Published in final edited form as:

Tob Regul Sci. 2019 March ; 5(2): 124–134. doi:10.18001/trs.5.2.4.

How and Why Consumers View “Little Cigars” as Legally-Defined Cigarettes

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Abstract

Objective: To test if consumers perceive filtered “little cigars” as legally-defined cigarettes and identify features they associate with cigarettes but not little cigars and vice versa.

Methods: 1,030 adults (*mean* age 31.1 years, 34% male, 25% non-white) were randomized in a 2×2 between-subjects experiment to view images of filtered “little cigars” that varied by package labeling (cigars: yes/no) and the product displayed in front of the packaging (filtered “little cigar” or cigarette). Measures assessed participants’ perceptions that the product shown can be used as a substitute for cigarettes and features perceived to be associated with cigarettes vs. little cigars.

Results: Participants perceived filtered “little cigars” as substitutes for cigarettes, perceived certain features to be more like little cigars (e.g., no filter/tip, wrapped in tobacco leaf) and others to be more like cigarettes (e.g., filtered, could be inhaled deeply). In analysis of covariance assessing experimental condition effects, participants viewing images of cigarettes had stronger perceptions that filtered “little cigars” could be used as cigarette substitutes and had cigarette characteristics, but the effect was small.

Conclusions: This study provides new evidence that filtered “little cigars” are perceived by consumers as cigarettes under current laws and identifies features distinguishing little cigars from cigarettes.

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Conflict of Interest Statement

The authors have no conflicts of interest to disclose.

Human Subjects Statement

The study protocol was reviewed and determined to be exempt by the Georgetown University Institutional Review Board (Protocol 2016-0920). All study procedures were conducted in accordance with the ethical standards outlined in the Helsinki Declaration of 1975 as revised in 2000. Informed consent was obtained from all participants in this research.

Keywords

Little cigars; filtered cigars; consumer perceptions

INTRODUCTION

Cigars are regulated less strictly than cigarettes and often taxed at lower rates in the United States.¹ For example, federal laws and regulations that apply to cigarettes but not cigars ban all flavors (other than menthol and tobacco), require a minimum pack size of 20 sticks, prohibit self-service displays at retail, and sharply restrict Internet and other mail-order sales.^{2,3} While the federal excise tax on cigarettes and some little cigars is equal, other little and larger cigars are taxed at lower rates, and many states tax cigars at lower rates than cigarettes.⁴ In addition, the Multistate Settlement Agreement (MSA) between most cigarette companies and most U.S. states and territories and D.C., and similar individual state settlements with cigarette companies, place additional restrictions and requirements on cigarette manufacturers that do not apply to cigars (e.g., annual payments, no outdoor ads except at retail, strict limits on brand-name sponsorships).⁵

At the same time, federal definitions of “cigarette” and “cigar,” which a number of states and the MSA have largely or wholly adopted, include subjective language that has not yet been adequately clarified or enforced to prevent cigarette-like sticks of tobacco from escaping the stricter cigarette regulation and taxation by being labeled as filtered “little cigars.” These definitions state that any roll of tobacco for smoking is a cigarette if it is wrapped in paper or any substance not containing tobacco or, when wrapped in any substance containing tobacco, if “because of its appearance, the type of tobacco used in the filler, or its packaging and labeling, is likely to be offered to, or purchased by, consumers as a cigarette.”^{3,6,7} Taking advantage of this subjective language, manufacturers have developed numerous brands of cigarette-like sticks “that are wrapped in paper containing tobacco and labeled as little cigars” and “filtered cigars” to try to escape regulation and taxation as cigarettes -- and, for decades, they have succeeded.^{1,8}

These filtered “little cigars” closely resemble conventional cigarettes (e.g., same basic size and shape, same cigarette-style filters, sold 20 to a pack), and recent retail data indicate they are most commonly purchased in packs of 20 and at substantially lower cost than cigarettes.⁹ They also appear to be smoked in the same way conventional cigarettes are smoked. In some surveys, people who self-identify as cigarette smokers identify filtered “little cigar” brands as their usual cigarette brand,^{10,11} and other failures by filtered “little cigar” smokers to report themselves as being cigar smokers have been common.^{12,13} For example, in one study smokers did not acknowledge cigar use until specific brand names of products labeled as cigars were provided, including brand names of filtered “little cigars.”¹⁴ As a result, researchers conducting such surveys have restructured questions (e.g., by providing cigar brand names or images) or otherwise instructed respondents as to what they should consider cigars versus cigarettes, requiring respondents to accept the manufacturer-chosen label even if it contradicted their own perceptions.^{15–18} Evidence from a population survey indicates more than half of youth who smoke flavored cigarettes report use of flavored cigarettes other

than menthol, despite the existing ban on such flavored cigarettes, suggesting they might have been using flavored “little cigars.”¹⁹ Despite the fact that these filtered “little cigars” closely resemble conventional cigarettes and are considered cigarettes by some who smoke them, enforcement officials in the federal government and those state and local governments that use parallel cigarette definitions have not yet required any such filtered “little cigars” to comply with laws or regulations pertaining to cigarettes because they meet the Tobacco Control Act’s definition of a cigarette, that is products “likely to be offered to, or purchased by, consumers as a cigarette.”³

The public health consequences from these filtered “little cigars” not being treated as cigarettes under federal and other legal cigarette definitions could be serious. There is no reason to believe that cigarette-like filtered “little cigars” are any less harmful than conventional cigarettes, and some might be more harmful.²⁰ It is also well established that lower cigarette and other tobacco product prices encourage initiation and discourage cessation;²¹ and by escaping cigarette taxes and regulation, these filtered “little cigars” can be and are sold at considerably lower prices.²² In addition, marketing cigarettes and other tobacco products with flavors can encourage youth experimentation and use,²³ and these filtered “little cigar” products have, to date, been allowed to be marketed with appealing flavors that are prohibited for cigarettes.²³ They have also been allowed to be marketed without having to comply with the youth-protecting advertising and marketing restrictions in the Tobacco Control Act and MSA, or the MSA’s payment obligations that apply only to cigarettes. Regulating filtered “little cigars” as cigarettes would stop them from being designed, taxed, and marketed in ways that increase youth smoking rates.

In December 2016, the U.S. Food and Drug Administration (FDA) issued warning letters to four manufacturers, stating that they were violating the U.S. Tobacco Control Act’s ban on flavored cigarettes through their sale of flavored cigarettes labeled as flavored “little cigars” or “filtered cigars.”²⁴ Although the warning letters stated that FDA had determined that the companies’ tobacco products labeled as “cigars” were actually cigarettes under the applicable federal definitions, they did not state the basis for that determination. Nor has FDA made any further information publicly available about the status of these warning letters or their enforcement, and efforts by the authors of this paper to obtain additional information through the Freedom of Information Act (request pending since September 10, 2017) have not been successful.

Although observational studies and sales data indicate filtered “little cigars” should be regulated and taxed in the same way as cigarettes,¹ this study aimed to provide new experimental evidence as to whether consumers perceive cigarette-like filtered “little cigars” as bona fide cigars or as cigarettes or cigarette substitutes. This evidence can directly inform FDA’s unexplained determination that certain filtered “little cigars” are actually cigarettes under applicable federal definitions. Going further, this study was also designed to gain insight into which features or characteristics consumers most strongly associate with cigarettes and which with little cigars. This evidence can support the development of new, objective tests that regulators and enforcement officials can use to determine which rolls of tobacco for smoking are cigarettes and which are bona fide little cigars under federal and other definitions, regardless of how their manufacturers label them.

METHODS

Setting and Sample

We recruited participants from March to April 2017 through Qualtrics Online Sample (www.Qualtrics.com), a consumer panel that researchers have used in other studies of tobacco-related beliefs and behavior.^{25–28} Qualtrics uses rigorous data-quality measures including monitoring response patterns (e.g., straight line reporting) and completion times, and sophisticated digital fingerprinting and de-duplication to verify unique responses. Qualtrics emailed potential participants an invitation to an anonymous research study online. Those interested proceeded to a brief eligibility screener, with eligible persons immediately taken through the experimental procedures.

Because younger adults and cigarette smokers have the highest prevalence of little cigar use in the U.S.,^{16,17} we used quotas to obtain approximately equal numbers of participants from the following groups: 1) 18–30 year-old non-cigarette smokers; 2) 18–30 year-old cigarette smokers; and 3) 31 and older cigarette smokers. At eligibility screening, we assessed age and smoking status using valid items, with cigarette smokers defined as those who reported smoking every day or some days and having smoked at least 100 lifetime cigarettes.²⁹ Because there were only two former smokers in the sample, for analyses we used a two-level covariate: current smokers vs. nonsmokers (i.e., nonsmokers plus former smokers).

The study was part of a District of Columbia Metro Tobacco Research and Instruction Consortium initiative.³⁰ Owing to the initiative's regional focus, participants were residents of Maryland, Virginia, or D.C. Participants completing all study procedures received a small monetary award. The host institution's review board approved all study procedures.

Experimental Procedures

Eligible, consenting participants completed initial measures of demographic characteristics. The online survey software then randomized participants in approximately equal numbers to four study conditions in a two-by-two between-subjects design. Participants viewed an image of a package of filtered “little cigars” from photos of locally purchased products, manipulated on two factors: 1) the package label included the word “cigars” as labelled by the manufacturer or it was removed; 2) the product shown in front of the packages was a “little filtered cigar” or a conventional cigarette. Images displayed little filtered cigars of a single brand (Cheyenne), selected from the four brands that FDA sent warning letters.²⁴ Figure 1 shows stimuli from the experimental conditions.

When exposed to the images, participants were instructed: “Please review the image below carefully, and answer the questions that follow about the tobacco product shown in the image.” Initial outcome measures that assessed beliefs that “little filtered cigars” could be used as direct substitutes for conventional cigarettes appeared on the same screen directly below the image. After answering those image-related questions, participants were asked additional questions, unrelated to the images, producing additional outcome measures.

Measures

Outcome Variables.

Beliefs that Little Cigars Can Be Used as Substitutes for Cigarettes.: Drawing from research on consumer perceptions of products labeled as cigars,^{1,8,10,16} we developed five questions to measure beliefs that the viewed products could be used as direct substitutes for usual cigarette brands, with the instructions and question stems tailored to whether participants were never, current, or former cigarette smokers. With no references to product name or type, participants were asked to respond based on “the brand above” in the image. Items assessed beliefs that the product shown could be smoked as a substitute for conventional cigarettes (1), the same way as cigarettes, (2), or inhaled like cigarettes (3); whether participants would consider smoking it if it were available for \$3.00 less per pack than conventional cigarettes (4) or if it were available in low, light, or ultralight (5). Item responses were on a one to seven scale with anchors at definitely not (1) and definitely yes (7). The items had good internal consistency (Cronbach’s alpha = 0.89), and we averaged responses to the five items to create a score with higher values indicating stronger beliefs that filtered “little cigars” can be used as a direct substitute for cigarettes.

Product Characteristics Believed to be Associated with Cigarettes and Little

Cigars.: Subsequent questions based on related research^{1,8,10,16} assessed participants’ beliefs about whether the following product characteristics (shown on a single screen in randomized order) are associated more with cigarettes or little cigars. Items included: 1) they are affordable enough to smoke 10 or more a day; 2) they can be inhaled deeply when smoked; 3) they are wrapped in paper; 4) they are wrapped in a tobacco leaf; 5) they are sold in packs of 20; 6) they come in menthol; 7) they come in fruit, candy, or other non-tobacco flavors; 8) they come in low, light, or ultralight; 9) they have a filter; 10) they have a plastic or wooden tip; 11) they do not have a filter; 12) they are sold in packs of 5; and 13) they are sold in singles. The items used the following response scale: 1 = definitely a cigarette, 2 = probably a cigarette, 3 = either a cigarette or little cigar, 4 = probably a little cigar, 5 = definitely a little cigar.

Exploratory factor analysis indicated the items loaded on two subscales corresponding to characteristics that are typical of cigarettes (items 1, 2, 3, 5, 6, 8, 9) and characteristics that are typical of cigars (items 4, 7, 10, 11, 12, 13).¹ Both subscales had good internal consistency (Cronbach’s alpha .73 and .86, respectively). Responses to items for each subscale were averaged to create a score with higher values indicating characteristics believed to be more strongly associated with little filtered cigars and lower values indicating characteristics to be more strongly associated with cigarettes. Subscale scores were uncorrelated ($r = 0.02$, $p = .531$) indicating they successfully captured beliefs about unique sets of product characteristics.

Covariates.

Demographics.: Assessed demographic characteristics included age, sex, race/ethnicity, educational attainment, employment, and household income.

Filtered “Little Cigar” Awareness and Use & Other Tobacco Use.: After the experimental exposure, filtered “little cigar” awareness and use history were measured using four valid items adapted from epidemiological surveys,^{31,32} preceded by a description of “little filtered cigar” products with examples of prominent brands, and an image of a filtered “little cigar” product (with no packaging) displayed at the top of the screen.^{31,32} Items asked participants if they had ever heard of “little cigars” or “filtered cigars” before today, had ever smoked “little cigars” or “filtered cigars,” and whether they now smoked “little cigars” or “filtered cigars” every day, some days, rarely, or not at all.³¹ For analyses, we created a 4-level covariate with the following categories: 1) Not aware; 2) Aware, never used; 3) Tried, non-user; 4) User. Based on definitions from recent population surveys,³¹ little filtered cigar users were defined as those reporting using little cigars or little filtered cigars every day (20%), some days (36%), or rarely (44%).

Participants were also asked whether they had used large/traditional cigars, cigarillos, electronic cigarettes, smokeless tobacco, and hookah tobacco using valid items.³³ For analyses, we created a yes/no variable indicating any use of other tobacco products in the past month.

Statistical Analysis

We used descriptive statistics to characterize the sample, and analysis of covariance (ANCOVA) models to examine if adjusted means of the dependent variables of interest differed by the experimental factors (package labelling as cigar: yes or no; product shown: filtered “little cigar” or cigarette). We conducted separate ANCOVAs for each of the three dependent variables that included main effects for the experimental factors, their interaction, and covariates. We included as covariates participant age (< 30 years, 31+ years) and cigarette smoking status (non-smoker, current smoker) because they were used for sample quotas. We also included the four-level filtered “little cigar” awareness and use variable as a covariate to account for the potential influence of exposure to and use of these products on the dependent variables. Adjusted means and corresponding standard errors for each dependent variable were reported to describe statistically significant main effects and interaction effects ($p < .05$).

RESULTS

Sample Characteristics

In total, 2,285 people responded to the invitation to participate and $N = 1,030$ (45.1%) met inclusion criteria, fulfilled sampling quotas, enrolled, and completed the study. Demographic, smoking, and other tobacco-related characteristics of the study sample are shown in Table 1. The majority of the sample (66.1%) was female, 24.5% were non-white race, and 5% were Hispanic ethnicity (Table 1). Just over half (56.1%) reported attaining less than a college education, 52.3% were employed full time, and 46.3% reported a household income less than \$50,000 annually. With respect to filtered “little cigar” awareness and use, 40.5% had never heard of the product, 20.4% had heard of the product but never tried it, 14.5% had tried the product, and 24.7% were filtered “little cigar” users

(use the product every day, some days, or rarely). Nearly one-third (31.5%) reported use of tobacco products other than cigarettes or filtered “little cigars” as well (Table 1).

Filtered “Little Cigars” as Substitutes for Cigarettes

Specific items assessing participants’ beliefs that filtered “little cigars” can be used as substitutes for cigarettes and item-level summary statistics are shown in Table 2. More than half of all participants thought the displayed filtered “little cigars” could definitely or possibly be smoked as a substitute for cigarettes, inhaled like cigarettes, and smoked in the same way as cigarettes (i.e., responded with 5, 6, or 7 on the scale of 1 = definitely not to 7 = definitely yes; Table 2). Fewer, albeit substantial numbers, of participants indicated the filtered “little cigars” could definitely or possible be smoked as a substitute for cigarettes if they were sold for less than \$3 per pack (39.5%) or sold in low, light, or ultralight brand varieties (28.7%).

Table 3 shows ANCOVA results regarding the effects of the experimental factors on participants’ beliefs that filtered “little cigars” could be used as direct substitutes for conventional cigarettes. There was a statistically significant difference in participants’ beliefs based on the product displayed in the image ($p = .009$), but not the package label ($p = .075$) or the interaction between product displayed and label ($p = .352$). Participants who viewed conventional cigarettes in front of the packs indicated more strongly that the product shown could be used as a direct substitute for cigarettes ($M 4.59$, $SE 0.09$) than those who viewed stimuli displaying individual “little filtered cigars” ($M 4.32$, $SE 0.09$, $p = .009$).

Characteristics Believed to be Associated with Cigarettes vs. with Little Cigars

Table 3 also shows the ANCOVA results for characteristics participants believed to be associated more with cigarettes or more with little cigars. There were no statistically significant main or interaction effects of the experimental factors in this model relating to the characteristics participants associated more with little cigars (Table 3). There was a statistically significant difference in participants’ beliefs based on the product displayed ($p = .005$), but not the label ($p = .732$) and/or the interaction between the product displayed or the label ($p = .638$). Participants who viewed images of conventional cigarettes in front of the packs more strongly associated the cigarette-linked characteristics with cigarettes ($M 2.18$, $SE 0.04$) than those who viewed images displaying “little filtered cigars” ($M 2.30$, $SE 0.03$, $p = .005$).

Complete items assessing characteristics participants’ believed to be associated with cigarettes versus little cigars, item-level descriptive statistics, and factor loadings from the analysis described above are shown in Table 4. More than half of participants believed that each of the following characteristics meant the product was definitely or probably a cigarette (Table 4): sold in packs of 20 (76.6%), come in menthol (69.4%), come in low, light, ultralight (64.6%), have a filter (59.2%), affordable to smoke 10+ per day (55.2%), or could be inhaled deeply (51.7%). More than half of respondents thought that each of the following characteristics meant the product was definitely or probably a little cigar: sold in singles (67.6%), sold in packs of 5 (67.6%), have a plastic or wooden tip (63.5%), wrapped in tobacco leaf (57.6%), come in fruit, candy, or other non-tobacco flavor (54.5%).

DISCUSSION

Overall, the majority of study participants perceived that filtered “little cigars” can be used as substitutes for cigarettes, perceived characteristics such as filter, sold in packs of 20, could be inhaled deeply, and wrapped in paper to be associated with cigarettes, and characteristics such as wrapped in tobacco leaf, having a plastic or wooden tip, and being sold in packs of 5 or singles to be associated with little cigars. Varying the package label (cigar or no) did not produce different beliefs. Substituting cigarettes in the image for filtered “little cigar” products did produce stronger views that products could be used as a substitute for cigarettes and that product features were associated with cigarettes, however these effects were relatively small and the statistical significance is likely due to the sample size overall.

It is important to note that the packs of filtered “little cigars” shown in this study (and the other brands that were subject to FDA’s warning letters) do not have any of the study characteristics that participants perceived to be most strongly associated with bona fide little cigars (Table 4), except being offered in flavors other than menthol (which is likely from such flavors being banned for cigarettes and not for any cigars, and does not reflect inherent cigarette vs. cigar characteristics). But these “little cigars” have all of the characteristics that participants perceived to be associated with cigarettes, except they are not rolled in paper. If the little cigar products were wrapped in paper, they would automatically be cigarettes under existing legal definitions. Indeed, if these “little cigars” had been labeled as “cigarettes,” instead, they would have no characteristics that would support regulating them as cigars.

In previous studies, some smokers identified brands of “little cigars” as their regular brand of cigarette,^{10–14} or reported smoking cigarettes with flavors when no tobacco products labeled as cigarettes have such flavors,¹⁹ suggesting that some filtered “little cigars” are “likely to be purchased by consumers as a cigarette” indicating they are cigarettes under the federal Tobacco Control Act and some state and local laws and the MSA. The fact that a substantial portion of this study’s sample of smoker and non-smoker participants perceived that certain smoked rolls of tobacco labeled as “little cigars” or “filtered cigars” can be used as direct substitutes for conventional cigarettes that can be smoked and inhaled just like conventional cigarettes provides evidence that consumers view these products as cigarettes as they are defined under many existing tobacco control and tobacco tax laws.

By identifying product characteristics that participants strongly associated with cigarettes versus entirely different characteristics participants strongly associated with little cigars, the study’s findings also provide guidance for how FDA and other government officials could readily distinguish between bona fide little cigars and cigarettes that are labeled as being cigars. For example, FDA might issue a guidance or take enforcement actions stating that any roll of tobacco that significant numbers of consumers smoke by inhaling deeply is a cigarette and that any roll of tobacco that is not wrapped in whole tobacco leaf and has a cigarette-type filter will be presumed to be a cigarette under the TCA’s definitions, unless the manufacturer provides evidence showing that no significant portion of consumers either perceive or smoke the product as a cigarette.

Future research could provide additional clarification and insights by allowing participants to identify tobacco products as being cigarettes despite being labeled as “cigars,” determining how measures such as those in this study relate to use behavior in tobacco users and to markers of risk (e.g., susceptibility, curiosity) in non-users, and by measuring the extent to which smokers of different types of products labeled “little cigars” inhale and smoke similarly to conventional cigarette smokers. But this study, with other available research, already provides important guidance for government policymaking and enforcement practices.

The study should be interpreted in light of important limitations. This study involved a cross-sectional, convenience sample of participants from a limited geographic area. Although we used quotas to achieve approximately equal numbers of older and younger adult smokers and non-smokers based on population-level epidemiological data, demographic characteristics of the study sample may not be representative of those of the population and generalizability may be limited. Measures of participants’ beliefs that filtered “little cigars” could be used as substitutes for cigarettes and the characteristics participants believed to be associated with little cigars versus cigarettes were carefully developed based on prior research for face validity and performed reliably within the sample. But we relied on participant self-report for all measures and we instructed participants to respond based on their beliefs under hypothetical scenarios tailored to their smoking status (e.g., cigarette smokers instructed to respond based on if their usual brand was not available). These methodological features could introduce bias from participants’ assumptions regarding the availability or lack of availability of other cigarettes during the hypothetical scenarios. However, this study avoided the serious bias in other studies where participants have been required to identify the products they smoke according to how the manufacturer has labeled them, instead of using their own perceptions.^{14–18}

IMPLICATIONS FOR TOBACCO REGULATION

Other researchers have recently made compelling arguments that filtered “little cigars” and other little cigar products should be treated just like cigarettes in public health laws and regulation, rather than subjected only to weaker cigar regulations.³⁴ This study provides new experimental evidence that, based on consumers’ beliefs, “little cigars” already fit under existing cigarette definitions in federal and other health and tax laws because consumers perceive filtered “little cigar” products to be the same as cigarettes. Our findings not only support immediate government action to stop manufacturers from evading tax laws and tobacco control regulations by mislabeling their tobacco products as “filtered cigars” or “little cigars,” but also show how enforcement officials can readily distinguish between bona fide little cigars and fake-cigar cigarettes.

Acknowledgments

The study was supported by the DC Metro Tobacco Research and Instruction Consortium (MeTRIC). This study was also supported in part by the National Institutes of Health (NIH) and Food and Drug Administration (FDA) Center for Tobacco Products under NIH grant number K07CA172217 and by the NIH under the Georgetown Lombardi Comprehensive Cancer Center Support Grant under NIH grant number P30CA051008. The study sponsors had no role in the study design; in the collection, analysis and interpretation of the data; in the writing of the report; and in the decision to submit the paper for publication. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH or the FDA.

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Figure 1.

Experimental stimuli

Note. Stimuli from the 2×2 between subject experiment that varied the following factors: 1) label: cigar, or no cigar label; 2) product shown: little filtered cigar sticks or cigarette sticks. Authors purchased and photographed packaging. Photo credit: Darren Mays.

Table 1.

Sample characteristics

	Mean (SD)	% (N)
Sex		
Male		33.9% (349)
Female		66.1% (681)
Age	31.1 (11.4)	
30 years		66.6% (686)
31 years		33.4% (344)
Race		
White		75.5% (776)
Non-white		24.5% (252)
Ethnicity		
Hispanic		5.5% (56)
Non-Hispanic		94.5% (971)
Education		
College Education and Higher		43.9% (449)
Less Than College Education		56.1% (574)
Employment		
Full Time Employed		52.3% (536)
Not Full Time Employed		47.7% (489)
Income		
< \$50,000/year		46.3% (476)
\$50,000/year		46.9% (482)
Prefer Not to Say		6.8% (70)
Cigarette Smoking Status		
Current Smoker		66.7% (687)
Non-Smoker		33.3% (343)
Little Filtered Cigar Awareness & Use		
Not Aware		40.5% (415)
Aware, Never Used		20.4% (209)
Tried, Non-User		14.5% (149)
User		24.7% (253)
Other Tobacco Product Use		
Yes		31.5% (324)
No		68.5% (706)
Study Condition		
Cigar Label, Little Filtered Cigar Shown		24.3% (250)
Cigar Label, Cigarette Shown		26.8% (276)
No Cigar Label, Little Filtered Cigar Shown		25.1% (259)
No Cigar Label, Cigarette Shown		23.8% (245)
Dependent Variables		

	Mean (SD)	% (N)
Little Filtered Cigars as Substitutes for Cigarettes	4.24 (2.08)	
Characteristics Believed to be Associated with Cigarettes	2.19 (0.66)	
Characteristics Believed to be Associated with Little Cigars	3.64 (0.95)	

Note. *SD* = standard deviation. Some *N*s for categories within variables do not sum to total sample size (1,030) due to sporadic missing data (<5% of cases for any individual variable).

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Table 2.
Item-level descriptive statistics for beliefs that little filtered cigars can be used as a direct substitute for cigarettes

Item	Percent of Participants' Responses							M	SD
	1	2	3	4	5	6	7		
... Can be smoked as a substitute for cigarettes	19.1	5.4	8.6	16.9	17.8	14.3	18.0	4.3	2.1
... Can be smoked in the same way as cigarettes	17.5	7.7	8.1	12.4	15.6	18.2	20.5	4.4	2.1
... Can be inhaled like cigarettes	13.0	5.4	7.5	15.6	16.4	15.4	26.7	4.7	2.0
... Would consider smoking it if it were available for \$US 3 less per pack	18.0	6.3	7.3	12.1	16.8	17.6	21.9	4.4	2.1
... Could be smoked as a substitute if available in low, light, or ultralight	21.1	6.0	8.8	18.6	16.8	13.8	14.9	4.1	2.1
Scale Cronbach Alpha	0.89								

Note. *M* = Item mean, *SD* = Item standard deviation. Response choices were anchored at 1 = Definitely not and 7 = Definitely yes. Question stems and items were tailored to participants' cigarette smoking status (non-smokers, former smokers, current smokers) referring to what smokers would do if their usual brand was not available, what non-smokers think a smoker would do if their usual brand was not available, and what former smokers would have done if their usual brand was not available.

Table 3.

Analysis of covariance (ANCOVA) results

	Package Labeling			Product Shown		
	<i>F</i>	<i>P</i>	Cigar <i>M (SE)</i>	None <i>M (SE)</i>	Filtered Little Cigar <i>M (SE)</i>	Cigarette <i>M (SE)</i>
Little Filtered Cigars as Substitutes for Cigarettes	3.18	.075	4.36 (0.09)	4.55 (0.09)	4.32 (0.09)	4.60 (0.09)
Characteristics Believed to be Associated with Cigarettes	0.12	.732	2.25 (0.03)	2.23 (0.04)	2.30 (0.03)	2.18 (0.04)
Characteristics Believed to be Associated with Little Cigars	0.00	.953	3.62 (0.05)	3.62 (0.05)	3.61 (0.05)	3.63 (0.05)

Note. *F* = *F* statistic, *P* = *P* value, *M* = adjusted mean, *SE* = Standard error. The interaction between Package Labeling and Product was included in the model but was not statistically significant, so only adjusted means corresponding to the main effects are displayed. ANCOVAs included as covariates: age, cigarette smoking status, and little cigar product awareness/use. For Little Filtered Cigars as Substitutes for Cigarettes, higher values indicate stronger beliefs little filtered cigars are cigarette substitutes. For Characteristics Believed to be Associated with Cigarettes, lower values indicate characteristics more strongly associated with cigarettes. For Characteristics Believed to be Associated with Little Cigars, higher values indicate characteristics more strongly associated with cigars.

Table 4.
Item-level descriptive statistics and factor loadings for characteristics of little cigars and characteristics of cigarettes

Item	Percent of Participants' Responses					Factor 1: Characteristics of Little Cigars			Factor 2: Characteristics of Cigarettes		
	1	2	3	4	5	M	SD	Factor Loading	M	SD	Factor Loading
Affordable to smoke 10 or more a day	27.5	27.7	32.6	7.6	4.6				2.3	1.1	0.53
Can be inhaled deeply	29.5	22.2	38.0	7.1	3.2				2.3	1.1	0.58
Wrapped in paper	26.3	21.5	29.1	13.1	10.0				2.6	1.3	0.45
Sold in packs of 20	51.4	25.2	18.1	3.0	2.2				1.8	1.0	0.69
Come in menthol	40.7	28.7	25.3	3.2	2.1				2.0	1.0	0.73
Come in low, light, ultralight	35.4	29.2	26.2	6.3	2.9				2.1	1.1	0.68
Have a filter	32.1	27.1	32.9	5.7	2.2				2.2	1.1	0.69
Subscale Eigenvalue									2.8		
Subscale Cronbach Alpha									0.73		
Wrapped in tobacco leaf	7.9	11.7	22.8	24.2	33.4	3.6	1.3	0.75			
Come in fruit, candy, or other non-tobacco flavor	10.6	11.6	23.4	26.5	28.0	3.5	1.3	0.75			
Have a plastic or wooden tip	8.0	9.0	19.6	27.6	35.9	3.7	1.3	0.81			
Do not have a filter	8.6	11.3	35.0	24.5	20.6	3.4	1.2	0.64			
Sold in packs of 5	8.4	8.2	15.7	36.2	31.4	3.7	1.3	0.82			
Sold in singles	7.9	8.0	16.6	25.7	41.9	3.9	1.0	0.80			
Subscale Eigenvalue						3.7					
Subscale Cronbach Alpha						0.86					

Note. *M* = Item mean, *SD* = Item standard deviation. Participants were instructed to indicate how much they would consider a product with each characteristic listed to be a cigarette or a little cigar. Response choices were 1 = Definitely a cigarette, 2 = Probably a cigarette, 3 = Either a cigarette or a little cigar, 4 = Probably a little cigar, 5 = Definitely a little cigar.