

Tobacco Use Among U.S. Racial/Ethnic Minority Groups

Oklahoma		Pacific Northwest [†]		Southwest [†]		Other [†]		Total	
%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
83.4	6.2	83.0	4.6	92.3	3.7	81.1	3.6	83.3	2.1
9.7	4.6	10.8	3.8	4.5	2.3	11.5	3.1	10.4	1.7
6.9	4.3	6.2	3.0	3.2	3.1	7.4	2.2	6.4	1.3
83.3	9.1	80.2	7.1	87.3	7.3	74.7	5.9	79.3	3.4
8.2	6.7	12.0	5.4	7.2	4.2	14.1	5.0	11.6	2.7
8.5	6.5	7.8	5.0	5.6	6.4	11.1	4.0	9.1	2.3
83.5	8.4	85.3	6.2	96.4	2.7	87.5	3.9	87.1	2.4
10.9	6.2	9.8	5.3	2.3	2.3	8.8	3.6	9.2	2.1
5.6	5.9	4.9	3.6	1.2	1.4	3.6	1.8	3.7	1.3
84.0	10.0	83.5	7.2	98.1	2.1	83.5	5.6	85.9	2.9
9.2	7.1	9.2	5.5	1.8	2.1	11.9	5.2	9.3	2.5
6.8	7.7	7.4	5.2	0.1	0.2	4.6	2.6	4.8	1.8
74.6	11.9	81.1	7.1	84.8	8.7	74.0	6.6	76.8	3.9
16.0	10.9	12.8	6.2	7.0	4.4	13.3	5.0	13.7	3.3
9.3	6.7	6.1	4.1	8.2	8.2	12.7	5.0	9.4	2.6
90.2	8.4	86.0	11.1	87.8	11.4	87.1	6.1	87.2	4.1
4.9	5.5	10.9	9.9	9.9	11.2	7.6	4.6	7.5	3.1
4.8	6.8	3.1	5.6	2.3	2.7	5.3	4.3	5.3	2.8
86.0	12.5	69.7	14.5	80.3	10.9	75.1	8.6	78.6	4.9
9.2	10.8	22.0	13.3	16.4	10.6	11.3	6.7	11.2	3.6
4.8	7.3	8.3	8.2	3.3	4.0	13.6	6.6	10.2	3.8
82.2	7.0	84.7	5.1	92.0	5.4	80.3	4.5	82.1	2.7
10.5	5.6	9.5	4.1	3.6	2.5	12.9	4.0	11.9	2.4
7.3	4.7	5.8	3.3	4.5	5.0	6.7	2.7	6.0	1.5

[†]95% confidence interval.

[§]Includes persons aged 25 years and older.

Source: Centers for Disease Control, public use data tapes, 1988–1992.

Table 19. Percentage of adult American Indian and Alaska Native smokers who reported they quit smoking,* overall and by region/state, gender, age, and education, Behavioral Risk Factor Surveillance System, 1988–1992 aggregate data

Characteristic	Alaska		California		Northern Plains [†]		Northern Woodlands [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI
Total	37.0	6.6	44.8	11.9	31.8	8.3	44.3	6.3
Gender								
Men	37.1	9.3	44.8	16.2	32.8	11.4	49.5	9.8
Women	36.9	9.3	44.8	16.9	30.3	11.7	40.0	8.2
Age (years)								
18–34	31.2	10.0	29.8	15.8	15.9	9.4	41.8	9.3
35–54	43.8	9.8	49.2	17.3	32.2	13.4	35.5	9.7
≥55	42.2	16.1	61.0	28.9	58.2	19.7	62.2	12.6
Education[§]								
Less than high school	38.5	12.6	53.6	22.7	35.1	15.8	48.3	13.0
High school/any college	38.1	7.7	41.8	14.2	37.5	11.6	46.2	7.5

*The prevalence of cessation is the percentage of ever smokers who are former smokers. Former smokers are persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they were not smoking.

[†]The Northern Plains region includes Montana, Nebraska, North Dakota, and South Dakota; the Northern Woodlands region includes Iowa, Michigan, Minnesota, and Wisconsin; the Pacific Northwest region includes Idaho, Oregon, and Washington; the Southwest region includes Arizona, Colorado, New Mexico, and Utah; and "other" includes all remaining states not specified above that participated in the Behavioral Risk Factor Surveillance System during this period.

Great Falls, 63 percent of men and 62 percent of women reported that they smoked. In both areas, rates of smoking were higher among persons aged 25 years and older than among their younger counterparts. For American Indians in Great Falls, those who had a high school education and did not go to college had lower rates of smoking than those with less than a high school education or those with some college education. Gender differences in smoking cessation were also observed. Among American Indians in Great Falls, 16 percent of men and 19 percent of women had quit smoking; among the Blackfeet American Indians, 34 percent of men and 22 percent of women had quit smoking (Goldberg et al. 1991).

In a 1990 study of members of the Oneida Indian Nation of New York, 71.6 percent of the men and 64.6 percent of the women reported having ever smoked cigarettes (CDC 1990). The prevalence of ever smoking cigarettes was lower among men (65.3 percent) and

women (58.2 percent) with 12 or more years of education than among men (81.3 percent) and women (74.5 percent) with less than 12 years of education. Rates of current smoking among the Oneida Indian Nation followed similar patterns in terms of educational status: men (34.7 percent) and women (29.1 percent) with 12 or more years of education had a lower prevalence of cigarette smoking than men (59.4 percent) and women (56.9 percent) with less than 12 years of formal education. Overall, a greater proportion of men (44.4 percent) than women (40.0 percent) smoked. The prevalence of cessation, on the other hand, was fairly similar for men (37.9 percent) and women (38.1 percent).

Similar findings were observed in a survey of people on the Warm Springs Reservation (Warm Springs Confederated Tribes 1993) and in the Western Washington Native American Behavior Risk Factor Survey of the Chehalis, Hoh, Quinault, and Shoalwater

Oklahoma		Pacific Northwest [†]		Southwest [†]		Other [†]		Total	
%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
40.7	10.2	46.8	8.0	51.2	10.3	39.8	7.0	41.5	4.0
33.1	15.1	44.8	11.8	51.8	15.0	35.4	9.4	39.2	5.5
47.1	13.8	48.5	11.1	50.3	13.8	46.1	10.5	44.4	5.6
27.8	16.1	38.7	12.3	52.7	15.9	28.5	10.0	30.6	5.4
36.9	18.0	52.7	11.7	54.1	16.7	42.2	11.9	44.0	6.6
61.0	16.7	57.4	20.6	38.0	21.2	58.7	12.2	58.2	8.3
45.0	23.5	40.4	18.1	40.9	19.5	39.7	15.3	42.6	8.3
43.5	11.7	47.8	9.5	53.2	13.6	41.4	8.1	42.7	4.8

[†]95% confidence interval.

[‡]Includes persons aged 25 years and older.

Source: Centers for Disease Control, public use data tapes, 1988–1992.

Tribes (Kimball et al. 1990). In a survey of 1,318 adult American Indian and Alaska Native users of Indian clinics in northern California, 40 percent of the respondents reported smoking cigarettes (47 percent of the men and 37 percent of the women) (Hodge et al. 1995).

Aggregated data from the BRFSS indicate that among American Indian and Alaska Native women of reproductive age, smoking rates were highest among women in Alaska (43.9 percent), the Northern Plains (39.5 percent), and the Northern Woodlands (38.8 percent) and lowest among women in the Southwest (11.5 percent) and California (15.3 percent) (Table 20) (CDC, public use data tapes, 1988–1992).

Smokeless Tobacco Use

The use of smokeless tobacco (chewing tobacco and snuff) among American Indians and Alaska Natives also has varied by state and region. According

to the BRFSS data for 1988–1992, the prevalences among men were 24.6 percent in the Northern Plains, 16.8 percent in the Northern Woodlands, 14.3 percent in Oklahoma, 11.6 percent in Alaska, 6.5 percent in the Southwest, and 1.8 percent in the Pacific Northwest (CDC, public use data tapes, 1988–1992). In the Oneida Indian Nation survey, none of the women reported using smokeless tobacco, whereas 17.3 percent of the men reported using it (CDC 1990).

More recently, investigators have reported extremely high rates of smokeless tobacco use among Lumbee women in North Carolina (CDC 1995). In 1991, the prevalence of smokeless tobacco use was greatest among Lumbee women 65 years of age and older (51 percent) and lowest among those 25–34 years of age (6 percent). The prevalence was also high among women with less than 12 years of education (42 percent).

Table 20. Percentage of American Indian and Alaska Native women of reproductive age who reported being current cigarette smokers,* overall and by region/state, Behavioral Risk Factor Surveillance System, 1988–1992 aggregate data

Alaska		California		Northern Plains [†]		Northern Woodlands [†]			
%	±CI [‡]	%	±CI	%	±CI	%	±CI		
43.9	9.3	15.3	9.1	39.5	12.3	38.8	7.1		
								Total	
								%	±CI
								24.9	3.9
Oklahoma		Pacific Northwest [†]		Southwest [†]		Other [†]			
%	±CI	%	±CI	%	±CI	%	±CI		
30.4	12.5	32.6	9.7	11.5	5.4	26.7	7.1		

*Current cigarette smokers are women aged 18–44 years who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked.

[†]The Northern Plains region includes Montana, Nebraska, North Dakota, and South Dakota; the Northern Woodlands region includes Iowa, Michigan, Minnesota, and Wisconsin; the Pacific Northwest region includes Idaho, Oregon, and Washington; the Southwest region includes Arizona, Colorado, New Mexico, and Utah; and “other” includes all remaining states not specified above that participated in the Behavioral Risk Factor Surveillance System during this period.

[‡]95% confidence interval.

Source: Centers for Disease Control, public use data tapes, 1988–1992.

Asian Americans and Pacific Islanders

Data needed to assess long-term trends in cigarette smoking among Asian Americans and Pacific Islanders have been unavailable because U.S. surveys, census data, and other national databases have not always included detailed descriptions of race/ethnicity. Although data from specific Asian American and Pacific Islander groups and state surveys have provided information about cigarette smoking for certain racial/ethnic subgroups, these data have been limited in quantity and quality. The NHIS first included information about Asian Americans and Pacific Islanders in the 1978 survey. However, because the proportion of Asian Americans and Pacific Islanders in the United States is small, data from several years must be aggregated to increase the precision of estimates. Because of small sample sizes and aggregation of data, racial/ethnic subgroup differences in smoking behavior are masked. These differences are important because the category *Asian American and Pacific Islander* is heterogeneous in both culture and health behaviors. For example, this category includes about 32 different national and racial/ethnic subgroups (Austin et al. 1989; Hawks 1989) and nearly 500 languages and dialects (Chen 1993), and smoking patterns among these subgroups vary.

Prevalence of Cigarette Smoking

Between 1978 and 1995, the prevalence of smoking declined among Asian Americans and Pacific Islanders, according to NHIS data (Table 21) (NCHS, public use data tapes, 1978–1995). However, patterns between men and women differed. The cigarette smoking prevalence among Asian American and Pacific Islander men declined slightly, from 32.5 to 25.1 percent, whereas the prevalence of smoking among Asian American and Pacific Islander women declined approximately 60 percent, from 14.7 to 5.8 percent. Throughout this period, the prevalence of smoking among men remained more than twice that among women; in 1994–1995, men were 4.3 times more likely than women to report current smoking.

Number of Cigarettes Smoked Daily

From 1978 through 1995, the percentage of Asian American and Pacific Islander smokers who smoked fewer than 15 cigarettes per day increased significantly, according to the NHIS data (Table 22) (NCHS, public use data tapes, 1978–1995). Although large declines from 1978–1980 to 1992–1993 were observed in the prevalence

Table 21. Percentage of adult Asian Americans and Pacific Islanders who reported being current cigarette smokers,* overall and by gender, age, and education, National Health Interview Surveys, United States, 1978–1995 aggregate data

Characteristic	1978–1980 [†]		1983–1985 [†]		1987–1988 [†]		1990–1991 [†]		1992–1993 [†]		1994–1995 [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Total	23.8	4.0	21.4	3.4	15.8	2.4	16.1	2.5	16.7	2.7	15.3	3.0
Gender												
Men	32.5	4.5	33.0	6.2	22.5	3.8	24.5	4.0	26.8	4.7	25.1	5.2
Women	14.7	6.6	9.6	3.5	9.2	2.8	6.6	2.0	6.8	2.7	5.8	2.3
Age (years)												
18–34	22.5	5.8	21.6	4.6	16.3	3.5	15.5	3.2	15.7	4.2	17.6	5.3
35–54	28.7	8.5	20.8	4.8	16.1	3.6	17.1	4.6	21.0	4.7	15.5	4.3
≥55	17.4	4.7	22.0	8.6	12.7	5.9	15.7	5.4	8.3	5.4	9.2	5.1
Education[§]												
Less than high school	23.1	8.9	23.8	10.2	17.9	6.5	24.9	7.4	13.4	6.2	13.3	7.9
High school/any college	23.7	3.9	22.6	4.5	16.7	2.8	15.6	2.9	17.6	3.5	14.4	3.2

*Excludes Asian Americans and Pacific Islanders who indicated they were of Hispanic origin. For 1978–1991, current cigarette smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. For 1992–1995, current smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked every day or on some days.

[†]1978, 1979, and 1980 data were combined; 1983 and 1985 data were combined; 1987 and 1988 data were combined; 1990 and 1991 data were combined; 1992 and 1993 data were combined; and 1994 and 1995 data were combined.

[‡]95% confidence interval.

[§]Includes persons aged 25 years and older.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

of smoking 25 or more cigarettes per day, recent estimates are imprecise and should be interpreted with caution.

Quitting Behavior

Between 1978 and 1995, the percentage of Asian Americans and Pacific Islanders who have ever smoked 100 cigarettes and have quit smoking increased somewhat, NHIS data indicate (Table 23) (NCHS, public use data tapes, 1978–1995). The prevalence of cessation among women increased from 1987–1988 to 1994–1995, but no consistent pattern was observed among men. During each survey period, the prevalence of cessation was higher among Asian Americans and Pacific Islanders 55 years of age and older than it was among their younger counterparts (Table 23).

Data from the NCI Supplement of the 1992–1993 CPS indicate that among Asian Americans and Pacific

Islanders aged 18 years and older who were daily smokers one year before the survey, 57.8 percent reported that they were still smoking daily and that they had not tried quitting for at least one day during the previous year (Table 4). Another 32.0 percent had tried quitting for at least one day, 4.8 percent were occasional smokers (i.e., smoked only on some days), 2.5 percent had not smoked for the past 1–90 days, and 2.9 percent had not smoked for the past 91–364 days. Among current smokers, Asian Americans and Pacific Islanders were slightly more likely than whites to report trying to quit for at least a day during the previous year.

Women of Reproductive Age

The prevalence of current smoking among Asian American and Pacific Islander women of reproductive age (18–44 years) has decreased substantially over

Table 22. Percentage of adult Asian American and Pacific Islander smokers* who reported smoking <15, 15–24, or ≥25 cigarettes per day, overall and by gender, age, and education, National Health Interview Surveys, United States, 1978–1995 aggregate data

Characteristic	1978–1980 [†]		1983–1985 [†]		1987–1988 [†]		1990–1991 [†]		1992–1993 [†]		1994–1995 [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Total												
<15 cigarettes	43.3	11.7	53.7	8.1	55.6	7.8	60.4	8.1	61.8	9.4	70.6	9.8
15–24 cigarettes	37.0	9.7	35.3	8.5	37.4	7.4	33.8	7.6	37.1	9.4	21.4	8.2
≥25 cigarettes	19.7	6.5	11.0	6.5	7.0	3.3	5.8	3.9	1.0	1.3	8.0	6.5
Gender												
Men												
<15 cigarettes	40.1	14.6	54.4	9.4	51.8	9.6	59.2	9.2	58.4	11.2	69.1	11.5
15–24 cigarettes	35.8	11.1	36.2	9.3	41.2	9.2	35.4	8.6	40.9	11.2	23.6	10.0
≥25 cigarettes	24.1	8.2	9.4	6.6	7.0	4.2	5.5	4.4	0.7	1.4	7.3	7.4
Women												
<15 cigarettes	50.4	13.7	51.1	14.9	64.4	11.3	65.8	16.8	75.4	11.6	77.3	13.9
15–24 cigarettes	39.6	12.8	32.0	15.2	28.5	9.8	26.8	16.5	22.2	11.5	11.5	11.0
≥25 cigarettes	10.0	7.7	16.8	10.1	7.1	5.1	7.4	8.3	2.3	3.3	11.2	11.1
Age (years)												
18–34												
<15 cigarettes	42.2	12.2	48.2	10.4	59.0	11.0	60.3	10.7	61.3	13.7	73.2	13.6
15–24 cigarettes	37.3	11.5	40.5	11.5	35.1	10.5	35.2	10.5	38.2	13.7	24.3	13.2
≥25 cigarettes	20.5	8.2	11.3	8.3	5.9	4.4	4.5	3.8	0.6	1.1	2.5	3.9
35–54												
<15 cigarettes	45.0	17.1	54.9	13.5	54.5	10.9	62.9	13.5	63.6	13.0	65.0	15.2
15–24 cigarettes	35.5	15.0	32.2	13.1	40.4	11.0	26.9	10.5	34.9	12.9	22.3	11.8
≥25 cigarettes	19.5	9.0	12.9	8.1	5.1	4.6	10.1	9.2	1.6	2.3	12.8	14.0
≥55												
<15 cigarettes	41.3	18.5	67.9	20.3	41.5	23.2	55.8	18.5	52.7	39.1	78.0	23.9
15–24 cigarettes	40.9	13.1	26.4	18.4	39.4	25.0	43.3	18.5	47.3	39.1	4.7	9.3
≥25 cigarettes	17.9	14.4	5.7	8.2	19.1	16.5	0.9	1.8	0.0	0.0	17.3	23.4
Education[§]												
Less than high school												
<15 cigarettes	59.6	21.3	66.0	15.2	48.7	19.6	72.9	13.9	80.2	17.3	73.8	32.2
15–24 cigarettes	28.6	18.0	23.3	14.2	42.4	19.8	22.2	13.3	19.8	17.3	6.2	9.5
≥25 cigarettes	11.8	13.2	10.7	9.8	8.9	9.5	4.8	6.0	0.0	0.0	20.0	32.8
High school/any college												
<15 cigarettes	40.4	12.4	47.6	9.6	53.0	8.4	58.1	9.8	62.2	11.4	64.8	12.0
15–24 cigarettes	39.4	11.8	39.3	10.2	39.4	8.2	34.7	9.3	36.7	11.4	26.5	10.7
≥25 cigarettes	20.2	7.4	13.0	8.1	7.6	4.2	7.2	5.5	1.1	1.6	8.7	7.5

*Excludes Asian Americans and Pacific Islanders who indicated they were of Hispanic origin. For 1978–1991, current cigarette smokers included persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. For 1992–1995, current smokers included persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked every day or on some days.

[†]1978, 1979, and 1980 data were combined; 1983 and 1985 data were combined; 1987 and 1988 data were combined; 1990 and 1991 data were combined; 1992 and 1993 data were combined; and 1994 and 1995 data were combined.

[‡]95% confidence interval.

[§]Includes persons aged 25 years and older.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

Table 23. Percentage of adult Asian American and Pacific Islander ever smokers who have quit,* overall and by gender, age, and education, National Health Interview Surveys, United States, 1978–1995 aggregate data

Characteristic	1978–1980 [†]		1983–1985 [†]		1987–1988 [†]		1990–1991 [†]		1992–1993 [†]		1994–1995 [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Total	39.9	6.5	38.4	6.5	41.2	5.7	49.0	5.3	45.5	6.5	48.3	7.2
Gender												
Men	41.2	6.1	34.2	7.8	42.7	6.9	47.2	6.4	42.2	7.4	43.3	8.7
Women	36.9	14.0	49.6	10.2	37.2	9.6	55.4	10.1	55.0	13.9	62.2	12.8
Age (years)												
18–34	34.5	9.4	25.8	7.5	31.3	7.7	34.1	7.6	30.7	9.6	28.5	10.9
35–54	35.7	13.5	45.5	8.8	46.3	8.0	55.3	9.5	44.1	9.2	55.5	10.1
≥55	59.4	10.6	48.9	16.5	58.1	14.9	60.5	11.0	76.9	13.2	70.2	14.9
Education[§]												
Less than high school	37.0	18.7	46.1	17.1	30.1	15.3	37.7	13.3	50.4	18.1	50.3	21.9
High school/any college	45.2	7.2	39.2	7.3	46.7	6.4	54.8	6.5	48.2	7.3	53.7	8.2

*Excludes Asian Americans and Pacific Islanders who indicated they were of Hispanic origin. The prevalence of cessation is the percentage of ever smokers who are former smokers. Former smokers are persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they were not smoking, and ever smokers include current and former smokers.

[†]1978, 1979, and 1980 data were combined; 1983 and 1985 data were combined; 1987 and 1988 data were combined; 1990 and 1991 data were combined; 1992 and 1993 data were combined; and 1994 and 1995 data were combined.

[‡]95% confidence interval.

[§]Includes persons aged 25 years and older.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

time, from 16.0 percent in 1978–1980 to 5.7 percent in 1994–1995, NHIS data indicate (Table 24) (NCHS, public use data tapes, 1978–1995). Overall, the greatest change occurred between 1978 and 1985, when the prevalence of current smoking declined by approximately 50 percent. Since 1985, declines in smoking prevalence have slowed.

Recent birth certificate data from U.S. final natality statistics indicate that 3.4 percent of Asian American and Pacific Islander mothers smoked during pregnancy (Table 6). Smoking rates for pregnant Asian American and Pacific Islander women are generally low—between 0.8 and 5.2 percent for Chinese, Japanese, Filipino, and “other” Asian Americans or Pacific Islanders. Hawaiian mothers, however, have a relatively high smoking rate (15.9 percent). Ventura and colleagues (1995) reported that 3 percent of foreign-born Asian American and Pacific Islander mothers were reported as smokers, compared with 13 percent of their United States-born counterparts. Data

on tobacco use among these mothers (except Hawaiians) may be skewed because California and New York do not report this information, and together these states account for nearly half of births in each Asian American and Pacific Islander subgroup (Ventura et al. 1996).

Young People

Cigarette Smoking

Data from MTF surveys—one of the few studies with data on smoking prevalence among Asian American and Pacific Islander youths—show that these youths have a lower prevalence of smoking than their counterparts in all other racial/ethnic groups except African Americans (Table 7). According to the 1990–1994 MTF data on male high school seniors, the prevalence of smoking was 11.6 percent among African Americans, 20.6 percent among Asian Americans and Pacific Islanders, 28.5 percent among Hispanics, 33.4 percent among whites, and 41.1 percent among

Table 24. Percentage of adult Asian American and Pacific Islander women of reproductive age who reported being current cigarette smokers,* overall and by education, National Health Interview Surveys, United States, 1978–1995 aggregate data

Characteristic	1978–1980 [†]		1983–1985 [†]		1987–1988 [†]		1990–1991 [†]		1992–1993 [†]		1994–1995 [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Total	16.0	6.7	8.2	3.3	8.8	2.7	6.0	2.4	6.6	2.8	5.7	3.0
Education[§]												
Less than high school	15.0	26.4	7.0	7.3	9.8	8.0	14.1	9.1	3.5	4.0	2.3	4.6
High school/any college	15.4	6.9	8.6	3.4	9.6	3.4	6.1	3.1	5.7	3.1	5.8	3.5

*Excludes Asian Americans and Pacific Islanders who indicated they were of Hispanic origin. For 1978–1991, current cigarette smokers include women aged 18–44 years who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. For 1992–1995, current smokers include women aged 18–44 years who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked every day or on some days.

[†]1978, 1979, and 1980 data were combined; 1983 and 1985 data were combined; 1987 and 1988 data were combined; 1990 and 1991 data were combined; 1992 and 1993 data were combined; and 1994 and 1995 data were combined.

[‡]95% confidence interval.

[§]Includes persons aged 25 years and older.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

American Indians and Alaska Natives. Data on female high school seniors show that the prevalence of smoking was 8.6 percent among African Americans, 13.8 percent among Asian Americans and Pacific Islanders, 19.2 percent among Hispanics, 33.1 percent among whites, and 39.4 percent among American Indians and Alaska Natives. As reported by Bachman and colleagues (1991a), during 1985–1989, patterns of daily smoking were similar, with prevalence estimates being lowest among African Americans and Asian Americans and Pacific Islanders. Among Asian American and Pacific Islander high school seniors, 4.4 percent of males and 4.5 percent of females reported smoking one-half pack or more per day.

In 1993, Wiecha (1996) surveyed public school students from two middle schools and two high schools in Worcester, Massachusetts. The self-administered questionnaire used items from CDC's YRBS; every question was written in English, Vietnamese, and Spanish. Vietnamese males were as likely to report cigarette smoking (27.9 percent) as were white males (28.3 percent). The prevalence of cigarette smoking among Vietnamese females (3.7 percent) was lower than among African American (15.1 percent), Hispanic (29.7 percent), and white (30.6 percent) females. Length of time in the United States was re-

lated to smoking prevalence for males aged 17 years and older: cigarette smoking prevalence was 7.7 percent among those who had been in the United States for at least six years and 45.2 percent for those who had been in the United States for less than six years.

Smokeless Tobacco Use

Wiecha (1996) also queried Worcester students about their use of smokeless tobacco products. The prevalence of previous-month use among males was 12.0 percent for Vietnamese, 10.3 percent for African Americans, 10.8 percent for Hispanics, and 20.5 percent for whites. Previous-month use among females was 3.6 percent for Vietnamese, 3.2 percent for African Americans, 1.9 percent for Hispanics, and 2.7 percent for whites. Small sample sizes limit the precision of some of these estimates.

State and Local Smoking Estimates

Among the diverse subgroups of Asian Americans and Pacific Islanders, wide variations in lifestyles, health behaviors, and health practices are evident. State and local survey data illustrate the distinct variations in cigarette smoking patterns and behaviors among these ethnic subgroups (Klatsky and

Armstrong 1991; CDC 1992c; Blaisdell 1993; McPhee et al. 1993; McPhee et al. 1995; Wewers et al. 1995; Jenkins et al. 1997b). Although prevalence estimates from national surveys indicate that the smoking prevalence among Asian Americans and Pacific Islanders is lower than the prevalence of smoking in all other racial/ethnic groups and in the overall U.S. population, state and local surveys show that these estimates vary dramatically between racial/ethnic subgroups of Asian Americans and Pacific Islanders. Racial/ethnic subgroup-specific information on smoking behaviors is needed because broad groupings of these many distinct racial/ethnic groups mask important differences.

To characterize smoking and other risk behaviors more fully for program planning efforts at the local level, the California State Department of Health Services and two California agencies—Asian Health Services and the University of California, San Francisco, *Vietnamese Health Promotion Project*—adapted versions of the CDC's Behavioral Risk Factor Surveys for use with Chinese and Vietnamese residents. The questionnaires were modified for cultural appropriateness and translated into Chinese or Vietnamese. The Chinese-language survey included face-to-face interviews with 296 Chinese adults in Oakland, California, between June 1989 and February 1990. In the Vietnamese-language survey, telephone interviews were conducted with 1,011 Vietnamese adults during February and March 1991 (CDC 1992b). Among both Chinese and Vietnamese respondents, men were more likely than women to be current smokers. The highest smoking prevalence was among men aged 25–44 years, and the prevalence of smoking was lower among men with higher levels of education (Table 25) (CDC 1992b). The mean number of cigarettes smoked per day by smokers was 15.9 among Chinese men, 11.0 among Vietnamese women, and 10.1 among Vietnamese men. This number declined with older age and increasing levels of education and income. (Data on Chinese women are unavailable because the number of Chinese women who smoked was too small for analysis.)

These surveys also measured acculturation by using several proxy variables, including the percentage of lifetime spent in the United States, fluency in English, and date of immigration. Among Chinese men, the average number of cigarettes smoked per day increased as the percentage of their lifetime spent in the United States increased (Table 25). Among Vietnamese respondents, the prevalence of smoking was higher among men who immigrated in 1981 or later and who were not fluent in English.

In a more recent statewide telephone survey of 32,125 California households, Burns and Pierce (1992) found that overall, the prevalence of smoking was lower among Asian Americans and Pacific Islanders than among whites, African Americans, and Hispanics. This trend was evident among both men and women. Because the survey was conducted only in English or Spanish, Asian Americans and Pacific Islanders with limited English fluency were unable to participate. This exclusion of recent immigrants and those with the lowest levels of acculturation may have produced a biased estimate of the prevalence of cigarette smoking among California's Asian Americans and Pacific Islanders. In assessing the smoking prevalence for several racial/ethnic subgroups, Burns and Pierce (1992) found that Chinese reported the lowest prevalence of smoking (11.7 percent), whereas Koreans reported the highest prevalence (23.5 percent) (Table 26). Men in all racial/ethnic subgroups were substantially more likely than women to smoke cigarettes. For men, the prevalence of smoking was highest among Koreans (35.8 percent) and lowest among Chinese (19.1 percent). The prevalence of smoking was highest among men aged 25–44 years. Smoking prevalence declined substantially with increasing education across all racial/ethnic subgroups of men except Japanese men. For women, the prevalence of smoking was highest among Japanese (14.9 percent) and Koreans (13.6 percent) and lowest among Chinese (4.7 percent). Smoking prevalence declined with increasing level of education across all racial/ethnic subgroups of women except Chinese.

In a 1978–1985 survey of 13,031 persons of Asian ancestry enrolled in the Oakland, California, Kaiser Permanente Medical Care Program, the prevalence of cigarette smoking varied significantly by Asian subgroup for both men and women (Klatsky and Armstrong 1991). Among men, the prevalence of cigarette smoking was highest among Filipinos (32.9 percent) and lowest among Chinese (16.2 percent) (Table 27). Among women, the prevalence of smoking was highest among Japanese (18.6 percent) and lowest among Chinese (7.3 percent). Japanese men and women were more likely to smoke one or more packs of cigarettes per day than were their counterparts in other racial/ethnic groups.

During 1989, newly arrived Southeast Asian immigrants were surveyed by the Health Department in King County, Washington, regarding health problems and health risk behaviors (CDC 1992c). Investigators analyzed medical interview records for 274 Vietnamese, 147 Laotian, and 112 Cambodian immigrants and found that the smoking prevalence was substantially

Table 25. Percentage of Chinese and Vietnamese men who reported they smoke* and the number of cigarettes they smoke per day, by age, education, annual household income, and level of acculturation, Behavioral Risk Factor Surveillance System, California, 1990 and 1991 aggregate data

Characteristic	Chinese				Vietnamese			
	%	±CI [†]	Mean no. cigarettes	±CI	%	±CI	Mean no. cigarettes	±CI
Age (years)								
1–24	†	†	†	†	12.3	8.5	10.0	6.5
25–44	38.5	15.3	12.6	9.1	42.4	5.3	10.3	1.3
45–64	28.1	15.6	22.6	12.4	27.4	7.5	9.9	1.7
≥65	24.4	12.6	15.4	7.5	23.3	15.2	7.3	3.0
Education								
Eighth grade or less	30.2	12.4	15.7	5.5	36.6	11.2	11.9	2.9
Some high school	45.5	20.9	11.2	4.5	39.6	8.3	10.6	1.7
High school graduate	28.6	19.4	28.0	28.4	40.4	12.8	8.8	2.4
Some college	0.0	†	0.0	†	32.9	7.3	9.9	2.1
College or more	20.0	17.5	10.0	†	26.8	7.7	9.1	2.7
Annual household income								
<\$10,000	25.5	12.0	9.5	3.9	38.7	11.1	10.3	2.1
\$10,000–\$24,999	32.1	12.6	14.7	2.7	29.9	7.2	10.1	2.0
\$25,000–\$50,000	20.0	22.4	55.0	†	36.9	7.8	10.1	1.9
>\$50,000	†	†	†	†	29.5	10.1	8.3	3.3
Acculturation								
<25% of lifetime in United States	29.8	9.8	13.0	3.7	NA	NA	NA	NA
≥25% of lifetime in United States	26.2	13.3	22.3	15.9	NA	NA	NA	NA
Fluent in English [§]	†	†	†	†	29.7	7.6	10.7	2.6
Not fluent in English [§]	31.8	8.8	13.3	3.1	36.6	4.6	10.0	1.1
Immigration before 1981	NA	NA	NA	NA	32.2	5.3	10.5	1.5
Immigration in 1981 or later	NA	NA	NA	NA	37.7	6.0	9.8	1.5

*Current cigarette smokers are men who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. Because the number of current smokers who were women was too small for analysis, data for age, education, annual income, and acculturation are provided for men only.

[†]95% confidence interval.

[‡]Numbers too small for analysis.

[§]Self-report of ability to speak English well or fluently.

NA = data not available.

Source: Centers for Disease Control 1992b.

higher among men (42.5 percent) than among women (5.7 percent) (Table 27). Southeast Asian men were 1.6 times as likely to smoke as were other men in Washington, whereas Southeast Asian women were one-fourth as likely to smoke as were other women in the state (CDC 1992c).

In a recent review of Hawaii's health surveillance data for 1975–1980, Blaisdell (1993) found that the smoking prevalence was higher among Native Hawaiians than among persons in other racial/ethnic groups;

61.1 percent of pure Native Hawaiian men and 56.3 percent of part Native Hawaiian men were current smokers (Table 27). According to the 1985 BRFSS data, 42 percent of Native Hawaiian men and 34 percent of Native Hawaiian women were current smokers. Data from the 1989 BRFSS in Hawaii indicate that the prevalence was 28.2 percent among Native Hawaiians (Table 27), which was higher than that among Filipinos, Japanese, and whites (Blaisdell 1993).

Table 26. Percentage of adult Asian Americans and Pacific Islanders who reported being current smokers,* overall and by gender, age, and education, Screener Survey, California, 1990 and 1991 aggregate data[†]

Characteristic	Chinese (%)	Filipinos (%)	Japanese (%)	Koreans (%)	All Asians (%)
Total	11.7	15.9	17.4	23.5	15.9
Age (years)					
18–24	9.7	12.2	19.7	26.9	14.6
25–44	12.4	21.0	20.3	26.1	18.1
45–64	11.4	14.4	16.8	16.2	15.3
≥65	11.4	6.6	9.9	23.2	8.9
Education					
Less than high school	17.6	19.2	23.4	38.1	21.4
High school	16.7	20.3	21.5	21.3	19.4
Some college	11.2	15.2	16.2	25.3	15.2
College	6.6	11.2	12.3	19.1	10.5
Men					
Total	19.1	24.0	20.1	35.8	23.5
Age (years)					
18–24	13.0	19.1	17.2	34.3	19.0
25–44	20.9	29.2	24.7	44.1	27.1
45–64	19.9	25.8	22.1	22.6	24.0
≥65	19.8	10.6	11.1	60.6	14.0
Education					
Less than high school	35.4	32.1	18.4	70.6	36.9
High school	26.3	27.6	28.7	35.3	28.3
Some college	18.1	21.5	19.2	32.4	20.9
College	9.8	18.9	16.5	31.0	15.6
Women					
Total	4.7	8.9	14.9	13.6	8.9
Age (years)					
18–24	5.8	4.0	22.9	19.9	9.5
25–44	5.5	14.6	16.3	13.9	10.4
45–64	2.5	5.1	13.4	9.9	7.4
≥65	2.6	3.4	8.3	NA	3.8
Education					
Less than high school	1.7	11.6	28.8	20.9	9.4
High school	9.8	12.7	17.5	14.4	12.6
Some college	4.8	8.7	13.4	19.4	9.5
College	3.2	4.9	7.0	5.2	4.9

*Current cigarette smokers are persons aged 18 years and older who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. Only English-speaking persons were interviewed.

[†]The variables needed to compute confidence intervals were not available.

NA = data not available.

Source: Burns and Pierce 1992.

Table 27. Summary of selected findings on the percentage of Asian American and Pacific Islander adults who smoke, overall and by gender, 1975–1995

Sources	Location/Year	Study Population Characteristics	Adults		
			Total	Men	Women
Klatsky and Armstrong 1991	California, 1978–1985	Current smokers			
		Chinese	NA	16.2	7.3
		Filipino	NA	32.9	11.4
		Japanese	NA	22.7	18.6
		Other Asians	NA	30.9	12.6
		Persons who smoke ≥ 1 pack/day			
		Chinese	NA	4.1	1.3
		Filipino	NA	7.1	1.7
		Japanese	NA	8.2	4.6
		Other Asians	NA	6.7	1.6
CDC 1992c	Washington State, 1989	Southeast Asians, by age (years)			
		18–29	17.6	29.5	3.0
		30–39	26.3	53.7	5.6
		40–59	26.6	54.5	8.3
		≥ 60	28.9	55.9	7.1
		Total	23.1	42.5	5.7
Blaisdell 1993	Hawaii, 1975–1980	Pure Native Hawaiians	NA	61.1	NA
	Hawaii, 1975–1980	Part Native Hawaiians	NA	56.3	NA
	Hawaii, 1985	Native Hawaiians	NA	42	34
	Hawaii, 1989	Native Hawaiians	28.2	NA	NA
McPhee et al. 1993	San Francisco and Alameda Counties, California, 1987, 1989	Vietnamese adults 1987	NA	56	9
		1989	NA	45	2
McPhee et al. 1995	Santa Clara County, California, 1990	Vietnamese men	NA	36	NA
Wewers et al. 1995	Franklin County, Ohio, 1992	Cambodians	20.6* (30.3) [†]	34.0 (38.8)	6.6 (21.5)
		Laotians	27.8 (32.9)	45.6 (48.2)	4.2 (10.8)
		Vietnamese	27.6 (29.0)	43.3 (43.3)	6.0 (9.3)
CDC 1997a	Alameda County, California, 1994–1995	Korean adults	21	39	6
Jenkins et al. 1997b	San Francisco and Alameda Counties, California, 1990	Vietnamese men	NA	36.1	NA
Jenkins et al. 1997b	Houston, Texas 1990, 1992	Vietnamese men 1990	NA	39.6	NA
		1992	NA	40.9	NA

*Figures not in parentheses are from self-report.

[†]Figures in parentheses represent cotinine-adjusted prevalences. Persons whose saliva cotinine levels were ≥ 14 ng/mL were considered to be smokers.

NA = data not available.

Data collected from several surveys (conducted in 1987, 1989, 1990, and 1992) of Vietnamese men and women living in California, Texas, and Ohio showed that the prevalence of cigarette smoking was substantially higher among Vietnamese men than among all U.S. men (Jenkins et al. 1990; McPhee et al. 1993; McPhee et al. 1995; Wewers et al. 1995; Jenkins et al. 1997b). Vietnamese women, however, were significantly less likely to smoke than were Vietnamese men or other U.S. women (Table 27).

Several surveys have been conducted in San Francisco and Alameda Counties, California. In the 1987 survey, which included data from 215 randomly sampled Vietnamese, 56 percent of Vietnamese men reported smoking cigarettes, compared with 9 percent of Vietnamese women (Jenkins et al. 1990). Vietnamese men had twice the smoking prevalence of men in the United States. On average, however, the number of cigarettes smoked per day was smaller among Vietnamese men (13.4) than among men in the general U.S. population (23.0). In the 1989 survey of 151 Vietnamese adults, 45 percent of Vietnamese men and 2 percent of Vietnamese women reported being cigarette smokers (Table 27) (McPhee et al. 1993). The precision of the estimates of smoking prevalence from the 1987 and 1989 surveys is limited by small sample sizes. In the 1990 survey of 1,133 Vietnamese men, which served as the baseline measure in an evaluation of a community-based smoking cessation intervention, 36.1 percent were current smokers. These men smoked an average of 11.1 cigarettes per day (Jenkins et al. 1997b).

Another survey of Vietnamese men ($n = 1,322$), which also served as the 1990 baseline measure in an evaluation of a similar smoking cessation intervention, was conducted in Santa Clara County, California. In this population, 37.9 percent were current smokers; the smokers consumed an average of 9.9 cigarettes per day (McPhee et al. 1995). The comparison data for the two evaluation studies conducted by McPhee and colleagues were obtained from surveys of Vietnamese men living in Houston, Texas (McPhee et al. 1995; Jenkins et al. 1997b). In the 1990 survey ($n = 1,581$), 39.6 percent of the men were current smokers; in the 1992 survey ($n = 1,209$), 40.9 percent were current smokers. The mean number of cigarettes smoked daily was significantly lower in 1992 (11.9) than in 1990 (13.2).

The 1990 and 1992 survey data showed an association between cigarette smoking prevalence and acculturation. In multivariate analyses that included statistical control for education, employment, and poverty status, the prevalence of cigarette smoking was elevated among persons with limited English-language proficiency and persons who had more recently

immigrated to the United States (McPhee et al. 1995; Jenkins et al. 1997b). Data collected from 1,403 Southeast Asian immigrant men and women through a household interview indicate that self-reported cigarette smoking prevalence is underreported, especially among women (Wewers et al. 1995). Cigarette smoking status among Cambodian, Laotian, and Vietnamese adults in Franklin County, Ohio, was verified by saliva cotinine assay; a cutoff of 14 ng/mL was used to indicate active smoking. Self-reported smoking prevalence was 40.9 percent for men and 5.6 percent for women. However, results from biochemical verification indicated that 43.7 percent of men and 14.8 percent of women were current smokers. Misclassification as a result of exposure to environmental tobacco smoke is unlikely, given how high the cotinine levels were among self-reported former and never smokers (range 17–331 ng/mL). As other studies have found, current smoking was substantially higher among men than women for all racial/ethnic groups in the study (Table 27) and was higher among respondents with less education.

From August 1994 to February 1995, a telephone survey of 676 Korean Americans (aged 18 years and older) was conducted in Alameda County, California (Table 27) (CDC 1997a). Overall, 39 percent reported that they had smoked at least 100 cigarettes in their lifetimes. Men (70 percent) were more likely than women (13 percent) to have smoked at least 100 lifetime cigarettes. Current smoking prevalence was 39 percent for Korean American men in Alameda County—an estimate that was substantially higher than the 19 percent prevalence estimate (from the 1995 California Behavioral Risk Factor Survey) for all men in the state. Conversely, only 6 percent of Korean American women from Alameda County reported current smoking—less than the statewide estimate for women of 14 percent.

Cigarette Smoking in Asian Countries

Because so many Asian Americans have recently immigrated to the United States, understanding how smoking practices in Asian countries may affect smoking practices among Asian Americans here is important. Currently, however, data are scarce on smoking trends in the countries from which Asian Americans and Pacific Islanders have emigrated. The information that is available suggests that the prevalence of smoking among men in Asia is much higher than among Asian American men.

Various studies from Asian countries indicate a very high cigarette smoking prevalence among men

and a relatively low prevalence among women (Weng et al. 1987; Li et al. 1988; Hawks 1989; Koong et al. 1990; Gong et al. 1995; Jenkins et al. 1997a; World Health Organization, unpublished data). In many of these countries, the estimated prevalence of smoking among men exceeds 50 percent. However, the prevalence of smoking among women is generally below 20 percent. Some of these studies indicate that the prevalence of smoking among women increases with age (Weng et al. 1987; Koong et al. 1990). In Pacific Island nations, the prevalence of smoking among men is also very high, with estimates generally exceeding 50 percent, similar to those in Asian countries. Women in the Pacific Island nations are less likely to smoke than men, but they are more likely to smoke than women in Asian countries, with prevalence estimates generally exceeding 20 percent (World Health Organization, unpublished data).

Studies also show that smoking prevalences are much higher among Chinese male adolescents than among female adolescents. In a 1988 survey of 8,437 junior high school students and 3,823 senior high school students in Beijing, the self-reported prevalence of ever smoking was 34.4 percent among male junior high school students and 3.9 percent among their female counterparts (Zhu et al. 1992). Among senior high school students, the prevalence of ever smoking was 46.0 percent among males and 5.5 percent among females (Wang et al. 1994).

Hispanics

No data are available on long-term trends in the prevalence of cigarette smoking among Hispanics in the United States. Before 1978, major U.S. government databases, surveys, and publications limited their classifications of race and ethnicity to "white" and "black," and no information was available about persons of Hispanic ancestry. When questions about Hispanic ancestry were added to the NHIS in 1978, direct estimates of smoking prevalence among Hispanics were possible for the first time. Because Hispanics made up a small proportion of the U.S. population at the time of the initial surveys, survey data must be aggregated from several years to provide meaningful estimates. As with previous sections, data in this section are from the NHISs, which included Hispanic data aggregated as follows: (1) 1978, 1979, and 1980; (2) 1983 and 1985; (3) 1987 and 1988; (4) 1990 and 1991; (5) 1992 and 1993; and (6) 1994 and 1995. Not until the HHANES was administered from 1982 through 1984 was a large enough sample of Hispanics available to assess long-term reconstructed trends in smoking

through retrospective analysis of smoking prevalence among successive birth cohorts of Hispanics (Escobedo and Remington 1989; Escobedo et al. 1989a).

Prevalence of Cigarette Smoking

NHIS data indicate that the prevalence of smoking declined among Hispanics from 1978 through 1995 (Table 28) (NCHS, public use data tapes, 1978–1995). Birth cohort data from the HHANES also reflect recent declines in the prevalence of smoking among the three subgroups of Hispanics surveyed: Cuban Americans, Mexican Americans, and Puerto Ricans (Escobedo and Remington 1989).

Between 1978 and 1995, the prevalence of smoking among Hispanic men and women decreased, although smoking prevalence was consistently greater among men than among women, according to the NHIS data (Table 28). Previous analysis of the HHANES birth cohort data showed that after 1970, the prevalence of smoking declined sharply among Mexican American men and less dramatically among Puerto Rican and Cuban American men (Escobedo et al. 1989a). In contrast, the prevalence of smoking changed little or increased among most age groups of Cuban American, Mexican American, and Puerto Rican women. For men participating in the 1982–1984 HHANES, the smoking prevalence ranged from 41.3 percent (among Puerto Ricans) to 43.6 percent (among Mexican Americans) (Escobedo and Remington 1989), compared with 31.6 percent of Hispanic men in the 1983–1985 NHIS. For women participating in HHANES, the smoking prevalence ranged from 23.1 percent (among Cuban Americans) to 32.6 percent (among Puerto Ricans) (Escobedo and Remington 1989), compared with 20.4 percent of Hispanic women in the 1983–1985 NHIS.

Several factors help explain why the HHANES estimates for men are at least 10 percentage points higher than the NHIS estimates for men for a comparable period and why the HHANES estimates for women also show a higher prevalence than the NHIS estimates for women. Most importantly, the HHANES was more likely to select an immigrant population than the NHIS because HHANES offered respondents the choice of English or Spanish questionnaires. In addition, the HHANES sampled Cuban Americans from Dade County, Florida; Mexican Americans from Arizona, California, Colorado, New Mexico, and Texas; and Puerto Ricans from New York, New Jersey, and Connecticut. On the other hand, the NHIS, administered only in English, is a national sample of the general population, which includes a wider range of racial/ethnic

Table 28. Percentage of adult Hispanics who reported being current cigarette smokers,* overall and by gender, age, and education, National Health Interview Surveys, United States, 1978–1995 aggregate data

Characteristic	1978–1980 [†]		1983–1985 [†]		1987–1988 [†]		1990–1991 [†]		1992–1993 [†]		1994–1995 [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Total	30.1	1.9	25.6	1.6	23.6	1.4	21.5	1.4	20.5	1.6	18.9	0.7
Gender												
Men	37.6	3.0	31.6	2.9	29.6	2.3	27.8	2.3	25.9	2.6	22.9	2.4
Women	23.3	2.0	20.4	1.9	18.4	1.5	15.9	1.6	15.5	1.9	15.1	1.7
Age (years)												
18–34	32.3	2.7	25.8	2.2	23.6	1.9	21.1	1.9	21.0	2.4	19.8	2.2
35–54	30.4	2.7	28.4	3.2	26.3	2.3	25.7	2.2	23.4	2.7	19.8	2.5
≥55	22.9	2.8	19.9	4.2	18.2	2.8	13.7	2.6	12.4	3.7	14.3	3.5
Education[§]												
Less than high school	33.4	3.5	28.0	2.6	26.1	2.3	22.9	2.4	21.6	2.7	20.2	2.4
High school	25.2	3.9	28.1	3.8	27.8	3.0	27.6	2.7	24.2	3.3	21.6	3.4
Some college	32.7	6.5	26.4	4.0	20.3	3.2	19.9	3.1	19.5	4.2	21.0	4.1
College	17.1	6.6	20.4	6.1	13.9	3.0	16.1	3.4	13.1	3.8	8.7	3.1

*For 1978–1991, current cigarette smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. For 1992–1995, current smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked every day or on some days.

[†]1978, 1979, and 1980 data were combined; 1983 and 1985 data were combined; 1987 and 1988 data were combined; 1990 and 1991 data were combined; 1992 and 1993 data were combined; and 1994 and 1995 data were combined.

[‡]95% confidence interval.

[§]Includes persons aged 25 years and older.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

groups and subgroups, including persons who identified themselves as Puerto Rican, Cuban, Mexican, Mexicano, Mexican American, Chicano, Spanish, or of other Latin American origin. Because Hispanics with higher levels of education are less likely to smoke than other groups of Hispanics (Haynes et al. 1990), the slightly different target populations in the HHANES and in the NHIS—which probably differ in educational attainment—may help explain differences in smoking prevalence between the two surveys.

Hispanics aged 55 years and older consistently had the lowest rates of cigarette smoking in the NHIS (Table 28), a finding similar to that from the HHANES (Haynes et al. 1990). Rates of cigarette smoking generally have been highest among Hispanics with a high school education or less and lowest among those who have graduated from college (Table 28). This pat-

tern also was observed in a smaller survey of Hispanic adults in a semirural city near Albuquerque, New Mexico (Samet et al. 1992).

In the 1982–1984 HHANES, having 12 or more years of education was associated with lower rates of cigarette smoking among Cuban American, Mexican American, and Puerto Rican men (Haynes et al. 1990). Among Hispanic women, those with 7–11 years of education had the highest rates of cigarette smoking.

The 1982–1984 HHANES used an eight-item scale to measure level of acculturation in Mexican Americans (Delgado et al. 1990). The variables used to construct the scale were language ability, self-identification, parents' racial/ethnic identification, and generation in the United States. Among Mexican American women, there was a dose-response relationship between the level of acculturation and

Table 29. Percentage of adult Hispanic smokers* who reported smoking <15, 15–24, or ≥25 cigarettes per day, overall and by gender, age, and education, National Health Interview Surveys, United States, 1978–1995 aggregate data

Characteristic	1978–1980 [†]		1983–1985 [†]		1987–1988 [†]		1990–1991 [†]		1992–1993 [†]		1994–1995 [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Total												
<15 cigarettes	56.0	4.5	55.6	4.1	58.3	3.2	64.5	3.3	72.7	3.8	65.0	4.1
15–24 cigarettes	30.7	4.3	31.3	3.0	30.9	3.1	29.3	3.2	21.2	3.5	27.3	3.9
≥25 cigarettes	13.3	2.4	13.2	3.0	10.9	2.1	6.2	1.4	6.2	2.0	7.7	2.0
Gender												
Men												
<15 cigarettes	52.4	5.9	52.5	5.5	54.9	4.6	62.5	4.4	71.8	5.2	62.4	5.1
15–24 cigarettes	32.6	5.0	33.0	4.2	32.1	4.6	29.8	4.2	20.7	4.5	29.9	4.7
≥25 cigarettes	15.0	3.6	14.4	3.9	13.0	2.9	7.7	2.1	7.6	3.0	7.6	3.7
Women												
<15 cigarettes	61.4	5.2	59.8	4.9	63.0	4.2	67.6	4.7	74.1	5.3	68.8	5.6
15–24 cigarettes	27.8	5.3	28.8	5.1	29.1	4.2	28.6	4.5	22.0	5.1	23.5	5.1
≥25 cigarettes	10.7	3.6	11.5	3.9	7.9	2.3	3.8	1.5	3.9	2.0	7.7	3.1
Age (years)												
18–34												
<15 cigarettes	61.7	6.2	61.4	5.3	61.6	4.8	69.8	4.3	78.1	4.7	70.2	6.3
15–24 cigarettes	28.5	5.5	29.2	4.5	29.3	4.8	27.8	4.1	17.3	4.2	25.1	6.1
≥25 cigarettes	9.9	2.6	9.4	3.7	9.1	2.7	2.4	1.1	4.6	2.4	4.7	2.5
35–54												
<15 cigarettes	49.0	6.3	44.5	6.5	56.0	5.0	59.7	4.9	66.5	6.7	60.4	6.2
15–24 cigarettes	33.4	6.7	35.1	5.0	31.7	4.7	29.6	4.6	25.2	6.1	28.6	5.9
≥25 cigarettes	17.7	4.5	20.4	4.9	12.3	3.5	10.6	2.9	8.2	3.9	11.0	3.8
≥55												
<15 cigarettes	49.6	8.6	61.2	9.7	50.8	7.7	55.2	9.7	69.8	13.5	56.2	11.5
15–24 cigarettes	33.3	8.3	29.2	8.7	34.8	7.5	36.0	10.2	24.6	13.1	32.9	10.5
≥25 cigarettes	17.1	7.6	9.6	5.8	14.4	5.9	8.5	5.5	5.6	4.5	10.9	7.0

*For 1978–1991, current cigarette smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. For 1992–1995, current smokers include persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked every day or on some days.

[†]1978, 1979, and 1980 data were combined; 1983 and 1985 data were combined; 1987 and 1988 data were combined; 1990 and 1991 data were combined; 1992 and 1993 data were combined; and 1994 and 1995 data were combined.

[‡]95% confidence interval.

age-adjusted (to the 1980 U.S. population) cigarette smoking prevalence; 19 percent of Mexican-oriented women and 28 percent of U.S.-oriented women were current cigarette smokers (Haynes et al. 1990). The unadjusted prevalence of cigarette smoking among U.S. women aged 18 years and older in 1983 was 29.5 percent (CDC 1994c). No clear relationship was observed among Mexican American men (Haynes et al. 1990).

Navarro (1996) used data from the 1990 California Tobacco Survey to study level of acculturation in Hispanics (most of whom were of Mexican origin). Level of acculturation was defined based on the language spoken in the home: persons from English-speaking homes were classified as having a high level of acculturation, and persons from Spanish-speaking homes were classified as having a low level of

Table 29. Continued

Characteristic	1978–1980 [†]		1983–1985 [†]		1987–1988 [†]		1990–1991 [†]		1992–1993 [†]		1994–1995 [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Education[§]												
Less than high school												
<15 cigarettes	55.4	5.0	54.1	5.3	59.2	5.1	66.2	5.2	71.1	6.6	63.5	7.2
15–24 cigarettes	29.9	5.6	33.7	5.9	30.3	4.7	27.6	5.1	23.1	6.1	30.0	7.2
≥25 cigarettes	14.7	4.3	12.3	4.7	10.5	3.3	6.2	2.3	5.8	3.6	6.5	3.4
High school												
<15 cigarettes	53.4	9.9	53.9	7.5	53.9	6.6	60.9	6.0	70.5	7.2	61.3	7.3
15–24 cigarettes	34.7	9.4	33.2	7.1	32.5	6.6	32.6	5.7	25.4	7.0	28.7	6.6
≥25 cigarettes	11.9	5.9	12.9	4.4	13.6	4.5	6.5	2.6	4.2	3.0	10.1	4.4
Some college												
<15 cigarettes	50.6	10.3	50.5	11.8	54.1	9.2	55.1	8.6	70.8	9.7	55.5	9.9
15–24 cigarettes	37.3	10.8	24.1	9.6	31.9	8.2	35.1	8.4	21.0	8.9	36.1	10.1
≥25 cigarettes	12.2	7.5	25.5	9.9	14.0	6.4	9.8	5.3	8.2	5.1	8.4	5.1
College												
<15 cigarettes	55.6	22.1	50.0	17.1	55.3	11.7	64.4	11.3	75.8	11.7	71.6	15.7
15–24 cigarettes	17.8	15.2	36.4	13.5	29.6	10.6	27.1	10.3	16.7	10.3	17.9	12.8
≥25 cigarettes	26.7	21.7	13.6	10.1	15.0	9.3	8.5	5.9	7.5	6.3	10.5	10.7

[§]Includes persons aged 25 years and older.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

acculturation. The data were analyzed by gender and for three levels of educational attainment (<12, 12, and >12 years). Among men, smoking prevalence varied for those with <12 and 12 years of education; smoking prevalence was highest among whites, intermediate among Hispanics of high acculturation, and lowest among Hispanics of low acculturation. This pattern also existed for women, but in all three of the education categories. Additionally, in a multivariate analysis that controlled for age, gender, educational attainment, and Mexican origin, Hispanics with a low acculturation level were significantly less likely to smoke than those with a high acculturation level. Navarro suggested that level of acculturation may be related to the degree of urbanization of the person's or family's residence in the country of origin. For example, persons living in rural areas of Latin America appear to be less likely to smoke than those living in urban areas (USDHHS 1992). The relationship between cigarette smoking and level of acculturation among Hispanics living in the United States may be confounded by adaptation to industrial and urban societies (Navarro 1996), especially if persons or families from rural areas acculturate more slowly than those from urban areas. Future research into this

topic might ideally include information on the person's or family's residence in the country of origin.

Number of Cigarettes Smoked Daily

Between 1978 and 1985, trends in the number of cigarettes smoked per day by Hispanic smokers remained stable (Table 29) (NCHS, public use data tapes, 1978–1995). More recently, however, an increasing proportion of Hispanic smokers have been smoking fewer than 15 cigarettes per day, and a declining proportion of them have been smoking 25 or more cigarettes per day. For example, in 1978–1980, 13.3 percent of Hispanic smokers smoked 25 or more cigarettes per day. By 1994–1995, this proportion was 7.7 percent.

From 1978 to 1993, Hispanic men were more likely than Hispanic women to smoke 25 or more cigarettes per day, although these differences were not statistically significant (Table 29). Consumption patterns in 1994–1995 were similar across genders. Between 1978 and 1995, the prevalence of smoking 25 or more cigarettes per day declined among Hispanics at all levels of education (Table 29), although only the decline among persons with less than a high school education was statistically significant.

Quitting Behavior

In the NHIS, the prevalence of smoking cessation among Hispanic smokers increased moderately between 1978 and 1995 (Table 30) (NCHS, public use data tapes, 1978–1995). No notable differences in smoking cessation between Hispanic men and women were observed. The prevalence of cessation was higher among persons in the older age groups and among college graduates (Table 30).

Data from a recent multivariate analysis of the 1991 NHIS (CDC 1993) indicate that after the analysis controlled for gender, age, education, and poverty status, Hispanics were more likely than whites to stop smoking for at least one day during the previous year. Hispanics who had stopped smoking for at least one day were about as likely as whites to have stopped for

at least one month. Overall, Hispanic smokers were slightly more likely than whites to have quit smoking for at least one month.

Data from the NCI Supplement of the 1992–1993 CPS indicate that among Hispanics aged 18 years and older who were daily smokers one year before the survey, 59.8 percent reported that they were still smoking daily and that they had not tried quitting for at least one day during the previous year (Table 4). Another 28.5 percent had tried quitting for at least one day, 5.6 percent were occasional smokers (i.e., smoked only on some days), 2.5 percent had not smoked for the past 1–90 days, and 3.6 percent had not smoked for the past 91–364 days. This distribution was similar to that among whites, with the exception that slightly more Hispanics had become occasional smokers.

Table 30. Percentage of adult Hispanic ever smokers who have quit,* overall and by gender, age, and education, National Health Interview Surveys, United States, 1978–1995 aggregate data

Characteristic	1978–1980 [†]		1983–1985 [†]		1987–1988 [†]		1990–1991 [†]		1992–1993 [†]		1994–1995 [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Total	35.0	2.8	39.3	2.8	42.8	2.4	44.1	2.6	44.2	3.1	46.2	3.2
Gender												
Men	35.5	3.4	40.5	4.1	43.0	3.3	43.0	3.6	45.8	4.1	48.2	4.3
Women	34.2	4.3	37.6	4.3	42.5	3.4	45.6	3.5	41.6	4.5	43.1	4.5
Age (years)												
18–34	27.9	4.2	32.6	3.2	33.7	3.6	34.3	3.5	31.4	4.3	32.5	4.9
35–54	37.2	3.9	39.2	5.2	44.9	3.7	45.3	3.6	46.4	4.7	49.6	4.9
≥55	51.0	5.5	57.2	7.6	60.4	5.0	67.1	5.6	70.3	6.9	68.1	6.4
Education[§]												
Less than high school	30.5	3.6	37.7	4.0	43.3	3.6	45.5	4.4	42.8	5.0	47.6	5.1
High school	45.7	7.1	40.0	6.0	41.2	4.6	41.9	4.4	44.2	6.0	44.5	6.2
Some college	38.5	9.8	47.8	6.9	55.0	6.3	52.6	6.1	52.8	8.8	49.1	7.6
College	59.4	14.2	52.2	10.3	59.2	7.2	56.6	7.3	64.0	8.9	71.1	9.1

*The prevalence of cessation is the percentage of ever smokers who are former smokers. Former smokers are persons who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they were not smoking, and ever smokers include current and former smokers.

[†]1978, 1979, and 1980 data were combined; 1983 and 1985 data were combined; 1987 and 1988 data were combined; 1990 and 1991 data were combined; 1992 and 1993 data were combined; and 1994 and 1995 data were combined.

[‡]95% confidence interval.

[§]Includes persons aged 25 years and older.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

Women of Reproductive Age

From 1978 to 1995, a large proportion of Hispanic women of reproductive age (18–44 years) have smoked cigarettes, although this proportion has been declining over time (Table 31) (NCHS, public use data tapes, 1978–1995). Some evidence suggests that the prevalence of smoking among women of reproductive age varies according to the country of origin, with Cuban American women (22.6 percent) and Mexican American women (23.2 percent) reporting cigarette smoking in lower proportions than Puerto Rican women (33.5 percent) (Pletsch 1991). In a comparison of data from the HHANES and the National Health and Nutrition Examination Survey (NHANES), Guendelman and Abrams (1994) found that Mexican American women of reproductive age were less likely than their white counterparts to smoke cigarettes at each of the reproductive stages (interconception, pregnancy, lactation, and postpartum).

The National Survey of Family Growth collected data in 1982 and 1988 on the smoking behavior of females 15–44 years of age during their most recent pregnancy. In 1982, 17.2 percent of Hispanic women reported smoking during their most recent pregnancy, compared with 13.7 percent in 1988 (Pamuk and Mosher 1992; Chandra 1995). More recent data from U.S. final natality statistics indicate that smoking rates for Hispanics during pregnancy declined from 8 percent in 1989 to 4.3 percent in 1995 (Table 6). Hispanic adolescent mothers were about as likely as older Hispanic mothers to have smoked (USDHHS 1994).

Hispanic mothers report generally low rates of tobacco use, ranging from 1.8 to 4.1 percent for Mexican, Cuban, Central American, and South American mothers to 8.2 to 10.4 percent for Puerto Rican and “other” Hispanic mothers and those of unknown Hispanic origin (Table 6). Ventura and colleagues (1995) reported that 3 percent of foreign-born or Puerto

Table 31. Percentage of Hispanic women of reproductive age who reported being current cigarette smokers,* overall and by education, National Health Interview Surveys, United States, 1978–1995 aggregate data

Characteristic	1978–1980 [†]		1983–1985 [†]		1987–1988 [†]		1990–1991 [†]		1992–1993 [†]		1994–1995 [†]	
	%	±CI [‡]	%	±CI	%	±CI	%	±CI	%	±CI	%	±CI
Total	25.5	2.7	22.2	2.2	19.8	1.7	16.7	1.8	17.3	2.3	16.4	2.0
Education[§]												
Less than high school	29.2	4.3	24.4	4.4	23.5	4.0	17.6	3.7	17.0	4.4	17.0	3.7
High school	21.3	5.6	27.6	5.3	24.1	3.7	21.4	3.6	25.1	5.3	21.4	4.7
Some college	12.9	7.5	21.5	6.7	15.9	4.6	19.5	4.2	17.0	6.1	16.5	5.3
College	17.3	12.0	16.7	8.3	12.7	4.7	15.2	5.0	12.9	5.8	5.1	4.1

*For 1978–1991, current cigarette smokers include women aged 18–44 years who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked. For 1992–1995, current smokers include women aged 18–44 years who reported smoking at least 100 cigarettes in their lives and who reported at the time of survey that they currently smoked every day or on some days.

[†]1978, 1979, and 1980 data were combined; 1983 and 1985 data were combined; 1987 and 1988 data were combined; 1990 and 1991 data were combined; 1992 and 1993 data were combined; and 1994 and 1995 data were combined.

[‡]95% confidence interval.

[§]Includes persons aged 25 years and older.

Source: National Center for Health Statistics, public use data tapes, 1978–1995.

Rican-born Hispanic mothers smoked, compared with 9 percent of their United States-born counterparts (Ventura et al. 1995). Data on tobacco use among these mothers may be skewed because California and New York do not report this information, and together these states account for almost half of all Hispanic births (Ventura et al. 1996).

The National Pregnancy and Health Survey, conducted between October 1992 and August 1993 and sponsored by NIDA, provides nationally representative data on the prevalence of prenatal drug use among Hispanic females of reproductive age (15–44 years). According to National Pregnancy and Health Survey data, 5.8 percent of Hispanic women reported using cigarettes during their pregnancies (NIDA 1994). In the 1985 and 1990 NHISs, questions related to smoking were asked of women aged 18–44 years who had given birth within the past five years. In 1985, 16.8 percent of Hispanic women smoked during the 12 months before the birth and 10.3 percent smoked after learning of their pregnancy; in 1990, 12.1 percent smoked during the year before birth and 8 percent after learning of their pregnancy (Floyd et al. 1993).

Young People

Cigarette Smoking

Despite the dearth of information on tobacco use among Hispanic youths, several studies have been able to identify trends in smoking initiation and patterns of tobacco use by analyzing data from the HHANES, the MTF surveys of high school seniors (Figure 3), and small local surveys (for example, Smith et al. 1991; Dusenbury et al. 1992; Vega et al. 1993).

HHANES data have shown that smoking initiation increased rapidly among Cuban Americans, Mexican Americans, and Puerto Ricans between ages 11 and 15 years, peaked between ages 15 and 19 years, and declined after the age of 20 years (Escobedo et al. 1990). In all age groups, smoking initiation rates were higher among males than among females.

Slight variations in smoking initiation by level of education were found when the HHANES data were combined for all three Hispanic subgroups (although these were three separate surveys, it was necessary to combine three groups to estimate trends for all three groups). Hispanics with less than a high school education had the highest rates of smoking initiation, with an earlier age of onset and a more accelerated rate of smoking initiation during young adolescence, than Hispanics with more years of schooling. Hispanics with a high school education had intermediate rates

of smoking initiation, whereas those with more than a high school education had slightly lower smoking initiation rates. Because educational attainment is a reliable (Liberatos et al. 1988) although limited (Montgomery and Carter-Pokras 1993) indicator of socioeconomic status, these data suggest that an association between smoking initiation and socioeconomic status may exist among Hispanics, as it does for the general U.S. population. However, these differences in smoking initiation by educational attainment were not as large as those found among whites.

In addition, data from the 1994–1995 (combined) NHSDAs indicate that among persons aged 30–39 years, Hispanic men and women were less likely to become daily smokers than whites (Table 11) (USDHHS, Substance Abuse and Mental Health Services Administration, public use data tapes, 1994–1995). Among persons in this age group who had ever smoked daily, the initiation patterns among Hispanics were more like those of African Americans than those of whites. The average ages for first trying a cigarette and for becoming a daily smoker were about one year higher for Hispanic men than for white men and about two years higher for Hispanic women than for white women (Table 11).

Among high school seniors who participated in the MTF in 1985–1989, 23.8 percent of Mexican American males, 22.0 percent of Puerto Rican and Latino males, 18.7 percent of Mexican American females, and 24.7 percent of Puerto Rican and Latina females smoked cigarettes in the previous month (Bachman et al. 1991b). In addition, 11.6 percent of Mexican American males, 13.3 percent of Puerto Rican and Latino males, 8.1 percent of Mexican American females, and 13.3 percent of Puerto Rican and Latina females smoked cigarettes daily in the previous month. The prevalence of smoking one-half pack of cigarettes or more per day was somewhat higher among males (5 to 6 percent) than among females (2 to 4 percent).

Between 1976 and 1989, the prevalence of daily smoking declined among Mexican American high school seniors of both genders and among Puerto Rican and Latina females, according to the MTF data (Bachman et al. 1991b). Decreases occurred between 1976 and 1984 among Mexican American males and between 1980 and 1989 among Puerto Rican and Latina females. Among Mexican American females, decreases in the prevalence of daily smoking occurred between 1976 and 1984, and no decline was observed in more recent years. In contrast, little change in the prevalence of daily smoking was observed among Puerto Rican and Latino males over the entire survey period (Bachman et al. 1991b).

Recent data indicate that rates of smoking are generally lower among Hispanic youths than among white youths. The 1989 TAPS showed that 11.8 percent of Hispanics reported some level of cigarette smoking, compared with 17.7 percent of whites and 6.2 percent of African Americans (Moss et al. 1992). However, patterns may differ for migrant and resident youths. In a recent study of 214 migrant Hispanic adolescents enrolled in school in San Diego, the prevalence of cigarette smoking within the 30 days preceding the survey increased by school grade, from a low of 10 percent of 9th graders to 14 percent of 10th graders, 21 percent of 11th graders, and 18 percent of 12th graders (Lovato et al. 1994). Also, acculturation may influence smoking behavior. In a study of sixth and seventh graders in Dade County, Florida, Vega and colleagues (1993) found that cigarette smoking was more frequent among United States-born Cuban American children (23.8 percent) than among foreign-born Cuban Americans (15.1 percent).

According to the 1995 YRBS, 34.0 percent of Hispanic high school students and 38.3 percent of white high school students smoked on one or more days during the previous month (CDC 1996). Hispanic students were significantly more likely than African American students (19.2 percent) to have smoked during the previous month. Regarding more frequent smoking, Hispanic youths (10.0 percent) and African American youths (4.5 percent) were less likely than white youths (19.5 percent) to have smoked on at least 20 days during the previous month.

Lowry and colleagues (1996) analyzed cross-sectional data on 6,321 adolescents (aged 12–17 years) from the YRBS supplement to the 1992 NHIS. Hispanics were significantly less likely than whites to have smoked in the previous 30 days. This analysis controlled statistically for the educational level of the responsible adult, for family income, for the age and gender of the adolescent, and for whether the adolescent was in or out of school. In an analysis comparing measured carbon monoxide from expired air with self-reported smoking among a sample of seventh- through tenth-grade New York State public school students, Wills and Cleary (1997) found that the self-report sensitivity was slightly lower for Hispanics than for whites but that the magnitude of the effect was small. When self-reported smoking rates were adjusted for carbon monoxide values, ninth- and tenth-grade Hispanic students had significantly lower smoking prevalences than whites.

Recent findings from focus groups conducted at several U.S. sites suggest that Hispanic parents may be more likely than white parents to express clear anti-

smoking messages and that smoking by Hispanic adolescents may be a sign of disrespect toward parents (Mermelstein et al. 1996).

According to the 1996 MTF surveys, the prevalence of previous-month smoking (estimated by combining 1995 and 1996 data) among Hispanic high school seniors (25.4 percent) was intermediate to that among African American seniors (14.2 percent) and white seniors (38.1 percent) (Institute for Social Research, University of Michigan, unpublished data from the 1996 MTF surveys). A similar pattern was observed for tenth-grade students: previous-month smoking prevalences were 23.7 percent for Hispanics, 32.9 percent for whites, and 12.2 percent for African Americans. However, among eighth-grade students, the Hispanic-white difference was attenuated: 19.6 percent of Hispanics, 22.7 percent of whites, and 9.6 percent of African Americans were previous-month smokers. Trends in daily smoking among high school seniors show that rates for Hispanics have been consistently lower than for whites since 1977 and higher than for African Americans since the early 1980s (Figure 3).

The MTF surveys suggest that rates of smoking among Hispanics have increased in the 1990s. The prevalence of previous-month smoking (based on two-year rolling averages) among eighth-grade students was 16.7 percent in 1992 and 19.6 percent in 1996; among tenth-grade students, the prevalence was 18.3 percent in 1992 and 23.7 percent in 1996; and among high school seniors, the prevalence was 21.7 percent in 1990 and 25.4 percent in 1996 (Johnston et al. 1996; Institute for Social Research, University of Michigan, unpublished data from the 1996 MTF surveys). Similarly, YRBS data indicate that the prevalence of previous-month smoking among Hispanic high school students was 25.3 percent in 1991 (USDHHS 1994) and 34.0 percent in 1995 (CDC 1996).

Other Risk Behaviors

Using data from the YRBS supplement to the 1992 NHIS, Escobedo and colleagues (1997) observed associations (USDHHS 1994) between cigarette smoking among Hispanic adolescents and specific behaviors compromising to health. Marijuana use, binge drinking, and weapon carrying were significantly associated with cigarette smoking among Hispanic adolescent males; marijuana use, binge drinking, multiple sexual partners, and physical fighting were associated with cigarette use among Hispanic adolescent females. The analysis controlled statistically for age, ethnicity, gender, parental educational level, region of the country, and other risk behaviors.

Smokeless Tobacco Use

Recent trends in smokeless tobacco use among Hispanic adolescents have changed little. According to the MTF surveys, previous-month smokeless tobacco use (based on two-year rolling averages) was reported by 4.2 percent of eighth-grade Hispanic students in 1992 and 5.2 percent in 1996; among tenth-grade students, the prevalence was 6.2 percent in 1992 and 4.0 percent in 1996; and among high school seniors, the prevalence was 4.4 percent in 1987 and 8.1 percent in 1996 (Johnston et al. 1996; Institute for Social Research, University of Michigan,

unpublished data from the 1996 MTF surveys). YRBS data indicate that the prevalence of previous-month use among Hispanic high school students was 5.5 percent in 1991 (USDHHS 1994) and 4.4 percent in 1995 (CDC 1996).

Hispanic adolescent males are much less likely than white adolescent males to use smokeless tobacco. Among male high school students participating in the 1995 YRBS, for example, 5.8 percent of Hispanics and 25.1 percent of whites had used smokeless tobacco during the previous month (CDC 1996). Prevalence among females was 3.1 percent for Hispanics and 2.5 percent for whites.

Retrospective Analyses of Smoking Prevalence Among African Americans and Hispanics

Because of the lack of long-term national survey data on smoking behavior among racial/ethnic groups, retrospective analysis is the only way to reconstruct smoking prevalences for African Americans before 1965 and for Hispanics before 1978. The retrospective method of constructing smoking prevalences for successive birth cohorts of men and women in the U.S. population was first reported by Harris (USDHEW 1979; Harris 1983). Harris's methodology later served as the basis for a report in which smoking prevalences were presented for Cuban American, Mexican American, and Puerto Rican men and women (Escobedo and Remington 1989). Most recently, the NCI (1991) published some results of an analysis of birth cohorts of whites and African Americans. Another type of retrospective analysis has also been used to estimate long-term trends in cigarette smoking. This approach has been the basis of two published reports, one that presented smoking trends among Hispanics in various age groups (Escobedo et al. 1989a) and another that presented smoking trends among Hispanic young adults (Escobedo et al. 1989b). For this section of the report, both types of retrospective analysis were used to generate information not previously available.

Prevalence of Cigarette Smoking Among Successive Birth Cohorts

The following detailed analysis of smoking trends over time—according to gender and educational

attainment of defined birth cohorts (based on the year of birth)—uses data from the 1987 NHIS (for African Americans) and the 1982–1984 HHANES (for Hispanics). The smoking histories of respondents were constructed according to the ages they reported cigarette smoking initiation and cessation. Information about these two smoking-related events was then used to classify each respondent as a nonsmoker, current smoker, or former smoker from birth to interview and to calculate the proportion of people smoking each year in each birth cohort. (See Appendix 5 for a discussion of the validation of this methodology.) The resulting birth cohort curves (Figures 7–10) represent smoking prevalences of each cohort for each year from birth to interview (throughout childhood, adolescence, and adulthood) (NCHS, public use data tapes, 1978, 1979, 1980, 1982–1984, and 1987 and 1988 combined). By comparing the curves among successive birth cohorts, one can examine smoking trends over time for those cohorts.

African Americans

The prevalence of smoking among successive birth cohorts of African American men with at least a high school education has declined gradually, with the peak and age-specific smoking prevalences for the most recent cohort (1958–1967) being lower than the prevalences for previous cohorts' curves (Figure 4).

In contrast, little progress has been made in reducing the prevalence of cigarette smoking among

successive birth cohorts of African American men with less than a high school education (Figure 7). Although smoking prevalences declined slightly for successive cohorts, the peak prevalence for the most recent cohort continues to be nearly as high as that for previous cohorts. In addition, smoking prevalences during adolescence among African Americans with less than a high school education did not decrease between successive birth cohorts.

Despite initial increases in smoking prevalence among successive birth cohorts of African American women with at least a high school education, prevalences have declined in recent years (Figure 8). The declines in prevalence among African American women with at least a high school education are not as marked as the declines observed among successive birth cohorts of African American men of a similar educational background. Smoking prevalences among African American women with less than a high school education have increased markedly, with the most recent cohort (1958–1967) showing the highest peak (Figure 8).

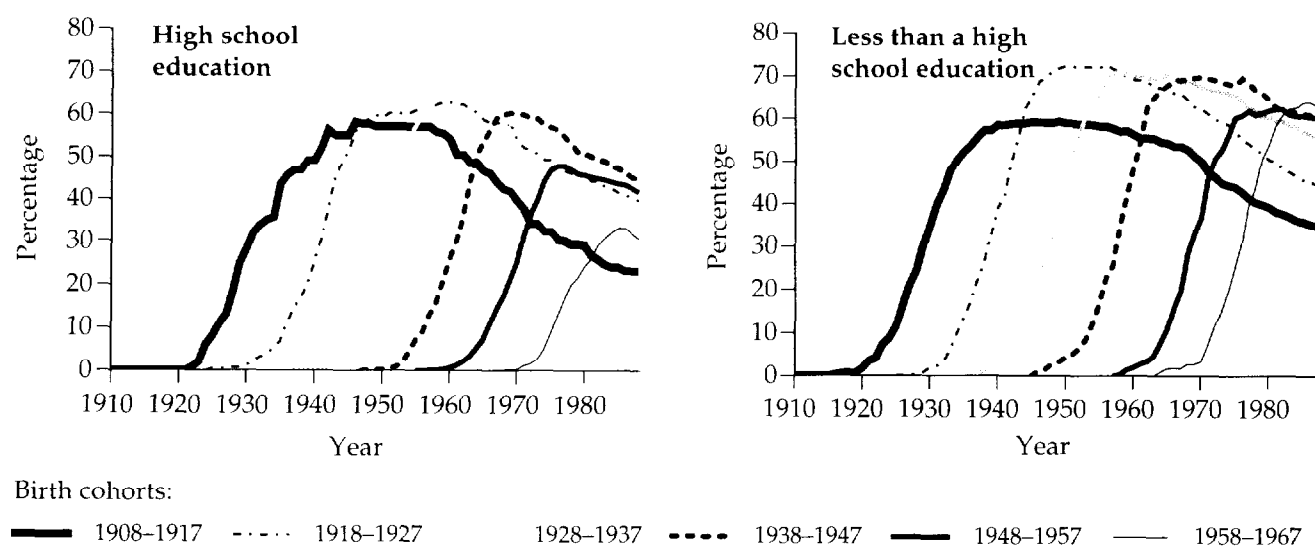
Hispanics

Among six successive birth cohorts of Hispanic men with at least a high school education covering the years 1908–1967, the peak prevalence of smoking increased gradually for the first three cohorts but declined beginning with the 1938–1947 cohort (Figure 9). In addition, the rate of increase in smoking prevalence during adolescence slowed markedly for the most recent cohort compared with rates for previous cohorts.

The smoking prevalence pattern among successive birth cohorts of Hispanic men with less than a high school education (Figure 9) is similar to the pattern among African American men with a similar educational background. Smoking prevalences have declined slightly since the early 1950s, when the highest prevalence was observed for the 1918–1927 cohort.

The slight decline in smoking prevalence among successive birth cohorts of Hispanic women with at least a high school education is similar to the decline among African American women with a similar educational background (Figure 10). However, the decline

Figure 7. Cigarette smoking prevalence among successive birth cohorts of African American men, by education, National Health Interview Surveys, United States, 1978–1980, 1987, and 1988*



*Because these birth cohort curves are the result of calculations of smoking prevalence for each year from birth to interview, they provide information about the smoking prevalence of each cohort during childhood, adolescence, and adulthood.

Sources: National Center for Health Statistics, public use data tapes, 1978–1980, 1987 (Cancer Control Supplement and Epidemiology Supplement), and 1988; Escobedo and Peddicord 1996.

among Hispanic women began more recently, with the 1938–1947 cohort. The peak prevalence for the most recent cohort of Hispanic females with at least a high school education was similar to the peak prevalence for African American women of the same educational level (25 percent).

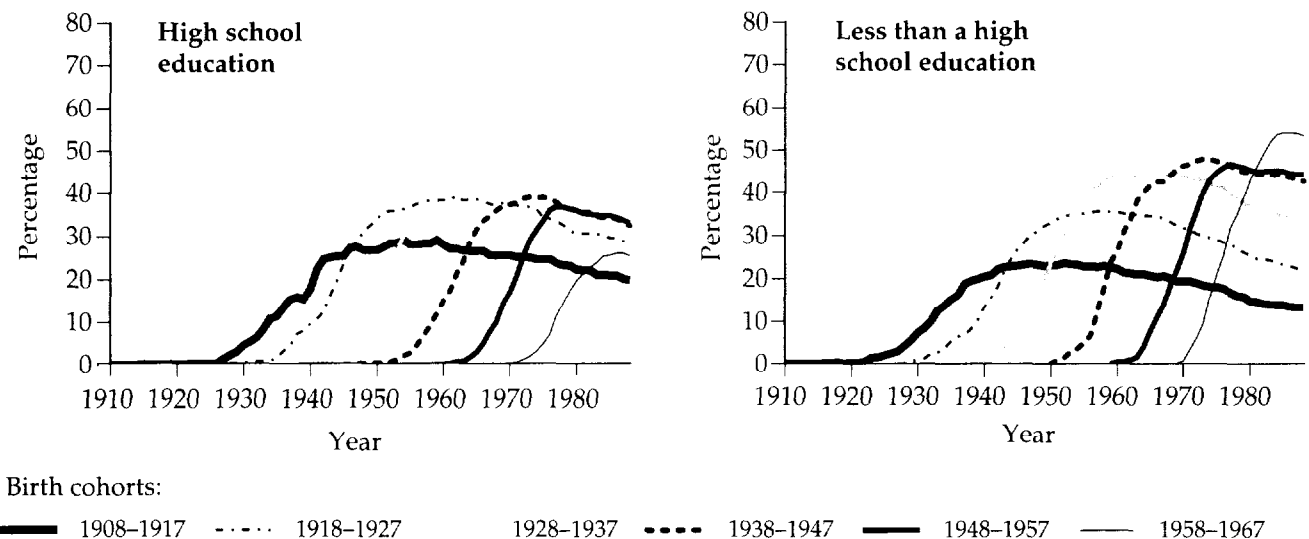
The smoking prevalences among successive birth cohorts of Hispanic women with less than a high school education increased slightly over time and then leveled off (Figure 10). In addition, the prevalence of smoking during adolescence increased much more rapidly in the most recent birth cohort than in previous cohorts. However, the overall pattern of smoking prevalence in this subgroup of Hispanic women does not show the dramatic increases observed in successive birth cohorts of African American women with a similar educational background. The peak prevalence for the most recent birth cohort of Hispanic women with less than a high school education (34 percent) was substantially lower than the peak prevalence for the corresponding cohort of African American women (54 percent).

The slight changes in smoking prevalences among successive birth cohorts of Hispanic women,

regardless of educational background, may be the result of the larger proportion of Mexican American women who compose these subgroups. Although few changes have been observed in the prevalence of smoking among successive birth cohorts of Mexican American women, in recent birth cohorts of Cuban American and Puerto Rican women, more women have smoked cigarettes than those in previous cohorts (Escobedo and Remington 1989). Had more Cuban American and Puerto Rican women been included in the HHANES, the pattern may well have been different.

The results of these birth cohort analyses show that educational attainment is the most powerful predictor of temporal trends in smoking prevalence. In both racial/ethnic groups, men, and to a lesser extent women, with at least a high school education have made progress in reducing cigarette smoking. However, men with less than a high school education, regardless of race/ethnicity, are as likely to smoke now as they were in previous decades. Recent cohorts of African American women with less than a high school education are now substantially more likely to smoke than their counterparts in previous decades.

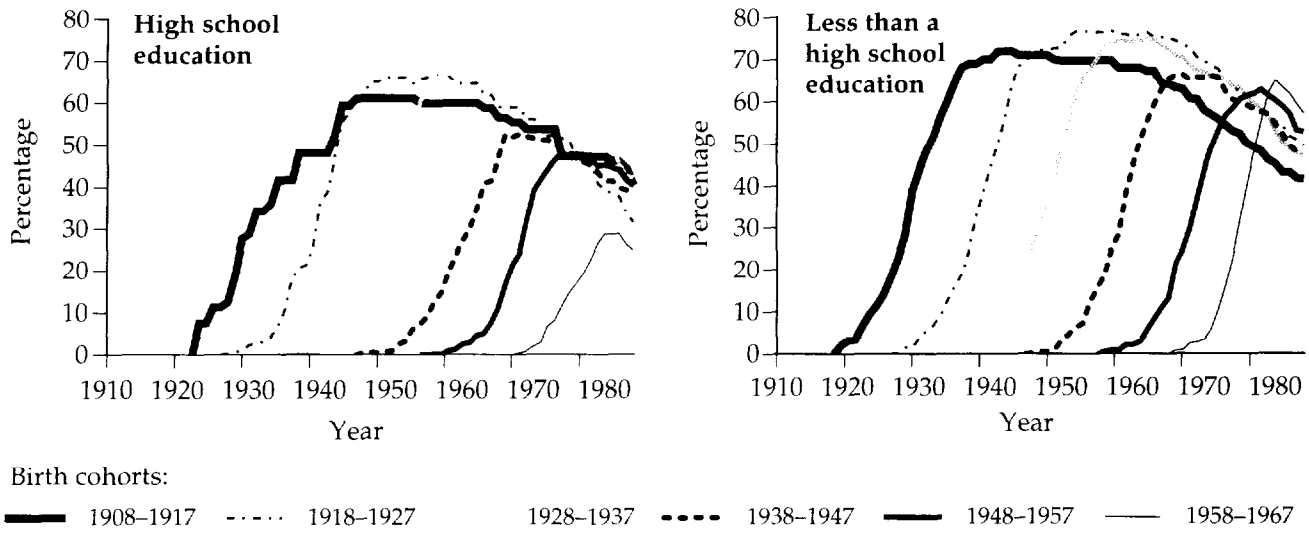
Figure 8. Cigarette smoking prevalence among successive birth cohorts of African American women, by education, National Health Interview Surveys, United States, 1978–1980, 1987, and 1988*



*Because these birth cohort curves are the result of calculations of smoking prevalence for each year from birth to interview, they provide information about the smoking prevalence of each cohort during childhood, adolescence, and adulthood.

Sources: National Center for Health Statistics, public use data tapes, 1978–1980, 1987 (Cancer Control Supplement and Epidemiology Supplement), and 1988; Escobedo and Peddicord 1996.

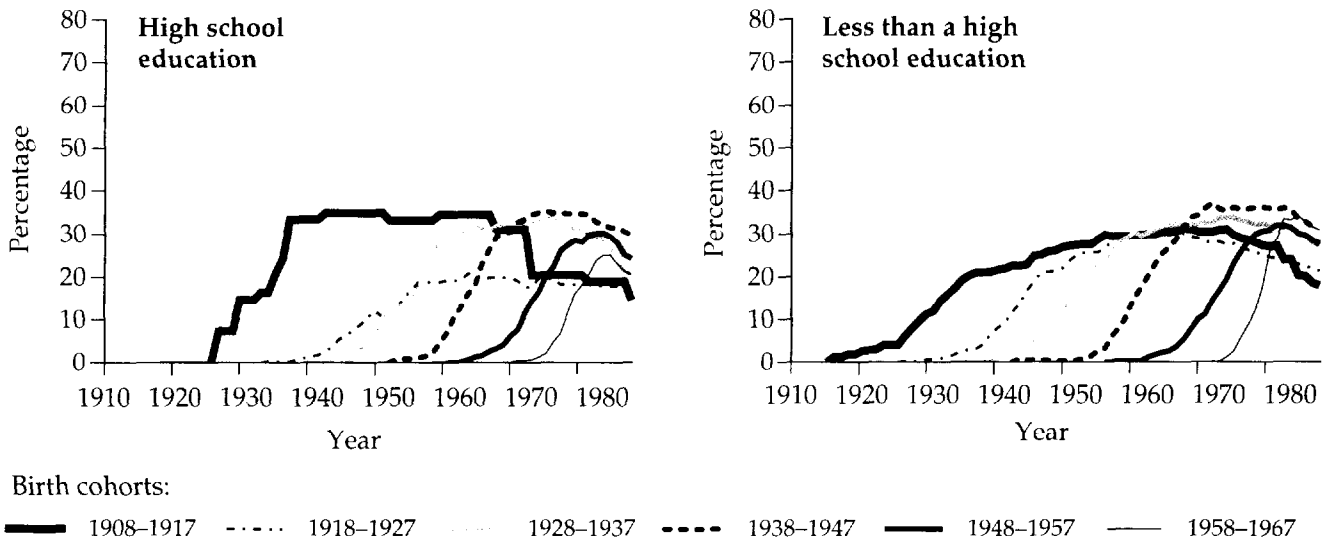
Figure 9. Cigarette smoking prevalence among successive birth cohorts of Hispanic men, by education, Hispanic Health and Nutrition Examination Survey, 1982–1984*



*Because these birth cohort curves are the result of calculations of smoking prevalence for each year from birth to interview, they provide information about the smoking prevalence of each cohort during childhood, adolescence, and adulthood.

Sources: National Center for Health Statistics, public use data tapes, 1982–1984; Escobedo and Peddicord 1996.

Figure 10. Cigarette smoking prevalence among successive birth cohorts of Hispanic women, by education, Hispanic Health and Nutrition Examination Survey, 1982–1984*



*Because these birth cohort curves are the result of calculations of smoking prevalence for each year from birth to interview, they provide information about the smoking prevalence of each cohort during childhood, adolescence, and adulthood.

Sources: National Center for Health Statistics, public use data tapes, 1982–1984; Escobedo and Peddicord 1996.