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STABILITY OF SMOKING STATUS IN THE U.S. POPULATION: A LONGITUDINAL INVESTIGATION

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Abstract

Aims—To determine smoking transitions in a representative sample of United States (U.S.) adults.

Design—Longitudinal study using data from the National Epidemiologic Survey on Alcohol and Related Conditions (Wave 1, 2001–2002; Wave 2, 2004–2005).

Setting—The general U.S. adult population.

Participants—33,309 adults (54% female) classified as Wave 1 Current Daily, Current Non-Daily, Former Daily, Former Non-Daily, or Never Smokers.

Measurements—Smoking transitions were determined from Wave 1 and Wave 2 data.

Findings—Smoking status remained stable for the majority of current daily (79.8%), former daily (95.8%), former non-daily (96.3%), and never (97.1%) smokers. Among current non-daily smokers, 54.5% quit smoking while 22.5% increased to daily smoking. Current daily smokers who were older (30–44, OR=0.62; 95% CI=0.49–0.87; 45+, OR=0.75; 95% CI=0.61–0.93) and unmarried (OR=0.80, 95% CI=0.66–0.96) were less likely to report smoking cessation. Current daily smokers who were Hispanic (OR=2.15, 95% CI=1.65–2.81) and college educated (OR=1.27, 95% CI=1.05–1.53) were more likely to report smoking cessation. Relapse in former daily smokers was greater in women (OR=1.44, 95% CI=0.27–0.74) and lower in older adults (OR=0.44; 95% CI=0.27–0.74). Smoking initiation occurred less in women (OR=0.65; 95% CI=0.49–0.87) and Hispanic adults (OR=0.57; 95% CI=0.36–0.91) and more in unmarried adults (OR=1.84; 95% CI=1.09–2.44) and adults with less education (OR=1.63; 95% CI=1.09–2.44).

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Conclusions—From 2001 to 2005, smoking status was extremely stable in the United States population. Specific gender, race, and educational groups need increased prevention and intervention efforts.

Keywords

cigarette; smoking; cessation; relapse; initiation; gender; race

INTRODUCTION

Tobacco use results in the deaths of >5 million adults annually across the globe (1) with the greatest proportions of tobacco-related deaths seen in the Americas and Europe (1). In the United States alone, approximately 480,000 adults die annually from tobacco-related causes (2). Further, the relative risk of dying from smoking-related causes has increased over the past fifty years (2, 3).

In order to move forward on a national U.S. tobacco control agenda (4, 5), it is necessary to understand how daily smoking patterns vary over time. Research on smoking persistence have primarily used cohort or retrospective designs (e.g., (6–9)) which provide information about a group's smoking behavior at one point in time but also have limitations including the potential for recall bias error (10). For example, smokers are less likely to remember and report quit attempts that occurred further in the past compared to more recent attempts (11). Longitudinal data, when available, provide advantages including reduced recall bias due to a shorter recall period, greater power, and the ability to evaluate change over time at an individual, rather than at the group, level (12, 13). The few longitudinal studies on changes in smoking report varied results. For example, rates of relapse among former smokers have been reported to range from 7% to 40% (14–16). Differences in sample characteristics, follow-up periods (ranging from 1–10 years), and smoking status definitions (e.g., combining daily and non-daily smoking) likely contributed to this variation. Only one prior investigation examined longitudinal changes in smoking status (from 1970's to 1980's) with a nationally representative sample (15). Further, no study has examined the full range of possible smoking transitions (e.g., initiation, increase, no change, reduction, cessation, relapse) across daily and non-daily smoking status.

While the 1993 NIH Revitalization Act (Public Law 103-43) (17) requires that women and minorities be considered for inclusion in all human research funded by the National Institutes of Health, it has been documented that few smoking studies examine outcomes by key demographics (18–21). Therefore, it is important that significant differences in smoking transitions by subgroup be documented. Previous studies that examined demographic associates of smoking transitions reported mixed findings. Demographics significantly associated with smoking cessation (compared to continued smoking) include male gender (22–25), Hispanic and Caucasian race (15, 26, 27), older age (15, 23), greater education (22, 24, 28), and being married (16). In contrast, other research has reported no association between cessation and gender (26, 28–30), education (23, 29), race (23, 28), age (28), or marital status (28). Demographics associated with smoking relapse (compared to continued abstinence in former smokers) include younger age (14, 31) and not being married (31), but

not education (31). Results related to the association of gender to smoking relapse have been mixed (14, 15). Finally, smoking initiation has been associated with male gender and Asian or African-American race (32). Similar to the studies of overall smoking patterns reported earlier, the majority of studies examining demographics used cross-sectional designs; combined daily and non-daily smokers; and/or included samples that were not representative of the general U.S. population.

The National Institute on Alcohol Abuse and Alcoholism's National Epidemiologic Survey on Alcohol and Related Conditions (NESARC; Wave 1, 2001–2002; Wave 2, 2004–2005) (33, 34) provides a unique opportunity to examine changes in daily and non-daily smoking status using longitudinal data from a large, representative sample of the general U.S. adult population. The primary aim of this study was to evaluate the stability of smoking patterns in a representative sample of U.S. adults who reported their current smoking behavior at two time points, approximately 3 years apart. The secondary aim of this study was to evaluate how smoking transitions varied by key demographic subgroups to inform prevention and intervention efforts.

METHODS

Data Sources

This study analyzed two waves of data from the NESARC study. During Wave 1, face-to-face personal interviews were conducted in 2001 and 2002 with 43,093 non-institutionalized United State civilians in all 50 states and the District of Columbia. Participants were ages 18 and older with an oversampling of African-Americans, Hispanics, and young adults (ages 18–24). The response rate at Wave 1 was 81%. Approximately 86% of the Wave 1 sample (n=34,653 out of 39,959 eligible participants) completed face-to-face Wave 2 interviews in 2004 and 2005 (mean time between interviews = 36.6 months). See Grant et al. (33, 34) for details about the NESARC sampling and weight procedures.

The current analyses were conducted on the 33,309 participants who completed both waves of data collection; reported current daily, current non-daily, former daily, former non-daily, or lifetime non-smoking at Wave 1; and provided valid smoking data at Wave 2. See Table 1 for the demographics of participants who were included in the analyses versus those excluded due to incomplete or missing Wave 2 data.

Measures

Socio-demographics—At Wave 1, participants provided information regarding gender (male, female), age (18–29, 30–44, 45+), birth cohort (1911–29, 1930–39, 1940–49, 1950–59, 1960–69, 1970–79, 1980–84), race/ethnicity (White, non-Hispanic; Black, non-Hispanic; Other, non-Hispanic; Hispanic), marital status (Married, Not Currently Married), and education (less than a High School (HS) graduate, HS graduate, at least some college). To protect participants' privacy, NESARC data do not include year of birth; thus, birth year was calculated by subtracting the age of the participant at Wave 1 from year of the Wave 1 interview (either 2001 or 2002). The "Other, non-Hispanic" category included participants

who identified as American Indian, Alaskan Native, Asian, Native Hawaiian, or Pacific Islander. These categorizations were based on prior work with the NESARC (35).

Smoking Status and Transitions—Smoking status was assessed during the Wave 1 and 2 interviews using the Alcohol Use Disorders and Associated Disabilities Interview Schedule-DSM-IV (36) (AUDADIS-IV). The AUDADIS-IV has demonstrated good reliability for assessing smoking behaviors (ICCs=0.60–0.92) (37). The sample was limited to five, non-overlapping subsamples of participants who completed the NESARC Wave 1 assessment: participants reporting Current Daily Smoking, Current Non-Daily Smoking, Former Daily Smoking, Former Non-Daily Smoking, and Lifetime Non-Smoking at Wave 1. Our smoking classifications were consistent with the categories used by the U.S. Department of Health and Human Service’s Centers for Disease Control and Prevention (38).

Wave 1 Smoking Status: *Wave 1 Current Daily Smoking* characterized adults who smoked at least 100 cigarettes during their lifetime and reported smoking cigarettes daily during the 12 months prior to the Wave 1 interview. *Wave 1 Current Non-Daily Smoking* characterized adults who smoked at least 100 cigarettes during their lifetime and reported smoking cigarettes some days, but not every day, during the 12 months prior to the Wave 1 interview. *Wave 1 Former Daily Smoking* characterized adults who smoked at least 100 cigarettes in their lifetime, smoked every day during the period they had last smoked, and had not smoked during the 12 months prior to the Wave 1 interview. *Wave 1 Former Non-Daily Smoking* characterized adults who smoked at least 100 cigarettes in their lifetime; smoked some, but not all, days during the period they had last smoked; and had not smoked during the 12 months prior to the Wave 1 interview. *Wave 1 Lifetime Non-Smoking* characterized adults who never smoked 100 cigarettes or used any other tobacco products (i.e., cigars, pipes, chewing tobacco, snuff) in their lifetime.

Wave 2 Smoking Status: Wave 2 smoking behavior was defined by three mutually-exclusive categories: Current Daily Smoking, Current Non-Daily Smoking, and Current Non-Smoking. Participants who reported smoking at least 100 cigarettes since the Wave 1 interview and either daily smoking or non-daily smoking during the 12 months prior to the Wave 2 interview met criteria for Wave 2 Current Daily Smoking and Wave 2 Current Non-Daily Smoking, respectively. Participants who reported that they either smoked fewer than 100 cigarettes since the Wave 1 interview or had not smoked cigarettes in the 12 months prior to the Wave 2 interview met criteria for Wave 2 Current Non-Smoking.

Smoking Transitions: For Wave1 Current Daily Smoking, the 3-level transition of interest was “Smoking Cessation” which characterized smoking behavior at Wave 2 as: “Quit Smoking” (Wave 2 Current Non-Smoking), “Reduce to Non-Daily Smoking” (Wave 2 Current Non-Daily Smoking), and “Stable Current Daily Smoking” (Wave 2 Current Daily Smoking). For participants with Wave1 Current Non-Daily Smoking, transitions were: “Quit Smoking” (Wave 2 Current Non-Smoking), “Stable Non-Daily Smoking” (Wave 2 Current Non-Daily Smoking), and “Increase to Daily Smoking” (Wave 2 Current Daily Smoking). For Wave 1 Former Daily and Non-Daily Smoking, transitions were: “Relapse to Daily

Smoking” (Wave 2 Current Daily Smoking), “Relapse to Non-Daily Smoking” (Wave 2 Current Non-Daily Smoking), and “Stable Former Daily Smoking” (Wave 2 Current Non-Smoking). For Wave 1 Lifetime Non-Smoking, transitions were: “Initiation of Daily Smoking” (Wave 2 Current Daily Smoking), “Initiation of Non-Daily Smoking” (Wave 2 Current Non-Daily Smoking), and Stable Lifetime Non-Smoking (Wave 2 Current Non-Smoking).

Covariates—Past-year Nicotine Dependence (yes/no), assessed at Wave 1 by the AUDADIS using DSM-IV criteria, was included as a covariate for analyses of Wave 1 Current Daily Smoking. Because few participants with Wave 1 Former Daily Smoking met diagnostic criteria for past-year Nicotine Dependence ($n=57$), and because past-year Nicotine Dependence was unrelated to smoking relapse in bivariate analysis ($\chi^2=0.86$; $p=0.43$), this variable was not included as a covariate in multinomial logistic regression modeling. Years since last cigarette (range 0–75), assessed at Wave 1, was included as a covariate in models for participants with former smoking.

Statistical Methods

Data were analyzed using SUDAAN (Research Triangle Institute, 2001) to adjust for characteristics of complex survey sampling designs. NESARC-calculated weights were used to account for nonresponse; attrition; oversampling of African-Americans, Hispanics, and young adults; and to be representative of the U.S. civilian population based on the 2000 decennial census. Wave 2 data were weighted to represent the same population that was represented at Wave 1.

Descriptive data are presented as unweighted N and weighted % (including 95% Confidence Intervals; CI); statistical significance was determined with the Wald Chi-Square test for categorical variables. A series of multinomial logistic regression models were built to examine the association of demographics to smoking transitions for Wave 1 Current Daily Smoking, Former Daily Smoking, and Lifetime Non-Smoking using PROC MULTLOG. These models were constructed separately for participants reporting Wave 1 Current Daily, Former Daily, and Never Smoking; the dependent variable was the 3-level smoking transition of interest (e.g. Smoking Cessation, Smoking Relapse, Smoking Initiation). Each model included the primary independent variables of gender, age, race/ethnicity, marital status, education, as well as any relevant covariates (Wave 1 past-year Nicotine Dependence among those with Wave 1 Current Daily Smoking; years since last cigarette among those with Wave 1 Former Daily Smoking). Another set of models were constructed where birth cohort was substituted for age. Multinomial logistic regression models were not run for Wave 1 Current or Former Non-Daily Smoking because the small sample sizes did not allow enough power for these analyses. Findings from these adjusted multinomial logistic regression models are presented as adjusted odds ratios (OR) with corresponding 95% CIs. An association was considered to be statistically significant when the 95% CI of the OR did not include 1.0 (the corresponding p-value is less than 0.05). Statistical tests were two-tailed and differences were considered significant when $p<0.05$.

RESULTS

Demographics

See Table 2 for the distribution of demographics and covariates for the full analyzed sample and across Wave 1 smoking classifications.

Stability of Smoking Status (Primary Aim; Table 3)

There was a high level of stability in smoking status (Table 3). At Wave 2, nearly eighty percent of adults who reported current daily smoking at Wave 1 continued to report current daily smoking while five percent reduced their smoking to a non-daily basis. Nearly 96% of those who reported former daily and non-daily smoking at Wave 1 avoided relapse to either daily or nondaily smoking at Wave 2 while 97% of those who reported never smoking at Wave 1 avoided initiation of either daily or nondaily smoking at Wave 2. The least stable smoking status was Wave 1 Current Non-Daily Smoking: just over half of these adults (54.5%) reported they no longer smoked. Among the Wave 1 Current Non-Daily smokers who continued smoking at Wave 2, half reported smoking on a non-daily basis while the other half reported that they increased their smoking to a daily level.

Association of Demographics to Smoking Transitions (Secondary Aim; Tables 4–6)

Smoking Cessation (Table 4)—Smoking cessation was significantly associated with age, race/ethnicity, marital status, education, and birth cohort. Wave 1 Current Daily Smoking adults who were older demonstrated decreased odds of quitting and reducing to nondaily smoking. Wave 1 Current Daily Smoking adults who identified as Black and Hispanic demonstrated increased odds of quitting and reducing to nondaily smoking compared to Wave 1 Current Daily Smoking adults who identified as White. Wave 1 Current Daily Smoking adults who were not currently married reported decreased odds of quitting smoking compared to those who were currently married. Finally, Wave 1 Current Daily Smoking adults who reported a having some college education reported increased odds of quitting smoking and reducing to nondaily smoking compared to high school graduates; in contrast, those with less than a high school education reported decreased odds of reducing smoking.

Smoking Relapse (Table 5)—Smoking relapse was significantly associated with gender, age, race/ethnicity, and birth cohort. Former smoking women demonstrated greater odds of relapse to daily smoking at Wave 2 compared to former smoking men, while older adults demonstrated decreased odds of relapse to both daily and nondaily smoking relative to younger adults. Wave 1 Former Smoking adults who identified as being from a race other than White, Black, or Hispanic demonstrated greater odd of relapse to daily smoking compared to those who identified as White.

Smoking Initiation (Table 6)—Smoking initiation was significantly associated with gender, age, race/ethnicity, marital status, education, and birth cohort. Women had lower odds than men for initiating daily and nondaily smoking. Wave 1 Never Smoking adults who were older than 30 demonstrated lower odds of daily and nondaily smoking initiation compared to Wave 1 Never Smoking adults who were younger than 30. Similarly, Wave 1

Never Smoking adults from older age cohorts demonstrating lower odds of initiating daily and nondaily smoking compared to the youngest birth cohort. Wave 1 Never Smoking adults who identified as Hispanic displayed lower odds of initiating daily smoking and greater odds of initiating nondaily smoking compared to Wave 1 Never Smoking adults who identified as White. Unmarried adults showed greater odds than married adults to initiate both daily and nondaily smoking. Finally, compared to Wave 1 Never Smoking adults who graduated high school, Wave 1 Never Smoking adults with a college education demonstrated lower odds of initiating daily and nondaily smoking while Wave 1 Never Smoking adults with less than a high school education demonstrated greater odds of initiating daily smoking.

DISCUSSION

There is a need to make smoking treatment research a top national priority (4) and move forward on a national tobacco control agenda (5) that will inform health care policy and the allocation of health care to reduce the deadly consequences of smoking. The current study used a nationally representative and longitudinal dataset to examine the full range of smoking transitions for daily and non-daily smokers in order to examine stability of smoking and identify groups in need of increased prevention and intervention efforts.

Smoking status remained stable for the majority of adults, especially current smokers with only approximately one in seven smokers quitting during the three year period. Further, the majority of current smoking adults continued to smoke on a daily basis. While quit rates were higher for current non-daily smoking adults compared to current daily smoking adults, it is important to note that nearly half of the non-daily smokers who were still smoking after three years had increased to daily smoking suggesting the need for targeted efforts to reduce the transitions from non-daily to daily smoking.

Stability in smoking is not due to a lack of desire to quit or lack of cessation attempts. Most current smokers express a desire to quit (39) and try to quit smoking (26). Rather, rates are stable because the majority of quit attempts end in relapse (7, 18, 40–42). Data from the CDC found that while the majority of adult smokers reported past-year quit attempts (52.4%), only 6.2% were currently not smoking (26). In contrast, most former smokers avoided relapse in this study, most likely because the former smokers had been abstinent for at least 12 months at Wave 1 and the majority of relapses occur within the first week of quitting (42).

Other key demographic variables differed in their association to smoking transitions. Prevention campaigns may benefit from targeting men, consistent with prior cross-sectional research (32). In contrast to past cross-sectional studies, our data also suggests the importance of prevention efforts targeting adults who are younger, unmarried, have less education, and identify as Hispanic. Similar to cross-sectional studies, we found that intervention efforts may benefit from a greater focus toward unmarried adults (16) while, in contrast to past studies, we also found that interventions efforts may benefit from targeting older (rather than younger, (15, 23)) and Caucasian (rather than racial minority (15, 26, 27)) adults. As noted above, most smokers relapse within days of their quit attempt (42). While addressing smoking relapse early in quit attempts is critical, attention also needs to be paid

to relapse over longer periods of time. Consistent with cross-sectional findings, the current data suggests that women and younger adults (14, 15, 31) may benefit from longer treatments that emphasize relapse prevention as well as adults from minority races (e.g., American Indian, Alaskan Native, Asian, Native Hawaiian, and Pacific Islander).

A number of limitations of this study must be acknowledged. First, generalizability is limited to the participant groups included in the analyses. The NESARC dataset includes U.S. adults; therefore, results may not generalize to younger age groups or adults from other countries. The majority of current smokers report that they began to smoke before they were 18 years old (43, 44). Consequently, there were a low number of participants who reported initiating smoking during the assessment period. This data would apply to prevention efforts primarily targeting adults. Further, it should be noted that higher percentages of certain participant groups (e.g., adults who were female, White, married, and college-educated; Table 1) were included in the analyses compared to those who were excluded from the analyses. In order to reduce the impact of these differences, the Wave 2 data was weighted to represent the Wave 1 population. Second, there were few Wave 1 Former Smoking adults who relapsed to smoking at Wave 2. It would be useful for future research to examine associates of relapse in a larger sample of relapsers. Sample size also limited the ability to examine the association of demographics to smoking transitions for non-daily smokers (e.g., twenty-four Wave 1 Former Non-Daily Smokers relapsed to daily smoking at Wave 2). It would be important for future studies to examine which demographic groups are more likely to continue non-daily smoking, increase to daily smoking, and relapse to daily or non-daily smoking. Third, smoking status was determined by self-report without biochemical verification which can result in underreporting of current smoking (45). Fourth, data analysis was limited to variables collected at the two assessment time points. No data was available to types of smoking treatments used to quit smoking or reasons for smoking relapse. Finally, because there were two waves of data, birth cohort and age were mathematically equivalent. The unique contribution of each could not be examined and the two variables had to be analyzed in separate models. Future studies with at least three waves of data should examine the relative effects of age (controlling for cohort) and birth cohort (controlling for age) on changes in smoking.

There have been significant interventions to reduce smoking from the societal to the individual level. The U.S. government has engaged in a range of efforts including the first strategic plan for tobacco control, new CDC media campaigns, authorization of the FDA to regulate tobacco, and increased insurance coverage for cessation services (46). The 1998 Tobacco Master Settlement Agreement led to specific public health interventions during the time between Wave 1 and Wave 2 including increased taxation in 37 states between 2002 and 2003 and smoke-free air laws in 8 states between 2002 and 2005. These types of public actions reduce exposure to secondhand smoke, smoking behavior, and medical risks of smoking (47–57). The inclusion of smoking as another vital sign (58) improves the rates at which medical professionals talk to patients about quitting (59, 60), although there is still work to be done (61). Further, FDA-approved pharmacological and behavioral treatments improve smoking cessation rates (18). Despite these efforts, smoking persists. Continued efforts at all levels are needed to improve cessation outcomes and to target groups with lower rates of smoking cessation (i.e., older, Caucasian, and unmarried adults), higher rates

of smoking relapse (i.e., female, younger, and minority adults), and higher rates of smoking initiation (i.e., male, Hispanic, younger, unmarried, and less educated adults).

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Demographic factors for participants from the NESARC study who were included in the analyses compared to those who were excluded from the analyses.

Table 1

Participant Group					
	Included in Analyses ^a		Excluded from Analyses ^b		<i>p</i>
	N	% (95% CI)	N	% (95% CI)	
Gender					116.68
Female	19,761	54.4 (53.7–55.1)	4,814	43.9 (42.6–45.2)	
Male	13,548	45.6 (44.9–46.3)	4,970	56.1 (54.8–57.4)	
Age					4.22
18–29	6,501	21.2 (20.6–22.0)	2,165	23.7 (22.2–25.3)	
30–44	10,542	31.1 (30.4–31.8)	2,840	30.3 (29.1–31.5)	
45+	16,266	47.7 (46.8–48.6)	4,779	46.0 (44.0–48.0)	
Birth Cohort					22.66
1911–1929	3,329	8.4 (8.0–8.8)	1,798	15.4 (14.2–16.6)	
1930–1939	3,454	9.5 (9.1–9.9)	917	8.5 (7.9–9.2)	
1940–1949	4,930	15.4 (14.9–15.9)	1,054	11.1 (10.3–12.0)	
1950–1959	6,502	20.8 (20.2–21.4)	1,485	16.3 (15.4–17.4)	
1960–1969	7,151	20.6 (20.0–21.3)	1,949	20.6 (19.5–21.7)	
1970–1979	5,684	17.6 (17.1–18.3)	1,800	19.2 (17.7–20.7)	
1980–1984	2,259	7.7 (7.3–8.2)	781	8.9 (8.3–9.8)	
Race/Ethnicity					11.54
White	19,290	72.4 (69.4–75.3)	5,217	65.4 (61.2–69.4)	
Black	6,320	10.8 (9.5–12.1)	1,925	12.0 (10.8–13.3)	
Other	1,498	6.2 (5.3–7.2)	535	7.5 (6.2–9.1)	
Hispanic	6,201	10.6 (8.5–13.0)	2,107	15.1 (12.1–18.6)	
Marital Status					86.98
Married	17,677	63.5 (62.5–64.4)	4,404	55.1 (53.8–56.4)	
Not Currently Married	15,632	36.5 (35.6–37.5)	5,380	44.9 (43.6–46.2)	

Participant Group		Excluded from Analyses ^b				χ^2	<i>p</i>
Included in Analyses ^a		N	% (95% CI)	N	% (95% CI)		
Education						29.90	<0.001
< HS graduate		5,527	14.2 (13.3–15.1)	2,322	20.8 (19.3–22.4)		
HS graduate		9,572	28.9 (27.8–30.0)	2,975	30.9 (29.2–32.8)		
Some College		18,210	56.9 (55.7–58.2)	4,487	48.3 (46.63–50.0)		

^aWave 1 current daily/current non-daily/former daily/former non-daily/lifetime non-smoking participants with complete smoking data at Wave 2

^bNESARC participants who did not provide valid Wave 1 smoking data; Wave 1 current daily/current non-daily/former daily/former non-daily/lifetime non-smoking participants who completed the Wave 2 assessment but did not provide did not provide valid Wave 2 smoking data; or Wave 1 current daily/current non-daily/former daily/former non-daily/lifetime non-smoking participants who did not complete the Wave 2 assessment (e.g., failure to locate, institutionalization, physical or mental impairment, U.S. armed forces deployment, moved out of country, deported, or deceased; see (34)).

Table 2

Demographic factors and covariates for the full sample and by Wave 1 smoking status.

Gender												40.6	<0.001
Female	1,9761	53.6 (52.9–54.3)	3,495	47.3 (45.8–48.8)	650	43.6 (60.3–46.9)	2,584	43.9 (42.1–45.6)	627	47.2 (43.4–51.0)	12,405	60.1 (59.2–61.2)	
Male	1,3548	46.4 (45.7–47.1)	3,050	52.7 (51.2–54.2)	686	56.4 (53.1–59.7)	2,844	56.1 (54.4–57.9)	549	52.8 (49.0–56.6)	6,419	39.9 (38.9–40.8)	
Age												25.8	
18–29	6,501	21.9 (21.2–22.7)	1,445	25.0 (23.5–26.5)	442	39.5 (36.3–42.7)	209	4.1 (3.5–4.8)	106	11.3 (8.9–14.3)	4,299	25.7 (24.7–26.7)	
30–44	10,542	30.6 (29.9–31.3)	2,279	34.9 (33.4–36.5)	503	34.3 (31.2–37.6)	979	18.3 (17.0–19.7)	325	27.8 (24.9–30.9)	6,456	32.7 (31.8–33.6)	
45+	16,266	47.5 (46.6–48.4)	2,821	40.1 (38.6–41.6)	391	26.2 (23.5–29.0)	4,240	77.5 (76.0–79.0)	745	61.0 5(7.5–64.3)	8,069	41.6 (40.5–42.8)	
Birth Cohort												11.1	<0.001
1911–1929	3,329	9.2 (8.8–9.7)	206	2.8 (2.4–3.2)	31	1.9 (1.3–2.7)	1,105	19.5 (18.3–20.8)	155	13.3 (11.0–15.9)	1,832	8.8 (8.1–9.4)	
1930–1939	3,454	10.0 (9.5–10.4)	522	7.2 (6.5–7.8)	71	5.1 (3.8–6.8)	1,096	20.0 (18.8–21.2)	169	13.2 (11.0–15.7)	1,596	8.0 (7.5–8.5)	
1940–1949	4,930	14.6 (14.2–15.1)	1,039	14.7 (13.7–15.7)	117	7.7 (6.0–9.8)	1,277	23.6 (22.1–25.1)	221	18.0 (15.5–20.8)	2,276	12.2 (11.6–12.7)	
1950–1959	6,502	19.8 (19.2–20.3)	1,520	23.0 (21.7–5)	254	16.4 (14.1–18.9)	1,048	19.9 (18.5–21.3)	273	23.3 (20.3–26.7)	3,407	18.5 (17.9–19.2)	
1960–1969	7,151	20.4 (19.8–21.0)	1,506	22.4 (21.1–23.8)	347	23.9 (21.2–26.7)	614	11.5 (10.4–12.6)	225	18.5 (16.0–21.3)	4,459	22.2 (21.5–23.0)	
1970–1979	5,684	18.0 (17.4–18.6)	1,243	20.7 (19.4–22.0)	369	29.9 (26.9–33.1)	254	4.8 (4.2–5.6)	110	11.6 (9.1–15.6)	3,708	20.6 (19.7–21.4)	
1980–1984	2,259	8.1 (7.6–8.6)	509	9.3 (8.3–10.2)	147	15.2 (12.7–18.1)	34	0.8 (0.5–1.2)	23	2.1 (1.2–3.6)	1,546	9.8 (9.1–10.5)	
Race/Ethnicity												8.6	
White	19,290	70.6 (67.4–73.6)	4,232	76.3 (73.9–78.5)	751	68.1 (64.2–71.8)	3,877	82.5 (80.4–84.5)	760	79.2 (75.5–82.4)	9,670	64.5 (60.5–68.2)	
Black	6,320	11.1 (9.8–12.5)	1,212	10.3 (8.8–11.9)	202	8.9 (7.2–11.1)	785	7.0 (6.1–8.0)	177	7.5 (6.0–9.2)	3,944	13.1 (11.5–14.8)	
Other	1,498	6.6 ^d (5.6–7.6)	290	5.7 ^b (4.6–6.9)	60	6.9 ^c (5.0–9.3)	178	4.4 ^d (3.5–5.4)	34	3.8 ^e (2.5–5.6)	936	7.7 ^f (6.5–9.1)	
Hispanic	6,201	11.7 (9.5–14.4)	811	7.8 (6.5–9.4)	323	16.0 (12.8–19.9)	588	6.1 (4.8–7.8)	205	9.6 (7.1–12.9)	4,274	14.8 (11.8–18.3)	
Marital Status												33.3	<0.001
Married	17,677	63.0 (62.0–64.0)	2,939	55.5 (53.9–57.0)	595	52.7 (49.2–56.1)	3,376	74.8 (73.5–76.1)	726	73.4 (70.3–76.4)	10,041	62.2 (61.0–63.5)	
Not Currently Married	15,632	37.0 (36.0–38.0)	3,606	44.5 (43.0–46.1)	741	47.3 (43.9–50.8)	2,052	25.2 (23.9–26.5)	450	26.6 (23.6–29.7)	8,784	37.8 (36.5–39.0)	

Full Sample (n=33,309)															
	N	% (95% CI)	Wave 1 Current Daily Smoking (n=6,545)	N	% (95% CI)	Wave 1 Current Non-Daily Smoking (n=1,336)	N	% (95% CI)	Wave 1 Former Daily Smoking (n=5,428)	N	% (95% CI)	Wave 1 Former Non-Daily Smoking (n=1,176)	N	% (95% CI)	Wave 1 Lifetime Non-Smoking (n=18,824)
Education															
< HS graduate	5,527	14.8 (13.9–15.7)	1,338	19.7 (18.5–21.0)	181	12.3 (10.1–15.0)	918	15.6 (14.3–17.1)	145	12.1 (9.5–15.3)	2,945	13.0 (11.8–14.4)			
HS graduate	9,572	29.0 (27.9–30.1)	2,335	36.9 (35.2–38.5)	335	26.3 (23.3–29.6)	1,570	29.6 (28.0–31.2)	303	24.4 (21.2–27.9)	5,029	26.3 (25.2–27.5)			
Some College	18,210	56.2 (55.0–57.5)	2,872	43.4 (41.7–45.2)	820	61.4 (57.5–65.1)	2,940	54.8 (52.8–56.8)	728	63.5 (57.7–67.1)	10,850	60.7 (59.1–62.2)			
Covariates Past-year Nicotine Dependence															
Yes	3,887	12.5 (11.7–13.3)	3,556	55.3 (53.6–56.9)	261	20.8 (18.1–23.7)	57	1.3 (0.9–1.8)	13	1.4 (0.8–2.6)	0	--			--
No	29,422	87.5 (86.7–88.3)	2,989	44.7 (43.1–46.4)	1075	79.2 (76.4–81.9)	5371	98.7 (98.2–99.1)	1163	98.6 (97.4–99.2)	18824	--			--
	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI	Mean	95% CI			--
Years since last cigarette	8.1	7.8–8.3	0.02	0.02–0.02	0.08	0.07–0.09	17.7	17.3–18.2	17.3	16.1–18.4	--	--			--
															16.8 <0.001

N is unweighted; % is weighted

HS, high school

^a American Indian/Alaska Native, 2.2%; Asian/Native Hawaiian/Pacific Islander, 4.4%

^b American Indian/Alaska Native, 3.5%; Asian/Native Hawaiian/Pacific Islander, 2.2%

^c American Indian/Alaska Native, 3.0%; Asian/Native Hawaiian/Pacific Islander, 3.9%

^d American Indian/Alaska Native, 2.2%; Asian/Native Hawaiian/Pacific Islander, 2.2%

^e American Indian/Alaska Native, 1.1%; Asian/Native Hawaiian/Pacific Islander, 2.7%

^f American Indian/Alaska Native, 1.7%; Asian/Native Hawaiian/Pacific Islander, 6.0%

Table 3

Stability and transitions in smoking status over a 3-year period for U.S. adults (n=33,309).

Wave 2 Smoking Status			
Wave 1 Smoking Status	Current Daily Smoking ^f n; % (95%CI)	Current Non-Daily Smoking ^g n; % (95%CI)	Current Non-Smoking ^h n; % (95%CI)
Current Daily Smoking^a (n=6,545)	Stable Current Daily Smoking: n=5,185; 79.8% (78.40–81.12)	Reduce to Non-Daily Smoking: n=361; 5.4% (4.71–6.07)	Quit Smoking: n=999; 14.9% (13.6–16.2)
Current Non-Daily Smoking^b (n=1,336)	Increase to Current Daily Smoking: n=305; 22.5% (19.8–25.3)	Stable Non-Daily Smoking: n=325; 23.0% (20.4–26.0)	Quit Smoking: n=706; 54.5% (50.7–58.3)
Former Daily Smoking^c (n=5,428)	Relapse to Daily Smoking: n=174; 3.1% (2.58–3.76)	Relapse to Non-Daily Smoking: n=65; 1.1% (0.83–1.50)	Stable Former Daily Smoking: n=5,189; 95.8% (95.09–96.36)
Former Non-Daily Smoking^d (n=1,176)	Relapse to Daily Smoking: n=24; 2.7% (1.6–4.6)	Relapse to Non-Daily Smoking: n=17; 1.0% (0.6–1.9)	Stable Former Non-Daily Smoking: n=1,135; 96.3% (94.2–97.6)
Lifetime Non-Smoking^e (n=18,824)	Initiation of Daily Smoking: n=370; 2.1% (1.81–2.36)	Initiation of Non-Daily Smoking: n=162; 0.8% (0.64–1.00)	Stable Lifetime Non-Smoking: n=18,292; 97.1% (96.77–97.47)

N is unweighted; % is weighted

CI=Confidence Interval

^a Defined as smoking at least 100 cigarettes over the person's lifetime, smoking cigarettes every day during the 12 months prior to the Wave 1 interview.

^b Defined as smoking at least 100 cigarettes over the person's lifetime, smoking cigarettes some days, but not every day, during the 12 months prior to the Wave 1 interview.

^c Defined as smoking at least 100 cigarettes total over the person's lifetime, smoking cigarettes every day during the last period of smoking, and no reported smoking in the 12 months prior to the Wave 1 interview.

^d Defined as smoking at least 100 cigarettes over the person's lifetime, smoking cigarettes some days, but not every day, during the last period of smoking, and no reported smoking in the 12 months prior to the Wave 1 interview.

^e Defined as smoking less than 100 cigarettes total over the person's lifetime and no use of other tobacco products in one's lifetime (e.g., smoking less than 50 cigars, smoking a pipe less than 50 times pipes, chewing tobacco less than 20 times, and using snuff less than 20 times) at the time of the Wave 1 interview.

^f Defined as smoking at least 100 cigarettes since the Wave 1 interview and smoking daily during the 12 months prior to the Wave 2 interview.

^g Defined as smoking at least 100 cigarettes since the Wave 1 interview and smoking less than daily during the 12 months prior to the Wave 2 interview.

^h Defined as smoking less than 100 cigarettes total since the Wave 1 interview; or, smoking more than 100 cigarettes since the Wave 1 interview but no reported smoking in the 12 months prior to the Wave 2 interview.

Table 4

Bivariate and multivariate analysis of demographic variables and transitions in smoking among participants with Wave 1 Current Daily Smoking (n=6,545)

Wave 1 Socio- demographic Characteristics	Bivariate Analysis			Multinomial Logistic Regression Modeling		
	Quit Smoking (n=999) % (95%CI)	Reduce to Non-Daily Smoking (n=361) % (95%CI)	Stable Current Daily Smoking (n=5,185) % (95% CI)	Quit Smoking vs. Stable Current Daily Smoking OR ^a (95% CI)	Reduce to Non-Daily Smoking vs. Stable Current Daily Smoking OR ^a (95% CI)	p
Gender						
Male	14.9 (13.2–16.7)	5.5 (4.6–6.5)	79.7 (77.7–81.5)	1.00	1.00	.9276
Female	14.9 (13.3–16.6)	5.2 (4.3–6.3)	79.9 (78.0–81.7)	1.06 (0.88–1.27)	0.96 (0.73–1.28)	.7584
Age						
18–29	17.2 (14.9–19.9)	8.2 (6.6–10.1)	74.6 (71.9–77.2)	1.00	1.00	38.63 <.0001
30–44	12.8 (11.2–14.6)	5.0 (4.0–6.3)	82.2 (80.1–84.2)	0.62 (0.49–0.78)***	0.55 (0.39–0.79)**	
45+	15.2 (13.4–17.1)	3.9 (3.1–5.0)	80.9 (78.8–82.8)	0.75 (0.61–0.93)*	0.46 (0.32–0.65)***	
Race/Ethnicity						
White, Non- Hispanic	13.5 (12.3–14.9)	4.9 (4.2–5.8)	81.6 (80.1–82.9)	1.00	1.00	54.1 <.0001
Black, Non- Hispanic	17.4 (13.9–21.4)	6.0 (4.7–7.7)	76.6 (72.7–80.1)	1.42 (1.08–1.87)*	1.44 (1.05–1.98)*	
Other, Non- Hispanic	15.3 (10.1–22.6)	3.5 (2.0–6.2)	81.2 (73.8–86.9)	1.13 (0.69–1.84)	0.70 (0.38–1.28)	
Hispanic	24.4 (20.2–29.1)	9.9 (7.4–13.3)	65.7 (60.8–70.3)	2.15 (1.65–2.81)***	2.54 (1.72–3.75)***	
Marital Status						
Married	15.6 (14.1–17.3)	4.7 (3.8–5.8)	79.7 (77.9–81.4)	1.00	1.00	7.94 .0189
Not Currently Married	13.9 (12.2–15.8)	6.2 (5.2–7.3)	79.9 (77.8–81.9)	0.80 (0.66–0.96)*	1.10 (0.81–1.49)	
Education						
< HS graduate	14.9 (13.6–16.2)	5.4 (4.7–6.1)	79.8 (78.4–81.1)	1.11 (0.87–1.41)	0.58 (0.38–0.87)*	27.52 <.0001
HS graduate	13.4 (11.8–15.2)	4.9 (4.0–6.0)	81.7 (79.8–83.5)	1.00	1.00	
Some College	15.7 (14.0–17.5)	6.7 (5.7–8.0)	77.6 (75.5–79.6)	1.27 (1.05–1.53)*	1.49 (1.14–1.96)**	
Past-year Nicotine Dependence						
Yes	13.1 (11.6–14.7)	5.0 (4.1–6.0)	82.0 (80.2–83.6)	0.74 (0.62–0.88)***	0.78 (0.59–1.04)	14.48 .0007
No	17.1 (15.3–19.0)	5.8 (4.8–7.0)	82.0 (80.2–83.6)	1.00	1.00	

Wave 1 Socio- demographic Characteristics	Bivariate Analysis				Multinomial Logistic Regression Modeling			
	Quit Smoking (n=999)	Reduce to Non-Daily Smoking (n=361)	Stable Current Daily Smoking (n=5,185)		Quit Smoking vs. Stable Current Daily Smoking	Reduce to Non-Daily Smoking vs. Stable Current Daily Smoking	χ^2	p
	% (95%CI)	% (95%CI)	% (95%CI)		OR ^a (95% CI)	OR ^a (95% CI)		
Birth Cohort							79.52	<.0001
1911–1929	25.9 (19.0–34.2)	3.3 (1.5–7.2)	70.8 (62.5–77.9)		1.49 (0.91–2.44)	0.31 (0.13–0.79) *		
1930–1939	17.2 (13.3–21.8)	3.9 (2.4–5.3)	78.9 (74.2–83.0)		0.87 (0.57–1.32)	0.34 (0.18–0.63) ***		
1940–1949	14.4 (11.9–17.2)	3.0 (1.9–4.8)	82.7 (79.7–85.3)		0.68 (0.48–0.96) *	0.22 (0.12–0.41) ***		
1950–1959	12.7 (10.6–15.2)	4.7 (3.4–6.5)	82.6 (79.7–85.1)		0.60 (0.42–0.85) **	0.35 (0.21–0.56) ***		
1960–1969	13.0 (11.1–15.1)	4.3 (3.3–5.6)	82.8 (80.3–85.0)		0.60 (0.43–0.84) **	0.31 (0.19–0.50) ***		
1970–1979	17.0 (14.4–19.8)	7.2 (5.7–9.2)	75.8 (72.7–78.7)		0.90 (0.64–1.27)	0.58 (0.37–0.91) *		
1980–1984	15.9 (12.6–19.8)	10.8 (8.1–14.3)	73.3 (68.8–77.4)		1.00	1.00		

* p<0.05,

** p<0.01,

*** p<0.001;

p-values are from t-test of parameter estimate (Ho: beta coefficient =0)

N is unweighted; % is weighted

^a Fully-adjusted multinomial logistic regression model includes gender, age, race/ethnicity, marital status, education, and past-year nicotine dependence. Adjusted Odds Ratio reflects association between independent variable/covariate of interest and the relevant level of the dependent variable (smoking cessation), holding all other variables constant.

^b Fully-adjusted multinomial logistic regression model includes gender, birth cohort, race/ethnicity, marital status, education, and past-year nicotine dependence. Adjusted Odds Ratio reflects association between birth cohort and the relevant level of the dependent variable (smoking cessation), holding all other variables constant.

Key: OR, odds ratio; CI, confidence interval; HS, high school

Bivariate and multivariate analysis of demographic variables and transitions in smoking among participants with Wave 1 Former Daily Smoking (n=5,428)

Wave 1 Socio-demographic Characteristics	Bivariate Analysis			Multinomial Logistic Regression Modeling					
	Relapse to Daily Smoking (n=174)	Relapse to Non-Daily Smoking (n=65)	Stable Former Daily Smoking (n=5,189)	χ^2	p	Relapse to Daily Smoking vs. Stable Former Daily Smoking	Relapse to Non-Daily Smoking vs. Stable Former Daily Smoking	χ^2	p
Gender	% (95%CI)	% (95%CI)	% (95% CI)	4.95	.0100	OR ^a (95% CI)	OR ^a (95% CI)	4.79	.0910
Male	2.4 (1.8–3.1)	1.1 (0.8–1.7)	96.5 (95.7–97.2)			1.00	1.00		
Female	4.1 (3.2–5.1)	1.1 (0.7–1.7)	94.9 (93.7–95.8)			1.44 (1.01–2.06)*	0.75 (0.39–1.45)		
Age				13.28	<.0001			17.23	.0017
18–29	16.4 (11.5–22.9)	7.3 (3.9–13.0)	76.4 (68.6–82.7)			1.00	1.00		
30–44	7.1 (5.2–9.6)	1.9 (1.2–3.2)	91.0 (88.3–93.1)			0.82 (0.46–1.47)	0.41 (0.18–0.95)*		
45+	1.5 (1.1–2.0)	0.6 (0.4–0.9)	97.9 (97.4–98.4)			0.44 (0.27–0.74)**	0.28 (0.11–0.69)**		
Race/Ethnicity				1.18	.3262			13.07	.0419
White, Non- Hispanic	2.7 (2.2–3.4)	1.0 (0.7–1.5)	96.3 (95.5–97.0)			1.00	1.00		
Black, Non- Hispanic	3.5 (2.2–5.4)	1.8 (0.9–3.9)	94.7 (92.4–96.3)			1.08 (0.61–1.92)	1.55 (0.66–3.65)		
Other, Non- Hispanic	9.4 (4.8–17.5)	2.2 (0.9–5.3)	88.4 (80.6–93.3)			3.69 (1.53–8.87)**	2.19 (0.80–6.00)		
Hispanic	3.9 (2.2–6.8)	1.2 (0.5–2.6)	95.0 (92.2–96.8)			1.08 (0.53–2.20)	0.81 (0.32–2.08)		
Marital Status				2.04	.1382			1.39	.4986
Married	2.8 (2.2–3.6)	1.0 (0.7–1.4)	96.2 (95.4–96.9)			1.00	1.00		
Not Currently Married	4.0 (3.0–5.4)	1.5 (0.9–2.6)	94.4 (92.8–95.7)			1.25 (0.78–1.99)	1.38 (0.66–2.86)		
Education				1.22	.3109			3.27	.5131
< HS graduate	2.4 (1.5–3.8)	0.7 (0.3–1.5)	97.0 (95.2–98.1)			0.72 (0.39–1.33)	0.62 (0.21–1.80)		
HS graduate	3.6 (2.6–4.9)	1.1 (0.6–2.0)	95.4 (94.0–96.4)			1.00	1.00		
Some College	3.1 (2.4–4.0)	1.3 (0.9–1.8)	95.7 (94.7–96.4)			0.85 (0.55–1.32)	1.21 (0.59–2.47)		
	Mean (95% CI)	Mean (95% CI)	Mean (95% CI)			OR (95% CI)	OR (95% CI)		
Years since last cigarette	3.9 (3.3–4.4)	5.3 (2.6–7.0)	18.3 (17.9–18.8)			0.77 (0.73–0.82) ****	0.85 (0.79–0.92) ****	94.24	<.0001
Birth Cohort	% (95%CI)	% (95%CI)	% (95% CI)	6.32	<.0001	OR ^b (95% CI)	OR ^b (95% CI)	29.29	.0036

Wave 1 Socio- demographic Characteristics	Bivariate Analysis			Multinomial Logistic Regression Modeling		
	Relapse to Non-Daily Smoking (n=65)	Stable Former Daily Smoking (n=5,189)	χ^2	Relapse to Daily Smoking vs. Stable Former Daily Smoking	Relapse to Non-Daily Smoking vs. Stable Former Daily Smoking	p
	% (95%CI)	% (95% CI)		OR ^a (95% CI)	OR ^a (95% CI)	
1911–1929	0.3 (0.1–0.8)	99.5 (98.9–99.8)		0.09 (0.02–0.33) ***	0.09 (0.01–0.73) *	
1930–1939	1.5 (0.8–2.6)	98.3 (97.2–99.0)		0.29 (0.09–0.92) *	0.07 (0.01–0.56) *	
1940–1949	1.8 (1.0–3.2)	97.5 (96.0–98.4)		0.30 (0.11–0.84) *	0.20 (0.03–1.17)	
1950–1959	3.2 (2.1–4.8)	95.3 (93.5–96.6)		0.36 (0.12–1.08)	0.32 (0.06–1.59)	
1960–1969	7.5 (5.1–10.8)	90.4 (86.9–93.1)		0.51 (0.17–1.52)	0.28 (0.05–1.50)	
1970–1979	13.1 (9.0–18.8)	82.0 (75.9–86.8)		0.54 (0.18–1.60)	0.46 (0.09–2.40)	
1980–1984	27.3 (12.9–48.8)	63.1 (41.1–80.7)		1.00	1.00	

* p<0.05,

** p<0.01,

*** p<0.001; p-values are from t-test of parameter estimate (H₀: beta coefficient =0)

N is unweighted; % is weighted

^a Fully-adjusted multinomial logistic regression model includes gender, age, race/ethnicity, marital status, education, and years since last cigarette. Adjusted Odds Ratio reflects association between independent variable/covariate of interest and the relevant level of the dependent variable (smoking relapse), holding all other variables constant.

^b Fully-adjusted multinomial logistic regression model includes gender, birth cohort, race/ethnicity, marital status, education, and years since last cigarette. Adjusted Odds Ratio reflects association between birth cohort and the relevant level of the dependent variable (smoking relapse), holding all other variables constant.

Key: OR, odds ratio; CI, confidence interval; HS, high school

Table 6

Bivariate and multivariate analysis of demographic variables and transitions in smoking among participants with Wave 1 Lifetime Non-Smoking (n=18,824)

Wave 1 Socio-demographic characteristics	Bivariate Analysis			Multinomial Logistic Regression Modeling		
	Initiation of Non-Daily Smoking (n=162)	Stable Lifetime Non-Smoking (n=18,265)	χ^2	Initiation of Daily Smoking vs. Stable Lifetime Non-Smoking OR (95% CI)	Initiation of Non-Daily Smoking vs. Stable Lifetime Non-Smoking OR (95% CI)	p
Gender	% (95%CI)	% (95% CI)	12.82			<.0001
Male	1.2 (0.9–1.6)	96.1 (95.5–96.7)		1.00	1.00	
Female	0.6 (0.4–0.7)	97.8 (97.4–98.1)		0.65 (0.49–0.87)**	0.57 (0.40–0.82)**	
Age			15.82			<.0001
18–29	1.9 (1.5–2.4)	94.1 (93.0–95.0)		1.00	1.00	
30–44	0.7 (0.5–1.0)	97.5 (96.9–97.8)		0.58 (0.40–0.85)**	0.48 (0.29–0.80)**	
45+	0.2 (0.1–0.4)	98.7 (98.4–99.0)		0.29 (0.19–0.43)***	0.16 (0.09–0.28)***	
Race/Ethnicity			4.00			.0018
White, Non-Hispanic	0.6 (0.4–0.9)	97.6 (97.1–98.0)		1.00	1.00	
Black, Non-Hispanic	1.0 (0.7–1.4)	95.4 (94.2–96.4)		1.38 (0.97–1.96)	1.07 (0.65–1.74)	
Other, Non-Hispanic	0.3 (0.1–1.0)	97.5 (96.0–98.5)		1.11 (0.61–1.99)	0.47 (0.13–1.71)	
Hispanic	1.7 (1.2–2.5)	96.5 (95.6–97.3)		0.57 (0.36–0.91)*	1.72 (1.07–2.79)*	
Marital Status			25.29			<.0001
Married	0.5 (0.4–0.7)	98.2 (97.9–98.5)		1.00	1.00	
Not Currently Married	1.3 (1.0–1.7)	95.4 (94.7–96.0)		1.84 (1.37–2.47)***	1.75 (1.08–2.82)	
Education			7.42			.0001
< HS graduate	1.2 (0.8–1.8)	95.5 (94.2–96.5)		1.63 (1.09–2.44)*	0.93 (0.58–1.49)	
HS graduate	1.2 (0.8–1.6)	96.4 (95.7–97.0)		1.00	1.00	
Some College	0.6 (0.4–0.8)	97.8 (97.4–98.2)		0.62 (0.47–0.80)***	0.48 (0.31–0.75)**	
Birth Cohort	% (95%CI)	% (95% CI)	8.26	OR ^b (95% CI)	OR ^b (95% CI)	<.0001
1911–1929	0.2 (0.1–0.6)	99.7 (99.2–99.9)		0.03 (0.01–0.10)***	0.06 (0.01–0.26)***	

Wave 1 Socio- demographic characteristics	Bivariate Analysis			Multinomial Logistic Regression Modeling		
	Initiation of Non-Daily Smoking (n=162)	Stable Lifetime Non-Smoking (n=18,265)	χ^2	Initiation of Daily Smoking vs. Stable Lifetime Non-Smoking	Initiation of Non-Daily Smoking vs. Stable Lifetime Non-Smoking	χ^2
	% (95%CI)	% (95% CI)		OR (95% CI)	OR (95% CI)	
1930–1939	0.2 (0.1–0.5)	99.1 (98.4–99.5)		0.15 (0.07–0.34) ***	0.08 (0.02–0.26) ***	
1940–1949	0.2 (0.1–0.7)	98.5 (97.7–99.0)		0.28 (0.16–0.50) ***	0.12 (0.03–0.44) **	
1950–1959	0.5 (0.3–0.8)	97.7 (96.9–98.2)		0.45 (0.28–0.72) **	0.25 (0.13–0.48) ***	
1960–1969	0.7 (0.4–1.1)	97.6 (97.0–98.1)		0.41 (0.26–0.65) ***	0.33 (0.16–0.71) **	
1970–1979	1.0 (0.7–1.5)	96.6 (95.6–97.4)		0.51 (0.33–0.79) **	0.43 (0.26–0.73) **	
1980–1984	3.0 (2.2–4.1)	90.6 (88.5–92.3)		1.00	1.00	

* p<0.05,

** p<0.01,

*** p<0.001;

p-values are from t-test of parameter estimate (H_0 : beta coefficient =0)

N is unweighted; % is weighted

^a Fully-adjusted multinomial logistic regression model includes gender, age, race/ethnicity, marital status, and education. Adjusted Odds Ratio reflects association between independent variable/covariate of interest and the relevant level of the dependent variable (smoking initiation), holding all other variables constant.

^b Fully-adjusted multinomial logistic regression model includes gender, birth cohort, race/ethnicity, marital status, and education. Adjusted Odds Ratio reflects association between birth cohort and the relevant level of the dependent variable (smoking initiation), holding all other variables constant.

Key: OR, odds ratio; CI, confidence interval; HS, high school