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# Fumes-tu encore? Quitting among French and American smokers: 2000–2010

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ABSTRACT

*Purpose:* This article examines sociodemographic correlates of initiation and quitting among French and American smokers.
*Methods:* National surveys in France and the United States in 2000, 2005, and 2010 were analyzed of ever smokers, 20–75 years old. Bivariate and multivariate logistic regression analyses were conducted on age of initiation and quitting.
*Results:* Smoking prevalence decreased for Americans each survey year (25.2%, 22.9%, and 17.9%), whereas the comparable figures for the French were 33.9%, 31.5%, and 33.8%. French smokers consumed fewer cigarettes per day (12.9 vs. 14.4 in 2000, 13.5. vs. 16.8 in 2005, and 12.2 vs. 15.1 in 2010), began consuming at a later age, and smoked for a shorter duration. Multiple logistic regression results revealed significant differences in the odds ratios, indicating the relative influence of sociodemographic variables on age of initiation and quitting.
*Conclusions:* Quitting smoking continues to be a major challenge, varying by similar factors, particularly education, in both France and the United States.
*Policy implications:* Public policy initiatives to promote quitting must be strengthened, including the need to address population-specific inequalities and disparities in tobacco use and consequences.


## Introduction

The global smoking epidemic in the 21st century has been widely characterized as one of decreasing prevalence in developed countries and ascending consumption, morbidity, and mortality in low-income and middle-income nations [1]. Population-based educational strategies and preventive measures, excise taxes, regulatory ordinances, in Western countries have generally reduced tobacco use and smoking-related morbidity and mortality [2,3].

The history, political economy, cultural attitudes and behavior, and epidemiologic patterns of smoking and health outcomes are not similar for all developed or Western countries. In this regard, France and the United States present an interesting comparison. For example, despite a higher smoking prevalence rate more than twice that of the 2014 U.S. rate (34.1% vs. 16.8%) [4,5] France compared with the United States has a paradoxically lower level of tobacco-related illnesses and deaths and a higher life expectancy, particularly among men [6,7].

In the United States, a reduction in smoking prevalence began after the release of the 1964 Surgeon's General Report at which time 42.4% of adults smoked and more than 51.9% of men consumed cigarettes [7]. Currently, less than 17% of Americans smoke and virtually all sociodemographic groups have experienced a decline, although not invariantly. U.S. men, however, continue to

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have a higher prevalence of smoking than women (18.8% compared with 14.8%) and disparities also exist by education and between racially classified social and ethnic groups [5,8].

Smoking in France has decreased among men since the 1960s, whereas it has increased among women until the early 1990s [9]. In 1992, approximately 35% of the French adult population was classified as daily smokers and in 2014, 28% smoked everyday [9]. Men smoke more than women (32% vs. 24% for daily smoking) and young adults have higher prevalence rates than older people [9].

The reduction in smoking prevalence since 1992 in France has been largely attributed to the « Loi Evin », a national law passed in 1991 that established the basis for smoking prohibitions in public establishments and highlighted public health concerns. Moreover, since the beginning of the 2000s, several measures have been adopted: increases of taxes and prices, restriction of smoking in public places, prohibition of tobacco sales to minors, partial reimbursement of nicotine replacement therapies, and comprehensive public health media campaigns.

Beck et al. maintain that this comprehensive strategic approach of the French government was responsible for a decrease in smoking among adolescents and adults [10]. Tobacco control initiatives in France have been strongly influenced by the public health directives of the European Union. Notwithstanding, social inequality, and health disparities pertaining to smokers remain important challenges in France [11].

Comparisons between developed countries are particularly valuable for understanding different epidemiologic patterns associated with cultural, social, and population characteristics and for designing effective global antismoking interventions. Although France and the United States are at different stages of the tobacco epidemic and have used different tobacco control strategies and levels of restriction, smoking cessation remains a major public health priority in both countries. Using national surveys from each country, this article examines sociodemographic correlates of initiation and quitting among French and American smokers in 2000, 2005, and 2010.

## Methods

American data are from the 2000, 2005, and 2010 U.S. National Health Interview Survey (NHIS), a cross-sectional household survey consisting primarily of personal interviews about the health practices and status of noninstitutionalized civilians. The survey uses a multistage stratified cluster probability sampling design [12].

The Health Barometer surveys are commissioned by the French National Public Health Agency. They consist of cross-sectional surveys to provide continuous epidemiologic data on the health behavior and practices of the French population [4]. The 2000, 2005, and 2010 Health Barometer household surveys consisted of two-stage random samples of people living in France. Post-stratification weights were used first to account for the conditional probability of being selected and then secondly to adjust the sample according to the proportional representation of the French census data. Additional details about the survey methodology are available elsewhere [13–15]. Respondents who were either younger than 20 years or older than 75 years were omitted from the joint analyses of both French and American samples.

## Variables

The NHIS and Health Barometer surveys included similar independent variables of age groups, gender, and marital status (married and nonmarried). Respondents living with a partner were categorized as “married.”

Education systems in France and the United States are dissimilar. French degrees can often be completed in less time than “equivalent” U.S. degrees, so a typical time-scaled education variable (e.g., less than 12 years of education and 12 years or more) would not have been a valid comparison. Consequently, the education variable was operationally categorized into four groups based on the methodology of Cohen et al. (1997) [16]. In their study, “low” corresponds to less than a high school diploma or an equivalency of U.S. respondents and no diplomas among French respondents; “medium” represents individuals with a high school diploma in the United States and those with less than a baccalaureate degree in France; “high” represents some college but less than a bachelor's degree in the United States and a baccalaureate degree in France; “very high” represents a bachelor's degree or greater in the United States and at least two years of education after baccalaureate in France.

NHIS defined ever smoker as a respondent having ever smoked 100 or more cigarettes in his/her lifetime. The specific smoking status variable consisted of current, former, and never smokers. The two other smoking variables were age of initiation (i.e., dichotomized as <18 years and ≥18 years of ever smokers) and for former smokers at time of interview, the elapsed time since they quit smoking (≤5 years and >5 years). To be consistent with the French data, we included only everyday smokers but not occasional smokers in the 2010 NHIS analysis for age of initiation and elapsed time since quitting. It was not possible to include data on the number of cigarettes smoked for former smokers as this information was collected only for current smokers by the NHIS.

With respect to the Health Barometer, ever smokers included current and former smokers. Smoking status was defined as those who currently smoke cigarettes (i.e., regularly or occasionally), former smokers (i.e., smokers who had quit smoking permanently at time of interview), and never smokers. Age of initiation referred to the age that ever smokers (i.e., both regular and occasional smokers 2000 and 2005 and regular smokers only for 2010) began smoking regularly. The elapsed time since former smokers quit smoking was dichotomized into less than or equal to 5 years and greater than 5 years. The successful quit ratio (SQR) refers to the proportion of ever smokers who quit for 1 year or more (King et al. 2004).

## Statistical analysis

The statistical analysis consisted of descriptive and multivariate analysis focusing on the relationship between sociodemographic variables and smoking behavior. Bivariate cross-tabulations using the $\chi^2$ test were used to assess the relationship between the sociodemographic variables and the key descriptors, age of initiation, former smoker, and quitting in the last five years. Multiple logistic regression (MLR) was used to assess the relationship using adjusted odds ratios (ORs). Data analysis was performed by SPSS for the U.S. data and Stata V13 for the French data. For both surveys, statistical weights and the complex sample design were taken into account.

Specifically, in Tables 1–3, the $\chi^2$ analysis tested the hypothesis that the proportions are the same for each variable; for example, males and females have equal proportions; the proportions are the same for each education level. For $\chi^2$ analysis, statistical significance is denoted by $^{*}$ ($P < .05$), $^{**}$ ($P < .01$), $^{***}$ ($P < .001$). For comparisons between the reference category and another category for the same independent variable, statistical significance at the 5% level is assessed by denoting whether the 95% confidence interval (CI) contains the value 1, being significant if the CI does not contain the value 1. To compare two ORs between countries, significance is determined by denoting whether the two 95% CIs overlap (since each country used a different survey program, it was not possible to directly compare the two country parameters). If the two 95% CIs do not overlap, the difference in the OR's is significant at the 5% level of

**Table 1**
Cross-tabulations and logistic regression models of French and American smoking behavior, 2000

| | Age of initiation (<18 y) | | | | Former smoker | | | | Quit smoking in the last 5 y | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | France | | United States | | France | | United States | | France | | United States | |
| | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) |
| Age | | | | | | | | | | | | |
| 20–34 y | 49.0*** | 1 | 62.2*** | 1 | 27.3** | 1 | 28.5*** | 1 | 60.5*** | 1 | 75.7*** | 1 |
| 35–44 y | 36.1 | .54 (.46–.64) | 56.9 | .80 (.72–.89) | 37.9 | 1.67 (1.40 2.00) | 36.5 | 1.40 (1.25–1.57) | 28.4 | .24 (.18–.33) | 36.0 | .18 (.14–.22) |
| 45–54 y | 27.0 | .34 (.28–.42) | 48.5 | .58 (.52–.64) | 58.1 | 4.21 (3.48–5.10) | 49.3 | 2.42 (2.16–2.71) | 17.6 | .11 (.08–.15) | 24.4 | .10 (.08–.12) |
| 55–64 y | 18.9 | .20 (.16–.26) | 53.0 | .65 (.57–.72) | 67.9 | 7.27 (5.78–9.14) | 60.9 | 4.26 (3.77–4.82) | 15.3 | .09 (.06–.13) | 21.5 | .08 (.06–.10) |
| 65–75 y | 15.6 | .15 (.11–.20) | 46.7 | .47 (.41–.53) | 77.4 | 11.60 (8.66–15.55) | 74.9 | 9.70 (8.42–11.17) | 12.3 | .06 (.04–.10) | 14.1 | .04 (.03–.05) |
| Gender | | | | | | | | | | | | |
| Male | 34.0 | 1 | 58.9*** | 1 | 48.8 | 1 | 47.6* | 1 | 25.6 | 1 | 29.4*** | 1 |
| Female | 34.0 | .83 (.73–.95) | 49.6 | .69 (.64–.74) | 46.4 | 0.98 (.85–1.12) | 45.7 | 1.00 (.93–1.08) | 25.3 | .75 (.58–.98) | 33.3 | 1.09 (.96–1.23) |
| Education | | | | | | | | | | | | |
| Low | 32.5*** | 1 | 66.6*** | 1 | 53.0*** | 1 | 40.7*** | 1 | 22.5** | 1 | 36.2*** | 1 |
| Medium | 38.4 | .92 (.77–1.11) | 57.4 | .64 (.58–.72) | 46.6 | 1.15 (.95–1.39) | 40.5 | 1.22 (1.09–1.37) | 24.8 | .76 (.54–1.06) | 31.0 | .61 (.50–.74) |
| High | 35.1 | .72 (.58–.90) | 51.3 | .49 (.44–.55) | 43.0 | 1.17 (.93–1.46) | 46.7 | 1.81 (1.61–2.04) | 31.9 | 1.13 (.76–1.68) | 33.8 | .56 (.46–.68) |
| Very high | 28.5 | .53 (.43–.66) | 41.6 | .34 (.30–.38) | 46.5 | 1.40 (1.14–1.73) | 63.3 | 3.50 (3.06–3.99) | 26.5 | .74 (.52–1.05) | 26.2 | .39 (.31–.48) |
| Marital status | | | | | | | | | | | | |
| Married | 33.4 | 1 | 55.9*** | 1 | 51.5*** | 1 | 52.7*** | 1 | 24.5** | 1 | 28.7*** | 1 |
| Not married | 36.0 | .91 (.78–1.05) | 52.3 | .86 (.80–.92) | 35.0 | .47 (.41–.55) | 39.1 | .54 (.50–.59) | 30.5 | 1.25 (.96–1.64) | 35.6 | 1.42 (1.25–1.62) |
| Age of initiation | | | | | | | | | | | | |
| <18 y | — | — | — | — | 40.8 | | 45.3*** | 1 | 36.6*** | | 32.1** | 1 |
| ≥18 y | — | — | — | — | 40.8 | .59 (.50–.68) | 46.6 | 0.82 (.75–.88) | 27.4 | 1.20 (.93–1.56) | 30.0 | 1.17 (1.03–1.33) |

$\chi^2$ probability statistic $^*P < .05$, $^{**}P < .01$ $^{***}P < .001$.

**Table 2**
Cross-tabulations and logistic regression models of French and American smoking behavior, 2005

| | Age of initiation (<18 y) | | | | Former smoker | | | | Quit smoking in the last 5 y | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | France | | United States | | France | | United States | | France | | United States | |
| | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) |
| Age | | | | | | | | | | | | |
| 20–34 y | 52.9*** | 1 | 60.8*** | 1 | 27.6*** | 1 | 30.4*** | 1 | 66.9*** | 1 | 71.6*** | 1 |
| 35–44 | 41.1 | .57 (.50–.64) | 55.6 | .82 (.73–.91) | 42.3 | 2.06 (1.82–2.34) | 38.5 | 1.32 (1.18–1.49) | 40.3 | .26 (.20–.32) | 36.7 | .24 (.19–.29) |
| 45–54 | 31.9 | .38 (.33–.43) | 52.9 | .73 (.65–.81) | 54.6 | 3.38 (2.96–3.86) | 46.8 | 1.96 (1.75–2.19) | 20.9 | .09 (.07–.12) | 23.1 | .11 (.09–.14) |
| 55–64 | 20.7 | .20 (.17–.24) | 51.1 | .67 (.60–.75) | 71.6 | 7.53 (6.45–8.78) | 63.1 | 3.98 (3.54–4.48) | 15.6 | .06 (.05–.08) | 15.7 | .07 (.06–.08) |
| 65–75 | 14.9 | .12 (.10–.16) | 49.5 | .60 (.53–.67) | 81.9 | 16.91 (13.76–20.77) | 76.6 | 9.05 (7.85–10.44) | 10.1 | .03 (.02–.04) | 11.6 | .04 (.04–.06) |
| Gender | | | | | | | | | | | | |
| Male | 37.2 | 1 | 57.9*** | 1 | 49.3 | 1 | 48.3 | 1 | 27.7* | 1 | 27.6 | 1 |
| Female | 37.2 | .86 (.79–.95) | 50.9 | .76 (.71–.82) | 50.2 | 1.06 (.96–1.16) | 48.6 | 1.06 (.98–1.14) | 30.2 | 1.02 (.87–1.19) | 28.8 | .90 (.79–1.03) |
| Education | | | | | | | | | | | | |
| Low | 40.3*** | 1 | 66.9*** | 1 | 50.8 | 1 | 38.5*** | 1 | 25.6*** | 1 | 30.5*** | 1 |
| Medium | 38.7 | .78 (.68–.90) | 58.2 | .67 (.60–.76) | 49.6 | 1.21 (1.05–1.39) | 43.8 | 1.41 (1.25–1.59) | 26.1 | .74 (.58–.94) | 29.7 | .81 (.65–1.00) |
| High | 37.8 | .64 (.55–.76) | 52.6 | .53 (.47–.60) | 47.0 | 1.45 (1.23–1.70) | 47.2 | 1.89 (1.67–2.14) | 33.2 | .80 (.61–1.03) | 30.6 | .66 (.53–.82) |
| Very High | 31.0 | .49 (.42–.57) | 41.6 | .34 (.30–.39) | 50.1 | 1.61 (1.39–1.87) | 65.8 | 3.90 (3.40–4.47) | 32.8 | .68 (.53–.87) | 22.9 | .43 (.34–.54) |
| Marital status | | | | | | | | | | | | |
| Married | 35.6*** | 1 | 56.1*** | 1 | 55.5*** | 1 | 54.6*** | 1 | 27.3*** | 1 | 25.5*** | 1 |
| Not Married | 41.3 | 1.00 (.90–1.10) | 52.8 | .87 (.81–.93) | 34.4 | .43 (.39–.47) | 41.3 | .55 (.51–.60) | 35.1 | 1.35 (1.14–1.61) | 32.4 | 1.49 (1.31 1.70) |
| Age of initiation | | | | | | | | | | | | |
| <18 y | — | — | — | — | 39.9*** | | 47.3*** | 1 | 39.0*** | | 27.9*** | 1 |
| ≥18 y | — | — | — | — | 45.4 | .73 (.66–.81) | 48.8 | .83 (.76–.90) | 30.9 | 1.38 (1.16–1.64) | 28.7 | 1.35 (1.18–1.55) |

$\chi^2$ probability statistic $^*P < .05$, $^{**}P < .01$, $^{***}P < .001$.

**Table 3**
Cross-tabulations and logistic regression models of French and American smoking behavior, 2010

| | Age of initiation (<18 y) | | | | Former smoker | | | | Quit smoking in the last 5 y | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | France | | United States | | France | | United States | | France | | United States | |
| | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) | (%) | OR (CI) |
| Age | | | | | | | | | | | | |
| 20–34 y | 58.3*** | 1 | 60.4*** | 1 | 24.9*** | 1 | 40.9*** | 1 | 68.1*** | 1 | 72.5*** | 1 |
| 35–44 y | 41.3 | .46 (.41–.52) | 52.9 | .73 (.64–.83) | 38.6 | 2.11 (1.82–2.43) | 48.2 | 1.29 (1.13–1.47) | 35.6 | .24 (.19–.32) | 41.5 | .29 (.24–.35) |
| 45–54 y | 36.3 | .35 (.31–.40) | 57.1 | .86 (.77–.97) | 50.1 | 3.67 (3.17–4.26) | 51.9 | 1.61 (1.43–1.81) | 22.0 | .12 (.09–.16) | 28.3 | .15 (.13–.18) |
| 55–64 y | 24.4 | .20 (.17–.23) | 50.0 | .68 (.61–.76) | 68.8 | 8.49 (7.25–9.93) | 64.1 | 2.60 (2.31–2.94) | 13.1 | .06 (.04–.08) | 20.0 | .10 (.08–.12) |
| 65–75 y | 17.7 | .12 (.10–.14) | 49.8 | .63 (.55–.71) | 83.3 | 24.93 (20.06–30.99) | 76.8 | 5.82 (5.05–6.70) | 7.8 | .03 (.02–.04) | 12.6 | .05 (.04–.07) |
| Gender | | | | | | | | | | | | |
| Male | 39.4 | 1 | 56.9*** | 1 | 48.5 | 1 | 56.9** | 1 | 22.2*** | 1 | 32.0 | 1 |
| Female | 39.0 | .90 (.82–.99) | 51.6 | .83 (.76–.89) | 47.4 | .96 (.87–1.06) | 54.5 | .92 (.84–.99) | 28.3 | .93 (.78–1.10) | 31.1 | .94 (.83–1.07) |
| Education | | | | | | | | | | | | |
| Low | 46.4*** | 1 | 68.2*** | 1 | 48.9*** | 1 | 43.8*** | 1 | 17.6*** | 1 | 32.3** | 1 |
| Medium | 40.8 | .65 (.57–.75) | 59.3 | .66 (.59–.75) | 46.8 | 1.09 (.94–1.27) | 47.2 | 1.22 (1.07–1.38) | 24.5 | 1.07 (.81–1.42) | 32.2 | .86 (.70–1.07) |
| High | 36.4 | .43 (.37–.51) | 52.7 | .50 (.44–.57) | 43.3 | 1.38 (1.16–1.64) | 56.1 | 1.99 (1.75–2.26) | 28.1 | .92 (.67–1.28) | 33.4 | .71 (.58–.87) |
| Very High | 31.0 | .39 (.33–.45) | 39.1 | .29 (.26–.34) | 52.3 | 1.95 (1.67–2.29) | 77.0 | 4.70 (4.06–5.45) | 29.9 | 1.11 (.83–1.47) | 28.5 | .59 (.47–.73) |
| Marital status | | | | | | | | | | | | |
| Married | 37.4*** | 1 | 56.2*** | 1 | 54.4*** | 1 | 62.0*** | 1 | 23.6** | 1 | 29.1*** | 1 |
| Not married | 43.6 | 1.01 (.92–1.12) | 52.4 | .82 (.76–.88) | 33.3 | .40 (.36–.44) | 49.1 | .59 (.54–.64) | 28.8 | 1.42 (1.15–1.74) | 34.9 | 1.40 (1.24–1.59) |
| Age of initiation | | | | | | | | | | | | |
| <18 y | — | — | — | — | 40.2*** | 1 | 54.0** | 1 | 27.1** | 1 | 31.5*** | 1 |
| ≥18 y | — | — | — | — | 45.9 | .66 (.60–.74) | 56.3 | .87 (.79–.96) | 23.2 | 1.57 (1.30–1.89) | 31.1 | 1.26 (1.10–1.46) |

$\chi^2$ probability statistic $^*P < .05$, $^{**}P < .01$ $^{***}P < .001$.

significance [17]. If the CIs slightly overlap, the difference may or may not be significant. If the CIs have considerable overlap, the difference is almost certainly nonsignificant and will be denoted as such for simplicity of presentation. It is noteworthy that Schenker and Gentleman (2001) established the statistical validity that two independent CIs comparing two different proportions are significantly different if and only if the associated CIs do not overlap [17]. More formally, when the original data are not readily available, Schenker and Gentleman discuss the limitations of using overlapping CIs, particularly noting that the CI method is more conservative than the standard method using the original data.

## Results

### *Descriptive and bivariate analysis*

The prevalence of smoking decreased for Americans each survey year (25.2%, 22.9% and 17.9%), whereas the comparable figures for the French population were 33.9% in 2000, a decline to 31.5% in 2005, followed by an increase to 33.8% in 2010. The SQR revealed little differences between French and Americans.

As shown in Table 4, age and gender characteristics of French and American respondents who reported ever smoking were fairly similar over the survey period. The low education group had a greater proportion of French respondents than Americans for each survey year. A far greater proportion of American ever smokers commenced as minors, and the average age of initiation was lower than their French counterparts for all years. Except for 2005, Americans had a greater percentage of smokers who quit within the past 5 years (recent quitters) than the French.

Americans compared with the French respondents had consistently higher proportions of individuals who began smoking as minors regardless of age category for each survey year (Tables 1–3) American women were less likely to begin smoking as minors than men in each period from 2000 to 2010, which contrasted with the lack of large gender differences among the French. In all years, the proportions of Americans who began smoking as minors decreased as education levels increased, whereas French ever smokers showed a fairly similar pattern but with less distinction between educational categories.

The proportions of former smokers increased with age among both French and Americans. In each year, a positive association was found between education and the proportion of American former smokers; however, this finding was not observed among French respondents.

### *Multiple logistic regression results*

#### *Age of initiation*

MLR results (Tables 1–3) indicate that older French and American ever smokers compared with those less than 35 years were significantly more likely to have abstained from smoking regularly as minors (as the CIs do not contain the value 1). In 2000, the magnitude of the differences in the adjusted ORs is greater for French than American smokers as they range from .54 to .15 compared with .80 to .47. French and American women were significantly less likely than men to have begun smoking as minors in each survey year; however, the ORs were closer to parity in 2010, pointing to a possible convergence with men.

Compared with the lowest education category, greater educational attainment decreased the likelihood of having started smoking at less than 18 years for both groups of smokers (French and American). For example, in 2000, the ORs of the two highest French education categories were .53 (CI = .43–.66) and .72 (.58–.90) contrasted with .34 (.30–.38) and .49 (.44–.55) for

**Table 4**
Sociodemographic and smoking characteristics of French and Americans, 2000–2010

| | 2000 | | 2005 | | 2010 | |
|---|---|---|---|---|---|---|
| | French | American | French | American | French | American |
| | $n$ = 12,234 (%) | $n$ = 13,128 (%) | $n$ = 27,271 (%) | $n$ = 11,971 (%) | $n$ = 24,410 (%) | $n$ = 9802 (%) |
| Age* | | | | | | |
| 20–34 y | 2744 (30.2) | 3176 (25.0) | 5389 (28.7) | 2860 (25.0) | 3949 (27.1) | 2331 (24.5) |
| 35–44 y | 1793 (22.9) | 3050 (22.9) | 3736 (22.9) | 2353 (19.5) | 3532 (21.8) | 1664 (16.2) |
| 45–54 y | 1491 (21.8) | 2866 (21.6) | 3296 (21.8) | 2706 (22.1) | 3171 (21.3) | 2177 (21.9) |
| 55–64 y | 1049 (13.1) | 2202 (16.5) | 2713 (16.0) | 2358 (19.4) | 3258 (18.3) | 2072 (21.4) |
| 65–75 y | 809 (12.0) | 1834 (14.1) | 1736 (10.6) | 1694 (14.1) | 1781 (11.4) | 1558 (15.9) |
| Gender* | | | | | | |
| Male | 3970 (55.8) | 6636 (51.0) | 8209 (56.2) | 6190 (52.1) | 7834 (54.5) | 5110 (52.1) |
| Female | 3916 (44.2) | 6492 (49.0) | 8661 (43.8) | 5781 (47.9) | 7857 (45.5) | 4692 (47.9) |
| Education* | | | | | | |
| Low | 1489 (27.7) | 2640 (17.9) | 2458 (25.1) | 2102 (15.7) | 2179 (22.4) | 1640 (14.9) |
| Medium | 2790 (32.1) | 4288 (33.6) | 5637 (35.5) | 3875 (33.1) | 5511 (36.7) | 2952 (30.7) |
| High | 1325 (17.6) | 3736 (24.3) | 3083 (16.9) | 3592 (30.8) | 2855 (17.4) | 3190 (33.6) |
| Very high | 2106 (22.6) | 2327 (19.2) | 5272 (22.5) | 2287 (20.3) | 5111 (23.5) | 1954 (20.9) |
| Marital status* | | | | | | |
| Married | 5385 (77.3) | 7227 (55.8) | 10,797 (72.5) | 6359 (53.7) | 9822 (69.5) | 4976 (50.9) |
| Not married | 2497 (22.7) | 5861 (44.2) | 6062 (27.5) | 5578 (46.3) | 5861 (30.5) | 4808 (49.1) |
| Age of initiation* | | | | | | |
| Mean (y) | 19.4 | 17.6 | 19.1 | 17.6 | 19.0 | 17.7 |
| <18 | 2174 (34.0) | 6812 (54.3) | 4667 (37.2) | 6207 (54.5) | 4263 (39.3) | 4926 (52.9) |
| ≥18 | 4184 (66.0) | 5783 (45.7) | 8313 (62.8) | 5252 (45.5) | 7458 (60.7) | 4570 (47.1) |
| Time since quit† | | | | | | |
| 5 y or less | 940 (25.5) | 1893 (31.3) | 2449 (28.8) | 1614 (28.2) | 1318 (24.6) | 1532 (31.6) |
| >5 y | 2638 (74.5) | 4125 (68.7) | 5730 (71.2) | 4069 (71.8) | 3929 (75.4) | 3307 (68.4) |
| Smoking status | | | | | | |
| Current smoker | 4271 (33.9) | 7051 (25.2) | 8532 (31.5) | 6214 (22.9) | 8001 (33.8) | 4925 (17.9) |
| Former smoker | 3615 (31.0) | 6077 (22.1) | 8338 (31.1) | 5757 (21.5) | 7690 (31.2) | 4877 (22.6) |
| Never Smokers | 4323 (35.1) | 15,468 (52.7) | 10,324 (37.5) | 15,743 (55.6) | 8673 (35.0) | 14,174 (59.4) |
| Successful quit ratios | 44.3 | 41.9 | 46.2 | 43.7 | 45.8‡ | 45.1 |

$\chi^2$ probability statistic $^*P < .05$, $^{**}P < .01$ $^{***}P < .001$.
* Among current and former smokers.
† Among former smoker.
‡ The SQR was unadjusted for occasional smokers in this year.

American ever smokers. By 2010, the difference had narrowed considerably between the two countries as the respective ORs of the two highest French and American education categories had changed to .39 (.33–.45) and .43 (.37–.51), and .29 (.26–.34) and .50 (.44–.57).

*Quitting among former smokers*

The MLR analysis revealed that age was a very strong and significant predictor of quitting, especially among French ever smokers. After adjusting for other sociodemographic characteristics and age of initiation, education had a very strong, significant, and positive impact between 2000 and 2010 on the likelihood of both French and American smokers' quitting behavior. Although the ORs for education increased each year in the French models, they were still appreciably lower than those of Americans, suggesting that the probability of quitting was not influenced to a similar extent by the level of education. In each year, married French and American smokers were significantly more likely to have quit than single or nonmarried individuals. Age of initiation was significantly related to quitting for both the French and American smokers as those who started smoking as adults were less likely to quit during each survey year, especially among French ever smokers. There were no significant gender differences as all ORs were close to one, although for Americans in 2010, the OR of 0.92 was significantly lower than 1.

*Quitting within the last 5 years*

Among French and American former smokers, as age increased, the likelihood of having quit smoking within the last 5 years decreased in each survey year. Interestingly, in 2000, French women were significantly less likely (OR = .75, CI = 58–.98) than French men to have quit within the last 5 years. However, in 2005 (1.02, .87–1.19) and 2010 (.93, .78–1.10), the probability was closer to parity and not significant. For Americans, the gender differences for quitting within the last 5 years were not statistically significant in any year.

With regard to Americans as opposed to French respondents, having completed a medium or higher level of education compared with the lowest education category had a noticeably stronger, more consistently linear, and statistically significant influence on the likelihood of quitting within the last 5 years. French and American former smokers who began consuming cigarettes regularly as adults were significantly more likely to have quit in the last 5 years for each survey period.

## Discussion

This analysis indicates differences and similarities between France and the United States regarding smoking behavior and quitting. Americans generally started regular smoking at an earlier age than French ever smokers. However, older ever smokers in both countries were more likely to have initiated as adults (age 18 + years), probably reflecting a generational difference. French

ever (current and former) users began regular smoking later than Americans and average age at initiation declined by 1.3–1.8 years in French smokers (Table 4).

Daily smokers also consumed fewer daily cigarettes (French 12.9 vs. Americans 14.4 in 2000, 13.5. vs. 16.8 in 2005, 12.2 vs. 15.1 in 2010) and former smokers generally consumed for a shorter time period before quitting (French, 14.4 years vs. Americans, 19.2 years in 2000, 14.4 years vs. 18.2 years in 2005, 17.9 years vs. 18.7 years in 2010). This could help explain why France has a lower incidence of smoking-related diseases and higher life expectancy (81.7 years in France vs. 78.8 years in the US), despite having a higher smoking prevalence rate than the United States [6,18].

In MLR analyses, the association between gender and risk of early (vs. later) age at initiation among ever smokers may have attenuated in France by 2010 versus earlier surveys. If real, this trend may possibly reflect greater social pressure to smoke, more adolescent experimentation and uptake, and targeted tobacco industry promotion. French women did not begin consuming cigarettes in large measure until the mid-1980s, 10–15 years after the habit began to assume cultural prominence among American women [19]. In both countries, the higher the level of education, the less likely an individual began smoking as a minor. In the United States but not France, married compared with nonmarried individuals who were ever smokers were more likely to have begun smoking as adolescents versus those aged 18 years and greater.

Studies have shown that highly educated individuals are less likely to smoke regularly as they may have a more realistic perception of tobacco-related risks and foster greater support for smoking restrictions [20,21]. They may also wish to avoid any stigma associated with smoking or have a greater interest in a longer and safer life [20–22]. In addition, aspiration to higher education by adolescents may reduce the likelihood of engaging in risky or addictive behaviors such as smoking [23]. These factors may be involved in the strong associations between higher educational levels and age at initiation less than 18 years in both French and American ever smokers and also (albeit more strongly in American than French smokers) regarding quitting.

As found in other studies [24–27], education was also significantly and positively related to cessation in both countries but had a more limited impact on quitting in France than in the United States, perhaps reflecting in part greater social and cultural acceptance of cigarettes in French society compared with the United States. Interestingly, the SQR of France and the United States were close in 2010, indicating that having quit smoking for 1 year or more among ever smokers is similar. Married smokers in both countries were more likely to have quit than unmarried smokers, supporting research findings that concordance behavior among married couples may also be evident among smokers trying to quit [28].

Consistent with the literature, early versus later age at initiation among ever smokers was associated with quitting (former smoker status) [29,30]. As also expected, age at interview was a very strong predictor of having quit in both countries and especially among French smokers older than 55 years. This finding is probably due to many factors, such as the increase in cumulative number of quit attempts with rising age, increase in smoking-related health issues with age or at least personal concerns among older smokers about the potential health consequences and related medical and social costs, as well as the cumulative impact of social pressures to quit.

Despite studies showing the success of many tobacco control programs and the price sensitivity of youth and low-income populations to cigarette taxes, upper income smokers and those with greater education are more likely to quit smoking successfully [31–33]. In a French study examining cigarette consumption and social differentiation between 2000 and 2007, Peretti-Watel et al. (2009) found that smoking prevalence decreased more rapidly among executive managers than manual workers and did not decrease among the unemployed [34]. These results underscore the need to target individuals belonging to less-privileged groups and the need to address underlying societal inequities, discrimination, and structural problems [8,25,35].

Having stopped smoking within the last 5 years decreased with older age in both countries as younger smokers were more likely to be recent quitters. The disparity in recent quitting with respect to education was more consistent among American former smokers than French quitters.

The use of two large well-established surveys to conduct this cross-national analysis of initiation and quitting is one of the major strengths of this study. A limitation of this work is that data were gathered from cross-sectional surveys over three single years and thus are not longitudinal or continuous, and differences in definitions of variables between the French and U.S. surveys. Consequently, caution must be exercised in making inferences implying trends. Both surveys were based on self-report and thus biases associated with recall, misclassification, and social desirability are intrinsic shortcomings. In addition, we avoided selecting certain socioeconomic variables such as occupation and income because the different conceptual and empirical meanings were not easily resolvable.

The 2 decades preceding the 2000 millennium represented a transformative period in global tobacco control, activism, research, and heightened awareness of the social and health costs of cigarette smoking, as well as the dangers to young people and future generations. A major challenge in each country is to address the social class and specific population group inequalities in tobacco use and consequences. In addition, the increased use of electronic cigarettes in France and the United States is an interesting and challenging tobacco control phenomenon as it could possibly pose ethical and empirical problems in assessing its impact on cessation. Future studies should further examine how societal and cultural effects interact with sociodemographic variables regarding the smoking and quitting trajectory. Successful antitobacco programs and policies can prove valuable in addressing the global tobacco epidemic in low-income and middle-income countries, particularly among those in which France and the United States have close historical, cultural, political, and economic ties.

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