Published in final edited form as:

Addict Behav. 2008 March ; 33(3): 472–489. doi:10.1016/j.addbeh.2007.10.009.

Use of Other Tobacco Products among U.S. Adult Cigarette Smokers: Prevalence, Trends and Correlates

Cathy L. Backinger, PhD, MPH,
National Cancer Institute

Pebbles Fagan, PhD, MPH,
National Cancer Institute

Mary E. O'Connell, MA,
SAIC-Frederick Inc., NCI-Frederick

Rachel Grana, BS,
Scientific Consulting Group

Deirdre Lawrence, PhD, MPH,
National Cancer Institute

Jennifer Anne Bishop, MPH, and
U.S. Department of Health and Human Services

James Todd Gibson, BS
Information Management Systems

Abstract

This paper examines the trends in concurrent use of cigarettes and other tobacco and sociodemographic variables associated with concurrent use among adult cigarette smokers in the United States. Data from the 1995/96, 1998, 2000, and 2001/02 Tobacco Use Supplements to the Current Population Survey were used to estimate concurrent use of tobacco among cigarette smokers among adults ages 18 years and older (n for all 4 survey groups = 552,804). Concurrent use of tobacco fluctuated over the survey periods for current smokers and ranged from 3.7% in 1995/96 to 7.9% in 1998. Results from the multivariate logistic regression indicate that male current, daily, and intermittent smokers had substantially higher odds of concurrent use (OR = 12.9, 11.7, 17.2, respectively) than their female counterparts. Age, race/ethnicity, geographic region, income, and survey years were significantly associated with concurrent use among current and daily smokers; for intermittent smokers, these variables and occupation were significantly associated with concurrent use. The strongest correlates for multiple tobacco use among cigarettes smokers were being male and Non-Hispanic White. These factors should be considered when planning tobacco prevention and control efforts. In addition, surveillance efforts should continue to monitor changes in concurrent

Corresponding Author: Cathy L. Backinger, PhD, MPH, Health Behavior Scientist, Tobacco Control Research Branch, Behavioral Research Program, Division of Cancer Control and Population Sciences, National Cancer Institute, Rockville, MD 20852, USA, Telephone: 301-435-8638, Fax: 301-496-8675, backingc@mail.nih.gov.

Human Participant Protection

The research was determined to be exempt from IRB review at the National Institutes of Health.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

use and further investigate the increased risk of cancer among smokers who also use other forms of tobacco.

Keywords

cigarette smokers; multiple tobacco use cigar; pipe; snuff; chewing tobacco; trends

1. Introduction

The predominant form of tobacco use in the U.S. is cigarette smoking. Nearly 44.5 million adults are current smokers (Centers for Disease Control and Prevention (CDC), 2005). However, other tobacco products, including cigars, pipe tobacco, chewing tobacco, and snuff are highly available in the U.S. market. Newer products also exist, such as bidis, kreteks or use of a hookah (waterpipe). Other tobacco products are increasingly being promoted as cigarette alternatives and potentially less harmful. Other tobacco products may in fact be used concurrently by cigarette smokers, thereby increasing their risk for tobacco-related diseases. Concurrent tobacco use highlights the need to examine changes in the prevalence of multiple forms of tobacco in the U.S.

Studies indicate that pipe and cigar smokers have higher overall mortality rates than never smokers (National Cancer Institute, 1998). Cigar smoking has been associated with lung, oral, laryngeal, and esophageal cancer (National Cancer Institute, 1998); pipes associated with oral, esophageal, and pharyngeal cancer (U.S. Department of Health and Human Services, 2004); and chew and snuff associated with oral and pharyngeal cancer (U.S. Department of Health and Human Services, 1994). Concurrent users, those who smoke cigarettes in addition to cigars and/or pipes, experience higher intermediate levels of mortality (*Eds. Ferrance, Slade, Room, & Pope, 2000*). Furthermore, cigarette smokers who also use smokeless tobacco are more likely to ingest more nicotine on a daily basis and are less likely than single-form users to stop using tobacco (Wetter et al., 2002). The consequences of using multiple forms of tobacco may be additive or synergistic, but the true nature of this relationship remains unclear (Wetter et al., 2002). All tobacco products contain carcinogens and no tobacco product is free of harm. A typical cigar can deliver as much as ten times and bidis up to three to five times the amount of tar, nicotine, and carbon monoxide as a regular cigarette (Delnevo, Pevzner, Hrywna, & Lewis, 2004; Gilpin & Pierce, 2003).

A limited number of studies have focused on analyzing multiple tobacco use among some populations in the United States. Among college students aged 18–24, 51.3% of students who used tobacco reported concurrent use (Rigotti, Lee, & Wechsler, 2000). Studies have also found that adults, Non-Hispanic Whites and American Indians (Spangler et al., 2001), people of low socioeconomic status, heavy drinkers, and those living in rural Southeastern U.S. are also more likely than their comparison groups to engage in multiple tobacco use (Kopstein, 2001; Spangler et al., 2001; “United States Census Bureau. Quick Tables: Profile of General Demographic Characteristics”, 2000; Wetter et al., 2002).

Few studies have examined the prevalence and/or correlates of multiple tobacco use among current cigarette smokers. This study was undertaken to examine the trends in the prevalence of concurrent use of other tobacco products among U.S. adult cigarette smokers and examine sociodemographic characteristics associated with concurrent use among current, daily, and intermittent smokers. As new products are developed and marketed to consumers, it is important to assess the prevalence of concurrent tobacco use and determine how these behaviors have changed over time among adults. In addition, understanding the correlates of multiple tobacco use among cigarettes smokers can assist in the development of prevention

and cessation strategies. Results from this study will provide important information on concurrent use and provide information that can be used to better understand why some groups may have higher risk for tobacco-related diseases. Moreover, this study may inform the development of future tobacco control strategies and programs for this population.

2. Methods

2.1 Study Design

Cross-sectional data from the 1995/96, 1998, 2000, and 2001/02 Tobacco Use Supplements to the Current Population Survey (TUS-CPS) (US Department of Commerce, 2001a, 2001b, 2001c, 2004) were used to estimate concurrent use of tobacco among cigarette smokers among adults ages 18 years and older (n for all 4 surveys = 559,279). The Current Population Survey (CPS), administered by the U.S. Census Bureau, uses a multistage probability sample design to collect data on a monthly basis from about 50,000 households to produce reliable national and state estimates on labor force characteristics among the civilian, non-institutionalized U.S. population age 15 and older. Interviews are conducted in person and by telephone using computer assisted interviewing technology.

The Tobacco Use Supplement (TUS) is conducted in conjunction with the CPS every three years and collects data on tobacco use and related attitudes and practices among those who completed the CPS. Interviews for the TUS were conducted in person or by phone. Details of the sampling methods for the TUS are reported at www.census.gov/aprd/techdoc/cps/cps-main.html. The response rate for TUS-CPS self-respondents was the following: 68.65% for 1995/96 ($n=186,297$), 69.59% for 1998 ($n=61,019$), 69.27% for 2000 ($n=122,876$), and 65.09% for 2001/02 ($n=182,612$). Response rates were comparable to other national adult survey samples (Centers for Disease Control and Prevention (CDC), 2000; Substance Abuse and Mental Health Services Administration, 2000).

2.2 Measures

2.2.1 Sociodemographics—Sociodemographic data were collected from the CPS and included gender, age, race/ethnicity, employment status, occupation, geographic region, annual family income, educational attainment. Age categories were 18–24, 25–44, 45–64, and 65+. Race and ethnic groups were categorized as Hispanic and Non-Hispanic Whites, African-Americans, American Indian/Alaska Natives, and Asian/Pacific Islanders. Employment status included the categories *employed*, *unemployed*, and *not in the labor force*. The CPS defines *employed* respondents as those who indicated that they did any work as a paid employee or worked in their own business or profession. *Unemployed* respondents were those with no employment, but were available for work and were seeking job activity. *Not in the labor force* were those not classified as employed or unemployed and may include retired people, students, people keeping house, or those with long-term disability. Occupation among the unemployed is defined by CPS as the as usual job or latest full-time job lasting two week or more weeks. Categories were based on the Standard Occupation Classification System (U.S. Department of Labor, 2004) and included white collar, blue collar, and service workers. Standard geographic regions were used: Northeast, Midwest, South, and West. Annual family income was categorized as less than \$20,000 per year, \$20,000 or more per year, and ‘other.’ The categories for educational attainment included < 12 years, 12 years, 13–15 years, and $\geq$ 16 years of education.

2.2.2 Tobacco use behaviors—Measures of cigarette smoking status, frequency of smoking, and other tobacco use were assessed using the TUS-CPS. *Never smokers* were respondents who indicated that they smoked fewer than 100 cigarettes in their entire life. Respondents who smoked at least 100 cigarettes in their lifetime were asked, “Do you now

smoke cigarettes every day, some days, or not at all?”. *Current cigarette smokers* were defined as those who reported smoking every day or some days at the time of their interview. *Intermittent smokers* were defined as current smokers who reported smoking some days at the time of their interview. *Daily smokers* were current smokers who indicated that they smoked every day at the time of their interview. *Former smokers* were those who responded that they smoked at least 100 cigarettes in their life, but reported “not at all” when asked, “Do you now smoke cigarettes every day, some days, or not at all?”. Use of other forms of tobacco was assessed by asking respondents if they had ever used pipes, cigars, chewing tobacco, or snuff, and if the answer was “yes,” respondents were asked which specific product or products they had used. Frequency of use was determined for each product by asking if the respondent uses the product every day, some days, or not at all at the time of their interview. *Concurrent users* were defined as those who smoked cigarettes either currently, daily, or intermittently and also used one other form of tobacco at the time of their interview.

2.3 Analysis

Analyses were conducted using TUS-CPS self respondents with complete data on tobacco use status and tobacco consumption. Data were analyzed using SAS (release 8.2) and SUDAAN (Release 8.0.1) software to calculate prevalence estimates, confidence intervals and multivariate analyses. Weights applied to the data include post-stratification adjustments for (age, race/ethnicity and gender) using Census population controls and were used to estimate the prevalence rates of concurrent use across multiple survey years. The 95% confidence intervals were determined using a system of replicate weights.

Chi-square goodness of fit tests were used to determine the statistical significance of the bivariate relationships between the outcome variables and sociodemographic variables. Independent variables within the bivariate model that were significant were entered into the multivariate model. These variables include gender, age, race/ethnicity, employment status, occupation, geographic region, income, and survey years. Multiple logistic regression modeling was used to measure associations between these independent variables and concurrent use versus cigarette smoking only and produce the odds ratios (OR) and 95% confidence intervals ($p < .05$) among self-respondents. African Americans, Hispanics, American Indians/Alaska Natives, and Asians/Pacific Islanders were combined into the category, “Other” for the logistic regression models due to small sample size among racial and ethnic groups other than Non-Hispanic White. The prevalence odds ratio (OR) was the measure of association. Persons for whom data were missing or responded “don’t know” were excluded from the analysis.

3. Results

3.1 Sociodemographics, Smoking Prevalence, and Multiple Tobacco Use among TUS-CPS Respondents

Table 1 shows the sociodemographic characteristics of respondents from 1995/96 to 2001/02, including gender, age, race/ethnicity, employment status, occupation, geographic region, family income, and education. Sociodemographic characteristics were similar across survey years. In each survey, half the respondents were women, most were between ages 25–44, more than 70% were Non-Hispanic White, more than 64% employed, more than 40% employed in white collar positions, about 35% lived in the South and about 16% had less than a 12th grade education. Smoking frequency data show that the percent of current and daily smokers decreased over time, while the percent of intermittent smoking increased slightly during the same time period. Concurrent tobacco use in the U.S. increased overall from 1995/96 to 1998 (0.88% to 1.76%), but decreased from 1998 to 2000 (1.48%), and 2001/02 (1.19%).

3.2 Trends in Use of Other Tobacco Products among Current Smokers

The use of other tobacco products by cigarette smokers for each survey year (1995/96, 1998/96, 2000, and 2001/02) is shown in Table 2 by sociodemographic variables. Overall, use of any of tobacco product among smokers increased from 3.76% in 1995/96 to 7.9% in 1998, and then declined to 5.79% in 2001/02. In 2001/02, cigar smoking was the most prevalent form of other tobacco use among cigarette smokers at 3.49%, followed by smokeless tobacco use (snuff and chewing tobacco combined) at 2.15%, and pipe smoking at 0.78%. The highest prevalence rates of using another tobacco product among current smokers in 2001/02 by sociodemographic categories were men; those aged 18–24 years, Non-Hispanic Whites, the unemployed, blue-collar workers, those living in the Midwest, those earning less than \$20,000 per year, and those with 16 or more years of education.

Pipe use among current cigarette smokers declined overall from 0.92% in 1995/96 to 0.78% in 2001/02, although there was a slight increase from 1995/96 to 2000. Pipe use by current smokers declined overall during this time in the categories of gender, age, race/ethnicity, employment status, geographic region, and family income, but increased slightly for service workers and in those with an education of less than 12 years. Cigar use by cigarette smokers increased overall in every sociodemographic category from 1995/96 to 2001/02. Female cigarette smokers who also smoked cigars showed the largest increase from 0.15% to 0.89% during this time, and the highest prevalence overall were males at 5.85%.

The prevalence of chewing tobacco use among cigarette smokers increased in almost all of the sociodemographic variables and categories from 1995/96 to 2001/02; exceptions were those aged 45 and over, persons in ‘other’ race/ethnicity, those living in the South, and those with less than 12 years of education. Among cigarette smokers who also use snuff, prevalence of concurrent use increased overall during this time period for most of the sociodemographic categories, however, prevalence declined overall for those aged 18–24 years, those 45 and over, those not in the labor force, workers in ‘other occupations, those with ‘other’ incomes, and those with 13 or more years of education.

For both male and female smokers and all types of other tobacco use, prevalence increased from 1995/96 to 1998, with the exception of female smokers who also reported using snuff, which was unchanged from 1995/96 to 1998. Prevalence rates of using any other form of tobacco for both male and female cigarette smokers increased overall from 1995/96 to 2001/02 with the exception of pipe use among males and female cigarette smokers which showed an overall decrease and chewing tobacco use among female cigarette smokers, which was unchanged. For all years studied, male cigarette smokers had the highest overall prevalence of concurrent use.

3.1 Trends in Use of Other Tobacco Products among Daily and Intermittent Smokers

3.1.1 Daily smokers—Table 3 shows the prevalence for the four survey periods of concurrent use among daily smokers. Overall, other tobacco use among daily smokers increased from 3.27% in 1995/96 to 7.38% in 1998 and then decreased to 5.36% in 2001/02. Male daily smokers had the highest prevalence of concurrent use at 9.34% in 2001/02 compared with women at 1.05%. Daily smokers who were Non-Hispanic Whites, unemployed, and blue collar workers, had the highest percent of concurrent use.

3.3.2 Intermittent smokers—Table 4 shows the prevalence for four survey periods of concurrent use among U.S. adult intermittent (non-daily) smokers. The overall trend among intermittent smokers is similar to that of daily smokers in that use increased from 5.98% in 1995/96 to 10.08% in 1998 and then decreased to 7.48% in 2001/02. The highest prevalence among intermittent smokers who use of another form of tobacco was among male smokers at

12.94% compared with female smokers at 1.06%. Intermittent smokers who were Non-Hispanic Whites, employed and blue collar workers, had the highest percent of concurrent use. In 2001/02, intermittent smokers who also used another form of tobacco had a higher overall prevalence than daily smokers in all sociodemographic categories except for service workers.

3.4 Correlates of other tobacco use among cigarette smokers

Table 5 presents the adjusted odds ratios examining the association between the sociodemographic factors and use of other tobacco products among current, daily, and intermittent cigarette smokers.

3.4.1 Current smokers—Gender, age, race/ethnicity, geographic region, income, and survey year were significantly associated with concurrent use. Male current smokers were 13 times as likely as females to be concurrent users. Concurrent use increased as age decreased and Non-Hispanic Whites were nearly twice as likely as non-Whites to be concurrent users. Respondents living in the Northeast were about 70% less likely to be concurrent users than those living in the West, but those with incomes < \$20,000 had a 16% increased risk for concurrent use than those with higher incomes. The odds of concurrent use were 45% and 20% higher during survey years 1998 and 2000, respectively, but about 60% lower in 1995/96, compared to 2001/02. Employment status and occupation were not associated with concurrent use among current cigarette smokers.

3.4.2 Daily smokers—Gender, age, race/ethnicity, geographic region, income, and survey years were significantly associated with multiple forms of tobacco use. Male daily smokers were 12 times as likely as females to be concurrent users. Concurrent use increased as age decreased and Non-Hispanic Whites were 1.8 times as likely as non-Whites to be concurrent users. Respondents living in the Northeast had 75% decreased risk of concurrent use than those living in the West. Those with incomes < \$20,000 had about 20% higher odds of concurrent use than those with higher incomes. The odds of concurrent use were about 45% and 20% higher during survey years 1998 and 2000, respectively, but 55% lower in 1995/96 compared to 2001/02. Employment status and occupation were not associated with concurrent use among daily cigarette smokers.

3.4.3 Intermittent smokers—Gender, age, race/ethnicity, occupation, geographic region, income, and survey years were significantly associated with multiple forms of tobacco use. Male intermittent smokers were 17 times as likely as female intermittent smokers to report concurrent use. Concurrent use increased as age decreased and Non-Hispanic Whites were 3 times as likely as non-Whites to report concurrent use. Blue collar workers had 20% increased risk of concurrent use compared to white collar workers. Respondents living in the Northeast had about 65% lower odds of concurrent use than those living in the West. The odds of concurrent use were 40% and 25% higher during survey years 1998 and 2000, respectively, but about 70% lower in 1995/96 compared to 2001/02. Employment status was not associated with concurrent use among intermittent cigarette smokers.

4. Discussion

This study suggests that concurrent use of other tobacco products in addition to cigarette smoking have fluctuated over time. A relatively small percentage of U.S. adult smokers are concurrent users of other tobacco products, such as cigars, pipe tobacco, chewing tobacco, and snuff. The trend in concurrent use among U.S. adult cigarette smokers increased from 1995/96 to 1998, peaked in 1998, and steadily declined from 1998 to 2001/02, but did not reach the low from 1995/96. This peak and decline occurred during the implementation of the Master Settlement Agreement and the general downward trend of cigarette smoking in U.S. adults.

This study suggests that concurrent use varies by sociodemographic factors and by smoking frequency. Cigarettes are overwhelmingly the tobacco product of choice, but secondhand smoke policies designed to preserve clean indoor air may have an impact on the types of tobacco products that smokers choose in future years. Moreover, greater tobacco product variety, increased promotion, and explicit or implicit claims of harm reduction may encourage the use of other tobacco products in addition to, or a substitute for cigarettes. These factors may affect other tobacco product usage among smokers; consequently, concurrent use should be monitored.

Data from this study show that concurrent tobacco use by male smokers far exceeds that of female smokers. Male current smokers were almost 13 times as likely as female current smokers to use other tobacco products, even after controlling for age, race, employment status, occupation, geographic region, family income, education, and year of survey. Male intermittent smokers were more than 17 times as likely as female intermittent smokers to use another tobacco product.

Historically, cigars, pipes, chewing tobacco, and snuff are commonly associated with normative male social behaviors and traits. Smokeless tobacco (chew and snuff) have commonly been associated with U.S. baseball, car racing, and rodeos. Smokeless tobacco use, snuff in particular, has been promoted as an alternative to smoking cigarettes as a potential reduced harm product. The impact of these “harm reduction” marketing strategies by smokeless tobacco manufacturers for smokers has yet to be seen (Hatsukami, Lemmonds, & Tomar, 2004). Sales from moist smokeless tobacco is the only tobacco product in the U.S. that has increased in sales every year since the mid 1980s, a trend inversely related to cigarette smoking (Scott, 2003). This approach to “harm reduction” has received much attention by scientists and the public health community. Recently, two cigarette manufacturers have begun test marketing smokeless tobacco products RJR’s “Camel Snus” and Phillip Morris’s “Taboka”. For these two cigarette companies, it is their first foray into manufacturing smokeless tobacco products and it is not clear whether marketing will encourage substitution or augmentation.

Smoking cigars and pipes have historically signified wealth and luxury among men in the U.S. Tobacco industry documents from 1980 revealed a concerted effort to position cigar as a “status symbol” in numerous media advertisements, which resulted in increased cigar sales in the 20 years that followed (Wenger, Malone, George, & Bero, 2001). The cigar industry and retailers in the mid-late 1990’s experienced a boost when Arnold Schwarzenegger, and other high profile celebrities appeared in media advertisements and magazine covers in support of cigar smoking and cigar companies (National Cancer Institute, 1998). It is not clear if this boost was among non-smokers (never smokers and former smokers), or current smokers (daily or intermittent).

Although the TUS-CPS did not ask questions about all types of tobacco products, it is important to be able to monitor products that have recently become available in the U.S. These products include bidis [small hand rolled cigarettes, tied with a string, often flavored with vanilla, chocolate or fruit flavors], kreteks [clove cigarettes], or hookah [waterpipe, also called argileh, hubble-bubble, narghile, or shish]. There is a perception that these products are more natural and possibly less harmful than traditional cigarettes. Young adults, particularly trend-setters, may be attracted to the new products. The hookah lounge is an emerging trend, particularly among college students. As a haven for smokers, patrons can partake in smoking flavored or unflavored tobacco from large, ornate waterpipes in a lounge atmosphere with food, beverages, and often, entertainment.

This study found that young adult smokers were more likely to report concurrent use than older adults. These data suggest that there may be a cohort effect of concurrent tobacco use, or

represent the fact that cessation usually occurs in older age; perhaps this is when a reduction of other forms of tobacco use also occurs. Many young adults also experiment with multiple forms of tobacco or are just initiating use into their 20s (Daniel, Johnston, & Levy; Hall LW JR.; Hammond, 2005) and trends found in this study may represent these unstable stages of tobacco use rather than established patterns of concurrent use. Longitudinal studies are needed to monitor concurrent use of tobacco among those ages 18–30 over time to assess changes or stability of use over time. In a study of 15 states, it was found that current young adult cigarette smokers were much more likely to report ever and current bidi use than former and never smokers (Delnevo, Pevzner, Hrywna, & Lewis, 2004). More than a half of ever bidi users reported current use of cigarettes (Delnevo, Pevzner, Hrywna, & Lewis, 2004).

This study has several limitations. The TUS-CPS does not collect data regarding all forms of tobacco such as bidis, kreteks, and waterpipes. It is limited to examining cigars, pipes, chewing tobacco and snuff. Because of the small sample size in some cells, it was necessary to collapse non-White race/ethnicity and data for the multivariate analyses to cigarette smokers who use another form of tobacco and, therefore, we could not examine individual types of other tobacco products among cigarette smokers. Lastly, there may be confusion of product category name among smokeless tobacco users. For instance, users of smokeless tobacco may use “chew” and “snuff” interchangeably, or use a different term all together, such as “dip,” or “spit.” This discrepancy in terminology may have impacted the prevalence estimates in the chewing tobacco and snuff categories.

5. Summary

While cigarette smoking remains the predominant form of tobacco use in the U.S., a small percentage (5.79%) of cigarette smokers concurrently use other forms of tobacco with cigar smoking as the most prevalent alternate tobacco form used at 3.49%. Overall, use of other tobacco products by U.S. adult cigarette smokers increased from 1995/96 to 1998, but has declined since that time; however, the rate of use of other tobacco products among adult current smokers has not declined to 1995/96 levels. Among all variables of interest, the highest prevalence of using another tobacco product was among male intermittent smokers at almost 13%. Moreover, male intermittent smokers were over 17 times more likely and male daily smokers were over 11 times more likely to use another tobacco product compared with their female counterparts. In addition, younger adult cigarette smokers aged 18–44 years and Non-Hispanic Whites were significantly more likely to use another tobacco product than their counterparts. Consequently, this study highlights that multiple tobacco use among U.S. adult smokers tends to be predominantly a Non-Hispanic White, young adult, male phenomenon for the time being.

When planning smoking prevention or cessation strategies, multiple tobacco use needs to be considered, as well as issues of marketing other forms of tobacco, perceptions about these products, and cigarette smoking frequency. It is not clear whether multiple tobacco use will continue to decline or begin to rise and it is important to monitor their use and further investigate the increased risk of cancer and other tobacco-related diseases among multiple tobacco uses. The increase in smoke-free policies, the promotion of harm reduction using some of these products, and the introduction of a variety of newer forms of tobacco products as well as their availability are ever changing.

With the growing market of smokeless tobacco products, the claims of harm reduction, and spread of smoke-free air laws, smokeless tobacco use among smokers is a trend worth monitoring. It is yet to be decided if the marketing of smokeless tobacco causes smokers to substitute smokeless products for when they cannot smoke, or cut-back on cigarettes and replace with smokeless products for harm-reduction.

The authors of this paper plan to conduct further research focusing on smokeless product usage among adult smokers.

Acknowledgements

We thank Dr. Brad Hesse for reviewing this manuscript. We also thank Anne Hartman for her advice on using the Tobacco Use Supplement to the Current Population Survey. Support for these analyses was provided by the National Cancer Institute. Mary O'Connell's time was funded by the National Cancer Institute under contract N01-CO-12400 to SAIC Frederick. The content of this publication does not necessarily reflect the views or policies of the Department of Health and Human Services.

Project Support

Support for this paper and analyses were provided by the National Cancer Institute. Mary O'Connell was funded by the National Cancer Institute under contract N01-CO-12400 to SAIC Frederick. The content of this publication does not necessarily reflect the views or policies of the Department of Health and Human Services.

References

- Centers for Disease Control and Prevention (CDC). 2000 National Health Interview Survey (NHIS) Public Use Data Release: NHIS Survey Description. 2000.
ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2000/srvydesc.pdf
- Centers for Disease Control and Prevention (CDC). Cigarette smoking among adults--United States, 2004. *MMWR Morb Mortal Wkly Rep* 2005;54(44):1121–1124. [PubMed: 16280969]
- Daniel, H.; Johnston, M.; Levy, C. 8102 Young Smokers Prevalence, Trends, Implications, and Related Demographics. Philip, Morris, editor. 1981. p. 1000390803/0855
- Delnevo CD, Pevzner ES, Hrywna M, Lewis MJ. Bidi cigarette use among young adults in 15 states. *Prev Med* 2004;39(1):207–211. [PubMed: 15208004]
- Ferrance, R.; Slade, J.; Room, M.; Pope, M., editors. *Nicotine and Public Health*. Washington, DC: American Public Health Association; 2000. p. 187–188.
- Gilpin EA, Pierce JP. Concurrent use of tobacco products by California adolescents. *Prev Med* 2003;36(5):575–584. [PubMed: 12689803]
- Hall, LW, JR. Early Warning System Input - Reasons for Smoking, Initial Brand Selection, and Brand Switching. Reynolds, RJ., editor. 1976. p. 501103147/3150
- Hammond D. Smoking behaviour among young adults: beyond youth prevention. *Tob Control* 2005;14(3):181–185. [PubMed: 15923468]
- Hatsukami DK, Lemmonds C, Tomar SL. Smokeless tobacco use: harm reduction or induction approach? *Prev Med* 2004;38(3):309–317. [PubMed: 14766113]
- Kopstein, A. Tobacco use in America: findings from the 1999 National Household Survey on Drug Abuse. (Analytic Series: A-15, DHHS Publication No. SMA 02-3622). Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies; 2001.
- National Cancer Institute. Cigars: Health Effects and Trends. Smoking and Tobacco Control Monograph 9: : Tobacco Control Monograph No. 9. NIH Pub. No 98–4302. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; 1998 February 1998.
- Rigotti NA, Lee JE, Wechsler H. US college students' use of tobacco products: results of a national survey. *Jama* 2000;284(6):699–705. [PubMed: 10927777]
- Scott, Lea. Trends and Patterns of Tobacco Use in the United States. *The American Journal of the Medical Sciences* 2003;326(4):248–254. [PubMed: 14557744]
- Spangler JG, Michielutte R, Bell RA, Knick S, Dignan MB, Summerson JH. Dual Tobacco use among Native American adults in southeastern North Carolina. *Prev Med* 2001;32(6):521–528. [PubMed: 11394956]
- Substance Abuse and Mental Health Services Administration. Office of Applied Studies. (NHSDA Series H-13, DHHS Publication No. SMA 01–3549). 2000. Summary of Findings form the 2000 National Survey on Drug Abuse.

- U.S. Department of Health and Human Services. Preventing Tobacco Use Among Young People: A Report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 1994.
- U.S. Department of Health and Human Services. The Health Consequences of Smoking: A Report of the Surgeon General. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2004.
- U.S. Department of Labor, Bureau of Labor Statistics. Standard Occupational Classification. 2004. <http://www.bls.gov/soc/socguide.htm>
- United States Census Bureau. Quick Tables: Profile of General Demographic Characteristics. 2000. www.census.gov
- US Department of Commerce, Census Bureau. National Cancer Institute Sponsored Tobacco Use Supplement to the Current Population Survey (1995–1996). 2001a. <http://riskfactor.cancer.gov/studies/tus-cps/>
- US Department of Commerce, Census Bureau. National Cancer Institute Sponsored Tobacco Use Supplement to the Current Population Survey (1998–1999). 2001b. <http://riskfactor.cancer.gov/studies/tus-cps/>
- US Department of Commerce, Census Bureau. National Cancer Institute Sponsored Tobacco Use Supplement to the Current Population Survey (2000). 2001c. <http://riskfactor.cancer.gov/studies/tus-cps/>
- US Department of Commerce, Census Bureau. National Cancer Institute Sponsored Tobacco Use Supplement to the Current Population Survey (2000–2001). 2004. <http://riskfactor.cancer.gov/studies/tus-cps/>
- Wenger LD, Malone RE, George A, Bero LA. Cigar magazines: using tobacco to sell a lifestyle. *Tob Control* 2001;10(3):279–284. [PubMed: 11544394]
- Wetter DW, McClure JB, de Moor C, Cofta-Gunn L, Cummings S, Cinciripini PM, et al. Concomitant use of cigarettes and smokeless tobacco: prevalence, correlates, and predictors of tobacco cessation. *Prev Med* 2002;34(6):638–648. [PubMed: 12052025]

Table 1

Sociodemographic characteristics of adult U.S. respondents to the Tobacco Use Supplement to the Current Population Survey (TUS-CPS), 1995/96, 1998, 2000, 2001/02.

Demographics	1995/96 (n) %	1998 (n) %	2000 (n) %	2001/02 (n) %	Combined Survey Years (1995–2002) (n) %
Total	(186,297) 100	(61,019) 100	(122,876) 100	(182,612) 100	(552,804) 100
Gender					
Male	(78,580) 47.71	(25,746) 47.39	(53,180) 47.37	(76,006) 47.44	(236,512) 47.51
Female	(107,717) 52.29	(35,273) 52.61	(69,696) 52.63	(103,606) 52.56	(316,292) 52.49
Age (years)					
18–24	(16,806) 12.46	(5,433) 12.33	(11,667) 12.79	(16,484) 12.94	(50,390) 12.68
25–44	(80,541) 43.77	(25,488) 42.29	(49,445) 41.08	(71,119) 40.04	(226,593) 41.73
45–64	(53,774) 27.34	(18,547) 28.88	(38,579) 29.81	(59,659) 30.89	(170,559) 29.27
65+	(35,176) 16.43	(11,551) 16.51	(23,185) 16.32	(35,350) 16.13	(105,262) 16.31
Race					
Non-Hispanic White	(150,183) 75.18	(48,371) 73.82	(95,179) 73.20	(144,312) 72.57	(38,045) 73.70
Other	(36,114) 24.82	(12,648) 26.18	(27,697) 26.80	(38,300) 27.43	(114,759) 26.30
Employment Status					
Employed	(117,008) 64.31	(39,344) 65.91	(78,866) 65.76	(116,272) 65.03	(351,490) 65.06
Unemployed	(6,424) 3.92	(1,677) 3.16	(3,295) 2.95	(5,936) 3.87	(17,332) 3.60
Not in the Labor Force	(62,865) 31.77	(19,998) 30.93	(40,715) 31.28	(60,404) 31.10	(183,982) 31.34
Occupation					
White Collar	(76,008) 40.77	(25,604) 41.94	(51,125) 41.90	(76,308) 42.12	(229,045) 41.61
Service	(16,563) 9.11	(5,505) 9.27	(10,816) 9.03	(16,267) 9.19	(49,151) 9.14
Blue Collar	(28,556) 17.23	(9,016) 16.44	(18,658) 16.66	(27,182) 16.39	(83,412) 16.73
Other	(65,170) 32.88	(20,894) 32.35	(42,277) 32.41	(62,855) 32.30	(191,196) 32.52
Geographic Region					
Northeast	(40,818) 19.94	(12,663) 19.43	(24,594) 19.28	(38,170) 19.08	(116,245) 19.44
Midwest	(46,352) 23.33	(14,922) 23.06	(29,884) 22.94	(47,349) 22.72	(138,507) 23.00
South	(56,861) 35.07	(18,562) 35.39	(38,747) 35.49	(53,296) 35.67	(167,466) 35.41
West	(42,266) 21.67	(14,872) 22.11	(29,651) 22.28	(43,797) 22.52	(130,586) 22.15
Family Income					
<\$20k	(50,867) 27.26	(14,017) 23.11	(24,541) 19.36	(33,741) 18.33	(123,166) 21.98
\$20k+	(120,764) 64.77	(42,139) 68.88	(84,653) 69.26	(128,385) 70.12	(375,941) 68.05
Not reported	(14,666) 7.98	(4,863) 8.00	(13,682) 11.38	(20,486) 11.54	(53,697) 9.96
Education (years)					
<12	(31,877) 17.89	(9,668) 16.67	(19,650) 16.64	(27,323) 16.13	(88,518) 16.87
12	(62,450) 32.71	(20,423) 33.06	(40,375) 32.26	(58,663) 31.21	(181,911) 32.13
13–15	(49,246) 26.61	(15,983) 25.75	(32,953) 26.82	(49,858) 27.24	(148,040) 26.78
16+	(42,724) 22.79	(14,945) 24.53	(29,898) 24.28	(46,768) 25.43	(134,335) 24.21
Smoking Frequency					
Current Cigarette Smoker (daily + intermittent)	(43,232) 23.44	(13,481) 22.33	(26,216) 21.54	(37,210) 20.55	(120,139) 21.91
Daily Smoker	(35,913) 19.26	(10,971) 18.05	(20,946) 17.04	(30,142) 16.42	(97,972) 17.66
Intermittent Smoker	(7,319) 4.18	(2,510) 4.29	(5,270) 4.50	(7,068) 4.12	(22,167) 4.24
Nonsmoker (never + former)	(143,065) 76.56	(47,538) 77.67	(96,660) 78.46	(145,402) 79.45	(432,665) 78.09
Never	(98,696) 53.79	(32,891) 54.75	(67,700) 56.08	(102,690) 57.90	(301,977) 55.81
Former	(44,369) 22.77	(14,647) 22.91	(28,960) 22.38	(42,712) 21.56	(130,688) 22.28
Multiple Use					
Current Cigarette Smoker plus any other tobacco use	(1,518) 0.88	(975) 1.76	(1,684) 1.48	(2,072) 1.19	(6,249) 1.21
Daily Cigarette Smoker plus any other tobacco use	(1,105) 0.63	(730) 1.33	(1,260) 1.08	(1,547) 0.88	(4,642) 0.89
Intermittent Cigarette Smoker plus any other tobacco use	(413) 0.25	(245) 0.43	(424) 0.40	(525) 0.31	(1,607) 0.32

Table 2
National Prevalence Estimates of Other Tobacco use among Adult U.S. Current Cigarette Smokers, by Product, TUS-CPS, 1995/96, 1998, 2000, 2001/02.

	Current cigarette smokers reporting use of any other tobacco product			Pipe use among current cigarette smokers			Cigar Use among current cigarette smokers		
	1995/6 (n) %	1998 (n) %	2000 (n) %	1995/6 (n) %	1998 (n) %	2000 (n) %	1995/6 (n) %	1998 (n) %	2001/2 2000 (n) % (n) %
Sociodemographics									
Total	(1,518) 3.76	(975) 7.90	(1,684) 6.86	(2,072) 5.79	(1,28) 0.95	(280) 1.08	(569) 1.48	(638) 5.38	(1,019) 4.22 (1,217) 3.49
Gender									
Male	(1,436) 6.85	(863) 13.52	(1,549) 12.25	(1,870) 10.08	(359) 1.69	(262) 1.94	(534) 2.69	(544) 8.90	(912) 7.39 (1,054) 5.85
Female	(82) 0.36	(112) 1.78	(135) 0.92	(202) 1.05	(18) 0.07	(18) 0.13	(35) 0.15	(94) 1.54	(107) 0.73 (163) 0.89
Age (years)									
18–24	(224) 5.34	(174) 12.48	(277) 9.34	(370) 8.01	(43) 1.01	(22) 0.70	(62) 1.58	(113) 8.66	(150) 5.15 (198) 4.53
25–44	(764) 3.69	(508) 8.05	(823) 6.98	(1,041) 6.24	(133) 0.64	(87) 0.75	(291) 1.54	(334) 5.42	(508) 4.40 (589) 3.63
45–64	(406) 3.26	(249) 6.42	(491) 5.94	(556) 4.58	(148) 1.21	(128) 1.49	(171) 1.40	(172) 4.54	(318) 4.02 (372) 3.15
65+	(124) 3.16	(44) 3.55	(93) 4.57	(105) 3.22	(53) 1.51	(43) 2.30	(45) 1.20	(19) 1.80	(43) 1.94 (58) 1.77
Race/Ethnicity									
Non-Hispanic White	(1,322) 4.06	(828) 8.55	(1,436) 7.42	(1,766) 6.29	(331) 1.00	(240) 1.17	(460) 1.45	(526) 5.61	(841) 4.40 (1,004) 3.60
Other	(196) 2.67	(147) 5.78	(248) 5.00	(306) 4.15	(46) 0.62	(40) 0.77	(109) 1.59	(112) 4.61	(178) 3.64 (213) 3.15
Employment Status									
Employed	(1,107) 4.21	(766) 8.94	(1,275) 7.59	(1,532) 6.28	(229) 0.86	(169) 0.98	(407) 1.64	(508) 6.08	(771) 4.69 (885) 3.74
Unemployed	(83) 3.42	(46) 8.00	(100) 6.97	(172) 7.48	(29) 1.05	(17) 0.86	(28) 1.19	(31) 6.08	(59) 4.24 (102) 4.68
Not in Labor Force	(328) 2.71	(163) 4.92	(309) 4.77	(368) 3.97	(119) 1.03	(94) 1.42	(134) 1.16	(99) 3.23	(189) 2.89 (230) 2.48
Occupation									
White Collar	(344) 2.61	(308) 7.08	(531) 5.97	(596) 4.91	(98) 0.73	(69) 0.76	(146) 1.15	(235) 5.45	(381) 4.35 (410) 3.36
Service	(113) 2.44	(106) 6.48	(141) 5.16	(192) 4.40	(33) 0.70	(26) 1.00	(56) 1.22	(76) 5.05	(95) 3.38 (129) 3.17
Blue Collar	(658) 6.49	(361) 12.17	(659) 10.51	(845) 9.02	(115) 1.08	(84) 1.19	(215) 2.25	(214) 7.48	(338) 5.60 (421) 4.73
Other	(403) 3.23	(200) 5.55	(353) 5.28	(439) 4.52	(131) 1.08	(101) 1.46	(152) 1.29	(113) 3.37	(205) 3.07 (257) 2.62
Geographic Region									
Northeast	(207) 2.46	(151) 6.35	(251) 5.38	(307) 4.41	(72) 0.78	(43) 0.91	(102) 1.19	(119) 5.16	(180) 3.83 (211) 2.89
Midwest	(395) 3.74	(218) 7.07	(430) 6.86	(666) 6.63	(107) 1.09	(59) 0.89	(153) 1.53	(139) 4.64	(251) 4.16 (390) 4.13
South	(562) 4.38	(354) 9.14	(596) 7.34	(608) 5.89	(105) 0.76	(99) 1.24	(178) 1.45	(216) 5.83	(351) 4.30 (340) 3.27
West	(354) 3.87	(252) 8.13	(407) 7.33	(491) 5.78	(93) 1.13	(79) 1.18	(136) 1.75	(164) 5.67	(237) 4.55 (276) 3.63
Family Income									
<\$20,000	(535) 3.92	(293) 8.20	(436) 6.98	(515) 6.02	(149) 1.12	(86) 1.22	(199) 1.58	(182) 5.69	(259) 4.27 (309) 3.61
\$20,000+	(898) 3.71	(633) 7.97	(1,136) 7.10	(1,420) 5.95	(202) 0.79	(176) 1.06	(336) 1.45	(424) 5.38	(692) 4.38 (827) 3.60
Not reported	(85) 3.34	(49) 5.91	(112) 5.00	(137) 4.12	(26) 0.98	(18) 0.86	(34) 1.25	(32) 4.01	(68) 3.06 (81) 2.44
Education (years)									
<12	(348) 3.91	(177) 7.49	(311) 6.25	(390) 5.81	(75) 0.81	(29) 1.03	(121) 1.43	(104) 4.57	(195) 3.92 (216) 3.35
12	(579) 3.58	(384) 7.56	(662) 6.43	(828) 5.73	(127) 0.82	(46) 0.91	(194) 1.23	(235) 4.94	(369) 3.73 (450) 3.19
13–15	(414) 3.79	(274) 8.26	(490) 7.68	(586) 5.81	(122) 1.07	(85) 1.36	(167) 1.66	(193) 5.84	(311) 4.90 (365) 3.72
16+	(177) 3.99	(140) 8.95	(221) 7.51	(268) 5.89	(53) 1.11	(52) 1.52	(87) 2.02	(106) 7.17	(144) 4.88 (186) 4.16
Socio-demographics	Chewing Tobacco use among cigarette smokers			Snuff Use among cigarette smokers			Smokeless Use (chew + snuff) among cigarette smokers		
	95/6 (n) %	1998 (n) %	2000 (n) %	95/6 (n) %	1998 (n) %	2000 (n) %	95/6 (n) %	1998 (n) %	2000 (n) %
Total	(511) 1.23	(215) 1.69	(445) 1.75	(343) 0.86	(142) 1.18	(218) 0.93	(794) 1.93	(326) 2.59	(604) 2.41 (809) 2.15
Gender									
Male	(488) 2.25	(202) 3.08	(433) 3.28	(327) 1.58	(138) 2.19	(208) 1.71	(757) 3.54	(311) 4.79	(585) 4.50 (770) 3.92
Female	(23) 0.11	(13) 0.18	(12) 0.06	(16) 0.08	(4) 0.08	(10) 0.07	(37) 1.17	(15) 1.00	(19) 0.11 (39) 0.18
Age									
18–24	(105) 2.41	(52) 3.28	(106) 3.34	(70) 1.73	(27) 1.63	(57) 2.13	(158) 3.74	(70) 4.40	(146) 4.79 (189) 3.77
25–44	(272) 1.20	(116) 1.73	(234) 1.89	(195) 0.95	(86) 1.50	(120) 1.02	(435) 1.99	(187) 2.95	(323) 2.67 (453) 2.56
45–64	(106) 0.82	(42) 1.14	(87) 0.92	(58) 0.43	(23) 0.63	(31) 0.30	(156) 1.19	(59) 1.55	(109) 1.10 (142) 1.02
65+	(28) 0.77	(5) 0.39	(18) 0.93	(20) 0.36	(6) 0.36	(10) 0.46	(45) 1.04	(10) 0.73	(26) 1.26 (25) 0.82
Race/Ethnicity									

	Current cigarette smokers reporting use of any other tobacco product				Pipe use among current cigarette smokers				Cigar Use among current cigarette smokers			
	1995/6 (n) %	1998 (n) %	2000 (n) %	2001/2 (n) %	1995/6 (n) %	1998 (n) %	2000 (n) %	2001/2 (n) %	1995/6 (n) %	1998 (n) %	2000 (n) %	2001/2 (n) %
Sociodemographics												
Non-Hispanic White	(454) 1.37	(198) 2.05	(402) 2.02	(505) 1.62	(312) 1.00	(126) 1.34	(204) 1.14	(288) 1.15	(716) 2.20	(299) 3.10	(553) 2.85	(726) 2.55
Other	(57) 0.73	(17) 0.53	(43) 0.85	(52) 0.51	(31) 0.37	(16) 0.66	(14) 0.25	(37) 0.37	(78) 0.99	(27) 0.94	(51) 0.99	(83) 0.82
Employment Status												
Employed	(391) 1.41	(182) 2.05	(365) 2.07	(437) 1.52	(270) 1.04	(117) 1.42	(170) 1.08	(263) 1.16	(615) 2.28	(274) 3.16	(489) 2.85	(639) 2.45
Unemployed	(31) 1.33	(10) 1.93	(23) 1.79	(45) 1.80	(13) 0.66	(5) 0.86	(19) 1.22	(30) 1.17	(40) 1.77	(13) 2.42	(37) 2.66	(70) 2.84
Not in Labor Force	(89) 0.75	(23) 0.62	(57) 0.82	(75) 0.82	(60) 0.48	(20) 0.55	(29) 0.45	(32) 0.37	(139) 1.10	(39) 1.02	(78) 1.12	(100) 1.12
Occupation												
White Collar	(88) 0.63	(56) 1.27	(95) 1.01	(110) 0.80	(57) 0.46	(24) 0.58	(53) 0.66	(66) 0.63	(139) 1.04	(78) 1.77	(135) 1.49	(165) 1.35
Service	(38) 0.82	(21) 0.97	(31) 1.20	(46) 0.86	(15) 0.29	(9) 0.56	(13) 0.49	(20) 0.43	(49) 1.01	(27) 1.42	(41) 1.62	(60) 1.17
Blue Collar	(263) 2.52	(101) 3.40	(244) 3.76	(301) 2.78	(182) 1.86	(78) 2.71	(115) 1.90	(180) 2.06	(410) 4.02	(160) 5.43	(323) 5.03	(437) 4.38
Other	(122) 0.95	(37) 0.96	(75) 1.05	(100) 1.00	(89) 0.70	(31) 0.81	(37) 0.57	(59) 0.62	(196) 1.51	(61) 1.53	(105) 1.50	(147) 1.52
Geographic Region												
Northeast	(32) 0.41	(17) 0.79	(38) 0.81	(55) 0.72	(38) 0.53	(12) 0.52	(20) 0.51	(34) 0.67	(65) 0.87	(26) 1.12	(53) 1.18	(81) 1.26
Midwest	(148) 1.35	(57) 1.81	(133) 2.04	(202) 1.76	(62) 0.52	(27) 0.89	(44) 0.70	(81) 0.77	(203) 1.80	(79) 2.56	(167) 2.52	(261) 2.30
South	(196) 1.53	(72) 1.93	(143) 1.85	(133) 1.31	(188) 1.51	(85) 2.07	(113) 1.36	(155) 1.51	(350) 2.74	(141) 3.54	(223) 2.78	(267) 2.63
West	(135) 1.29	(69) 1.96	(131) 2.08	(167) 1.54	(55) 0.42	(18) 0.51	(41) 0.79	(55) 0.45	(176) 1.59	(80) 2.27	(161) 2.72	(200) 1.82
Family Income												
<\$20,000	(191) 1.34	(66) 1.72	(122) 1.91	(138) 1.38	(116) 0.89	(43) 1.14	(57) 0.90	(78) 0.99	(281) 1.98	(99) 2.58	(161) 2.53	(193) 2.14
\$20,000+	(298) 1.22	(137) 1.71	(299) 1.80	(384) 1.40	(201) 0.82	(90) 1.20	(143) 0.97	(225) 1.01	(471) 1.94	(210) 2.66	(405) 2.48	(565) 2.24
Other	(22) 0.69	(12) 1.42	(24) 1.04	(35) 1.04	(26) 1.12	(9) 1.19	(18) 0.78	(22) 0.64	(42) 1.61	(17) 2.05	(38) 1.66	(51) 1.49
Education												
<12	(135) 1.48	(47) 2.01	(76) 1.59	(114) 1.46	(83) 0.94	(23) 0.80	(46) 0.91	(66) 1.03	(204) 2.23	(63) 2.58	(109) 2.24	(163) 2.28
12	(216) 1.32	(91) 1.71	(213) 1.99	(253) 1.56	(147) 0.90	(72) 1.45	(102) 1.03	(338) 2.07	(338) 2.07	(149) 2.83	(285) 2.67	(374) 2.50
13-15	(123) 1.03	(55) 1.57	(111) 1.51	(143) 1.19	(88) 0.87	(39) 1.39	(58) 1.04	(85) 0.86	(194) 1.72	(86) 2.68	(155) 2.31	(209) 1.89
16+	(37) 0.84	(22) 1.34	(45) 1.72	(47) 0.96	(25) 0.57	(8) 0.46	(12) 0.41	(21) 0.51	(58) 1.34	(28) 1.66	(55) 2.08	(63) 1.53

Table 3

National Prevalence Estimates of Any Other Tobacco use among Adult U.S. Daily Cigarette Smokers, TUS-CPS, 1995/96, 1998, 2000, 2001/02.

Socio-demographics	1995/96 (n)%	1998 (n)%	2000 (n)%	2001/02 (n)%	Total for all years (n)%
Total	(35,912) 3.27	(10,971) 7.38	(20,946) 6.33	(30,142) 5.36	(97,972) 5.06
Gender					
Male	(16,620) 5.95	(5,028) 12.63	(9,967) 11.39	(14,243) 9.34	(45,858) 8.95
Female	(19,293) 0.36	(5,943) 1.70	(10,979) 0.86	(15,899) 1.05	(52,114) 0.84
Age (years)					
18-24	(3,451) 4.32	(1,081) 12.62	(2,330) 8.08	(3,288) 7.28	(10,150) 7.08
25-44	(18,010) 3.17	(5,402) 7.21	(9,792) 6.56	(13,705) 5.72	(46,909) 5.12
45-64	(11,149) 3.15	(3,503) 6.21	(7,132) 5.59	(10,579) 4.44	(32,363) 4.46
65+	(3,303) 2.72	(985) 3.59	(1,692) 4.48	(2,570) 3.31	(8,550) 3.35
Race					
Non-Hispanic White	(30,246) 3.49	(9,088) 7.93	(17,158) 6.72	(25,012) 5.74	(81,504) 5.39
Other	(5,667) 2.3	(1,883) 5.32	(3,788) 4.83	(5,130) 3.92	(16,468) 3.76
Employment Status					
Employed	(23,602) 3.64	(7,528) 8.22	(14,362) 6.93	(20,308) 5.77	(65,800) 5.57
Unemployed	(1,994) 3.34	(496) 8.29	(1,013) 6.16	(1,772) 6.98	(5,275) 5.63
Not in the Labor Force	(10,317) 2.37	(2,947) 4.86	(5,571) 4.69	(8,062) 3.87	(26,897) 3.59
Occupation					
White Collar	(12,267) 2.22	(3,880) 6.33	(7,414) 5.19	(10,520) 4.28	(34,081) 4.01
Service	(4,328) 2.27	(1,422) 6.79	(2,551) 4.60	(3,771) 4.47	(12,072) 4.00
Blue Collar	(8,610) 5.62	(2,580) 11.19	(5,155) 9.90	(7,395) 8.24	(23,740) 8.00
Other	(10,708) 2.76	(3,089) 5.29	(5,826) 5.05	(8,456) 4.32	(28,079) 4.00
Geographic Region					
Northeast	(7,510) 2.13	(2,243) 6.31	(3,943) 5.10	(6,097) 4.00	(19,793) 3.83
Midwest	(9,487) 3.16	(2,811) 6.46	(5,493) 6.47	(8,465) 6.08	(26,256) 5.17
South	(11,669) 3.94	(3,581) 8.33	(7,239) 6.78	(9,360) 5.64	(31,849) 5.60
West	(7,247) 3.25	(2,336) 7.84	(4,271) 6.40	(6,220) 5.12	(20,074) 5.02
Family Income					
<\$20k	(12,170) 3.63	(3,188) 7.40	(5,524) 6.57	(7,494) 5.82	(28,376) 5.22
\$20k+	(21,388) 3.09	(7,043) 7.53	(13,358) 6.50	(19,822) 5.39	(61,611) 5.11
Not reported	(2,355) 3.12	(740) 5.84	(2,064) 4.68	(2,826) 4.09	(7,985) 4.13
Education (years)					
<12	(7,793) 3.58	(2,166) 7.21	(4,275) 6.01	(5,817) 5.67	(20,051) 5.12
12	(15,184) 3.14	(4,736) 7.01	(8,929) 6.13	(12,787) 5.47	(41,636) 4.97
13-15	(9,984) 3015	(2,888) 7.57	(5,563) 7.04	(8,368) 5.23	(26,203) 5.15
16+	(3,552) 3.47	(1,181) 8.76	(2,179) 5.99	(3,170) 4.70	(10,082) 5.04

Table 4

National Prevalence Estimates of Any Other Tobacco use among Adult U.S. Intermittent Cigarette Smokers, TUS-CPS, 1995/96, 1998, 2000, 2001/02.

Socio-demographics	1995/96	1998	2000	2001/02	Total for all years
	(n)%	(n)%	(n)%	(n)%	(n)%
Total	(7,319) 5.98	(2,510) 10.08	(5,270) 8.86	(7,068) 7.48	(22,167) 7.62
Gender					
Male	(3,361) 10.93	(1,163) 17.21	(2,577) 15.38	(3,412) 12.94	(10,513) 13.35
Female	(3,958) 0.35	(1,347) 2.09	(2,693) 1.15	(3,656) 1.06	(11,654) 0.97
Age (years)					
18-24	(948) 8.92	(361) 12.01	(764) 13.09	(1,091) 10.32	(3,164) 10.75
25-44	(3,881) 5.99	(1,296) 11.42	(2,561) 8.56	(3,474) 8.13	(11,212) 7.88
45-64	(1,829) 3.96	(659) 7.52	(1,462) 7.55	(1,926) 5.29	(5,876) 5.72
65+	(661) 5.34	(194) 3.31	(483) 4.88	(577) 2.83	(1,915) 4.25
Race					
Non-Hispanic White	(5,280) 7.29	(1,808) 11.59	(3,665) 10.66	(5,051) 8.96	(15,804) 9.12
Other	(2,039) 3.43	(702) 7.03	(1,605) 5.39	(2,017) 4.71	(6,636) 4.71
Employment Status					
Employed	(4,988) 6.73	(1,767) 11.88	(3,719) 9.99	(5,013) 8.25	(15,487) 8.60
Unemployed	(407) 3.78	(134) 6.92	(262) 9.87	(377) 9.59	(1,180) 7.44
Not in the Labor Force	(1,924) 4.44	(609) 5.21	(1,289) 5.11	(1,678) 4.44	(5,500) 4.68
Occupation					
White Collar	(2,975) 4.11	(1,047) 9.76	(2,206) 8.51	(3,041) 6.95	(9,269) 6.76
Service	(858) 3.21	(310) 5.16	(627) 7.25	(868) 4.15	(2,663) 4.70
Blue Collar	(1,458) 11.22	(511) 16.90	(1,091) 13.26	(1,380) 12.90	(4,440) 12.90
Other	(2,028) 5.58	(642) 6.76	(1,346) 6.24	(1,779) 5.38	(5,795) 5.79
Geographic Region					
Northeast	(1,551) 3.9	(478) 6.53	(1,024) 6.42	(1,356) 6.05	(4,409) 5.51
Midwest	(1,844) 6.77	(639) 9.90	(1,251) 8.56	(1,988) 9.05	(5,722) 8.31
South	(2,218) 6.51	(716) 12.97	(1,590) 9.70	(1,941) 7.00	(6,465) 8.12
West	(1,706) 6.06	(677) 8.95	(1,405) 9.82	(1,783) 7.67	(5,571) 7.84
Family Income					
<\$20k	(2,337) 5.28	(707) 11.57	(1,311) 8.60	(1,670) 6.81	(6,025) 7.16
\$20k+	(4,503) 6.54	(1,644) 9.81	(3,512) 9.29	(4,861) 8.08	(14,520) 8.10
Not reported	(479) 4.36	(159) 6.22	(477) 6.36	(537) 4.26	(1,622) 5.06
Education (years)					
<12	(1,308) 5.76	(419) 8.88	(955) 7.26	(1,110) 6.50	(3,792) 6.70
12	(2,461) 6.19	(841) 10.47	(1,806) 7.85	(2,323) 7.07	(7,431) 7.37
13-15	(2,189) 6.35	(737) 10.87	(1,524) 9.90	(2,237) 7.84	(6,687) 8.16
16+	(1,361) 5.25	(513) 9.36	(985) 10.70	(1,398) 8.40	(4,257) 8.07

Table 5

Multivariate Logistic Regression Analyses of Any Other Tobacco Use among Adult U.S. Current Cigarette Smokers, by Smoking Status. TUS-CPS, 1995/96, 1998, 2000, 2001/02.

Sociodemographics	Any other tobacco use among Current smokers vs. Current smokers only	Any other tobacco use among Daily smokers vs. Daily smokers only	Any other tobacco use among Intermittent smokers vs. Intermittent smokers only
	OR (95% CI)	OR (95% CI)	OR (95% CI)
Gender			
Male	12.90 (11.00–15.13) ***	11.71 (9.88–13.87) ***	17.24 (12.78–23.24) ***
Female	1.00	1.00	1.00
Age (years)			
18–24	2.85 (2.01–4.04) ***	2.85 (1.79–4.53) ***	2.55 (1.25–5.20) *
25–44	2.09 (1.49–2.94) ***	2.08 (1.35–3.20) **	2.05 (1.03–4.11) *
45–64	1.51 (1.06–2.14) *	1.59 (1.01–2.49) *	1.38 (0.68–2.81)
65+	1.00	1.00	1.00
Race/Ethnicity			
Non-Hispanic White	1.94 (1.74–2.16) ***	1.76 (1.55–2.00) ***	3.07 (2.47–3.82) ***
Other	1.00	1.00	1.00
Employment Status			
Employed	1.00	1.00	1.00
Unemployed	0.96 (0.83–1.12)	1.00 (0.85–1.17)	0.91 (0.62–1.34)
Not in Labor Force	0.71 (0.41–1.23)	0.86 (0.45–1.64)	0.32 (0.09–1.09)
Occupation			
White Collar	1.00	1.00	1.00
Service	0.93 (0.81–1.06)	1.03 (0.88–1.19)	0.78 (0.60–1.02)
Blue Collar	1.04 (0.95–1.13)	1.07 (0.96–1.18)	1.22 (1.04–1.42) *
Geographic Region			
Northeast	0.72 (0.64–0.81) ***	0.75 (0.65–0.87) ***	0.67 (0.53–0.85) **
Midwest	0.96 (0.86–1.07)	1.00 (0.88–1.14)	0.94 (0.77–1.15)
South	1.05 (0.96–1.16)	1.11 (1.00–1.25)	1.05 (0.88–1.25)
West	1.00	1.00	1.00
Income			
<\$20,000	1.16 (1.04–1.28) **	1.22 (1.09–1.36) ***	1.08 (0.87–1.34)
\$20,000+	1.00	1.00	1.00
Other	0.76 (0.65–0.89) **	0.85 (0.71–1.01)	0.57 (0.40–0.80) **
Survey Years			
1995/6	0.58 (0.52–0.64) ***	0.55 (0.49–0.62) ***	0.69 (0.57–0.83) ***
1998	1.45 (1.30–1.61) ***	1.47 (1.31–1.64) ***	1.40 (1.11–1.77) **
2000	1.21 (1.09–1.34) ***	1.19 (1.05–1.35) **	1.26 (1.06–1.50) **
2001/2	1.00	1.00	1.00

* $p \leq .05$,

** $p \leq .01$,

*** $p \leq .001$