

A Nationwide Analysis of US Racial/Ethnic Disparities in Smoking Behaviors, Smoking Cessation, and Cessation-Related Factors

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Racial/ethnic minorities in the United States experience a disproportionate burden of smoking-related diseases, including cancer and heart disease, despite having larger proportions of light and intermittent smokers and generally lower adult smoking prevalence rates than non-Hispanic Whites.^{1–3} Racial/ethnic minorities are also less likely to quit smoking successfully than are non-Hispanic Whites.^{4–8} For example, rates of successful smoking cessation among African American smokers are lower than they are among non-Hispanic Whites, despite reports citing lower cigarette consumption.^{2,5,7,9} Similarly, Hispanics/Latinos do not experience higher rates of successful quitting than non-Hispanic Whites, despite being more likely to be light and intermittent smokers.^{2,9} There is currently no evidence indicating that Asian Americans quit at higher rates than non-Hispanic Whites in the United States.¹⁰ The examination of racial/ethnic disparities in smoking behaviors, successful quitting, and factors associated with quitting can provide valuable information for focusing strategies for groups currently experiencing lower rates of successful smoking cessation, and can lead to decreases in smoking-related disease rates across all racial/ethnic populations.

Previous research on population-level data has found several factors to be associated with successful smoking cessation. For example, banning smoking in one's home can greatly increase the chances of successfully quitting smoking. The presence of a complete ban on smoking in one's home is associated with being quit for at least 90 days¹¹ and with being a former smoker.¹² However, an analysis of national data found that smaller percentages of non-Hispanic Whites (64.0%) and African Americans (64.4%) have a complete home smoking ban than do Hispanics/Latinos (78.0%) and Asian Americans/Pacific Islanders (79.2%).¹³ Being advised to quit smoking by health care

Objectives. We used nationally representative data to examine racial/ethnic disparities in smoking behaviors, smoking cessation, and factors associated with cessation among US adults.

Methods. We analyzed data on adults aged 20 to 64 years from the 2003 Tobacco Use Supplement to the Current Population Survey, and we examined associations by fitting adjusted logistic regression models to the data.

Results. Compared with non-Hispanic Whites, smaller proportions of African Americans, Asian Americans/Pacific Islanders, and Hispanics/Latinos had ever smoked. Significantly fewer African Americans reported long-term quitting. Racial/ethnic minorities were more likely to be light and intermittent smokers and less likely to smoke within 30 minutes of waking. Adjusted models revealed that racial/ethnic minorities were not less likely to receive advice from health professionals to quit smoking, but they were less likely to use nicotine replacement therapy.

Conclusions. Specific needs and ideal program focuses for cessation may vary across racial/ethnic groups, such that approaches tailored by race/ethnicity might be optimal. Traditional conceptualizations of cigarette addiction and the quitting process may need to be revised for racial/ethnic minority smokers. (*Am J Public Health.* 2011;101:699–706. doi:10.2105/AJPH.2010.191668)

professionals, especially physicians, has also been associated with increased rates of smoking cessation.^{14–17} Despite progress in smokers being advised to quit by health care practitioners in the past 5 years, African American and Hispanic/Latino smokers remain less likely than non-Hispanic Whites to be advised to quit.^{16,18} Finally, although evidence of the effectiveness of nicotine replacement therapy (NRT) at the population level has been challenged recently,^{19,20} there is evidence that NRT can aid successful cessation.^{17,21–23} There is substantial evidence that racial/ethnic minorities are less likely to be prescribed NRT^{14,15,18} and to use NRT to quit smoking.^{23–25}

The Tobacco Use Supplements to the Current Population Surveys (TUS-CPS) have provided invaluable data for the examination of various smoking-related issues at the national level.^{11,13} In 2003, the TUS-CPS included a special supplement that focused heavily on smoking cessation. This supplement was the first TUS-CPS

with this focus (and is the only one to date), and it provides arguably the richest representative national-level data on smoking cessation in the United States. This special supplement thus presented a unique opportunity to examine in detail the disparities between racial/ethnic groups in smoking cessation and important related factors.

For our study, we hypothesized the following: (1) African Americans would experience less success in quitting smoking than would non-Hispanic Whites, (2) Asian Americans/Pacific Islanders and Hispanics/Latinos would be more likely to have a complete home smoking ban than would non-Hispanic Whites, (3) African Americans and Hispanics/Latinos would be less likely than would non-Hispanic Whites to report being advised by a health professional to quit smoking, and (4) racial/ethnic minorities would be less likely to use NRT than would non-Hispanic Whites.

To examine these hypotheses, we conducted a secondary data analysis of the 2003 TUS-CPS

to assess smoking cessation rates and examine how factors associated with successful smoking cessation differed across racial/ethnic groups among adults in the United States. Findings from this report may provide insight into optimal design of targeted smoking cessation interventions for members of specific racial/ethnic groups.

METHODS

The CPS is a continuous survey (more than 56 000 households/month) conducted by the US Census Bureau, primarily to monitor labor force indicators for the civilian noninstitutionalized US population aged 15 years and older. The complete CPS methodology is published elsewhere.²⁶ Briefly, the CPS is a large, federally funded household survey that uses a monthly multistage area probability sample. Households were selected using a multistage stratified sample of housing units from lists of addresses obtained from the 2000 decennial Census of Population and Housing. Households were initially visited to administer the main survey, although residents could also choose to take the survey by telephone. The CPS has a response rate of more than 92%. The TUS are periodically added to the CPS. The 2003 TUS was included with CPS surveys in February, June, and November. The 2003 TUS included both proxy and self-reported data, with a self-response rate of more than 61%. We only used self-reported data in these analyses.

Smoking-Related Measures and Demographics

Smoking behaviors. TUS-CPS survey respondents were asked, "Have you ever smoked 100 cigarettes?" Respondents were considered ever smokers if they answered yes. Ever smokers were further asked, "Do you now smoke every day, some days, or not at all?" Those who reported smoking every day were considered current daily smokers, and those who reported smoking on some days were considered current intermittent smokers. Other researchers have also classified this latter group of smokers as occasional smokers or nondaily smokers.^{27,28} All current smokers were also asked to report the number of cigarettes they consumed on the days when they smoked. Former smokers were defined as ever smokers who reported not

smoking at the time of the survey. Having quit smoking for at least 6 months at the time of the survey was chosen as a marker of long-term, successful cessation.²⁹

Home smoking restrictions. Respondents were asked to describe the rules about smoking inside their homes. Those who indicated that no one was allowed to smoke anywhere inside their home were considered to have a complete home smoking ban.

Cessation advice from a health professional. Current smokers who reported visiting a medical doctor, dentist, nurse, or other health professional in the past 12 months were asked if these health professionals had advised them to quit smoking (yes/no). Those who had received such advice were then asked if the health professionals also prescribed the use of NRT, including a nasal spray, a patch, an inhaler, a lozenge, or pills such as Zyban (yes/no).

Quit attempts and use of cessation aids. Current smokers were asked if they had made an attempt to quit in the past 12 months. Those who reported making such an attempt were asked if they had used nicotine replacement products (e.g., gum, patch, spray) in their last attempt to quit. They were also asked if, in their last quit attempt, they used other assistance methods, such as a telephone help line or quit-line; a stop-smoking clinic, class, or support group; or help or support from friends or family. Finally, they were also asked if, in that last attempt, they had tried to quit by gradually cutting back on cigarettes, switching to a lighter cigarette to facilitate quitting, or trying to give up cigarettes all at once.

Demographic measures. Demographic measures included age group (20–34 years, 35–49 years, and 50–64 years), gender, level of education (less than high school, high school graduate, some college, and college graduate), and self-reported race/ethnicity. We used the US Census categories that defined Hispanic/Latino ethnicity and then identified the respondent's race as non-Hispanic White, African American, or Asian American/Pacific Islander. We used standard demographics collected on the CPS to create a binary variable for household income (in constant 2001 dollars) that was more than twice the US Census Bureau poverty threshold (by size of family and number of children).^{25,30}

Statistical Methods

All estimates were weighted by TUS-CPS survey weights, which account for selection probabilities from the sampling design and adjust for survey nonresponse.²⁶ All estimates were computed in SAS-callable SUDAAN version 9.0.1 (RTI International, Research Triangle Park, NC), and variance estimates were computed by using the published TUS-CPS replicate weights with Fay's balanced repeated replication.^{26,31} We conducted an unadjusted survival analysis to examine racial/ethnic differences in the length of the longest quit attempt among those who had made a quit attempt of at least 1 day in the past year. All unadjusted prevalence rates reported in Table 1 were computed as weighted proportions by using PROC CROSSTABS. Adjusted smoking prevalence rates were computed by using weighted logistic regression with PROC RLOGIST. Logistic regression models were fit for binary outcomes, including successful quitting for 6 months, being advised by a health professional to quit smoking, use of NRT in the last quit attempt, and the presence of a complete home smoking ban inside the home. All logistic regression models adjusted for age group, education, gender, and income.

An overview of demographic and smoking-related variables is presented in Table 1. Weighted percentages are reported. The age range considered for Table 1 was 20 years or older, and we included other smoking-related variables of interest (e.g., use of smoking quit-lines, self-help materials) to provide an overview that is as complete as possible based on the largest possible data set. Our statistical modeling and survival analyses (Tables 2–4) targeted the population aged 20 to 64 years at the time of the survey. We focused on this age group because smoking patterns are typically not fully established before age 20 years. In particular, it has been shown that African American and Asian American/Pacific Islander smokers are more likely to initiate smoking as older adolescents and young adults.^{32–34} We also selected age 64 years as a cutoff because of differential mortality rates across racial/ethnic groups at ages older than this.^{35,36} There were a total of 141 603 African American, Asian American/Pacific Islander, Hispanic/Latino, and non-Hispanic White

TABLE 1—Demographic Characteristics, Smoking Behaviors, and Smoking Cessation: Tobacco Use Supplement to the Current Population Survey, United States, 2003

	African American (n = 16 060), % (95% CI)	Asian American/Pacific Islander (n = 6111), % (95% CI)	Hispanic/Latino (n = 16 106), % (95% CI)	Non-Hispanic White (n = 142 208), % (95% CI)
Demographic characteristics				
Overall	11.4 (11.3, 11.5)	4.5 (4.46, 4.56)	12.5 (12.45, 12.51)	71.6 (71.5, 71.7)
Gender				
Male	55.8 (55.6, 56.0)	53.1 (52.6, 53.6)	48.8 (48.7, 48.9)	51.9 (51.8, 52.0)
Female	44.2 (44.0, 44.4)	46.9 (46.4, 47.4)	51.2 (51.1, 51.3)	48.1 (48.0, 48.2)
Age, y				
20–34	36.1 (35.8, 36.4)	38.3 (37.7, 38.9)	46.7 (46.6, 46.8)	27.1 (27.0, 27.2)
35–64	52.1 (51.8, 52.4)	51.3 (50.8, 51.8)	45.6 (45.5, 45.7)	54.2 (54.1, 54.3)
≥65	11.8 (11.7, 11.9)	10.4 (10.2, 10.6)	7.7 (7.69, 7.73)	18.7 (18.68, 18.74)
Education				
0–8 y	4.7 (4.4, 5.0)	5.5 (4.8, 6.2)	22.0 (21.0, 23.0)	2.8 (2.7, 2.9)
9–11 y	15.6 (14.9, 16.3)	5.8 (5.1, 6.5)	19.0 (18.2, 19.8)	7.6 (7.4, 7.8)
High school graduate	34.3 (33.4, 35.2)	19.3 (17.9, 20.7)	28.1 (27.1, 29.1)	31.5 (31.1, 31.9)
Some college	29.3 (28.4, 30.2)	21.9 (20.6, 23.2)	20.3 (19.4, 21.2)	28.5 (28.2, 28.8)
College graduate	11.3 (10.7, 11.9)	29.4 (27.8, 31.0)	7.7 (7.2, 8.2)	19.6 (19.3, 19.9)
Postgraduate	4.8 (4.4, 5.2)	18.1 (16.8, 19.4)	2.9 (2.6, 3.2)	9.9 (9.6, 10.2)
Marital status				
Divorced, separated, widowed	26.1 (25.3, 26.9)	11.3 (10.3, 12.3)	16.1 (15.5, 16.7)	20.9 (20.6, 21.2)
Married/partnered	34.6 (33.6, 35.6)	61.0 (59.5, 62.5)	55.6 (54.8, 56.4)	58.7 (58.3, 59.1)
Never married	39.3 (38.5, 40.1)	27.7 (26.6, 28.8)	28.3 (27.6, 29.0)	20.4 (20.1, 20.7)
Income				
<\$15 000	24.5 (23.3, 25.7)	11.8 (10.5, 13.1)	20.9 (19.6, 22.2)	10.2 (9.9, 10.5)
\$15 000–\$24 999	13.0 (12.3, 13.7)	8.2 (7.1, 9.3)	17.5 (16.6, 18.4)	9.3 (9.0, 9.6)
\$25 000–\$34 999	13.0 (12.2, 13.8)	9.0 (8.0, 10.0)	15.6 (14.6, 16.6)	10.9 (10.6, 11.2)
\$35 000–\$49 999	12.5 (11.6, 13.4)	11.7 (10.5, 12.9)	13.7 (13.0, 14.4)	13.5 (13.2, 13.8)
\$50 000–\$74 999	11.7 (10.9, 12.5)	17.5 (15.9, 19.1)	12.3 (11.4, 13.2)	18.3 (17.9, 18.7)
≥\$75 000	10.0 (9.2, 10.8)	27.4 (25.2, 29.6)	9.7 (8.9, 10.5)	25.6 (25.1, 26.1)
Not reported	15.4 (14.5, 16.3)	14.5 (13.0, 16.0)	10.4 (9.6, 11.2)	12.3 (11.9, 12.7)
Below poverty level				
No	77.2 (76.0, 78.4)	88.4 (87.2, 89.6)	76.2 (74.9, 77.5)	92.4 (92.1, 92.7)
Yes	22.8 (21.6, 24.0)	11.6 (10.4, 12.8)	23.8 (22.5, 25.1)	7.6 (7.3, 7.9)
Smoking behaviors				
Ever smoked	31.7 (30.6, 32.8)	21.7 (20.4, 23.0)	24.6 (23.8, 25.4)	43.8 (43.3, 44.3)
Among ever smokers				
Current daily	49.2 (47.5, 50.9)	38.1 (35.1, 41.1)	36.9 (35.0, 38.8)	43.9 (43.2, 44.6)
Current intermittent	15.9 (14.6, 17.2)	16.1 (13.5, 18.7)	20.8 (19.1, 22.5)	8.5 (8.2, 8.8)
Former, ≥1 y	30.4 (28.8, 32.0)	39.8 (36.2, 43.4)	36.6 (34.8, 38.4)	42.9 (42.3, 43.5)
Among current smokers				
Cigarette consumption <11/d	53.2 (51.8, 55.6)	58.1 (51.6, 64.6)	60.2 (56.8, 63.6)	26.2 (25.5, 26.9)
Cigarette consumption 11–20/d	40.4 (38.0, 42.8)	38.4 (32.4, 44.4)	35.9 (32.8, 39.0)	55.1 (54.3, 55.9)
Cigarette consumption >20/d	6.4 (5.4, 7.4)	3.5 (1.6, 5.4)	3.9 (2.8, 5.0)	18.7 (18.0, 19.4)
Cigarette consumption				
Smoking within 30 min of waking	57.4 (55.4, 59.4)	46.7 (42.8, 50.6)	39.8 (37.3, 42.3)	58.6 (57.8, 59.4)
Total home smoking ban among current daily smokers	23.9 (21.9, 25.9)	53.5 (48.1, 58.9)	54.5 (52.0, 57.0)	35.0 (34.3, 35.7)

Continued

TABLE 1—Continued

	Smoking cessation			
Ever quit for at least 1 d in past y				
Current daily smokers	58.6 (56.3, 60.9)	59.6 (53.8, 65.2)	60.3 (57.2, 63.4)	69.4 (68.4, 70.4)
Current intermittent smokers	41.7 (37.2, 46.2)	34.0 (2.6, 43.4)	29.4 (25.8, 33.0)	43.3 (41.3, 45.3)
Use of cessation aids in last quit attempt				
NRT	17.9 (14.6, 21.2)	13.1 (7.2, 19.0)	19.7 (16.5, 22.9)	31.0 (29.5, 32.5)
Help/support from family	15.8 (12.4, 19.2)	21.1 (13.9, 28.3)	20.6 (16.5, 24.7)	24.9 (23.7, 26.1)
Gradually cut back	52.4 (47.6, 57.2)	43.8 (35.5, 52.1)	46.9 (42.3, 50.5)	43.6 (42.0, 45.2)
Smoking quitline	1.6 (0.5, 2.7)	1.5 (-0.5, 3.5)	0.7 (-0.1, 1.5)	1.5 (1.2, 1.8)
Self-help materials	4.5 (3.0, 6.0)	5.9 (1.7, 10.1)	4.0 (1.9, 6.1)	6.5 (5.8, 7.2)
Switch to lighter cigarettes	19.0 (15.3, 22.7)	15.8 (13.2, 21.4)	16.7 (13.1, 20.3)	16.9 (15.8, 18.0)
Quit all at once	68.9 (65.1, 72.7)	63.0 (53.1, 72.9)	73.9 (69.9, 77.9)	76.6 (75.4, 77.8)
Advised to quit smoking by health professional	57.4 (55.0, 59.8)	57.2 (44.4, 63.0)	51.0 (47.5, 54.5)	59.8 (58.9, 60.7)
Among current daily smokers advised to quit smoking, % who were prescribed NRT/antidepressant	12.7 (10.1, 15.3)	6.4 (3.0, 9.8)	12.5 (8.9, 16.1)	15.9 (15.0, 16.8)

Note. CI = confidence interval; NRT = nicotine replacement therapy.

respondents aged 20 to 64 years. Of these respondents, 56 887 were ever smokers. Among ever smokers, 29 944 were current smokers, of whom 10 795 had made a quit attempt of at least 1 day in the past year.

RESULTS

Demographic information from the selected population is presented in Table 1. There was a significantly larger proportion of males among African Americans (55.8% \pm 0.2) and Asian Americans/Pacific Islanders (53.1% \pm 0.5). There was a significantly larger proportion of Hispanics/Latinos in the 18 to 34 years age group (46.7% \pm 0.1) and larger proportions of non-Hispanic Whites in the 35 to 64 years and 65 years or older age groups (54.2% \pm 0.1 and 18.7% \pm 0.1, respectively) compared with other groups. Approximately 69.1% of Hispanic/Latino respondents reported a high school education or less, compared with 54.6% of African Americans, 41.9% of non-Hispanic Whites, and 30.6% of Asian Americans/Pacific Islanders. Significantly larger proportions of Hispanics/Latinos (23.8% \pm 1.3) and African Americans (22.8% \pm 1.2), compared with other groups, had incomes below the poverty level.

Smoking Behaviors and Cessation Factors (Unadjusted)

Table 1 also presents the prevalence rates of smoking variables across racial/ethnic groups. There was a significantly larger proportion of non-Hispanic Whites who were ever smokers compared with other groups: approximately 43.8% (\pm 0.5) of non-Hispanic Whites, 31.7% (\pm 1.1) of African Americans, 21.7% (\pm 1.3) of Asian Americans/Pacific Islanders, and 24.6% (\pm 0.8) of Hispanics/Latinos. Of these ever smokers, there was a significantly larger proportion of current daily smokers among African Americans: 49.2% (\pm 1.7) versus 38.1% (\pm 3.0) of Asian Americans/Pacific Islanders, 36.9% (\pm 1.9) of Hispanics/Latinos, and 43.9% (\pm 0.7) of non-Hispanic Whites. By contrast, among ever smokers there were significantly larger proportions of current intermittent smokers among racial/ethnic minority groups compared with non-Hispanic Whites: 15.9% (\pm 1.3) of African Americans, 16.1% (\pm 2.6) of Asian Americans/Pacific Islanders, 20.8% (\pm 1.7) of Hispanics/Latinos, and 8.5% (\pm 0.3) of non-Hispanic Whites. A significantly smaller proportion of African Americans had quit for at least 1 year (30.4% \pm 1.6) compared with other groups. Smoking within 30 minutes of waking was less frequently reported among

Hispanics/Latinos (39.8% \pm 2.5) and Asian Americans/Pacific Islanders (46.7% \pm 3.9) than it was among African Americans (57.4% \pm 2.0) and non-Hispanic Whites (58.6% \pm 0.8).

Table 1 further shows that there was a significantly larger proportion of non-Hispanic White current daily smokers who had ever stopped smoking for at least 1 day in an attempt to quit, compared with other groups: approximately 69.4% versus about 60% for other groups. Among intermittent or occasional smokers, this proportion was significantly lower among Hispanics/Latinos (29.4% \pm 3.6). The proportion of Asian American/Pacific Islander (53.5% \pm 5.4) and Hispanic/Latino (54.5% \pm 2.5) current smokers reporting the presence of a total home smoking ban was significantly higher compared with African Americans (23.9% \pm 2.0) and non-Hispanic Whites (35.0% \pm 0.7). A significantly smaller proportion of African American smokers reported using help and support from family in their last quit attempt compared with non-Hispanic Whites (15.8% \pm 3.4 vs 24.9% \pm 1.2, respectively).

Non-Hispanic Whites more frequently reported using NRT in the last quit attempt compared with other groups (approximately 31% vs about 13%–20%). This disparity in NRT use was also found among heavy daily

smokers: approximately 31% of non-Hispanic Whites versus about 19% to 23% for other groups. Among smokers in the past year who had seen a doctor or health professional during that time, Hispanics/Latinos less frequently reported receiving advice to quit smoking during such encounters (51.0% \pm 3.5) compared with African Americans (57.4% \pm 2.4) and non-Hispanic Whites (59.8% \pm 0.9). Among current daily smokers who had received advice from a health professional to quit smoking, only 6.4% (\pm 3.4) of Asian Americans/Pacific Islanders reported being prescribed NRT or an antidepressant, in contrast to 12.7% (\pm 2.6) of African Americans, 12.5% (\pm 3.6) of Hispanics/Latinos, and 15.9% (\pm 0.9) of non-Hispanic Whites.

Factors Associated With Successful Quitting

Table 2 shows results of 3 adjusted logistic regression models conducted among current smokers that examined factors associated with successful cessation. These factors included being advised to quit smoking by a health professional¹⁴⁻¹⁷ among smokers who had seen a health professional (n=14109), use of NRT^{17,21-23} (n=3847), and the presence of a complete home smoking ban¹¹⁻¹³ (n=6912). After controlling for age, gender, education, income, and smoking consumption, there were no racial/ethnic differences in the likelihood of being advised by a health professional to quit smoking. Among current smokers who had quit for at least 1 day in the past year, African Americans (odds ratio [OR]=0.57; 95% confidence interval [CI]=0.45, 0.73), Asian Americans/Pacific Islanders (OR=0.39; 95% CI=0.23, 0.66), and Hispanics/Latinos (OR=0.75; 95% CI=0.59, 0.95) were significantly less likely than were non-Hispanic Whites to use NRT. Compared with non-Hispanic Whites, the presence of a total home smoking ban among current smokers was significantly lower among African Americans (OR=0.56; 95% CI=0.48, 0.65) but significantly higher among Asian Americans/Pacific Islanders (OR=1.42; 95% CI=1.03, 1.95) and Hispanics/Latinos (OR=1.77; 95% CI=1.53, 2.06).

Results from unadjusted survival analyses (n=47 066) are presented in Table 3. Of ever smokers who had made a quit attempt of at least 1 day in the past year, only about 32% of

African Americans had stayed quit for 30 days. This finding contrasts with the approximately 50% of Asian Americans/Pacific Islanders and Hispanics/Latinos and about 42% of non-Hispanic Whites who had had a 30-day duration of staying quit. Only about 22% of African American smokers reported staying quit for 90 days, compared with about 44% for Asian Americans/Pacific Islanders and Hispanics/Latinos and about 35% of non-Hispanic Whites.

An analysis of those who had successfully quit smoking for at least 6 months (n=1413; Table 4) showed that African American smokers were only about 50% as likely to successfully quit compared with non-Hispanic Whites (OR=0.51; 95% CI=0.36, 0.72), after adjusting for age, gender, education, income, and smoking within 30 minutes of waking. Other racial/ethnic groups were not significantly different from non-Hispanic Whites in terms of quitting successfully for at least 6 months.

DISCUSSION

No population-based evidence exists to indicate that racial/ethnic minorities have greater success in quitting smoking than non-Hispanic Whites, even though they are more likely to be light and intermittent smokers. Although a smaller proportion of racial/ethnic minorities had ever smoked, a significantly smaller proportion of African Americans and Hispanics/Latinos reported long-term quitting success compared with non-Hispanic Whites. Almost 50% of African American ever smokers were current daily smokers, a significantly higher rate than that found among other racial/ethnic groups. Unadjusted survival analysis revealed that African American smokers who had made a quit attempt lasting at least 1 day in the past year had the lowest rates of quitting success at 30, 90, and 180 days among all groups examined. Indeed, in an adjusted model examining 6-month smoking cessation, we found that African Americans were only about 50% as likely to successfully quit compared with non-Hispanic Whites. Although these findings corroborate previous research by using national-level data,^{5,7,23,24} they also underscore the need for focused efforts to increase cessation rates among racial/ethnic groups, especially African Americans.

Recent research shows that a total ban on smoking in the home among smokers is an important factor in successful cessation, because such bans limit opportunities to smoke.^{11,37} The lower rates of a complete home smoking ban among African Americans may be associated with lower quit rates and should be examined in greater detail in future research. Interestingly, the presence of a complete home smoking ban was highest among Hispanics/Latinos, yet rates of quitting were not increased in this group. Because of such variation, further research is needed to illuminate the protective effects of home smoking restrictions across racial/ethnic groups, perhaps taking into account cigarette consumption levels and patterns.

Our unadjusted findings suggested that Hispanics/Latinos were less likely to receive advice from health professionals to quit smoking, but this finding became nonsignificant after controlling for sociodemographic characteristics and smoking consumption. Results from a forward stepwise regression analysis (not shown) revealed that, in order of influence, smoking consumption level, gender, age group, and finally education level were responsible for the nonsignificance of this finding. Adjusted models also indicated that racial/ethnic minorities were less likely to use NRT than were non-Hispanic Whites. These national findings add to recent regional reports for Hispanics/Latinos in Colorado¹⁸ and other racial/ethnic groups in the Midwest.^{23,24} Future research is needed to examine reasons for lower rates of NRT use among racial/ethnic minorities. For example, it may be true that NRT is less acceptable among or less available to racial/ethnic minorities, and there may be unique barriers to NRT use among racial/ethnic minorities. Such research may lead to increased NRT use among racial/ethnic minorities and may eventually result in improved cessation outcomes across groups.

Limitations

In CPS data, information regarding specific nationalities of Asian Americans/Pacific Islanders and Hispanics/Latinos is not available. Thus, we could not examine important subgroup variation with regard to smoking behaviors within each racial/ethnic group. Different Asian American/Pacific Islander and Hispanic/Latino subgroups (e.g., Chinese,

TABLE 2—Adjusted Logistic Regression Models Examining Cessation-Related Factors Among Current Smokers: Tobacco Use Supplement to the Current Population Survey, United States, 2003

	Advised to Quit Smoking, Among Those Who Had Seen a Health Professional in the Past Year (n = 14 109)		Used NRT in Last Quit Attempt, Among Those Who Had Made a Quit Attempt in the Past Year (n = 3847)		Presence of a Total Home Smoking Ban (n = 6912)	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
Age, y						
20–34 (Ref)	1.00		1.00		1.00	
35–49	1.06 (0.98, 1.16)	.17	1.59 (1.39, 1.82)	<.001	0.71 (0.65, 0.77)	<.001
50–64	1.24 (1.12, 1.38)	<.001	1.88 (1.62, 2.19)	<.001	0.59 (0.53, 0.66)	<.001
Gender						
Female (Ref)	1.00		1.00		1.00	
Male	0.81 (0.75, 0.86)	<.001	0.81 (0.72, 0.90)	<.001	1.47 (1.38, 1.57)	<.001
Education						
< High school (Ref)	1.00		1.00		1.00	
High school graduate	0.95 (0.84, 1.07)	.36	0.89 (0.72, 1.09)	.26	1.19 (1.07, 1.34)	<.01
Some college	1.02 (0.90, 1.15)	.76	1.14 (0.92, 1.42)	.23	1.39 (1.23, 1.57)	<.001
College graduate	1.11 (0.94, 1.30)	.22	1.41 (1.15, 1.73)	<.01	1.62 (1.39, 1.87)	<.001
Income less than 2 × poverty level						
No (Ref)	1.00		1.00		1.00	
Yes	1.05 (0.96, 1.14)	.27	0.77 (0.68, 0.88)	<.001	0.73 (0.67, 0.79)	<.001
Race/ethnicity						
Non-Hispanic White (Ref)	1.00		1.00		1.00	
African American	0.96 (0.84, 1.10)	.56	0.57 (0.45, 0.73)	<.001	0.56 (0.48, 0.65)	<.001
Asian American/Pacific Islander	1.14 (0.83, 1.57)	.4	0.39 (0.23, 0.66)	<.001	1.42 (1.03, 1.95)	.03
Hispanic/Latino	0.96 (0.80, 1.15)	.63	0.75 (0.59, 0.95)	.02	1.77 (1.53, 2.06)	<.001
Cigarette consumption						
< 11/d (Ref)	1.00		1.00		1.00	
11–20/d	1.25 (1.16, 1.35)	<.001	1.63 (1.44, 1.86)	<.001	0.54 (0.50, 0.59)	<.001
> 20/d	1.46 (1.30, 1.65)	<.001	2.35 (1.95, 2.82)	<.001	0.29 (0.26, 0.33)	<.001

Note. CI = confidence interval; NRT = nicotine replacement therapy; OR = odds ratio.

Cubans, Koreans, Mexicans, Samoans) can have varying smoking behavior patterns, and the aggregation of the various nationalities into a single group may have distorted the results reported here. Few respondents who did not speak English were included in the TUS-CPS,

a factor which could lead to the underestimation of smoking rates and the overestimation of quit rates for such groups. Furthermore, despite a high household survey response rate, smoking rates may be underestimated, given that respondents could choose to complete the

TUS-CPS by telephone. It should also be noted that in the TUS-CPS smoking status was ascertained by self-report and was not validated with biochemical tests; but misclassification of smoking status by using self-reports only is unlikely.^{38,39}

TABLE 3—Duration of Quit Attempts and Proportion Still Quit Among Ever Smokers Who Had Made a Quit Attempt in the Past Year, Adults Aged 20–64 Years: Tobacco Use Supplement to the Current Population Survey, United States, 2003

Length of quit, d	Proportion Still Quit			
	African American (n = 3860)	Asian American/Pacific Islander (n = 1237)	Hispanic/Latino (n = 3358)	Non-Hispanic White (n = 38 611)
7	0.53	0.69	0.63	0.57
30	0.32	0.50	0.51	0.42
90	0.22	0.44	0.44	0.35
180	0.20	0.41	0.38	0.33

TABLE 4—Adjusted Logistic Regression Examining 6-Month Smoking Cessation (n = 1413): Tobacco Use Supplement to the Current Population Survey, United States, 2003

	OR (95% CI)	P
Age, y		
20–34 (Ref)	1.00	
35–49	0.68 (0.59, 0.79)	<.001
50–64	0.84 (0.72, 0.97)	.02
Gender		
Female (Ref)	1.00	
Male	0.95 (0.82, 1.09)	.45
Education		
< High school (Ref)	1.00	
High school graduate	0.99 (0.79, 1.25)	.95
Some college	1.13 (0.89, 1.43)	.31
College graduate	1.72 (1.39, 2.12)	<.001
Income less than 2 × poverty level		
No (Ref)	1.00	
Yes	0.81 (0.69, 0.95)	.01
Race/ethnicity		
Non-Hispanic White (Ref)	1.00	
African American	0.51 (0.36, 0.72)	<.001
Asian/Pacific Islander	1.05 (0.66, 1.69)	.82
Hispanic/Latino	1.22 (0.92, 1.61)	.16
Smoke within 30 minutes of waking		
No (Ref)	1.00	
Yes	1.11 (0.94, 1.31)	.22

Note. CI = confidence interval; OR = odds ratio.

Conclusions

The differences across racial/ethnic groups in smoking behaviors, smoking cessation, and factors associated with successful cessation highlight significant challenges in addressing smoking and smoking cessation for various groups. Thus, tailored approaches to increase cessation for various racial/ethnic groups may be optimal. For example, cessation programs geared for long-term assistance and implementation (e.g., at least 6 months duration) may be beneficial for African American smokers, whereas promoting the use of NRT may improve cessation outcomes among Asian Americans/Pacific Islanders. Focusing efforts on better understanding the cessation needs of light and intermittent smokers may benefit all racial/ethnic minority groups.

Interventions to increase smoking cessation, along with conceptualizations of cigarette addiction and the quitting process, have been

generally based on non-Hispanic White populations, who have markedly different smoking patterns from those observed in racial/ethnic minority groups.^{40–42} In this study, smaller proportions of Asian Americans/Pacific Islanders and Hispanics/Latinos reported smoking within 30 minutes of waking compared with non-Hispanic Whites. Furthermore, smaller percentages of racial/ethnic minority current daily smokers reported quitting for at least a day in the past year, with African Americans experiencing significantly less long-term quitting success. Along with higher rates of light and intermittent smoking among racial/ethnic minority groups, these findings suggest that the pathology of cigarette addiction and the quitting process may be different for racial/ethnic minority smokers than has been traditionally conceptualized. Thus, models of smoking cessation may need to be adapted for various racial/ethnic minority groups. Such efforts may lead to a reduction in the

disproportionate burden of smoking-related diseases borne by racial/ethnic minority groups. ■

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Contributors

D.R. Trinidad led the conceptualization of the study and the writing of the article. E.J. Pérez-Stable assisted with study conceptualization, data analyses, and writing. M.M. White conducted the analyses and assisted with writing. S.L. Emery assisted with writing. K. Messer assisted with study conceptualization, supervised the analyses, guided performance of statistical procedures, and assisted with writing. All authors participated in data interpretation.

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