Products, Food and Drug Administration (Corresponding contributor: René A. Arrazola, rarrazola@cdc.gov, 770-488-2414.)

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PREVENTING CHRONIC DISEASE
PUBLIC HEALTH RESEARCH, PRACTICE, AND POLICY

ORIGINAL RESEARCH

Cigar Use Misreporting Among Youth: Data from the 2009 Youth Tobacco Survey, Virginia

Aashir Nasim, PhD; Melissa D. Blank, PhD; Brittany M. Berry, MS; Thomas Eissenberg, PhD

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PEER REVIEWED

Abstract

Introduction
Researchers have suggested that adolescents' cigar use has increased beyond the rates being reported on tobacco use surveys. Differences in content knowledge and everyday colloquial expressions may be responsible for misreporting of cigar use. To determine whether cigar use is subject to systematic misreporting, we compared reports of general cigar use ("During the past 30 days, on how many days did you smoke cigars, little cigars, and cigarillos?") with reports of brand-specific use ("During the past 30 days, on how many days did you smoke Black & Milds?") among a statewide sample of adolescents in Virginia.

Methods
We examined data from 3,093 youth who completed the 2009 Virginia Youth Tobacco Survey to determine differences in the rate of misreported cigar use (ie, those who reported Black & Mild use but did not report cigar, little cigar, or cigarillo use) for youth with varying demographic profiles and conditions.

Results
More than one-half of Black & Mild users (57.3%) did not report general cigar use. Cigar use misreporting was most prevalent among older adolescents, blacks/African Americans, current users of cigarettes and hookah, and youth diagnosed with asthma.

Conclusion
General cigar-use items on statewide surveys significantly underestimate the prevalence of youth cigar use. More comprehensive measures of cigar use may be beneficial in assessing tobacco use among groups most likely to misreport their tobacco use, such as African Americans and youth diagnosed with asthma.

Introduction

After cigarettes, cigars are the most widely used tobacco product among adolescents aged 12 to 17, and national data show that 8.9% of adolescents currently use cigarettes, compared with 4% who report current cigar use (1). These rates of cigarette and cigar use are considerably lower than rates from 10 years ago. Since 2002, for example, tobacco use prevalence among youth has trended downward; cigarette and cigar use have decreased by 31% and 11%, respectively. Such appreciable declines in adolescent tobacco use are encouraging signs for public health and prevention.

Although tobacco use prevalence among US youth has declined (1-3), recent observations suggest that cigar use has increased during this same time period. Several reports describe an exponential increase in the sales of cigar products like little cigars and cigarillos (4-7). Moreover, recent tobacco industry marketing strategies to replace cigarettes with cigars (8,9), price inequities rendering cigars more affordable than cigarettes (10), and the absence of primary prevention programs that target cigar smoking (11), when taken together, suggest that critical issues exist in the surveillance of cigar use prevalence among youth populations.

One explanation for disparate cigar trend data is related to the measurement of cigar use behaviors. Tobacco

surveillance systems employ survey measures that contain face validity (content that gives the appearance of measuring a construct) but may lack sufficient content validity (content included in the measure that is actually representative of the construct). Tobacco surveys, in general, use a standard cigar item ("During the past 30 days, on how many days did you smoke a cigar, little cigar, or cigarillo?") that on the surface appears to measure comprehensive cigar use. Yet, this standard item does not adequately describe what a cigar is and also assumes knowledge of all types of cigars (eg, *cigarillo*). Researchers have explained that the tobacco lexicon of public health officials likely differs from that of adolescents (8), and such differences in content knowledge and everyday colloquial expressions may lead to misreporting of cigar use (12). For instance, Yerger et al found that African American youth were more likely to report having ever smoked a cigar after a focus group discussion that clarified what was meant by the word *cigar* (12).

Cigar use misreporting is defined here as a discrepancy in the reporting of general (ie, cigars, little cigars, and cigarillos) and brand-specific (ie, Black & Mild) cigar use. Cigar use misreporting differs from tobacco underreporting, whereby youth fail to report lifetime or current use of a tobacco product. Moreover, misreporting of cigar use is detected by comparing responses to content-similar items on surveys, whereas underreporting of tobacco use is generally revealed through corroborating self-report measures of recent tobacco use and biochemical verification analyses (eg, saliva cotinine).

Although many studies have described underreporting (13), only 1 systematic investigation has reported on possible misreporting related to cigar use (14). In that study, researchers collected tobacco use data in 2002 and 2004 from high school students in a Midwest US county. Cigar use was measured with an aggregate item in 2002, and in 2004, this item was modified to measure brand-specific use (ie, Black & Mild). Their findings show that the percentage of students reporting cigar use rose from 12.9% in 2002 to 20.7% in 2004, indicating that item modification led to greater detection of cigar use in the subsequent year. Although this study does not eliminate alternative explanations for increased cigar rates (eg, an actual increase in cigar use from 2002 to 2004), results that show a dramatic rise in cigar use when brand-specific responses are presented do support the hypothesis that cigar use is being misreported.

To address the idea that cigar use is subject to systematic misreporting, we examined cigar use responses from a statewide sample of adolescents in Virginia. We also sought to identify demographic characteristics of adolescents who are most likely to misreport cigar use.

Methods

A secondary data analysis was conducted by using responses from the 2009 Virginia Youth Tobacco Survey (YTS), an ongoing, statewide monitoring and surveillance survey of tobacco use conducted by the Virginia Tobacco Settlement Foundation (VTSF), Centers for Disease Control and Prevention (CDC), and the Survey and Evaluation Research Laboratory (SERL) at Virginia Commonwealth University (VCU). This study draws from a representative sample of middle and high school students who completed the YTS in 2009 (N = 3,928). A total of 48 middle schools and 50 high schools were randomly selected to participate. Of those, 34 middle schools (70%) and 36 high schools (72%) agreed to participate. A total of 2,368 students were eligible to participate in selected classrooms at middle schools, and 2,232 students were eligible in selected classrooms at high schools. Approximately 89% of those eligible in middle school classrooms (n = 2,101) and 82% of those eligible in high school classrooms (n = 1,827) returned useable surveys (total N = 3,928). A full description of the research design and the 2-stage sampling procedures has been published elsewhere (http://www.healthyyouthva.org/vtsf/data/youth-tobacco-survey.asp) (15-17).

Measures

Respondents reported current use of cigarettes, smokeless tobacco (SLT), and waterpipe (eg, hookah, shisha, nargile). In addition, respondents provided information on general and brand-specific cigar use: "During the past 30 days, on how many days did you smoke cigars, cigarillos, or little cigars?" and "During the past 30 days, on how many days did you smoke Black & Milds?" All tobacco use items were recoded as dichotomous variables indicating past 30-day use (0 = none/did not smoke in the past 30 days; 1 = smoked 1 or more days in the past 30 days). Two additional tobacco use variables were created by using cross-tab frequencies for general (0, 1) and brand-specific (0, 1) cigar use items. Adjusted cigar use was coded as follows: 1 = [general (1) and brand-specific (0)] or [general (0) and brand-specific (1)] and 0 = [general (0) and brand-specific (0)]. Misreported cigar use was coded as 1 = [general (0) and brand-specific (1)] and 0 = [all other frequency combinations].

Age (≤12 y Reference), sex (female Reference), race/ethnicity (non-Hispanic white Reference), discretionary income (<$1 Reference), and school type (middle school Reference) were examined. All items available on the 2009 YTS that describe the characteristics of those diagnosed with asthma were also included. Respondents reported if they had ever been diagnosed with asthma ("Has a doctor or nurse ever told you that you have asthma?"), incidence ("During the past 12 months, have you had an episode of asthma or an asthma attack?"), and severity ("During the past 12 months, about how many times did you visit an emergency room or urgent care center because of asthma?").

Data analysis

Weighted data from the 2009 YTS (most recent year) were analyzed for this study. The data were weighted by CDC to account for unequal chances of selection, differential nonresponse rates, and demographics to include race, sex, and grade. Of the 3,928 participants surveyed, 3,093 reported complete information for items pertinent this study. Multiple imputation was used to correct for bias due to participant nonresponses and to ensure that data most accurately reflect youth populations in Virginia. Tests for proportions between unadjusted and adjusted cigar use percentages were computed. Logistic regression analyses were computed with Stata version 11 (StataCorp LP, College Station, Texas) to determine the likelihood of cigar use misreporting by youth sample characteristics.

Results

The majority of the 2009 YTS sample was female (51.5%), white (57.3%), and between the ages of 13 and 16 (56.8%) (Table 1). Most respondents reported current use of cigarettes (9.2%) and Black & Milds (9.2%), followed by use of cigars (6.1%), waterpipes (4.9%), and smokeless tobacco (3.5%). Of the total sample, 23.7% reported being diagnosed with asthma, and 10.2% indicated having an asthma episode in the past year.

More than half of Black & Mild users (57.3%; n = 284) did not report current cigar use in 2009. This resulted in a significant increase in the rate of cigar use from 6.1% (unadjusted) to 11.4% (adjusted) in 2009 ($z = 7.28$, $P < .001$) (Figure). The results of the univariate analyses show that older adolescents were more likely than those aged 12 or younger to misreport cigar use (odds ratios [ORs] ranged from 2.13 to 3.28) (Table 2). Black/African American adolescents were more likely than white/European American youth to misreport use. Cigar use was also misreported for current users of cigarettes and waterpipes. Among subpopulations, misreported cigar use was highest among youth diagnosed with asthma (OR, 1.80; 95% CI, 1.19-2.73) and among those with the greatest asthma severity (OR, 2.13; 95% CI, 1.39-3.25) (data not shown).

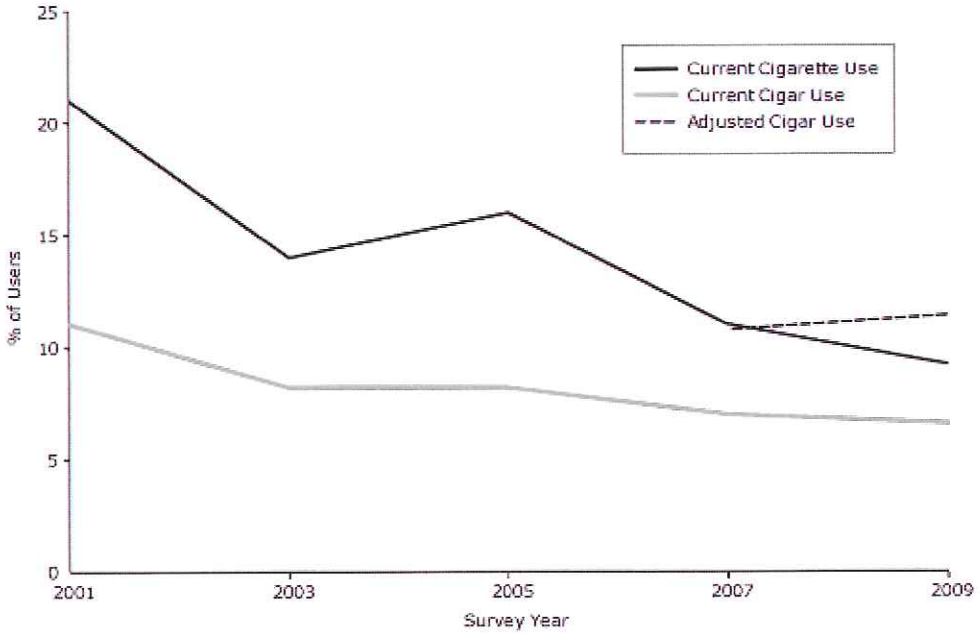

Figure. Trends in current cigarette, cigar, and adjusted cigar use among youth, Virginia, 2001-2009. An item assessing brand-specific cigar use was added to the Virginia Youth Tobacco Survey in 2007 and 2009. Adjusted cigar use is based on 2007 and 2009 data corrected for responses to brand-specific items versus general items. Tests for proportions were computed to determine differences between current and adjusted cigar use percentages. [A tabular version of this figure is also available.]

Discussion

On the basis of this study and another (14), youth cigar use misreporting yields biased estimates of tobacco use prevalence. Specifically, cigar prevalence rates may not be reliable due to the misreporting of information on currently available tobacco use surveillance systems. Given the manner in which cigar products are defined on these measures, cigar use may be inaccurately reported by some adolescent populations (12,14). Thus, we compared differences in the reporting of cigar products assessed via generic versus brand-specific questions.

Results showed that almost 60% of respondents who reported current use of Black & Milds (ie, cigarillo) did not report

current use of "cigars, cigarillos, or little cigars." Accordingly, the rate of cigar use among this sample nearly doubled when rates were adjusted for this subgroup of respondents. These results are similar to those of the only other available study on the misreporting of cigar use; prevalence rates increased by approximately 8% when a general item (ie, past 30-day use of a "cigar, little cigar, or cigarillo") was modified to provide brand information (ie, past 30-day use of a "cigar, little cigar, or cigarillo [such as Black & Milds]")(14). Notably, this study used a successive independent samples study design and, thus, comparisons were made across assessment points (2002 vs 2004) and populations (n = 2,035 vs 1,537). Results may be a product, therefore, of an actual increase in the prevalence of cigar use during this 2-year period. The results reported here, however, are based on data collected from a single sample using the same questionnaire.

Another goal was to identify demographic characteristics of adolescents that may predict the misreporting of cigar use. Results revealed that misreporting was 2 to 3 times more likely among older respondents (5.95-11.5%) than those aged 12 or younger (2.9%), as well as 2 to 3 times more likely among black/African American adolescents (10.9%) than white/European adolescents (3.9%). Terchek et al (14) reported no differences in cigar use misreporting as a function of age but higher rates for black respondents (10.3%) than for white respondents (6.8%). Considered collectively, these findings suggest developmental and cultural factors may play a role in the interpretation of cigar use items on tobacco use surveillance measures. Thus, the validity of some standard tobacco use items may be questionable on the basis of disparate response patterns across racial/ethnic groups.

This study also contributes to the growing literature on tobacco use among youth diagnosed with asthma. Previous studies show that youth diagnosed with asthma smoke cigarettes at 1.5 times the rate of otherwise healthy youth (18). In this study, 30.5% of youth diagnosed with asthma reported past 30-day cigar use (adjusted) compared with only 11.1% of the entire youth sample. Moreover, two-thirds (68.2%) of these youth smokers with asthma misreported cigar use; that is, most reported use of Black & Milds but not "cigars, little cigars, or cigarillos."

The finding that youth diagnosed with asthma are more likely than the general population to smoke cigars and to misreport cigar use raises questions. Little is known about how these youth reconcile their current medical diagnosis with engaging in behaviors that seem to exacerbate their condition (eg, smoking tobacco). Given perceptions among sampled youth that cigars are less harmful than cigarettes (19-21), future work might examine perceptions about the influence of cigar versus cigarette smoking on asthmatic symptoms among this population. For example, these youth may perceive that cigar products contain fewer toxic ingredients than cigarettes (22) or are harmful only when the cigar smoke is inhaled (23-24). The influence of peers is another consideration. Youth diagnosed with asthma may have increased vulnerability to peer pressure and substance use behaviors like smoking (25). Peers may help to shape youths' perceptions that Black & Mild use, for example, differs from cigarette and cigar use both in terms of content (ie, smoke toxicants) and smoking style or behavior (ie, the extent to which smoke is inhaled). Research on this acute medical subpopulation may benefit from exploratory studies that attempt to further elucidate perceptions of cigar use.

Our study has limitations. The generalizability of this study is limited to youth enrolled in middle and high schools in Virginia. Many tobacco surveillance systems have not incorporated brand-specific cigar use items or product descriptions in their surveys. Thus, we are unable to conclude whether cigar misreporting is a robust finding or simply a measurement artifact. In addition, the influence of logic errors recorded in surveys when youth report inconsistent tobacco use behaviors (eg, a no response to lifetime smoking and a yes response to past-30 day cigarette smoking) must be considered. Although we are unable to determine if our findings are subject to logic errors, by way of comparison, the percentage of logic errors reported in the 2009 YTS related to cigarette use was less than 1%.

This study is among the first to address the view that cigar use items on statewide surveys contain face validity but may lack sufficient content validity. Estimated tobacco use prevalence rates have a substantial influence on federal and state tobacco control policy, resource allocation and priority funding for tobacco research, and the dissemination of tobacco use prevention curricula and materials. Researchers should consider developing comprehensive assessment strategies to better detect and monitor cigar use in youth populations, especially among African Americans and youth diagnosed with asthma. In addition, health professionals should consider incorporating more detailed tobacco use screening items to ascertain accurate information.

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Author Information

Corresponding Author: Aashir Nasim, PhD, Virginia Commonwealth University, Department of Psychology, PO Box 842018, Richmond, VA 23284-2018. Telephone: 804-828-4904. E-mail: anasim@vcu.edu.

Author Affiliations: Melissa D. Blank, Brittany M. Berry, Thomas Eissenberg, Virginia Commonwealth University,

Department of Psychology, Richmond, Virginia.

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Tables

Table 1. Demographic Characteristics for the 2009 Youth Tobacco Survey (YTS) Sample, Virginia

Return

Sample Characteristics	N	
Total population	**3,093**	**Mean % (95% CI)**
Age, y		
≤12	920	29.7 (28.2-31.4)
13-14	996	32.2 (30.5-33.8)
15-16	761	24.6 (23.0-26.1)
≥17	416	13.5 (12.1-14.5)
Sex		
Male	1,501	48.5 (46.9-50.4)
Female	1,592	51.5 (49.5-53.1)
Race/ethnicity		
White/European American	1,772	57.3 (55.4-58.9)
Black/African American	739	23.9 (22.2-25.2)
Hispanic/Latino	193	6.2 (5.4-7.1)
Asian American	140	4.5 (3.7-5.2)
Multiple race/other	249	8.1 (7.2-9.1)
School level		
Middle school	1,564	50.5 (48.9-52.4)
High school	1,529	49.5 (47.5-51.0)
Discretionary income per wk, $		
<1	554	17.9 (16.6-19.3)
1-5	260	8.4 (7.4-9.4)
6-10	286	9.2 (8.3-10.3)
11-20	560	18.1 (16.6-19.3)
>20	1,433	46.3 (44.0-47.9)
Current tobacco use		
Cigarettes	286	9.2 (8.2-10.2)
Cigars	190	6.1 (5.2-7.1)

Black & Mild	284	9.2 (8.2-10.2)
Smokeless tobacco	110	3.5 (2.9-4.2)
Waterpipe	154	4.9 (4.0-6.0)
Other youth characteristics		
Diagnosed with asthma	735	23.7 (22.4-25.5)
Episode of asthma (past 12 mos)	314	10.2 (9.1-11.2)
Emergency department visits (past 12 mos)		
None	2,908	94.0 (93.2-94.9)
1-3	145	4.6 (3.9-5.4)
4-12	18	<1.0 (0-3.0)
>12 times	22	<1.0 (0-1.0)

Abbreviation: CI, confidence interval.

Table 2. Demographic Characteristics and Logistic Regression Results for Cigar Use Misreporting Among Youth, 2009 Youth Tobacco Survey, Virginia

Return

Sample Characteristics	Odds Ratio (95% CI)
Age, y	
≤12	1 [Reference]
13-14	2.13 (1.16-3.90)
15-16	3.06 (1.40-6.65)
≥17	3.28 (1.42-7.58)
Sex	
Male	1 [Reference]
Female	0.87 (0.60-1.27)
Race/ethnicity	
White/European American	1 [Reference]
Black/African American	3.24 (2.16-4.88)
Hispanic/Latino	0.69 (0.26-1.80)
Asian American	1.03 (0.36-2.90)
Multiple race/other	0.98 (0.42-2.28)
School level	
Middle school	1 [Reference]
High school	0.68 (0.38-1.20)
Weekly discretionary income per wk, $	
<1	1 [Reference]
1-5	0.32 (0.9-1.07)
6-10	0.97 (0.37-2.56)
11-20	1.73 (0.83-3.60)
>20	1.88 (0.95-3.70)
Current tobacco use	
No past 30-d use	1 [Reference]

Cigarettes	5.38 (0.38-1.20)
Smokeless tobacco	0.94 (0.36-2.41)
waterpipe	3.69 (1.99-6.83)
Other youth characteristics	
Not diagnosed with asthma	1 [Reference]
Diagnosed with asthma	1.80 (1.19-2.73)
Episode of asthma (past 12 mos)	1.68 (0.88-3.21)
Emergency department visits (past 12 mos)	2.13 (1.39-3.25)

Abbreviation: CI, confidence interval.

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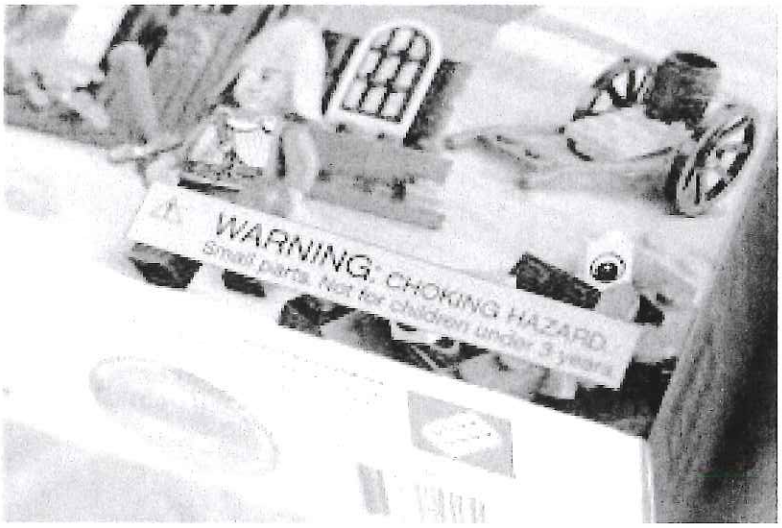
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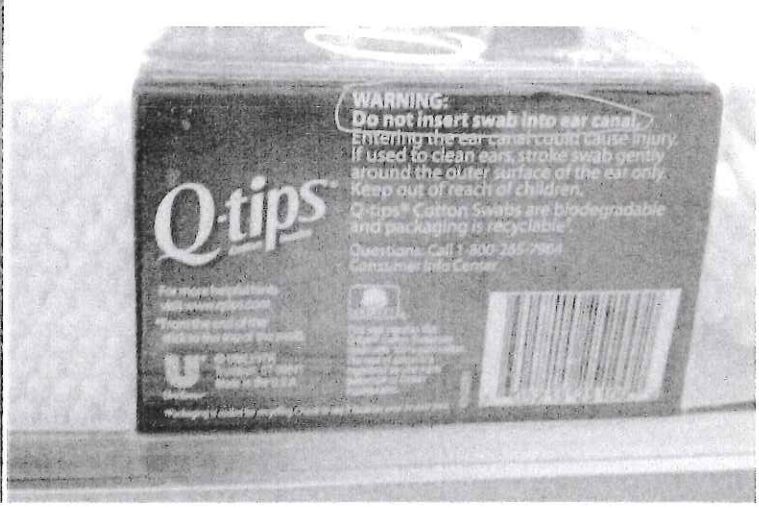
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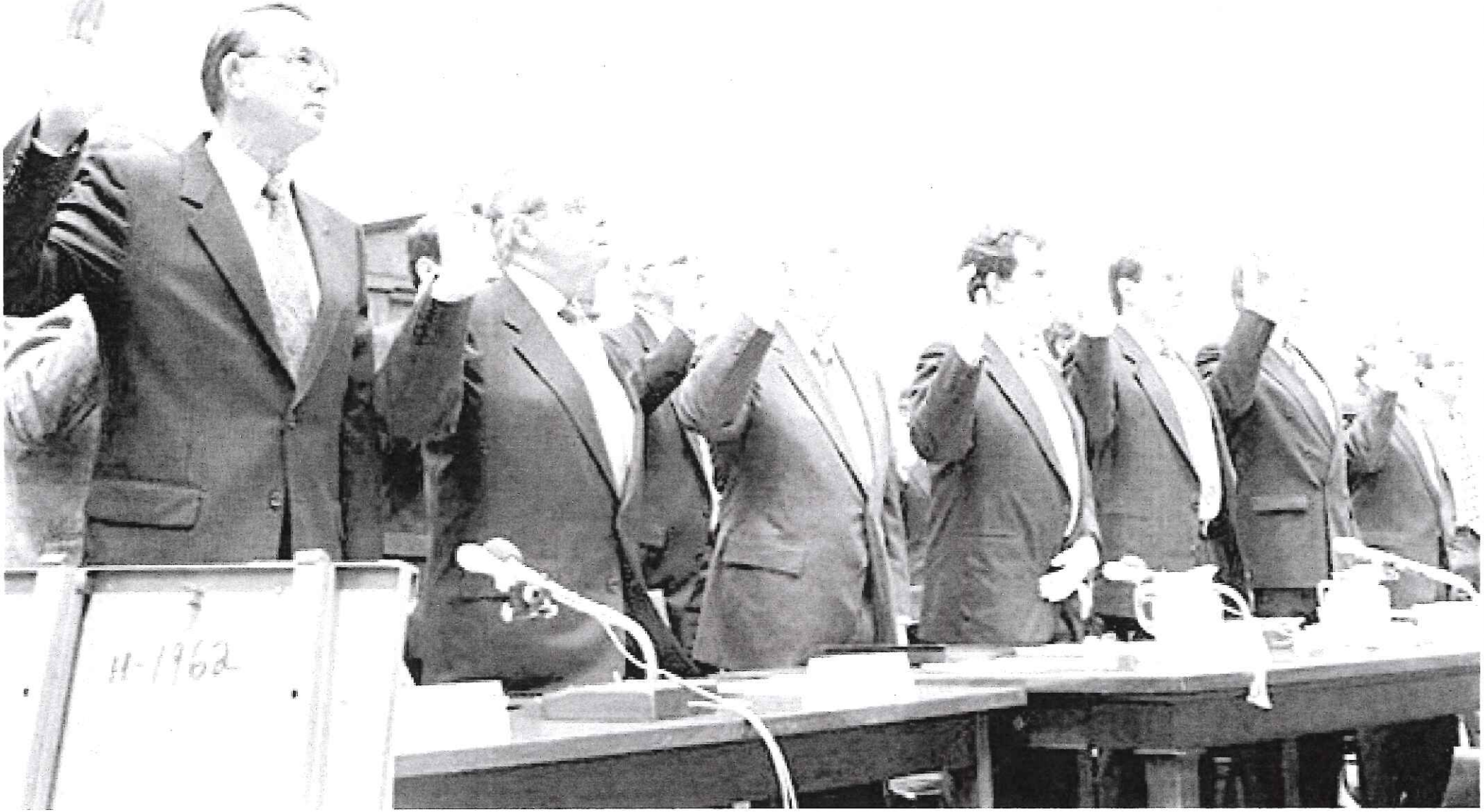
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CIGARS

Overview

- A cigar is defined as a roll of tobacco wrapped in leaf tobacco or in a substance that contains tobacco (as opposed to a cigarette, which is defined as a roll of tobacco wrapped in paper or in a substance that does not contain tobacco).[1,2]
- The three major types of cigars sold in the United States are large cigars, cigarillos, and little cigars.[1,2]
- Small or little cigars are about the same size as a cigarette and often include a filter.[3]
- Historically, cigar smoking in the United States has been a behavior of older men, but the industry's increased marketing of these products to targeted groups in the 1990s increased the prevalence of use among adolescents.[3]
- The use of flavorings in some cigar brands and the fact that they are commonly sold as a single stick has raised concerns that these products may be especially appealing to youth.[3,4,5]
- Cigar use is higher among youth who use other tobacco products or other drugs, such as alcohol, marijuana, and inhalants, than among youth who do not use these products.[3]
- In 2012, overall cigar industry sales were up 0.4% from 2011.[6]

Type	Description	Market Share (2012)*
*Percentage of U.S. market for cigar products[6]		
Large Cigar & Cigarillo Note: These two categories are now combined in the calculation of market share.	Cigar that typically contains at least one-half ounce of aged, fermented tobacco (i.e., as much as a pack of cigarettes) and usually takes 1 to 2 hours to smoke A short (3 to 4 inches) and narrow cigar that typically contains about 3 grams of tobacco and usually does not include a filter	94%
Little cigar	A small cigar that typically is about the same size as a cigarette and usually includes a filter	6%

Cigars contain the same toxic and carcinogenic compounds found in cigarettes and are not a safe alternative to cigarettes.[1,4]

Health Effects

- Regular cigar smoking is associated with an increased risk for cancers of the lung, esophagus, larynx (voice box), and/or oral cavity (lip, tongue, mouth, throat).[1,2]
- Cigar smoking is linked to gum disease and tooth loss.[2]
- Heavy cigar smokers and those who inhale deeply may be at increased risk of developing coronary heart disease.[1,2]
- Heavy cigar smoking increases the risk for lung diseases, such as emphysema and chronic bronchitis.[1,2]

Current Cigar Use

Adults*

Percentage of U.S. adults who were current cigar users† in 2012:[7]

- 5.4% of all adults in the United States
- 9.1% of adult males in the United States
- 2.0% of adult females in the United States
- 7.6% of African American adults
- 7.9% of American Indian/Alaska Native adults
- 1.7% of Asian American adults
- 4.2% of Hispanic adults
- 5.5% of White adults

High School Students

Percentage of U.S. high school students who were current cigar users† in 2012:[8]

- 12.6% of all students in grades 9–12
- 8,4% of female students in grades 9–12
- 16.7% of male students in grades 9–12
- Cigar use among high school males (16.7%) is approximately double that of high school females (8.4%) and similar to cigarette use among high school males (16.3%).[8]
- During 2011–2012, cigar use increased significantly among non-Hispanic Black high school students to 16.7%; there were no significant changes for non-Hispanic White, Hispanic, and other racial/ethnic groups.[8]

Middle School Students

Percentage of U.S. middle school students who were current cigar users† in 2012:[8]

- 2.8% of all U.S. students in grades 6–8
- 2.4% of female students in grades 6–8

- 3.2% of male students in grades 6–8
- During 2011–2012, there were no significant changes in cigar use among male or female middle school students or for any racial/ethnic group.[8]

Overall

- In 2012, an estimated 13.4 million people (or 5.2% of people 12 years of age or older) in the United States were current cigar users.[7]

NOTES:
*Adults are defined as persons 18 years of age or older.
†Current cigar use is defined as smoking cigars on 1 or more of the 30 days preceding the survey.

Marketing Information

In 2012, cigar sales in the United States by major cigar manufacturers showed:[6]

- Altadis USA (products include Dutch Masters and Backwoods brands) with 10% of the U.S. market share for large cigars and cigarillos and 19.7% of the U.S. market share for little cigars
- Cheyenne International with 15.4% of the U.S. market share for large cigars and cigarillos
- Lane Limited (products include Winchester and Captain Black) with 5.3% of the U.S. market share for little cigars
- Middleton (products include Black & Mild brand) with 10% of the U.S. market share for large cigars and cigarillos
- Prime Time International with 3.1% of the U.S. market share for large cigars and cigarillos and 19.7% of the U.S. market share for little cigars
- Swedish Match (products include White Owl and Garcia y Vega) with 7.8% of the U.S. market share for large cigars and cigarillos
- Swisher International (products include Swisher Sweets and Swisher Little brands) with 16.8% of the U.S. market share for large cigars and cigarillos and 52.5% of the U.S. market share for little cigars

Marketing efforts promote cigars as symbols of a luxuriant and successful lifestyle. The following marketing strategies all contribute to the increased visibility of cigar smoking in society:[1,3]

- Endorsements by celebrities
- Development of cigar friendly magazines (e.g., *Cigar Aficionado*)
- Images of highly visible women smoking cigars
- Product placement in movies

In 2001, the Federal Trade Commission mandated that cigar packaging and advertisements must display one of the following five "SURGEON GENERAL WARNING" text-only labels on a rotating basis:[9]

- Cigar Smoking Can Cause Cancers Of The Mouth And Throat, Even If You Do Not Inhale.
- Cigar Smoking Can Cause Lung Cancer And Heart Disease.
- Tobacco Use Increases The Risk Of Infertility, Stillbirth, And Low Birth Weight.
- Cigars Are Not A Safe Alternative To Cigarettes.
- Tobacco Smoke Increases The Risk Of Lung Cancer And Heart Disease, Even In Nonsmokers.

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For Further Information

Media Inquiries: Contact CDC's Office on Smoking and Health press line at 770-488-5493.
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Cigar Smoking and Cancer

Reviewed: 10/27/2010

Key Points

- Cigar smoke, like cigarette smoke, contains toxic and cancer-causing chemicals that are harmful to both smokers and nonsmokers.
- There is no safe tobacco product, and there is no safe level of exposure to tobacco smoke.
- The more you smoke, the greater your risk of disease.
- Cigar smoking causes oral cavity cancers (cancers of the lip, tongue, mouth, and throat) and cancers of the larynx (voice box), esophagus, and lung.
- All cigar and cigarette smokers, whether or not they inhale, directly expose their lips, mouth, tongue, throat, and larynx to tobacco smoke and its toxic and cancer-causing chemicals.

1. How are cigars different from cigarettes?

Cigarettes usually differ from cigars in size and in the type of tobacco used (1–3). Moreover, in contrast with cigarette smoke, cigar smoke is often not inhaled.

The main features of these tobacco products are:

- **Cigarettes**: Cigarettes are uniform in size and contain less than 1 gram of tobacco each. U.S. cigarettes are made from different blends of tobaccos, which are never fermented, and they are wrapped with paper. Most U.S. cigarettes take less than 10 minutes to smoke.
- **Cigars**: Most cigars are composed primarily of a single type of tobacco (air-cured and fermented), and they have a tobacco wrapper. They can vary in size and shape and contain between 1 gram and 20 grams of tobacco. Three cigar sizes are sold in the United States:
  - **Large cigars** can measure more than 7 inches in length, and they typically contain between 5 and 20 grams of tobacco. Some premium cigars contain the tobacco equivalent of an entire pack of cigarettes. Large cigars can take between 1 and 2 hours to smoke.
  - **Cigarillos** are a type of smaller cigar. They are a little bigger than little cigars and cigarettes and contain about 3 grams of tobacco.
  - **Little cigars** are the same size and shape as cigarettes, are often packaged like cigarettes (20 little cigars in a package), and contain about 1 gram of tobacco. Also, unlike large cigars, some little cigars have a filter,

which makes it seem they are designed to be smoked like cigarettes (that is, for the smoke to be inhaled).

2. **Are there harmful chemicals in cigar smoke?**

Yes. Cigar smoke, like cigarette smoke, contains toxic and cancer-causing chemicals that are harmful to both smokers and nonsmokers. Cigar smoke is possibly more toxic than cigarette smoke (3). Cigar smoke has:

- **A higher level of cancer-causing substances**: During the fermentation process for cigar tobacco, high concentrations of cancer-causing nitrosamines are produced. These compounds are released when a cigar is smoked. Nitrosamines are found at higher levels in cigar smoke than in cigarette smoke.
- **More tar**: For every gram of tobacco smoked, there is more cancer-causing tar in cigars than in cigarettes.
- **A higher level of toxins**: Cigar wrappers are less porous than cigarette wrappers. The nonporous cigar wrapper makes the burning of cigar tobacco less complete than the burning of cigarette tobacco. As a result, cigar smoke has higher concentrations of toxins than cigarette smoke.

Furthermore, the larger size of most cigars (more tobacco) and longer smoking time result in higher exposure to many toxic substances (including carbon monoxide, hydrocarbons, ammonia, cadmium, and other substances).

Cigar smoke can be a major source of indoor air pollution (1). There is no safe level of exposure to tobacco smoke. If you want to reduce the health risk to yourself and others, stop smoking.

3. **Do cigars cause cancer and other diseases?**

Yes. Cigar smoking causes cancer of the oral cavity, larynx, esophagus, and lung. It may also cause cancer of the pancreas. Moreover, daily cigar smokers, particularly those who inhale, are at increased risk for developing heart disease and other types of lung disease. Regular cigar smokers and cigarette smokers have similar levels of risk for oral cavity and esophageal cancers. The more you smoke, the greater the risk of disease (3).

4. **What if I don't inhale the cigar smoke?**

Unlike nearly all cigarette smokers, most cigar smokers do not inhale. Although cigar smokers have lower rates of lung cancer, coronary heart disease, and lung disease than cigarette smokers, they have higher rates of these diseases than those who do not smoke cigars.

All cigar and cigarette smokers, whether or not they inhale, directly expose their lips, mouth, tongue, throat, and larynx to smoke and its toxic and cancer-causing chemicals. In addition, when saliva containing the chemicals in tobacco smoke is swallowed, the esophagus is exposed to carcinogens. These exposures probably account for the similar oral and esophageal cancer risks seen among cigar smokers and cigarette smokers (3).

5. Are cigars addictive?

Yes. Even if the smoke is not inhaled, high levels of nicotine (the chemical that causes addiction) can still be absorbed into the body. A cigar smoker can get nicotine by two routes: by inhalation into the lungs and by absorption through the lining of the mouth. Either way, the smoker becomes addicted to the nicotine that gets into the body.

A single cigar can potentially provide as much nicotine as a pack of cigarettes (1).

6. Are cigars less hazardous than cigarettes?

Because all tobacco products are harmful and cause cancer, the use of these products is strongly discouraged. There is no safe level of tobacco use. People who use any type of tobacco product should be encouraged to quit. For help with quitting, see the National Cancer Institute (NCI) fact sheet *Where To Get Help When You Decide To Quit Smoking* at http://www.cancer.gov/cancertopics/factsheet/tobacco/help-quitting on the Internet.

7. Do nicotine replacement products help cigar smokers to quit?

Nicotine replacement products, or nicotine replacement therapy (NRT), deliver measured doses of nicotine into the body, which helps to relieve the cravings and withdrawal symptoms often felt by people trying to quit smoking. Strong and consistent evidence shows that NRT can help people quit smoking cigarettes (4). Limited research has been completed to determine the usefulness of NRT for people who smoke cigars. For help with quitting cigar smoking, ask your doctor or pharmacist about NRT, as well as about individual or group counseling, telephone quitlines, or other methods.

8. How can I get help quitting smoking?

NCI and other agencies and organizations can help smokers quit:

- Go online to **Smokefree.gov** (http://www.smokefree.gov), a Web site created by NCI's Tobacco Control Research Branch, and use the Step-by-Step Quit Guide.
- Call **NCI's Smoking Quitline** at **1–877–448–7848 (1–877–44U–QUIT)** for individualized counseling, printed information, and referrals to other sources.

- Refer to the NCI fact sheet *Where To Get Help When You Decide To Quit Smoking* at http://www.cancer.gov/cancertopics/factsheet/tobacco/help-quitting on the Internet.

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