



Tobacco use among Asian Americans, Native Hawaiians/Pacific Islanders, and mixed-race individuals: 2002–2010

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ABSTRACT

Background: Non-Hispanic Asian Americans, Native Hawaiians/Pacific Islanders (NHs/Pis), and mixed-race individuals are the fastest growing segments of the US population. We examined prevalences and correlates of tobacco use among these understudied groups. Prevalences among whites were included as a comparison.

Methods: Data were drawn from the 2002–2010 National Surveys on Drug Use and Health. Respondents aged ≥ 12 years were assessed for current (past-month) use of cigarettes, cigars, smokeless tobacco (chewing tobacco, snuff), and pipe tobacco. Respondents' race/ethnicity, age, sex, household income, government assistance, urbanicity of residence, residential stability, self-rated health, alcohol use, and drug use were examined as correlates.

Results: Between 2002 and 2010, there was a decline in the prevalence of cigarette smoking among whites (26.9% in 2002; 24.3% in 2010) and Asian Americans (18.0% in 2002; 11.1% in 2010). Prevalence of pipe tobacco use among mixed-race individuals increased from 0.2% in 2002 to 1.6% in 2010; there was little change in the prevalence of cigar and smokeless tobacco use in these racial/ethnic groups. Adjusted analyses showed that, compared with Asian Americans, mixed-race individuals had greater odds of using four tobacco products, and NHs/Pis had greater odds of using cigarettes, cigars, and smokeless tobacco. Regardless of race/ethnicity, male sex was a correlate of use of cigars, smokeless tobacco, and pipe tobacco; alcohol and drug use increased the odds of cigarette and cigar smoking.

Conclusions: These new findings show prevalent tobacco use among NHs/Pis and mixed-race individuals, and highlight the importance of including these populations in future research and reporting.

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1. Introduction

The 2010 census reveals that Asian Americans (14.7 million; 4.8% of the US population), Native Hawaiians/Pacific Islanders (NHs/Pis, 0.5 million; 0.2%), and mixed-race persons or people of multiple races (9.0 million; 2.9%) are the fastest growing US populations (Hoeffel et al., 2012; US Census Bureau, 2011). Growth rates of these racial/ethnic populations (32.0–43.3%) were about three times greater than that of the total US population (9.7%). Of all mixed-race individuals in 2010, 83% were white in combination with ≥ 1 other race (black, Hispanic, Asian American, NH/PI, native American); NHs/Pis, Asian Americans, and native Americans were more likely than other nonwhites to be mixed-race individuals (US Census Bureau, 2011). Recognizing the need to improve

health statistics to inform health policy, the Office of Management and Budget issued standards in 1997 to call for separating Asian Americans and NHs/Pis in reports on race/ethnicity for federal data sources. In 2000, the US census started the collection of mixed-race status (Srinivasan and Guillermo, 2000). However, these standards have not been completely used in federal sources, and they do not apply to nonfederal sources. Mixed-race individuals have often been omitted from reports; Asian Americans and NHs/Pis have frequently been pooled as “others,” making the results less interpretable. Thus, there are limited epidemiological data on the use of tobacco products for these populations, especially mixed-race individuals (Centers for Disease Control and Prevention [CDC], 2011, 2012a; US Department of Health and Human Services [USDHHS], 2000).

Tobacco use is the single most preventable cause of diseases, disabilities, and deaths in the United States. Half of cigarette smokers who continue to smoke are estimated to die prematurely from smoking-related causes; the remaining users may suffer from nicotine-related diseases (CDC, 2008; USDHHS, 2012). Use of non-cigarette tobacco (cigars, pipe, chewing, snuff tobacco) also confers

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a high risk for cancer, cardiovascular, and respiratory diseases (Akl et al., 2011; Levitz et al., 2004; Sarna et al., 2003). Tobacco use prevalences hence are among the leading indicators of national health in the Healthy People reports. To improve the health for the whole US population, the Healthy People initiatives have been implemented to identify and eliminate health disparities (USDHHS, 2000). Due to the scarcity of reliable population-based data on use of noncigarette tobacco products for Asian Americans, NHs/PIs, and mixed-race individuals, evaluations of disparities in tobacco use have relied mainly on cigarette smoking data (CDC, 2011, 2012b; USDHHS, 2000). The new targets of Healthy People 2020 include reducing tobacco use prevalences among adults from 20.6% to 12.0% for cigarette smoking, from 2.3% to 0.3% for smokeless tobacco, and from 2.2% to 0.2% for cigar use by 2020. Given the increasing size of these populations, population-based data on the trends, prevalences, and correlates of use of these tobacco products are needed to gauge the extent of tobacco use and to guide research and evaluation of tobacco-related disparities for these understudied populations (Ryskulova and Keppel, 2011).

Specifically, community-based studies have regularly reported tobacco use prevalences for whites, blacks, and Hispanics, but the sample size from a single study is frequently too small to generate reliable results of noncigarette tobacco use for Asian Americans, NHs/PIs, and mixed-race individuals (CDC, 2012b; Johnston et al., 2012). For example, monitoring the future studies have not regularly tracked tobacco use for Asian Americans, NHs/PIs, and mixed-race individuals (Johnston et al., 2012). Prevalences of current cigarette smoking in the United States have decreased in adults (24% in 1998; 21% in 2008) and adolescents (35% in 1999; 19% in 2009); declines are noted for whites, blacks, and Hispanics (CDC, 2011; Johnston et al., 2012). However, there are limited data to evaluate the trend in tobacco use by Asian Americans, NHs/PIs, and mixed-race individuals. In the past decade, cigarette sales have declined, but sales of noncigarette tobacco (cigar, snuff) have increased (Connolly and Alpert, 2008). The tobacco industry has been aggressively promoting tobacco use by spending \$8.05 billion in 2010 on cigarette marketing and \$444.2 million on smokeless tobacco advertisements to attract new users and retain existing users (US Federal Trade Commission, 2012a,b). New smokeless, oral tobacco products are perceived as less harmful than cigarettes (Choi et al., 2012; Tomar and Hatsukami, 2007); they can circumvent smoke-free policies, decrease tobacco cessation efforts, and promote tobacco use, leading to addiction, cardiovascular disease, and oral cancer risk (Ebbert et al., 2004; Rankin et al., 2010).

There has been a rise in noncigarette tobacco advertising, including smokeless tobacco and cigar use videos in social media (Bromberg et al., 2012; CDC, 2011; Richardson and Vallone, 2012). Recent findings show elevated odds of cigar use among young adults and “other races” (pooling NHs/PIs, mixed-race individuals, and others; King et al., 2012). Emerging data also indicate an increased popularity of pipe tobacco smoking, which also increases cancer risk (Tverdal and Bjartveit, 2011; Wald and Watt, 1997). All these findings point to an elevated use of noncigarette tobacco; however, little is known about the prevalences, trends, and correlates of use of various tobacco products among Asian Americans, NHs/PIs, and mixed-race individuals.

Given the lack of specific tobacco use data among Asian Americans, NHs/PIs, and mixed-race individuals to inform research, intervention, and health policy, we examined national trends in prevalence of tobacco use (cigarettes, cigars, smokeless tobacco, pipe tobacco), and determined their correlates of use among non-Hispanic Asian Americans, non-Hispanic NHs/PIs, and non-Hispanic mixed-race individuals. To address the small sample size issue limiting prior analyses of these groups, we used data from the largest national surveys of substance use – National Survey on Drug Use and Health (NSDUH) – and aggregated

2002–2010 data. This enabled us to generate estimates for correlates of tobacco use to inform prevention foci. We examined all respondents aged ≥ 12 years to provide a fuller picture on age-related changes in use of different tobacco products. Whites are often used as a reference group for racial/ethnic disparity; their tobacco use prevalences were included for comparison (CDC, 2011).

2. Methods

2.1. Data source

NSDUH is the only survey designed to provide ongoing national estimates of substance use in the United States (Substance Abuse and Mental Health Services Administration [SAMHSA], 2003, 2011). For the 2002–2010 surveys, from which we used data, the sampling frame covered approximately 98% of the noninstitutionalized US population aged ≥ 12 years and used multistage area probability sampling methods to select a representative sample of the civilian, noninstitutionalized population. The target population included residents of households from the 50 states (including shelters, rooming houses, and group homes) and civilians residing on military bases. The design oversampled people aged 12–25 years. Due to a large sample size, there was no need to oversample racial/ethnic groups as was done prior to 1999.

Respondents were interviewed at their home for about an hour. Prospective respondents were assured that their names would not be recorded and their responses would be kept strictly confidential. All study procedures and protections were carefully explained. To increase respondents' willingness to report substance use honestly, NSDUH used a combination of computer-assisted personal interviewing for sociodemographic questions and audio computer-assisted self-interviewing methodologies for substance use questions of a sensitive nature. The latter allowed respondents to either read the questions silently on a computer screen or to listen to the questions read aloud by the computer through headphones, and then entered their responses directly into a computer provided by the interviewer.

NSDUH's annual sample of respondents was considered representative of the US general population aged ≥ 12 years. To include sufficient numbers of Asian Americans, NHs/PIs, and mixed-race individuals for detecting meaningful racial/ethnic differences in tobacco use, we pooled the public use data files ($N=500,914$) from 2002–2010 ($n=54,079-57,873$ /yearly). These years used similar designs, allowing use of pooled samples for the analysis of the same variables (SAMHSA, 2003, 2011). Weighted response rates for household screening and interviewing were 89–90% and 73–79%, respectively, for these years. The aggregate sample included 16,678 Asian Americans, 2310 NHs/PIs, 13,960 mixed-race individuals, and 322,550 whites.

2.2. Study variables

Respondents' age, sex, self-reported race/ethnicity, annual household income, government assistance, urbanicity of residence (large, small, nonmetropolitan area), and residential stability (“How many times in the past 12 months have you moved?”) were examined. Race was evaluated separately from ethnicity. Four mutually exclusive racial/ethnic groups were examined: non-Hispanic white, non-Hispanic Asian American, non-Hispanic NH/PI, and mixed-race individuals (≥ 2 races). The data do not distinguish between specific racial/ethnic groups of mixed-race individuals. Government assistance included participation in any government assistance programs (e.g., supplemental security income, food stamps, cash assistance). To control for differences in socioeconomic and residential factors related to race/ethnicity, annual household income, government assistance status, urbanicity of residence, and residential stability were included as control variables in the adjusted analysis (Duncan et al., 2002; USDHHS, 2000; Wilson and Donnermeyer, 2006).

Tobacco use included use of cigarettes, chewing tobacco (coarsely shredded tobacco that is sold in pouches of loose leaves or in a “plug” or “twist” form), snuff or dip (a finely ground form of tobacco that usually comes in a container called a tin), cigars (including cigarillos), and pipe tobacco. We examined current use (in the past month) to reflect active use (CDC, 2012b). Smokeless tobacco included chewing tobacco and snuff or dip (including use of snus from tobacco brand questions). Any current tobacco use included past-month use of any cigarettes, smokeless tobacco, or pipe tobacco.

The survey instrument also assessed each respondent's use of alcohol as well as illicit or nonmedical use of nine drug classes (marijuana/hashish, cocaine/crack, heroin, hallucinogens, inhalants, prescription opioids, stimulants, tranquilizers, sedatives). Past-year use of alcohol and past-year use of drugs were included in the analysis as control variables to adjust for their confounding effects on the associations between tobacco use and race/ethnicity.

Self-rated health was assessed by the widely supported measure of general health (“Would you say your health in general is excellent, very good, good, fair, or poor?”), which was associated with substance use and minority status (Smith et al., 2010; Vingilis et al., 1998). It was included as a control variable.

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