Age Patterns of Smoking in US Black and White Women of Childbearing Age

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ABSTRACT

Objectives. The purpose of the study was to describe age patterns of smoking among Black and White women of reproductive age, with cohort membership controlled for.

Method. Data from the 1987 National Health Interview Survey Cancer Supplement, weighted to be nationally representative, were used to calculate the fractions of women who were ever smokers, quitters, and current smokers by age and race. Summary distributions of age patterns of smoking behaviors by race were estimated; proportional hazard models were used to avoid confounding of age and cohort.

Results. White women begin smoking at younger ages than do Blacks but are more likely to quit and to do so at young ages. Rates of current smoking converge between Blacks and Whites by age 25, and may cross over by 30. Education-standardized results show larger Black–White differentials in ever smoking and smaller differences in quitting.

Conclusions. Our findings confirm that women's age patterns of smoking vary by race. Age × race interactions should be considered in smoking research and anti-tobacco interventions. For Black women, delayed initiation and failure to quit call for increased emphasis on interventions tailored to adults. These findings have possible implications for understanding Black–White differences in low birthweight, child health, and women's health. (*Am J Public Health.* 1993;83:1258–1264)

Introduction

Smoking is an important cause of premature death in the United States and the one deemed most preventable.[1] Historically, men's smoking prevalence greatly exceeded women's. However, substantial disparities in smoking prevalence by gender no longer exist[1–6] and there have been consequent increases in smoking-related morbidity and mortality among women.[1,2,4,7–9] Women's smoking behavior is also important because smoking during pregnancy is a risk factor for low birthweight and infant mortality[1,7,10–15] and because maternal smoking has been linked to health problems among young children, such as increased risk of respiratory infections and of asthma.[16,17] In addition, relative to Whites, Blacks suffer excessive rates of health problems for which smoking is a risk factor, including low birthweight, infant mortality, and impaired infant and child health.[18] Improved knowledge comparing the smoking behavior of Black and White women has potential public health significance along several dimensions.[19]

The timing of smoking in women's life cycles is salient. Smoking-related threats to fetal health or infant survival occur only if mothers smoke during pregnancy. The strongest evidence of the deleterious effects of passive smoking on child health is found among children whose mothers smoke during the children's earliest years of life. Thus, it is important to focus on women's smoking behavior during the reproductive age span, including younger ages than are often studied, and to proceed continuously through young adulthood to describe age patterns of women's smoking behavior by race.

Previous research on Black–White differences in smoking behavior suggests an apparent anomaly regarding the interaction of age, race, and smoking. On the one hand, the literature suggests that Black adolescents are less likely than White adolescents to smoke.[20–24] On the basis of such findings, some investigators have projected that Blacks will continue to smoke at lower rates than Whites throughout the life span.[23] However, cross-sectional evidence shows that Black middle-aged adults are *more* likely than are white middle-aged adults to smoke.[2,3,5,25]

This contrasting evidence on Black–White differences in smoking has several potential explanations. One is that the difference between the younger and older ages is artifactual. Studies of adolescents tend to be based on selective samples,[20,21] whereas the data on older age groups are often drawn from nationally representative samples. The sample selection criteria for the adolescent studies could lead to estimates of Black teen smoking behavior that are downwardly biased.

A second possibility is that the higher observed rates among middle-aged Blacks may reflect cohort effects, not age effects. That is, in earlier cohorts Blacks might have smoked at higher rates than Whites, but this trend may have reversed in more recent cohorts. A third possibility is that at some age, a crossover between Blacks

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Editor's Note. See related editorial by Ernster (p 1202) in this issue.

and Whites in their smoking prevalence occurs. The existing literature suggests such a crossover but does not confirm its occurrence because research designs have failed to account adequately for the possible confounding of cohort and age.[2,3,5,23,25] If a crossover does occur, the identification of the age at which it occurs and the behavior through which it occurs (smoking initiation or cessation) would be informative. In this study, we describe age patterns of ever or current smoking and of smoking cessation by Black and White women, aged 18 through 44 years, accounting for cohort membership.

Data and Methods

The data are drawn from the 1987 National Health Interview Survey (NHIS), Cancer Supplement. Information on the health status and health behavior of the civilian, noninstitutionalized population of the United States is gathered on an annual basis by the National Center for Health Statistics (NCHS). The NHIS survey uses a stratified cluster sample and includes an oversample of Blacks. The sample is poststratified according to the age, sex, and racial distribution of the US population and is weighted to reflect the probability of selection.[26] To be nationally representative, all of our analyses are based on these weighted data.

The purpose of the Cancer Supplement was to provide estimates of the prevalence of screening practices and major cancer risk factors, including smoking.[27] Ever smokers were respondents who reported that they had smoked at least 100 cigarettes in their lifetime. Current smokers and quitters were identified on the basis of the question "Do you smoke cigarettes now?" The age pattern of smoking for each respondent was constructed on the basis of the following questions: "How old were you when you first started smoking regularly?" "About how long has it been since you last smoked cigarettes regularly?" The latter question was recoded by NCHS to "Age when last smoked regularly." Respondents who did not know their smoking status (175 women, 2.8% of the sample) or ever smokers who did not know the age at which they started smoking or when they stopped smoking (if applicable) were excluded from the sample (46 women, 0.7% of the sample). The sample was further restricted to women between the ages of 18 and 44 years. The resulting sample size is 4912 Whites and 1126 Blacks.

Classifying women by 5-year birth cohorts, we calculated the fraction of women who had ever smoked, the fraction of women currently smoking, and the fraction of those who ever smoked who had quit, all by age. These tabulations allowed us to follow the smoking behavior of cohorts over time and to compare behavior across cohorts.

We were also interested in estimating summary distributions of age patterns of smoking behavior among Black and White women that would use the data from all age groups. Because younger cohorts are observed only for a short period of time, averaging age patterns across cohorts may confound age and cohort effects. To avoid this potential confounding, we employed survival analysis. We used Cox's proportional hazard model to model smoking behavior.[28] We assumed that the rate of exit from the nonsmoking or smoking states, h_{ij}, varied with cohort, i, and age, j, such that

$$h_{ij} = \exp [\alpha_i + \beta_j].$$

The estimated alpha coefficients will be relatively large for cohorts in which a large number of women initiate smoking. The estimated beta coefficients will be relatively large for ages at which smoking initiation usually occurs. A predicted survival distribution was then calculated from the estimated hazard rate and used to describe the age patterns of smoking behavior for the Black and White populations.

Using this model, we implicitly made the assumption that although some cohorts might be more likely than other cohorts to initiate or quit smoking, the age pattern of initiation or quitting would not vary across cohorts. In particular, we assumed that if one cohort was more likely than another to initiate smoking, the initiation rate would rise by the same proportion at each age. Although this assumption is not absolutely true—women in older cohorts started to smoke at slightly older ages than did members of more recent cohorts—it is approximately correct. By making this assumption we were able to calculate typical age trajectories for Black and White women. By comparing cohort-specific age patterns with summary patterns, we were able to gauge whether the summary age trajectories derived from estimating the proportional hazard models were driven by the assumption of the model.

We report sample proportions by cohort and the summary age patterns. For the estimates derived from the Cox analysis we report 95% confidence intervals. The complex sample design of the NHIS data implies that the effective sample sizes—the sample sizes that are appropriate for performing statistical tests—are smaller than the actual sample sizes. We estimated the magnitude of the survey design effects, using Taylor Series approximation methods.[29] When calculating the confidence intervals, we adjusted the sample sizes accordingly.

Novotny et al.[30] have demonstrated the importance of socioeconomic status indicators for explaining Black–White differences in some aspects of smoking behavior. To determine the degree to which observed racial differences in age patterns of smoking behavior are related to socioeconomic differences, we standardized smoking patterns by education. Given our interest in relative smoking profiles over time, we limited ourselves to education as a measure of socioeconomic difference because education can be considered relatively permanent. Other common measures of socioeconomic status, such as income or marital status, may be subject to large fluctuations over the life course. For the standardization, we categorized women into the age groups 18 through 19 years, 20 through 24 years, 25 through 29 years, 30 through 34 years, 35 through 39 years, and 40 through 44 years. We also categorized them according to whether they had not completed high school, were high school graduates, or had any postsecondary education. Using the direct method, we standardized the White smoking patterns to the Black age × education distribution. To check the robustness of these results, we also standardized the Black smoking patterns to the White age × education distribution. We performed these analyses on the full sample and on the subsample of women aged 25 to 44 years because younger women would have had less opportunity to complete their education.

Results

Age Patterns of Smoking Initiation

The first six banks of columns of Table 1 report the proportions of women who initiated smoking by selected ages, stratified by race and cohort. The final bank of columns presents estimated age patterns of smoking initiation by race, controlling for the potentially confounding effects of cohort by using Cox proportional hazard models. For every cohort studied, Black

TABLE 1—Observed Proportions of Women Initiating Smoking by Selected Ages, by Race and Cohort, 1987

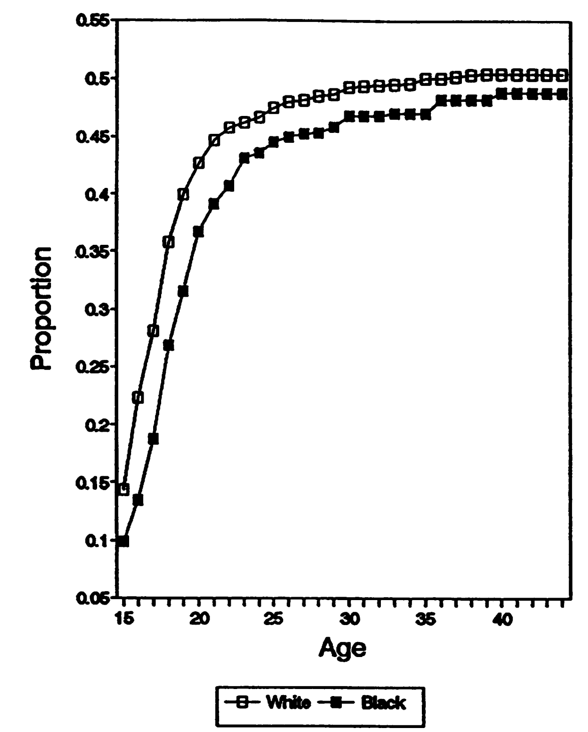
	Birth Cohort																					
	18–19 y			20–24 y			25–29 y			30–34 y			35–39 y			40–44 y			Summary Age Patterns[a] 18–44 y			
Proportion Who Began Smoking by Age	White (n = 262)	Black (n = 60)	White-to-Black OR	White (n = 782)	Black (n = 220)	White-to-Black OR	White (n = 1092)	Black (n = 246)	White-to-Black OR	White (n = 1030)	Black (n = 262)	White-to-Black OR	White (n = 987)	Black (n = 184)	White-to-Black OR	White (n = 759)	Black (n = 154)	White-to-Black OR	White (n = 4912)	Black (n = 1126)	White-to-Black OR	95% CI[b]
15 y	.101	.020	5.51	.206	.091	2.59	.198	.082	2.76	.126	.107	1.20	.091	.052	1.83	.102	.072	1.46	.144	.090	1.70	1.31, 2.22
16 y	.173	.064	3.06	.274	.133	2.46	.303	.120	3.19	.214	.137	1.72	.157	.130	1.25	.165	.087	2.07	.223	.134	1.86	1.49, 2.32
17 y	.244	.064	4.72	.321	.181	2.14	.364	.207	2.19	.280	.182	1.75	.216	.168	1.36	.215	.112	2.17	.281	.187	1.70	1.40, 2.07
18 y	.261	.107	2.95	.370	.237	1.89	.438	.268	2.13	.365	.267	1.58	.314	.248	1.39	.309	.216	1.62	.358	.268	1.52	1.28, 1.81
19 y	...	...	...	.397	.270	1.78	.468	.306	2.00	.400	.305	1.52	.369	.326	1.21	.377	.267	1.66	.399	.315	1.44	1.22, 1.71
20 y	...	...	...	.412	.303	1.61	.492	.350	1.80	.425	.363	1.30	.404	.380	1.11	.418	.325	1.49	.426	.366	1.29	1.09, 1.52
21 y	...	...	...	.424	.303	1.69	.508	.391	1.61	.439	.379	1.28	.439	.402	1.16	.442	.362	1.40	.447	.391	1.26	1.07, 1.49
22+ y	...	...	...	.426	.308	1.67	.523	.433	1.44	.484	.437	1.21	.504	.493	1.05	.523	.511	1.00	.504	.488	1.07	0.90, 1.26

Note. Design effects imply that the effective sample sizes as far as statistical tests are concerned are roughly 6% lower than the actual sample sizes for Whites and roughly 34% lower than the actual sample sizes for Blacks. See text for details. OR = odds ratio; CI = confidence interval.

Source. Based on data from the National Health Interview Survey, 1987, Cancer Supplement.[26]

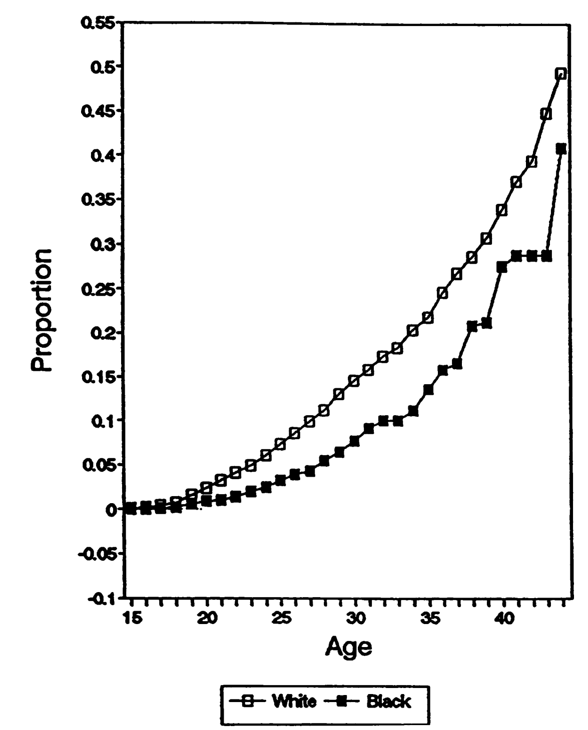
[a]The entries in these columns are based on a Cox regression with age cohort dummy variables as covariates.

[b]95% confidence intervals for the White-to-Black odds ratios. Design effects have been taken into account in the computation of these intervals.



Source. Based on data from the National Health Interview Survey, 1987, Cancer Supplement.[26]

FIGURE 1—Summary age pattern of ever smoking among reproductive-age women, by race.



Source. Based on data from the National Health Interview Survey, 1987, Cancer Supplement.[26]

FIGURE 2—Summary age pattern of smoking cessation among reproductive-age women, by race.

women's age at smoking initiation lag behind that of Whites. The racial differences are particularly large at the youngest ages, although the numbers of sample members in these age groups are small. Young Black teenagers are much less likely than young White teenagers to have initiated smoking.

These data show that smoking initiation usually occurs before age 21 among both Blacks and Whites. However, relatively more Black women than White women initiate smoking at an older age. Although for specific cohorts the Black–White difference does not always achieve statistical significance, the fact that the basic pattern holds true across all cohorts suggests that it does not simply reflect sampling variability. (The probability that the same pattern would be found for all cohorts owing to chance is very small.)

The figures presented in the first six banks of columns show that absolute probabilities of ever smoking vary considerably between cohorts. The last bank of columns in Table 1 presents predicted values for the proportion of women initiating smoking by selected ages for Whites and Blacks, controlling for these cohort differences. The patterns visible in the summary trajectories are very similar to those seen in the observed cohort-specific data, suggesting that the model assumption is reasonable. The summary measure provides an accurate assessment of the relative age patterns of initiation by race, both in terms of the shape and the magnitude of the racial differences in the probability of initiation, but the level is arbitrary. It is set to approximate that of the oldest cohort.

The summary estimates confirm the age patterns suggested by the observed data within cohorts. Black women are less likely than White women to initiate smoking at any age; the differences are more pronounced at younger ages. The rate of initiation varies by race; the cumulative proportion of women who have ever smoked is lower among Blacks than among Whites. At all ages except the oldest, the Black–White differences are statistically significant. For ease of presentation, these summary estimates are graphically depicted in Figure 1 as the proportion of women ever smoking, by age and race.

Age Patterns of Smoking Cessation

Table 2 presents data on quitting behavior by age among Black and White ever smokers. To take account of the finding that proportionately fewer Black women than White women have ever smoked, we report "quit ratios," that is, ever quitters/ever smokers.

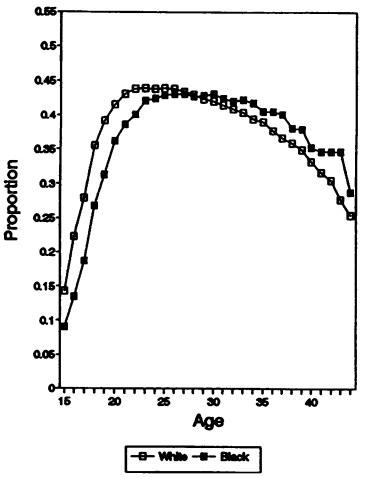
At all ages, and within all cohorts, White women smokers are more likely than Black women smokers to quit. The estimated age patterns presented in the final bank of columns and graphically in Figure 2 reveal that, with cohort controlled, Black women smokers are less likely to quit at all ages and that the Black–White disparity in quitting is largest over the predominant childbearing ages, 20 through 30 years. The disparity approaches statistical significance at age 20 and is statistically significant by age 25 and through age 35.

Age Patterns of Current Smoking

Table 3 describes the proportion of women in the sample who currently smoked by age, race, and cohort. At the youngest ages, White women are more likely than Black women to be current smokers, but, as a function of later initiation combined with lower and later quitting patterns among Blacks, the proportion currently smoking converges between Black and White women by age 25, despite the fact that a smaller proportion of Black women have ever smoked. As depicted in Figure 3, there is evidence of a crossover in the age patterns between Whites and Blacks in the late 20s, suggesting that a slightly larger proportion of Black women than White women are current smokers from that age onward. Black–White differences are statistically significant through the teens and at age 20; by age 25 they are no longer so.

The Effects of Education

When we estimated models of smoking behavior by age, controlling for education as well as for cohort, we found the effect of education on smoking behaviors to be in the same direction and of approximately the same magnitude among Blacks and Whites. Better educated women are less likely to initiate smoking and more likely to quit, and are, thus, less likely to be current smokers. Because White women have, on average, completed higher levels of schooling than Black women, the effect of controlling for education on Black–White differences in women's smoking behavior is to enlarge the Black–White differentials in the rates of ever and current smoking (which favor Blacks), and to dampen the differences in the quit ratios (which had favored Whites). The most substantial differences in proportion currently smoking are evident at the youngest ages, between 15 and



Source. Based on data from the National Health Interview Survey, 1987, Cancer Supplement.[26]

FIGURE 3—Summary age pattern of current smoking among reproductive-age women, by race.

25 years; Blacks in this age group are consistently less likely than Whites to be smokers. The results are essentially the same whether we standardized to the Black age × education distribution or to the White. Similarly, the results were not sensitive to restricting the sample to women aged 25 through 44 years. This finding also provides additional reassurance that the basic study results are not driven by model assumptions.

Discussion

The findings of this study confirm that over the childbearing years Black and White women exhibit different age patterns of smoking behavior. White women initiate smoking at younger ages than Black women, but among smokers, White women are more likely than Blacks to quit. The result is that adolescent and young adult Black women are less likely to smoke than their White counterparts, but this health advantage disappears rapidly. The proportion of Black women who are current smokers converges with the White proportion by age 25. By age 30, the point estimates suggest that a crossover in smoking prevalence between Black and White women has occurred, but this crossover is not confirmed statistically. The convergence (or possible crossover) is due primarily to youthful quitting on the part of White smokers, and also to later ages of initiation and low quit rates among

TABLE 2—Observed Quitting Behavior among Ever-Smoking Women, by Birth Cohort, 1987

Proportion Who Quit Smoking by Age	Birth Cohort: 18–19 y White (n = 78)	18–19 y Black (n = 5)	18–19 y White-to-Black OR	20–24 y White (n = 333)	20–24 y Black (n = 80)	20–24 y White-to-Black OR	25–29 y White (n = 571)	25–29 y Black (n = 114)	25–29 y White-to-Black OR	30–34 y White (n = 502)	30–34 y Black (n = 120)	30–34 y White-to-Black OR	35–39 y White (n = 490)	35–39 y Black (n = 89)	35–39 y White-to-Black OR	40–44 y White (n = 393)	40–44 y Black (n = 81)	40–44 y White-to-Black OR	Summary Age Patterns[a] 18–44 y White (n = 2367)	Summary Age Patterns[a] 18–44 y Black (n = 489)	Summary Age Patterns[a] 18–44 y White-to-Black OR	Summary Age Patterns[a] 18–44 y 95% CI[b]
18 y	.114	0.0	. . .	.091	.041	2.34	.053	.029	1.87	.012	0.0	. . .	.015	.012	1.25	.002	0.0	. . .	.009	.003	3.02	0.57, 16.1
20 y	. . .	. . .	. . .	.182	.083	2.46	.097	.032	3.25	.050	.033	1.54	.056	.044	1.29	.010	.010	1.00	.024	.010	2.43	0.96, 6.20
25 y	. . .	. . .	. . .	. . .	. . .	. . .	.235	.076	3.74	.159	.104	1.63	.152	.078	2.12	.090	.031	3.09	.074	.033	2.34	1.32, 4.15
30 y	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.326	.210	1.82	.239	.172	1.51	.158	.055	3.22	.145	.077	2.03	1.29, 3.21
35 y	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.337	.220	1.80	.223	.146	1.68	.218	.136	1.77	1.11, 2.82
40 y	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.336	.275	1.33	.339	.276	1.35	0.79, 2.29

Note. The values in the cells represent "quit ratios," that is, ever quitters/ever smokers. The authors' calculations suggest that design effects are negligible for quitting behavior. See text for details. OR = odds ratio; CI = confidence interval.
Source. Based on data from the National Health Interview Survey, 1987, Cancer Supplement.[26]
[a]The entries for the 18 to 44 column are based on a Cox regression with age cohort dummy variables as covariates.
[b]95% confidence intervals for the white-to-black odds ratios.

TABLE 3—Observed Proportions of Women Currently Smoking by Selected Ages, by Race and Birth Cohort, 1987

Proportion Currently Smoking at Age	Birth Cohort: 18–19 y White (n = 262)	18–19 y Black (n = 60)	18–19 y White-to-Black OR	20–24 y White (n = 782)	20–24 y Black (n = 220)	20–24 y White-to-Black OR	25–29 y White (n = 1092)	25–29 y Black (n = 246)	25–29 y White-to-Black OR	30–34 y White (n = 1030)	30–34 y Black (n = 262)	30–34 y White-to-Black OR	35–39 y White (n = 987)	35–39 y Black (n = 184)	35–39 y White-to-Black OR	40–44 y White (n = 759)	40–44 y Black (n = 154)	40–44 y White-to-Black OR	Summary Age Patterns[a] 18–44 y White (n = 4912)	Summary Age Patterns[a] 18–44 y Black (n = 1126)	Summary Age Patterns[a] 18–44 y White-to-Black OR	Summary Age Patterns[a] 18–44 y 95% CI[b]
15 y	.096	.020	5.20	.195	.091	2.42	.194	.082	2.70	.125	.107	1.19	.091	.052	1.83	.102	.072	1.46	.143	.090	1.69	1.22, 2.34
18 y	.231	.064	4.39	.337	.228	1.72	.415	.261	2.01	.361	.267	1.55	.310	.245	1.39	.308	.216	1.62	.355	.268	1.50	1.21, 1.86
20 y	. . .	. . .	. . .	.337	.277	1.33	.444	.339	1.56	.404	.351	1.25	.381	.363	1.08	.414	.322	1.49	.416	.362	1.26	1.03, 1.54
25 y	. . .	. . .	. . .	. . .	. . .	. . .	.401	.399	1.01	.395	.380	1.07	.404	.441	0.86	.438	.424	1.06	.440	.430	1.04	0.84, 1.30
30 y	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.326	.345	0.92	.381	.404	0.91	.425	.459	0.87	.421	.432	0.96	0.74, 1.24
35 y	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.334	.385	0.80	.403	.436	0.87	.391	.406	0.94	0.66, 1.34
40 y	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.346	.370	0.90	.333	.353	0.92	0.54, 1.57

Note. Design effects imply that the effective sample sizes as far as statistical tests are concerned are roughly 41% lower than the actual sample sizes for Blacks. Design effects are negligible for Whites. See text for details. OR = odds ratio; CI = confidence interval.
Source. Based on data from the National Health Interview Survey, 1987, Cancer Supplement.[26]
[a]The entries for the birth cohort columns are calculated by subtracting the proportion who have ever quit smoking by age$_i$ from the proportion who have ever smoked by age$_i$. The entries for the summary column are a summation of survival distribution functions from the Cox regressions: $(1 - S_I) \times (S_Q)$, where S_I is the survival distribution function from the Initiation equation and S_Q is the survival distribution function from the Quitting equation.
[b]95% confidence intervals for the White-to-Black odds ratios. Design effects have been taken into account in the computation of these intervals.

Blacks. Standardizing for educational status suggests that improvement in the socioeconomic status of Black women could result in even lower rates of smoking initiation than is currently the case and also in lower percentages of Black female ever smokers who persist in this behavior.

The results among adolescents are consistent with earlier studies that examined racial differences in smoking behavior within this age group.[20–24] Discussions of earlier results raised the question of whether the lower propensity of Black than White teens to smoke was exaggerated by or even an artifact of the sample selection criteria (such as being in high school[30,31] or residence in geographic areas where Blacks often had fundamentalist religious backgrounds).[20,21] Here we found lower rates of smoking among Black teens than among White teens in analyses weighted to be nationally representative.

The study results highlight the importance of considering age patterns when assessing Black–White differences in smoking behavior. Simple averaging across age groups within race or focusing on too narrow an age range may result in misleading conclusions, such as that Black women uniformly smoke more or less than White women. Future research on differences in smoking behavior among identifiable groups should account for the possibility of age × race interactions.

These findings have implications for the design and targeting of intervention strategies to reduce smoking prevalence among women. Many current or proposed anti-tobacco interventions target youth or are school based.[19] Such efforts are essential but insufficient. Given the delayed initiation of smoking among Black women in their 20s and the low propensity of Black female smokers to quit, additional components of an effective anti-tobacco strategy are necessary that target young adults. These might include work-site smoking policies, state clean indoor air laws, state and local excise taxes, community anti-tobacco action plans and strategies that use mass media. (Findings that cigarette advertising in magazines is associated with diminished coverage of the hazards of smoking, especially among women's magazines, and that the relative share of cigarette advertising has grown in magazines targeted at blue-collar or minority audiences[32–34] is discouraging.)

The study findings offer clues about the potential contribution of racial differences in age patterns of smoking behavior to racial differentials in a range of health problems, but additional research is required. In terms of birth outcome the findings suggest that smoking during pregnancy may not currently be a major contributor to Black–White differentials in low birthweight and infant mortality rates. This is because Black women are less likely than White women to smoke at the ages (15 through 24 years) at which most Black women give birth.[35] This finding is consistent with the results of Kleinman et al.'s[14] population analysis of births in Missouri, where maternal smoking did not account for the Black–White disparity in neonatal mortality. However, the current study results suggest that if the age profile of either smoking or fertility behavior of Black women were to change, an increase in the Black–White differential in infant mortality could be the result. For example, if effective anti-smoking interventions were not in place and the Black fertility timing distribution were shifted toward older ages, a larger proportion of Black infants would be placed at risk of maternal smoking–related poor birth outcome.

Because smoking rates among Black women continue to increase through the twenties and then plateau, passive smoking may be implicated in the excess rates of impaired respiratory health of young Black children. Research directly assessing this possibility is needed. Similarly, the persistence of smoking among Black adult women, once initiated, points to smoking as a possible contributor to the excess morbidity and mortality of Black relative to White women. The study results suggest that the magnitude of any excess smoking prevalence among young to middle-aged Black women compared with White women is small. However, looking only at relative smoking prevalence rates may mask ways in which equivalent or slightly higher rates of smoking among young adult Black women may translate into a larger excess disease burden. For example, the literature suggests that Black smokers' brand preferences may be toward more hazardous cigarettes than Whites.[36,37] Equivalent exposure to any risk factor, including smoking, between Blacks and Whites may yield worse health effects for Blacks if their access to health care is more restricted or their exposure to other health risk factors with which smoking may interact to produce its effect on morbidity and mortality is greater.

On a theoretical level, the study findings raise the question of why women's age patterns of cigarette smoking diverge between Blacks and Whites. One speculation is that the lives of Black women in their 20s and 30s are more stressful than those of their White counterparts and their greater tendency to smoke may be, in part, a response to this stress.[38,39] The sources of this stress, the stress itself, or the physical toll taken by actively coping with stress over a prolonged period may contribute to the excess disease, disability, and death of young and middle-aged adult Black women.[39–41] Investigating the psychosocial factors that may precipitate later initiation of cigarette smoking among Black women or the persistence of smoking among Black women may enhance the knowledge base informing anti-tobacco use interventions and provide insights that will permit a broader understanding of the excess disease burden suffered by Black women and their children. □

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