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Impact of Presence of Children on Indoor Tobacco Restrictions in Households of Urban and Rural Adult Tobacco Users

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Abstract

Objectives—Secondhand smoke exposure (SHSe) in children is changing due to new public policy and electronic nicotine products (e-cigarettes). We examined factors related to self-imposed indoor household tobacco restrictions, with emphasis on children in the household and associations with combustible and non-combustible product use.

Methods—A cross-sectional survey of urban and rural Ohio adult tobacco users classified participants as exclusive combustible users, smokeless tobacco (SLT) users, e-cigarette users, or dual users. They were further stratified based upon combustible or non-combustible product use and the presence of indoor tobacco use restrictions. Multiple logistic regression determined factors associated with indoor tobacco restrictions.

Results—1210 tobacco users participated including 25.7% with children living in the home. One-half allowed combustible and two-thirds allowed non-combustible tobacco use indoors. Urban location (OR=1.58), younger age (OR=0.88 per 5 year), male sex (OR=1.40), college education (OR=1.40), household income > \$15,000 (OR=1.78), and being married (OR=2.43) were associated with a higher likelihood of banning combustible products indoors. SLT (OR=8.12) and e-cigarette (OR=5.85) users were more likely to have indoor bans compared to combustible users. Children in the household (OR=1.89), older age (OR=1.12 per 5 year) and non-white race (OR=1.68) were associated with a higher likelihood of banning non-combustible products indoors.

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Combustible (OR=4.54) and e-cigarette (OR=3.04) users were more likely than SLT users to have indoor bans.

Conclusions—Indoor restrictions on tobacco use remain infrequent in homes with children and are associated with user types and socioeconomic factors. Further public policy should target modifiable risk factors for in-home SHSe.

Keywords

tobacco smoke pollution; child; public health

INTRODUCTION

One of the goals of the United States Healthy People 2020 Objectives is to “reduce illness, disability, and death related to tobacco use and secondhand smoke exposure (SHSe)” as over 20 million Americans have died because of smoking in the past 50 years.¹ To this end, in the past decade, the U.S. has seen an increase in smoke-free policies which have decreased SHSe for non-smokers in public venues.² However, children still remain at high risk of SHSe from indoor exposures to tobacco-based products at home and inside cars.³ Additionally, local smoke-free policies are more likely to be adopted in affluent communities,⁴ placing children who reside in disadvantaged areas further at risk of SHSe. In children, SHSe is associated with a myriad of health risks including increased respiratory illnesses, impaired lung development, and decreased immunity.⁵ Although most pediatricians advise patients about the health risks of SHSe, few pediatricians assist with parental smoking cessation leaving children at continued risk.⁶ Pediatricians have a unique opportunity to detect, counsel, and provide treatment for nicotine dependence to prevent SHSe in children⁷, and current information regarding SHSe is integral to these efforts.

The duration and intensity of SHSe in children is dependent on the presence of indoor smoking restrictions.⁸ Socioeconomic status has been implicated in multiple studies as the major risk factor for in-home SHSe for children due to a lack of indoor restrictions.⁹ Other risk factors include parental smoking, low parental educational attainment, and less-negative attitudes towards the risks of tobacco smoke.⁹ Geographic setting may also influence indoor restrictions on SHSe. Both rural and urban settings are associated with increased SHSe in children when compared to suburban areas of higher socioeconomic status.¹⁰ However, urban dwellers are two times more likely to report a smoke-free home than rural dwellers.¹¹ Similarly, rural settings are also less likely to have smoke-free parks, as compared to urban or suburban settings.¹² Despite this cumulative knowledge, factors associated with restricting a child’s indoor exposure to tobacco products in tobacco user households remain unclear.

In homes lacking indoor restrictions, the exposure of children to tobacco-based products is also influenced by parental preferences for the type of product used.¹³ The dangers of SHSe from traditional combustible cigarettes are well documented⁵, but newer products such as electronic cigarettes (e-cigarettes) are less well defined.¹⁴ While non-combustible tobacco products such as smokeless tobacco (SLT) or e-cigarettes are perceived to have less risk to children compared to combustible products, homes of SLT users have been shown to contain

high concentrations of carcinogens,¹⁵ conferring potential risk to children in these homes. All of these factors contribute to the uncertainty surrounding the current risks of non-combustible in-home tobacco exposure for children.

Existing knowledge gaps regarding SHSe in children and other household members include risks of exposure to non-combustible tobacco products, frequency of exposure to non-combustible tobacco products, and if existing public policy has decreased exposure to combustible and non-combustible products. These knowledge gaps combined with the changing landscape of tobacco products available in the U.S. indicate that further research is needed in this area. Therefore, we sought to describe tobacco use behaviors and self-imposed tobacco product restrictions in an existing cohort of Ohio urban and rural adult tobacco users with or without children in the household. The primary aims of this study were to: 1) describe sociodemographic and tobacco use characteristics of households according to tobacco product; and 2) determine factors related to self-imposed indoor combustible and non-combustible household tobacco product restrictions with emphasis on children in the household. We hypothesized that indoor tobacco restrictions would be higher in households where children were present irrespective of tobacco user type.

METHODS

Study Design

The parent study design involved assembling a cohort of adult (aged 18+ years) tobacco product users in urban Franklin County Ohio (Columbus) and six rural Appalachian Ohio counties and is described in detail elsewhere.¹⁶ Briefly, an addressed-based sampling approach was used to enroll the final sample (n=1210) in a longitudinal, observational study that included a baseline face-to-face interview with subsequent follow-up face-to-face interviews every six months for a period of 36 months that included structured administration of the survey by the interviewer. This paper describes, at baseline, adults from those cohort participants who reported the presence (n=311) or absence (n=899) of a child (i.e. less than age 18) residing in the home.

Study approval was obtained from the Ohio State University (OSU) Institutional Review Board (IRB). Participants provided informed consent prior to study enrollment.

Participant Selection

Eligibility Criteria—1) adults 18 years; 2) resident of Franklin or one of the 6 participating rural counties; 3) informed consent obtained; and 4) meets criteria for inclusion in one of the following groups: **a) exclusive combustible user:** self-reports smoking > 100 cigarettes (or small cigars/cigarillos, pipes filled with tobacco, cigars, filtered cigars, or hookah) in lifetime and currently smoking every day or some days/week; **b) exclusive SLT tobacco user (non-combustible):** self-reports current use of chew, snuff, snus or dissolvable tobacco every day or some days/week; **c) exclusive e-cigarette user (non-combustible):** self-reports as using an e-cigarette every day or some days/week; or **d) dual user:** self-reports as: use every day or some days/week from at least 2 product categories (combustible,

SLT, e-cigarettes). Language was not an exclusion criteria, but all participants were English speaking.

Participant Recruitment—The cohorts were selected using address-based sampling methods¹⁷ that were implemented by the Recruitment, Survey, and Retention Core of the Ohio State University Center for Regulatory Tobacco Science (OSU-CERTS). A total of 189,075 randomly selected addresses (yielding 89,763 households in the Appalachian counties and 90,312 households in Franklin County) were sent a postcard alerting them that a screener letter would be coming from OSU-CERTS, describing a research study opportunity and that it would contain a \$2 bill. The screener letter explained the study in general terms, included a \$2 bill incentive, and asked about household composition on a short form questionnaire. Information to be listed on the questionnaire included name and contact information (i.e. phone) of all household residents, 18 and older, and their current use of tobacco products, as well as information about diet and physical activity. Household residents were also asked to list the gender and age of children residing in the household, indicate whether they would be willing to be contacted about participating in the study, and return the questionnaire to OSU research staff in a self-addressed, stamped envelope included in the mailing. Upon return of the questionnaire, one potentially eligible adult from each household was randomly selected to participate. The potentially eligible household member was contacted by a trained local field interviewer to confirm eligibility and schedule a time to meet face-to-face to explain the study in detail, obtain informed consent, and conduct the baseline interview. Households that did not respond received a letter three weeks after the initial mailing that contained the same package (i.e. screener letter, questionnaire, and self-addressed stamped envelope, but no additional money).

Study Procedures

Cohort participants were interviewed face-to-face at baseline. Survey responses were entered by a trained interviewer in REDCap (Research Electronic Data Capture) secure management system, with the exception of drug and alcohol use information, and prior psychiatric diagnoses. These variables were directly entered by the participant into REDCap, using audio computer-assisted self-interview software. Baseline interview location sites were chosen by the participant and included their home, a county/city building (e.g. library) or a local retail venue (e.g. restaurant). The baseline interview session lasted about one hour. Participants were paid \$50 for completion of the interview.

Measures

Information was obtained about the participant's socio-demographic characteristics, past and current tobacco product use and indoor combustible and non-combustible household restrictions. Listed below are the specific variables of interest for this secondary analysis.

Social-demographic Characteristics—1) age; 2) gender; 3) race/ethnicity; 4) level of education; 5) household income; 6) occupation; 7) marital status; 8) number of children (18) residing in home; and 9) county of residence. No information was collected for type of housing (i.e. single, multi-family) or ownership (i.e. owned, rented, subsidized).

Current Tobacco Use and Indoor Restriction Factors—1) current tobacco product use: type(s), brand(s) and frequency of tobacco product(s) currently used; and 2) self-reported presence of self-imposed indoor tobacco product restrictions at home.¹⁸ One item each assessed combustible and non-combustible product restrictions. For each item, product restriction response options included: 1) not allowed anywhere or at any time inside the home (complete); 2) allowed in some places or at some times inside the home (partial); or 3) allowed anywhere and at any time in the home (none).

Statistical Analyses

Categorical data, summarized with frequencies and percentages, were analyzed with chi-square tests while age, summarized with means and standard deviations, was analyzed with t-tests and analysis of variance (ANOVA). Further, comparison of proportions with combustible and non-combustible indoor bans for socio-demographic and risk-related factors was achieved with McNemar's tests. In order to determine the significant factors associated with complete bans on combustible or non-combustible tobacco product use within the home, multiple logistic regression models were fit separately for a complete ban on indoor combustible product use and a complete ban on indoor non-combustible product use. These models were based on users of tobacco products within a single category and those responding to both questions. Each model was adjusted for region, tobacco user type, age, gender, race, education, income, marital status, and presence of children in the home. The fit of the models was evaluated with Hosmer-Lemeshow goodness of fit tests. Ninety-five percent confidence intervals for odds ratios were reported. A *p* value <0.05 was considered significant. All statistical analyses were conducted with SAS 9.4 (SAS Institute Inc. Cary NC).

RESULTS

Based on the American Association for Public Opinion Research minimum response rates¹⁹, the screener questionnaire return rates and invitation to be interviewed response rates are listed in Figure 1. Overall, 92% of those participants who agreed to be interviewed did cooperate and are included in the final sample. Sample characteristics are listed in Table 1, stratified by tobacco user type with significant differences noted for overall comparisons.

Socio-demographics

Table 1 presents socio-demographic characteristics of the sample. SLT users were more likely to be male compared to other user types. E-cigarette and dual users were younger than combustible and SLT users. A higher percentage of e-cigarette users had at least some college education compared to other tobacco user types. Notably, over 25% of combustible and dual users reported a total household income less than \$15,000. Among the total sample, 311 participants indicated children were living in their home, with a roughly equal split among tobacco user types.

Indoor Restrictions

As presented in Table 2, participants who were categorized as SLT and e-cigarette users reported complete combustible product indoor bans more frequently than combustible and

dual users. Complete non-combustible product indoor bans ranged from a low of 7.2% among SLT users to a high of 26.9% for combustible users. Among e-cigarette users, there was no significant difference among households with or without children in the restriction of e-cigarette flavorings as a group, although candy/dessert/sweet flavorings were higher in households with children (27.0% vs 13.0%), and unflavored use was lower in households with children (18.9% vs 37.0%, data not shown).

Differences in indoor restrictions based on combustible and non-combustible tobacco use

Next, we examined differences in the presence or absence of indoor air restrictions according to socio-demographic factors and user type (Table 3). Thirty-eight subjects (3.1%) were excluded from this analysis as they did not have complete information on both combustible and non-combustible product restrictions.

Combustible users had a significantly lower proportion of complete indoor bans on combustible products compared to other user types. SLT users (non-combustible) had the lowest proportion of complete bans on non-combustible products. SLT, e-cigarette, and dual users had significantly less indoor bans on non-combustible products as compared to combustible products when analyzing proportions across each user type. There was no significant difference in the proportion of combustible user households with bans on indoor use of combustible (29.1%) and non-combustible (26.9%) products.

There were significant differences in household characteristic proportions where a complete ban in either combustible or non-combustible products was reported. Complete combustible bans were more frequent in urban participants, males, Whites, persons with some college education, higher income households, and married couples. Non-combustible product bans were more frequent in urban participants, females, and non-White races. About half the households (51.6%) with children had complete bans on combustible products whereas only about one-fourth (25.7%) had bans on noncombustible products. Also, the prevalence of bans on the indoor use of combustible and non-combustible products in households with children was higher than in those without children (42.1% and 19.5%, respectively).

Factors associated with combustible and non-combustible restrictions

Lastly, we performed logistic regression to determine individual socio-demographic factors and tobacco user types associated with indoor restrictions for combustible (Table 4) and non-combustible (Table 5) products. For combustible use restrictions, multiple factors were significantly associated with an increased likelihood of a having a complete ban including urban location (OR 1.58, CI 1.14 – 2.19), male gender (OR 1.40, CI 1.01 – 1.94), at least some college education (1.40, CI 1.03 – 1.91), household income greater than \$15,000 (OR 1.78, CI 1.18 – 2.69), and married/living together (OR 2.43, CI 1.63 – 3.62). As compared to combustible users, non-combustible SLT (OR 8.12, CI 5.15 – 12.82) and e-cigarette (OR 5.85, CI 3.70 – 9.26) users were more likely to have a complete indoor combustible tobacco ban. Older participant age (OR for a 5 year increase 0.88, CI 0.83 – 0.94) was associated with decreased complete indoor bans. The presence of children was not significant after controlling for these factors.

Regarding non-combustible use restrictions, children in the home (OR 1.89, CI 1.26 – 2.83), older participant age (OR for a 5 year increase 1.12, CI 1.05 – 1.20), and non-white race (OR 1.68, CI 1.07 – 2.62) were associated with increased likelihood of having complete bans. Compared to SLT users, combustible (OR 4.54, CI 2.41 – 8.55) and e-cigarette users (OR 3.04, CI 1.41 – 6.57) were more likely to have complete bans on indoor non-combustible product use.

DISCUSSION

Children remain at high risk of SHSe in the presence of adults who use tobacco-based products. We found that approximately half of adult smokers lack restrictions on combustible and three-fourths lack restrictions on non-combustible tobacco product use inside homes containing children, and these proportions were only slightly higher than homes without children. The combustible product estimate is lower than the national average from the 2010–2011 U.S. Current Population Survey (61%), but comparable to Ohio results from the same survey (53%), indicating little continued progress in smoke-free homes in these high-risk areas.³ Additionally, families with older tobacco users, combustible users, female users, single-parent homes, rural location, smokers with less than a college education, and combined family incomes less than \$15,000 were more likely to lack indoor restrictions on combustible tobacco use. These findings have important implications for healthcare providers in order to prevent continued SHSe in children and other household members. Providers should focus on new and expanded public policy, public education on non-combustible tobacco products, and provider-based counseling regarding indoor tobacco restrictions.

Socioeconomic status has been associated with objective measures of SHSe in multiple previous studies.^{20–28} In our mixed cohort of rural and urban-dwelling residents we found that households at or below the federal poverty level were at high risk for SHSe due to a lack of indoor restrictions on smoking. This would imply that despite cultural and racial differences across regions, low socioeconomic status remains a strong predictor of SHSe in children and other family members. Over 20% of our sample reported a total household income of less than \$15,000, indicating a significant proportion of at-risk families. Therefore, further preventative efforts and public policy should be directed towards the prevention of SHSe in low socioeconomic status households. Further expansion of smoke-free policies to include all public housing developments would be one example.²⁹

The presence of children in the home was associated with a higher likelihood of indoor restrictions on non-combustible product use; this occurred despite findings that in homes with children, twice as many households had a complete combustible ban (51.6%) versus a non-combustible ban (25.7%). This suggests some heightened awareness of restrictions in children based on tobacco user type. Young children are one of the most susceptible groups to the damaging effects of SHSe due to high respiratory rates, frequent indoor time, developing immune systems, and frequent hand-oral behaviors whereby combustible and non-combustible tobacco byproducts deposited on household surfaces can be re-ingested.⁵ Alveolar lung growth continues past the first year of life, emphasizing a need for continued restriction on SHSe for optimal lung growth. Concerns for SHSe in young children may be

accentuated if SHSe is also present in motor vehicles similarly to inside the home, due to the high concentration of smoke in a smaller, confined space.³⁰ Although we did not have information on participants smoking in motor vehicles, lower socioeconomic status has been associated with more frequent SHSe in motor vehicles, suggesting a higher risk for a large portion of our cohort.³¹ SHSe of young children in confined spaces such as houses and cars remains another area for further policy expansion in the United States.

When comparing tobacco user types, indoor combustible restrictions were lacking in combustible compared to SLT users (non-combustible). This finding may be specifically related to the perceived risk of the tobacco product used. Similarly, e-cigarette users (non-combustible) had infrequent indoor bans on non-combustible product use, despite a high proportion of households with bans on combustible products. Previous focus groups have reported that individuals who use SLT feel that it is safer to use around kids, because 'nobody dies from secondhand spit'.³² However, homes of SLT users contain 5–7 times the amount of tobacco carcinogens like nitrosamines than smoke-free homes.¹⁵ Therefore, failure to restrict SLT use in homes may still expose children and other residents to harmful tobacco by-products. A recent survey demonstrated that two-fifths of US adults believe that children's exposure to e-cigarettes causes some or little harm, while one-third do not know whether it causes harm.³³ Combined, these studies indicate that further public education is needed to improve awareness of the exposure of children and adults to SLT and e-cigarette use.

Besides a lack of indoor restrictions to tobacco exposure, our study revealed that households with children demonstrated a high percentage of fruit and candy-flavored liquid nicotine usage, which is associated with child poisonings if left unattended. The frequency of exposures to e-cigarettes and nicotine liquid among young children is increasing rapidly and children are at high risk of nicotine poisoning when fruit or candy-flavored e-cigarette refills are present in the home.³⁴ E-cigarette access restrictions should be included with in-home tobacco exposure restrictions because of the high potential toxicity to children.^{34, 35} Clinical providers should be aware that specific counseling regarding e-cigarette flavoring choice is necessary when children are present in the home and is an important step to prevent unintentional nicotine poisoning in children.

Our study was limited by the survey design, which did not allow for objective markers of SHSe. Similarly, objective markers of indoor tobacco restrictions were not present. Self-reported bans are subject to a social desirability bias in reporting and in this study may over-represent the presence of bans, especially in households with children present. Additionally, survey data on teenage tobacco use was not available. We were limited to sampling from one state, which may limit the generalizability of the findings. Despite these limitations, the large sample size from both urban and rural settings provides unique insights into SHSe in these environments where children or other vulnerable family members are present.

In conclusion, the presence of indoor restrictions on combustible and non-combustible tobacco use remains infrequent in homes with and without children and is differentially expressed based on geography and socioeconomic factors. Further public policy and interventions should target modifiable risk factors for in-home SHSe. Specific policy and

interventions include expansion of smoke-free policies in all public-housing developments, policies to ban smoking in cars where children are present, public education on the dangers of non-combustible tobacco product exposure, and reducing e-cigarette flavoring in homes with children.

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What's New

This study examined factors related to indoor tobacco restrictions, with emphasis on children in the household. We present updated indoor tobacco exposure prevalence data and novel stratification based upon combustible and non-combustible product usage and indoor tobacco restrictions.

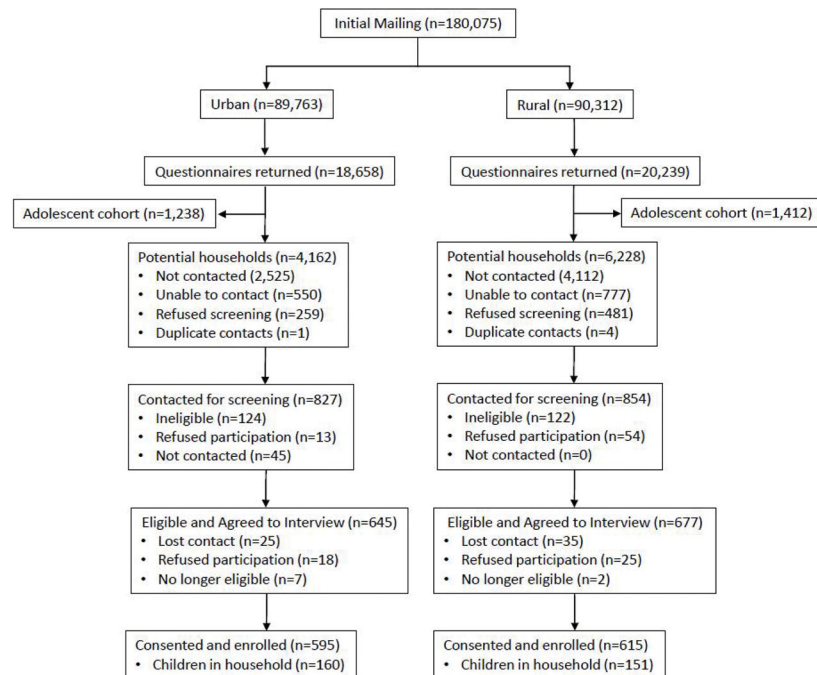


Figure 1.
Recruitment of adult tobacco users in Ohio, stratified on region and with listing of distribution of children in the household.

Table 1

Socio-demographic characteristics for households in the four tobacco product use categories, n=1210.

Combustible (n=724)													Smokeless (n=208)			E-Cigarette (n=133)			Dual (n=145)			p-value ¹			
n			%			n			%			n			%			n			%				
Children in Household																									
No	530			73.2			156			75.0			106			79.7			107			73.8			0.465
Yes	194			26.8			52			25.0			27			20.3			38			26.2			
Age (years) ²																							<0.001		
50.4			14.5			50.5			16.7			47.3			15.7			44.8			15.8				
Gender																							<0.001		
Male	321			44.4			205			98.6			68			51.1			80			55.2			
Female	402			55.6			3			1.4			65			48.9			65			44.8			
Race																							<0.001		
Non-white	149			20.6			3			1.4			8			6.0			18			12.4			
White	575			79.4			205			98.6			125			94.0			127			87.6			
Education																							0.007		
Less than college	335			46.3			90			43.3			40			30.1			61			42.1			
At least some college	389			53.7			118			56.7			93			69.9			84			57.9			
Household income																							<0.001		
<\$15,000	185			27.0			18			9.1			16			12.9			37			27.2			
\$15,000	501			73.0			179			90.9			108			87.1			99			72.8			
Marital status																							<0.001		
Single	230			31.8			30			14.5			43			32.3			44			30.3			
Married/Living together	263			36.3			133			64.3			59			44.4			60			41.4			
Separated/Divorced	179			24.7			34			16.4			20			15.0			28			19.3			
Widowed	52			7.2			10			4.8			11			8.3			13			9.0			

¹ p-value from chi-square test unless otherwise noted

² Mean and Standard Deviation; p-value from ANOVA

Table 2

Combustible and non-combustible tobacco product restrictions for households in the four tobacco product use categories, n=1210.

Region	Combustible (n=724)		Smokeless (n=208)		E-Cigarette (n=133)		Dual (n=145)		p-value [/]
	n	%	n	%	n	%	n	%	
--									
Appalachia	348	48.1	144	69.2	56	42.1	67	46.2	
Franklin	376	51.9	64	30.8	77	57.9	78	53.8	
Combustible restrictions									
Partial/no restrictions	511	70.7	42	20.3	34	25.8	86	59.3	<0.001
Complete ban	212	29.3	165	79.7	98	74.2	59	40.7	
Non-combustible restrictions									
Partial/no restrictions	506	73.1	193	92.8	108	81.8	121	84.6	<0.001
Complete ban	186	26.9	15	7.2	24	18.2	22	15.4	
[/] p-value from chi-square test									

[/] p-value from chi-square test

Percentage of households with indoor combustible and non-combustible tobacco product restrictions according to socio-demographic factors and user type (n=1172).

Table 3

Factor	Combustible			Indoor Ban			Non-Combustible		
	Partial/No Restrictions	Complete Ban	p-value	Partial/No Restrictions	Complete Ban	p-value	Partial/No Restrictions	Complete Ban	p-value
Age (years) [mean, SD]	51.6	46.6	16.0	0.001	48.7	15.1	51.1	15.6	0.029
Children in Household									
No	42.1	0.004		0.001		19.5	0.023		<0.001
Yes	51.6					25.7			<0.001
Region									
Appalachia	41.6	0.039				16.8	<0.001		<0.001
Franklin County	47.7					25.7			<0.001
No									
User Type									
Combustible	29.1	<0.001				26.9	<0.001		0.260
Smokeless	79.7					7.3			<0.001
E-Cigarette	74.1					18.3			<0.001
Dual	41.3					15.4			<0.001
Gender									
Male	54.1	<0.001				17.4	0.001		<0.001
Female	32.2					25.8			0.009
Race									
Non-white	29.4	<0.001				34.1	<0.001		0.217
White	47.1					18.9			<0.001
Education									
	<0.001						0.449		

Factor	Combustible			Indoor Ban			Non-Combustible		
	Partial/No Restrictions	Complete Ban	p-value	Partial/No Restrictions	Complete Ban	p-value	Partial/No Restrictions	Complete Ban	p-value
Less than college	37.0						22.1		<0.001
At least some college	50.5						20.3		<0.001
Household income								0.353	
<\$15,000	21.0		<0.001				22.6		0.637
\$15,000	50.6						19.9		<0.001
Marital status								0.903	
Single	38.3		<0.001				20.1		<0.003
Married/Living together	57.8						21.5		<0.001
Separated/Divorced	31.5						20.9		0.003
Widowed	30.6						23.5		0.239

¹ p-value from chi-square test comparing proportions within the same column

² p-value from McNemar's test comparing proportions across columns within the same row

Table 4

Logistic regression model and odds ratios for a complete ban on indoor combustible product use, only significant predictors shown; n=1003.

Predictors	Odds Ratio	95% CI	p-value
Region			0.006
Appalachia	Reference		
Franklin	1.58	(1.14, 2.19)	
Age (5 year increase)	0.88	(0.83, 0.94)	<0.001
Gender			0.044
Female	Reference		
Male	1.40	(1.01, 1.94)	
Education			0.033
Less than college	Reference		
At least some college	1.40	(1.03, 1.91)	
Household income			0.006
<\$15,000	Reference		
\$15,000	1.78	(1.18, 2.69)	
Marital status			<0.001
Single	Reference		
Married/Living together	2.43	(1.63, 3.62)	
Separated/Divorced	1.17	(0.73, 1.85)	
Widowed	1.49	(0.74, 3.02)	
User Type			<0.001
Combustible	Reference		
Smokeless	8.12	(5.15, 12.82)	
E-Cigarette	5.85	(3.70, 9.26)	

¹ Adjusted for region, tobacco user type, age, gender race, education, income, marital status, and presence of children in the home

Hosmer-Lemeshow Goodness of Fit Test: p=0.682

Table 5

Logistic regression model and odds ratios for a complete ban on indoor non-combustible product use, only significant predictors shown; n=976.

Predictors	Odds Ratio ^I	95% CI	p-value
Children in Household			0.002
No	Reference		
Yes	1.89	(1.26, 2.83)	
Age (5 year increase)	1.12	(1.05, 1.20)	0.001
Race			0.023
White	Reference		
Non-white	1.68	(1.07, 2.62)	
User Type			<0.001
Smokeless	Reference		
Combustible	4.54	(2.41, 8.55)	
E-Cigarette	3.04	(1.41, 6.57)	

^I Adjusted for region, tobacco user type, age, gender race, education, income, marital status, and presence of children in the home

Hosmer-Lemeshow Goodness of Fit Test: p=0.450