Smoking by Blacks and Whites: Socioeconomic and Demographic Differences

Thomas E. Novotny, MD, Kenneth E. Warner, PhD, Juliette S. Kendrick, MD, and Patrick L. Remington, MD, MPH

Abstract: Using data from the 1985 National Health Interview Survey for persons aged 25-64 years, we controlled simultaneously for socioeconomic status (SES), demographic factors, and race in multivariate logistic regression analyses. We found that the odds of ever smoking are not higher for Blacks compared with Whites, when the other variables are controlled. By contrast, the odds of heavy smoking for Blacks are far less than for Whites, while Blacks are significantly less likely than Whites to quit smoking regardless of SES or demographic factors. Smoking cessation and prevention programs must be planned with these behavioral, SES, and demographic differences in mind. (Am J Public Health 1988; 78:1187-1189.)

Introduction

In 1955, there was no difference in reported smoking prevalence between Blacks and Whites.[1] However, since 1965, the reported smoking prevalence among Blacks has exceeded that among Whites, and the reported prevalence of former smoking (quitting) has been less for Blacks than for Whites.[2] In addition, epidemiologic analyses have repeatedly identified excess rates of illness and death in Blacks as compared with Whites. Diseases caused by smoking, including lung and other cancers, ischemic heart disease, and cerebrovascular disease, account for much of this excess disease burden.[3-5]

Epidemiologic studies of smoking-related illness (lung cancer[6] and cardiovascular disease[7]) have shown inverse relationships between socioeconomic status (SES) and both disease incidence and mortality. Differences in cancer survival between Whites and Blacks appear to be largely attributable to socioeconomic or environmental factors rather than inherent genetic or biologic differences.[4]

In addition to race, several other SES and demographic variables have been strongly associated with current smoking, including male sex, lower education, lower income, unemployment, blue collar employment, and separated/divorced marital status.[2,8,9] Therefore, differences in ever smoking, quitting, and heavy smoking between Blacks and Whites may be a result of differences in these SES and demographic factors.

We compare current smoking prevalence and the SES/demographic distribution of Blacks and Whites, aged 25-64 years, in the United States using data from the 1985 National Health Interview Survey (NHIS) of the National Center for Health Statistics. To determine the independent effects of race, SES, and demographic factors on ever smoking, quitting, and heavy smoking, we performed multivariate logistic regression analyses using software which accomodated both the complex survey design and individual weighting of responses in the NHIS.

Methods

The NHIS is a nationally representative household survey that uses a weekly probability sample of households in the civilian, noninstitutionalized population 18 years of age and older. The survey design, methods used in estimation, and general parameters of the NHIS data have been described elsewhere.[10] The sample is poststratified by age, sex, and racial distribution of the US population for the survey year, and then weighted by the individual probability of selection. We used only weighted data and restricted the analysis to Blacks and Whites, ages 25-64 years. Hispanics, Native Americans, Aleuts, Pacific Islanders, Asians, and other ethnic group members were excluded. The age group 25-64 years is more stable than the other age groups with regard to education, income, and employment. Furthermore, the population above age 65 includes a disproportionate number of nonsmokers, reflecting in part the greater mortality among the smoking members of this cohort.[11]

Persons who reported smoking 100 or more cigarettes during their lives were "ever smokers"; "current smokers" were persons who were smoking at the time of the interview. Ever smokers not currently smoking were classified as "former smokers." In addition, current smokers were asked how many cigarettes they smoked per day and were then divided into "heavy smokers" ($\geq$15 cigarettes per day) and "light smokers" (<15 cigarettes per day).

First, we determined the crude prevalence of current smoking and the distribution of the study population by race and SES/demographic factors, including sex, employment status, occupation, education, marital status, and poverty status. We used poverty status instead of income as a measure of financial well-being because this designation reflects not only income but size of household. Respondents were coded as either above or below the poverty level based on US Department of Census criteria for the year of the survey.[12]

Next, we estimated the independent effects of race and the selected SES/demographic factors on smoking behavior using multivariate logistic regression.[13] Current smoking prevalence in a given population reflects both the uptake of smoking (ever smoking) and the quitting activity among members of that population. Therefore, models were developed for three outcome variables in three different groups:

- ever smoking vs never smoking (uptake) among the total population,
- former smoking vs current smoking (quitting) among ever smokers, and
- heavy smoking vs light smoking among current smokers.

TABLE 1—Distribution (%) of Study Population and Prevalence (%) of Current Smoking by Socioeconomic and Demographic Characteristics for Blacks and Whites, Ages 25–64, 1985

Characteristics	Weighted Sample Distribution		Weighted Current Smoking Prevalence	
	Blacks	Whites	Blacks	Whites
Female	55.6	51.3	36.3	30.8
Male	44.4	48.7	45.6	35.1
Employed	75.5	76.8	37.7	32.8
Umemployed	7.2	3.3	49.4	44.7
Not in workforce*	17.3	19.9	46.0	31.7
Blue collar	28.3	23.5	44.0	40.7
White collar	31.1	45.8	32.4	28.2
Service	7.5	16.2	40.6	40.9
<High school graduate	32.8	17.8	47.6	44.9
High school graduate	38.0	40.1	40.0	35.7
Some college	15.9	19.4	36.2	32.4
≥4 years college	13.3	22.8	29.2	19.3
Never married	20.2	9.3	46.6	32.1
Married	54.3	77.6	36.9	30.9
Widowed	5.3	2.8	36.5	40.9
Divorced/separated	20.3	10.3	44.7	46.8
>Poverty level	65.8	83.6	38.0	32.3
<Poverty level	20.7	5.9	48.1	43.9
Poverty status unknown	13.5	10.5	40.6	32.1

*Includes disabled and chronically unemployed

TABLE 2—Prevalence (%) of Ever Smoking vs Never Smoking, Ages 25–64, 1985; Adjusted Odds Ratios

Characteristics	Prevalence*		Odds Ratio**	95% Confidence Limits
	Ever	Never		
White	59.3	40.7	1.0	(Referent)
Black	57.7	42.3	1.0	0.9,1.1
Male	67.9	32.1	1.6	1.5,1.7
Female	51.0	49.0	1.0	(Referent)
Employed	59.5	40.5	1.0	(Referent)
Unemployed	66.9	33.1	1.4	1.2,1.7
Not in workforce	56.6	43.4	1.0	0.9,1.0
White collar	55.9	44.1	1.0	(Referent)
Blue collar	67.0	33.0	0.9	0.8,1.0
Service	61.1	38.9	0.9	0.8,1.0
≥4 years college	49.4	50.6	1.0	(Referent)
Some college	59.0	41.1	1.6	1.5,1.8
High school graduate	59.9	40.1	1.8	1.6,1.9
<High school graduate	68.6	31.3	2.4	2.1,2.6
Married	58.7	41.3	1.0	0.8,1.0
Never married	52.4	47.6	0.9	0.8,1.0
Widowed	61.9	38.1	1.2	1.0,1.4
Divorced/separated	67.8	32.2	1.6	1.5,1.8
Above poverty level	59.1	40.9	1.0	(Referent)
Below poverty level	62.5	37.6	1.0	0.9,1.1

*Weighted
**Simultaneously adjusted for all other socioeconomic and demographic factors.

All the selected SES/demographic variables were included in the models, and incomplete or "unknown" responses in each category were excluded. Age was included as a continuous variable in all models, and a race-sex interaction term was included. Because Blacks and Whites differed somewhat in smoking prevalence across educational strata, a race-education interaction term was also included. These interaction terms were dropped because they were found not to be significant in the analysis. The regression analyses were performed using RTILOGIT, an SAS program within Proc Logist [14] that accomodates both survey design and weighting of individual data. [15] Ninety-five per cent confidence limits were calculated using the beta coefficients and the general mean square errors for each parameter.

Results

The total sample size from the 1985 NHIS was 33,630. Within this sample were 3,291 Blacks and 18,302 Whites 25-64 years old who provided information about lifetime smoking.

Table 1 shows the weighted sample distribution and current smoking prevalence of respondents by race and SES/demographic status. More Blacks than Whites were unemployed, employed in blue-collar jobs, found in lower educational strata, and in the divorced/separated, widowed, and never married strata. The proportion of Blacks below the poverty level was almost four times that of Whites in our sample. Blacks were more likely to smoke than Whites in nearly every SES and demographic category.

The weighted prevalence estimates and adjusted odds ratio (OR) estimates from the multiple logistic regression analyses are shown in Tables 2-4.

When we simultaneously controlled for the effects of selected SES/demographic factors, we found that Blacks and Whites were equally likely to have been ever smokers (Table 2). Men, unemployed persons, persons with less education than college graduates, and divorced/separated persons were

more likely to have ever smoked, compared with women, employed persons, college graduates, and married persons, respectively.

The weighted prevalence estimates and adjusted OR estimates for former vs current smokers are shown in Table 3. Black smokers were substantially less likely to quit than Whites. Men, employed persons, persons with four or more years of college, married persons, and persons above the poverty level were more likely to have quit smoking compared with women, unemployed persons, less-educated persons, unmarried, separated/divorced, or widowed persons, and persons below the poverty level, respectively. Persons

TABLE 3—Prevalence (%) of Former Smoking vs Current Smoking, Ages 25–64, 1985; Adjusted Odds Ratios

Characteristics	Prevalence*		Odds Ratio**	95% Confidence Limits
	Former	Current		
White	26.4	32.9	1.0	(Referent)
Black	17.2	40.4	0.7	0.6,0.9
Male	31.7	36.2	1.3	1.1,1.5
Female	19.5	31.5	1.0	(Referent)
Employed	26.3	33.3	1.0	(Referent)
Umemployed	21.2	45.7	0.6	0.5,0.9
Not in workforce	23.3	33.4	1.0	0.6,1.8
White collar	27.3	28.5	1.0	(Referent)
Blue collar	25.9	41.2	1.0	0.5,1.7
Service	20.3	40.8	0.9	0.5,1.6
≥4 years college	29.5	19.9	1.0	(Referent)
Some college	26.3	32.7	0.7	0.5,0.9
High school graduate	23.8	36.1	0.6	0.4,0.7
<High school graduate	23.3	45.4	0.4	0.3,0.6
Married	27.3	31.4	1.0	(Referent)
Never married	17.2	35.2	0.8	0.6,1.0
Widowed	21.9	40.3	0.7	0.5,0.9
Divorced/separated	21.5	46.4	0.6	0.5,0.7
Above poverty level	26.3	32.8	1.0	(Referent)
Below poverty level	17.3	45.2	0.8	0.7,0.9

*Weighted
**Simultaneously adjusted for all other socioeconomic and demographic factors.

TABLE 4—Prevalence (%) of Heavy Smoking vs Light Smoking, Ages 25–64, 1985; Adjusted Odds Ratios

Characteristics	Prevalence*		Odds Ratio**	95% Confidence Limits
	Heavy	Light		
White	70.9	29.1	1.0	(Referent)
Black	40.8	59.2	0.3	0.2,0.3
Male	72.2	27.8	1.7	1.5,1.9
Female	61.1	38.9	1.0	(Referent)
Employed	68.0	32.0	1.0	(Referent)
Unemployed	68.1	31.9	1.2	0.9,1.5
Not in workforce	62.8	37.2	0.9	0.7,1.0
White collar	66.6	33.4	1.0	(Referent)
Blue collar	71.8	28.2	1.0	0.9,1.3
Service	64.1	35.9	1.0	0.8,1.4
≥4 years college	62.6	37.4	1.0	(Referent)
Some college	64.7	35.3	1.2	0.9,1.4
High school graduate	67.9	32.1	1.4	1.2,1.7
<High school graduate	68.8	31.2	1.6	1.3,2.0
Married	68.7	31.3	1.0	(Referent)
Never married	57.5	42.5	0.8	0.7,1.0
Widowed	63.1	36.9	0.8	0.6,1.1
Divorced/separated	66.1	33.9	1.1	1.0,1.3
Above poverty level	67.8	32.3	1.0	(Referent)
Below poverty level	60.4	39.5	1.0	0.8,1.2

*Weighted
**Simultaneously adjusted for all other socioeconomic and demographic factors.

employed in service jobs were also less likely than persons employed in white collar jobs to quit.

Finally, we compared heavy vs light smoking among current smokers (Table 4) Blacks were much less likely to be heavy smokers than Whites. Men and less-educated persons were more likely to be heavy smokers compared with women and more-educated persons, respectively.

Discussion

Current smoking prevalence depends on the likelihood of starting and the likelihood of quitting. The NHIS data show racial differences in current smoking prevalence. Our analysis demonstrates that this situation in 1985 was due to decreased likelihood of quitting among Blacks, rather than different rates of starting to smoke, regardless of SES or demographic status.

Blacks were far less likely than Whites to be heavy smokers, confirming other studies.[2] This finding should imply a lower risk for smoking-related disease among Black smokers compared with White smokers. Paradoxically, however, smoking-attributable disease mortality is higher among Blacks.[3–5] Blacks prefer high-tar, high-nicotine, mentholated brands.[16] Menthol in cigarettes provides a sensation of cooling[17] and may therefore allow deeper, prolonged inhalation of cigarette smoke. Because of higher nicotine yield and perhaps the presence of menthol, fewer cigarettes would be needed to maintain daily blood nicotine levels. Thus, although Blacks smoke fewer cigarettes per day, their choices of brands may provide the tar yield and smoking pattern necessary to contribute to the excesses in smoking-related diseases observed among them. In addition, social stresses and environmental exposures may increase the health risk profile of persons in low SES strata and in blue collar categories.

The associations between smoking, SES/demographic factors, and race imply that interventions need to be designed to reach the groups with the least likelihood of quitting: Blacks;

women; those with less education, below the poverty level, employed in service-type jobs, unmarried, widowed, divorced, or separated. Interventions that account for cultural obstacles to behavioral change may be more likely to succeed.

As smoking becomes less accepted by higher SES segments of the population, persons of lower SES will account for a disproportionate amount of smoking-related disease. Blacks, independent of their SES/demographic status, are less likely to quit smoking. If this trend continues, greater negative health consequences among Blacks compared with Whites can be expected. The question of how best to influence smoking behavior in low SES persons has not yet been answered by the public health community. Indeed, only recently have behavioral research and government policy begun to address this question seriously.[18]

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