Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Weekly / Vol. 65 / No. 30
August 5, 2016

Disparities in Adult Cigarette Smoking — United States, 2002–2005 and 2010–2013

Brandi N. Martell, MPH[1]; Bridgette E. Garrett, PhD[1]; Ralph S. Caraballo, PhD[1]

Although cigarette smoking has substantially declined since the release of the 1964 Surgeon General's report on smoking and health,* disparities in tobacco use exist among racial/ethnic populations (*1*). Moreover, because estimates of U.S. adult cigarette smoking and tobacco use are usually limited to aggregate racial or ethnic population categories (i.e., non-Hispanic whites [whites]; non-Hispanic blacks or African Americans [blacks]; American Indians and Alaska Natives [American Indians/Alaska Natives]; Asians; Native Hawaiians or Pacific Islanders [Native Hawaiians/Pacific Islanders]; and Hispanics/Latinos [Hispanics]), these estimates can mask differences in cigarette smoking prevalence among subgroups of these populations. To assess the prevalence of and changes in cigarette smoking among persons aged ≥18 years in six racial/ethnic populations and 10 select subgroups in the United States,† CDC analyzed self-reported data collected during 2002–2005 and 2010–2013 from the National Survey on Drug Use and Health (NSDUH) (*2*) and compared differences between the two periods. During 2010–2013, the overall prevalence of cigarette smoking among the racial/ethnic populations and subgroups ranged from 38.9% for American Indians/Alaska Natives to 7.6% for both Chinese and Asian Indians. During 2010–2013, although cigarette smoking prevalence was relatively low among Asians overall (10.9%) compared with whites (24.9%), wide within-group differences in smoking prevalence existed among Asian subgroups, from 7.6% among both Chinese and Asian Indians to 20.0% among Koreans. Similarly, among Hispanics, the overall prevalence of current cigarette smoking was 19.9%; however, within Hispanic subgroups, prevalences ranged from 15.6% among Central/South Americans to 28.5% among Puerto Ricans. The overall prevalence of cigarette smoking was higher among men than among women during both 2002–2005 (30.0% men versus 23.9% women) and 2010–2013 (26.4% versus 21.1%) ($p<0.05$). These findings highlight the importance of disaggregating tobacco use estimates within broad racial/ethnic population categories to better understand and address disparities in tobacco use among U.S. adults.

NSDUH is an annual household survey that collects data on drug use, drug use disorders, and tobacco use, from a nationally

* http://www.cdc.gov/tobacco/data_statistics/sgr/2004/index.htm.

† The racial and ethnic populations and select subgroups include non-Hispanic whites; non-Hispanic blacks or African Americans; American Indians/Alaska Natives; Native Hawaiians/Other Pacific Islanders; Chinese; Filipino; Japanese; Asian Indian; Koreans; Vietnamese; Mexicans; Puerto Ricans; Central/South Americans; and Cubans.

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representative sample of the U.S. noninstitutionalized, civilian population aged ≥12 years. To obtain a sample size large enough to examine current cigarette smoking[§] within disaggregated racial/ethnic subgroups, multiple years of data were combined; estimates for adults aged ≥18 years were based on combined data from 2002–2005 (N = 180,833) and 2010–2013 (N = 183,623). The average, weighted, overall response rate for respondents aged ≥18 years was 69.0% for the 2002–2005 NSDUH surveys and 62.4% for the 2010–2013 surveys.

Race/ethnicity was determined based on respondents' self-reported classification. For race, respondents were asked, "Which of these groups best describes you?" Response selections were "white"; "black or African American"; "American Indian or Alaska Native"; "Native Hawaiian"; "other Pacific Islander"; "Asian"; and "other." Persons who indicated that they were Asian were also asked to select the specific subgroup (Chinese, Filipino, Japanese, Asian Indian, Korean, or Vietnamese) that best described them. Because of small sample size, the "Native Hawaiian" and "other Pacific Islanders" populations were combined.[¶] To identify Hispanic ethnicity, respondents were asked, "Are you of Hispanic, Latino, or Spanish origin or descent?" Those who answered affirmatively were also asked to select the specific Hispanic origin subgroup (Mexican, Puerto Rican, Central or South American, or Cuban) that best described them. In this report, whites and blacks refer to non-Hispanic whites and non-Hispanic blacks, respectively.

Data were weighted to yield national estimates[**]; 95% confidence intervals were calculated for all point estimates. Sex differences in current cigarette smoking within each racial/ethnic population during each time period and across years were assessed using a t-test, with p-values <0.05 defined as statistically significant.[††]

Seven racial/ethnic populations/subgroups (whites, blacks, American Indians/Alaska Natives, Native Hawaiians/Pacific Islanders, Koreans, Puerto Ricans, and Cubans) reported an overall cigarette smoking prevalence of ≥25% during 2002–2005; however, only two of these populations/subgroups (American Indians/Alaska Natives [38.9%] and Puerto Ricans [28.5%]) had cigarette smoking prevalences ≥25% during 2010–2013 (Table). Among six racial/ethnic populations/subgroups (whites, blacks, Native Hawaiians/ Pacific Islanders, Asian Indians, Mexicans, and Central/South Americans), a significant decline in prevalence of cigarette smoking from 2002–2005 to 2010–2013 was reported. No significant differences were observed among the other groups (American Indians/Alaska Natives, Chinese, Filipinos, Japanese, Koreans, Vietnamese, Puerto Ricans, and Cubans).

[§] Current cigarette smokers were persons who reported smoking part or all of a cigarette on at least one day within the past 30 days.

[¶] For this analysis, all Hispanics are included in the Hispanic group, regardless of race; all other race/ethnicity categories excluded Hispanics.

[**] Overall estimates included persons identifying as being of more than one of the listed races; however, these persons were excluded in the specific racial/ethnic subgroup analyses.

[††] Estimates with relative standard error >17.5% were excluded.

The *MMWR* series of publications is published by the Center for Surveillance, Epidemiology, and Laboratory Services, Centers for Disease Control and Prevention (CDC), U.S. Department of Health and Human Services, Atlanta, GA 30329-4027.

Suggested citation: [Author names; first three, then et al., if more than six.] [Report title]. MMWR Morb Mortal Wkly Rep 2016;65:[inclusive page numbers].

TABLE. Past 30-day cigarette use among persons aged ≥18 years, by race/ethnicity and sex — National Survey on Drug Use and Health, United States, 2002–2005 and 2010–2013

Ethnicity/Race	Men		Women		Total	
	2002–2005 (n = 84,429) % (95% CI)	2010–2013 (n = 86,226) % (95% CI)	2002–2005 (n = 96,404) % (95% CI)	2010–2013 (n = 97,397) % (95% CI)	2002–2005 (N = 180,833) % (95% CI)	2010–2013 (N = 183,623) % (95% CI)
Not Hispanic/Latino*	30.0†,§ (29.5–30.5)	26.7§ (26.2–27.2)	24.8† (24.3–25.3)	22.2 (21.7–22.7)	**27.3† (26.9–27.7)**	**24.3 (24.0–24.7)**
White	29.7†,§ (29.1–30.3)	26.6§ (26.0–27.2)	25.9† (25.3–26.4)	23.3 (22.8–23.9)	**27.7† (27.3–28.2)**	**24.9 (24.5–25.3)**
Black/African American	33.6†,§ (32.0–35.3)	29.9§ (28.5–31.3)	22.8† (21.6–24.1)	20.9 (19.6–22.1)	**27.6† (26.6–28.7)**	**24.9 (24.0–25.9)**
American Indian/ Alaska Native	39.3 (32.9–46.1)	40.8 (34.4–47.4)	35.2 (30.0–40.8)	37.3 (32.2–42.7)	**37.1 (32.9–41.4)**	**38.9 (34.7–43.2)**
Native Hawaiian/ Other Pacific Islander	35.9 (26.8–46.0)	27.0 (19.2–36.5)	26.6 (20.0–34.5)	18.5 (13.0–25.7)	**31.4† (25.4–38.0)**	**22.8 (17.8–28.8)**
Asian*	21.6†,§ (19.2–24.2)	16.2§ (14.3–18.4)	8.1† (6.8–9.6)	6.2 (5.3–7.4)	**14.5† (13.1–16.0)**	**10.9 (9.8–12.0)**
Chinese	13.9§ (10.4–18.3)	13.1§ (9.1–18.5)	4.6 (2.8–7.4)	2.9 (1.8–4.7)	**8.8 (6.9–11.3)**	**7.6 (5.6–10.3)**
Filipino	25.5§ (19.5–32.5)	20.6§ (14.9–27.8)	10.2 (7.2–14.4)	7.5 (5.3–10.6)	**16.7 (13.7–20.2)**	**12.6 (9.8–16.0)**
Japanese	17.2§ (11.7–24.6)	—¶	8.0 (5.1–12.1)	5.9 (3.2–10.7)	**12.1 (9.2–15.8)**	**10.2 (6.0–16.7)**
Asian Indian	19.0†,§ (14.1–25.2)	11.6§ (9.3–14.3)	3.4 (2.3–5.2)	3.3 (1.9–5.6)	**11.8† (8.9–15.4)**	**7.6 (6.1–9.4)**
Korean	37.4†,§ (28.2–47.6)	19.3 (12.7–28.1)	20.1 (14.1–27.8)	20.4 (14.2–28.6)	**26.6 (21.3–32.7)**	**20.0 (15.2–25.8)**
Vietnamese	32.5§ (24.6–41.5)	24.4§ (16.8–34.0)	8.0 (4.4–14.0)	7.9 (4.2–14.2)	**21.5 (16.4–27.7)**	**16.3 (11.9–21.8)**
Hispanic*	30.1†,§ (28.6–31.6)	25.1§ (23.9–26.3)	17.5† (16.3–18.7)	14.7 (13.7–15.7)	**23.9† (23.0–24.9)**	**19.9 (19.1–20.7)**
Mexican	31.0†,§ (29.2–32.8)	25.1§ (23.7–26.6)	15.7† (14.4–17.2)	12.9 (11.8–14.0)	**23.8† (22.6–24.9)**	**19.1 (18.2–20.1)**
Puerto Rican	35.6§ (30.2–41.3)	32.1§ (27.9–36.6)	28.0 (23.9–32.5)	25.1 (21.3–29.3)	**31.5 (28.0–35.2)**	**28.5 (25.8–31.4)**
Central or South American	25.3†,§ (21.9–29.1)	19.8§ (16.6–23.4)	14.7 (11.9–18.0)	11.4 (8.9–14.4)	**20.2† (18.0–22.6)**	**15.6 (13.5–18.0)**
Cuban	29.3 (23.3–36.0)	24.1§ (19.0–30.2)	21.5 (15.6–28.9)	15.1 (11.6–19.4)	**25.2 (21.0–30.0)**	**19.8 (16.5–23.6)**

Abbreviation: CI = confidence interval.
* Totals include data on respondents who reported being of racial or ethnic subgroups not shown and on respondents who reported being of more than one racial or ethnic group.
† Difference between estimates for 2002–2005 and 2010–2013 is statistically significant (p≤0.05).
§ Difference between estimates for men and women in the same racial/ethnic group is statistically significant (p≤0.05).
¶ Low precision (relative standard error >17.5%); no estimate reported.

Smoking prevalence among Asians overall during 2010–2013 was 10.9%. Within-group differences in smoking prevalence existed among Asian subgroups, ranging from 7.6% among Chinese and Asian Indians to 20.0% among Koreans (Figure 1). Significant differences in smoking prevalence between men and women in the following four Asian subgroups were noted: Chinese (13.1% men versus 2.9% women), Filipino (20.6% versus 7.5%), Asian Indian (11.6% versus 3.3%), and Vietnamese (24.4% versus 7.9%). Smoking prevalence was similar among Korean men (19.3%) and women (20.4%).[§§] Similarly, among Hispanics, the overall prevalence of current cigarette smoking was 19.9%; however, within Hispanic subgroups, prevalence ranged from 15.6% among Central/South Americans to 28.5% among Puerto Ricans (Figure 2). Differences between men and women were significant for all Hispanic subgroups: Mexicans (25.1% men versus 12.9% women), Puerto Ricans (32.1% versus 25.1%), Central or South Americans (19.8% versus 11.4%), and Cubans (24.1% versus 15.1%) (p<0.05).

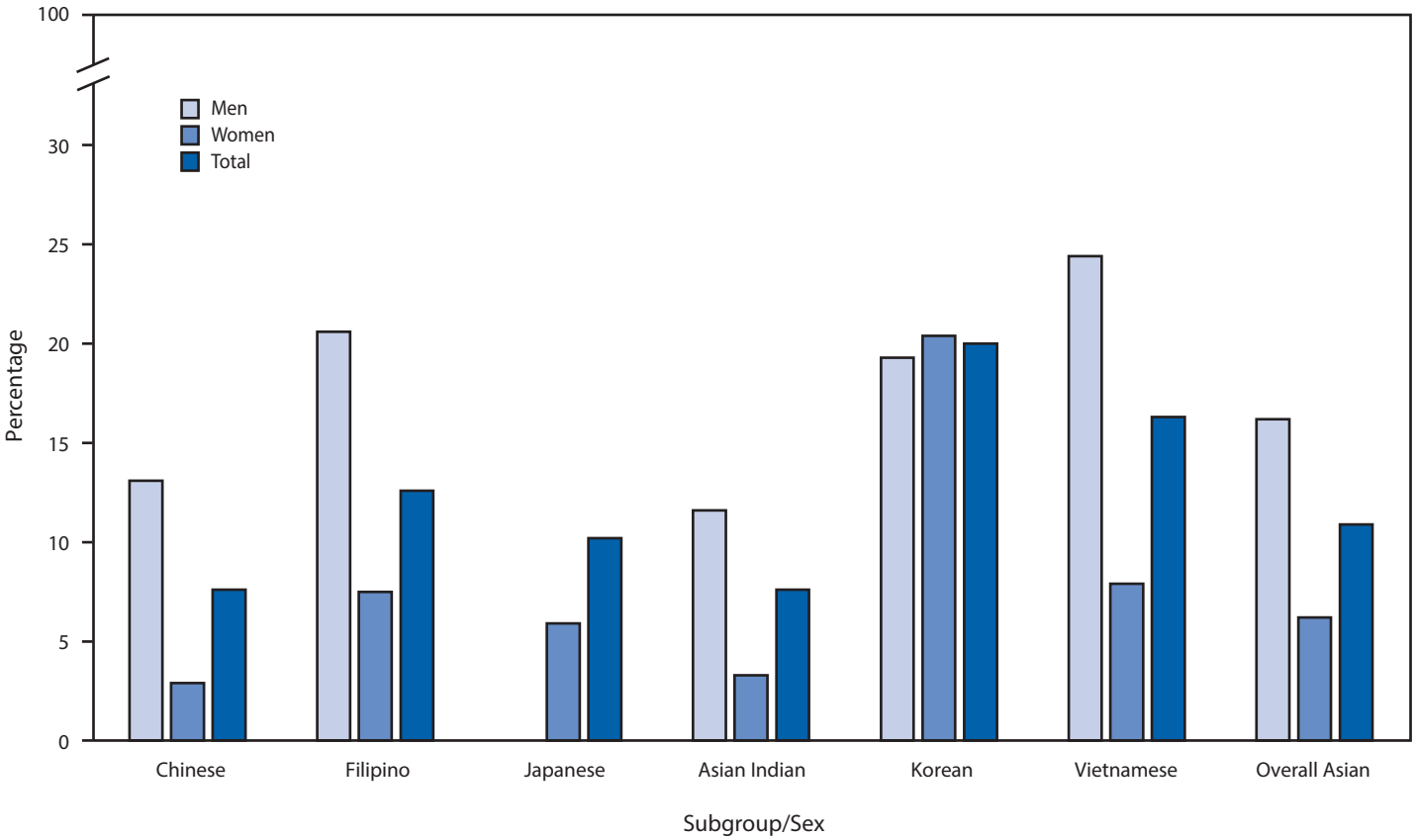
Among men, six populations/subgroups (whites, blacks, Asian Indians, Koreans, Mexicans, and Central/South Americans) reported a significantly lower prevalence of cigarette smoking during 2010–2013 than during 2002–2005; no significant changes were observed for men in other groups. Among women, a significant decline in cigarette smoking from the period 2002–2005 to the period 2010–2013 occurred in three populations/subgroups (whites, blacks, and Mexicans), with no significant changes among women in other ethnic groups. The overall prevalence of cigarette smoking was higher among men than among women during both 2002–2005 (30.0% men versus 23.9% women) and 2010–2013 (26.4% versus 21.1%) (p<0.05). During 2010–2013, among 10 racial/ethnic populations/subgroups (white, black, Chinese, Filipino, Japanese, Asian Indian, Vietnamese, Mexican, Puerto Rican, and Central/South American) men reported statistically higher cigarette smoking prevalence than did women. No significant sex differences in cigarette smoking prevalence was reported among American Indians/Alaska Natives (40.8% men and 37.3% women), Native Hawaiians/Pacific Islanders (27.0% men and 18.5% women), and Koreans (19.3% men and 20.4% women).

Discussion

Although substantial progress has been made in reducing overall cigarette smoking prevalence among U.S. adults (*3*,*4*), disparities exist among racial/ethnic populations, including

[§§] No estimate is reported for Japanese men because of low precision of data (relative standard error >17.5%).

FIGURE 1. Past 30-day cigarette use among persons aged ≥18 years, by Asian subgroup*,† and sex§ — National Survey on Drug Use and Health, United States, 2010–2013



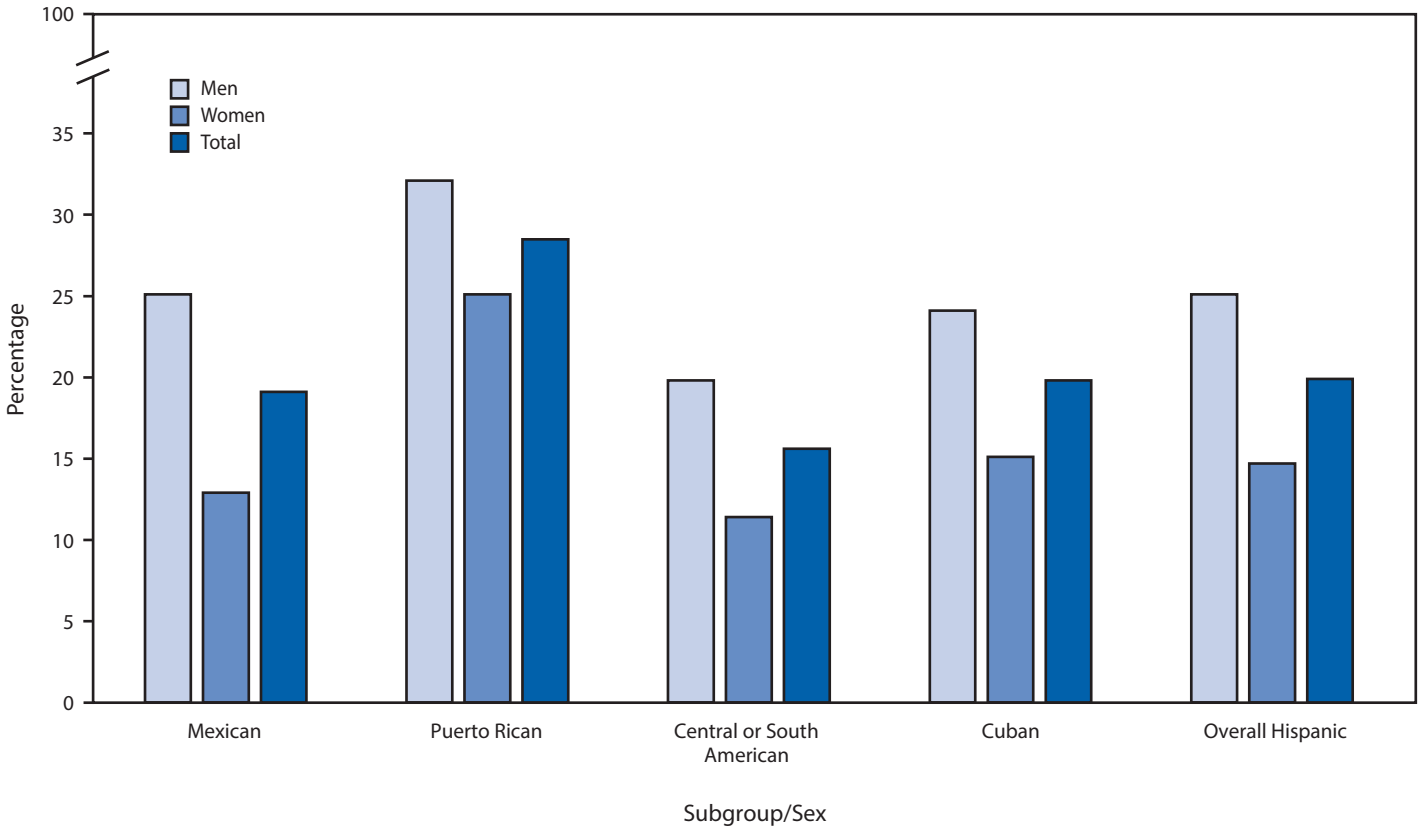
* Totals include data on respondents who reported being of racial or ethnic subgroups not shown and on respondents who reported being of more than one racial or ethnic group.
† No estimate reported for Japanese men because of low precision of data (relative standard error >17.5%).
§ Differences between estimates for men and women in the same racial/ethnic subgroup was statistically significant at the 0.05 level for the following subgroups: Chinese, Filipino, Asian Indian, Vietnamese, and Overall Asian.

disproportionately higher smoking prevalence in some racial/ethnic populations, and wide within-group variations. The highest prevalence of cigarette smoking was observed among American Indians/Alaska Natives, for whom no decline was observed during the assessed period; in addition, no significant changes were observed among Chinese, Filipino, Japanese, Korean, Vietnamese, Puerto Rican, and Cuban adults.

National estimates of cigarette smoking prevalence among U.S. racial/ethnic populations are often reported as aggregate estimates, which can obscure within-group disparities. For example, the findings in this report indicate substantial disparities in adult cigarette smoking among and within Asian and Hispanic populations, with Koreans and Puerto Ricans reporting the highest cigarette smoking prevalences within their respective racial/ethnic populations. These differences might be caused, in part, by variations in socioeconomic status, acculturation, targeted advertising, price of tobacco products, and practices related to the acceptability of tobacco use across population groups (*1*). In addition, these findings indicate disproportionately higher smoking prevalences among men compared with women within racial/ethnic groups. These differences underscore the importance of implementation of evidence-based strategies to reduce tobacco use among all population groups, particularly those with the highest prevalence (*1*).

The findings in this report are subject to at least five limitations. First, respondents were able to complete the interview only in English or Spanish, which might have resulted in misreporting or nonresponse among persons who do not speak either language. Second, cigarette use was self-reported and might have been subject to misreporting; however, studies have found that self-reported cigarette smoking correlates highly with biochemical tests such as serum cotinine, irrespective of race/ethnicity (*5*). Third, because NSDUH does not include institutionalized populations and persons in the military, results

FIGURE 2. Past 30-day cigarette use among persons aged ≥18 years, by Hispanic subgroup* and sex† — National Survey on Drug Use and Health, United States, 2010–2013



* Totals include data on respondents who reported being of racial or ethnic subgroups not shown and on respondents who reported being of more than one racial or ethnic group.
† Differences between estimates for men and women in the same racial/ethnic subgroup was statistically significant at the 0.05 level for all subgroups, including Overall Hispanic.

might not be generalizable to these groups. Fourth, the results from this study did not report variations in cigarette smoking prevalence among all racial/ethnic populations because the U.S. Census does not identify subgroups for whites, blacks and American Indians/Alaska Natives. However, regional differences in cigarette smoking prevalence among American Indians/Alaska Natives exist. For example, cigarette smoking is higher among American Indians living in the Northern Plains region, as well as among Alaska Natives living in Alaska compared with American Indians living in the Southwest (*6*). Finally, these estimates might differ from results from other surveillance systems. For example, cigarette smoking prevalence estimates from the National Health Interview Survey tend to be consistently lower each year than those estimated by the NSDUH (*7*). Differences in prevalence between the National Health Interview Survey and NSDUH can be partially explained by differing survey methodologies, types of surveys administered, and definitions of current smoking; however, trends in prevalence are comparable across surveys.

Reducing the overall prevalence of cigarette smoking among U.S. adults to the Healthy People 2020 target of ≤12%¶¶ can be achieved through the implementation and enforcement of evidence-based tobacco control initiatives. Proven interventions, including increasing the price of tobacco products coupled with evidence-based cessation services, comprehensive smoke-free policies, media campaigns, and promotion of cessation treatment in clinical settings, are effective in reducing tobacco use and tobacco-related disease and death in all racial/ethnic populations (*8*,*9*). If broadly implemented and enforced, these interventions could also reduce tobacco-related health disparities (*8*–*10*). In addition, opportunities exist to involve members of racial/ethnic communities in expanded tobacco control activities for specific populations, such as conducting linguistically and culturally competent educational campaigns.

¶¶ Objective TU-1.1 (https://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use/objectives).

[1]Office on Smoking and Health, National Center for Chronic Disease Prevention and Health Promotion, CDC.

Corresponding author: Brandi N. Martell, bmartell@cdc.gov, 770-488-3787.

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Summary

What is already known about this topic?

Although cigarette smoking has substantially declined since 1964, disparities in tobacco use varies among racial/ethnic populations. Estimates of U.S. adult cigarette smoking prevalence and tobacco use are usually limited to aggregate racial/ethnic population categories.

What is added by this report?

From the period 2002–2005 to the period 2010–2013, declines in cigarette smoking occurred among some racial/ethnic populations. Moreover, the relative change in smoking even among groups that did experience a decline varied across racial/ethnic populations. Substantial disparities in adult cigarette smoking prevalence exist among and within Asian and Hispanic subgroups, with Koreans and Puerto Ricans reporting the highest cigarette smoking prevalences within their respective racial/ethnic population. These findings indicate disproportionately higher smoking prevalence among men compared with women within most racial/ethnic groups.

What are the implications for public health practice?

Disparities in smoking prevalence exist among racial/ethnic populations, and several racial/ethnic populations have disproportionately higher prevalences of smoking and wide within-group variations. Proven interventions, including increasing the price of tobacco products coupled with evidence-based cessation services, comprehensive smoke-free policies, media campaigns, and promotion of cessation treatment in clinical settings, are effective strategies in reducing the overall prevalence of tobacco use and tobacco-related disease and death.