

Original investigation

Trends in Use of Little Cigars or Cigarillos and Cigarettes among U.S. Smokers, 2002–2011

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Abstract

Objectives: Little cigars and cigarillos may resemble cigarettes, but may be less expensive and can be purchased singly and in flavored varieties. We used two major U.S. surveys to investigate use of cigarillos and cigarettes.

Methods: The 2010/2011 Tobacco Use Supplement to the Current Population Survey ascertained cigar use by brand and type (little cigars/cigarillos or large/regular). The annual National Survey on Drug Use and Health (NSDUH) assessed cigar use by brand, 2002–2011. We used the available data to classify cigars by type among males in the NSDUH.

Results: Estimated prevalence of little cigar use among male cigar smokers was similar using the two surveys. From 2002 to 2011, past-30-day cigarette smoking declined for all age groups and genders, but among young adult men (aged 18–25) little cigar smoking remained steady at nearly 9%. “Cigarette and/or cigar” smoking was 44% among young adult men in 2011, and was consistently 6 percentage points higher than cigarette-only smoking, from 2002 to 2011. Over 60% of male and 70% of female adolescent/young adult cigar smokers also smoked cigarettes in 2011. Most male adolescents preferred little cigars to traditional cigars. Among males, most lower income or less educated cigar smokers preferred little cigars, compared to only 16% of those with higher education.

Conclusions: These patterns indicate that little cigar/cigarillo use may promote initiation and maintenance of cigarette smoking, particularly among younger and less advantaged populations. Population-level data are urgently needed to better assess type of cigar smoked and reasons for use.

Introduction

Cigars are the second most frequently used tobacco product in the United States and concurrent use of cigars and cigarettes is common.^{1–7} Cigars are regulated and taxed separately from cigarettes,

and in contrast to cigarettes may be flavored and sold singly.^{8,9} Machine-made little cigars may cost as little as 7 cents per stick.^{10,11} There is concern that little cigars and cigarillos may be used by established cigarette smokers as a less expensive substitute for cigarettes, and that the lower price and flavorings may be attractive to

adolescents who are at risk of starting to smoke.^{6,10,12-15} Thus, there is a concern that little cigars and cigarillos may play a role in both smoking initiation and maintenance.

The U.S. Department of Agriculture (USDA) recognizes three types of cigars defined by weight: little cigars, cigarillos, and large cigars.¹⁶ Both the cigar industry and consumers appear to draw a distinction between little cigars/cigarillos, which are generally inexpensive, machine-made and similar in size to a cigarette, and large cigars, which include premium handmade cigars.¹⁶⁻¹⁸ In 2009, out of concern for possible substitution of inexpensive small cigars for the more highly taxed cigarettes, Congress mandated an increase in the federal excise tax for little cigars as defined by weight. While this caused a large shift in manufacture and sales from little cigars to cigarillos and large cigars (as defined by USDA), for many brands there was a small amount of weight added but little discernible change in product, packaging, or marketing materials.¹⁰ According to industry sources, after several years of growth, little cigars and cigarillos accounted for 67.7% of U.S. cigar sales in 2004,¹⁷ and by 2008 appeared to account for approximately 75% of units sold.¹⁶

Consumers have not always clearly perceived a distinction between cigarettes and little cigars or cigarillos.⁹ The regulatory definition of a cigar was originally laid out in the Federal Cigarette Labeling and Advertising Act of 1965 as any roll of tobacco wrapped in leaf tobacco or in reconstituted tobacco, and this definition was adopted by both the Internal Revenue Code in 1969 and the Family Smoking Prevention and Tobacco Control Act of 2009.¹⁹⁻²¹ A cigarette, by contrast, is defined as rolled in “paper or in any substance not containing tobacco.”²¹ In response to industry initiatives which positioned little cigars as cigarette substitutes, the tax code was modified in 1973 to specify that a cigar product must in addition be clearly marketed as a cigar.⁹ The wrapper must maintain its tobacco color and character, and cigars that are similar in size and shape to cigarettes, which have a cigarette-style filter or are sold in cigarette-style packs of 20, must not use cigarette-style flue cured tobacco. From 1974 on, “cigarette-like” cigars have been required to be prominently labeled as either “small cigars” or “little cigars” each time the brand name appears, using a similar font and background color as for the brand name.²¹

Reflecting these several definitions, the terminology surrounding cigar types is not standardized. The tax code requirements for branding as “small” or “little” cigars are distinct from the definitions which distinguish “large” and “small” cigars by weight in the tax code, and these latter group USDA-defined cigarillos with large cigars. “Little” cigars are distinguished in the Family Smoking Prevention and Tobacco Control Act. Adding to this complexity, cigars are manufactured in a large variety of shapes and sizes and there do not appear to be industry standard definitions of cigar types.²² Consumers may more reliably identify brand than type of cigar.¹⁸

The major national surveys of tobacco use behavior have long assessed cigar smoking, but have seldom captured data on type of cigar used. Only the National Survey on Drug Use and Health (NSDUH) has regularly captured brand of cigar, and it includes sufficient detail to capture the modifiers “little” or “cigarillo” in the brand name. The first major survey to assess cigar use by type of cigar appears to be the 2010/2011 Tobacco Use Supplement to the Current Population Survey (TUS-CPS), which asked respondents the type of cigar most often used, distinguishing “regular/large cigars,” cigarillos, and “little filtered cigars.” Reflecting the lack of standardized definitions and survey items, to date little is known about use of little cigars and cigarillos in the U.S. population.¹⁰

Here, we used information from the NSDUH 2002–2011 to estimate the prevalence of cigarette and cigar smoking. We then attempted to distinguish cigars marketed as little cigars or cigarillos from traditional or large cigars, using the detailed information on brand names reported in the NSDUH. Although exact data were not available, and limited sample size precluded the analysis for females, for males we used a conservative method to discriminate type of cigar based on brand: we used the 2010/2011 TUS-CPS data on brand and type to confirm that two established popular brands of small cigars were predominantly smoked by users of small cigars. In the NSDUH data, we then designated these two brands, and any brand having the word “little” or “cigarillo” in the name, as little/cigars cigarillos. All others were counted as regular cigars. We then investigate use of cigars by type (for males) and by demographic characteristics.

Methods

Data Sources

The Tobacco Use Supplement to Current Population Survey (TUS-CPS) is sponsored by the National Cancer Institute (NCI) every three years. It is administered as a supplement in three separate months (typically May, August, January) of the core CPS survey, which is conducted monthly by the U.S. Census Bureau. Interviews are primarily by telephone; however, 36% of interviews are in-person. A selected household respondent answers questions for him or herself and by proxy for other household members.^{23,24} The 2010/2011 TUS-CPS (May and August 2010, January 2011) included information on cigar smoking by brand and type, for self-respondents. Hence we used self-response data from the 2010–2011 TUS-CPS; the final response rate was 62% and the sample size was 75,798 males.²⁴

The National Survey on Drug Use and Health (NSDUH), funded by the Substance Abuse and Mental Health Administration (SAMHSA), is an annual household survey which uses in-person computer-assisted interviews²⁵ and has used the same design since 2002 to facilitate estimation of time trends. This survey includes information on cigarette and cigar smoking by brand, in each year from 2002–2011. Hence we used the annual NSDUH for 2002–2011 to estimate trends in smoking prevalence. Sample sizes ranged from 17,000 to 18,000 among the adult population of each gender. The final weighted response rate ranges from 78.6% in 2002 to 74.4% for the 2011 survey.²⁵ We also used the pooled NSDUH data 2005–2011 to compare smoking rates between demographic subgroups, in order to have adequate sample sizes.

Both the TUS-CPS and the NSDUH are designed to be representative of the civilian non-institutionalized population of the United States. Each publishes survey weights to account for the complex survey design, and to adjust in part for undercoverage and non-response.

Survey Measures

Demographics

Respondents were categorized as adolescents ages 15–17 (there were too few 12–14 year old smokers for analysis), young adults ages 18–25, and older adults ages 26–64 and 65+. Income was categorized by Federal poverty thresholds, using reported poverty level (NSDUH) or calculated level (TUS-CPS) using the midpoint of the reported income category and size of household. Variables included gender, race/ethnicity, educational level, and geographic region of residence (TUS-CPS only).

Current Cigar Smoking

The TUS-CPS asked: “Have you ever used any of the following even one time: a regular cigar or cigarillo or a little filtered cigar.” Clarifying descriptions were provided if needed. Those assenting were asked: “Do you NOW smoke regular cigars or cigarillos or little filtered cigars every day, some days or not at all?” Current cigar smokers were those who responded “every day” or “some days,” and all others were considered non-cigar smokers. Later in the survey, current cigar smokers were asked: “During the PAST 30 days, what type of CIGAR did you use MOST OFTEN?” with responses regular/large cigars, cigarillos, or little filtered cigars. Finally, current cigar smokers were asked: “During the PAST 30 days, what BRAND of CIGAR did you use MOST OFTEN?” and responses were coded to a list of 14 brands, or to “Other.”

In the NSDUH, respondents were asked: “The next questions are about smoking cigars. By cigars we mean any kind, including big cigars, cigarillos, and even little cigars that look like cigarettes. Have you ever smoked part or all of any type of cigar?” Those who assented were asked: “Now think about the past 30 days—that is, from (DATEFILL) up to and including today. During the past 30 days, have you smoked part or all of any type of cigar?” Those who assent were considered current cigar smokers. They were asked: “During the past 30 days, what brand of cigars did you smoke most often?” with responses coded to a list of from 46 to 56 brands. Respondents who answer “don’t know” or refused were asked a probe question designed to elicit an informative response.

Current Cigarette Smoking

In the TUS-CPS respondents were asked: “Have you smoked at least 100 cigarettes in your entire life?” Those responding “yes” were asked: “Do you now smoke cigarettes every day, some days, or not at all?” “Every day” or “someday” smokers were considered current cigarette smokers, all others were considered non-smokers. Questions on cigarette use in NSDUH parallel those on cigar use. Respondents were first asked: “Have you ever smoked all or part of a cigarette?” Those who responded “yes” were asked: “How long has it been since you last smoked part or all of a cigarette?” Those who reported smoking within the past 30 days were considered current cigarette smokers.

Type of Cigar Usually Smoked, Based on Brand

In the TUS-CPS data, we categorized responses to the question on type of cigar smoked as either a cigarillo/little, filtered cigar, or as a regular/large cigar. We then cross-classified reported brand of cigar by type of cigar. Among brands selected by at least 100 respondents, we categorized each brand as a little cigar/cigarillo if this was the predominantly reported type. All other brands were considered regular cigars. Then, in the NSDUH data, we coded each brand as a little cigar/cigarillo if it had either of the words “little” or “cigarillo” in the brand name, or if it had been categorized as a little cigar/cigarillo on the basis of the TUS-CPS data.

Statistical Methods

All estimates were weighted by the appropriate survey weights, and variances and *p* values were computed using the recommended jackknife method with replicate weights (TUS-CPS)²⁴ or the recommended Taylor series expansion (NSDUH).²⁶ Statistical significance was assessed at the two-sided 5% level.

To investigate comparability of the surveys, demographics and prevalence estimates were computed for the 2010/2011 TUS-CPS and the 2010 NSDUH, which were administered during an overlapping time frame. Prevalence estimates used PROC SURVEYFREQ (SAS v. 9.2), and estimates within subgroups were computed using crosstabs of the full population. Rates of decline in prevalence over time were estimated using the NSDUH data 2002–2011, using logistic regression (SURVEYLOGISTIC) with year as an explanatory variable. Among cigar smokers, the association of demographic factors with little cigar/cigarillo use and with cigarette use was assessed using multivariate logistic regression, adjusting for age group, racial/ethnic group, educational attainment and poverty status. In order to have adequate statistical power, for these subgroup analyses we pooled the NSDUH data 2005–2011, to give adequate sample sizes while still using more recent data.

Results

Demographics of Male Respondents to the NSDUH and TUS-CPS

Weighted estimates of the demographic characteristics of the U.S. adult male population from each survey are in [Table 1](#). NSDUH respondents appear somewhat less educated and less likely to be below the poverty threshold than respondents to the TUS-CPS ([Table 1](#)).

Prevalence of Cigar and Cigarette Smoking, 2010/2011 TUS-CPS and 2010 NSDUH

The 2010 NSDUH overlapped in time with the 2010/2011 TUS-CPS, permitting direct comparison of the two surveys. For both cigarettes and cigars, estimates of current smoking are much higher in the 2010 NSDUH than in the 2010/2011 TUS-CPS ([Table 1](#)), although relative patterns are similar. Young adult males ages 18–25 had the highest rates of current cigar smoking (16.7%, 95% CI = 15.6–17.8, NSDUH; 5.2%, 95% CI = 4.8–5.6, TUS-CPS); for females, young adults also had the highest cigar smoking rates but prevalence was lower than for males (5.7%, 95% CI = 4.9–6.5, NSDUH; 1.1%, 95% CI = 0.9–1.3, TUS-CPS; [Supplementary Table 1](#)). In the 2010/2011 TUS-CPS overall male cigar smoking prevalence was 4.0% (95% CI = 3.9–4.1) and there were 2,661 cigar smokers, allowing us to cross classify cigar brand by type of cigar. However, female prevalence was 0.5% (95% CI = 0.46–0.54) and there were only 491 female cigar smokers, too few respondents to permit analysis of cigar brand by type. Smoking prevalence was higher among young adults of both genders for both cigarettes and cigars, with a more marked difference for cigar smoking. Prevalence of cigar smoking was higher among Black than among other racial/ethnic groups for both genders, a pattern that is not seen in the cigarette data. Asians had the lowest use of both cigars and cigarettes. Differences by region, educational level and income appeared to be smaller for cigar smoking than for cigarette smoking.

Classification of Cigar Type by Brand, For Males

Using the data on brand and type of cigar in the 2010/2011 TUS-CPS, we cross-classified usual brand by usual type (regular vs. little cigars/cigarillos) for males. Of 2,666 current male cigar smokers, 878 (34.4 %, 95% CI = 33.0–36.0) reported using little cigars/cigarillos. Of the 14 brands reported in the TUS-CPS the most commonly reported categories were “Other” (*n* = 1,191), with 20.1% (95% CI = 18.2–22.0) reporting smoking little cigars; Black and

Table 1. Male Cigar and Cigarette Use by Demographic Characteristics, Comparing the 2010/2011 Current Population Survey Tobacco Use Supplement and the 2010 NSDUH Survey

	2010/2011 TUS-CPS			NSDUH 2010				
	N	% of population ±95% CI	cigar smoking prevalence (%) ±95% CI	cigarette smoking prevalence (%) ±95% CI	N	% of population ±95% CI	cigar smoking prevalence (%) ±95% CI	cigarette smoking prevalence (%) ±95% CI
Total	75,798		4.0±0.1	17.9±0.2	18,339		9.1±0.6	27.5±1.1
Age								
18–25	7,451	15.2±0.1	5.2±0.4	19.8±0.6	9,277	15.6±0.6	16.7±1.1	37.8±1.4
26–49	32,608	44.2±0.1	4.2±0.2	19.8±0.3	6,551	44.3±0.9	9.7±0.8	31.9±1.7
50–64	21,629	25.3±0.0	4.0±0.2	19.1±0.4	1,586	24.7±1.3	6.8±1.5	24.0±2.9
65+	14,110	15.2±0.0	2.1±0.2	8.8±0.4	925	15.4±1.1	3.4±1.4	9.9±2.2
Race/Ethnicity								
Hispanic	7,905	15.0±0.0	2.3±0.2	13.8±0.6	2,809	14.8±0.9	7.1±1.7	29.1±3.6
NH White	56,578	67.9±0.1	4.4±0.1	18.8±0.3	11,892	68.1±1.0	9.3±0.7	27.4±1.3
NH Black/AA	6,637	11.1±0.1	4.5±0.4	19.5±0.8	2,075	10.8±0.7	12.7±2.0	29.0±2.8
NH Asian/PI	3,557	5.0±0.1	1.1±0.3	13.3±0.8	804	4.8±0.6	4.3±1.8	18.5±4.7
NH Other	1,121	1.1±0.0	4.8±1.0	28.8±2.1	759	1.6±0.3	9.0±3.8	30.8±6.7
Geographic Location ^a								
North East	15,188	18.2±0.1	3.9±0.3	15.6±0.5				
Midwest	18,556	21.8±0.1	4.4±0.3	20.8±0.5				
South	23,615	36.3±0.1	4.0±0.2	19.5±0.4				
West	18,439	23.6±0.1	3.5±0.2	14.8±0.5				
Education								
< High School	9,022	13.2±0.2	3.6±0.3	25.2±0.7	3,236	16.0±0.9	8.5±1.2	41.3±3.0
High school grad	22,769	29.9±0.3	4.0±0.2	24.3±0.5	6,273	30.6±1.2	8.5±1.0	32.3±1.8
Some college	20,534	27.4±0.3	4.4±0.2	18.6±0.4	5,036	24.5±1.1	10.6±1.4	28.0±2.2
College graduate	23,473	29.6±0.3	3.7±0.2	7.7±0.3	3,794	28.9±1.3	8.7±1.2	14.3±1.6
Poverty Level ^b								
<100% poverty	9,449	14.0±0.2	4.6±0.4	27.4±0.8	2,902	10.5±0.7	12.1±2.1	42.5±3.3
100–199% poverty	14,294	19.5±0.3	3.6±0.3	23.2±0.6	4,185	20.0±1.0	8.6±1.3	36.0±2.3
≥200% poverty	51,927	66.4±0.3	3.9±0.1	14.4±0.3	10,822	69.1±1.2	8.7±0.9	22.8±1.2

Note. ^aNSDUH does not include geographical information in public use data.

^b128 and 430 respondents missing information in TUS-CPS and NSDUH, respectively.

Mild ($n = 338$), with 73.6% (95% CI = 70.0–77.3) smoking little cigars, Swisher Sweets ($n = 322$), with 65.5% [95% CI = 61.2–69.7] smoking little cigars; and “Don’t Know” ($n = 368$; percent little cigar smokers, 9.1% [95% CI = 6.7–11.6]). The remaining 12 TUS-CPS brand categories ($n = 352$) had fewer than 100 respondents each, too few for reliable estimates; among these pooled respondents, 39.5% (95% CI = 35.6–43.5) reported smoking little cigars. Thus, we identified the brands Black and Mild and Swisher Sweets as little cigars/cigarillos and all others were counted as regular cigars. In the NSDUH data we classified as little cigars/cigarillos the brands Black and Mild and Swisher Sweets, as well as any brand containing the words “little” or “cigarillo”. In the NSDUH 84.4% (95% CI = 83.6–85.2) of cigar smokers named a brand.

Smoking Prevalence of Cigarettes, Cigarettes/Cigars, and Little Cigars

We used annual data from the NSDUH, 2002–2011 to estimate trends in smoking prevalence, for cigars, cigarettes and the combined category of cigars and/or cigarettes. For males, we further classified cigars as either little cigars/cigarillos or regular cigars, using the information on brands as described above.

From 2002 to 2011, for the two adult male age groups prevalence of cigarette and/or cigar smoking was consistently 4 (in 2002) to 6 (in 2011) percentage points higher than smoking cigarettes alone

(Figure 1a), and about 3 percentage points higher for adolescents aged 15–17 years. Among all male age groups, current smoking prevalence declined steadily and significantly from 2002 to 2011, whether computed as cigarette-only or cigarette/cigar smoking. Among young adult males 18–25 years of age, combined cigarette/cigar smoking declined from 49.5% (95% CI = 47.9–51.0) in 2002 to 43.9% (95% CI = 42.3–45.5) in 2011. For older males, the decline was from 36.4% (95% CI = 35.0–37.9) to 31.5% (95% CI = 29.9–33.0), and for adolescents was from 24.3% (95% CI = 22.7–25.8) to 17.0% (95% CI = 15.7–18.4).

For females, the patterns were similar, although less pronounced (Figure 1b). Cigarette and/or cigar smoking was 1–2 percentage points higher than smoking cigarettes alone for 18–25 year-olds, and <0.6 percentage points higher for females aged 26–64 years. For adolescent females, the difference was about 1 percentage point. Among all female age groups, current smoking prevalence declined from 2002 to 2011, whether computed as cigarette-only or cigarette/cigar smoking. Among young adult females 18–25 years of age, combined cigarette/cigar smoking declined from 38.1% (95% CI = 35.6–38.1) in 2002 to 30.6% (95% CI = 27.0–29.9) in 2011, and for adolescents from 23.0% (95% CI = 21.8–24.2) to 13.4% (95% CI = 11.9–14.8). For older females, the decline was from 26.3% (95% CI = 25.1–27.4) to 23.8% (95% CI = 22.4–25.2).

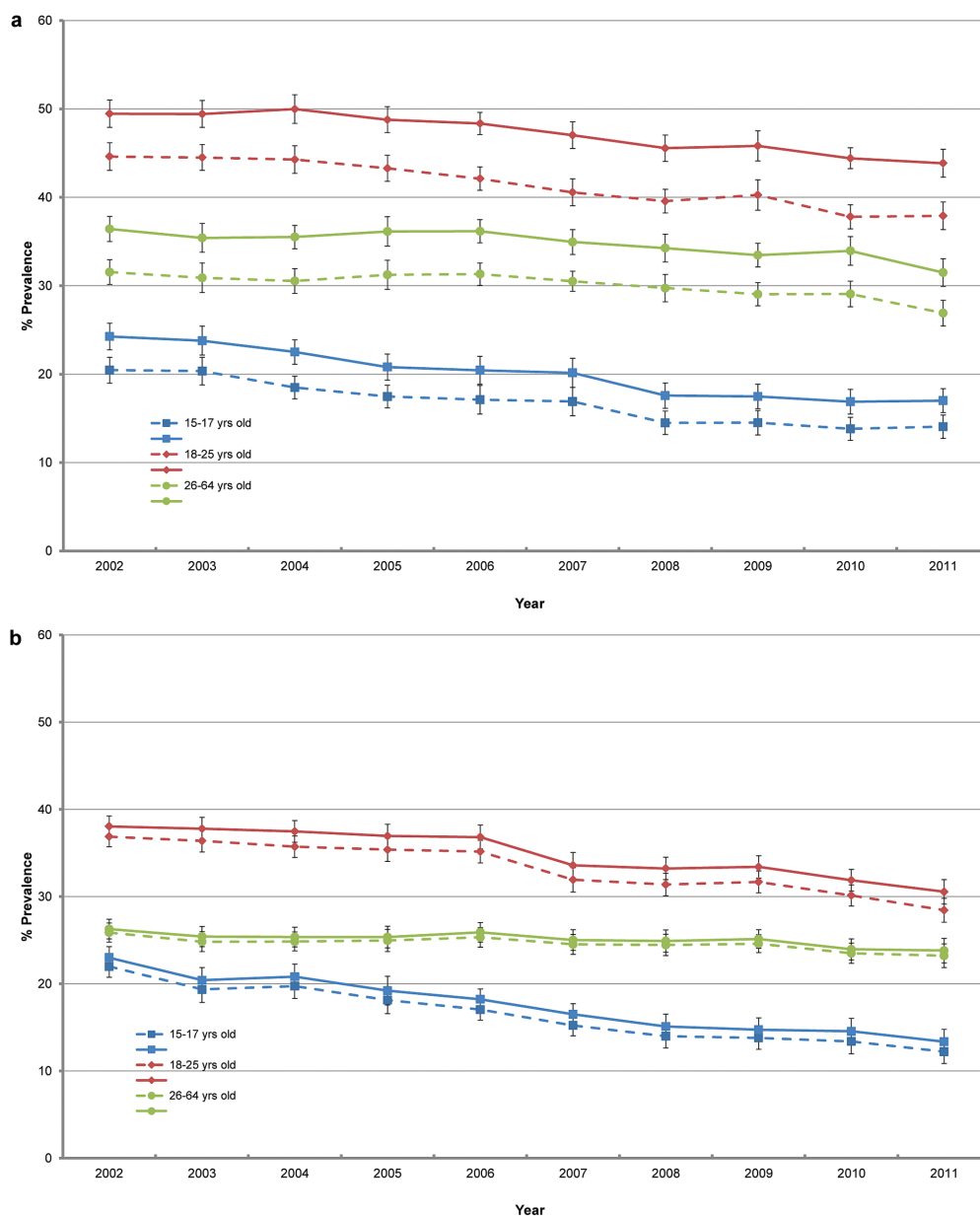


Figure 1. Trends in past 30-day cigarette (dotted) and cigar/cigarette (solid) smoking prevalence 2002–2011, by age, NSDUH; a) Top panel, males, b) Bottom panel, females.

Current smoking prevalence for little cigars/cigarillos did not decline significantly over the study period for the two adult male age groups (data not shown): among young adult males, between 8.7% (95% CI = 7.9–9.6) and 9.8% (95% CI = 9.0–10.6) smoked little cigars/cigarillos over the study period; for older adult males, little cigar smoking rates held steady at between 2.5% (95% CI = 2.1–2.9) and 3.1% (95% CI = 2.5–3.7) prevalence. Little cigar smoking rates did decline significantly among adolescent males, from 6.9% (95% CI = 6.2–7.7) in 2002 to 4.6% (95% CI = 3.9–5.4) in 2011.

Use Patterns Among Cigar Smokers

Prevalence of Little Cigar/Cigarillo Smoking Among Male Cigar Smokers

We pooled NSDUH data 2005–2011 to investigate demographic correlates of little cigar/cigarillo smoking among males. Demographics

of the pooled sample were similar to the 2010 sample (Supplementary Table 2). Male cigar and cigarette use by demographic characteristics from the pooled 2005–2011 NSDUH surveys; Female, data not shown).

Among male cigar smokers ages 15–64, 40.0% (95% CI = 38.6–41.4) smoked a usual brand that was predominantly a little cigar or cigarillo. Little cigar smoking decreased with increasing age, from 63.4% (95% CI = 61.3–65.5) of adolescent cigar smokers (ages 15–17), to 51.9% (95% CI = 50.7–53.1) of young adults ages 18–25 years and 32.7% (95% CI = 30.8–34.7) of cigar smokers aged 26–64 years. For each age group there was no significant trend in prevalence 2002–2011, and no apparent change before or after 2005 (data not shown).

An estimated 53.3% (95% CI = 49.8–56.7) of male cigar smokers with less than a high school education smoked a little cigar as the

usual brand, and this proportion decreased significantly as educational level increased, to 15.9 % (95% CI = 13.5–18.2) of those with a college degree (Figure 2). A decline in preference for little cigars/cigarillos was seen as income level increased, from 54.8% (95% CI = 50.9–59.7) of male smokers below the federal poverty line, to 31.9% (95% CI = 29.9–34.0) of those with incomes over twice the poverty limit.

We used multivariate logistic regression to assess whether these observed associations of little cigar/cigarillo smoking with lower educational attainment and poverty status would remain when adjusted for year, age group (ages 18–25 or 26–64 years), race/ethnicity, education and poverty status. In these adjusted models, relative to college graduates, cigar smokers who did not graduate from high school had 4.2 greater adjusted odds (OR_{adj}) of smoking little cigars/cigarillos (95% CI = 3.3–5.4), while high school graduates had 3.8 greater adjusted odds (95% CI = 3.1–4.8) of smoking little cigars; those with some college did not differ significantly from college graduates. In comparison to those with incomes at or over 200% of the federal poverty threshold, cigar smokers with income between 100% and 199% of the federal poverty level had adjusted odds of 1.6 (95% CI = 1.4–1.9); those under 100% of the threshold had an adjusted odds ratio of 1.5 (95% CI = 1.2–1.8), in the same logistic regression analysis.

Prevalence of Current Cigarette Smoking Among Cigar Smokers

Among adolescent male cigar smokers, over 60% reported also smoking cigarettes in every year but 2010, with no significant change over the study period. Among adolescent females, the pattern was the same, but over 70% also smoked cigarettes. There was a significant linear decline in cigarette smoking among young adult male cigar smokers, from 71.0% (95% CI = 68.2–73.7) prevalence in 2002 to 63.3% (95% CI = 59.8–66.7) prevalence in 2011. Among young adult females, the pattern was similar, declining from 77.7% (95% CI = 73.7–81.6) prevalence in 2002 to 62.6% (95% CI = 57.4–67.7) prevalence in 2011. Among males, older adult cigar smokers (ages 26–64) had the lowest cigarette smoking prevalence, which was about 50% in each year to 2008, and then declined significantly to

41.4% (95% CI = 37.1–45.7) in the year 2011. Among females ages 26–64, there was no significant decline in cigarette smoking, and cigarette smoking prevalence in 2011 was 62.9%, among cigar smokers.

In the pooled NSDUH data 2005–2011, ages 18–64, cigarette smoking prevalence was significantly higher among less-educated cigar smokers, at 76.1% for males (Figure 3a) and 83.9% for females (Figure 3b) among those with less than a high school education and 30.1% for males and 44.1% for females among college graduates. Cigarette smoking was higher among lower income cigar smokers, at over 70% among those earning less than the Federal poverty threshold for both males and females, and only 44.4% of males and 58.9% of females earning over twice the poverty threshold. Race/ethnic groups were similar, with cigar smokers also smoking cigarettes at over 50% prevalence with the exception of Asian/Pacific Islanders, at 45.1% (95% CI = 34.7–55.5) (data not shown).

In a multivariate logistic regression analysis adjusted for year, age group (ages 18–25 or 26–64 years), race/ethnicity, education and poverty status, these associations of cigarette smoking with education and income persisted, for both males and females. In comparison to college graduates, cigar smokers at lower levels of education had a significantly higher adjusted odds of using cigarettes (less than high school, males, OR_{adj} = 4.4, 95% CI = 3.7–5.4, females, OR_{adj} = 4.4, 95% CI = 4.5–9.1; high school graduate OR_{adj} = 2.8, 95% CI = 2.3–3.3, females, OR_{adj} = 3.4, 95% CI = 2.6–4.8; some college, males OR_{adj} = 1.7, 95% CI = 1.4–2.0; females, OR_{adj} = 2.5, 95% CI = 1.7–3.6). In comparison to cigar smokers with incomes 200% or more of the federal poverty threshold, those at 100–199% males an OR_{adj} of 1.75 (95% CI = 1.5–2.1; females, OR_{adj} = 1.8, 95% CI = 1.3–2.4) and males <100% of the federal poverty threshold had an OR_{adj} of 2.0 (95% CI = 1.7–2.4; females, OR_{adj} = 1.9, 95% CI = 1.5–2.3).

Discussion

Current 30-day smoking prevalence for both males and females declined among all age groups over the decade 2002–2011, whether

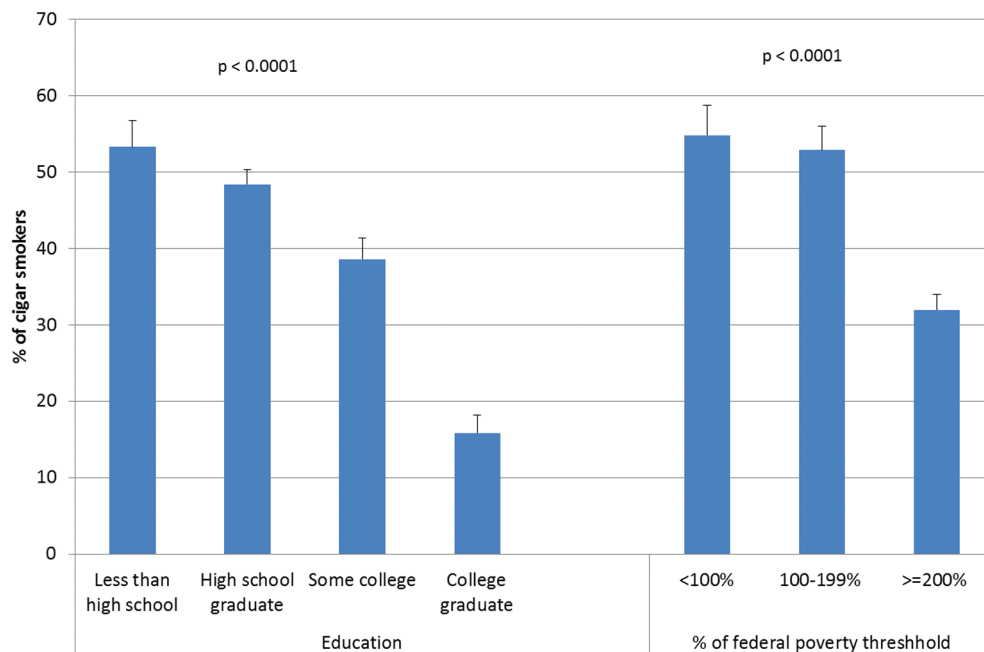


Figure 2. Little cigar/cigarillo use among 18–64 year old male cigar smokers, by educational level and poverty status, NSDUH pooled data 2005–2011.

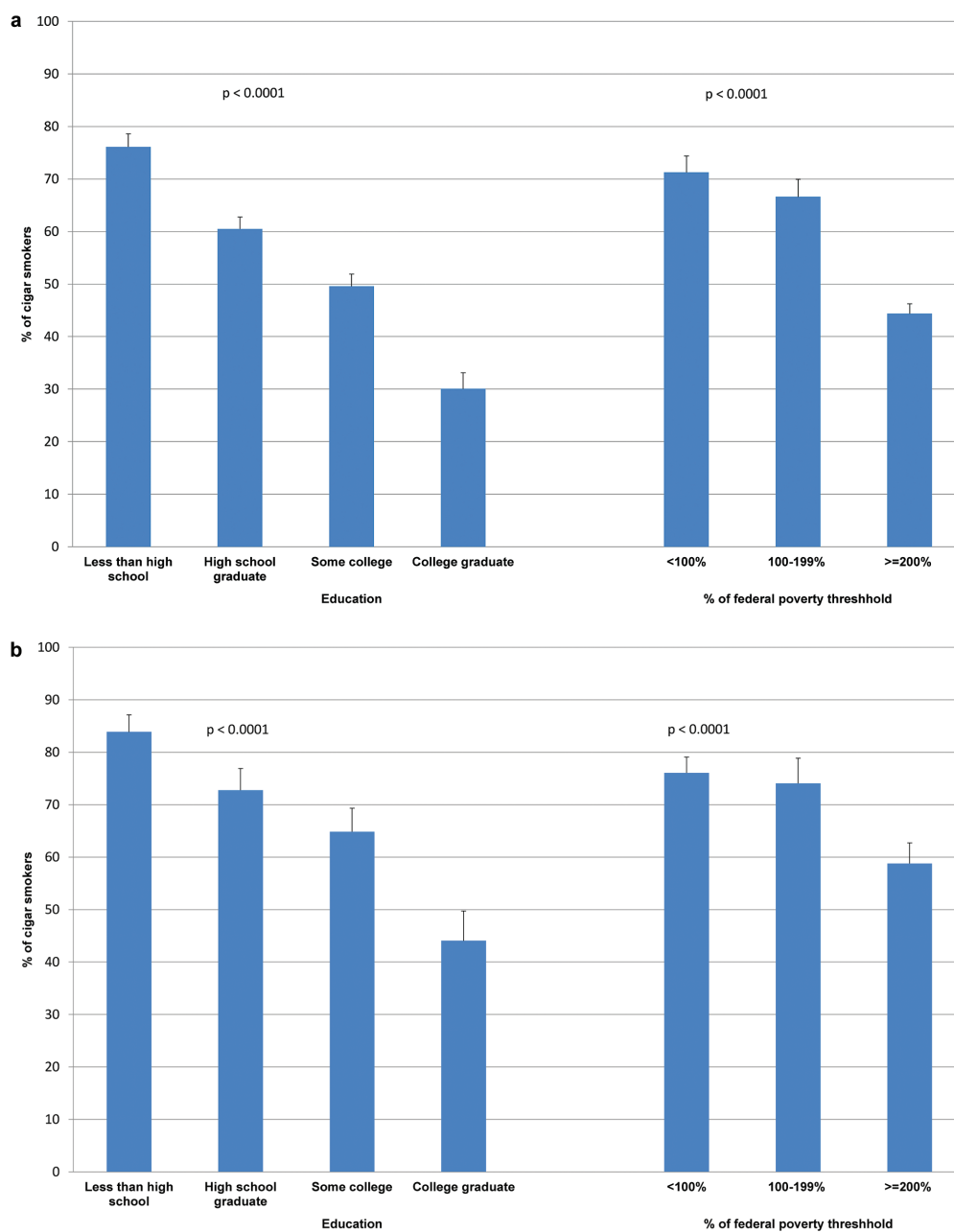


Figure 3. Cigarette use among 18–64 year old cigar smokers, by educational level and poverty status, NSDUH pooled data 2005–2011; a) Top panel, males, b) Bottom panel, females.

computed as cigarette smoking alone, or using the combined category of smoking cigarettes and/or cigars. However, among young adult males ages 18–25, the cigarette and/or cigar smoking rate was 44% in 2011, 6 percentage points above cigarette-only smoking. These high rates of smoking highlight the critical need to collect more detailed data distinguishing use of traditional cigars from little cigars/cigarillos, particularly among young adults.

In the NSDUH, detailed data on brands were available in each year, and we used this information to estimate prevalence of smoking little cigars and cigarillos as distinguished from regular cigars, for males. Smaller sample sizes precluded this level of detail for females. An estimated 63% of adolescent and 52% of young adult male cigar smokers regularly used little cigars/cigarillos in 2011.

Additionally, over 60% of both adolescent and young adult cigar smokers of both genders also smoked cigarettes, in 2011; for female adolescents the number was over 70%. Both of these findings are consistent with a pattern whereby younger cigar smokers are commonly smoking little “cigarette style” cigars, and concurrently smoking cigarettes.

The public health community has long been concerned that little cigars are marketed to smokers as cigarette substitutes, and this has been supported by industry documents in the past.⁹ In part in response to such concerns, Congress mandated an increase in the federal excise tax for little cigars in 2009.¹⁰ However in 2012 a General Accounting Office report suggested that the tax increase caused a shift in manufacturing practices but little change in

consumer behavior.¹⁰ Our data indicate that there has been no associated change in consumer-reported smoking of little cigars/cigarillos over the study period, at least for males. The young adult male smoking rate for little cigars/cigarillos was nearly 9% over the years 2002–2011, and there was no discernible time trend for any age group.

Using pooled data 2005–2011, we found large differences in type of cigar smoked by educational level, among males. Over 50% of less-educated cigar smokers used little cigars/cigarillos, compared to only 16% of those with higher education, and over 70% of less-educated cigar smokers also smoked cigarettes. Again, this is consistent with a pattern whereby less educated cigar smokers are commonly smoking little “cigarette style” cigars and also smoking cigarettes, but this was not true of those with a college education. Similar patterns were seen with income level.

A limitation of our study is that smoking prevalence estimates differed widely between these two major federally funded surveys (NSDUH and TUS-CPS) for both cigarette and cigar smoking. Minor differences in demographic characteristics of the respondents between the two surveys do not appear to account for this difference. The two surveys differ substantially in how the questions are asked, with NSDUH having higher prevalence estimates, using in-person computer assisted interviewing with more detailed questions, and offering questions to prompt a response when answers are non-informative. The NSDUH also contains a separate series of questions on the use of “blunts,” which are cigars filled with marijuana, while the TUS-CPS does not. This suggests that response to questions on cigars may be very sensitive to how questions are worded. A second limitation of this study is that type of cigar smoked was not always identifiable in the NSDUH data. Our approach was conservative and based on reported brand. Finally, while cigar use particularly among younger females is a concern, we were unable to investigate cigar use by type among females because there were only 491 female cigar smokers in the 2010/2011 TUS-CPS. Further study of female cigar smoking by type of cigar is warranted.

Using our methodology in the NSDUH, we estimated that 40% of male cigar smokers usually smoke little cigars or cigarillos as opposed to large or regular cigars. This is somewhat higher than the 34.4% obtained from the TUS-CPS, where type of cigar was asked directly. However, previous comparison across major Federal surveys have noted similar discrepancies in absolute prevalence estimates, but have also noted the similarity of time trends and relative use patterns between surveys, lending confidence in our results.^{27,28} Furthermore, the NSDUH is known to have high sensitivity to pick up occasional smokers. However, the data on the type of cigar smoked in the major national surveys is clearly lacking, especially given lack of standardized nomenclature and the many shapes and sizes of cigars that are marketed, often under the same brand name. There is an urgent need for standardized terminology and better data, such as use of pictures or Universal Product Codes to sort out the bewildering variety of cigar types.

It is encouraging that smoking rates are declining among all age groups and both genders, whether of cigarettes alone, or combined cigars and cigarettes. However, adult male smoking rates for little cigars/cigarillos did not decline across the decade, and were nearly 9% for young adults. This suggests that additional public health effort focused on little cigar smoking may be needed. Most younger, lower income or less-educated male cigar smokers used little cigars or cigarillos rather than traditional large cigars, and most also smoked cigarettes. These patterns are

consistent with concurrent use of inexpensive little cigars/cigarillos to initiate and maintain cigarette smoking among younger and less advantaged populations. Data are urgently needed to more accurately assess type of cigar smoked and reasons for use at the population level.

Conclusion

There is concern in both the public health community and in the U.S. Congress that little cigars and cigarillos may play a role in smoking initiation and maintenance, especially among younger males; however, national patterns of little cigar use are unknown. We analyzed data from two major national surveys of tobacco use behavior to investigate trends in cigar smoking among the U.S. male population, attempting to distinguish little cigars and cigarillos from traditional large cigars. Over the decade 2002–2011, smoking prevalence of little cigars/cigarillos was steady at 9% among young adult males, and cigarette and/or cigar smoking was steadily 6 percentage points above cigarette smoking. Most younger, less-educated, or less affluent cigar smokers preferred little cigars/cigarillos over traditional cigars, and most also smoked cigarettes. Public health concern about the role of cigars in smoking initiation and maintenance appears to be warranted, and better data on type of cigar are urgently needed at the population level.

Supplementary Material

Supplementary Tables 1 and 2 can be found online at <http://www.ntr.oxfordjournals.org>

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Declaration of Interests

None declared.

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